

An aerial photograph of a tall, white, lattice-structured electricity pylon standing in a dense green forest. Several power lines extend from the pylon across the canopy. The text is overlaid on the top left of the image.

Yorkshire GREEN Project

Environmental Impact Assessment
Scoping Report
March 2021

nationalgrid

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Yorkshire GREEN Project

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Glossary

Term	Definition
2TW/YR 400kV overhead line	Existing 400kV overhead line running between Norton and Osbaldwick.
Abnormal Indivisible Loads (AIL)	Large loads to be delivered to the construction site which by their nature cannot be broken into smaller multiple deliveries.
Above Ordnance Datum (AOD)	An Ordnance Datum or OD is a vertical datum used by an ordnance survey as the basis for deriving altitudes on maps. A spot height may be expressed as AOD. Usually mean sea level is used for the datum.
Accidents and safety	In the context of traffic and transport, the risk of accidents occurring where the Project is expected to produce a change in the character of traffic.
Acoustic environment	The sound with contribution from all sources, as modified by the current environment and associated conditions. This is related to the ambient sound, which is the totally encompassing sound in a given situation at a given time, usually composed of sound from many sources near and far.
Acute health effect	An adverse health effect that manifests itself immediately or shortly after exposure to a causative factor (e.g. soil contamination). Associated with short-term exposures.
Additional measures	Further measures required in order to achieve the anticipated outcome. These may be implemented as part of the development consent or through inclusion in the ES. These are referred to as 'secondary measures' in accordance with Institute of Environmental Management and Assessment (IEMA) guidelines.
Agricultural Land Classification (ALC)	A standardised method for classifying agricultural land according to its versatility, productivity, and workability, based upon inter-related parameters including climate, relief, soil characteristics and drainage. These factors form the basis for classifying agricultural land into one of five grades (with Grade 3 land divided into Subgrades 3a and 3b), ranked from excellent (Grade 1) to very poor (Grade 5). ALC is determined using the MAFF Agricultural Land Classification of England and Wales: Revised guidelines and criteria for grading the quality of agricultural land, 1988.
Air Quality Management Areas (AQMAs)	If a local authority finds any places where the Air Quality Objectives (AQO) are not likely to be achieved, it must declare an AQMA there. This area could be just one or two streets, or it could be much bigger. Then the local authority will put together a plan to improve the air quality - a Local Air Quality Action Plan (AQAP).

Term	Definition
Air Quality Objectives (AQO)	The AQOs are policy targets often expressed as a maximum ambient concentration not to be exceeded, either without exception or with a permitted number of exceedances, over a specified averaging period.
Air Quality Standards (AQS)	The AQS Regulations report limit values at differing averaging periods for certain pollutants. There are limits provided for the protection of human health for SO ₂ , NO ₂ , Benzene, CO and Pb. Target values have been set for the concentration of PM _{2.5} .
Annex 1 habitat	Annex 1 Habitat refers to a habitat as defined under the EU Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora.
Archaeological Interest	A heritage asset with value from the potential to hold evidence about the past that can be retrieved through specialist investigation.
Architectural/Artistic Interest	A heritage asset with value from contemporary appreciation of a heritage asset's aesthetics.
Area of Outstanding National Beauty (AONB)	An AONB is land protected by the Countryside and Rights of Way Act 2000 (CROW Act). It protects the land to conserve and enhance its natural beauty.
Artificial ground	Deposits that have accumulated or been placed through human activity.
Associated development	Development which is associated with a Nationally Significant Infrastructure Project (NSIP), as defined in the Planning Act 2008. It should be subordinate to, and necessary for, the construction and/or the effective operation of the NSIP that is the subject of the Development Consent Order (DCO) application.
Background sound/noise level	The A weighted sound pressure level that is exceeded by the residual sound at the assessment location for 90% of a given time interval, T, measured using time weighting F and quoted to the nearest whole number of decibels. This represents the underlying sound level in the absence of contributions from the sound source under assessment relating to the residual sound level but characterised by L _{A90,T} .
Baseline	The situation prevailing before the Project is commenced (the current baseline), and also to the situation that would prevail in the future without the Project (the projected future baseline).
Best and Most Versatile (BMV) agricultural land	Defined as land of excellent (ALC Grade 1), very good (Grade 2) and good (Subgrade 3a) agricultural quality. BMV agricultural land is afforded a degree of protection against development within planning policy.
Biodiversity Net Gain (BNG)	BNG is an approach to development which aims to leave nature in a better state than it was before the project was completed. National

Term	Definition
	Grid has made a commitment to delivering a BNG target of 10% above baseline on its development projects (as agreed with Ofgem).
Birds of Conservation Concern	Quantitative criteria are used to assess the population status of bird species found in the UK, which are placed on the red, amber or green list. With those on the red list being at most risk.
Bronze Age	-2,600 to -700
Cable Sealing End Compound (CSEC)	Electrical infrastructure used as the transition point between overhead lines and underground cables. A compound on the ground acts as the principal transition point.
Chronic health effect	An adverse health effect that occurs as a result of long-term regular or continuous exposure to a causative factor (e.g. soil contamination).
Construction Environmental Management Plan (CEMP)	The purpose of the CEMP is to outline how construction of the Project will avoid, minimise or mitigate effects on the environment and surrounding area. The CEMP will detail the implementation of measures in accordance with environmental commitments outlined in the ES. It is a 'live' document which is to be reviewed and updated at regular intervals throughout the Project life cycle.
Corridor	A broad area, within which a new overhead line could be routed.
Cumulative effects	There are two types of effect, in-combination effects and cumulative effects. The former occurs as a result of two or more impacts acting together (i.e. combined), to result in a new or changed effect on a single receptor. The latter arise as a result of the Project in combination with other large-scale developments or projects.
Decibel (dB)	Noise is conventionally measured in decibels (dB). The ratio between the quietest audible sound and the loudest tolerable sound is a million to one in terms of the change in sound pressure. Due to this wide range, a scale based on logarithms is used in noise level measurement. The scale used is the dB scale which extends from 0 to 140dB corresponding to the intensity of the sound pressure level.
Demographic	Relating to the structure of populations.
Development Consent Order (DCO)	Where the Secretary of State (SoS) proposes to grant consent for a NSIP, this will be through a DCO which is normally made as a statutory instrument – a form of secondary legislation. The DCO not only provides planning consent for the Project but may also incorporate other consents and include authorisation for the compulsory acquisition of land.
Direct effects	Direct effects are those that result directly from the Project.
Double tee	A connection from both circuits on either side of the same structure, creating a third and fourth circuit on another structure.

Term	Definition
Driver delay	Traffic delays to non-development traffic.
Dust	Generic term used to describe larger non-respirable airborne particulates (typically those which are deposited rapidly and normally associated with soiling / marking of property, cars, vegetation etc.).
Early Medieval	410 to 1066 CE
East Coast Main Line (ECML)	Electrified railway between London and Edinburgh.
Effects	For the purposes of the EIA and this Scoping Report, the term 'effects' are the consequences of changes (e.g. habitat becomes degraded by changes in drainage pattern).
Electricity System Operator (ESO)	Body required to support and guide the future development of the electricity transmission system in Britain.
Electricity transmission system	<p>The electricity transmission system is made up largely of 400kV, 275kV and 132kV assets connecting separately owned generators, interconnectors, large demands fed directly from the transmission system, and distribution systems. The 'transmission' classification applies to assets at 132kV or above in Scotland or offshore. In England and Wales, it relates to assets at 275kV and above.</p> <p>The electricity transmission system is designed to make sure there is sufficient transmission capacity to ensure that the system can be operated in an economic and efficient way by the ESO, ensuring power can be moved from where it is generated to demand centres across Britain. This planning and development of the electricity transmission system is governed by the Security and Quality of Supply Standard (SQSS) which ensure that the network is developed and operated securely and is resilient to any foreseeable network faults and disruption.</p>
Electromagnetic fields (EMF)	Electric fields are created by differences in voltage: the higher the voltage, the stronger will be the resultant field. Magnetic fields are created when electric current flows: the greater the current, the stronger the magnetic field. An electric field will exist even when there is no current flowing. If current does flow, the strength of the magnetic field will vary with power consumption but the electric field strength will be constant.
Embedded measures	Modifications to the location, design or operation of the development made during the pre-application phase that are an inherent part of the Project, and do not require additional action to be taken. These are referred to as 'primary measures' in accordance with IEMA guidelines and will be embedded within the design of the Project.
Environmental Gain (EG)	National Grid has defined 'Environmental Gain' with Ofgem as being an amalgam of BNG and the status of Natural Capital (NC). This sees a simple formula being used to calculate overall EG.

Term	Definition
Environmental Impact Assessment (EIA)	An EIA is a tool for systematically examining and assessing the impacts and effects of a development on the environment. The objective of the EIA is to identify any likely significant effects which may arise from the Project and identify measures to prevent, reduce or offset any adverse effects.
Environmental Statement (ES)	The outcome of the EIA process is reported within a document called an ES.
Fear and intimidation	In the context of traffic and transport, these may be experienced by people as a result of an increase in traffic volume and its proximity or the lack of protection caused by such factors as narrow pavement widths.
Flood Risk Assessment (FRA)	The FRA will assess the flood risk both to and from the Project and demonstrate how that flood risk will be managed over the Project's lifetime.
Future baseline	This is the theoretical situation that would exist in the absence of the Project. This is based upon extrapolating the current baseline using technical knowledge of likely changes over the identified period (for example anticipated habitat change over time, climate change projections, traffic and waste volume growth over time, etc.).
Future Energy Scenarios (FES)	Published annually by the ESO to indicate future power requirements and where future connections may occur across the network.
Good practice measures	Actions that would occur with or without input from the EIA feeding into the design process. These include actions that will be undertaken to meet other existing legislative requirements or actions that are considered to be standard practice used to manage commonly occurring environmental effects. These are referred to as 'tertiary measures' in accordance with the IEMA guidelines and would also be embedded within the design of the Project.
Graduated Swathes	Indicate the broad areas where the components of the new overhead lines forming part of the Project are likely to be located.
Ground dissolution (of limestone)	A reduction in the solid mass of rock as a result of groundwater dissolving it. This loss of mass can cause ground instability at the surface.
Ground gas	A general term to include all gases occurring and generated within the ground whether originating from Made Ground or from natural soil or rock. Typically used to mean only potentially hazardous ground gases, such as carbon dioxide, methane, hydrogen sulphide and carbon monoxide.
Habitat of Principal Importance (HPI)	HPI are covered under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006. The term is interchangeable

Term	Definition
	with 'UK Priority BAP Habitat', 'Section 41 habitat' and 'NERCs41 habitat'.
Habitats Regulations Assessment (HRA)	A HRA refers to the several distinct stages of Assessment which must be undertaken in accordance with the Conservation of Habitats and Species Regulations 2017 (as amended) and the Conservation of Offshore Marine Habitats and Species Regulations 2017 (as amended) to determine if a plan or project may affect the protected features of a habitats site before deciding whether to undertake, permit or authorise it.
Heavy Duty Vehicle (HDV)	Goods vehicles + buses >3.5 t gross vehicle weight.
Heritage Significance	The significance of a heritage asset is the product of the value it holds for this and future generations as a result of its historic, archaeological, architectural or artistic interests.
Historical Interest	A heritage asset with value from its association with past events or past people; or where a heritage asset is illustrative of a particular asset type, theme, or period.
Impacts	For the purposes of the EIA and this Scoping Report, the term 'impacts' is used to describe the changes that arise as a result of the Project (e.g. changes in drainage pattern).
Index of Multiple Deprivation (IMD)	The IMD is the official measure of relative deprivation for small areas (neighbourhoods) in England. The IMD are calculated based on the following factors: income deprivation, employment, health and disability, education, skills and training, barriers to housing and services, crime and living environment.
Indirect and secondary effects	Indirect and secondary effects are those which are not caused immediately by the Project but arise as a consequence of it. As such they would normally occur later in time or at locations farther away than direct effects. An example would be where water or gas pipes are damaged as a result of the Project, and the consequences of that damage is fire or flood risk to other receptors.
Inter-project effects	Arise as a result of the Project in combination with other large-scale developments or projects.
Intra-project effects	Effects that occur as a result of two or more impacts acting together (i.e. combined, to result in a new or changed effects on a single receptor).
Iron Age	-800 BCE to 43 CE
Kilovolts (kV)	A unit of electromotive force, equal to 1,000 volts.
Landscape Character Area (LCA)	Discrete geographical areas of a particular landscape type with a broadly consistent character, which might include: pattern of

Term	Definition
	topography, land use, vegetation cover, geology, cultural and ecological features, pattern of evolution, visual and perceptual qualities and habitats.
Landscape Character Type (LCT)	Generic, typically homogenous types of landscape that may occur in different parts of the country. They have similar geology, topography, drainage patterns, vegetation, land use, patterns of settlement and aesthetic character.
Light Duty Vehicle (LDV)	Cars and small vans <3.5 t gross vehicle weight.
Listed Building	A building or structure of special historical or architectural/artistic interest. Designated by the Department for Digital, Culture, Media and Sport. All buildings built before 1700 which survive in anything like their original condition are likely to be listed, as are most buildings built between 1700 and 1850.
Local Geological Sites	A non-statutory designation for regionally important geological and geomorphological sites that have been identified as being of importance locally.
Local Wildlife Site (LWS)	Non-statutory nature conservation sites of local value.
Lower Layer Super Output Area (LSOA)	LSOAs are a geographic hierarchy designed to improve the reporting of small area statistics in England and Wales.
Lowest Observed Adverse Effect Level (LOAEL)	This is the level above which adverse effects on health and quality of life can be detected.
Medieval	1066 to 1540 CE
Mesolithic	-10,000 to -4,000 BCE
Modern	1901 to present
National Cycle Network (NCN)	The NCN is a UK-wide network of signed paths and routes for walking, cycling, wheeling and exploring outdoors.
National Grid Electricity Transmission (NGET) ('National Grid')	National Grid operate the national electricity transmission network across Great Britain and own and maintain the network in England and Wales, providing electricity supplies from generating stations to local distribution companies. National Grid does not distribute electricity to individual premises, but its role in the wholesale market is vital to ensuring a reliable, secure and quality supply to all.
Nationally Significant Infrastructure Project (NSIP)	NSIPs are developments (relating to energy, transport, water, or waste) which are identified in the Planning Act 2008 and require a type of consent known as "development consent".

Term	Definition
Natural Capital (NC)	The total stock of natural resources and services provided by natural assets which benefit people.
Natural Superficial Deposits	Geologically recent deposits that consist of various sediments (clay, sand, gravel etc.) and sit on top of the bedrock.
Neolithic	-4,000 to -2,200 BCE
Nitrous Dioxide (NO ₂)	Reddish brown gas (in high concentrations), respiratory irritant and precursor to photochemical processes which produce other pollutants, photochemical smog and contribute to global warming.
Nitrous Oxide (NO _x)	Inert product of combustion, which does not contribute to local air pollution.
Non-Road Mobile Machinery (NRMM)	A broad category which includes mobile machines, and transportable industrial equipment or vehicles which are fitted with an internal combustion engine and not intended for transporting goods or passengers on roads.
Options appraisal	A robust and transparent process used to compare options and to assess the positive and negative effects they may have across a wide range of criteria including environmental, socio-economic, technical and cost factors. The outcome is to identify a Strategic Proposal for the Project.
Options Identification and Selection	Work undertaken to determine the preferred corridor and preliminary routing and siting options for the Project. It is intended to demonstrate how National Grid's statutory duties, licence obligations, policy considerations, environmental, socio-economic, technical, cost, and programme issues have been considered and provide information on the approach to the identification and appraisal of route corridors and siting locations.
Overhead line	Conductor (wire) carrying electric current, strung from pylon to pylon.
Palaeolithic	-1,000 000 to -10,000 BCE
Particulate matter (PM ₁₀ and PM _{2.5})	PM is the term used to describe condensed phase (solid or liquid) particles suspended in the atmosphere. Their potential for causing health problems is directly linked to the size of the particles. PM ₁₀ is particulate matter with a diameter of 10 microns or less (also referred to as micrometres or 1/1000 th of a meter). PM _{2.5} is particulate matter 2.5 microns or less in diameter.
Pathway (for contamination)	A route or means by which a receptor could be, or is, exposed to or affected by a contaminant.
Pedestrian amenity	The effect on the relative pleasantness of a pedestrian journey as a result of changes in traffic flow, traffic composition and pavement width / separation from traffic.

Term	Definition
Pedestrian delay	The ability of people to crossroads as a result of changes in traffic volume, composition and speed, the level of pedestrian activity, visibility and general physical conditions.
Permanent effects	These are effects that will remain even when the Project is complete, although these effects may be caused by environmental changes that are permanent or temporary.
Phytotoxic	Displaying toxicity towards plants.
Post Medieval	1540 to 1901
Power control devices	Power control devices are designed to increase or decrease the apparent reactance of a line, thereby pushing power away from or pulling more power towards the circuit on which they are installed.
Project Need Case	Sets out the reasons why the Project is required.
Public Rights of Way (PRoW)	These are designated routes under the CroW Act 2000, which the public can use at any time.
Pylon	Overhead line structure used to carry overhead electrical conductors, insulators and fittings.
Radon	A naturally occurring radioactive chemical element, which occurs as a gas.
Ramsar sites	Wetlands of international importance designated under the Ramsar Convention.
Rating level	The specific sound level, with the addition of character corrections to consider certain acoustic features that could potentially increase the significance of impact. If no acoustic features are present then the rating level is equal to the specific sound level.
Receptor	A component of the natural or man-made environment such as water or a building that is affected by an impact.
Reconductoring	The replacement of old conductors (wires), insulators, earthwires, etc on an existing overhead line.
Registered Battlefield	Register of nationally significant military engagements maintained and designated by Historic England.
Registered Park and Garden	Register of historic parks, gardens, grounds, and planned open spaces maintained and designated by Historic England.
Road links	A linear spatial object that describes the geometry and connectivity of a road network between two points in the network.
Rochdale Envelope	The 'Rochdale Envelope' or 'Design Envelope' approach is employed where the nature of a proposed development means that some details of a project have not been confirmed (for instance, the precise

Term	Definition
	dimensions of structures) when an application is submitted, and flexibility within clearly defined parameters is therefore sought to address uncertainty.
Romano-British	43 to 410 CE
Root Protection Area (RPA)	A notional area of tree root spread (as calculated per BS5837) considered as the minimum volume necessary to ensure tree health and function.
S41 of NERC Act	Section 41 of the NERC Act 2006 lists species of principal importance in England for the purpose of conserving biodiversity
Schedule 1 Species	Bird species listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended), for which it is an offence to intentionally or recklessly disturb birds and their young at, on or near an 'active' nest.
Scheduled Monument	Nationally important archaeological sites. Designated by the Department for Digital, Culture, Media and Sport. These can be above or below-ground and do not need to be ancient.
Scoping Opinion	A Scoping Opinion is requested from the Planning Inspectorate on behalf of the SoS, to inform the requirements of EIA process and ultimately the ES which will be submitted as part of the application for development consent. Through the scoping process the views of the statutory consultees and other relevant organisations on the proposed scope of the EIA are sought.
Scoping Red Line Boundary	A Scoping Red Line Boundary has been defined to represent the likely maximum extent of development.
Security and Quality of Supply Standard (SQSS)	The SQSS sets out a coordinated set of criteria and methodologies that the Transmission Licences shall use in the planning and operation of the national electricity transmission system.
Setting	The surroundings in which a heritage asset is experienced. Its extent is not fixed and may change as the asset and its surroundings evolve. Elements of a setting may make a positive or negative contribution to the significance of an asset, may affect the ability to appreciate an asset, or may be neutral.
Severance	The separation of people from places and other people and places or impede pedestrian access to essential facilities.
Significant Observed Adverse Effect Level (SOAEL)	This is the level above which significant adverse effects on health and quality of life occur.
Site of Ecological Importance (SEI)	An old system of designated sites designated by the local authority (Leeds City Council) on the basis of their wildlife and amenity value which are gradually being reviewed and reassessed against new LWS selection criteria and where they qualify will be replaced by LWS.

Term	Definition
Site of Importance for Nature Conservation (SINC)	Non-statutory nature conservation sites designated by North Yorkshire County Council and York unitary authority. These are equivalent to LWS.
Site of Special Scientific Interest (SSSI)	An area of land designated by Natural England as of special interest by reason of its flora, fauna or geological or physiographical features.
Siting Area	An area of land within which a new CSEC or substation could be sited.
Source (of contamination)	A substance that is in, on or under the land and that has the potential to cause harm or to cause pollution of Controlled Waters.
Special Areas of Conservation (SACs)	Protected areas in the UK designated under: the Conservation of Habitats and Species Regulations 2017 (as amended) in England and Wales.
Special Protection Areas (SPA)	Protected areas for birds in the UK classified under the Wildlife & Countryside Act 1981 (as amended) and the Conservation of Habitats and Species Regulations 2017 (as amended) in England and Wales.
Species of Principal Importance (SPI)	Covered under Section 41 of the NERC Act 2006. The term is interchangeable with 'UK Priority BAP Species', 'Section 41 species' and 'NERCs41 species'.
Specific sound level	The equivalent continuous A-weighted sound pressure level produced by a specific sound source (i.e. the sound source under assessment in accordance with BS 4142:2014) at the assessment location over a given reference time interval, Tr.
Strategic Proposal	The outcome of the strategic options appraisal; the Strategic Proposal is then taken forward to the Options Identification and Selection stage.
Strategic Road Network (SRN)	The SRN is made up of motorways and trunk roads (the most significant 'A' roads).
Substation	Electrical equipment in an electric power system through which electrical energy is passed for transmission, transformation, distribution or switching.
Super Grid Transformer	Used at substations along the electricity transmission system to increase or reduce voltage.
Temporary effects	These are effects that are related to environmental changes associated with a particular activity and that will cease when that activity finishes.
Transboundary effects	Transboundary effects are those effects that would affect the environment in another state within the European Economic Area (EEA).

Term	Definition
Tree Preservation Order (TPO)	A statutory designation protecting trees, administered by the relevant local planning authority
Underground Cable	An insulated conductor carrying electric current designed for underground installation.
Vibration	Vibration is an oscillatory motion. The magnitude of vibration can be defined in terms of displacement, i.e. how far from the equilibrium something moves, velocity (how fast something moves), or acceleration (the rate of change of velocity).
Visual effect	The change in the appearance of the townscape as a result of the development. This can be positive or negative.
World Heritage Site	A natural or man-made site, area, or structure recognised as being of outstanding international importance and therefore as deserving special protection. Sites are nominated to and designated by the World Heritage Convention.
XC/XCP 275kV overhead line	Existing 275kV overhead line running between Monk Fryston and Poppleton.
XD/XC 275kV overhead line	Existing 275kV overhead line running between Poppleton and Knaresborough.
Yorkshire Green Energy Enablement (GREEN) Project (the Project)	The Project is required to reinforce the north to south boundary flow by 2027 enabling National Grid to meet future system demands which include several Green Energy customer connections such as Eastern Link (wind/hydro), Continental Interconnector (wind) and Hornsea P4 Windfarm (wind) and the Atlantic Super Connection (interconnector).
Zone of Influence (Zoi)	An identified geographical area around the Project where there is a potential for impacts to occur.
Zone of Theoretical Visibility (ZTV)	The likely (or theoretical) extent of visibility of a development, usually shown on a map.

1. Introduction

1. Introduction

1.1 Overview

- 1.1.1 The Yorkshire Green Energy Enablement (GREEN) Project (hereinafter referred to as the 'Project') is a proposal by National Grid Electricity Transmission (NGET)¹ ("National Grid") to upgrade and carry out major reinforcement of the electricity transmission system in Yorkshire. The Project would provide the infrastructure needed to improve the transfer of sustainable power to support the Government's commitment to quadruple the UK's offshore wind capacity by 2030, tying into the growth forecast for this source of green energy in Scotland and the north east of England. It would provide the capability to manage significantly increased power flows in Great Britain and increased energy demand, which the Climate Change Committee (CCC) predicts will double by 2050.
- 1.1.2 Several strategic options have been considered which could reinforce the electricity transmission system in Yorkshire. National Grid has undertaken a phased options appraisal process balancing technical, socio-economic, environmental, programme and cost considerations in accordance with its statutory and licence obligations. This process has identified new infrastructure comprising substations, cable sealing end compounds, overhead lines, underground cables and a preferred route corridor and preliminary alignment for the new overhead lines. Upgrade works to existing infrastructure are also proposed. National Grid is currently consulting on the Project the feedback from which will inform how potential effects can be mitigated before statutory consultation on the evolved proposals takes place later in 2021.
- 1.1.3 The Project is sited within Yorkshire. The most northerly components of the Project would be located 1.5km north-east of the village of Shipton and approximately 10km north-west of York city centre, and the most southerly components at Monk Fryston Substation, located to the east of the A1 and immediately south of the A63. The location of the Project is illustrated by the Scoping Red Line Boundary in **Figure 1.1**.
- 1.1.4 The proposed key components of the Project are shown in **Figure 1.2** and can be summarised as follows:
- Two new substations, one referred to as York North, sited to the north of the 275kV XC/XCP overhead line (Poppleton to Monk Fryston) route, east of the East Coast Main Line (ECML) and west of the A19 between Shipton and Skelton. The second, located next to, and connecting into, the existing Monk Fryston Substation approximately 2km south-west of Monk Fryston and located off Rawfield Lane, south of the A63. These locations are illustrated by the 'Substation Siting Areas' shown in **Figure 1.2**.
 - Up to 4km of new overhead line route (400kV) between the 400kV 2TW/YR overhead line (Norton to Osbaldwick) and the new substation at York North. This would be located within the 'New 400kV and 275kV overhead line corridor' (referred

¹ National Grid Electricity Transmission (NGET) own, build and manage the electricity grid in England and Wales, connecting many different sources of energy.

to as the Preferred Route Corridor), north of the Substation Siting Area, illustrated on **Figure 1.2**.

- Two new overhead line routes (275kV) (two separate overhead lines each of which would be up to 2.5km) between the existing 275kV XC/XCP overhead line (Poppleton to Monk Fryston) and the new substation at York North. These would be located within the Preferred Route Corridor, south of the Substation Siting Area, illustrated on **Figure 1.2**.
- Reconfiguration (including a new section of overhead line of approximately 1km) of the existing 275kV XC/XCP overhead line (Poppleton to Monk Fryston) route, west of the existing substation to connect into the new Monk Fryston Substation. This is shown as the “Proposed Associated Infrastructure” adjacent to the north and west of Monk Fryston Substation Siting Area on **Figure 1.2**.
- Reconfiguration of the existing 4YS 400kV overhead line (Monk Fryston to Eggborough) east of the existing Monk Fryston Substation to connect into the new Monk Fryston Substation. This is shown as the “Proposed Associated Infrastructure” adjacent to the east of Monk Fryston Substation Siting Area on **Figure 1.2**.
- Creation of a double tee arrangement, a means of connecting two overhead lines, at the existing 400kV 2TW/YR overhead line (Norton to Osbaldwick) by installing two cable sealing end compounds (CSECs) and a section of underground cable (approximately 500m) where the new 400kV overhead line would meet the existing 400kV 2TW/YR overhead line. This location is shown by the “Proposed Cable Sealing End Compound Siting Area” in northern part of the Preferred Route Corridor on **Figure 1.2**.
- Reconductoring of existing wire, replacement of pylon fittings, strengthening of steelwork and potential pylon replacement of the 275kV XC/ XCP overhead line (Poppleton to Monk Fryston) routes between the Substation Siting Areas at Monk Fryston and York North. Some sections of this overhead line would require removal but the length of which will depend on the final Project design.
- Creation of a double tee arrangement at a location approximately 3km south-west of Tadcaster and north-east of the A64/A659 junction for the existing 275kV XC/XCP overhead line (Poppleton to Monk Fryston) and the existing 275kV XD/PHG overhead line (Tadcaster Tee to Knaresborough). Two CSECs would be installed and a section of underground cable (approximately 500m) constructed from the 275kV XC/XCP overhead line (Poppleton to Monk Fryston), on to the 275kV XD/PHG overhead line (Tadcaster Tee to Knaresborough). The two CSEC locations are illustrated by the “CSEC Siting Area” at Tadcaster on **Figure 1.2**, with underground cabling area indicated by “Associated Infrastructure”. Works will also include the replacement of one pylon on the existing 275kV XD/PHG overhead line (Tadcaster Tee to Knaresborough).
- Installation of a new circuit breaker and isolator at Osbaldwick Substation. This location is shown on **Figure 1.1**.

1.1.5

A full description of the Project is provided in **Chapter 2**. Given the extent of the Scoping red line boundary, for the purposes of describing the Project in this Scoping Report the following terms are used:

- North-west of York Area: This term used to refer to the Project components located in the northern part of the Scoping red line boundary to the north-west of York.
- Tadcaster Area: This term used to refer to the Project components to the south-west of Tadcaster.
- Monk Fryston Substation Area: This term used to refer to the Project components around the existing Monk Fryston Substation located in the southern part of the Scoping red line boundary.

1.1.6 These areas are also shown on **Figure 1.2**.

1.1.7 This Scoping Report supports a request by National Grid, under Regulation 10 of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (hereafter referred to as ‘the EIA Regulations’), for a written Scoping Opinion from the Secretary of State (SoS) for Business, Energy and Industrial Strategy, administered by the Planning Inspectorate on behalf of the Secretary of State, to inform the Environmental Impact Assessment (EIA) for the Project.

1.2 National Grid Electricity Transmission System

1.2.1 National Grid owns the high voltage electricity transmission system in England and Wales and operates the high voltage electricity network throughout Great Britain, transporting electricity from generators (such as power stations and wind farms) to local distribution network operators (DNO’s). DNO’s, such as Northern Powergrid, are the companies that own and operate the local power lines and infrastructure that delivers electricity to individual properties.

1.2.2 The National Grid Electricity Transmission System (NGETS) is made up largely of 400kV, 275kV and 132kV assets connecting separately owned generators, interconnectors, large demands fed directly from the transmission system and distribution systems. The ‘transmission’ classification in England and Wales applies to assets at 275kV and above. The NGETS comprises some 7,200km of overhead lines, 700km of underground cable and around 340 substations. At the substations, electricity that has been produced by generators is connected to the transmission system and the primary transmission voltage of 400kV or 275kV, or is transformed to lower voltages for the DNOs to distribute electricity at lower voltages for factories, offices, homes and public services.

1.2.3 The NGETS is designed to make sure there is sufficient transmission capacity to ensure that the system can be operated in an economic and efficient way by the Electricity System Operator (ESO), ensuring power can be moved from where it is generated to demand centres across the UK. This planning and development of the NGETS is governed by the Security and Quality of Supply Standards (SQSS) which ensure that the network is developed and operated securely and is resilient to any foreseeable network faults and disruption.

1.3 Intention to apply for development consent

1.3.1 The Project is a Nationally Significant Infrastructure Project (NSIP) under Part 14(1)(b) of the Planning Act 2008 (as amended) because it comprises new overhead electricity transmission connections of more than 2km, with an operating voltage of above 132kV.

National Grid intends to submit an application for an order granting development consent (Development Consent Order (DCO)) under Section 37 of the Planning Act 2008 to the Planning Inspectorate. The application will comprise details of all development proposals and will be accompanied by an Environmental Statement (ES) conforming to the EIA Regulations and other relevant policies and legislation (see **Section 1.4** and **Section 1.5**).

1.4 The need for Environmental Impact Assessment

- 1.4.1 EIA is a process required by UK law which brings together information about the likely significant effects of a development. The legal basis for EIA lies in European Community Directive 85/337/EEC3 (the 'EIA Directive'). The EIA Directive is transposed into UK law through several pieces of legislation.
- 1.4.2 In relation to NSIPs, EIA is required for certain developments under the EIA Regulations.
- 1.4.3 The four stages of the DCO EIA process include:
1. Screening (discretionary).
 2. Scoping (discretionary) (this stage).
 3. Preparation of Preliminary Environmental Information.
 4. Preparation of an ES.
- 1.4.4 Under the EIA Regulations, EIA is mandatory for development projects defined under Schedule 1. Those development projects defined in Schedule 2 only require EIA if they are likely to have significant effects on the environment by virtue of their nature, size or location.
- 1.4.5 As the proposed length of the overhead lines is less than 15km, the Project does not fall within the provisions of Schedule 1. The Project falls within paragraph 3(b) of Schedule 2, as it comprises "*transmission of electrical energy by overhead cables*". Considering the nature and size of the project, an EIA will be prepared and therefore in line with Regulation 8(1)(b) of the EIA Regulations, National Grid hereby provides notice that the application for a DCO will be accompanied by an ES.

1.5 Purpose and structure of the Scoping Report

- 1.5.1 This Scoping Report sets out the proposed content, methodologies to be adopted and the anticipated likely significant environmental effects that are proposed to be considered in the EIA. It supports a request from National Grid for a written Scoping Opinion from the Planning Inspectorate, on behalf of the Secretary of State (SoS), to inform the ES which will be submitted as part of the application for development consent.
- 1.5.2 The opinion of the SoS is being sought specifically on:
- The environmental topics that should be included in the EIA;
 - The relevant components of the Project and the resultant likely significant effects;
 - Those effects not likely to be significant that do not need to be considered further;

- The approach to setting the study areas for each topic;
- The data that has been gathered (and will be gathered);
- The assessment methods that will be used to determine likely significant effects; and
- The approach to determining the environmental measures that could be incorporated into the Project to avoid, prevent, reduce or, if necessary, offset significant effects.

1.5.3 The Scoping Report has been produced in accordance with the EIA Regulations, as well as having due regard to Planning Inspectorate Advice Note Seven. A list of other Advice Notes considered is provided in Chapter 3. Specifically, Regulation 10(3) of the EIA Regulations defines the information that must be provided when requesting a Scoping Opinion, namely:

- “(a) a plan to sufficiently identify the land;
- (b) a description of the proposed development including its location and technical capacity;
- (c) an explanation of the likely significant effects of the development on the environment; and
- (d) such other information or representations as the person making the request may wish to provide or make.”

1.5.4 The Scoping Report is structured as follows:

- **Chapter 1** sets out an overview of the Project, the background to the need for an EIA in relation to the Project, the structure of this Scoping Report, and other assessments to be undertaken.
- **Chapter 2** provides a background to and the need for the Project, a description of the surrounding land and its land uses alongside a description of the components of the Project and the main alternatives considered.
- **Chapter 3** provides an overview of the legislation and policies that are relevant to the Project.
- **Chapter 4** summarises the approach that has been taken to identify the scope of the EIA, including an introduction to the methods used.
- **Chapters 5 to 16** outline the proposed scope of the assessment for each technical topic, the baseline data collected, the approach to setting the study area and the proposed methodology for assessment.
- **Chapter 17** identifies those effects that are scoped out of the EIA and sets out the proposed content of the ES.
- **Chapter 18** provides a summary of the scope of the assessment.

1.6 Competence

1.6.1 Regulation 14(4) of the EIA Regulations requires that an ES is prepared by ‘competent experts’ and that the ES is accompanied by a statement outlining the relevant expertise or qualifications of such experts.

- 1.6.2 This Scoping Report has been prepared and coordinated by environmental consultants who are members of the Institute of Environmental Management and Assessment (IEMA) EIA Quality Mark Scheme. The scheme allows organisations that lead the co-ordination of EIAs in the UK to make a commitment to excellence in their EIA activities and have this commitment independently reviewed.
- 1.6.3 Details of the expertise and qualifications of the competent experts who have been responsible for preparing the topic specific chapters of this Scoping Report will be provided in the ES.

1.7 Other assessments

- 1.7.1 In addition to the EIA, the preparation of the application for the Project requires other standalone assessments to be carried out to meet the requirements of other policy and legislation. Whilst the outcomes of these assessments may be drawn upon when carrying out the EIA (and vice versa), the scope of these other assessments will be discussed and agreed with appropriate regulatory authorities in line with the requirements of the relevant policy and legislation, rather than within this Scoping Report.
- 1.7.2 Where appropriate, however, the individual topic chapters in this Scoping Report outline where the findings of one of the additional assessments are to be drawn upon when carrying out the EIA, and any proposed scope of the relevant additional assessment is set out to facilitate consultation with relevant consultees in relation to this Scoping Report.

Habitats Regulations Assessment

- 1.7.3 In accordance with Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (the 'Habitats Directive') and Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds (the 'Birds Directive'), a network of protected areas has been designated by EU member states for the protection of Europe's most valuable and threatened habitats and species. These areas are known as European sites. The Conservation of Habitats and Species Regulations 2017 (SI 2017 No. 1012) (the 'Habitats Regulations') transpose the EU Directives into UK law.
- 1.7.4 When considering the merits of the application, the SoS must consider potential effects on European sites. European sites are defined as Special Areas of Conservation (SACs), candidate SACs, Sites of Community Importance (SCI) and Special Protection Areas (SPAs). UK policy extends the requirements pertaining to European sites to include Ramsar sites and potential SPAs, which would include proposed extensions or alterations to existing SPAs.


Flood Risk Assessment

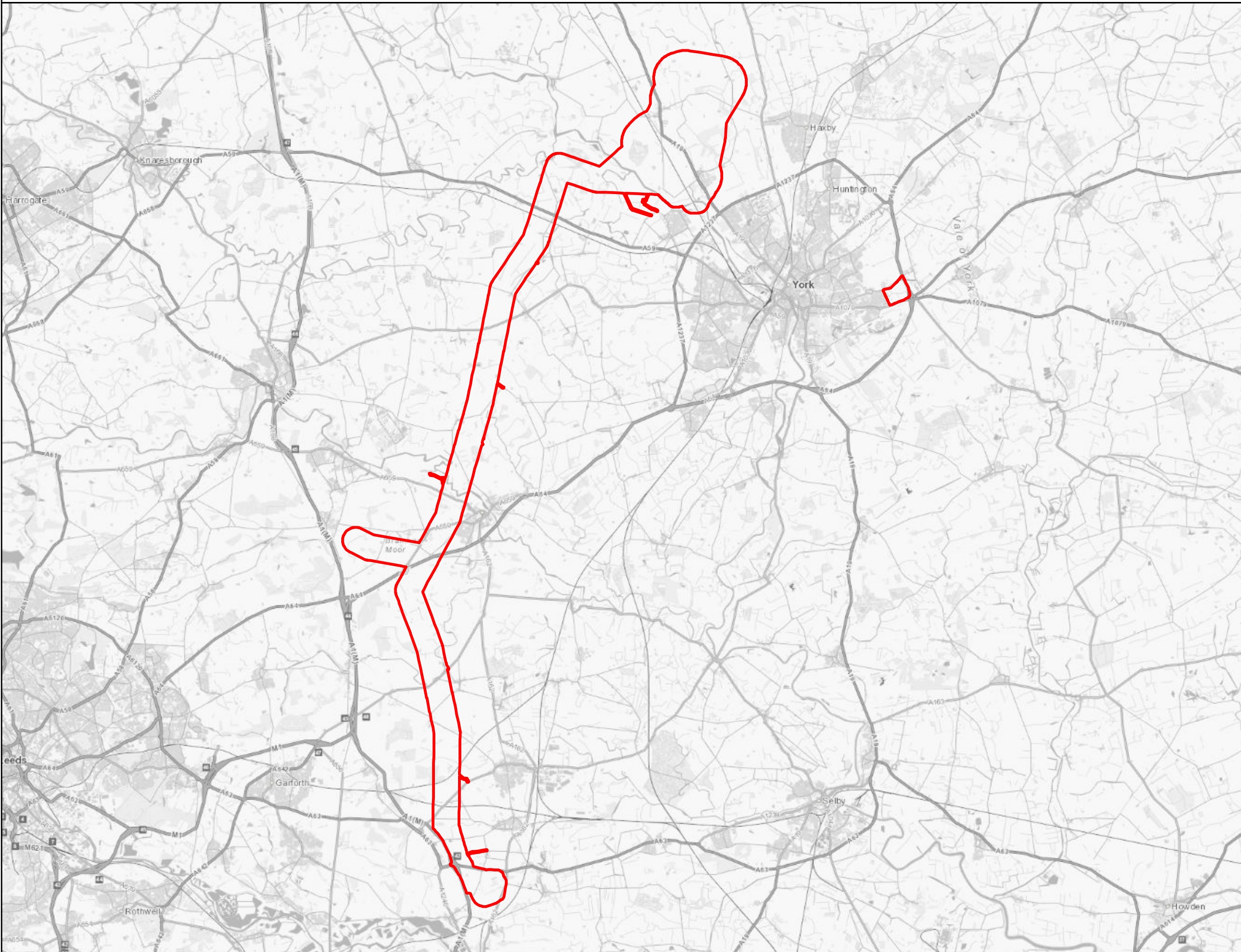
- 1.7.5 A Flood Risk Assessment (FRA) will be submitted, forming part of the application. The FRA will assess the flood risk both to and from the Project and demonstrate how that flood risk will be managed over the Project's lifetime. The FRA will give due regard to climate change.



SCOPING BOUNDARY

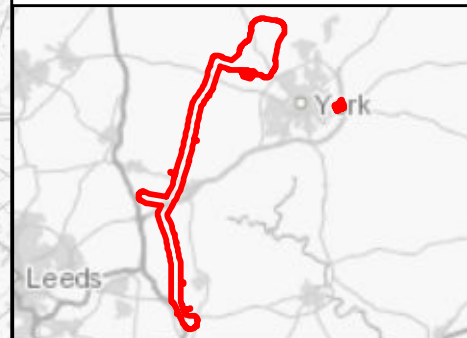
Legend

 Scoping red line boundary

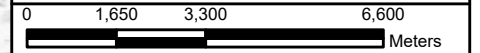


Notes

This drawing is scaled at paper size A3, therefore any prints taken at smaller sizes will affect accuracy of the measurement units and should not be scaled against.



Coordinate System: British National Grid
Sheet X Centroid Coordinate: 453,982.75 Sheet Y Centroid Coordinate: 444,710.92



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Title

**Scoping Report
Chapter 1: Introduction**

SCOPING BOUNDARY



Figure Number: FIGURE 1.1

Drawing Reference: 806503-WOOD-0020

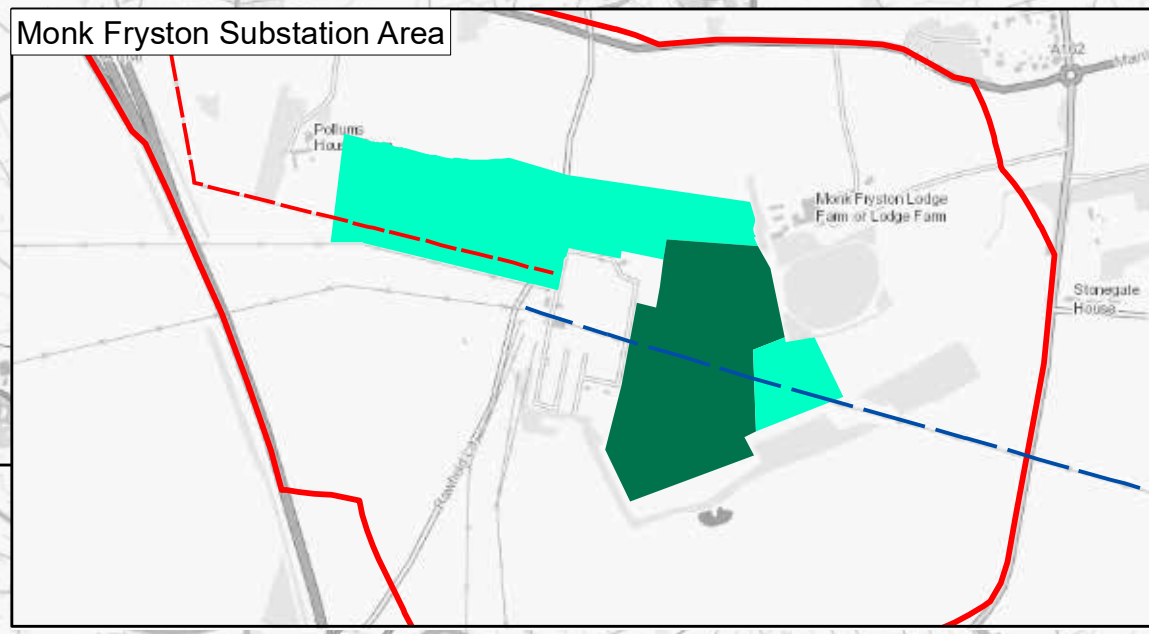
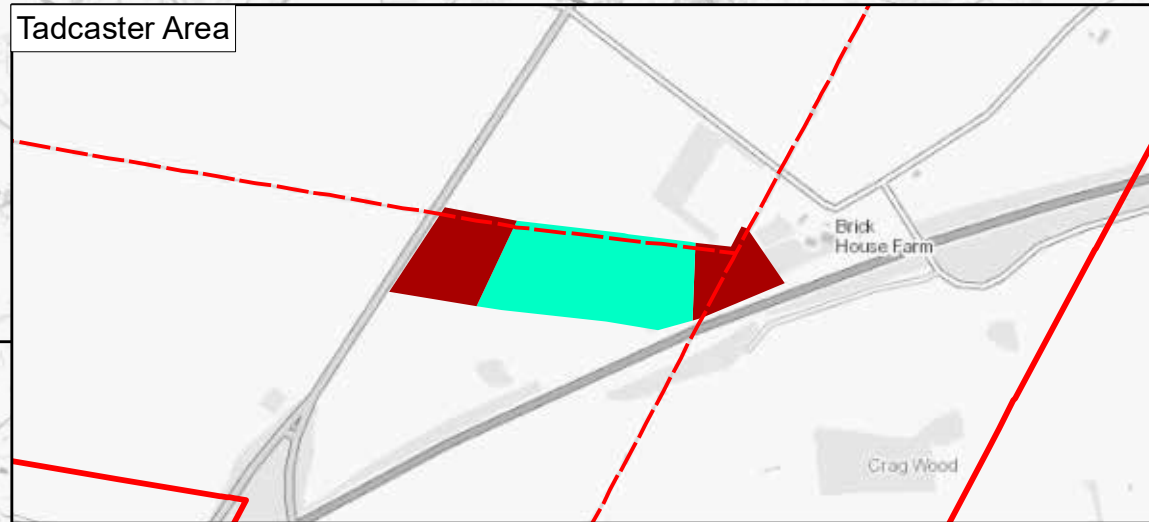
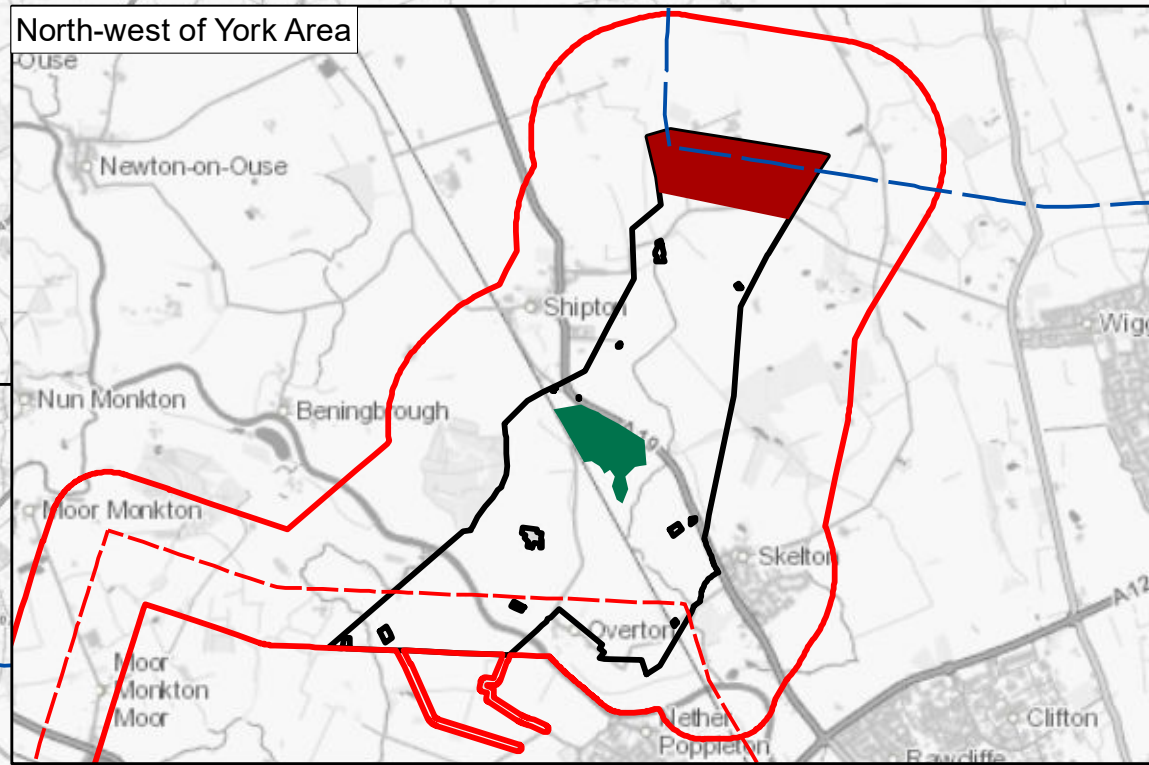
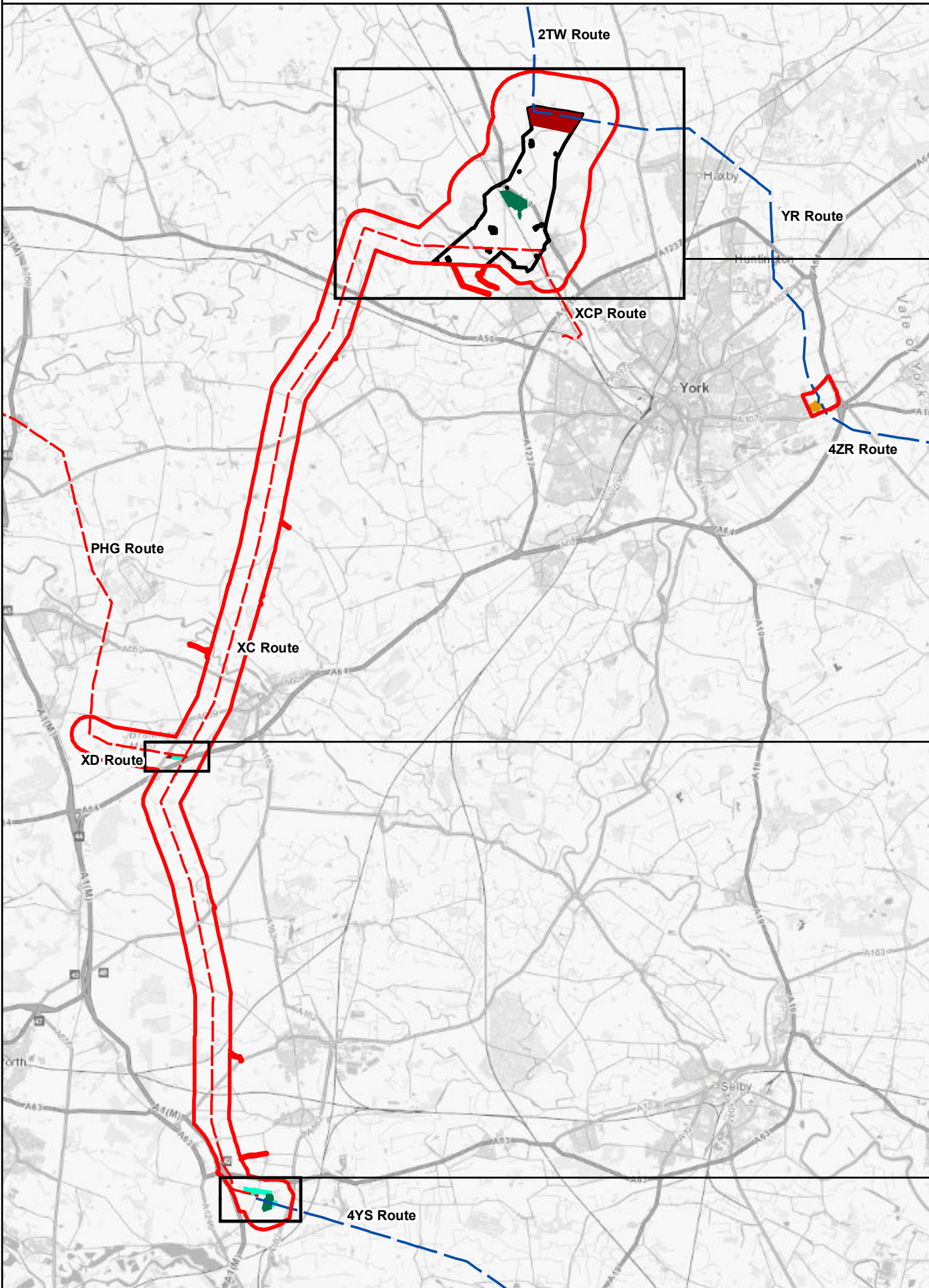
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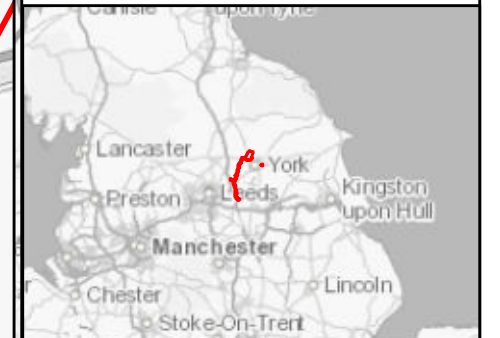
PROJECT COMPONENTS

Legend

- Scoping red line boundary
- Existing 275kV overhead line
- Existing 400kV overhead line
- Existing Osbaldwick substation
- New 400kV and 275kV overhead line corridor
- Proposed Substation Siting Area
- Proposed Cable Sealing End Compound Siting Area
- Proposed Associated Infrastructure



Notes
This drawing is scaled at paper size A3, therefore any prints taken at smaller sizes will affect accuracy of the measurement units and should not be scaled against.



Coordinate System: British National Grid
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Meters

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Title
**SCOPING REPORT
CHAPTER 1: INTRODUCTION
PROJECT COMPONENTS**

nationalgrid			
Figure Number	FIGURE 1.2		
Drawing Reference	806503-WOOD-0021		
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2. The Project

2. The Project

2.1 Background to and need for the Project

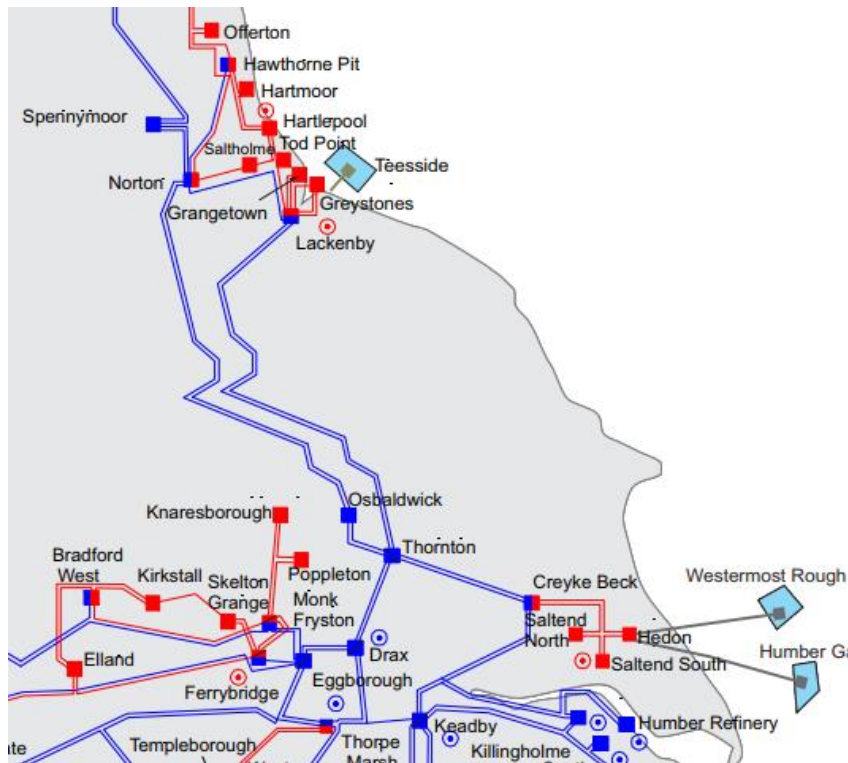
- 2.1.1 Future Energy Scenarios (FES) are produced annually by National Grid Electricity System Operator (NGESO)². These are developed in consultation with industry stakeholders to identify what ‘credible futures’ might exist, when considering the rate at which the UK may decarbonise, the impact of de-carbonisation of supply and how consumer behaviour will impact demand. The NGESO undertake power system modelling of future power flow requirements across the transmission system and identifies parts of the system where insufficient capacity exists to accommodate these future power flows. This work is published annually in the Electricity Ten Year Statement (ETYS).
- 2.1.2 Where there is a requirement for additional transmission network capacity, the Transmission Operators (TOs) propose a range of reinforcements that could deliver this. NGESO undertake a cost benefit analysis (CBA) to determine if a reinforcement is economic and should be progressed by the relevant onshore TO. This is the Network Options Assessment (NOA) process, with a NOA report published in January each year. The ESO, through the NOA publication, make recommendations to the TO as to which investments should be progressed when considering the range of possible futures that may occur.
- 2.1.3 Great Britain is driving towards net zero, which means that the transmission system will face a growing demand over the next 10 years. This is forecast to see an increase in wind generation to 40GW across Great Britain, with a high concentration in Scotland and the north of the country and a growth of over 6GW of low carbon generation and interconnectors in the North of England. With demand predominantly located in the south of the country this leads to high north-south power flows with high variability.
- 2.1.4 The ETYS³ has identified that significantly higher power flows will occur in the Northern English network which includes the transmission network between the Scottish border and the north Midlands. Presently, most of the northern transmission network is oriented for north-south power flows with connections for demand and generation along the way. At times of high wind generation, the power flow will primarily be from north to south, with power sources both within the north of England and further north in Scotland. With the volume of generation in this region, particularly during periods of high wind output, the transmission network can be highly overloaded.
- 2.1.5 In Yorkshire there are two double circuit transmission lines connecting the north eastern and southern parts of the north of England regional transmission system (**Figure 2.1**). These two transmission routes feed into Thornton 400kV substation. Thornton substation is then connected to the southern parts of the network via two double circuit

2 National Grid Electricity System Operator (NGESO) controls the movement of electricity around the country, transporting power from generators (such as power stations and wind farms) to local distribution network operators (DNOs), ensuring that supply meets demand.

3 National Grid ESO, 2020, Electricity Ten Year Statement 2020 <https://www.nationalgrideso.com/research-publications/etys-2020>

transmission routes, one towards Saltend and the Humber areas in the east and the other to Drax substation, in Selby south of York⁴.

Figure 2.1 North of England regional transmission system



2.1.6 The Yorkshire GREEN project is needed to provide additional capacity in Yorkshire to strengthen and provide a reliable network that is able to cope with the increasing energy demands and forecasted future energy flows. The project is required to deliver the full benefits of the Scotland England Green Link, as well as enabling three other customer connections at Creyke Beck to connect to the network. Without the Yorkshire GREEN project, the three new projects would be unable to connect.

2.2 Consideration of alternatives

Introduction

2.2.1 Schedule 4 of the EIA Regulations states that an ES should include:

"A description of the reasonable alternatives (for example in terms of development design, technology, location, size and scale) studied by the developer, which are relevant to the proposed project and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects."

2.2.2 Whilst there is no statutory requirement to include an assessment of alternatives in support of a request for a Scoping Opinion, the Planning Inspectorate's Advice Note Seven recommends that a Scoping Report includes *"an outline of the reasonable alternatives considered and the reasons for selecting the preferred option"*.

⁴ National Grid, March 2020, Central Yorkshire Reinforcement Need Case

Strategic alternatives

- 2.2.3 A number of potential strategic options were identified which could meet National Grid's need ('the Project Need Case') to reinforce the electricity transmission network in Yorkshire, as well as to enable National Grid to meet its statutory duties⁵. Initially a 'long list' of options were identified connecting a number of potential 'start' and 'end' points. These included existing substations as well as tee-in and tee-out points (i.e. direct connections) from existing overhead. Both overhead lines and underground cable connections were considered. These options were then appraised and filtered to obtain a short list of options, which were subject to a detailed appraisal against a range of technical, socio-economic, environmental, cost and programme issues.
- 2.2.4 All options that met the Project Need Case, given the extent of the requirement, required a new transmission circuit to be constructed. However, the strategic options varied significantly in terms of circuit length and their use of existing infrastructure. Some entirely new build options were included; however, these were typically larger and required longer sections of new overhead line or underground cables routes to be delivered. In contrast, those options which included upgrading existing infrastructure were typically smaller and required shorter overhead line or underground cables routes. It was concluded that options which required upgrading or enhancing of existing infrastructure were typically preferable to wholly new build options over the same distance.
- 2.2.5 The strategic options assessment identified a Strategic Proposal comprising two key elements:
- construction of a new 400kV double circuit overhead line connecting from a point on the existing Norton - Osbaldwick overhead line (2TW/YR 400kV) to Poppleton substation of approximately 6km. This was considered to be the most economical, technically preferred option and in relation to environmental and socio-economic effects, having comparatively less impact than other new build alternative options which would be in the range of 19 to 40km long.
 - reconductoring the existing 275kV route from Poppleton to Monk Fryston (XC route) to increase the capacity of the existing route.
- 2.2.6 Subsequent assessment and new information resulted in the identified Strategic Proposal being reviewed. The requirements of the electricity transmission system are dynamic and subject to change; therefore, National Grid regularly reviews its decisions in light of the latest information. Additional connections required to the transmission network from new sources of generation were identified, which had not been considered as part of the options considered for the Strategic Proposal⁶. This meant that the Strategic Proposal would not be able to deliver the Project requirements because of constraints comprising overloading of the network at Poppleton and Monk Fryston substations.
- 2.2.7 The Strategic Proposal and other shortlisted strategic options previously considered were reviewed in light of the updated information. The outcome of the appraisal identified a revised Strategic Proposal. This would still construct a new 400kV double

5 National Grid, December 2019, Yorkshire Green Energy Enablement (GREEN) project: Strategic Proposal Report

6 National Grid, November 2020, Yorkshire Green Energy Enablement (GREEN) Project: Strategic Proposal Back Check and Review

circuit overhead line from a point on the Norton – Osbaldwick overhead line, but would also include the following elements:

- construction of a new substation known as York North which the new 400kV overhead line would connect into from the north;
- construction of a new substation at Monk Fryston to connect into the existing 275kV substation at this location; and
- reconducting and changes to the existing 275kV XC/XCP overhead line between Monk Fryston and Poppleton substations so that this overhead line would also connect to the new York North substation from the south.

Routeing and siting

2.2.8 Following confirmation of the 2020 Strategic Proposal a Corridor and Preliminary Routeing and Siting Study⁷ ('the CPRS Study') was undertaken to further define the location of the proposed Project infrastructure (section 5, CPRS Study) within a defined Study Area⁸.

2.2.9 The focus of the CPRS Study was to appraise options for proposed new infrastructure comprising substations, CSECs and overhead lines but not for works proposed at existing elements of the electricity infrastructure network which also form part of the overall Project. Therefore, the installation of additional equipment at existing sites and reconducting, including steelwork strengthening and potential pylon replacement, along the existing overhead lines were not appraised.

2.2.10 The CPRS Study focused on the routeing of new overhead lines and siting of the new infrastructure at three locations in the Study Area: north of York ('York North'), Tadcaster and Monk Fryston⁹.

2.2.11 A staged approach, undertaken in line with National Grid's Option Appraisal Guidance¹⁰, comprised:

- **Stage 1 - Identify and Define Corridor and Siting Area Options:** At York North four corridors (A to D) (with an additional corridor section; A1) within which new overhead lines and CSECs would be located and 12 substation siting areas for the York North substation were identified. Ten siting areas for two new CSECs at Tadcaster and three siting areas for a new substation at Monk Fryston were also identified. Further information of how these were identified can be found in Section 11 of the CPRS Study.
- **Stage 2 - Undertake Options Appraisal and Selection of Preferred Options:** All options were appraised taking into account potential effects on the environment, the local community, relevant planning policy, including the National Policy Statements (NPS) for Energy (EN-1) and Electricity Network Infrastructure (EN-5), other existing and proposed developments as well as technical and engineering design information to agree a preferred corridor and siting areas.

7 February 2021, National Grid, Corridor and Preliminary Routing and Siting Study

8 The CPRS Study Area was defined as part of the Strategic Proposal process undertaken in 2019, with several minor amendments to respond to changes to the Project scope during the different stages of the National Grid Options Appraisal Process.

9 In the CPRS Report these three areas were named York North, Tadcaster and Monk Fryston. The broadly equivalent areas in this Scoping Report are named North-west of York Area, Tadcaster Area and Monk Fryston Substation Area.

10 National Grid, November 2020, Approach to Consenting: Guidance for project teams

- **Stage 3 - Development of Graduated Swathe for the Preferred Corridor and Graduated Siting Areas:** ‘Graduated swathes’ within the route corridor and siting areas were developed based on preliminary route alignments for the proposed overhead lines and locations within Preferred Siting Areas for the proposed substations and CSECs, which took into consideration environmental and socio-economic constraints, the Holford and Horlock Rules¹¹¹² and technical considerations. The ‘graduated swathes’ in the York North area indicate the broad areas where the preliminary overhead line route, locations for the CSECs and the York North substation are likely to be located. The darker areas of the graduated swathe indicated a greater preference for the location of the required infrastructure. Similarly, graduated siting areas were also prepared for the proposed infrastructure at Tadcaster and Monk Fryston.

2.2.12 The preferred corridor and preliminary route for the new overhead lines are shown in **Figure 2.2** and **2.3**. Further information on the justification behind the selection of these locations is provided in the CPRS Study.

2.2.13 For the 275kV connections south from York North substation to the existing 275kV XC/XD overhead line between Monk Fryston and Poppleton substations, two potential options have been identified and are currently subject to consultation. Both are considered as part of this Scoping Report (see **Section 2.3**) and comprise:

- Option 1: Two new sections of 275kV overhead lines broadly parallel with the ECM railway line; one would be located to the eastern side of the ECM railway and the other to the west. This would enable the dismantling of up to 700m of the existing XCP 275kV overhead line.
- Option 2: One section of new 275kV overhead lines running between the proposed York North substation, across the River Ouse with a second new section running parallel to the eastern side of the ECML railway line. This option would enable the dismantling of up to 2.5km of the existing XCP 275kV overhead line.

2.3 Design envelope approach for EIA scoping

2.3.1 At this stage of the Project, the components of the infrastructure required to meet the Project need is confirmed, however the location of some project elements is indicative and the location and extent of construction elements, for example construction compounds, is not yet confirmed. Therefore a ‘design envelope’ approach has been adopted for EIA Scoping having regard to the Planning Inspectorate’s Advice Note Nine (The Planning Inspectorate, 2018). This approach, known as the ‘Rochdale Envelope’ Approach, is employed “*where the nature of the Proposed Development means that some details of the whole project have not been confirmed*” and “*flexibility is sought to address uncertainty.*”

2.3.2 As described in **Section 2.2**, the CPRS Study identified a preferred corridor and preliminary routes for the sections of new overhead line, which are shown as ‘graduated swathes’. The CPRS study also identified ‘graduated siting areas’, indicating the emerging preference for the location of CSEC’s and the substations. The outputs of the CPRS Study form the basis of the first round of non-statutory public consultation for the

11 <https://www.nationalgrid.com/sites/default/files/documents/13796-The%20Horlock%20Rules.pdf>

12 The Holford Rules set out guidelines on the routing of new high voltage overhead transmission lines: <https://www.nationalgrid.com/sites/default/files/documents/13795-The%20Holford%20Rules.pdf>

Project. Therefore, a final preferred option for the alignment of the new overhead lines, CSEC's and new substations has not yet been confirmed.

2.3.3 To retain flexibility, a Scoping red line boundary has been defined to represent the maximum extent of development (**Figure 1.1**) to incorporate all known integral and associated development that National Grid will be seeking consent for as part of the DCO. At this stage of the project design it covers a wider area than is likely to be required for the DCO. This is to allow design flexibility for the following reasons:

- to take account of ongoing engineering and detailed design development;
- to allow for design changes in light of on-going environmental surveys and assessment; and
- to take account of feedback received through engagement, including through consultation events with the public, key stakeholder meetings and discussions with landowners.

2.3.4 The Scoping red line boundary was determined by taking into account the following requirements:

- Construction works at the North-west of York Area: The location of the construction compounds and the access routes for the works in this Area have yet to be determined and therefore an additional 1km buffer has been applied from the western, northern and eastern edge of the Preferred Corridor. To the south the buffer is 500m to the south of the 275kV XC/XCP overhead line.
- Construction works at the Tadcaster Area: The Scoping red line boundary has incorporated all land to facilitate the works including construction compounds and access and allow a 500m buffer around the sections of the 275kV XD/PHG overhead line (Tadcaster Tee to Knaresborough) to allow for the replacement of and access to one pylon along this overhead line.
- Construction works at Monk Fryston Substation Area: The Scoping red line boundary has incorporated all land that may be required to facilitate the works, including construction compounds and accesses.

2.3.5 It is likely that the physical infrastructure required at the existing Osbaldwick substation can be accommodated within the existing substation boundary. However, additional land adjacent to the east of the substation has been included in the Scoping red line boundary on a worst case basis, should additional land be required either during operation, or to facilitate the construction phase (e.g., for the location of a construction compound). It is expected that access will be via the existing arrangements to the substation, and therefore no additional land has been included in the Scoping red line boundary to accommodate access arrangements.

2.3.6 The extent of the works required to facilitate the overhead line reconductoring along the 275kV Poppleton to Monk Fryston (XC/XCP) overhead line has yet to be determined and therefore the Scoping red line boundary includes a 500m buffer either side of the line to provide flexibility in the design process. This will include for example, any construction compounds required and allow for the replacement of pylons. National Grid has established access routes to the existing pylon locations. The majority of these are accommodated within the 500m buffer, however there are a number of routes which extend beyond 500m and the Scoping red line boundary has been widened in these

locations to accommodate these routes. Once the location of any access requirements along these routes has been determined, the Scoping red line boundary will be revised accordingly. The Scoping red line boundary excludes land to the west of the A1(M) within 500m of the 275kV Poppleton to Monk Fryston (XC/XCP) overhead line to the west and north of Monk Fryston Substation as construction works in this area would not be undertaken due to the presence of the A1(M).

- 2.3.7 The Project design will be refined as it continues to evolve through the subsequent stages of the design and EIA process, and the EIA Scoping Red Line Boundary will be refined further.

2.4 Scoping area description

Overview of scoping area

- 2.4.1 **Figure 1.1** shows the location of the Scoping red line boundary, which is wholly located within Yorkshire and includes the three key areas of focus for the options appraisal: the North-west of York Area, the Tadcaster Area and the Monk Fryston Substation Area. The following sections provide an overview of each of these three Study Areas as defined in **Figure 1.2**.

- 2.4.2 The Project falls within six local authority boundaries:

- Hambleton District Council;
- York City Council;
- Harrogate Borough Council;
- Selby District Council;
- Leeds City Council; and
- North Yorkshire County Council.

North-west of York Area

- 2.4.3 The North-west of York Area largely comprises agricultural land and is located between 2km and 10km to the north-west of York. The settlements of Shipton-by-Beningbrough, Skelton and Overton are located within the Scoping red line boundary in this Area with Nether Poppleton adjacent to the south.

- 2.4.4 The ECML (traveling from York to Edinburgh) runs through the Scoping red line boundary in this Area in a south-east to north-west direction. There are no trunk roads but there are two A roads connecting with the City of York (A19 and A59). The Way of the Roses National Cycle Network (NCN Route 65) crosses through the Scoping red line boundary in this Area linking the City of York with Beningbrough Hall (a Grade I listed building owned by the National Trust) via the villages of Overton and Shipton by Beningbrough.

- 2.4.5 The River Ouse through the Scoping red line boundary in this Area in a north-west to south-east direction, with Flood Zone 2 and Flood Zone 3 land either side. Other notable watercourses include Moor Gutter, Hurns Gutter and Hurns Drain. There is one

two area of ancient woodland, Overton Wood within the Scoping red line boundary, located north of the existing 275kV Poppleton to Monk Fryston (XC/XCP) overhead line.

- 2.4.6 This Area lies within Hambleton District Council, York City Council, Harrogate District Council and North Yorkshire County Council.

Tadcaster Area

- 2.4.7 The Tadcaster Area is located approximately 3km south-west of Tadcaster comprising agricultural land to the north-east of the A64/A659 junction. The existing Bramham 132kV substation is within the Scoping red line boundary to the east of Tadcaster Area. There are limited numbers of scattered residential properties in the locality with Toulston Polo Ground approximately 800m to the north.

- 2.4.8 This Area lies within Selby District Council, Leeds City Council and North Yorkshire County Council.

Monk Fryston Substation Area

- 2.4.9 The Monk Fryston Substation Area is located adjacent to the existing Monk Fryston substation in a predominantly agricultural setting approximately 2km south west of the village of Monk Fryston. Rawfield Lane runs through the Scoping red line boundary in this Area and there are two residential properties within the boundary, Pollums House farm (and associated farm buildings) located approximately 500m west and the Grade II listed Monk Fryston Lodge (and associated buildings) approximately 200m to the east of the existing substation.

- 2.4.10 The A1(M) is adjacent to the Scoping red line boundary in this Area and Rawfield Lane connects to the A63 to the north and the A1246 to the south.

- 2.4.11 This Area lies within Selby District Council and North Yorkshire County Council.

2.5 Development proposals

Introduction

- 2.5.1 The Project will comprise the construction of new substations, overhead lines and structures required to transition between overhead and underground cabling, known as cable sealing end compounds (CSECs) as well as sections of underground cabling to connect some of these new elements. There will also be upgrade works comprising reconductoring, potential replacement or strengthening of existing pylons and the installation of additional equipment at substations.
- 2.5.2 The specific components and planned works at each location are described in the following sections.

North-west of York Area

- 2.5.3 This Area refers to the Scoping red line boundary north west of York where a new substation, new overhead lines and underground cabling and associated CSECs to support the transition between new and existing overhead lines are proposed (**Figure 1.2**).

2.5.4 At the northern end of this Area the key component would comprise a connection between the existing Norton and Osbaldwick 2TW/YR 400kV overhead line north east of Shipton by Beningbrough and a new 400kV double circuit overhead line. To form this connection two CSECs would be constructed close to where the existing and proposed 400kV lines meet. Each CSEC would have a footprint of approximately 50m by 40m (0.2Ha) to support downloads (connections) from the existing 2TW/YR 400kV overhead line and would house the support structures for the cable terminations, post insulators, earth switches and a terminal tower. There would also be short sections (approximately 500m) of underground cables connecting both CSECs. An image of a typical CSEC is shown in **Figure 2.4**.

Figure 2.4 Cable Sealing End Compound

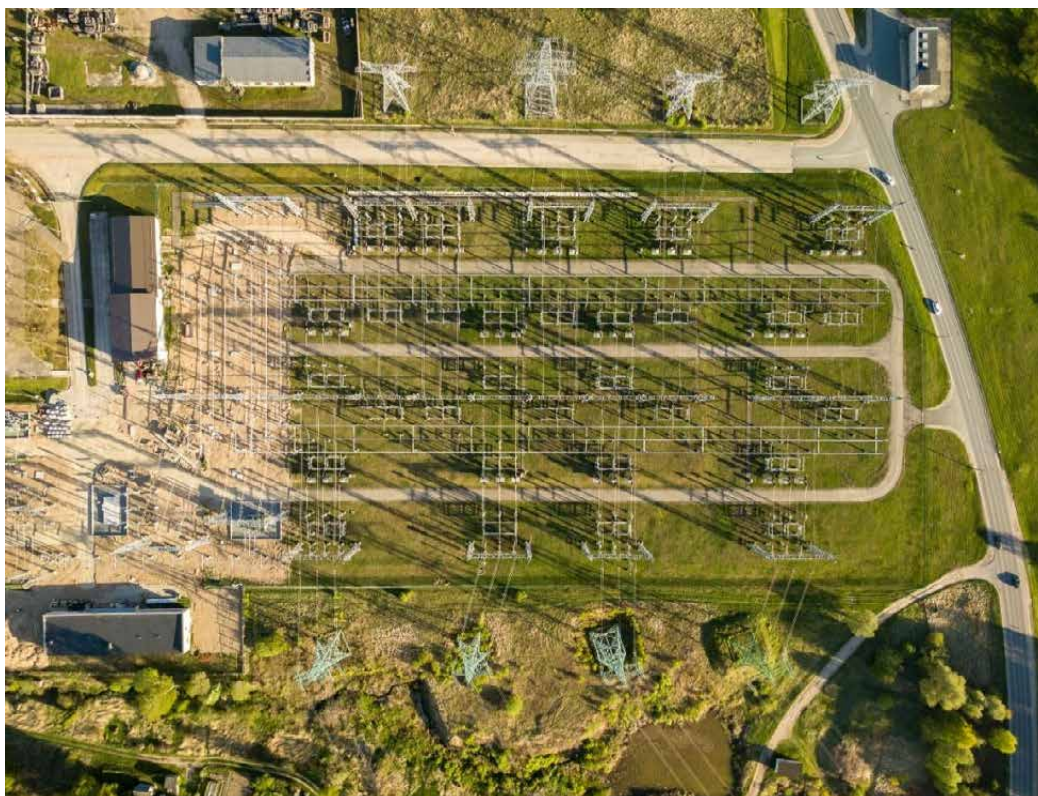


2.5.5 The proposed 400kV overhead line, approximately 4km in length, would then run southwards from this connection point with the existing 2TW/YR 400kV overhead line to connect with a proposed 275kV substation, known as York North, which would be located to the north of the existing XCP 275kV overhead line which connects to Monk Fryston Substation to the south and Poppleton Substation to the south-east (**Figure 1.1**). **Figures 2.5** and **2.6** show an image and typical layout for a substation.

Figure 2.5 Substation



Figure 2.6 Typical Substation Layout



- 2.5.6 It is currently anticipated that the proposed 400kV overhead line would comprise twin conductors supported by steel lattice pylons. The design is likely to have the following characteristics:
- suspension pylons (which support the overhead line in a straight line), tension pylons (which support the overhead line where the line changes direction) and terminal pylons (which support the overhead line when the line is connected to York North substation);
 - standard height for a suspension pylon of approximately 46.5m but for the purposes of scoping a maximum height of 60m has been assumed (pylon heights can vary according to environmental conditions such as topography, or technical requirements e.g., they may need to be taller to avoid navigable rivers or to maintain appropriate clearances);
 - typical base footprint of approximately 10m x 10m (total area enclosed by pylon base comprising four stub foundations); and
 - typical span lengths between pylons of approximately 360m (the conductor span for the proposed route is likely to vary between 300-400m, depending on ground levels and other constraints which affect span lengths).
- 2.5.7 York North 275kV substation would have an approximate footprint of 310m by 230m (71 hectares) and would include super grid transformers to change the voltage between 400kV and 275kV overhead lines. It would also house switchgear and controls, as well as welfare facilities for operational staff. For the purposes of scoping, the substation and associated infrastructure is assumed to have a maximum height of 15m.
- 2.5.8 To the south of the York North 275kV substation, two new 275kV overhead lines would connect the substation to the existing XCP 275kV overhead line, effectively splitting the existing XCP 275kV overhead line into two separate 275kV overhead lines; one connecting to Monk Fryston substation and a second overhead line connecting to Poppleton substation from the proposed York North 275kV substation.

Tadcaster Area

- 2.5.9 The development proposals in this Area comprise two proposed 275kV CSECs each with an approximate footprint of 0.2Ha (50m by 40m). These new structures would connect to the second circuit of the existing XC overhead line to the existing XD overhead line. The two proposed CSECs would be connected via short sections (approximately 500m) of underground cabling.

Monk Fryston Substation Area

- 2.5.10 The development proposals located in this Area comprise a new 400kV substation adjacent to (and connecting into) the existing Monk Fryston 275kV/400kV substation. The proposed 400kV substation would have an approximate footprint of 37.5Ha (approximately 350m by 210m) and be of a similar height to the existing substation (approximately 15m) and supporting infrastructure. Its exact siting will be confirmed as the detailed design and optioneering work progresses. The substation would contain the necessary transmission equipment. It would also house switchgear and controls, as well as welfare facilities for operational staff.

- 2.5.11 At Monk Fryston there is also the need for associated supporting infrastructure likely to comprise:
- a 275kV CSEC, with a footprint of approximately 0.2Ha (40m by 50m), which would be in close proximity to or within the compound of the proposed 400kV Monk Fryston substation;
 - the proposed reconfiguration (including new spans of overhead line) of the existing 275kV Poppleton to Monk Fryston (XC/XCP) overhead line. This is required to transfer the existing line from the 275kV Monk Fryston substation into the proposed 400kV Monk Fryston substation;
 - the proposed reconfiguration of the existing 400kV Monk Fryston to Eggborough (4YS) overhead line. This is to connect the existing overhead line into the proposed 400kV Monk Fryston Substation; and
 - short sections (approximately 500m) of underground cables to connect the CSEC with the proposed 400kV Monk Fryston substation.

Other development

- 2.5.12 Other development which will be required to support the implementation of the Project and will form part of the DCO includes the following:
- a circuit breaker and an isolator at the existing Osbaldwick 400kV substation (assumed to be on operational land);
 - reconductoring, strengthening and potential limited pylon replacement of the existing 275kV Poppleton to Monk Fryston (XC/XCP) overhead line between Monk Fryston substation and the point at which the new 275kV will be constructed to connect to the proposed York North substation; and
 - replacement of a suspension pylon with a proposed tension pylon on the existing 275kV Tadcaster Tee to Knaresborough (XD/PHG) overhead line at Tadcaster.
- 2.5.13 In addition protection and control changes at all of the remote end substations (Norton, Eggborough, Poppleton, Osbaldwick and Knaresborough), however these works fall outside the DCO.

2.6 Construction

Construction compounds

- 2.6.1 Temporary construction compounds and laydown areas would be set up at strategic locations along the alignment, with associated access points from the existing road network. All compounds would be accommodated within the Scoping Red Line Boundary and will be sited alongside or adjacent to the relevant works. Where possible, a site would be chosen which is accessible for heavy goods vehicles, has existing services and preferably has some hardstanding to avoid or reduce the need to create a level base for the compound. The importation of material would be required to provide hardstanding if suitable material is not already in place.
- 2.6.2 As a minimum, it is assumed for the purposes of this Scoping Report that construction compounds would be required at the following locations:

- York North CSEC;
- York North substation;
- Tadcaster double tee;
- Monk Fryston substation; and
- Osbaldwick substation.

2.6.3 The construction compounds would generally comprise of temporary cabin or modular style units that would be positioned to maximise construction space and limit the area of land take required. Such units would be used for the purposes of site management activities and also provide welfare accommodation for the construction workforce. As well as this, the construction compounds would provide distinct laydown areas for the storage of construction plant and for the delivery and removal of materials. Compounds may also be used for the stockpiling of materials to facilitate their transfer to and from construction working area. Defined areas for staff parking would also be provided as part of the construction compound.

2.6.4 Security fencing or hoardings would be provided around the perimeter of each construction compound. The specification and construction of fences will depend on factors such as the level of security required and the degree of visual impact. Lighting of construction compounds would be designed to limit light pollution to the surrounding area.

2.6.5 Compounds would comprise a mix of satellite (approximate footprint 85m by 75m) and main compounds (approximate footprint 110m by 130m). Satellite compounds are smaller compounds with storage and laydown areas but unlike main compounds will not include offices.

2.6.6 All compound areas would be reinstated as soon as reasonably practicable after completion of the construction works and demobilisation.

Construction access

2.6.7 Site construction activities would begin with the preparation and installation of temporary access roads to each pylon site. Existing accesses from public highways may need to be widened, due to the size of the construction vehicles, or temporary new accesses may be required. Temporary access tracks may be required to the site of each pylon and to possible scaffolding sites. Substations and CSECs would require permanent access roads to be constructed.

2.6.8 Access to the existing Monk Fryston and Osbaldwick substations would be via the current road network as follows:

- Monk Fryston substation: The main access will be from Rawfield Lane which is adjacent and provides direct access onto the A63 to the north. The A63 to the west connects to the A1(M) and to the east to the A162. To the south Rawfield Lane passes under the A1(M) and into the village of Fairburn. From here it is possible to access the A1246, which provides an alternative access to the A1(M) or Great North Road.
- Osbaldwick substation: The main access to the substation is via a private access road which links to Murton Way. To the east, Murton Way passes under the A64,

leading into the village of Murton. From here there is direct access to the A64 via Murton Lane and Stamford Bridge Road. Alternatively, access to Murton Way is also possible via the Osbaldwick Link Road which merges with the eastbound and westbound carriageways of the A1079 (Hull Road). The westbound carriageway provides direct access to the A64.

- 2.6.9 Primary access to the 275kV reconductoring works would be from the existing road network, however, there may be the need to create temporary access tracks from the existing road network given the nature of works required and plant to be used.
- 2.6.10 Access routes to the proposed York North substation and the 400kV overhead line have yet to be defined. In addition, there may be the requirement for bellmouths where these accesses meet the road network to enable the appropriate access arrangement for site traffic. Further definition of the access routes and requirements for bellmouths will be provided as the design of the Project progresses.
- 2.6.11 A Construction Traffic Management Plan (CTMP) will be developed for the Project which will outline the modes of transport proposed for the delivery of construction materials, plant, the construction workforce and the removal of waste materials. The aim of the CTMP will be to reduce HGV and road traffic movements generated by the Project where practical and possible. A Public Rights of Way (PRoW) management plan will also be developed setting out any temporary and permanent diversions of PRoWs.

Typical construction methodology

- 2.6.12 Construction works for both proposed substations (400kV Monk Fryston substation and York North 275kV substation) would comprise site preparation works, installation of underground services and foundations, construction of buildings, installation of the electrical equipment, installation of perimeter fencing as well as any landscaping measures to screen each substation such as earthbunds and planting.
- 2.6.13 The proposed CSECs would be constructed within fenced compounds. Earthworks and excavation would create the trenches for the underground cabling required. Once laid, the cabling would be joined together in a process known as 'jointing' and subsequently enclosed within a protective cover. The trenches would then be filled with soil stored from the excavation and the land reinstated.
- 2.6.14 Construction works for the new overhead lines would comprise the clearance and fencing of each pylon site. The foundations of lattice pylons would be piled or excavated. Pre-mixed concrete would be delivered to site in HGVs along with steelwork for the foundation frames and bases. The foundation comprises reinforcing steelwork encased in concrete with 'stubs' appearing through the concrete above ground to which the pylon legs are attached.
- 2.6.15 The steelwork for the pylons would be delivered to site in pre-constructed sections or in numbered parts and would be bolted together on the ground. The pylon would be assembled in sections beginning with each leg being fastened to the stubs. The pylon is erected using a mobile crane which lifts the assembled steelwork into position. The insulators would be fastened to the pylons in preparation for installing the conductors. Insulators are used to resist the flow of electricity. They prevent the electricity from the conductor reaching the pylon. This means the pylon can be accessed without always needing to disconnect the circuit.

- 2.6.16 The wires (conductors) would be installed usually in sections between tension pylons where the line changes direction. A pulling site would be established at one end of the section with the conductors running out from a tensioning site at the other end of the section.
- 2.6.17 In order to install the conductors, pilot wires would be laid at ground level (and over temporary scaffolding protecting obstacles such as roads and railway lines) along the length of the section between the pulling site and the tension site. The pilot wires would be lifted and fed through running wheels on the cross arms of all the pylons in the middle of the section, and then fed around the pulling machine at the pulling site. The tensioning machine would keep the wires off the ground and prevent the conductors running freely when the pulling machine pulls the pilot wire. When the conductor is fully 'run out', it would be fastened at its finished tension and height above ground and suspended from the conductors. Additional fittings such as, spacers and dampers, would be fitted to the conductors. Spacers prevent the conductors from touching each other and dampers prevent oscillations in the overhead line. In some areas it may be possible to use the existing conductor to pull through the new conductor which would remove the need for pilot wires.
- 2.6.18 Works to reconductor, strengthen and potentially replace pylons along the existing 275kV Poppleton to Monk Fryston (XC/XCP) would be broadly similar to the 400kV overhead line works described above. Works are likely to occur along much of the overhead line between Monk Fryston and York North. Vans are used to carry workers in and out of site and trucks are used to bring new materials and equipment to site and remove old equipment. Cranes may be required in some areas. Temporary works including installation of access routes and scaffolding to protect roads, railways and footpaths would be required as necessary.
- 2.6.19 Some sections of the existing 275kV Poppleton to Monk Fryston (XC/XCP) may require permanent removal depending on the final option selected. Works would be similar to the construction works described above with the overhead line fittings, such as dampers and spacers, removed from the conductors. The conductors would be cut into manageable lengths or winched onto drums in a reverse process to that described for construction. The fittings would be removed from the pylons and lowered to the ground.
- 2.6.20 The pylon may be dismantled by crane, with sections cut and lowered to the ground for further dismantling and removal from site. Depending on the space available, it may be possible to cut the pylon legs and then pull the pylon to the ground using a tractor. The pylon can then be cut into sections on the ground. Unless there is a compelling need for removal of all the foundations, these would be removed to approximately 1m deep and subsoil and topsoil reinstated.

Construction programme timescales

- 2.6.21 The main construction phase is anticipated to commence in January 2025 and continue for a period of up to four years. Connection of the Project to the NETS is expected in September 2027.
- 2.6.22 A number of works are expected to occur in parallel, however, the exact phasing of the works has yet to be determined. Further details of the likely construction programme and phasing will be included within the ES.

2.7 Operation and maintenance

2.7.1 Periodic maintenance and inspection of the Project would be required during its operational lifetime. This would identify any damage or deterioration of the components, such as can occur from storm events. Typical maintenance procedures are summarised in **Table 2.1**.

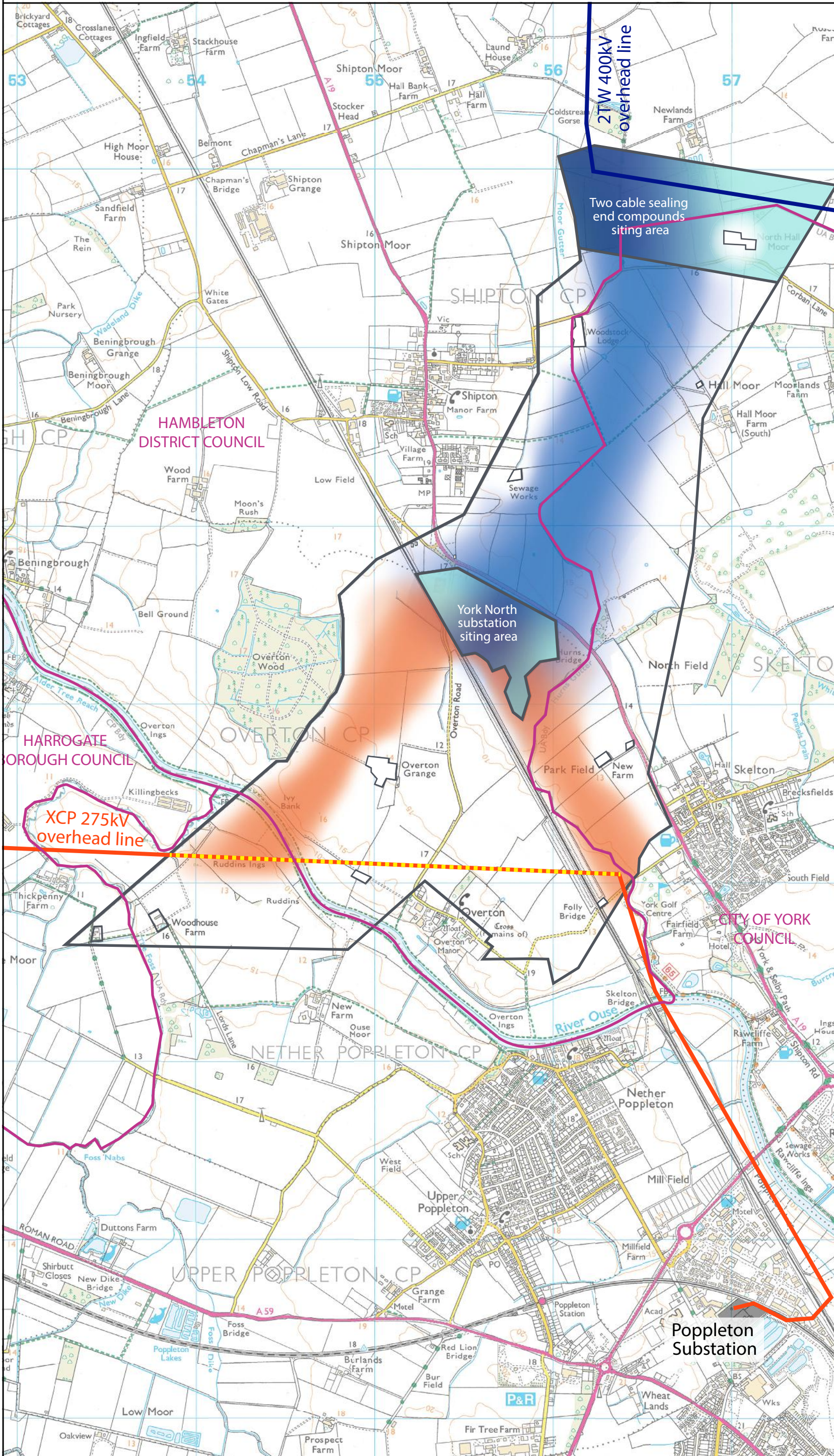
Table 2.1 Typical maintenance procedures

Scheme Element	Example Maintenance Works
Underground cable and CSECs	Visual inspections and/or of cabling and electrical equipment within the CSECs via fibre optic cables or use of an access platform and cable testing at above ground link boxes.
Pylons and overhead cabling	Visual inspections of the overhead line (either from ground or via helicopter). Painting or replacement of pylon steelwork. Replacement of pylon fittings and anti-climbing devices, bracing. Replacement of conductors and earth wires and associated insulators and fittings. Works are typically undertaken on one side of the pylon and then the other as to enable one side to be kept 'live' and in use.
Substations	Visual inspections of equipment within substations to ensure smooth and efficient working. Servicing of equipment, such as cleaning, adjustment and lubrication. Repair and replacement of equipment which is faulty.

2.8 Decommissioning

2.8.1 The expected life span of the Project is approximately 80 years, however, the lifespan of specific components such as the overhead lines may be longer, depending on their condition and any future refurbishments. Decommissioning is likely to only occur once the infrastructure is no longer required and whilst it is assumed that aspects of the connection could be removed at the end of life, it is too early to determine this. It is expected that any dismantling of the infrastructure would be completed in a similar manner to the construction phase. It is assumed that effects during the decommissioning phase would be of a similar nature to activities conducted during the construction phase, although the baseline will have changed given the timescales.

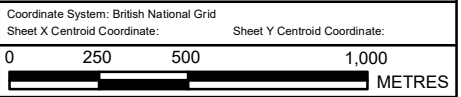
PROJECT COMPONENTS



Legend

- Potential alignment of new 400kV overhead line
- Potential alignment of the two new 275kV overhead lines
- Preliminary location of infrastructure, including the York North substation and cable sealing end compounds
- Existing properties
- Existing 400kV overhead line
- Existing 275kV overhead line
- Partial removal of the existing 275kV Poppleton to Monk Fyston overhead line
- District boundary
- North west of York corridor boundary

Notes
 This drawing is scaled at paper size A3, therefore any prints taken at smaller sizes will affect accuracy of the measurement units and should not be scaled against.



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Issue	Date	Remarks	Drawn	Checked	Approved

Title

Graduated swaths (option 1)

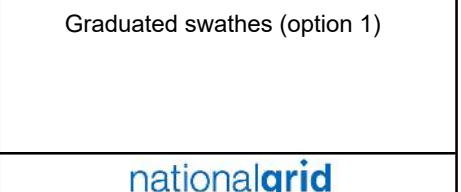
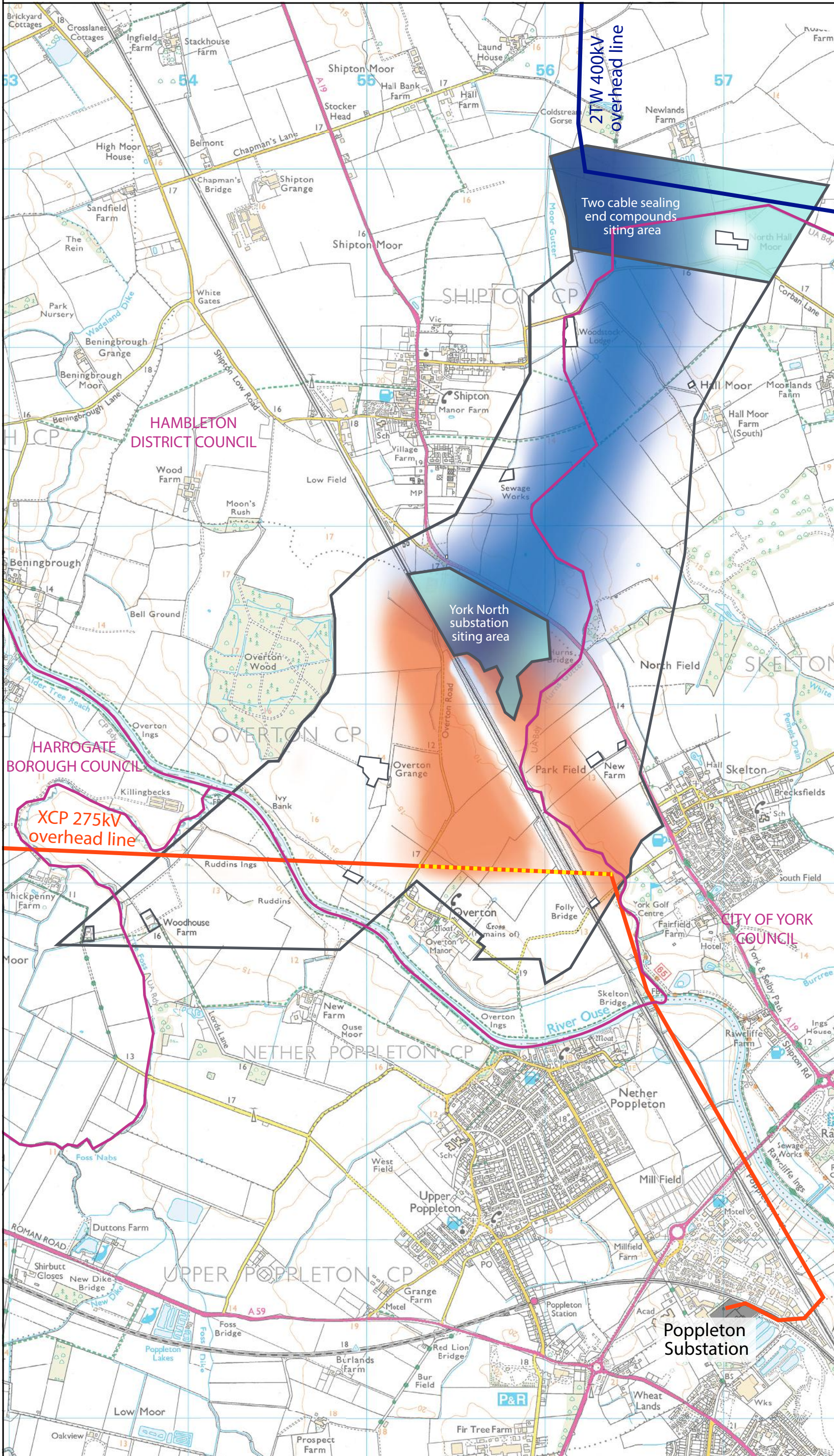


Figure Number: FIGURE 2.2

Drawing Reference: 806503-WOOD-XX-FG-OL-00001_S0_P01.1

Scale	Sheet Size	Sheet	Issue
Not to scale	A3	SHEET 1 OF 1	P01.1

PROJECT COMPONENTS



Legend

- Potential alignment of new 400kV overhead line
- Potential alignment of the two new 275kV overhead lines
- Preliminary location of infrastructure, including the York North substation and cable sealing end compounds
- Existing properties
- Existing 400kV overhead line
- Existing 275kV overhead line
- Partial removal of the existing 275kV Poppleton to Monk Fryston overhead line
- District boundary
- North west of York corridor boundary

Notes
 This drawing is scaled at paper size A3, therefore any prints taken at smaller sizes will affect accuracy of the measurement units and should not be scaled against.

Coordinate System: British National Grid
 Sheet X Centroid Coordinate: Sheet Y Centroid Coordinate:
 0 250 500 1,000
 METRES

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P01.1	12/03/21	DRAFT	NP	RD	RD
Issue	Date	Remarks	Drawn	Checked	Approved

Title

Graduated swathes (option 2)



Figure Number FIGURE 2.3

Drawing Reference 806503-WOOD-XX-FG-OL-00002_S0_P01.1

Scale	Sheet Size	Sheet	Issue
Not to scale	A3	SHEET 1 OF 1	P01.1

3. Legislation and Policy Overview

3. Legislation and Policy Overview

3.1 Introduction

3.1.1 This chapter provides an overview of the key legislation and policy against which the Development Consent Order (DCO) application will be assessed. A full explanation of the relevant policy and legislation will be provided in the ES. Each environmental aspect chapter (**Chapters 5 to 16**) will provide a summary of the key legislation relevant to the specific aspect assessment.

Withdrawal of the UK from the EU

3.1.2 UK Legislation is determined by a range of international agreements (including European Union (EU) directives, regulations and agreements) which are outlined in this chapter. The UK left the EU on 31 January 2020 under terms set out in the *European Union (Withdrawal Agreement) Act 2020 (SI 2020 c. 1)* (the 'Withdrawal Act'). The Withdrawal Act established a transition period which ran until 31 December 2020. This transition period saw the UK being treated for most purposes as if it were still an EU member state with most EU law (including as amended or supplemented) continuing to apply to the UK. The Withdrawal Act retained the body of existing EU-derived law (which includes *The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (SI 2017 No. 572)* (the 'EIA Regulations') and other relevant environmental legislation) within UK domestic law. EU legislation as it applied to the UK on 31 December 2020 has been retained in UK law as a form of domestic legislation known as 'retained EU legislation'.

3.1.3 In exercise of the powers in the Withdrawal Act, the Government made *The Environmental Assessments and Miscellaneous Planning (Amendment) (EU Exit) Regulations 2018 (SI 2018 No. 1232)*. These regulations provide for the EIA Regulations to be amended to ensure they function correctly after the UK exiting the EU on 31 January 2020. In particular, the amendments update references in the EIA Regulations to EU law, Member States and related terms to reflect the UK leaving the EU. The regulations do not make substantive changes to the way the EIA regime will operate following the UK leaving the EU.

3.2 Planning Act 2008

3.2.1 The *Planning Act 2008 (SI 2008 c. 29)* (as amended) is the primary legislation that establishes the legal framework for applying for, examination and determination of applications for DCOs for Nationally Significant Infrastructure Projects (NSIPs) in line with the requirements of published National Policy Statements (NPSs).

3.2.2 As the Project consists of the installation of an electric line above ground of more than 132kV and more than 2km, it is classified as an NSIP under Section 14(1)(b) of the Planning Act 2008. The Planning Act 2008 has been amended through the adoption of the *Localism Act 2011 (SI 2011 c. 20)* which transferred decision-maker responsibilities to the relevant Secretary of State (SoS). Under the Localism Act 2011, the Planning

Inspectorate is responsible for the NSIP planning process and will examine the DCO application for the Project and make a recommendation to the SoS to grant or refuse consent.

3.3 National Policy Statements

3.3.1 NPSs are produced by the Government and they comprise the Government’s objectives for the development of NSIPs. Part 2 of the Planning Act 2008 outlines the provisions in relation to NSIPs. There are currently 12 designated NPSs of which six relate to energy generation, and the two NPSs of relevance to the Project are:

- Overarching National Policy Statement for Energy (EN-1) (DECC, 2011a): this NPS sets out the national policy for energy infrastructure. In combination with the relevant technology specific NPSs, it effects the decisions made by the SoS on applications for energy developments within the scope the NPSs.
- National Policy Statement for Electricity Networks Infrastructure (EN-5) (DECC, 2011b): this NPS, in combination with EN-1, is the primary basis of decisions made by the SoS on applications for electricity networks infrastructure. The Project falls within the scope of this NPS as it comprises transmission systems and associated infrastructure (see Section 1.8 of EN-5).

3.3.2 National Policy Statement for Renewable Energy Infrastructure (EN-3) (DECC, 2011c) may also have relevance to the Project, in the view of the need for the Project to reinforce boundary flows and facilitate future connections from offshore wind.

3.3.3 Where relevant to the EIA, further details pertaining to NPSs are provided in the environmental aspect chapters (**Chapters 5 to 16**) of this Scoping Report and will be included in the ES.

3.4 Local planning policy

3.4.1 A summary of the relevant local planning policy is included in **Table 3.1**.

Table 3.1 Relevant local planning policy

Plan	Summary
Harrogate Borough Council	
Harrogate District Local Plan 2014-2035 (Harrogate Borough Council, 2020)	The Harrogate District Local Plan 2014-2035, adopted 4 March 2020, sets out the spatial vision and development strategy for the Harrogate District. The Local Plan sets the scale of new development that is planned and a strategy for accommodating this growth; includes detailed policies across several thematic areas to manage new development; and allocates specific sites for particular types of development.
Hambleton District Council	
Hambleton Local Development Framework:	In April 2007, the Council adopted its first Development Plan Document (DPD) as part of the Local Development Framework

Plan	Summary
Core Strategy DPD (Hambleton District Council, 2007)	(LDF). The Core Strategy DPD sets out the long-term spatial vision for Hambleton; to become sustainable, prosperous, safe, healthy and vibrant.
Hambleton Local Development Framework: Development Policies DPD (Hambleton District Council, 2008)	In February 2008, the Council adopted its second DPD as part of the LDF. The Development Policies DPD sets out detailed policies for development and delivering the vision, objectives and core policies of the Core Strategy DPD. Its policies play a key role in the process of determining planning applications.
Hambleton Local Development Framework: Allocations DPD (Hambleton District Council, 2010)	In December 2010, the Council adopted its DPD. This completes the suite of DPDs making up the LDF. The Allocations DPD sets out sites for development (e.g., housing and employment) and defines development limits for the main settlements. This plan covers the period up to 2026.
Hambleton Local Plan – Publication Draft (Hambleton District Council, 2019)	The Hambleton Local Plan was submitted to the SoS (the Planning Inspectorate) for examination on 31 March 2020. The Local Plan sets out a strategy for development within Hambleton up to 2035. The Plan also sets out the policy framework which will be used to determine proposals for development across the district and for enforcement purposes
City of York Council	
Draft Development Control Local Plan (City of York Council, 2005)	The Draft Development Control Local Plan was approved for development management purposes in 2005. Although not 'formally adopted', this is the document used as the basis for development control decisions.
City of York Local Plan – Publication Draft (City of York, 2018)	The New Local Plan is currently undergoing examination, having been submitted to the SoS on 25 May 2018. The Local Plan covers the period from 2017 to 2032/33. Once finalised and adopted, the Local Plan will be used to manage development through the determination of planning applications.
Upper Poppleton and Nether Poppleton Neighbourhood Plan (Upper Poppleton Parish Council and Nether Poppleton Parish Council, 2017)	The Upper and Nether Poppleton Neighbourhood Plan was formally adopted or 'made' by City of York Council Executive on 19 October 2017. This Neighbourhood Plan is used when determining planning applications within the identified Upper and Nether Poppleton Neighbourhood Area.
North Yorkshire County Council	
North Yorkshire Minerals Local Plan (saved policies) (North Yorkshire County Council, 2007)	The policies of the Minerals Local Plan were due to expire on the 27 September 2007, but some have been 'saved'. The 32 'saved' policies continue to form part of the statutory development plan and provide the local policy framework for development control

Plan	Summary
North Yorkshire Waste Local Plan (saved policies) (North Yorkshire County Council, 2009)	decisions until they are replaced by ones in the Minerals and Waste Plan.
Minerals and Waste Joint Plan (City of York Council, North York Moors National Park Authority, North Yorkshire County Council, 2016).	The Minerals and Waste Joint Plan has been submitted to the Planning Inspectorate for examination. The Authorities have therefore worked jointly to prepare the Minerals and Waste Plan, referred to as the 'Joint Plan', containing planning policies to guide decisions about matters such as where, when and how minerals and waste developments should be planned and controlled up to 31 December 2030.
Leeds City Council	
Unitary Development Plan Review (Leeds City Council, 2006)	The Unitary Development Plan (UDP) Review (2006) forms the statutory development plan for the whole of the Leeds District, and will gradually be replaced by the emerging Local Plan. It provides a framework for all new developments and is used as a basis for making decisions regarding land use and planning applications.
Natural Resources and Waste Local Plan (Leeds City Council, 2015)	The Natural Resources and Waste Plan is part of the Local Plan for Leeds. The Plan sets out where land is needed to manage resources like minerals, energy, waste and water over the next 15 years. It identifies actions to use natural resources in a more efficient way. It was adopted on 16 January 2013 and revised in September 2015.
Core Strategy (Leeds City Council, 2019)	The Core Strategy, adopted in November 2014 and updated in 2019, is the main strategic document within the Local Plan for Leeds and sets out the strategic policy framework for the district to 2028 and a housing requirement to 2033. It comprises a long-term spatial vision and strategic objectives, a spatial strategy, thematic policies and a monitoring and implementation framework.
Selby District Council	
Selby District Local Plan (Selby District Council, 2005)	The Selby District Local Plan (SDLP) was formally adopted on 8th February 2005. The Local Plan develops and underpins many of the aims and objectives of the Council. It provides a comprehensive land-use framework for promoting, co-ordinating and controlling future development. The Core Strategy and 'saved' SDLP policies make up the Local Plan for the District.

Plan	Summary
Selby District Core Strategy Local Plan (Selby District Council, 2013)	The Core Strategy is the long-term strategic vision for how the District will be shaped by setting out a number of broad policies to guide development. The Council's Core Strategy was adopted on 22 October 2013. The Core Strategy is the main document in the Council's suite of planning documents.
Preferred Options Local Plan (Selby District Council, 2021)	A six-week consultation is being held between 29 January 2021 and 12 March 2021 for the Preferred Options Local Plan 2021. The Plan is a vision and framework for future growth in the District, identifying where new housing, employment and other development could take place. It also sets out the policies to be used when deciding planning applications.

3.4.2 Further aspect specific details on local planning policy, including specific policies of relevance to the Project, are provided in the environmental aspect chapters (**Chapters 5 to 16**) of this Scoping Report and will be included in the ES.

3.5 The EIA Regulations

3.5.1 An EIA is required because it is considered that the Project meets the criteria for EIA development under the EIA Regulations. The requirement for an EIA originates from the EU *Council Directive 85/337/EEC of 27 June 1985 on the assessment of the effects of certain public and private projects on the environment* (the 'EIA Directive') (as amended by *Directive 2011/92/EU and 2014/52/EU*). The EIA Directive is directly transposed into English law for NSIPs (required as part of the Planning Act 2008) by the EIA Regulations.

3.5.2 The EIA Regulations set out a procedure for assessing, consulting and informing decision-making for projects which are likely to have significant environmental effects. The EIA Regulations require the provision of an ES, which will be submitted alongside the DCO application for the Project.

3.5.3 Paragraph 5 of Schedule 4 of the EIA Regulations specifically outlines that the EIA must identify, describe and assess, the direct and any indirect, secondary, cumulative, transboundary, short-term, medium-term and long-term, positive and negative significant effects of the Project upon specific environmental factors. The requirement of Schedule 4 of the EIA Regulations will be met through the assessment of effects for each environmental aspect assessed as part of the EIA. Further details on the approach to the EIA are outlined in **Chapter 4** and in the scope of environmental aspects outlined in the environmental aspect chapters (**Chapters 5 to 16**).

3.5.4 The EIA will be undertaken in line with legislation and policy and specifically in accordance with the requirements of the EIA Regulations. In addition, the EIA will take into consideration a range of key guidance documents from the Planning Inspectorate which include:

- Advice Note Three: EIA consultation and notification (Version 7) (The Planning Inspectorate, 2017a).

- Advice Note Six: Preparation and submission of application documents (Version 9) (The Planning Inspectorate, 2020a).
- Advice Note Seven: Environmental Impact Assessment: Preliminary Environmental Information, Screening and Scoping (Version 7) (The Planning Inspectorate, 2020b).
- Advice Note Nine: Rochdale Envelope (Version 3) (The Planning Inspectorate, 2018a).
- Advice Note Ten: Habitats Regulations Assessment relevant to Nationally Significant Infrastructure Projects (Version 8) (The Planning Inspectorate, 2017b).
- Advice Note Eleven: Working with public bodies in the infrastructure planning process (Version 4) (The Planning Inspectorate, 2017c).
- Advice Note Twelve: Transboundary Impacts and Process (Version 6) (The Planning Inspectorate, 2020c).
- Advice Note Seventeen: Cumulative effects assessment (Version 2) (The Planning Inspectorate, 2019a).
- Advice Note Eighteen: The Water Framework Directive (The Planning Inspectorate, 2017d).

3.5.5 The Institute of Environmental Management and Assessment (IEMA) also provides guidance on EIA, and the EIA for the Project will take into consideration the following guidance documents from IEMA:

- Environmental Impact Assessment Guide to: Delivering Quality Development (IEMA, 2016).
- Delivering Proportionate EIA. A Collaborative Strategy for Enhancing UK Environmental Impact Assessment Practice (IEMA, 2017).

3.5.6 These lists of guidance documents are not exhaustive and provide a general overview of the important guidance that will help to inform the EIA process for the Project. The lists will be continually reviewed and updated throughout the EIA process up to submission of the DCO application. Each individual environmental aspect will also refer to relevant aspect-specific guidance in the environmental aspect chapters (**Chapters 5 and 16**) of the Scoping Report, where appropriate. A full list of the relevant legislation and guidance considered as part of the EIA process will be provided within the Preliminary Environmental Information Report (PEIR) and ES.

3.6 National Grid's statutory obligations

3.6.1 National Grid's statutory obligations are set out in the Electricity Act 1989 (the Electricity Act) and in the terms of its Transmission Licence (regulated by Ofgem).

3.6.2 Under Section 9 of the Electricity Act, National Grid has a duty to develop and maintain 'an efficient, co-ordinated and economical' system of electricity transmission and have a statutory obligation to offer terms to connect generators to the transmission system when a connection offer is submitted.

3.6.3 National Grid ensures that electricity supplies are sufficiently reliable and meet minimum standards of quality in terms of voltage and frequency. The Transmission Licence

requires National Grid to plan and operate the system in accordance with the National Electricity Transmission System Security and Quality of Supply Standards (NETS SQSS). National Grid maintains the long-term reliability of the network by overseeing a programme of investment and asset replacement. Because of this, the network is over 99% reliable.

3.6.4 National Grid has a statutory duty under Schedule 9 of the Electricity Act to ‘have regard to the desirability of preserving amenity’ and must do what it reasonably can to mitigate the potential impacts of connecting new energy generation to our network.

4. The EIA Process

4. The EIA process

4.1 Approach to EIA Scoping

Overarching approach

4.1.1 Environmental Impact Assessment (EIA) is a process for identifying the likely significant environmental effects (positive and negative) of a Project to inform the decision-making process for development consent to be granted. The EIA process will culminate in the provision of an Environmental Statement (ES) written in accordance with the EIA Regulations and will provide an overview of the likely significant effects associated with the Project during the construction, operation and maintenance and decommissioning phases which will help to inform decision-making.

4.1.2 Schedule 4(4) of the EIA Regulations specifies that the ES should describe those:

“...factors...likely to be significantly affected by the development: population, human health, biodiversity (for example fauna and flora), land (for example land take), soil (for example organic matter, erosion, compaction, sealing), water (for example hydromorphological changes, quantity and quality), air, climate (for example greenhouse gas emissions, impacts relevant to adaptation), material assets, cultural heritage, including architectural and archaeological aspects, and landscape.”

4.1.3 Regulation 5(2) of the EIA Regulations requires the interaction between these factors to be considered. In addition, Regulation 5(4) requires ESs to consider:

“...the expected significant effects arising from the vulnerability of the proposed development to major accidents or disasters that are relevant to that development.”

4.1.4 The EIA process aims to be systematic, analytical, impartial, consultative and iterative allowing opportunities for environmental concerns to be addressed in the design and evolution of the Project. Typically, throughout the evolution of the design, a number of design iterations take place in response to environmental constraints identified during the EIA process, stakeholder engagement and consultation prior to the final design being submitted for approval. The principal design alternatives that have been considered to date are summarised in **Section 4.2**. This iterative design process is a fundamental element of the EIA for the Project and this will be described further at later stages in the Preliminary Environmental Information Report (PEIR) and ES as the design continues to develop.

4.1.5 The scoping process will identify the different methodologies used for the assessment and these will be based on recognised good practice and guidelines specific to each environmental aspect as set out in **Chapters 5 to 16**.

4.2 Determining the scope of the assessment

4.2.1 The EIA scoping process establishes which aspects of the environment are likely to be significantly affected by a project and involves identifying:

- the people and environmental resources (collectively known as 'receptors') that could be significantly affected by the Project, and
- the work required to take forward the assessment of these potentially significant effects.

4.2.2 Scoping is an important procedure, which sets the context for the EIA process. It is intended to inform a proportional and robust approach to assessment through initial evaluation and reporting of identified likely significant effects in a Scoping Report.

4.2.3 Effective scoping enables agreement to be reached on the aspects and methodologies to be taken forward and assessed and reported in much greater detail in the ES. It also provides an opportunity for early interaction with stakeholders, strengthening the assessment evidence base and allowing active participation of interested parties in project development and decision making. This can in turn improve project design, environmental soundness and social acceptability.

4.2.4 The approach taken in preparation of this Scoping Report has also been informed by the Planning Inspectorate's Advice Note Seven (The Planning Inspectorate, 2020a) and reflects that the EIA Regulations require an ES to focus on aspects of the environment likely to be subject to significant effects. In line with guidance and legislation this Scoping Report seeks to, where appropriate, scope out aspects/matters from further assessment with suitable justification provided. This will streamline the assessment to focus on key likely significant effects and ensure the EIA for the Project is proportionate in accordance with the IEMA (2017) Delivering Proportionate EIA guidance document.

Technical scope

4.2.5 The technical scope of assessment for each environmental aspect is detailed in **Chapters 5 to 16** and this covers the scoping in and out of impacts and effects to be assessed as part of the EIA. Justification is provided for the individual approach and scoping of matters to be considered in the assessment for each environmental aspect. The technical scope also details the approach to baseline data collection and assessment methodologies.

Spatial scope

4.2.6 The spatial scope for each environmental aspect, the area over which changes to the environment are predicted to occur as a consequence of the Project, will depend on the nature of the potential effects and the location of receptors that could be affected. It takes account of:

- The physical area of the Project.
- The nature of the baseline environment.
- The manner and extent to which environmental effects may occur.

4.2.7 Each of the environmental aspect chapters (**Chapters 5 to 16**) describes the study area to be considered, providing a clear explanation as to why the study area has been adopted. The spatial scope of each assessment may be refined for both the PEIR and the ES in response to comments from consultees or further assessment work.

Temporal scope

- 4.2.8 The temporal scope covers the time period over which changes to the environment and the resultant effects are predicted to occur, and are typically defined as either being temporary or permanent:
- Permanent - these are effects that will remain even when the Project is complete, although these effects may be caused by environmental changes that are permanent or temporary.
 - Temporary – these are effects that are related to environmental changes associated with a particular activity and that will cease when that activity finishes.
- 4.2.9 The assessment will have regard to the project programme and will evaluate the environmental effects of the Project during construction, operation and maintenance. These effects will be compared to the situation prevailing before the Project is commenced (the current baseline), and to the situation that would prevail in the future without the Project (the projected future baseline). Given the timescales over which the Project is expected to operate (80 years) and the potential for baseline conditions to change substantially during this time, effects from decommissioning will not be assessed, however the nature, type and extent of effects are expected to be similar to construction phase effects. It is assumed that a separate EIA will be completed at the time of decommissioning.
- 4.2.10 The future baseline is the theoretical situation that would exist in the absence of the Project. This is based upon extrapolating the current baseline using technical knowledge of likely changes to predict this (e.g., predictable changes such as climate change, changes that can be predicted based on reasonable assumptions and modelling calculations, information about other relevant developments etc.).
- 4.2.11 Each environmental aspect chapter of the ES will define the baseline (current or future or both) against which the environmental effects of the Project will be assessed. The baseline conditions to be assessed for each environmental topic are outlined in **Chapters 5 to 16** of this Scoping Report. Where relevant, aspect chapters provide further information on the time elements within the project programme that will be considered for their assessment.

4.3 Assessment of effects and determining significance

Overview

- 4.3.1 For consistency, and to allow comparison between aspects, the methodology described in this section will be applied when preparing the ES. This methodology is designed to consider whether impacts of the Project would have an effect on any environmental receptors. Assessments broadly consider the magnitude of impacts and the sensitivity of resources or receptors that could be affected in order to classify the significance of effects.
- 4.3.2 The conclusion that is made on whether an effect should be considered significant is based upon professional judgement, with reference to the description of the Project in **Chapter 2**, and available information about:
- The magnitude and other characteristics of the potential changes (impacts) that are expected to be caused by the Project.

- The sensitivity of receptors to these changes.
- The effects of these changes on relevant receptors.
- The value of receptors (where relevant).

4.3.3 For each environmental aspect, the categories of resource or receptor sensitivity and magnitude of impact will be described or defined. The following sections therefore provide the generic criteria for the definition of resource or receptor sensitivity, magnitude of change and classification of effect.

4.3.4 The environmental aspect chapters (**Chapters 5 to 16**) provide greater detail on the approach to the assessment and specific guidelines for the definition of impact magnitude and resource or receptor sensitivity. The approach to the assessment undertaken by each environmental aspect will broadly follow the approach set out in the following sections. Variations from this approach may be applicable to specific environmental aspects whereby professional judgment in the application of standards mandated by professional bodies (for example the Institute of Ecology and Environmental Management (IEEM) or the Landscape Institute) is applied. Where this is the case, further detail and justification will be provided.

Resource and receptor sensitivity

4.3.5 The sensitivity or value of a receptor is largely a product of the importance of an asset, as informed by legislation and policy, and as qualified by professional judgement. For example, higher value receptors for landscape, biodiversity or the historic environment may be defined as being of international or national importance; lower value resources may be designated as being sensitive or important at a county or district level.

4.3.6 The use of a receptor also plays a part in its classification. For example, when considering visual amenity, a receptor which is residential in nature may be valued more than a place of work as the environmental quality of the residential receptor is more likely to be an important part of that receptor’s use.

4.3.7 **Table 4.1** sets out the generic guidelines for the assessment of sensitivity of a resource or receptor.

Table 4.1 Generic guidelines for the assessment of sensitivity

Value or sensitivity	Guidelines
High	Value: Feature or receptor possesses key characteristics which contribute significantly to the distinctiveness, rarity and character of the site or receptor (for example designated features of international or national importance). Sensitivity: Feature or receptor has a very low capacity to accommodate the proposed form of change.
Medium	Value: Feature or receptor possesses key characteristics which contribute significantly to the distinctiveness and character of the site or feature (for example designated features of regional or county importance). Sensitivity: Feature or receptor has a low capacity to accommodate the proposed form of change.

Value or sensitivity	Guidelines
Low	<p>Value: Feature or receptor possesses characteristics which are locally significant. Feature or receptor which is either not designated or is designated at a local or district level.</p> <p>Sensitivity: Feature or receptor has some tolerance to accommodate the proposed change.</p>
Very low	<p>Value: Feature or receptor characteristics do not make a significant contribution to local distinctiveness and not designated.</p> <p>Sensitivity: Feature or receptor is generally tolerant and can accommodate the proposed change.</p>

Magnitude of change

- 4.3.8 The magnitude of change affecting a receptor that would result from the Project will be identified on a scale from minor alterations or change, up to major changes or the total or substantial loss of the receptor. For certain aspects, the magnitude of change would be related to guidance on levels of acceptability (for example, for air quality or noise), and is therefore based on numerical parameters. For others it will be a matter of professional judgement to determine the magnitude of change, using descriptive terminology.
- 4.3.9 **Table 4.2** sets out the generic guidelines of the assessment of the magnitude of change.

Table 4.2 Generic guidelines for the assessment of magnitude

Magnitude	Guidelines
High	Large scale changes over the whole development area and potentially beyond to key characteristics or features of the particular environmental aspect's character or distinctiveness.
Medium	Medium scale changes over the majority of the development area and potentially beyond to key characteristics or features of the particular environmental aspect's character or distinctiveness.
Low	Noticeable but small-scale changes over part of the development area and potentially beyond to key characteristics or features of the particular environmental aspect's character or distinctiveness.
Very low	Noticeable but very small-scale change or barely discernible changes over a small part of the development area and potentially beyond, to key characteristics or features of the particular environmental aspect's character or distinctiveness.

Determination of significance

- 4.3.10 The significance of effects is derived with reference to information about the nature of the Project, the sensitivity or value of receptors that could be affected, together with the magnitudes of change that are likely to occur.
- 4.3.11 For many environmental aspects, significance can be determined by using a matrix. Variations to this matrix approach, which may be applicable to specific environmental aspects are detailed within the respective chapters (**Chapters 5 to 16**), along with descriptions of receptor sensitivity, magnitude of change and levels of effect that are considered significant. Definitions of how the categories that are used in the matrix are derived for each environmental aspect are also set out.
- 4.3.12 In addition, professional judgement is applied in the assessment, as the boundaries between the sensitivities or magnitudes of change may not be clearly defined and the resulting assessment conclusions may need clarifying.
- 4.3.13 The overarching significance matrix that will be used for the EIA is shown in **Table 4.3**. The generic definitions that will be used to determine the level of significance are shown in **Table 4.4**. Reference is made to:
- ‘Major’ effects, which will always be determined as being significant.
 - ‘Moderate’ effects can be significant, or not significant, based on specific scenarios and professional judgement.
 - ‘Minor’ or ‘negligible’ effects, which will always be deemed as ‘not significant’.
- 4.3.14 Effects can be either beneficial or adverse.

Table 4.3 Significance evaluation matrix

		Magnitude of change			
		High	Medium	Low	Very low
Sensitivity or value	High	Major (significant)	Major (significant)	Moderate (potentially significant)	Minor (not significant)
	Medium	Major (significant)	Moderate (potentially significant)	Minor (not significant)	Minor (not significant)
	Low	Moderate (potentially significant)	Minor (not significant)	Minor (not significant)	Negligible (not significant)
	Very low	Minor (not significant)	Minor (not significant)	Negligible (not significant)	Negligible (not significant)

Table 4.4 Generic classification of effect definitions

Level of significance	Description
Major	Very large or large change in environmental or socio-economic conditions. Effects, both negative and positive, which are likely to be important considerations at a national to regional level because they contribute to achieving national or regional objectives, or which are likely to result in exceedance of statutory objectives or breaches of legislation.
Moderate	Intermediate change in environmental or socio-economic conditions. Effects that are likely to be important considerations at a regional or local level.
Minor	Small change in environmental or socio-economic conditions.
Negligible	No discernible change in environmental or socio-economic conditions. An effect that is likely to have a neutral or negligible influence.

4.4 Environmental measures

4.4.1 In accordance with Regulation 14(2)(c) of the EIA Regulations, the ES will include a description of the “*measures envisaged in order to avoid, prevent or reduce and, if possible, offset likely significant adverse effects of the project on the environment*”. For each environmental aspect, the EIA process will systematically identify impacts and effects and take into consideration environmental measures that the Project will adopt. These environmental measures include avoidance, best practice and design commitments, which are classified into primary or tertiary measures in accordance with the IEMA ‘Guide to Shaping Quality Development’ (2015) definitions as follows.

- Primary (inherent): Referred to as ‘embedded measures’, are modifications to the location, design or operation of the development made during the pre-application phase that are an inherent part of the Project, and do not require additional action to be taken.
- Secondary (foreseeable): Actions that will require further activity in order to achieve the anticipated outcome and are referred to as ‘additional measures’.
- Tertiary (inexorable): Actions that would occur with or without input from the EIA feeding into the development process. These include actions that will be undertaken to meet other existing legislative requirements or actions that are considered to be standard practice used to manage commonly occurring environmental effects. These are referred to as ‘good practice measures’ and are also embedded within the design of the Project.

4.4.2 Opportunities for embedded design measures will be identified throughout the evolution of the design of the Project and the EIA process, whereby potential significant adverse environmental effects will be fed back into the design process to verify whether they can be avoided or otherwise mitigated in accordance with the hierarchy. Alongside this, good practice measures will be identified with reference to legislative requirements and measures of standard practice to manage commonly occurring effects. These design measures and good practice measures will be included within the Project plans and

drawings and thus are integrated into the overall design strategy as embedded measures.

- 4.4.3 Following the application of embedded measures, where the potential for a significant environmental effect remains, 'additional measures' will be considered to avoid, reduce or compensate this effect. The ES will report on the anticipated effects of the Project following the implementation of all mitigation to determine the 'residual effects'. A clear statement will be made as to whether the residual effects are significant or not significant in EIA terms. Residual effects may be beneficial as well as adverse.

4.5 Cumulative effects assessment

- 4.5.1 A cumulative effects assessment (CEA) will be carried out for the Project which will examine the result from the combined impacts of the Project with other developments on the same single receptor or resource as required under Paragraph 5(e) of Schedule 4 of the EIA Regulations and the interaction of environmental aspect effects occurring as a result of the Project in accordance with Regulation 5(2). Two types of effects will be considered:

- Inter-project effects: arise as a result of the Project in combination with other large-scale developments or projects.
- Intra-project effects: effects that occur as a result of two or more environmental aspect effects acting together (i.e. combined), to result in a new or changed effects on a single receptor.

- 4.5.2 In addition, where any other developments are anticipated to be completed before the Project begins construction and the effects of those developments are fully determined, affects arising from those developments will be taken into consideration within the construction and operational assessments reported in the environmental aspect chapters and considered as part of the potential 'future baseline'. The ES will clearly distinguish between developments forming part of the baseline and those in the CEA.

Inter-project effects

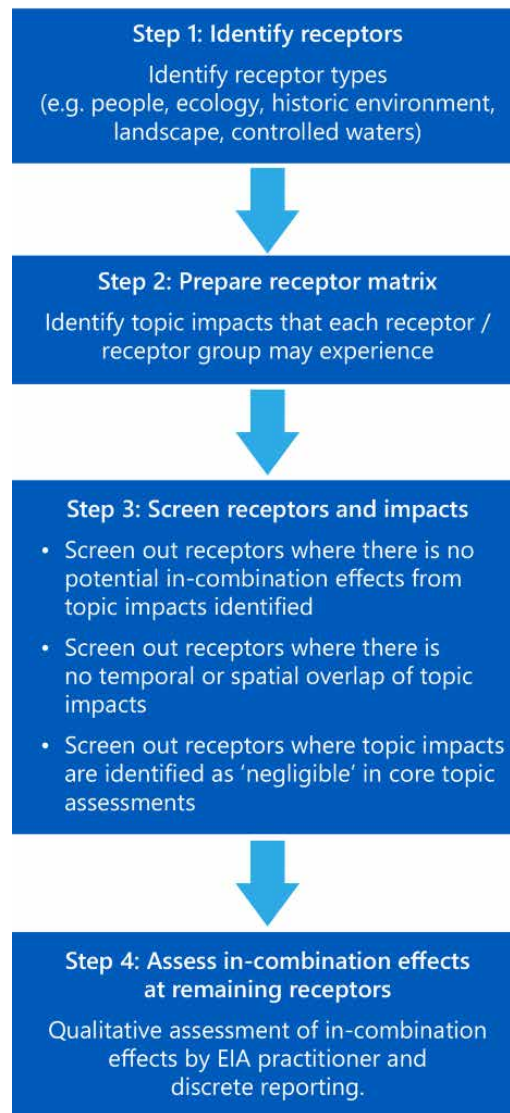
- 4.5.3 The EIA will follow the methodology for CEA defined in the the Planning Inspectorate's Advice Note Seventeen (The Planning Inspectorate, 2019). This is a four-stage approach, as follows:
- Stage 1 – establish the zone of influence (Zol) for the Project and identify a 'long list' of 'other development'.
 - Stage 2 – identify a 'shortlist' of 'other development' for the CEA.
 - Stage 3 – information gathering.
 - Stage 4 – assessment.
- 4.5.4 The Zol of the Project, within which any potential effects of the Project may combine with the effects arising from other developments, will be defined by the environmental aspect specialists and combined into a single area within which other development will be identified.

- 4.5.5 The Stage 1 'long list' of other developments will be grouped into three tiers, reflecting the likely degree of certainty attached to each development, with Tier 1 being the most certain. It is proposed that this 'long list' is refined and finalised in discussion with the relevant local planning authorities and key prescribed consultees.
- 4.5.6 In order to ensure that the CEA is proportionate, a shortlist of 'other development' will be prepared. Each of the developments and allocations will be considered in terms of whether they would be likely to generate impacts which could combine to result in cumulative effects in combination with the Project. Criteria used for this process will be specific to each discipline and will take account of scale, nature and timescales. As with the long list, this shortlist will be discussed with the relevant local planning authorities and key prescribed consultees.
- 4.5.7 It will be necessary to freeze the cumulative development list and relevant information on these developments prior to the Development Consent Order (DCO) application submission to allow impact assessments to be completed and reported in the ES.

Intra-project effects

- 4.5.8 The assessment of intra-project effects involves identifying whether any of the individual environmental aspect effects resulting from the Project, which are not significant in their own right, could combine to create effects that are significant.
- 4.5.9 There is no standard approach to the assessment of intra-project effects although it should be carried out with reference to guidance and to professional judgement. The proposed approach for the assessment of intra-project effects for the Project is shown in **Figure 4.1**. This follows a receptor-based approach for the consideration of intra-project effects.

Figure 4.1 Intra-project effects assessment process



4.6 Transboundary effects

4.6.1 The EIA Regulations require an ES to consider the transboundary effects of a development (paragraph 5 of Schedule 4). Given the nature of the Project and its proposed location significant transboundary effects are unlikely. However, the transboundary screening matrix will be completed as detailed in the Planning Inspectorate's Advice Note Twelve (The Planning Inspectorate, 2020b) and included within the ES.

4.7 Assumptions and limitations

4.7.1 Assumptions and limitations are addressed under each environmental aspect as identified in the appropriate chapters (**Chapter 5 to 16**).

4.8 Structure of the ES

4.8.1 The Planning Inspectorate’s Advice Note Seven (The Planning Inspectorate, 2020a) requires that applicants provide an outline structure of what the ES will contain. The structure of the ES for the Project will broadly follow the same order of chapters that are presented in this Scoping Report, acknowledging that changes may need to be made to address the requirements of the Scoping Opinion, both in terms of presentation of the Project to aid understanding, or as the design requirements evolve.

4.8.2 An indicative outline structure for the ES is set out in **Table 4.5**.

Table 4.5 Outline structure of the ES

ES content	Likely content
Non-Technical Summary (NTS)	A concise and standalone document that provides a description of the EIA process and its findings in a manner that is both appealing to read and easily understood by the general public.
Introduction	<ul style="list-style-type: none"> Overview of the Project. The applicant and EIA project team and competency details. Purpose of the ES. Structure of the ES. A brief summary of other relevant assessments and documents (for example, Habitats Regulations Assessment).
The Project	<ul style="list-style-type: none"> Description of the Project and its surroundings. Development proposals (location and development description, development timescales and programme etc.). Embedded mitigation and management measures.
Need and alternatives	<ul style="list-style-type: none"> The need for the Project. Alternatives considered and environmental reasons for the choice of preferred options.
Legislation and policy	<ul style="list-style-type: none"> Legislative context. National and local policy context. Other relevant guidance and policies. Applicable consents and permits.
Approach to preparing the ES	<ul style="list-style-type: none"> The EIA process. EIA terminology. EIA scoping. Stakeholder engagement. Identification of baseline conditions. Overview of assessment methodology. Approach to significance evaluation. Development of environmental measures

ES content	Likely content
	Approach to CEA.
Environmental aspect chapters	<p>Introduction.</p> <p>Relevant aspect specific legislation, policy and guidance.</p> <p>Consultation and engagement.</p> <p>Data gathering methodology.</p> <p>Baseline description.</p> <p>Scope of the assessment.</p> <p>Embedded mitigation measures.</p> <p>Assessment methodology.</p> <p>Assessment of effects.</p> <p>Cumulative effects (inter-project effects) assessment.</p> <p>Limitations and assumptions.</p>
Cumulative effects (intra-project effects) assessment	Intra-project effects that occur as a result of two or more environmental aspect effects acting together (i.e. combined), to result in a new or changed effects on a single receptor.
Assessment summary	Summary of the outcome of the environmental aspect assessments and how mitigation will be implemented through for example, a Construction Environmental Management Plan and strategies such as sustainability.

4.9 Consultation and engagement

- 4.9.1 This section provides a summary of consultation that has been undertaken for the Project and the technical engagement that has also occurred to date. Where appropriate, engagement undertaken to date has informed the technical content of the environmental aspect chapters (**Chapter 5 to 16**).
- 4.9.2 All pre-application consultation has been and will continue to be undertaken in accordance with the *Planning Act 2008 (SI 2008 c. 29)* (as amended) and relevant guidance, including the Planning Inspectorate's Advice Note Seven (The Planning Inspectorate, 2020a).

Pre-application consultation

- 4.9.3 Section 42 of the Planning Act 2008 requires the applicant to carry out pre-application consultation with a range of prescribed consultees. The key stakeholders to be consulted as part of the pre-application process are outlined in Section 42 to 47 of the Planning Act 2008 and include (but are not limited to):
- Local authorities
 - Prescribed statutory bodies.
 - Local communities.

- Landowners / land interests.
- Other key interest groups.

4.9.4 In addition to statutory consultation with prescribed consultees, as best practice, applicants are also encouraged to engage in non-statutory consultation with all potentially affected parties from the earliest stages of design. This allows stakeholders and local communities to gain a better understanding of the Project and any potential effects identified whilst also giving the opportunity to influence the design and help identify appropriate mitigation. Local knowledge and understanding is important, and the applicant will seek to engage with consultees through both formal and informal consultation prior to submission of the DCO application.

4.9.5 Statutory and non-statutory consultation will help to inform the preparation of key materials as part of the EIA in support of the pre-application DCO process. This includes this Scoping Report, the PEIR supporting statutory consultation and the ES submitted alongside the DCO application.

Technical engagement

4.9.6 In addition to the stages of pre-application consultation, the applicant has held and will continue to hold informal engagement with the key prescribed consultees, as appropriate, in order to refine the Project, the EIA and assist in the development of any required mitigation. Specific information on any feedback received is presented in the individual environmental aspect chapters (**Chapter 5 to 16**).

4.10 COVID-19 implications

4.10.1 The current restrictions imposed during the COVID-19 pandemic have potential implications for the Project, in particular with regard to normal consultation activities and conducting site surveys. The following measures are being taken by the project team to achieve as much as possible during the EIA programme whilst working fully within the restrictions, and being mindful of and managing any potential implications:

- EIA surveys that do require land access are planned to proceed within appropriate seasons this calendar year (2021), whilst applying social distancing measures to keep surveyors and members of the public safe. A watching brief will be maintained on the progress of data collection throughout the EIA, and progress will be shared with appropriate stakeholders.
- EIA surveys that may not require land access but rely on the baseline environment to reflect the normal situation such as noise and traffic surveys or that are significantly hindered this calendar year because of the restrictions imposed by the pandemic will be planned for a time when survey results will reflect a more normal pattern. Flexibility where needed will be sought from stakeholders regarding the timely completion of surveys and the provision of this information.
- In accordance with the Planning Inspectorate's Advice Note Seven (The Planning Inspectorate, 2020a), the applicant is conducting early targeted consultation with some stakeholders. The purpose of this engagement is to share and seek agreement on assessment approaches and to obtain as much relevant environmental information as possible in advance of key project milestones such as scoping, the production of the PEIR and ES. As recognised in Advice Note Seven,

the Planning Inspectorate expects consultation bodies to work with applicants in finding suitable approaches to aid the robust preparation of applications, and the applicant will continue to engage with stakeholders on this basis.

- The project team is keeping abreast of the advice issued with regard to site surveys and consultation activities such as that issued by the National Infrastructure Planning Association, Natural England, Chartered Institute of Ecology and Environmental Management (CIEEM) and the Planning Inspectorate. In addition, all activity will follow Government guidance on COVID-19.

5. Landscape and Visual Amenity

5. Landscape and Visual Amenity

5.1 Introduction

5.1.1 The Landscape and Visual Impact Assessment (LVIA) will consider the potentially significant effects on landscape and visual receptors that may arise from the construction and operation of the Project. This section of the Scoping Report describes the methodology to be used within the LVIA, the datasets to be used to inform the LVIA, an overview of the baseline conditions at the site, the likely significant effects to be considered within the LVIA and how these likely significant effects will be assessed for the purpose of an LVIA.

5.1.2 Landscape and Visual amenity interfaces with many other aspects and as such, should be considered alongside the following chapters:

- Chapter 6: Historic Environment;
- Chapter 7: Biodiversity;
- Chapter 8: Arboriculture; and
- Chapter 14: Noise and Vibration.

5.2 Relevant legislation, planning policy, and technical guidance

Legislation

5.2.1 A summary of the relevant legislation is given in **Table 5.1**.

Table 5.1 Legislation relevant to landscape and visual amenity

Legislation	Legislative context	Section considered
The European Landscape Convention¹³	<p>A Council of Europe initiative that provides a broad framework for landscape planning and management across all member states including the UK, which ratified the ELC in 2007. The status of this convention is not affected by Brexit. These commitments are implemented by existing domestic policy and legislation rather than through any ELC-specific framework.</p> <p>The ELC defines landscape as, “an area, as perceived by people, whose character is the result of the action and interaction of natural</p>	All sections especially 5.7 (Assessment Methodology)

¹³ The European Landscape Convention of the Council of Europe, 2000

Legislation	Legislative context	Section considered
	and/or human factors” and is committed to several core principles and actions.	
Hedgerow Regulations 1997¹⁴	Hedgerows are protected under these Regulations that may be relevant to the LVIA, specifically the assessment of impacts upon landscape elements, and the development of embedded and/or optional additional mitigation.	All sections - noting ecological and heritage professionals, where appropriate, will input into the assessment on whether a hedgerow is considered ‘Important’, under the Regulations.

Planning Policy

5.2.2 A summary of the relevant planning policies is given in **Table 5.2**.

Table 5.2 Planning policy relevant to landscape and visual amenity

Policy reference	Policy context	Section considered
National Policy		
Overarching National Policy Statement for Energy (EN-1) Paragraphs 5.9.6, 5.9.7 and 5.9.17 to 5.9.20	The LVIA should consider construction and operational effects upon landscape components and character and visibility of the proposals including impacts on views and visual amenity	5.6 (Scope of Assessment) and 5.7 (Assessment Methodology)
	SoS to consider whether the project has been designed carefully with consideration of environmental effects on the landscape and siting, operational and other relevant constraints, to minimise landscape harm including by reasonable mitigation.	5.5 (Embedded Mitigation Measures)
	Adverse landscape and visual effects may be minimised through appropriate siting of infrastructure within that site, design, including colours and materials, and landscaping schemes.	
National Policy Statement for Electricity Networks Infrastructure (EN-5)	An overview of the Holford Rules as applicable to the design of the proposals and landscape and visual considerations	5.5 (Embedded Mitigation Measures)

¹⁴ The Hedgerow Regulations, 1997 Available at: <https://www.legislation.gov.uk/ukxi/1997/1160/contents/made> [accessed 18/02/21]

Policy reference	Policy context	Section considered
Paragraphs 2.8.4 to 2.8.6		
Paragraphs 2.8.8 to 2.8.9	Consideration of undergrounding where there are serious concerns over potential adverse landscape and visual effects. SoS to balance against other relevant factors including need and any alternatives including any extra economic, social, and environmental impacts of undergrounding.	5.5 (Embedded Mitigation Measures)
Paragraphs 2.8.10 to 2.8.11	In addition to consideration of the Holford Rules and undergrounding other mitigation opportunities include network reinforcement options and selection of most suitable type and design of support structure to minimise visual impact upon the landscape. The NPS recognises specific measures may be required including planting in the vicinity of properties and viewpoints to provide screening.	5.5 (Embedded Mitigation Measures)
National Planning Policy Framework (NPPF) Paragraph 170	It is stated that <i>'planning policies and decisions should contribute to and enhance the natural and local environment by (amongst other criteria) 'protecting and enhancing valued landscapes... (in a manner commensurate with their statutory status or identified quality in the development plan) and 'recognising the intrinsic character and beauty of the countryside.'</i> Whilst there are no national landscape designations within the LVIA study area, the LVIA will assess the effects of the development on local landscape designations and landscape character.	5.2 (Relevant legislation, planning policy and technical guidance)
Development Plan Policies		
Harrogate Local Plan (2020)		
Policy HP5 Public Rights of Way (page 172-173)	The routes and recreational and amenity value of public rights of way will be protected or if required maintained via diverted routes. Opportunities for network enhancement to be explored.	5.5 (Embedded Mitigation Measures) and 5.6 (Scope of the Assessment)
Policy NE4 Landscape Character (page 202-205)	Proposals shall protect, enhance, or restore landscape character including consideration of local distinctiveness, nocturnal character, tranquillity, and sense of enclosure/exposure. Policy also requires protection or enhancement	5.4 (Baseline conditions) and 5.5 (Embedded Mitigation Measures)

Policy reference	Policy context	Section considered
	of visually sensitive skylines, hills, and valley sides. Special landscape areas are outside the LVIA study area.	
Policy NE5 Green and Blue Infrastructure (page 206-207)	Proposals should protect existing Green Infrastructure (GI) features and/or incorporate new GI features.	5.5 (Embedded Mitigation Measures)
Hambleton Local Development Framework (2007-2010)		
Core Strategy (April 2007)	Development or other initiatives will be supported where they preserve and enhance the District's natural and man-made assets.	5.5 (Embedded Mitigation Measures) and 5.6 (Scope of the Assessment)
Policy CP16 (page 50)		
Hambleton Draft Local Plan		
Policy S5 Development in the Countryside (page 49)	The Council will seek to protect and enhance the intrinsic beauty, character, and distinctiveness of the countryside	5.5 (Embedded Mitigation Measures) and 5.6 (Scope of the Assessment)
Policy E4 Green Infrastructure (page 124)	The Council will seek to protect existing green infrastructure and secure improvements to safety and accessibility. In addition, the Council will seek to secure net gains in green infrastructure.	5.5 (Embedded Mitigation Measures) and 5.6 (Scope of the Assessment)
Policy E7 Hambleton's Landscapes (page 132)	The Council will protect and enhance the distinctive landscapes of the district with reference to the Hambleton LCA and Sensitivity Study. Conservation and enhancement of existing trees, woodland, or hedges of visual value. Any loss to be mitigated by an appropriate native planting scheme.	5.5 (Embedded Mitigation Measures) and 5.6 (Scope of the Assessment)
York Draft Development Control Local Plan (2005)		
Policy GP9 Landscaping (page 17)	Development proposals will be required to incorporate a suitable planting scheme that is planned as an integral part of the proposals, reflecting the character of the locality, and including indigenous species.	5.4 (Baseline conditions) and 5.5 (Embedded Mitigation Measures)

Policy reference	Policy context	Section considered
Policy NE1 Trees, Woodland and Hedgerows (page 26)	Trees, woodlands, and hedgerows, which are of landscape, amenity, nature conservation or historical value will be protected.	5.4 (Baseline conditions) and 5.5 (Embedded Mitigation Measures)
Policy NE2 River and Stream Corridors, Ponds and Wetland Habitats (page 27)	Environmental and amenity value of these natural features will be protected and development that would have an adverse impact on their landscape character will be resisted. The design of structures and engineering works should be appropriate in form and scale to the setting of the natural features.	5.4 (Baseline conditions) and 5.5 (Embedded Mitigation Measures)
Policy NE8 Green Corridors (page 29)	Development that destroys or impairs the integrity of green corridors will not be permitted.	5.4 (Baseline conditions) and 5.5 (Embedded Mitigation Measures)
Policy HE12 Historic Parks & Gardens (page 37)	It is stated that proposals affecting historic parks & gardens will be permitted providing they have no adverse effect on the character, appearance, amenity, setting or enjoyment of the park / garden. Visual amenity of visitors will be covered in the LVIA with all other aspects of the Policy covered in the Heritage Chapter of the ES.	5.6 (Scope of the Assessment)
Policy L4 (page 101) Development Adjacent to Rivers	The policy requires no loss to established recreational interests and uses, with the proposed development complementing these uses and the character of the area. Existing walkways and cycleways along river banks, are to be retained, and where possible, enhanced.	5.4 (Scope of the Assessment), 5.5 (Embedded Mitigation Measures) and 5.6 (Scope of the Assessment)
York Draft Local Plan (examination stage) <i>Publication draft 2018</i>		
Policy D2: Landscape and Setting (page 149)	Development proposals will be required to understand local and wider landscape character and its contribution to the setting and context of the city. Landscape quality and character should be conserved and enhanced. The issues and recommendations in the York Landscape Character Appraisal should be accounted for. Avoidance of adverse impact on intrinsically dark skies and landscape/townscapes that are sensitive to light pollution.	5.4 (Scope of the Assessment), 5.5 (Embedded Mitigation Measures) and 5.6 (Scope of the Assessment)

Policy reference	Policy context	Section considered
Policy D8: Historic Parks and Gardens (page 158)	Development proposals should not harm the design, character, appearance or setting of the park or garden and key views into or out from the park. Views out from a park or garden will be covered in the LVIA with all other aspects of the Policy covered in the Heritage Chapter of the ES.	5.6 (Scope of the Assessment)
Policy GI1: Green Infrastructure (page 165)	The policy objectives will be delivered as part of the Council's future GI Strategy. The GI network will be protected, enhanced, and extended where possible through major new development.	5.5 (Embedded Mitigation Measures) and 5.6 (Scope of the Assessment)
Policy GI3: Green Infrastructure Network (page 168)	Development should protect and enhance the amenity and experience of existing rights of way, national trails, and open access land.	5.5 (Embedded Mitigation Measures) and 5.6 (Scope of the Assessment)
Policy GI4: Trees and Hedgerows (page 169)	New development should recognise the value of existing tree cover and hedgerows and retain those that make a positive contribution to the setting of proposed development.	5.4 (Scope of the Assessment), 5.5 (Embedded Mitigation Measures) and 5.6 (Scope of the Assessment)
Upper Poppleton and Nether Poppleton Neighbourhood Plan (2017)		
Green Infrastructure Policy PNP 2A (page 21)	Green Infrastructure surrounding the Poppletons will be protected and enhanced and expanded as opportunity arises.	5.5 (Embedded Mitigation Measures) and 5.6 (Scope of the Assessment)
Green Infrastructure Policy PNP 2B (page 21)	Development should not harm, directly or indirectly the Green Infrastructure that includes green corridors, village greens, riverbanks, paddocks, allotments, sports fields and walking and equestrian routes, amongst other features.	5.5 (Embedded Mitigation Measures) and 5.6 (Scope of the Assessment)
Environmental Policy PNP 10B (page 48)	All hedgerows will be protected, and hedgerows defined under the Hedgerow Regulations will require planning permission for their removal.	5.5 (Embedded Mitigation Measures) and 5.6 (Scope of the Assessment)
Selby District Local Plan (2005) saved policies		
Policy ENV1 (page 39)	Development proposals should consider effects upon the character of the area or amenity of adjoining occupiers. The standard of layout,	5.6 (Scope of the Assessment)

Policy reference	Policy context	Section considered
	design and materials and associated landscaping should be considered. Potential loss or adverse effect upon trees or other features important to the character of the area should be accounted for.	
Policy ENV3 (page 42)	Proposals for outdoor lighting should be the minimum level required for security/ and or operational purposes and designed to minimise glare and spillage. Lighting should not detract significantly from the character of a rural area.	5.6 (Scope of the Assessment)
Policy ENV15 (page 55)	Within the locally important landscape areas priority will be given to conservation and enhancement of the character and quality of the landscape. Particular attention will be paid to the design, layout, use of materials and landscaping to minimise impact of development and to enhance traditional character of buildings and landscape.	5.5 (Embedded Mitigation Measures) and 5.6 (Scope of the Assessment)
Selby District Core Strategy Local Plan (2013)		
Policy SP18 Protecting and Enhancing the Environment (page 116)	The quality and local distinctiveness of the environment will be sustained by safeguarding and where possible enhancing the landscape character of areas of acknowledged importance. Where possible a strategic approach will be taken to improve green infrastructure. Locally distinctive landscape, areas of tranquillity, public rights of way and access and open spaces and playing fields will be protected and enhanced.	5.5 (Embedded Mitigation Measures) and 5.6 (Scope of the Assessment)
Policy SP19 Design Quality (page 120)	New development proposals will have regard to local character including historic townscapes, settlement patterns and the open countryside. Proposals should incorporate new and existing landscaping as an integral part of the scheme.	5.5 (Embedded Mitigation Measures) and 5.6 (Scope of the Assessment)
Selby Draft Local Plan – preferred options (Jan 2021)		
Preferred Approach SG5 Development in the Countryside (page 47)	Policy seeks to protect and enhance the intrinsic character and beauty of the countryside. Development in the countryside will be limited to essential need to be in open countryside and which is supported by other Local Plan policies or national policy.	5.6 (Scope of the Assessment)
Preferred Approach NE2	The preferred approach is to seek to protect, maintain, enhance and, where possible, restore	5.5 (Embedded Mitigation Measures) and 5.6

Policy reference	Policy context	Section considered
Protect and Enhance Green and Blue Infrastructure (page 144)	and extend Selby District's green and blue infrastructure assets.	(Scope of the Assessment)
Preferred Approach NE3 Protect and Enhance Landscape Character (page 146)	All proposed development must promote high quality designs that respond positively and where possible enhance distinctive landscape character as described in the Selby Landscape Character Assessment and respect overall development guidelines in the Selby Landscape Sensitivity Study. Development must also give particular attention to design, layout, use of materials and landscaping to minimise its impact and enhance landscape character. Proposals within the Locally Important Landscape Areas (LILAs) must avoid significant loss of key characteristics and respond to the recommendations set out in the Selby District Landscape Designation Review.	5.5 (Embedded Mitigation Measures) and 5.6 (Scope of the Assessment)
Preferred Approach NE6 Trees, Woodland and Hedgerows (page 156)	Prevent loss and enhance trees, woodland and hedgerows by assessment, protection, and replacement of losses. Promotion and enhancement of tree coverage e.g. White Rose Forest Partnership Scheme.	5.4 (Scope of the Assessment), 5.5 (Embedded Mitigation Measures) and 5.6 (Scope of the Assessment)
Leeds City Council UDP 2001 and UPD Review (2006) policies	The Project that is assessed as having potential landscape and visual effects is not located within the administrative area of Leeds City Council (LCC). The western fringes of the LVIA study area at Tadcaster and Monk Fryston extend into the LCC administrative area.	
Policy N37	Refers to Development <i>within</i> the designated Special Landscape Areas (SLA) which does not apply to the Project. The SLA is located within the Monk Fryston LVIA study area 2-3km to the northwest of the Proposed Development and beyond the A1(M) and A1246 road corridors.	Not applicable

Technical Guidance

5.2.3 A summary of the relevant technical guidance is given in **Table 5.3**.

Table 5.3 Technical guidance relevant to landscape and visual amenity

Technical Guidance Document	Context	Section considered
Guidelines for Landscape and Visual Impact Assessment Third Edition (2013) ¹⁵	The third edition of this guidance (known as ‘GLVIA3’) is regarded as the ‘industry standard’ document guiding LVIA. GLVIA3 provides the framework within which the remaining sections of this scoping chapter have been undertaken and informs the methodology by which the LVIA will be undertaken, as set out in Section 5.7 of this chapter.	All sections especially 5.7 (Assessment Methodology)
Technical Guidance Note 06/19 ¹⁶	Visual Representation of Development Proposals	All sections especially 5.7 (Assessment Methodology)
Technical Information Note 01/17 ¹⁷	Tranquillity – An overview	All sections especially 5.7 (Assessment Methodology)

5.3 Consultation and engagement

5.3.1 It is intended that this Scoping report shall form the basis for consultation with all local authorities that fall within the LVIA study area, namely:

- North Yorkshire County Council;
- York City Council;
- Hambleton District Council;
- Harrogate District Council;
- Selby District Council; and
- Leeds City Council.

5.3.2 Consultation with Natural England will also be undertaken.

5.3.3 It is intended to agree, where possible, the extent of the LVIA study area, the baseline sources of information, the draft viewpoints proposed and the approach to the LVIA methodology that is to be adopted.

¹⁵ Guidelines for Landscape and Visual Impact Assessment Third Edition, 2013 by the Landscape Institute and Institute of Environmental Management & Assessment (Routledge).

¹⁶ Technical Guidance Note 06/19 prepared by the Landscape Institute. Available at: https://landscapewpstorage01.blob.core.windows.net/www-landscapeinstitute-org/2019/09/LI_TGN-06-19_Visual_Representation.pdf [accessed 18/02/2021]

¹⁷ Technical Information Note 01/2017 prepared by the Landscape Institute. Available at: <https://landscapewpstorage01.blob.core.windows.net/www-landscapeinstitute-org/2017/02/Tranquillity-An-Overview-1-DH.pdf> [accessed 18/02/2021]

5.4 Baseline conditions

LVIA study area

- 5.4.1 In line with **Section 1.1** of this Scoping Report, the LVIA study area is illustrated on **Figures 5.1** and **5.2** and comprises three component parts:
- North-west of York Area - comprising the proposed new 400kV and 275kV overhead line corridor, CSEC and York North substation siting areas, and associated infrastructure works.
 - Tadcaster Area - comprising the proposed CSEC siting areas and associated infrastructure; and
 - Monk Fryston Substation Area - comprising the proposed substation siting area and associated infrastructure.
- 5.4.2 The geographical extent of the LVIA study areas have been defined by a 3km offset from the outer edge of the Scoping red line boundary at the North-west of York, Tadcaster and Monk Fryston Substation Areas detailed above, based on the desktop analysis contained in this scoping chapter and in accordance with GLVIA3 and professional judgement.
- 5.4.3 It is understood that the changes to the existing Osbaldwick 400kV substation, comprising a circuit breaker and an isolator would likely have very localised landscape and visual effects, being sited on operational land, and largely confined to the existing substation site. Consequently, the proposed works at Osbaldwick have been scoped out of further consideration in the landscape and visual chapter.
- 5.4.4 The reconductoring of the 275kV XC/XCP overhead line has also been scoped out from further consideration. Works would comprise reconductoring (replacement) of existing wires, replacement of pylon fittings, strengthening of steelwork and potential limited pylon replacement. Any replacement pylons would be in similar locations in close proximity to existing pylons and of similar heights and appearance to the pylons that they would replace. Therefore the changes associated with this are not likely to have the potential for significant landscape and visual effects relative to the baseline. This will be kept under review as the Project progresses and if required, the scope reviewed.

Data gathering methodology

- 5.4.5 The EIA scoping exercise has been undertaken with reference to **Chapter 2: The Project**, supported by review of several data sources. The principal data sources used to inform this chapter comprise of the following:
- Ordnance Survey (OS) 1:25,000 scale mapping;
 - Aerial photography (Google Earth Pro);
 - Multi-Agency Geographic Information for the Countryside (MAGIC)¹⁸;

¹⁸ Multi-Agency Geographic Information for the Countryside (MAGIC) website. Available at <https://magic.defra.gov.uk/magicmap.aspx> [accessed 18/02/21]

- National Landscape Character Area profiles for the Vale of York (NCA 28), Southern Magnesian Limestone (NCA 30) and Humberhead Levels (NCA 39)¹⁹;
- North Yorkshire and York Landscape Characterisation Project by Chris Blandford Associates on behalf of North Yorkshire County Council (2011)²⁰;
- Hambleton Landscape Character Assessment and Sensitivity Study by LUC on behalf of Hambleton District Council (2016)²¹;
- Selby District Landscape Character Assessment prepared by LUC on behalf of Selby District Council (2019)²²; and
- Selby District Local Landscape Designation Review prepared by LUC for Selby District Council (2019)²³.

Current baseline: Landscape Elements – North-west of York LVIA study area

5.4.6 The LVIA North-west of York study area is dominated by medium to large scale arable fields on low lying land, with elevations varying between 10m and 20m AOD (Above Ordnance Datum). Field boundaries are typically managed hedgerows with infrequent trees and occasional isolated remnant hedgerow trees within the larger fields. Woodland is infrequent, being typically small-scale blocks at the corner of fields and, occasionally, as narrow belts along watercourses.

5.4.7 The LVIA study area is crossed by several transport routes. The A19 passes through the centre of the proposed overhead line corridor and connects the settlements of Skelton to the south and Shipton by Beningbrough to the north. Running broadly parallel with and south of the A19 is the East Coast Main Line (ECML) railway, typically slightly elevated above the surrounding landscape. Overtown Road, which accommodates National Cycle Network (NCN) 65, and Stripe Lane both pass through the southern half of the proposed overhead line corridor connecting scattered farmsteads and linking to the A19. Corban Lane is an unclassified road that passes through the northern part of the proposed overhead corridor, connecting Shipton with Haxby further to the east.

Current baseline: Landscape Elements – Tadcaster LVIA study area

5.4.8 The two proposed CSEC siting areas are situated approximately 1.4km to the southwest of Tadcaster and are located on gently undulating arable farmland at around 50m AOD. The proposed CSEC siting areas currently accommodate two steel lattice pylons.

5.4.9 The highway embankment of the A64 dual carriageway lies adjacent to the south-eastern boundary of the CSEC siting area. The western boundary follows the edge of the A659 and is defined by a low clipped hedge and occasional trees. The northern and southern boundaries of the larger western CSEC siting area cross open farmland.

¹⁹ National Character Area profiles (2014) by Natural England. Available at: <https://www.gov.uk/government/publications/national-character-area-profiles-data-for-local-decision-making/national-character-area-profiles#ncas-in-yorkshire-and-the-humber> [accessed 18/02/21]

²⁰ North Yorkshire and York Landscape Characterisation Project by Chris Blandford Associates on behalf of North Yorkshire County Council (2011). Available at: <https://www.northyorks.gov.uk/describing-and-understanding-our-landscape> [accessed 18/02/21]

²¹ Hambleton Landscape Character Assessment and Sensitivity Study by LUC on behalf of Hambleton District Council (2016) Available at: <https://www.hambleton.gov.uk/downloads/file/921/hambleton-landscape-character-assessment-and-sensitivity-study> [accessed 18/02/21]

²² Selby District Landscape Character Assessment prepared by LUC on behalf of Selby District Council (2019) Available at: https://www.selby.gov.uk/sites/default/files/Selby_LCA_Report_Combined.pdf [accessed 18/02/21]

²³ Selby District Local Landscape Designation Review prepared by LUC for Selby District Council (2019) Available at: https://www.selby.gov.uk/sites/default/files/Documents/Local_Landscape_Designation_Review_December_2019.pdf [accessed 18/02/21]

Blocks of plantation woodland lie to the north and northeast of the eastern part of the CSEC siting area, providing a buffer to Brick House Farm that includes two residential properties. A small plantation block of conifers (c.50m x 10m) is located within the CSEC siting area and parallel with the A64.

Current baseline: Landscape Elements – Monk Fryston Substation LVIA study area

- 5.4.10 The proposed substation siting area is located approximately 1.5km to the west of Monk Fryston and Hillam. The proposed substation siting area lies adjacent to the eastern boundary of the existing substation on flat arable land at elevations of between 35m and 40m AOD. Low level mounding lies to the north of the existing sub-station.
- 5.4.11 The 4YS 400kV overhead line passes west to east over the central part of the Project and a steel lattice pylon is located within the study area, near to the eastern boundary of the existing Monk Fryston substation. Field boundaries within the study area are defined by low clipped hedgerows, which are gappy in places. Broadleaf woodland lies adjacent or close to the existing substation to the south, southwest and north east. A curvilinear field boundary with intermittent hedgerow lies to the north.

Current baseline: Landscape Designations

- 5.4.12 There are no national landscape designations in the LVIA study area. The closest national designation is the Howardian Hills Area of Outstanding Natural Beauty (AONB), located over 10km to the north of the Project at the closest point. In addition to the separation distance there are existing overhead lines on steel lattice pylons, routed between the Project and the edge of the AONB near Easingwold.
- 5.4.13 The North Yorkshire Moor National Park is located over 17km to the north and the Nidderdale AONB over 26km to the west of the Project.
- 5.4.14 The Tadcaster CSEC siting area and the majority of the adjoining area with the Scoping red line boundary is located within a local landscape designation (Selby District: Locally Important Landscape Area and Candidate Locally Important Landscape Area – see **Figure 5.1**). The Monk Fryston proposed substation siting area is located approximately 400m to the south of the closest part of the same local landscape designation.
- 5.4.15 The Selby District Local Landscape Designation Review produced by LUC for Selby District Council (2019)²³ covers the existing and proposed local landscape designations that are relevant to the Tadcaster and Monk Fryston LVIA study areas.

Current baseline: Landscape Character

National Landscape Character Assessment

- 5.4.16 At the national scale of Natural England's 159 National Character Areas (NCAs), the North-west of York LVIA study area is located within NCA 28: Vale of York (see **Figure 5.1**)
- 5.4.17 The Monk Fryston substation and Tadcaster CSEC siting areas are located within NCA 30: Southern Magnesian Limestone. In addition, NCA 39: Humberhead Levels covers the eastern fringes of the LVIA study area at Monk Fryston.

- 5.4.18 NCA 28: Vale of York, is described as *‘a largely open, flat and low-lying landscape between the higher land of the Southern Magnesian Limestone ridge to the west, the Howardian Hills to the north and the Yorkshire Wolds to the east’*.
- 5.4.19 NCA 30: Southern Magnesian Limestone is summarised as being defined by the underlying geology with the limestone creating *‘a ridge, or narrow elevated land, running north-south ...’*. Key characteristics include *‘long views over lowlands to the east and west’*, although these are noted to be *‘most prominent in the south’* i.e. beyond the LVIA study area. In addition, localised industrial influences are cited as key characteristics, including power lines, settlements, industry, and transport routes along the fringe of the Coal Measures NCA to the west.
- 5.4.20 NCA 39: Humberhead Levels covers the eastern fringes of the LVIA study area at Monk Fryston. The key characteristics include a *‘low-lying, predominantly flat landscape, with large, regular and geometric arable fields...’*. In addition to acknowledging the presence of settlements, motorways, and main roads, a key characteristic is described as *‘Views to distant horizons are often long and unbroken, with big expansive skies, and vertical elements like water towers, power stations and wind turbines are very prominent’*.

Regional Landscape Character Assessment

- 5.4.21 All component parts of the LVIA study area are covered by the North Yorkshire and York Landscape Characterisation Project by Chris Blandford Associates on behalf of North Yorkshire County Council (2011).
- 5.4.22 The North-west of York part of the LVIA study area is predominantly located within the Vale Farmland with Plantation Woodland and Heathland Landscape Character Type (LCT) that surrounds much of York. The River Floodplain LCT, also passes through the LVIA study area along the River Ouse.
- 5.4.23 The Tadcaster and Monk Fryston Substation parts of the LVIA study area are predominantly located within the Magnesian Limestone LCT. In addition, the eastern part of the Monk Fryston part of the LVIA study area falls within the Levels Farmland LCT.

District/Local Landscape Character Assessment

- 5.4.24 The North-west of York part of the LVIA study area is covered by the Hambleton Landscape Character Assessment and Sensitivity Study produced by LUC on behalf of Hambleton District Council (2016). The LVIA study area is covered by the Huby and Shipton Vale Farmland LCA (No. 26), which, within the LVIA study area, is concordant with the Vale Farmland with Plantation Woodland and Heathland LCT described in the North Yorkshire and York Landscape Characterisation Project (2011).
- 5.4.25 The Tadcaster and Monk Fryston Substation parts of the LVIA study area are largely covered by the Selby District Landscape Character Assessment prepared by LUC on behalf of Selby District Council (2019). The Monk Fryston part of the LVIA study area is predominantly covered by the West Selby Limestone Ridge LCA (No. 8), with the eastern fringes covered by the Haddlesey Farmland LCA (No.13). Both LCA are concordant with the Magnesian Limestone LCT and Levels Farmland LCT described in the North Yorkshire and York Landscape Characterisation Project (2011).

Current baseline: Visual Amenity

- 5.4.26 Of all the project components, the proposed 400 kV and 275 kV overhead line corridor is likely to be the most widely visible, given the maximum height and relatively open nature of the predominantly flat landscape, north of York. Visual receptors include passengers passing through the LVIA study area along a variety of transport routes, including the A19, A59, A1237, B1363, ECML and the local road network (see **Figure 5.2**).
- 5.4.27 Recreational receptors passing through the North-west of York LVIA study area include cyclists on NCN 65, walkers using the York and Selby long distance path, walkers and horse riders on the local rights of way network, including the River Ouse corridor and people using shorter PRow routes that extend from settlements. The Skelton Park Golf Course, Forest of Galtres Golf Club, Beningbrough Hall RPG and other public open spaces including Millennium Green at the eastern edge of Nether Poppleton, Clifton Park and Rawcliffe Bar Country Park.
- 5.4.28 The north-western urban edge of York and the villages of Shipton, Skelton, Beningbrough, Nether Poppleton, Upper Poppleton, Hessay, Haxby, Knapton, Moor Monkton, Nun Monkton and Wigginton are located within the LVIA study area. Residents as visual receptors are predicted to typically be limited to settlement edges due to the flat landform. Occasional scattered dwellings and farmsteads are located across the LVIA study area.
- 5.4.29 Visual receptors within the Tadcaster LVIA study area include users of the A1(M), A64, A162, A659, B1223 and the local road network including Garnet Lane and Warren Lane. In addition to the settlements of Tadcaster, Newton Kyme, Stutton and Towton there are a number of scattered properties within the LVIA study area and closest to the proposed works include Brickhouse Farm and High Moor Farm. NCN 66 follows the A1(M) to the west and the Ebor Way long distance footpath route passes through the northern part of the LVIA study area. PRow are generally limited in the surrounding landscape and closest to the site include a bridleway along Chantry Lane and Old London Road to the south near Wingate Hill and other PRow in the vicinity of Stutton. Several PRow extend west and northwest of Tadcaster and a public footpath is routed along Headley Lane and farmland, in the western part of the LVIA study area.
- 5.4.30 Visual receptors within the Monk Fryston Substation LVIA study area include users of the A1(M), A162, A1246, A63 ECML railway and a network of local roads including Rawfield Lane to the west of the existing substation.
- 5.4.31 Recreational receptors include users of the public footpath between Rawfield Lane and the A162. Steeton Hall Gateway is an English Heritage owned destination near South Milford and Byram Hall and Park is located to the south of Burton Salmon. The Fairburn Ings Nature Reserve is located at the western edge of the LVIA study area. Visual receptors on the edge of settlements include residents at the western edge of Fairburn village and parts of the northern fringes of Burton Salmon and Brotherton. Other settlements in the LVIA study area include Ledsham, Lumby, South Milford, Sherburn in Elmet, Hillam and Monk Fryston. The edge of Castleford is located at the southwestern corner of the LVIA study area. A number of scattered dwellings are located within the LVIA study area and include Monk Fryston Lodge and Pollums House Farm closest to the Project.

Future baseline

- 5.4.32 Landscape change is an ongoing and inevitable process and would continue across the LVIA study area irrespective of whether the Project proceeds. Change can arise through natural processes (e.g. the maturity of woodlands) and natural systems (e.g. river erosion) or, as is often the case, occurs due to human activity, land use, management, or neglect.
- 5.4.33 Climate change is increasingly acknowledged as a key driver of future landscape change. The North Yorkshire and York landscape Characterisation Project (2011) identifies that the Water Framework Directive is likely to increase the extent and quality of wetland habitats. Landscape changes to counteract flooding of York may involve greater storage of water within the floodplain, resulting in changes to the character of the landscape within the LVIA study area.

5.5 Embedded Environmental Measures

- 5.5.1 The selection of route corridor and CSEC and substation siting areas has considered the Holford and Horlock Rules to minimise adverse landscape and visual effects.
- 5.5.2 A Construction Environmental Management Plan (CEMP) would be deployed to ensure protection of existing vegetation where possible and minimise construction related effects on both nearby landscape and visual receptors.
- 5.5.3 As the designs for the CSECs and substations evolve, appropriate embedded mitigation measures will be consistently reviewed. These will involve, but not be limited to, heights of the principal components such as gantries, as well as how to maximise the use of existing screening elements. The evolving designs will also be reviewed against the potential to introduce new bunding and planting, taking into consideration technical restrictions relating to issues such as clearance and security.

5.6 Scope of the assessment

Potential receptors

- 5.6.1 This section details the approach to identifying landscape and visual receptors that could be significantly affected by the Project and that therefore need to be taken forward for further consideration.
- 5.6.2 The general principle is that landscape and visual receptors likely to be significantly affected will be identified on the basis of their value/sensitivity and the magnitude of effect to which they are exposed as a result of the construction and operation of the Project.
- 5.6.3 A series of preliminary ZTVs have been generated to inform the scoping study and the initial viewpoint selection (see **Figures 5.3 to 5.7**). All the ZTVs have been based upon digital terrain model (DTM) data, with visual barriers added for woodland blocks and settlements on top of the landform profile. Additional screening would also be provided by hedgerows, other tree cover and scattered forms of built development that are not included in the ZTV. Consequently, final viewpoint selection in the field will be micro-sited to account for these additional screening elements.

5.6.4 In the absence of a detailed design, the maximum height of each component structure of the Project has been assumed based upon the parameters of existing similar structures. Following detailed design, the actual extent of these structures may be reduced and, where appropriate, landscape mitigation incorporated. For the purposes of the preliminary ZTVs, the following maximum heights of new structures have been assumed as follows:

- Pylons within new 400kV and 275kV overhead line corridor – 60m;
- Substations – 15m; and
- CSEC siting areas – 15m.

5.6.5 The ZTVs at **Figures 5.3 to 5.7** determine the selection of visual receptors for inclusion in the visual assessment as these visual receptors can only experience effects as the result of a visual effects pathway i.e. visual receptors have to potentially be able to see one or more of the components of the Project to experience visual impacts.

5.6.6 Effects upon landscape receptors are not entirely dependent on the presence of a visual effects pathway i.e. the landscape receptor being located within one of the ZTVs. Landscape effects can also be generated by changes to other perceptual characteristics impacting upon landscape qualities such as tranquillity. Hence the scope of the landscape assessment has been determined by reviewing the defined key characteristics of the LCAs in the LVIA study area and a consideration of the potential for these characteristics to be impacted by the Project.

Likely significant effects

5.6.7 The likely significant landscape and visual effects that will be taken forward for assessment in the ES are summarised in **Table 5.4**.

Table 5.4 Potentially significant Landscape and Visual Amenity effects

Activity	Effect	Receptor
Construction	<p>Potential loss of mature trees and hedgerows</p> <p>Potential views of temporary construction compounds, cranes, lighting, and associated activity</p>	<p>Landscape Receptors: Located within the North-west of York CSEC siting area and any losses would be mitigated by new planting where possible and if required.</p> <p>Visual Receptors: <u>North-west of York Area:</u> Residents of scattered properties at Overton, Overton Grange, New Farm, Woodhouse Farm, Scallymoor Farm, Woodstock Lodge, Hall Moor, Hall Moor Farm (South) and North Hall Moor, Newlands Farm and properties on the edge of Shipton, Skelton and Nether Poppleton.</p> <p>Recreational Receptors: Cyclists on NCN 65, users of local PRow along the River Ouse, between Moor Monkton and Nether Poppleton, PRow network surrounding Shipton and PRow between the A19 and B1363 north of Shipton, public open space on the northern edge of Nether Poppleton.</p> <p><u>Tadcaster:</u> Residents of dwellings at Brick House Farm</p> <p><u>Monk Fryston Substation Area:</u> Residents of Monk Fryston Lodge and Pollums House Farm, users of the public footpath between Rawfield Lane and A162.</p>
Operation	<p>Introduction of and potential views of steel lattice pylons associated with the new 400kV and 275 kV overhead lines, CSEC areas and substation developments, associated infrastructure, and any lighting.</p>	<p>Landscape Receptors: Selby District Locally Important Landscape Area. Huby and Shipton Vale Farmland LCA within the Vale Farmland with Plantation Woodland and Heathland LCT. West Selby Limestone Ridge LCA within the Magnesian Limestone LCT. River Floodplain LCT.</p> <p>Visual Receptors: As identified for the construction phase above, with the addition of: <u>North-west of York Area:</u> residents on the edge of Wiggington, Haxby, Beningborough, Upper Poppleton, Nun Monkton, Hessay, Knapton, northwest edge of York, and Moor Monkton. All</p>

Activity	Effect	Receptor
		<p>other scattered properties within the ZTV (which may be grouped). Golfers at Forest of Galtres Golf Club, Skelton Park Golf Course, users of the York and Selby long distance path, visitors to Beningbrough Hall RPG. Visitors to Millennium Green at Nether Poppleton, Clifton Park and Rawcliffe Bar Country Park.</p> <p>Users of all transport routes within the ZTV including the East Coast Mainline, A19, A59, A1237, B1363 and the local road network.</p> <p><u>Tadcaster Area:</u> Users of NCN 66 and adjacent bridleway, the public bridleway along Chantry Lane, Paradise Lane and the PRow along and extending from Headley Lane. All other local PRow within the ZTV including routes from the edge of Tadcaster. Residents of High Moor Farm and the edge of Tadcaster, Bramham, Stutton. Other scattered dwellings that fall within the ZTV which may be grouped. Users of the A64, A659 and the local road network within the ZTV.</p> <p><u>Monk Fryston Substation Area:</u> residents on edge of Lumby, Hillam, Monk Fryston, Burton Salmon, Fairburn, Castleford, South Milford, Sherburn in Elmet. Users of A63, A1246, A162, A1(M), ECM Railway, B1222 and the local road network within the ZTV. Recreational users of the local PRow network within the ZTV and visitors to Steeton Hall Gatehouse and Byram Park.</p>

5.6.8 The viewpoint photography will be undertaken in March 2021, before the emergence of deciduous leaf cover in accordance with TGN 06/19²⁴. This approach will ensure the maximum visibility of any Project in the views. Proposed viewpoints in **Table 5.5** below are illustrated on **Figures 5.3 to 5.7**. Grid coordinates have not been included to provide flexibility for micro-siting of viewpoints in the field and also to take into account any further information resulting from the design evolution of the Project. Any proposed changes to **Table 5.5** will be discussed with the relevant consultees. Following

²⁴ Landscape Institute (2019) Technical Guidance Note 06/19 Available at: https://landscapewpstorage01.blob.core.windows.net/www-landscapeinstitute-org/2019/09/LI_TGN-06-19_Visual_Representation.pdf [accessed 18/02/2021]

identification of viewpoint locations, photomontages of the Project would be prepared in accordance with TGN 06/19²⁵.

Table 5.5 Viewpoint Selection

Viewpoint	Location	Selection Justification
1	National Cycle Network 65, west of Skelton	Representative Viewpoint - off-road section of the route between the River Ouse and Stripe Lane.
2	Millennium Green, Nether Poppleton	Specific Viewpoint - public open space.
3	National Cycle Network 65, Overton Road	Representative Viewpoint for cyclists and people in vehicles and similar to views from nearby dwellings in Overton.
4	Public Bridleway along River Ouse	Representative Viewpoint – representative of intermittent views through breaks in bankside tree cover. Potential views for canoeists.
5	Public Footpath near Moorlands Farm	Representative Viewpoint – experienced by footpath users and similar to views from nearby Moorlands Farm dwelling.
6	B1363 at western edge of Wigginton	Representative Viewpoint – oblique views from road corridor and representative of direct views from the front elevations of dwellings facing onto Sutton Road.
7	A19 at southern edge of Shipton	Representative Viewpoint – likely views for road users and similar to views from dwellings on southern edge of Shipton village.
8	Beningbrough Hall and Gardens	Specific Viewpoint – Grade 2 Registered Park and Garden open to the public. View selected from south facing slopes of the parkland.
9	Corban Lane	Representative Viewpoint – likely views for northwest bound road users.
10	Public footpath, Shipton Moor	Representative Viewpoint – likely oblique views experienced by walkers.
11	Public bridleway at junction with B1363	Representative Viewpoint – likely views for horse riders, walkers, and south bound road users.

²⁵ Technical Guidance Note 06/19 prepared by the Landscape Institute. Available at: https://landscapewpstorage01.blob.core.windows.net/www-landscapeinstitute-org/2019/09/LI_TGN-06-19_Visual_Representation.pdf [accessed 18/02/2021]

Viewpoint	Location	Selection Justification
12	Public Bridleway at junction with A19	Representative Viewpoint – likely views for horse riders, walkers, and south bound road users.
13	A19, western edge of Skelton	Illustrative Viewpoint – likely views for north bound road users.
14	National Cycle Network 65, Overton Road near Overton Grange	Representative Viewpoint – likely views for road users, cyclists and close to private access drive to Overton Grange.
15	National Cycle Network 65, Overton Road, near junction with A19	Representative Viewpoint – likely views for southbound travellers in vehicles and cyclists.
16	Sandhole Lane on south-eastern edge of Shipton	Representative Viewpoint – likely oblique views for road users representative of private views from bungalows on South Garth.
17	National Cycle Network 65, Shipton Low Road	Illustrative Viewpoint – likely views for people in vehicles and cyclists approaching Shipton
18	War memorial/seating area, Nether Poppleton	Specific Viewpoint – taken from seating area adjacent to war memorial and overlooking River Ouse. Also adjacent to public bridleway.
19	Garnet Lane near Brick House Farm	Representative Viewpoint – likely views for road users and similar to private views from nearby dwellings.
20	A659 south of site	Representative Viewpoint – likely views for northbound road users.
21	A659 near High Moor Farm	Representative Viewpoint – likely views for southbound road and similar to private views from nearby dwellings.
22	Public Bridleway on Chantry Lane	Representative Viewpoint – oblique views potentially available over roadside hedgerow for walkers and horse riders.
23	Public footpath south of site	Representative Viewpoint – direct views potentially available for walkers, partly restricted by perimeter woodland.
24	A162 southeast of site	Representative Viewpoint – oblique views, partly restricted by intervening woodland.
25	Junction of Rawfield Lane and A63	Representative Viewpoint for road users.

Viewpoint	Location	Selection Justification
26	Rawfield Lane near Bay Horse Farm	Representative Viewpoint – views potentially available to northbound road users and similar to private views from nearby dwellings.
27	A1246 at junction with Holyrood Lane	Representative Viewpoint – views potentially available to road users
28	Burton Common Lane on eastern edge of Burton Salmon	Representative Viewpoint – oblique views potentially available to road users and likely similar to private views from nearby dwellings off Old Hall Close.
29	Public bridleway on eastern edge of Moor Monkton	Representative Viewpoint – views available to walkers and horse riders and similar to private views from nearby dwellings on East Lane.

Effects scoped out of further consideration

5.6.9 The effects scoped out of detailed assessment in the ES are summarised in **Table 5.6**.

Table 5.6 Likely non-significant Landscape and Visual Amenity effects

Activity	Receptor	Justification
Construction	Landscape elements	Typical low value hedgerows and occasional trees.
	All LCA and LCT	Construction activities would be temporary, largely concentrated at ground level and would not require removal of extensive landscape elements.
	Visual receptors	Potential views of temporary construction compounds and associated activity likely to be very limited and consequently apart from receptors at close proximity to the Project with high sensitivity (see Table 5.4), all identified visual receptors in the study area would be scoped out at the construction phase but are scoped in as part of the operational phase
Operation	Landscape Character Areas and Types	Addition of Project as new man-made features would be predominantly screened (i.e. largely located outside the ZTV) from the Levels Farmland LCT and Haddlesey Farmland LCA which coincide and cover the eastern part of the Monk Fryston Substation study area.
	Visual Receptors within Study Area outside ZTV	<u>Tadcaster</u> : residents of Newton Kyme and Towton. Users of A1(M), B1223, and Ebor Way long distance footpath.

Activity	Receptor	Justification
		<p><u>Monk Fryston Substation: visitors to Fairburn Ings Nature Reserve, residents of Ledsham.</u></p> <p><u>Across the whole LVIA study area: all PRoW and the local road network that fall outside the ZTV.</u></p>
	Visual Receptor: Visitors to York Minster Tower	Proposed development would be over 5km distance and views dominated by urban context of York.

5.6.10 It is understood that the changes to the existing Osbaldwick substation comprising a circuit breaker and an isolator, would likely have very localised landscape and visual effects, being based on operational land, and largely confined to the existing substation site. Consequently, the proposed works at Osbaldwick have been scoped out of further consideration in the landscape and visual chapter.

5.6.11 As outlined in **paragraph 5.4.4** the reconductoring of the 275kV overhead line has also been scoped out of any further consideration as any potential changes would comprise reconductoring (replacement) of existing wires, replacement of pylon fittings, strengthening of steelwork and potential limited pylon replacement. Any replacement pylons would be in similar locations in close proximity to existing pylons and of similar heights and appearance to the pylons that they would replace. Therefore these changes are unlikely to have the potential for significant landscape and visual effects relative to the baseline. This will be kept under review as the Project design is progressed.

5.7 Assessment methodology

5.7.1 The proposed generic project-wide approach to the assessment methodology is set out in Chapter 4, and specifically in section 4.3. However, whilst this has informed the approach that has been used in this landscape and visual amenity chapter, it is necessary to set out how this methodology will be applied, and adapted as appropriate, to address the specific needs of the landscape and visual impact assessment in the ES.

5.7.2 The methodology outlined in this section is based on GLVIA3 which will be followed when completing the landscape and visual impact assessment presented in the ES. GLVIA3 states that the assessment of significance of landscape and visual effects is *"an evidence-based process combined with professional judgement."* All assessments and judgements must be transparent and capable of being understood by others.

Landscape Assessment

5.7.3 The sensitivity of a landscape receptor e.g. an LCA, to a proposed development is determined by the susceptibility of that landscape receptor to the changes identified as a result of the construction and/or operation of the Project and the landscape receptor's value. The methodology describes landscape sensitivity as high, medium, or low.

5.7.4 Landscape value is determined by taking into consideration a range of attributes including: the presence or absence of landscape designations; landscape and scenic qualities; rarity and representativeness; conservation interests; recreational value; perceptual qualities; and historic and cultural value. It is also concerned with landscape

quality and the physical state of a landscape receptor. This could include consideration of the landscape receptor's intactness and the condition of individual landscape elements. The absence of landscape planning designations does not automatically mean that an area or landscape receptor is of low landscape value. These attributes are determined by review of extant landscape character assessments, management guidelines and other similar documentation supplemented by observations made during site visits.

5.7.5 Landscape susceptibility concerns the ability of a landscape receptor to accommodate the Project without undue consequences for the maintenance of the baseline situation.

5.7.6 The landscape assessment will include analysis for each landscape receptor of the factors that have been assessed in the determination of its landscape value and the assessment of its susceptibility to the Project. These will be set out in a proforma completed for each landscape receptor, in accordance with GLVIA3¹⁵, that will show how the assessment of the landscape value and landscape susceptibility have been combined to determine that landscape receptor's sensitivity (see **Table 5.6**).

Table 5.6 Evaluation of Landscape Sensitivity

Value	Susceptibility		
	High	Medium	Low
High	High	High - Medium	Medium
Medium	High - Medium	Medium	Medium-Low
Low	Medium	Medium-Low	Low

5.7.7 The magnitude of landscape change resulting from the operation of the Project will be assessed as high, medium, low, or very low. In accordance with GLVIA3 the magnitude of landscape change will consider:

- The size and/or scale of the change that would result from each identified landscape effect acting upon a landscape receptor;
- The geographical extent over which each identified landscape effect would be experienced; and
- The duration and reversibility of each identified landscape effect.

5.7.8 **Table 5.7** details the basis for assessing magnitude of landscape change.

Table 5.7 Establishing the magnitude of landscape change

Magnitude	Criteria
High	<p>A large-scale change that may include the loss of key landscape elements/characteristics or the addition of uncharacteristic new features or elements that would alter the perceptual characteristics of the landscape.</p> <p>The size or scale of landscape change could create new landscape characteristics and may change the overall distinctive landscape quality and character, typically, but not always affecting a larger geographical extent.</p>
Medium	<p>A medium-scale change that may include the loss of some key landscape characteristics or elements, or the addition of some uncharacteristic new features or elements that could alter the perceptual characteristics of the landscape.</p> <p>The size or scale of landscape change could create new landscape characteristics and may lead to a partial change in landscape character, typically, but not always affecting a more localised geographical extent.</p>
Low	<p>A small-scale change that may include the loss of some landscape characteristics or elements of limited characterising influence, or the addition of some new features or elements of limited characterising influence. They may be a small partial change in landscape character, typically, but not always affecting a localised geographical extent.</p>
Very Low	<p>A very small-scale change that may include the loss or addition of some landscape elements of limited characterising influence. The landscape characteristics and character would be unaffected.</p>

Visual Assessment

5.7.9 The sensitivity of visual receptors will consider the susceptibility of the visual receptor to the visual change identified and the value that is likely to be attributed by the visual receptor to their baseline view. These are described as high, medium, or low. The main influencing factors are:

- The occupation or activity of the visual receptor at each location.
- The extent to which the visual receptors' attention or interest is focused upon the available views.
- The importance and/or popularity of the view.
- The typical numbers of visual receptors to whom that view is available.
- In a link with landscape considerations, the context of a viewpoint in terms of landscape value and quality within a view; and
- Any indication of a view being valued such as the presence of interpretation boards, parking, and seating facilities, it being referenced in a guidebook or marked on a published map.

5.7.10 **Table 5.8** details the basis for assessing visual receptor sensitivity.

Table 5.8 Establishing the sensitivity of visual receptors

Sensitivity	Criteria
High	<p>Visual receptors in this category would generally include residents, tourists/visitors, walkers, cyclists and horse riders, either stationary or travelling through the landscape, and/or undertaking outdoor recreational activities where the focus of the activity involves an appreciation of the landscape:</p> <p>Residential properties or settlements and related community outdoor spaces.</p> <p>Outdoor tourist and visitor attractions.</p> <p>Recreational routes (national trails, long distance footpaths and PRowWs; Sustrans national cycle routes (NCR) and regional cycle routes (RCR); open access land/beaches and recognised scenic driving routes); and</p> <p>People generally, undertaking recreational activity where the focus of the activity involves an appreciation of the landscape (especially within internationally or nationally designated landscapes).</p>
Medium	<p>Visual receptors in this category would generally include people travelling through the landscape on road, rail or other transport routes as rail passengers and road users and people undertaking recreational and sporting activities where it is likely that their surroundings have some influence upon their enjoyment (e.g. angling and golfing).</p>
Low	<p>Visual receptors in this category would generally include people for whom their surroundings are unlikely to be a primary concern or affect how they undertake their current activity. Receptors are likely to include people at their place of work, people travelling on main roads through built up areas, dual-carriageways or motorways or taking part in activities not involving an appreciation of the landscape (e.g. playing team sports).</p>

5.7.11 The nature of visual effects or their magnitude of change resulting from the construction and operation of the Project will be assessed as high, medium, low, or very low in accordance with GLVIA 3¹⁵. The magnitude of visual change will be described by reference to the scale of visual change; the contrast with the baseline view; separation distance; the duration over which a view is available; the angle of view; levels of screening; and whether new visual elements are seen on a skyline or against a background.

5.7.12 **Table 5.9** details the basis for assessing magnitude of visual change.

Table 5.9 Establishing the magnitude of visual change

Magnitude	Criteria
High	A large and prominent change to the view, appearing in the fore to middle ground and involving the loss/addition of several features, which is likely to have a strong degree of contrast and benefits from little or no screening. The view is likely to be experienced at static or low speed and is more likely to be continuously/sequentially visible from a route.
Medium	A moderate and prominent/noticeable change to the view, appearing in the middle ground and involving the loss/addition of features and a degree of contrast with the existing view. There may be some partial screening. The view is likely to be experienced at static or low to medium speed and is more likely to be intermittently or partially visible from a route.
Low	A noticeable or small change, affecting a limited part of the view that may be obliquely viewed or partly screened and/or appearing in the background of the view. This category may include rapidly changing views experienced from fast-moving road vehicles or trains.
Very Low	A small or negligible change to the view that may be obliquely viewed and mostly screened and/or appearing in the distant background or viewed at high speed over short periods and capable of being missed by the casual observer.

Evaluation of significance of landscape and visual effects

5.7.13 The level of landscape and visual effects will be determined with reference to landscape or visual sensitivity and the magnitude of landscape or visual change likely to be experienced in accordance with GLVIA3¹⁵. Likely significant landscape and visual effects arising from the construction and operation of the Project would be effects that are assessed as being likely to result in effects that would be greater than a 'moderate' level. In addition, effects assessed at a 'moderate' level may be classified as significant, based on professional judgement. Effects assessed as being less than 'moderate' would be assessed as not significant. In line with the emphasis placed in GLVIA3 upon application of professional judgement, the adoption of an overly mechanistic approach through reliance upon a matrix will be avoided. This will be achieved by the provision of clear and accessible narrative explanations of the rationale underlying the assessment made for each landscape and visual receptor over and above the outline assessment provided by use of a matrix (see **Table 5.10**). Wherever possible cross references will be made to a visual assessment at the proposed viewpoints and figures to support and explain the rationale.

Table 5.10 Evaluation of Landscape and Visual Effects

Sensitivity	Magnitude of change			
	High	Medium	Low	Very Low
High	Major (Significant)	Major / Moderate (Significant)	Moderate*	Minor
Medium	Major / Moderate (Significant)	Moderate*	Minor	Minor / Negligible
Low	Moderate*	Minor	Minor / Negligible	Negligible

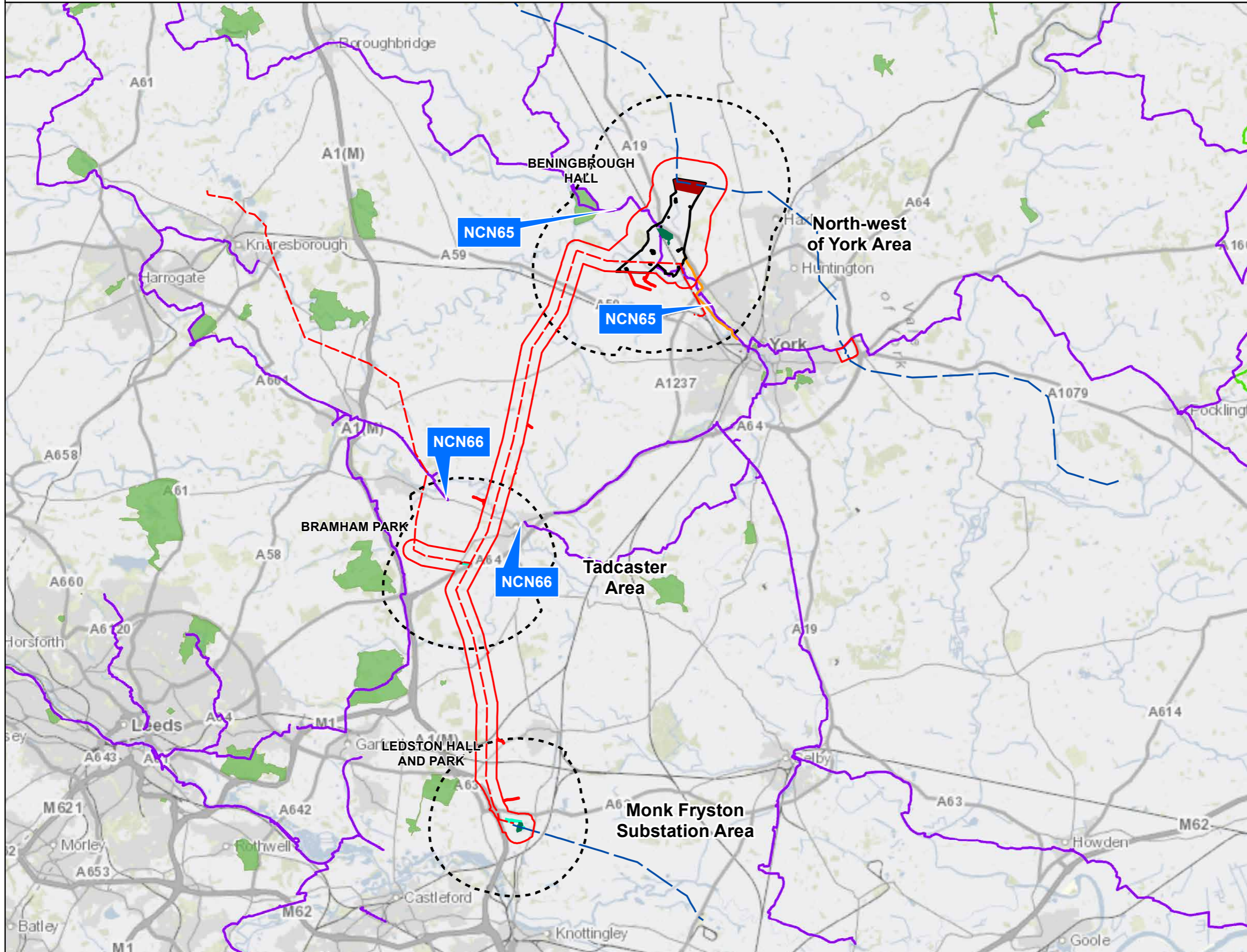
*Note: Moderate levels of effect may or may not be significant subject to the assessor's opinion which shall be clearly explained.

Limitations and Assumptions

5.7.14 The scope of the LVIA assessment is based upon development parameters based upon maximum extent of new development (see Projects Components Plan – **Figure 1.2**) and maximum heights of the Project infrastructure (see **paragraph 5.6.4**), which are both subject to detailed design.



VISUAL RECEPTORS IN THE LVIA STUDY AREA



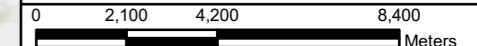
Legend

- Scoping red line boundary
- LVIA study area
- Existing 275kV overhead line
- Existing 400kV overhead line
- New 400kV and 275kV overhead line corridor
- Proposed Substation Siting Area
- Proposed Cable Sealing End Compound Siting Area
- Proposed Associated Infrastructure
- York and Selby Path
- National Cycle Network
- Registered Parks & Gardens

Notes
This drawing is scaled at paper size A3, therefore any prints taken at smaller sizes will affect accuracy of the measurement units and should not be scaled against.



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Sheet X Centroid Coordinate: 453,998.22 Sheet Y Centroid Coordinate: 445,765.74



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1	MAR 21	NIL	PINDS	DIMMR	CHADC
Issue	Date	Remarks	Drawn	Checked	Approved

Title
**SCOPING REPORT
CHAPTER 5: LANDSCAPE AND
VISUAL AMENITY**
**VISUAL RECEPTORS IN
THE LVIA STUDY AREA**



Figure Number: FIGURE 5.2

Drawing Reference: 806503-WOOD-0008

Scale	Sheet Size	Sheet	Issue
1:175,000	A3	SHEET 1 OF 1	1



ZONE OF THEORETICAL VISIBILITY
NORTH-WEST OF YORK AREA: NEW
400KV AND 275 KV OVERHEAD LINE CORRIDOR

Legend

- Scoping red line boundary
- LVIA study area
- New 400kV and 275kV overhead line corridor

Viewpoint location

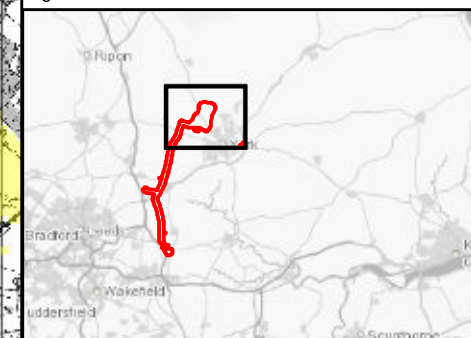
- VP1: National Cycle Route 65, west of Skelton
- VP2: Millennium Green, Nether Poppleton
- VP3: National Cycle Route 65, Overton Road
- VP4: Public Bridleway along River Ouse
- VP5: Public Footpath near Moorlands Farm
- VP6: B1363 at western edge of Wigginton
- VP7: A19 at southern edge of Shipton
- VP8: Beningbrough Hall and Gardens
- VP29: Public Bridleway east of Nun Monkton

Zone of Theoretical Visibility

- Elements of the development may be visible

Notes

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Sheet X Centroid Coordinate: 456,573.24 Sheet Y Centroid Coordinate: 457,921.12

0 550 1,100 2,200 Meters

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1	MAR 21	NIL	PINDS	DIMMR	CHADC
Issue	Date	Remarks	Drawn	Checked	Approved

Title

SCOPING REPORT
CHAPTER 5: LANDSCAPE AND VISUAL AMENITY

ZONE OF THEORETICAL VISIBILITY
NORTH-WEST OF YORK AREA: NEW
400KV AND 275 KV OVERHEAD
LINE CORRIDOR

Figure Number		FIGURE 5.3	
Drawing Reference		806503-WOOD-0022	
Scale	Sheet Size	Sheet	Issue
1:50,000	A3	SHEET 1 OF 1	1

NOTE:
THE ZTV HAS BEEN MODELLED USING ORDNANCE SURVEY 50M DTM TERRAIN DATA.










THE ZTV MODEL FOR THE PROPOSED DEVELOPMENT HAS BEEN CREATED USING PRELIMINARY REPRESENTATIVE POINTS MODELLED AT A HEIGHT OF 60M WITH RECEPTOR VIEWING HEIGHT SET AT 1.5M.

EXCLUSION ZONES FOR WOODLAND AND BUILDINGS HAVE BEEN CREATED USING OS VECTORMAP DISTRICT BOUNDARY DATA. BUILDING EXCLUSION ZONES HAVE BEEN MODELLED AT AN ARBITRARY HEIGHT OF 7.5M. WOODLAND EXCLUSION ZONES HAVE BEEN MODELLED AT AN ARBITRARY HEIGHT OF 10M. THE ZTV DOES NOT TAKE INTO ACCOUNT ALL SCREENING EFFECTS THAT MAY OCCUR FROM OTHER TYPES OF PLANTING AND MISCELLANEOUS BUILT STRUCTURES.



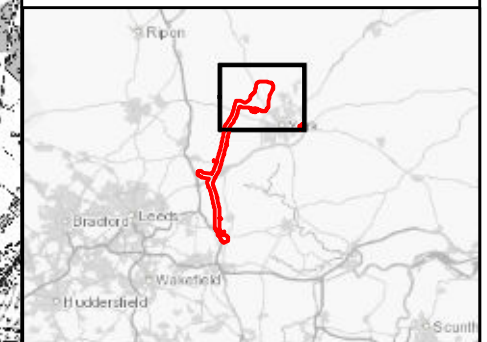
ZONE OF THEORETICAL VISIBILITY
NORTH-WEST OF YORK AREA: PROPOSED CABLE SEALING END COMPOUND SITING AREA

Legend

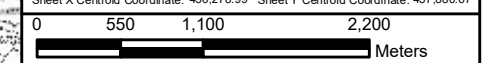
-  Scoping red line boundary
-  LVIA study area
-  New 400kV and 275kV overhead line corridor
-  Proposed Cable Sealing End Compound Siting Area
- Viewpoint location**
-  VP9: Corban Lane
-  VP10: Public footpath, Shipton Moor
-  VP11: Public bridleway at junction with B1363
-  VP12: Public bridleway at junction with A19
- Zone of Theoretical Visibility**
-  Elements of the development may be visible

Notes

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Issue	Date	Remarks	Drawn	Checked	Approved
1	MAR 21	NIL	PINDS	DIMMR	CHADC

Title
SCOPING REPORT
CHAPTER 5: LANDSCAPE AND VISUAL AMENITY

ZONE OF THEORETICAL VISIBILITY
NORTH-WEST OF YORK AREA:
PROPOSED CABLE SEALING END
COMPOUND SITING AREA

nationalgrid

Figure Number: FIGURE 5.4

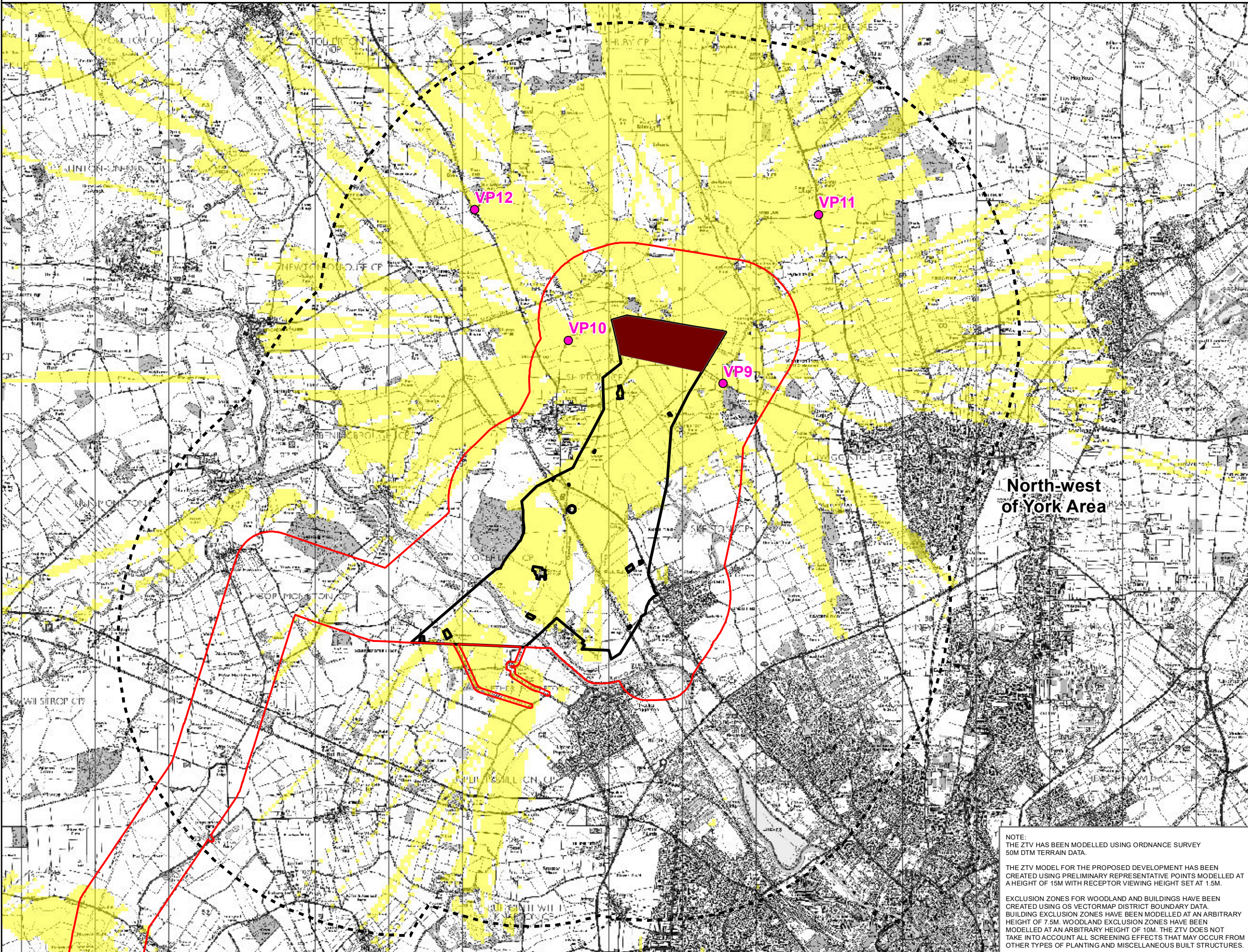
Drawing Reference: 806503-WOOD-0026

Scale	Sheet Size	Sheet	Issue
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NOTE:
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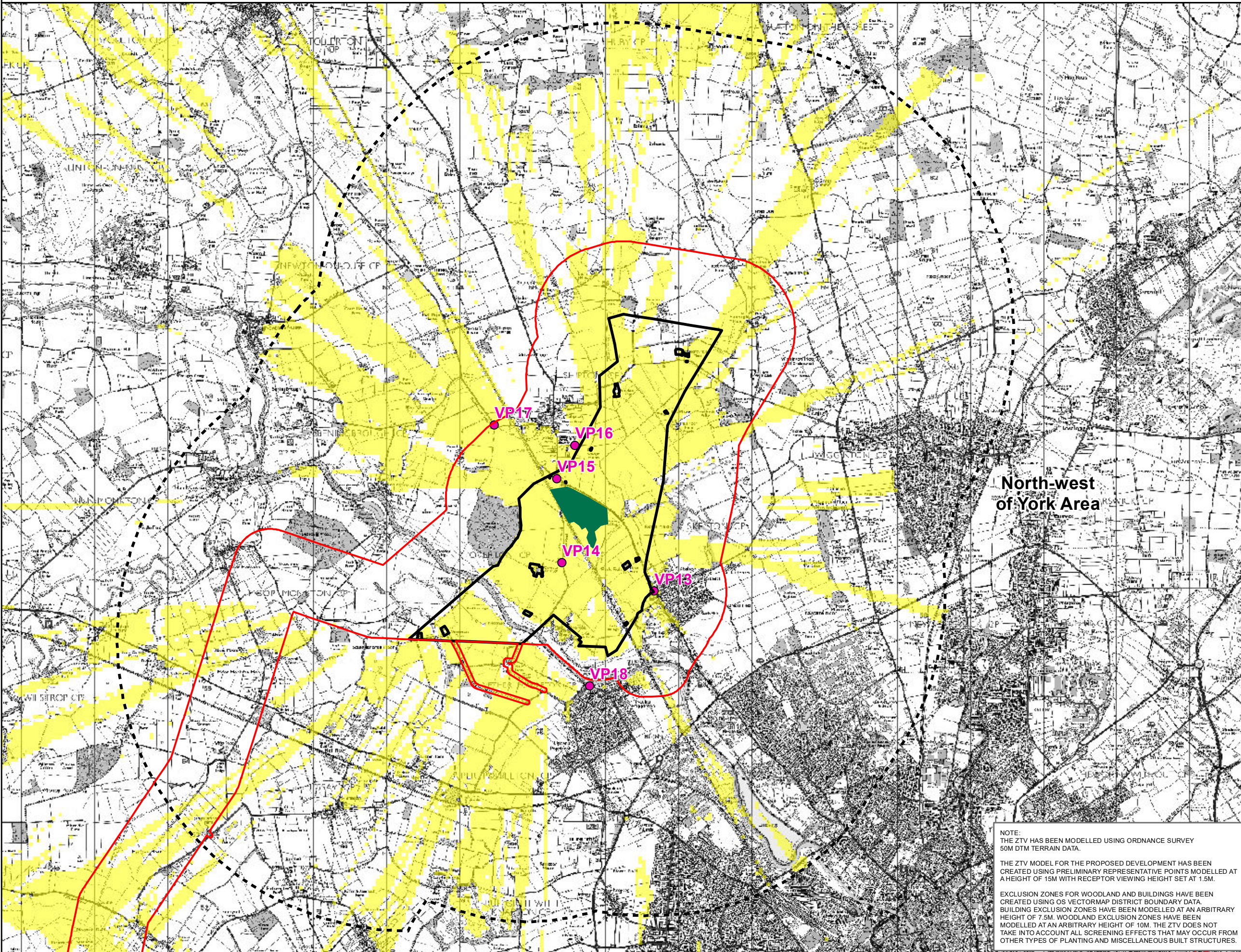
THE ZTV MODEL FOR THE PROPOSED DEVELOPMENT HAS BEEN CREATED USING PRELIMINARY REPRESENTATIVE POINTS MODELLED AT A HEIGHT OF 15M WITH RECEPTOR VIEWING HEIGHT SET AT 1.5M.

EXCLUSION ZONES FOR WOODLAND AND BUILDINGS HAVE BEEN CREATED USING OS VECTORMAP DISTRICT BOUNDARY DATA. BUILDING EXCLUSION ZONES HAVE BEEN MODELLED AT AN ARBITRARY HEIGHT OF 7.5M. WOODLAND EXCLUSION ZONES HAVE BEEN MODELLED AT AN ARBITRARY HEIGHT OF 10M. THE ZTV DOES NOT TAKE INTO ACCOUNT ALL SCREENING EFFECTS THAT MAY OCCUR FROM OTHER TYPES OF PLANTING AND MISCELLANEOUS BUILT STRUCTURES.





ZONE OF THEORETICAL VISIBILITY
NORTH-WEST OF YORK AREA:
PROPOSED SUBSTATION SITING AREA



Legend

- Scoping red line boundary
- LVIA study area
- Proposed Substation Siting
- New 400kV and 275kV overhead line corridor

Viewpoint location

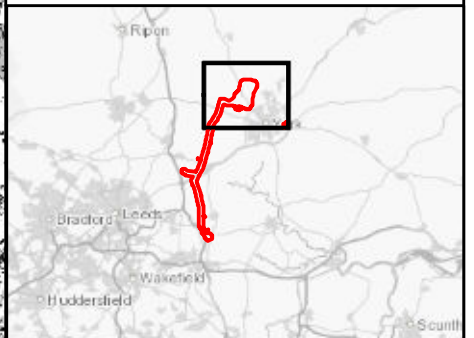
- VP13: A19, western edge of Skelton
- VP14: National Cycle Route 65, Overton Road near Overton Grange
- VP15: National Cycle Route 65, Overton Road near junction with A19
- VP16: Sandhole Lane on south-eastern edge of Shipton
- VP17: National Cycle Route 65, Shipton Low Road
- VP18: War memorial/seating area, Nether Poppleton

Zone of Theoretical Visibility

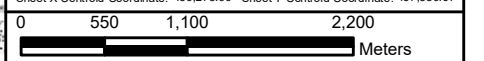
- Elements of the development may be visible

Notes

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Issue	Date	Remarks	Drawn	Checked	Approved
1	MAR 21	NIL	PINDS	DIMMR	CHADC

Title

SCOPING REPORT
CHAPTER 5: LANDSCAPE AND VISUAL AMENITY

ZONE OF THEORETICAL VISIBILITY
NORTH-WEST OF YORK AREA:
PROPOSED SUBSTATION SITING AREA

nationalgrid

Figure Number: FIGURE 5.5

Drawing Reference: 806503-WOOD-0027

Scale	Sheet Size	Sheet	Issue
1:50,000	A3	SHEET 1 OF 1	1

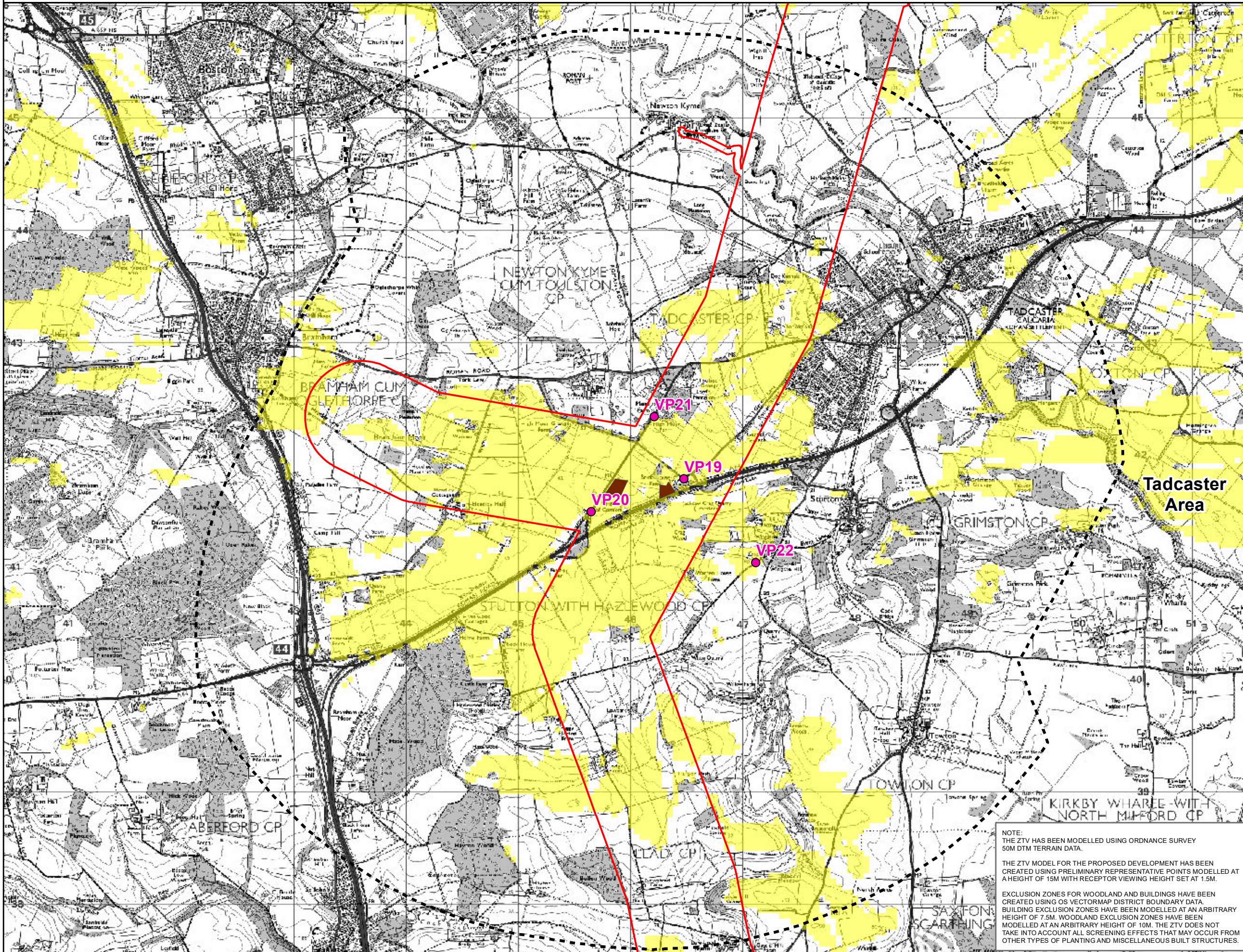
NOTE:
THE ZTV HAS BEEN MODELLED USING ORDNANCE SURVEY 50M DTM TERRAIN DATA.

THE ZTV MODEL FOR THE PROPOSED DEVELOPMENT HAS BEEN CREATED USING PRELIMINARY REPRESENTATIVE POINTS MODELLED AT A HEIGHT OF 15M WITH RECEPTOR VIEWING HEIGHT SET AT 1.5M.

EXCLUSION ZONES FOR WOODLAND AND BUILDINGS HAVE BEEN CREATED USING OS VECTORMAP DISTRICT BOUNDARY DATA. BUILDING EXCLUSION ZONES HAVE BEEN MODELLED AT AN ARBITRARY HEIGHT OF 7.5M. WOODLAND EXCLUSION ZONES HAVE BEEN MODELLED AT AN ARBITRARY HEIGHT OF 10M. THE ZTV DOES NOT TAKE INTO ACCOUNT ALL SCREENING EFFECTS THAT MAY OCCUR FROM OTHER TYPES OF PLANTING AND MISCELLANEOUS BUILT STRUCTURES.



ZONE OF THEORETICAL VISIBILITY
TADCASTER AREA: PROPOSED CABLE
SEALING END COMPOUND SITING AREA

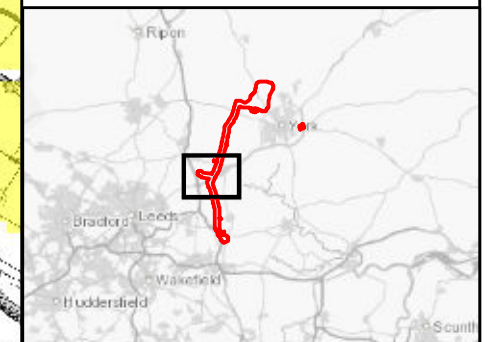


Legend

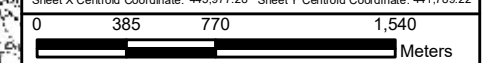
- Scoping red line boundary
- LVIA study area
- Proposed Cable Sealing End Compound Siting Area
- Viewpoint location**
- VP19: Garnet Lane near Brick House Farm
- VP20: A659 south of site
- VP21: A659 near High Moor Farm
- VP22: Public Bridleway on Chantry Lane
- Zone of Theoretical Visibility**
- Elements of the development may be visible

Notes

This drawing is scaled at paper size A3, therefore any prints taken at smaller sizes will affect accuracy of the measurement units and should not be scaled against.



Coordinate System: British National Grid
Sheet X Centroid Coordinate: 445,977.28 Sheet Y Centroid Coordinate: 441,789.22



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Issue	Date	Remarks	Drawn	Checked	Approved
1	MAR 21	NIL	PINDS	DIMMR	CHADC

Title

SCOPING REPORT
CHAPTER 5: LANDSCAPE AND
VISUAL AMENITY
ZONE OF THEORETICAL VISIBILITY
TADCASTER AREA: PROPOSED CABLE
SEALING END COMPOUND SITING AREA



Figure Number: FIGURE 5.6

Drawing Reference: 806503-WOOD-0028

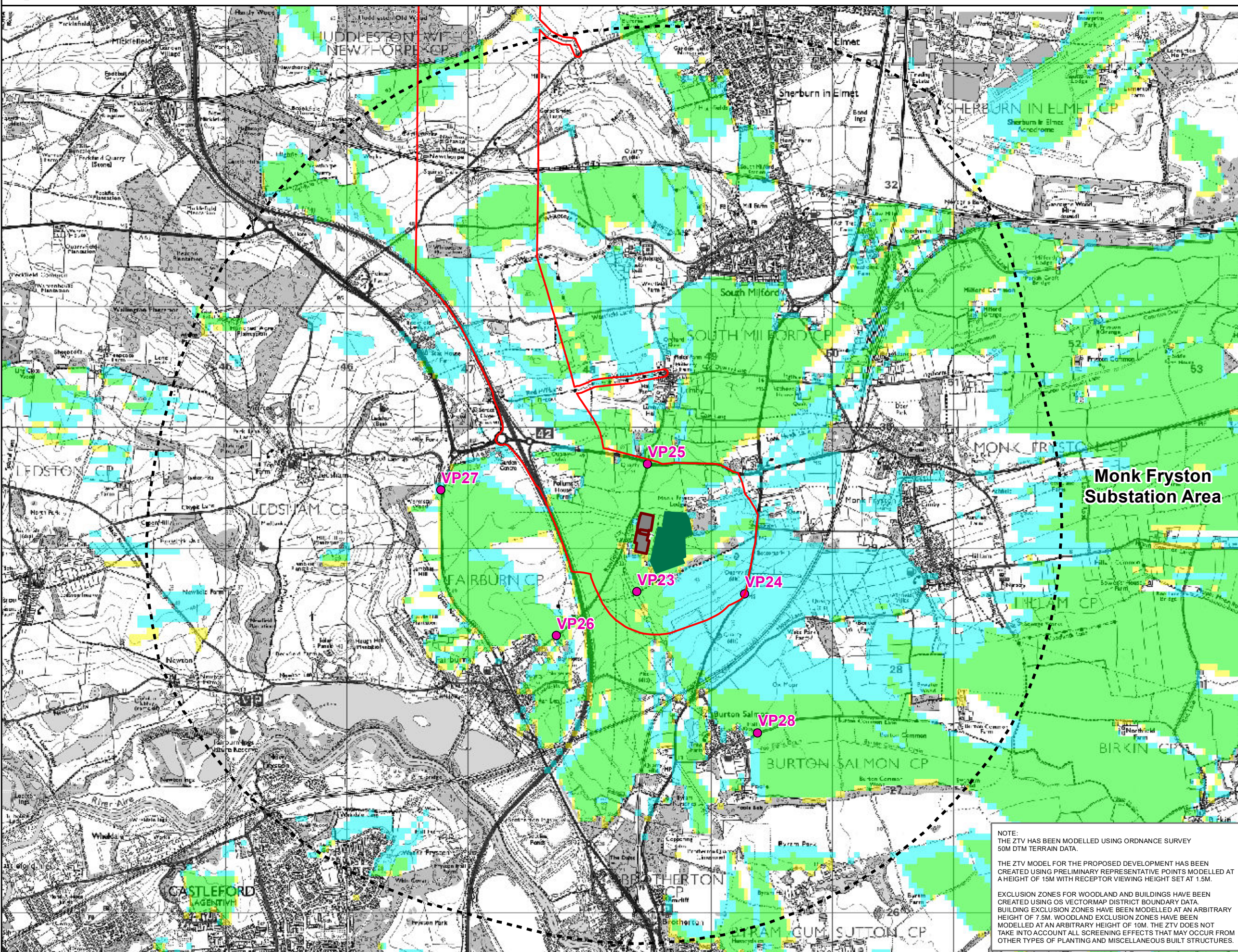
Scale	Sheet Size	Sheet	Issue
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NOTE:
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EXCLUSION ZONES FOR WOODLAND AND BUILDINGS HAVE BEEN CREATED USING OS VECTORMAP DISTRICT BOUNDARY DATA. BUILDING EXCLUSION ZONES HAVE BEEN MODELLED AT AN ARBITRARY HEIGHT OF 7.5M. WOODLAND EXCLUSION ZONES HAVE BEEN MODELLED AT AN ARBITRARY HEIGHT OF 10M. THE ZTV DOES NOT TAKE INTO ACCOUNT ALL SCREENING EFFECTS THAT MAY OCCUR FROM OTHER TYPES OF PLANTING AND MISCELLANEOUS BUILT STRUCTURES.



COMPARATIVE ZONE OF THEORETICAL VISIBILITY MONK FRYSTON
SUBSTATION AREA: MONK FRYSTON EXISTING SUBSTATION AND PROPOSED SUBSTATION SITING AREA



Legend

- Scoping red line boundary
- LVIA study area
- Substation Siting Area

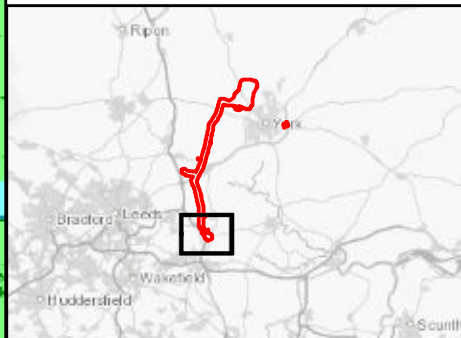
Viewpoint location

- VP23, Public footpath south of site
- VP24, A162 southeast of
- VP25, Junction of Rawfield Lane and A63
- VP26, Rawfield Lane near Bay Horse Farm
- VP27, A1246 at junction with Holyrood Lane
- VP28, Burton Common Lane on eastern edge of Burton Salmon

Zone of Theoretical Visibility

- Elements of Monk Fyston Substation Siting Area only may be visible
- Elements of both developments may be visible
- Elements of the Monk Fyston existing substation only may be visible.

Notes
This drawing is scaled at paper size A3, therefore any prints taken at smaller sizes will affect accuracy of the measurement units and should not be scaled against.



Coordinate System: British National Grid
Sheet X Centroid Coordinate: 448,288.15 Sheet Y Centroid Coordinate: 429,566.27

0 360 720 1,440
Meters

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1	MAR 21	NIL	PINDS	DIMMR	CHADC
Issue	Date	Remarks	Drawn	Checked	Approved

**SCOPING REPORT
CHAPTER 5: LANDCAPE AND VISUAL AMENITY**

COMPARATIVE ZONE OF THEORETICAL VISIBILITY MONK FRYSTON SUBSTATION AREA: MONK FRYSTON EXISTING SUBSTATION AND PROPOSED SUBSTATION SITING AREA



Figure Number: FIGURE 5.7

Drawing Reference: 806503-WOOD-0029

Scale	Sheet Size	Sheet	Issue
1:30,000	A3	SHEET 1 OF 1	1

NOTE:
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EXCLUSION ZONES FOR WOODLAND AND BUILDINGS HAVE BEEN CREATED USING OS VECTORMAP DISTRICT BOUNDARY DATA. BUILDING EXCLUSION ZONES HAVE BEEN MODELLED AT AN ARBITRARY HEIGHT OF 7.5M. WOODLAND EXCLUSION ZONES HAVE BEEN MODELLED AT AN ARBITRARY HEIGHT OF 10M. THE ZTV DOES NOT TAKE INTO ACCOUNT ALL SCREENING EFFECTS THAT MAY OCCUR FROM OTHER TYPES OF PLANTING AND MISCELLANEOUS BUILT STRUCTURES.

6. Historic Environment

6. Historic Environment

6.1 Introduction

- 6.1.1 The historic environment assessment will consider the potentially significant effects on heritage assets that may arise from the construction and operation of the Project. This chapter of the Scoping Report describes the methodology to be used within the assessment, the datasets to be used to inform the assessment, an overview of the baseline conditions, the likely significant effects to be considered within the assessment, and how these likely significant effects will be assessed for the purpose of an EIA.
- 6.1.2 Historic environment interfaces with many other aspects and as such, should be considered alongside these:
- Chapter 5: Landscape and Visual Amenity;
 - Chapter 8: Arboriculture;
 - Chapter 14: Noise and Vibration; and
 - Chapter 16: Socio-Economics.

6.2 Relevant legislation, planning policy and technical guidance

- 6.2.1 This section identifies the relevant legislation, national and local policy and guidance which has informed the scope of the assessment relevant to the historic environment.

Legislation

- 6.2.2 A summary of legislation relevant to the Historic Environment assessment is provided in **Table 6.1**.

Table 6.1 Legislation relevant to Historic Environment

Legislation	Legislative context	Section considered
Ancient Monuments and Archaeological Areas Act 1979²⁶	The Ancient Monuments and Archaeological Areas Act sets out that sites considered to be of national importance are required to be compiled in a Schedule of Monuments. These sites are accorded statutory protection. The Act sets out conditions whereby Scheduled Monument Consent is required. This Act also provides for the designation of Areas of Archaeological Interest in which statutory provisions for access to construction sites for carrying out archaeological works apply.	Sections 6.4 (Baseline Conditions) and 6.6 (Assessment methodology)

²⁶ Ancient Monuments and Archaeological Areas Act, 1979. Available at <https://www.legislation.gov.uk/ukpga/1979/46> [accessed 17/02/21]

Legislation	Legislative context	Section considered
Planning (Listed Buildings and Conservation Areas) Act 1990²⁷	<p>The Act covers the registration of listed buildings (buildings that are seen to be of special architectural or historic interest) and the designation of Conservation Areas (areas of special architectural or historic interest the character or appearance of which it is desirable to preserve or enhance). It sets out the conditions under which a listed building consent would be required.</p> <p>The Act sets out at Sections 66 and Section 72 the duties of local planning authorities (LPAs) to give great weight to the desirability of preserving listed buildings and their settings and the character of conservation areas in planning decisions.</p> <p>The Section 66 and Section 72 duties are superseded in applications under the Planning Act 2008 by equivalent provisions in the Infrastructure Planning (Decisions) Regulations 2010 (see below).</p>	Sections 6.4 (Baseline Conditions) and 6.6 (Assessment methodology)
Infrastructure Planning (Decisions) Regs 2010²⁸	<p>These regulations require decision-makers to have regard to the desirability of preserving a scheduled monument or its setting; listed buildings, any features which contribute to their special interest and their settings and to have regard for the desirability of preserving the character and appearance of conservation areas. These duties supersede sections 66 and 72 of the Planning Act 1990 in determining DCO applications.</p>	Section 6.6 (Assessment methodology)
Treasure Act 1996²⁹	<p>This Act defines what constitutes “treasure”. Any find of “treasure” must be reported to the local Coroner.</p>	Sections 6.4 (Baseline Conditions) and 6.6 (Assessment methodology)
Treasure (Designation) Order 2002³⁰	<p>This Order amends the statutory definition of “treasure”.</p>	Sections 6.4 (Baseline Conditions) and 6.6 (Assessment methodology)
The Hedgerow Regulations 1997³¹	<p>These regulations set out criteria to be used to determine the importance of hedgerows and protect important hedgerows from removal. Selection criteria include heritage-based considerations.</p>	Sections 6.4 (Baseline Conditions) and 6.6 (Assessment methodology)

²⁷ Planning (Listed Buildings and Conservation Areas) Act, 1990. Available at <https://www.legislation.gov.uk/ukpga/1990/9/contents> [accessed 17/02/21]

²⁸ Infrastructure Planning (Decisions) Regs, 2010. Available at <https://www.legislation.gov.uk/ukdsi/2010/9780111490266/contents> [accessed 17/02/21]

²⁹ Treasure Act, 1996. Available at <https://www.legislation.gov.uk/ukpga/1996/24/contents> [accessed 17/02/21]

³⁰ Treasure (Designation) Order, 2002. Available at <https://www.legislation.gov.uk/ukdsi/2002/0110424700/contents> [accessed 17/02/21]

³¹ The Hedgerow Regulations, 1997. Available at <https://www.legislation.gov.uk/uksi/1997/1160/contents/made> [accessed 17/02/21]

Legislation	Legislative context	Section considered
Burial Act 1857³²	It is generally an offence to remove human remains from a place of burial without a licence from the Secretary of State.	Sections 6.4 (Baseline Conditions) and 6.6 (Assessment methodology)
Protection of Military Remains 1986³³	This Act sets out specific protections for aircraft which have crashed or vessels which have sunk or been stranded whilst in military service. It sets out a general prohibition on any disturbance or removal of such remains without a licence granted by the Secretary of State	Sections 6.4 (Baseline Conditions) and 6.6 (Assessment methodology)

Planning Policy

6.2.3 A summary of the relevant planning policies is provided in **Table 6.2**.

Table 6.2 Planning policy relevant to Historic Environment

Policy reference	Policy context	Section considered
National Policy		
Overarching National Policy Statement for Energy (EN-1)		
Section 5.8	NPS EN-1 requires change to the significance of heritage assets to be considered in developing an understanding of the potential effects of the proposed development. Further, that setting contributes to a heritage asset's significance and should be drawn into consideration of baseline conditions and assessment of significance. It recommends conditions for refusal due to substantial harm and sets out criteria for this.	Section 6.4 (Data gathering methodology) and Section 6.6 (Assessment methodology)
National Policy Statement for Electricity Networks Infrastructure (EN-5)		
	NPS EN-5 does not add further requirements for assessment of the historic environment and instead directs applicants to NPS EN-1.	Not applicable
National Planning Policy Framework (NPPF)		
Section 16	Section 16 of the NPPF is consistent with EN-1 and is not, therefore, repeated here.	Section 6.4 (Data gathering methodology) and Section 6.6 (Assessment methodology)

³² Burial Act, 1857. Available at <https://www.legislation.gov.uk/ukpga/Vict/20-21/81/contents> [accessed 17/02/21]

³³ Protection of Military Remains, 1986. Available at <https://www.legislation.gov.uk/ukpga/1986/35/contents> [accessed 17/02/21]

Policy reference	Policy context	Section considered
Development Plan Policies		
Harrogate District Local Plan 2014 - 2035	<p>Policy HP2: Heritage Assets</p> <p>Proposals for development that would affect heritage assets will be determined in accordance with national planning policy.</p> <p>Policy HP3: Local Distinctiveness</p> <p>Development should incorporate high quality building, urban and landscape design that protects, enhances or reinforces features that contribute to local distinctiveness.</p>	Section 6.4 (Data gathering methodology) and Section 6.6 (Assessment methodology)
Hambleton Local Development Framework: Core Strategy Development Plan Document 2007	<p>Core Policy 16:</p> <p>Development will be supported where they preserve and enhance the District's man-made assets.</p> <p>Core Policy 17:</p> <p>Design should respect and enhance the local context and its special qualities, including historic environment.</p>	Section 6.6 (Assessment methodology)
Hambleton Development Policies DPD 2008	<p>DP 28: Conservation</p> <p>Conservation of heritage will be ensured by: preserving and enhancing Listed Buildings; identifying, protecting and enhancing Conservation Areas; protecting and preserving Historic Battlefields and Historic Parks and Gardens; protecting and preserving any other built or landscape feature or use which contributes to the heritage of the District.</p> <p>DP 29: Archaeology</p> <p>The preservation or enhancement of archaeological remains and their settings will be supported, taking account of the significance of the remains.</p> <p>DP30: Protecting the character and appearance of the countryside</p> <p>The intrinsic character of the District's landscape will be respected and where possible enhanced.</p>	Section 6.6 (Assessment methodology)

Policy reference	Policy context	Section considered
Hambleton Draft Local Plan	A revised Historic Environment Policy is being drafted to ensure that development proposals protect, and where appropriate, enhance elements that contribute to the significance of the heritage assets.	Section 6.6 (Assessment methodology)
City of York Local Plan 2005	<p>Chapter 4: Historic Environment</p> <p>To preserve and enhance the character and appearance of conservation areas, listed buildings and historic parks and gardens whilst at the same time promoting sustainable development.</p> <p>There are 12 policies (HE1 – 12) identified. Of relevance here are:</p> <p>HE2: Development in Historic Locations. Relating to proposals within or adjoining conservation areas, and locations which affect the setting of listed buildings, scheduled monuments or nationally important archaeological remains (whether scheduled or not)</p> <p>HE4: Listed Buildings</p> <p>Gives criteria for acceptable proposals types where no adverse effects to the listed building can be demonstrated.</p> <p>HE9: Scheduled Ancient Monuments</p> <p>Proposals which adversely affect a scheduled monument or its setting will not be accepted.</p> <p>HE10: Archaeology</p> <p>Defines process for proposals which may affect buried archaeological remains.</p> <p>HE11: Trees and Landscape</p> <p>Trees and landscapes which are part of the setting of conservation areas, listed buildings, or scheduled monuments must be retained.</p> <p>HE12: Historic Parks & Gardens</p> <p>Proposals will only be accepted if there is no adverse effect to character or setting.</p>	Section 6.6 (Assessment methodology)
City of York Draft Local Plan (2018)	<p>Section 8: Placemaking, Heritage, Design and Culture</p> <p>Policy D2: Landscape and setting</p> <p>Proposals must demonstrate understanding of landscape character and the value of its</p>	Section 6.4 (Data gathering methodology) and Section 6.6 (Assessment methodology)

Policy reference	Policy context	Section considered
	<p>contribution to the setting and context of the city and surrounding villages.</p> <p>Policy D4: Conservation Areas Proposals must preserve or enhance the special character and appearance of the conservation area, better reveal its significance, and respect important views.</p> <p>Policy D5: Listed Buildings Proposals must preserve, enhance or better reveal those elements which contribute to the significance of the building or its setting.</p> <p>Policy D6: Archaeology Proposals will be accompanied by an evidence based heritage statement and, where necessary, reports on intrusive and non-intrusive surveys of the application site and its setting. Where harm to archaeological deposits is unavoidable, detailed mitigation measures must be agreed with City of York Council.</p> <p>Policy D7: The Significance of Non - Designated Heritage Assets Proposals must sustain and enhance, the significance of York’s historic environment, including non-designated heritage assets.</p> <p>Policy D8: Historic Parks and Gardens Harm to an element which contributed to the significance of a Registered Historic Park and Garden will be permitted only where this is outweighed by the public benefits of the proposal.</p>	
<p>Leeds City Council Core Strategy (adopted November 2014 – Updated 2019)</p>	<p>P11: Conservation The historic environment will be conserved and enhanced, particularly those elements which help to give Leeds its distinct identity.</p> <p>This policy is supported by the following policies retained from the UPD. Only those of relevance to this proposal are listed here:</p> <ul style="list-style-type: none"> • N14 Listed Building and Preservation • N17 Listed Buildings Character and Appearance • N19 Conservation Areas and New Buildings 	<p>Section 6.6 (Assessment methodology)</p>

Policy reference	Policy context	Section considered
	<ul style="list-style-type: none"> N28 Historic Parks and Gardens N29 Sites of Archaeological Importance <p>P12: Landscape</p> <p>The character, quality and biodiversity of Leeds' townscapes and landscapes, including their historical and cultural significance, will be conserved and enhanced to protect their distinctiveness through stewardship and the planning process.</p>	
Selby District Core Strategy Local Plan (2013)	<p>SP18: Protecting and Enhancing the Environment</p> <p>The local distinctiveness of the manmade environment will be sustained by safeguarding and, where possible, enhancing the historic environment, including the landscape character and setting of areas of acknowledged importance; and conserving those historic assets which contribute most to the distinct character of the District.</p> <p>This policy is supported by the retained ENV16 and ENV17 (Historic Parks and Gardens and Historic Battlefields, respectively) from the Selby District Local Plan (2005).</p>	Section 6.6 (Assessment methodology)
Upper Poppleton and Nether Poppleton Neighbourhood Plan, 2017	<p>Conservation Area Policy PNP 3</p> <p>All development and land use within the conservation areas must protect the open character and heritage assets of the villages.</p>	Section 6.6 (Assessment methodology)

Technical Guidance

6.2.4 A summary of the relevant planning policies is provided in **Table 6.3**.

Table 6.3 Technical guidance relevant to Historic Environment

Technical Guidance Document	Context	Section considered
Planning Practice Guidance: Historic Environment 2019 ³⁴	This guidance provides advice on the conservation and enhancement of the historic environment.	Section 6.6 (Assessment methodology)
Historic England Good Practice Advice in Planning Note 2 (GPA 2): Managing Significance in decision-taking in the Historic Environment 2015 ³⁵	This document provides guidance and information to assist in implementing historic environment policy and ensuring compliance with NPPF fundamentals.	Section 6.6 (Assessment methodology)
Historic England Good Practice Advice in Planning Note 3 (GPA 3): The Setting of Heritage Assets 2017 ³⁶	Sets out guidance on managing change within the settings of heritage assets. The document sets out five steps to follow to ensure an appropriate level of assessment is achieved.	Section 6.6 (Assessment methodology)
Conservation Principles, Policies and Guidance 2008 ³⁷	Sets out principles for the assessment of heritage significance and its management.	Section 6.6 (Assessment methodology)
Conservation Principles for the Sustainable Management of the Historic Environment - consultation draft 2017 ³⁸	A draft version of the revised conservation principles for the sustainable management of the historic environment.	Section 6.6 (Assessment methodology)
Statements of Heritage Significance: Analysing Significance in Heritage Assets 2019 ³⁹	This Historic England advice note covers the NPPF requirement for applicants for heritage and other consents to	Section 6.6 (Assessment methodology)

³⁴ Planning Practice Guidance: Historic Environment, 2019. Available at <https://www.gov.uk/guidance/conserving-and-enhancing-the-historic-environment> [accessed 17/02/21]

³⁵ Historic England Good Practice Advice in Planning Note 2 (GPA 2): Managing Significance in decision-taking in the Historic Environment, 2015. Available at <https://historicengland.org.uk/images-books/publications/gpa2-managing-significance-in-decision-taking/gpa2/> [accessed 17/02/21]

³⁶ Historic England Good Practice Advice in Planning Note 3 (GPA 3): The Setting of Heritage Assets, 2017. Available at <https://historicengland.org.uk/images-books/publications/gpa3-setting-of-heritage-assets/heag180-gpa3-setting-heritage-assets/> [accessed 17/02/21]

³⁷ Conservation Principles, Policies and Guidance, 2008. Available at <https://historicengland.org.uk/images-books/publications/conservation-principles-sustainable-management-historic-environment/> [accessed 17/02/21]

³⁸ Conservation Principles for the Sustainable Management of the Historic Environment - consultation draft, 2017. Available at <https://historicengland.org.uk/content/docs/guidance/conservation-principles-consultation-draft-pdf/> [accessed 17/02/21]

³⁹ Statements of Heritage Significance: Analysing Significance in Heritage Assets, 2019. Available at <https://historicengland.org.uk/images-books/publications/statements-heritage-significance-advice-note-12/heag279-statements-heritage-significance/> [accessed 17/02/21].

Technical Guidance Document	Context	Section considered
	describe heritage significance to help local planning authorities to make decisions on the impact of proposals for change to heritage assets.	
Chartered Institute for Archaeologists (CIfA) Standard and guidance for archaeological desk-based assessment 2017⁴⁰	Sets out standards for the production of archaeological desk-based assessments.	Section 6.4 (Baseline Conditions)
CIfA Standard and guidance for commissioning work or providing consultancy advice on archaeology and the historic environment 2014⁴¹	Sets out standards for the provision of consultancy advice in the historic environment.	Sections 6.4 (Baseline Conditions) and 1.6 (Assessment methodology)
CIfA Standard and guidance for archaeological field evaluation 2014⁴²	Sets out standards for archaeological evaluation.	Sections 6.4 (Baseline Conditions)
CIfA Standard and guidance for archaeological geophysical survey 2014⁴³	Sets out standards for archaeological geophysical survey.	Sections 6.4 (Baseline Conditions)

6.3 Consultation and engagement

- 6.3.1 National Grid held a briefing with Historic England on 17th November 2020. The meeting introduced the Project along with the consenting team. Historic England requested early engagement to avoid and reduce risks, particularly given the broad corridor proposed for North-west of York Area.
- 6.3.2 A second meeting was held with Historic England, and other consultees, on the 5th February 2021, where the conclusion of the CPRS study and the graduated swathe

⁴⁰ Chartered Institute for Archaeologists (CIfA) Standard and guidance for archaeological desk-based assessment, 2017. Available at https://www.archaeologists.net/sites/default/files/CIfAS%26GDBA_4.pdf [accessed 17/02/21].

⁴¹ CIfA Standard and guidance for commissioning work or providing consultancy advice on archaeology and the historic environment, 2014. Available at https://www.archaeologists.net/sites/default/files/CIfAS%26GCommissioning_2.pdf [accessed 17/02/21].

⁴² CIfA Standard and guidance for archaeological field evaluation, 2014. Available at https://www.archaeologists.net/sites/default/files/CIfAS%26GFieldevaluation_3.pdf [accessed 17/02/21].

⁴³ CIfA Standard and guidance for archaeological geophysical survey, 2014. Available at https://www.archaeologists.net/sites/default/files/CIfAS%26GGeophysics_3.pdf [accessed 17/02/21].

options (**Section 2.2**) for North-west of York, Tadcaster, and Monk Fyston Substation Areas were presented.

6.3.3 Consultation with Historic England and the relevant Local Planning Authority archaeologists and conservation officers will be undertaken at two key points during the DCO process:

- In advance of the PEIR, to clarify and confirm requirements following the receipt of the Scoping Opinion and to agree the final scope of the assessment; and
- In advance of the DCO submission to discuss any comments raised during the statutory consultation to ensure any necessary amendments can be incorporated.

6.3.4 Throughout the DCO consultations we will discuss the approach to evaluation and mitigation requirements as required.

6.4 Baseline conditions

Study Areas

6.4.1 Two study areas will be used for the assessment of effects on the historic environment. As outlined in **Section 2.2**, the CPRS Study has identified a preferred corridor and preliminary routes for the sections of new 400kV and 275kV overhead line, which are shown as graduated swathes (**Figure 2.2** and **2.3**) and are currently being consulted on.

- A study area combining the below elements and from here on referred to as the “Study Area”:
 - A 2km buffer around the new 400kV and 275kV overhead line corridor (Preferred Route Corridor) in the North-west of York Area (see **Figure 1.2**);
 - A 500m buffer around the Tadcaster Area and Monk Fyston Substation Area, and the 275kV XC/XCP overhead line (see **Figures 1.1** and **1.2**); and
 - A 500m buffer around the Osbaldwick Substation red line boundary (as shown in **Figure 1.1**).
- A wider study area defined in line with the requirements of GPA3 and with reference to a calculated Zone of Theoretical Visibility (ZTV), extending out to a maximum of 3km from the North-west of York Area, the Tadcaster Area, the Monk Fyston Substation Area, Osbaldwick Substation Area and the 275kV XC/XCP overhead line⁴⁴, referred to from here on as the “Extended Study Area”.

6.4.2 The Study Area has been defined to establish the archaeological and historical context and inform assessment of archaeological potential. The 500m buffer has been set using the Level 1 Desk-Based Archaeological Survey specifications agreed with National Grid under their non-intrusive archaeology framework and is generally considered sufficient for the purposes of establishing context to assess archaeological potential for this type of project. To allow for a minimum of 500m buffer on the potential alignment of the new 400kV and 275kV overhead line routes at the North-west of York Area, this buffer has been extended to 2km from the Preferred Route Corridor. This Study Area is shown on

⁴⁴ From here on these elements are referred to as the “operational components”.

Figure 6.1. The Project Scoping red line boundary shown in **Figure 1.1** was not used in places it does not reach 500m from proposed operational components.

6.4.3 The Extended Study Area will be used to identify heritage assets that may be subject to adverse effects arising through a change to their setting. In line with the process set out in GPA3, the extent of this study area will be informed through understanding of the baseline environment, the types of heritage asset which may be affected and the nature of the Project. The Extended Study Area will be defined with reference to the calculated ZTV; the maximum area of the ZTV calculated for the Landscape and Visual Amenity (**Chapter 5**) has been set at 3km from the Scoping red line boundary and this would define the maximum extent of the Extended Study Area. Confirmation of the scope of heritage assets to be considered for assessment within this area will be made through consultation with stakeholders. Particularly sensitive assets could potentially be affected at greater distances and will be identified through consultation. What is shown on **Figure 6.1** is the maximum area of the ZTV calculated for the Landscape and Visual Impact Assessment (**Chapter 5**).

6.4.4 The study areas are based on the location of operational components of the Project. The location and extent of landtake required during construction, for example for compounds, crane pads, laydown areas and temporary accesses, have not yet been confirmed; these will fall within the Scoping red line boundary and, therefore, the Historic Environment's Study Area boundary. Once these temporary construction areas have been identified, the study areas will be reviewed and, if necessary, revised in order to ensure a sufficient baseline for assessment.

Data gathering methodology

6.4.5 To establish a detailed baseline the following activities will be carried out. These are expected to include:

- A review of desk-based data using the following sources:
 - National Heritage List for England (NHLE);
 - North Yorkshire Historic Environment Record (HER);
 - West Yorkshire HER;
 - City of York HER;
 - Locally listed buildings and conservation areas provided by the unitary authorities;
 - Historic mapping and aerial photography;
 - Environment Agency LiDAR data;
 - British Geological Survey; and
 - Readily available regional and local contextual studies.
- Site walkovers of the Project components, access routes and construction compound areas and site visits to offsite heritage assets to inform assessment of effects arising from change to setting;

- Where desk based assessment provides insufficient information to allow a robust assessment, further archaeological survey may be required. The need for and scope of any further archaeological evaluation would be agreed with relevant consultees; and
- Utilisation of the representative viewpoints for the Landscape and Visual Impact Assessment to inform the setting assessment, where appropriate.

Current baseline

Designated Heritage Assets

- 6.4.6 There are no world heritage sites, protected wrecks, or registered parks and gardens within the Study Area.
- 6.4.7 The closest world heritage site is Studley Royal (NHLE 1000094), which includes the remains of Fountains Abbey, lying outside of the Study Area, c.24.5km north west of the North-west of York CSEC siting area.
- 6.4.8 Two registered parks lie within close proximity of the Study Area and within the Extended Study Area: Beningbrough Hall (NHLE 1001057) and Ledston Hall and Park (NHLE 1001221). Beningbrough Hall grade II park, lying between the villages of Beningbrough and Nun Monkton on the banks of the River Ouse, lies c.2.6km west of the Preferred Route Corridor for the new 400kV and 275kV overhead lines in the North-west of York Area. Ledston Hall and Park is a grade II* registered park north of the small village of Ledston, which lies c.1.3km to the west of the reconductoring of the existing 275kV overhead line. A decision whether to scope out these assets from assessment will be made as detailed project parameters become available and will be discussed and agreed with Historic England and LPA conservation officers.
- 6.4.9 There are three scheduled monuments, 76 listed buildings, two registered battlefields, and five conservation areas within the Study Area. A full gazetteer of these will be provided in the Preliminary Environmental Information Report (PEIR).
- 6.4.10 The scheduled monuments comprise three medieval manorial sites:
- Medieval moated site at Nether Poppleton (NHLE 1014621);
 - Medieval manorial complex at Lead, near Saxton (NHLE 1020326); and
 - Medieval moated site at Red House (NHLE 1020887).
- 6.4.11 None of the scheduled monuments in the Study Area lie within the proposed operational components, including the Preferred Route Corridor in the North-west York Area.
- 6.4.12 The scheduled monument of Steeton Hall (NHLE 1015504), and associated listed buildings, lies outwith the Study Area but within the Extended Study Area; a decision whether to scope these out of assessment will be made through consultation with Historic England when more Project detail is confirmed.
- 6.4.13 Within the Study Area, listed buildings are typically found in clusters centred upon the local historic settlements. These include Skelton, Shipton, Hessay, the Poppletons, Overton, and Osbaldwick. Other clusters focus on important historical centres, such as Red House School, Healuagh Priory and Manor, Monk Fryston Lodge, and Huddleston Hall. Scattered throughout the Study Area are a number of listed milestones.

- 6.4.14 Immediately outside of the Study Area, but within the Extended Study Area, there are additional clusters of listed buildings associated with:
- Beningbrough Hall and Ledston Hall and Park registered parks;
 - Nun Monkton, Bramham, Newton-on-Ouse, Grimston, and Monk Fryston Conservation Areas; and
 - The villages of Moor Monkton and Burton Salmon.
- 6.4.15 A decision whether to scope these heritage assets outwith the Study Area out from detailed assessment will be made through consultation with Historic England and the LPA conservation officers as detail of the Project parameters are confirmed.
- 6.4.16 Three of the 15th and 16th century listed buildings at Huddleston Hall are recorded as “at risk”: the hall itself (NHLE 1167923), a stable block (NHLE 1167953), and the disused chapel (NHLE 1167970), all of which are Grade II* listed.
- 6.4.17 Of the listed buildings in the Study Area, one is Grade I (Church of St Giles’, Skelton (NHLE 1315980)) and eight are Grade II*, including churches and chapels in Lead, Huddleston, Moor Monkton, and Nether Poppleton and the manors at Skelton (NHLE 1149145) and Huddleston (NHLE 1167923).
- 6.4.18 None of the listed buildings in the Study Area lie within the proposed operational components, including the Preferred Route Corridor in the North-west York Area. However, one listed milestone (NHLE 1132447) lies within 10m of the existing 275kV XC/XCP overhead line proposed for reconductoring, where the overhead line crosses the A659.
- 6.4.19 There are two registered battlefields within the Study Area: Marston Moor (NHLE 1000020) and Towton (NHLE 1000040). The section of 275kV XC/XCP overhead line proposed for reconductoring crosses the battlefield at Marston Moor and passes within 100m of the western edge of the designated area of Towton battlefield.
- 6.4.20 The Battle of Marston War was fought in 1644 between the Royalist and Parliamentary forces as part of the English Civil War. Having relived the siege at York, Prince Rupert offered battle on the 2nd July at Marston Moor. His Royalist forces were defeated by Oliver Cromwell’s cavalry that swept through the Royalist lines causing chaos and disorder. Whilst enclosed after the battle, a number of surviving landscape features, namely hedges and stands of trees, have been identified as significant topographic features during the battle.
- 6.4.21 The Battle of Towton is older and dates to 1461 and the Wars of the Roses. It was one of the key battles of the Wars, securing the throne for the Yorkist Edward IV after his defeat of the larger Lancastrian army at Towton. The battle is renowned as one of the bloodiest in English history and a mass grave has been identified in the local area.
- 6.4.22 Whilst designated for their national significance, these battlefields also hold high degree of local significance and sensitivity, contributing to the sense of local and regional cultural identity.
- 6.4.23 There are five conservation areas that fall wholly or partly within the Study Area:
- Osbaldwick;
 - Murton;

- Nether Poppleton;
- Upper Poppleton; and
- Skelton.

6.4.24 There are a further five conservation areas just beyond the Study Area but within the Extended Study Area, at Heslington, Dunnington, Nun Monkton, Bramham, and Monk Fryston. A decision whether to scope these assets out of detailed assessment will be made through consultation with the LPA conservation officers as Project parameters are confirmed.

6.4.25 The conservation areas are centred on the medieval and post-medieval cores of these settlements and contain a number of listed buildings.

6.4.26 The very southern extent of Nether Poppleton conservation area, along Ouse Moor Lane, extends into the Preferred Route Corridor in the North-west of York Area. No other conservation areas lie within the proposed operational components, including the Preferred Route Corridor in the North-west York Area.

6.4.27 Designated heritage assets in the Study Area are mapped in **Figure 6.1**.

Non-Designated heritage assets

6.4.28 There are 811 Historic Environment Records (HER) from the North Yorkshire, West Yorkshire, and City of York HERs that lie wholly or partly within the Study Area. These represent all periods from Palaeolithic to modern and comprise a range of record types, including findspots, historic landscapes, buildings and structures, earthworks, and buried archaeological sites.

6.4.29 A number of HER assets fall within the Preferred Route Corridor in the North-west York Area. These typically relate to ridge and furrow around the villages of Nether and Upper Poppleton and Overton, and between Skelton and Shipton. However, there is also evidence of Iron Age and Romano-British period activity either side of Ouse Moor Lane, west of Upper Poppleton, and between Skelton and Shipton. A medieval boundary feature is also recorded in this area, along the A19, and within the proposed boundary of the York North substation siting area.

6.4.30 A limestone quarry, Roman road, and undated field system are recorded on the site of the Tadcaster CSEC Siting Area.

6.4.31 Ridge and furrow has been recorded surrounding the proposed substation works at Osbaldwick.

6.4.32 A full and detailed description of the baseline will be presented in the PEIR and ES and will include additional sources of information as listed above. A summary by period is provided here.

6.4.33 A prehistoric complex has been identified at Heslington East, comprising a Mesolithic hearth, Mesolithic and Neolithic lithic scatters, a Bronze Age cremation, and evidence of Iron Age to Romano-British settlement activity. Neolithic findspots have been recorded in the area of Nether and Upper Poppleton. A Bronze Age barrow has been recorded south of Prospect Hill. Pits, ditches, and a possible roundhouse with associated pottery indicate that there was a settlement at the Rawcliffe Manor medieval site in the Iron Age.

- 6.4.34 Iron Age and Romano-British settlements and associated field systems have been identified between Skelton and Shipton, south of Skelton, and in the area around Lead Hall Farm. The Roman road, Dere Street, crosses the Study Area. A second Roman road ran from Tadcaster to Doncaster, and its line is followed in places by the A64 and Garnett Lane.
- 6.4.35 Close to the Iron Age – Romano-British sites at Lead Hall Farm, a linear dyke has been dated to the early medieval period. This along with a hoard of late Saxon silver represent all that is known archaeologically from this period in the Study Area. However, Old English and Old Danish placenames in the area likely indicate centres of activity in the region not yet evidenced by material remains. Beningbrough, for example, is recorded by the Key to English Placenames as from the Old English for “the fortification of Beorna”. Hessay, in contrast incorporates elements of both Old Danish and Old English and is translated as the “Hazel-tree island”.⁴⁵
- 6.4.36 In contrast, medieval evidence is found throughout and comprises extensive tracts of extant ridge and furrow, manorial sites, some of which are moated like that excavated at Newstead Farm, deserted villages, such as those at Grimston and Scagglethorpe, and the historic cores of some of the villages still in use in the area. This suggests that the area was an intensively farmed, arable landscape, supporting a substantial population during this period.
- 6.4.37 The agricultural focus and medieval settlement pattern largely continued into the post medieval period, with a number of farm and rural village buildings dating to this time. There are also water and windmills recorded, such as that at Lead Mill Farm; quarries like the limestone quarry at Coldhill; and dovecotes suggestive of a diversification of resource exploitation and technology. It is in this period that many of the fields and wooded areas we see today were created. This includes large areas of planned Parliamentary enclosure between Wigginton and Shipton, around the Poppletons, Nun Monkton and Moor Monkton.
- 6.4.38 The modern period is represented in the HER by a number of military installations, including the Rawcliffe Clifton airfield, an army bombing decoy west of the Poppletons, and a transport depot near Hessay. Modern milestones and quarries are also identified throughout.
- 6.4.39 HER and Historic Landscape Character data are mapped in **Figures 6.2 and 6.3**.

Future baseline

- 6.4.40 At this stage, the future baseline for the historic environment is based upon assumptions regarding types of development and activity that might reasonably be expected. Large parts of the Study Area comprise arable land and some degradation of extant earthworks and shallowly buried archaeological deposits may be expected to occur. The influence of this activity on the historic landscape can be seen through the dominance of the Modern Improved Field character type across the whole Study Area. Urban development, particularly around Tadcaster would also alter the baseline.
- 6.4.41 The Future Baseline will be revisited in light of proposals that emerge or are identified on a project-wide basis during the course of the EIA.

⁴⁵ The Key to English Placenames. Accessed online at <http://kepn.nottingham.ac.uk/map> (11/02/21)

6.5 Embedded Environmental Measures

- 6.5.1 It is not anticipated that any embedded environmental measures would affect the scope of the historic environment assessment.
- 6.5.2 Best practice measures regarding the design and finish of completed infrastructure and restoration of historic landscape feats (e.g. hedgerows) will be considered within the assessment as appropriate and the influence of these measures would be considered in determining magnitude of change. Considerate construction practices aimed at reducing noise, dust, and visual intrusion of works in progress or minimising duration of construction and construction hours would also be considered within the assessment.
- 6.5.3 Where adverse effects to heritage assets cannot be avoided through embedded environmental measures, secondary and tertiary mitigation measures will be identified as part of the assessment process. It is anticipated that an overarching written scheme of investigation (WSI) would be produced and agreed with relevant consultees to set out a programme of archaeological investigation to mitigate direct effects. The scope of the WSI would be agreed through the assessment process. Other secondary and tertiary measures will be identified as appropriate for mitigating indirect effects.

6.6 Scope of the assessment

Potential receptors

- 6.6.1 Initial assessment of receptors that could be significantly affected have been identified with reference to GPA3 and the ZTV and on the basis of their heritage significance/sensitivity and the magnitude of change to that significance to which they are exposed as a result of the Project.
- 6.6.2 At this stage it is expected that key receptors, i.e. those of the highest heritage significance⁴⁶, will comprise:
- Ledston Hall and Park (NHLE 1001221), a grade II* registered park
 - Medieval moated site at Nether Poppleton (NHLE 1014621), scheduled monument;
 - Medieval manorial complex at Lead, near Saxton (NHLE 1020326), scheduled monument;
 - Medieval moated site at Red House (NHLE 1020887), scheduled monument;
 - Steeton Hall (NHLE 1015504), scheduled monument, and associated listed buildings;
 - Marston Moor (NHLE 1000020) and Towton (NHLE 1000040), registered battlefields;
 - Hazlewood Castle, Stutton with Hazlewood (NHLE 1148386), grade I listed building;
 - Roman Catholic Church of St Leonard, Stutton with Hazlewood (NHLE 1316353), grade I listed building;
 - Church of All Saints, Long Marston (NHLE 1150327), grade I listed building;

⁴⁶ Grade I and II* designated assets, scheduled monuments, registered battlefields, and conservation areas.

- Church of St Mary, Nun Monkton (NHLE 1190942), grade I listed building;
- Church of St Giles, Skelton (NHLE 1315980), grade I listed building;
- Beningbrough Hall (NHLE 1150998), grade I listed building and grade II registered park;
- Church of All Saints, Ledsham (NHLE 1237404) grade I listed building;
- Ledston Lodge, Ledsham (NHLE 1264072) grade I listed building;
- Church of St Wilfrid, Monk Fryston (NHLE 1296769) grade I listed building;
- Skelton Manor (NHLE 1149145), grade II* listed building;
- Long Marston Hall (NHLE 1150330), grade II* listed building;
- Red House School Chapel (NHLE 1190840), grade II* listed building;
- Acomb House, York (NHLE 1257795), grade II* listed building;
- Church of St Everilda, Nether Poppleton (NHLE 1293607), grade II* listed building;
- Church of All Saints, Moor Monkton (NHLE 1293654), grade II* listed building;
- The Priory, Nun Monkton (NHLE 1315383), grade II* listed building and a number of grade II* associated statues;
- Monk Fryston Hall (NHLE 1148544), grade II* listed building;
- Prebendal House, Monk Fryston (NHLE 1296762), grade II* listed building;
- The Old Vicarage, Tadcaster (NHLE 1132450), grade II* listed building;
- The Ark, Tadcaster (NHLE 1167475), grade II* listed building;
- Church of St Mary, Tadcaster (NHLE 1167462), grade II* listed building; and
- Newton Kyme Hall (NHLE 1132467), grade II* listed building;
- Nether Poppleton conservation area and associated listed buildings and non-designated historic buildings;
- Upper Poppleton conservation area and associated listed buildings and non-designated historic buildings;
- Skelton conservation area and associated listed buildings and non-designated historic buildings;
- Nun Monkton conservation area and associated listed buildings and non-designated historic buildings;
- Monk Fryston conservation area and associated listed buildings and non-designated historic buildings; and
- Bramham conservation area and associated listed buildings and non-designated historic buildings.

6.6.3 The list of receptors will be refined following receipt of the scoping responses and subsequent formal and informal consultation and engagement with Historic England and the relevant LPA conservation officers.

6.6.4 As designated heritage assets, potential effects on grade II designated assets carry considerable weight in planning. Additionally, GPA3 states that non-designated heritage assets can have settings that could be affected by a proposed development. Consequently, a detailed scope of grade II designated assets and non-designated heritage assets, including locally listed buildings, will be set out and agreed through consultation with Historic England and LPA conservation officers.

Likely significant effects

6.6.5 The likely significant Historic Environment effects that will be taken forward for assessment in the ES are summarised in **Table 6.4**.

Table 6.4 Likely significant Historic Environment effects

Activity	Effect	Receptor
Construction		
Land preparation (earthworks, excavation)	Potential direct effects from permanent loss of archaeological remains.	Designated and non-designated heritage assets. In particular, the registered battlefield of Marston Moor.
	Potential direct effects from loss of historic landscape elements.	Historic Landscape Character.
All construction phases	Potential for indirect effects from temporary change to setting caused during construction activities.	Designated and non-designated heritage assets within the Study Area and Extended Study Area.
Operation		
All buildings and above-ground infrastructure	Potential for indirect effects from perceptual change to historic landscape.	Historic Landscape Character
	Potential for indirect effects from change to setting caused during operation.	Designated and non-designated heritage assets within the Study Area and Extended Study Area.

6.6.6 A number of potential effects have been scoped out from further assessment as these are considered not likely to be significant. These conclusions have been made based on the knowledge of the baseline environment, the nature of planned works and the wealth of evidence on the potential for impact from such projects more widely. The conclusions follow (in a site-based context) existing best practice.

6.6.7 The effects scoped out from further assessment in the ES are:

- Adverse direct effects on heritage assets outwith the proposed project component areas (including construction areas and accesses when these are identified). No direct disturbance, damage, or alteration would arise to heritage assets located

outside of these areas in either the rest of the Study Area or the Extended Study Area.

6.7 Assessment methodology

- 6.7.1 The proposed generic project-wide approach to the assessment methodology is set out in **Chapter 4**, and specifically in **Section 4.3**. However, whilst this has informed the approach that has been used in this historic environment chapter, it is necessary to set out how this methodology will be applied, and adapted as appropriate, to address the specific needs of the historic environment assessment in the ES.
- 6.7.2 The detailed data gathering methodology for compiling the historic environment baseline is described above in **Section 1.4**.

Assessment of heritage significance

- 6.7.3 The significance of a heritage asset is the product of the value it holds for this and future generations as a result of its historic, archaeological, architectural or artistic interests⁴⁷:
- Historical interest – through association with past events or past people; or where a heritage asset is illustrative of a particular asset type, theme, or period;
 - Archaeological interest – through the potential to hold evidence about the past that can be retrieved through specialist investigation; and
 - Architectural/Artistic interest – through value derived from contemporary appreciation of a heritage asset's aesthetics.
- 6.7.4 NPS EN-1 notes that setting contributes to a heritage asset's significance but does not provide an explicit definition of setting. Setting is defined in the NPPF and GPA3 as:
- “the surroundings in which a heritage asset is experienced. Its extent is not fixed and may change as the asset and its surroundings evolve. Elements of a setting may make a positive or negative contribution to the significance of an asset, may affect the ability to appreciate an asset, or may be neutral.”*
- 6.7.5 For the purposes of the historic environment assessment, the heritage significance of an asset will be assigned to one of four classes, with reference to the heritage interests described above and professional judgement informed by policy and guidance (**Tables 6.2 and 6.3**). In particular, NPS EN-1 distinguishes between the heritage significance of designated and non-designated assets. In order to align with other workstreams in this assessment, heritage significance is referred to as a receptor's sensitivity in **Table 6.5**.

⁴⁷ As set out in NPS EN-1, Conservation Principles (2008 & 2017), and GPA 2 (2015).

Table 6.5 Classification of the sensitivity of receptors

Sensitivity	Criteria	Receptor type
High	Assets of national importance, which have significance for an outstanding level of archaeological, architectural, historic and/or artistic interest.	Designated heritage assets of national importance
Medium	The sensitivity of these assets will largely be dependent upon their current setting and their character. Asset has significance for a high level of archaeological, architectural, historic and/or artistic interest.	Non-designated assets of regional importance.
Low	Assets of local interest, which have significance for elements of archaeological architectural, historic or artistic interest.	Non-designated assets of local importance.
Negligible	Due to its nature of form / condition / survival, cannot be considered as an asset in its own right.	Non-extant HER record.

Assessment of Magnitude of Change

- 6.7.6 Magnitude of change is a measure of the extent to which the heritage significance of an asset would be disturbed or lost.
- 6.7.7 In respect of buried archaeological deposits, where no remains are visible above ground, change would arise from direct disturbance or removal of archaeological material resulting in the loss of archaeological interest. In certain instances, elements of architectural and historic interest can also be affected. Similarly, direct loss, damage or alteration of a structure would primarily affect architectural interest, although historic and archaeological interests may also be affected.
- 6.7.8 The effects of change in the setting of a heritage asset depends on the contribution of setting to the heritage significance of the asset, and assessments must be, by their nature, specific to the individual assets being considered. Significance is a qualitative measure of value and any assessments of effect will be drawn from professional judgement exercised within a context defined by statute, policy and guidance. All assessments will be presented as a narrative, setting out the nature and extent of the change to heritage interests arising from the Project, the permanence of change and the impact, whether positive or negative, of those changes, before assigning those changes to a magnitude of effect as set out at **Table 6.6**.
- 6.7.9 Change can be both beneficial or adverse. NPS EN-1 expects developers to make, where possible, a positive contribution or beneficial impact to the historic environment.

Table 6.6 Classification of Magnitude of Change

Change	Criteria Adverse	Criteria Beneficial
High	Loss of significance resulting from irreversible total or substantial demolition or disturbance of a heritage asset or from the disassociation of an asset from its setting.	Sympathetic restoration of an at-risk or otherwise degraded heritage asset and/or its setting. Bringing an at-risk heritage asset into sustainable use, with robust long-term management secured.
Medium	Loss of significance arising from partial disturbance or inappropriate alteration of asset which will adversely affect its importance. Change to the key characteristics of an asset's setting, which gives rise to lasting harm to the significance of the asset, but which still allows its archaeological, architectural or historic interest to be appreciated.	Appropriate stabilisation and/or enhancement of a heritage asset and, or its setting that better reveal the significance of the asset or contribute to a long-term sustainable use or management regime.
Low	Very minor alteration to an asset which presents minimal change to heritage significance, including minor and, or short term or reversible change to setting.	Very minor alteration to an asset which presents minimal change to heritage significance, including minor and, or short term or reversible change to setting.
Negligible	Very minor alteration to an asset which presents minimal change to heritage significance, including minor and, or short term or reversible change to setting.	Very minor alteration to an asset which presents minimal change to heritage significance, including minor and, or short term or reversible change to setting.

Assessment of Significance of Effect

6.7.10 The classification of the significance of an effect is judged by the relationship of the magnitude of change to the assessed heritage significance (sensitivity) of an asset (**Table 6.7**).

6.7.11 As a general rule, major and moderate effects are considered to be significant whilst minor and negligible effects are considered not significant. However, professional judgement is applied and this may be amended as appropriate.

Table 6.7 Classification of Significance of Effect

Sensitivity of Receptor	Magnitude of Change			
	High	Medium	Low	Negligible
High	Major (significant)	Major (significant)	Moderate (potentially Significant)	Minor (not significant)
Medium	Major (significant)	Moderate (potentially Significant)	Minor (not significant)	Minor (not significant)
Low	Moderate (potentially Significant)	Minor (not significant)	Minor (not significant)	Negligible (not significant)
Negligible	Minor (not significant)	Minor (not significant)	Negligible (not significant)	Negligible (not significant)

6.7.12 All assessments will be presented as narrative descriptions that set out the significance of a heritage asset, including, where appropriate, the contribution of its setting to significance, anticipated magnitude of change to significance, and a resulting significance of effect.

Assessment of Harm and Substantial Harm

6.7.13 Harm and substantial harm are distinguished in NPS EN-1. For the purpose of this assessment, adverse change of negligible to medium magnitude to a designated asset or a non-designated asset of equivalent heritage significance would normally be considered as harm, while a high magnitude of impact would normally be considered substantial harm. This follows Hall vs City of Bradford 2019 that determined that even a negligible magnitude of change to a designated heritage asset would constitute harm.⁴⁸ The fact that the harm may be limited or negligible will contribute to the weight to be afforded to it as part of the planning balance and recognised in Paragraph 5.8.15 in NPS EN-1.

6.7.14 Professional judgment will be applied to the case of each individual asset and comments on the magnitude of any harm arising will be noted in the narrative of each assessment.

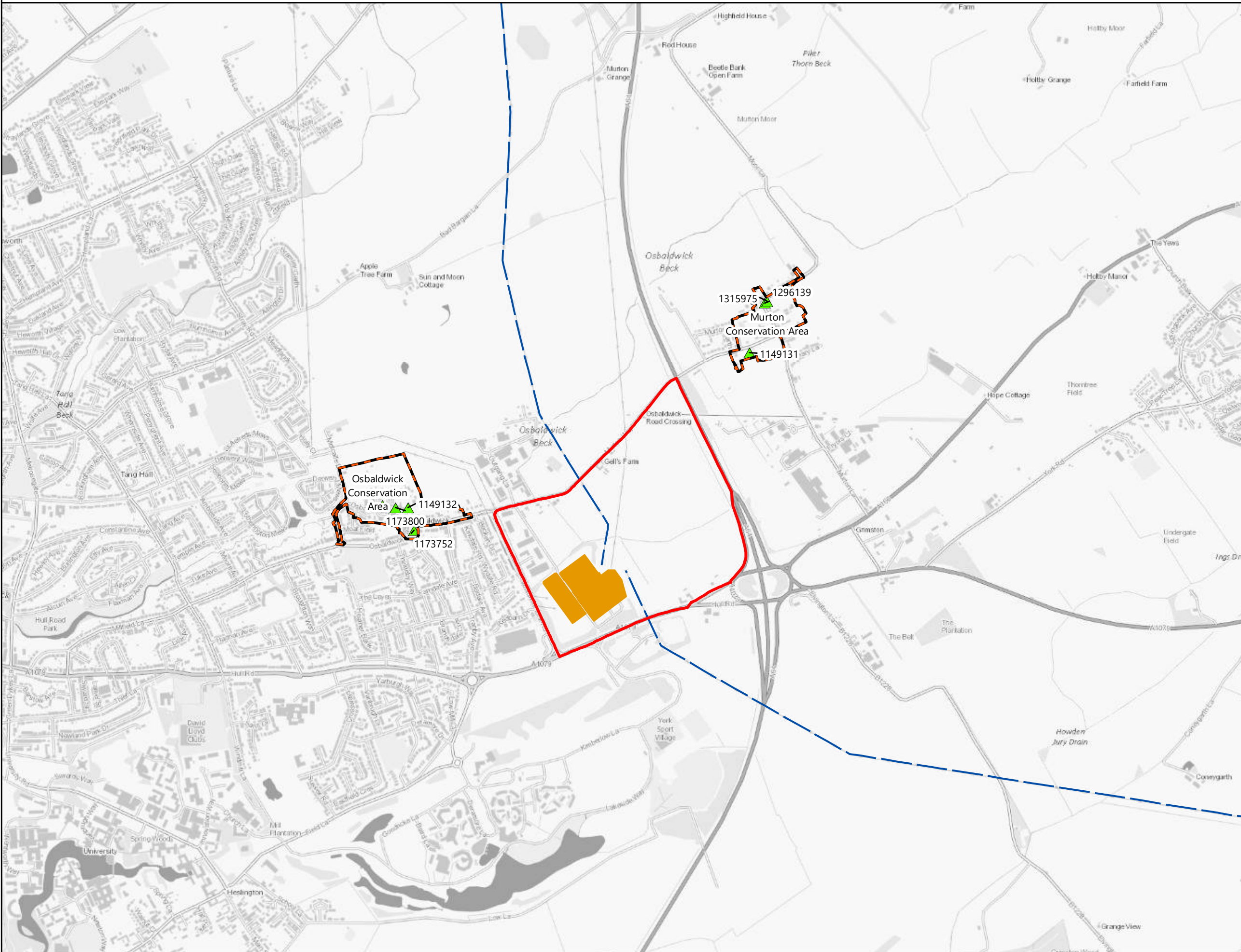
⁴⁸ Neutral Citation Number: [2019] EWHC 2899 (Admin): Available online at: <https://www.kingschambers.com/assets/files/News/James%20Hall%20v%20City%20of%20Bradford.pdf> (accessed 11/02/21).



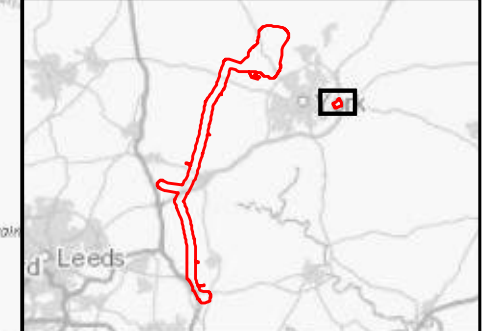
DESIGNATED HERITAGE ASSETS WITHIN THE STUDY AREA AND THOSE INITIALLY SCOPED WITHIN THE EXTENDED STUDY AREA

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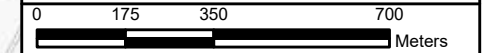
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- Existing Osbaldwick substation
- Conservation Area
- Listed Buildings
 - Grade II Listed Building



Notes
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Coordinate System: British National Grid
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2	MAR 21		COLLJ	DIMMR	CHADC
Issue	Date	Remarks	Drawn	Checked	Approved

Title
 SCOPING REPORT
 CHAPTER 6: HISTORIC ENVIRONMENT
 DESIGNATED HERITAGE ASSETS
 WITHIN THE STUDY AREA AND
 THOSE INITIALLY SCOPED WITHIN
 THE EXTENDED STUDY AREA



Figure Number: FIGURE 6.1

Drawing Reference: 806503-WOOD-0023

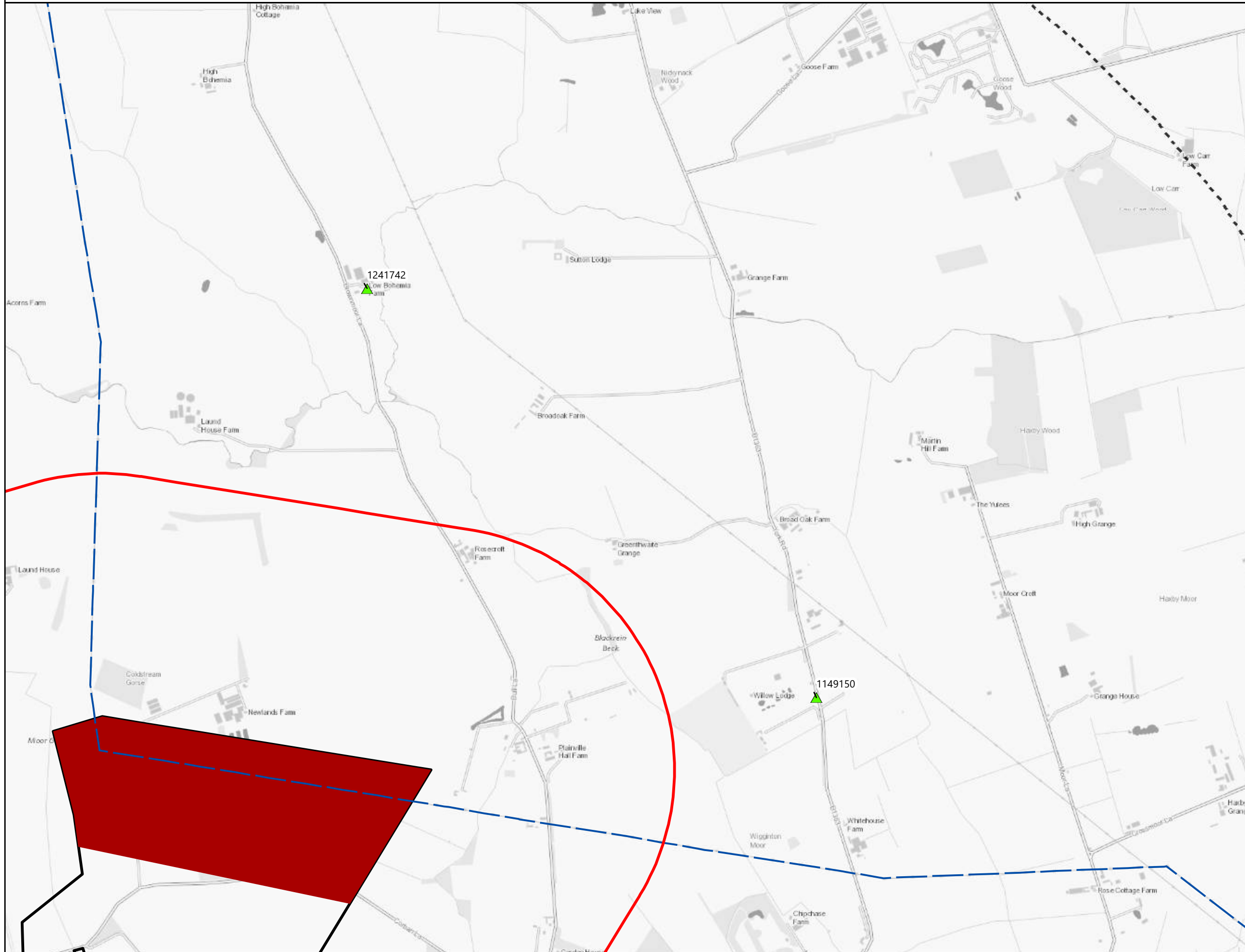
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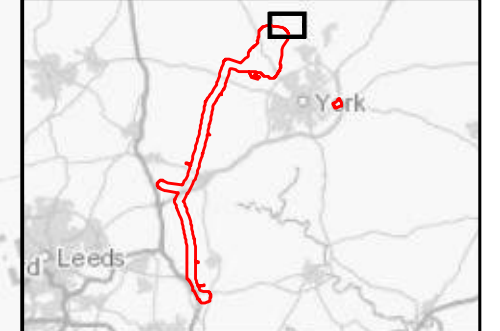
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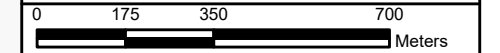
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- Existing 400kV overhead line
- New 400kV and 275kV overhead line corridor
- Proposed Cable Sealing End Compound Siting Area
- LVIA study areas
- Listed Buildings
 - Grade II Listed Building



Notes
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Coordinate System: British National Grid
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2	MAR 21		COLLJ	DIMMR	CHADC
Issue	Date	Remarks	Drawn	Checked	Approved

Title
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 THOSE INITIALLY SCOPED WITHIN
 THE EXTENDED STUDY AREA

Figure Number	FIGURE 6.1		
Drawing Reference	806503-WOOD-0023		
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DESIGNATED HERITAGE ASSETS WITHIN THE STUDY AREA AND THOSE INITIALLY SCOPED WITHIN THE EXTENDED STUDY AREA

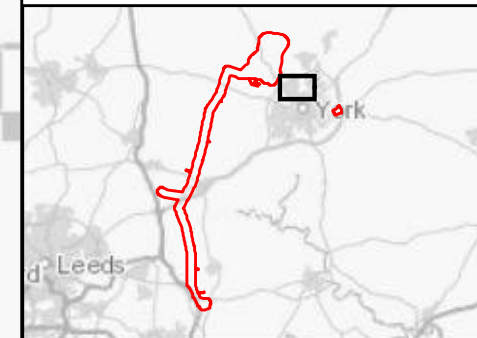
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- Scoping red line boundary
- Existing 275kV overhead line
- LVIA study areas
- Conservation Area
- Scheduled Monument
- Listed Buildings
- Grade II Listed Building

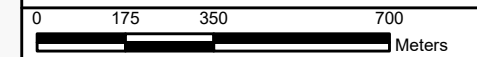


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Coordinate System: British National Grid
 Sheet X Centroid Coordinate: 459,634.86 Sheet Y Centroid Coordinate: 454,674.85



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2	MAR 21				
Issue	Date	Remarks	Drawn	Checked	Approved

Title

SCOPING REPORT
 CHAPTER 6: HISTORIC ENVIRONMENT
 DESIGNATED HERITAGE ASSETS
 WITHIN THE STUDY AREA AND
 THOSE INITIALLY SCOPED WITHIN
 THE EXTENDED STUDY AREA



Figure Number: FIGURE 6.1

Drawing Reference: 806503-WOOD-0023

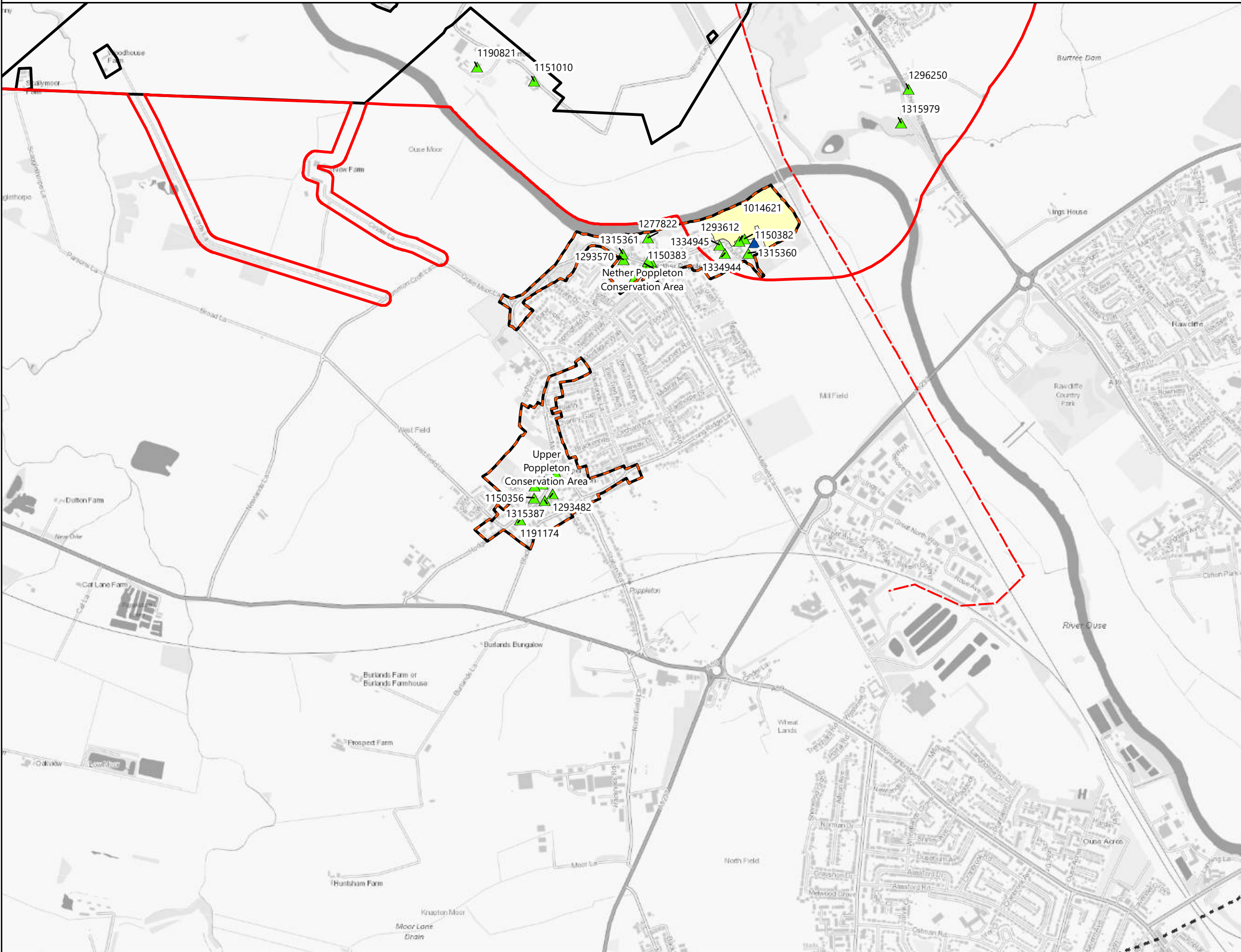
Scale	Sheet Size	Sheet	Issue
1:15,000	A3	SHEET 3 OF 23	2



DESIGNATED HERITAGE ASSETS WITHIN THE STUDY AREA AND THOSE INITIALLY SCOPED WITHIN THE EXTENDED STUDY AREA

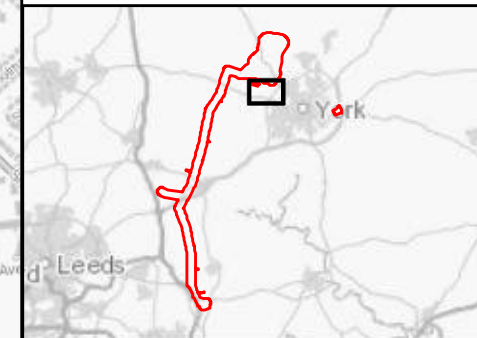
Legend

- Scoping red line boundary
- Existing 275kV overhead line
- New 400kV and 275kV overhead line corridor
- LVIA study areas
- Conservation Area
- Scheduled Monument
- Listed Buildings
 - ▲ Grade II Listed Building
 - ▲ Grade II* Listed Building

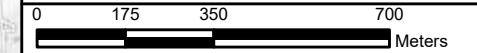


Notes

This drawing is scaled at paper size A3, therefore any prints taken at smaller sizes will affect accuracy of the measurement units and should not be scaled against.



Coordinate System: British National Grid
Sheet X Centroid Coordinate: 455,923.63 Sheet Y Centroid Coordinate: 454,075.13



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2	MAR 21		COLLJ	DIMMR	CHADC
Issue	Date	Remarks	Drawn	Checked	Approved

Title

**SCOPING REPORT
CHAPTER 6: HISTORIC ENVIRONMENT
DESIGNATED HERITAGE ASSETS
WITHIN THE STUDY AREA AND
THOSE INITIALLY SCOPED WITHIN
THE EXTENDED STUDY AREA**



Figure Number **FIGURE 6.1**

Drawing Reference **806503-WOOD-0023**

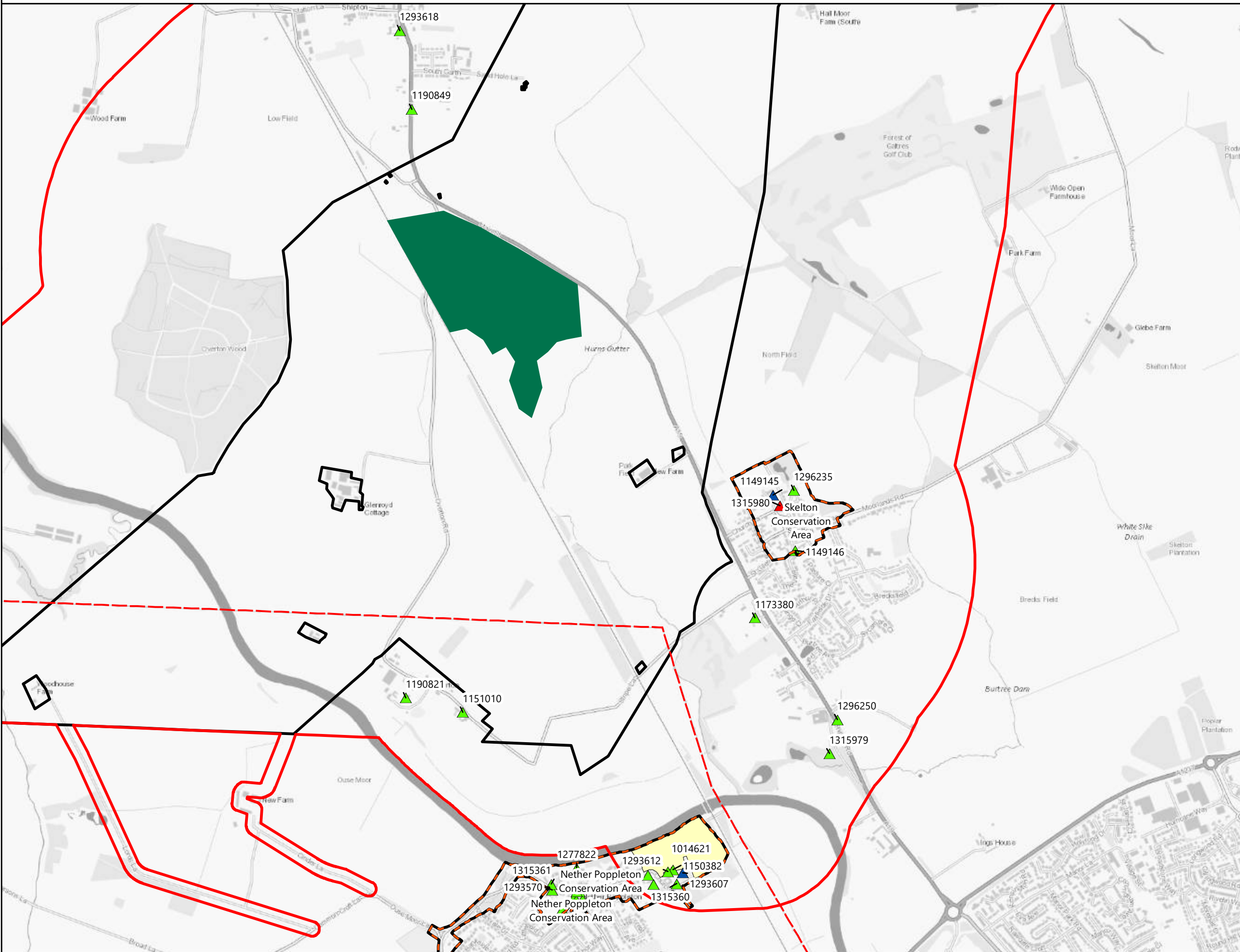
Scale	Sheet Size	Sheet	Issue
1:15,000	A3	SHEET 4 OF 23	2



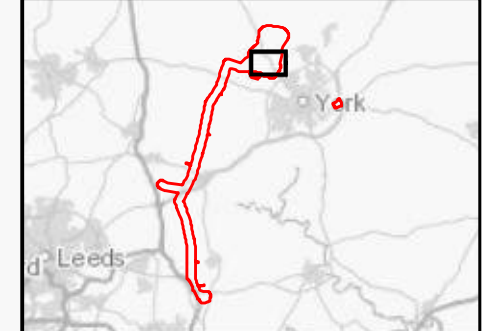
DESIGNATED HERITAGE ASSETS WITHIN THE STUDY AREA AND THOSE INITIALLY SCOPED WITHIN THE EXTENDED STUDY AREA

Legend

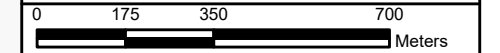
- Scoping red line boundary
 - Existing 275kV overhead line
 - New 400kV and 275kV overhead line corridor
 - Proposed Substation Siting Area
 - LVIA study areas
 - Conservation Area
 - Scheduled Monument
- Listed Buildings
- Grade I Listed Building
 - Grade II Listed Building
 - Grade II* Listed Building



Notes
 This drawing is scaled at paper size A3, therefore any prints taken at smaller sizes will affect accuracy of the measurement units and should not be scaled against.



Coordinate System: British National Grid
 Sheet X Centroid Coordinate: 456,215.05 Sheet Y Centroid Coordinate: 456,666.82



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Issue	Date	Remarks	Drawn	Checked	Approved
2	MAR 21		COLLJ	DIMMR	CHADC










Title
 SCOPING REPORT
 CHAPTER 6: HISTORIC ENVIRONMENT
 DESIGNATED HERITAGE ASSETS
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 THE EXTENDED STUDY AREA

Figure Number	FIGURE 6.1		
Drawing Reference	806503-WOOD-0023		
Scale	Sheet Size	Sheet	Issue
1:15,000	A3	SHEET 5 OF 23	2



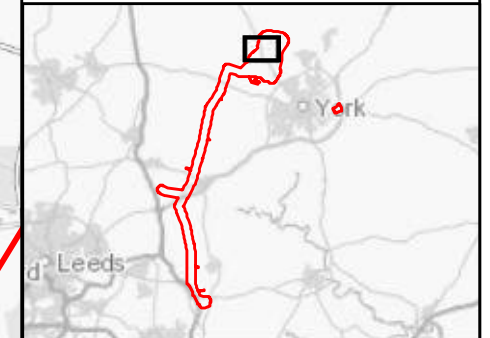
DESIGNATED HERITAGE ASSETS WITHIN THE STUDY AREA AND THOSE INITIALLY SCOPED WITHIN THE EXTENDED STUDY AREA

Legend

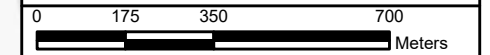
-  Scoping red line boundary
-  Existing 400kV overhead line
-  New 400kV and 275kV overhead line corridor
-  Proposed Substation Siting Area
-  Proposed Cable Sealing End Compound Siting Area
-  LVIA study areas
-  Scheduled Monument
- Listed Buildings**
-  Grade II Listed Building
-  Grade II* Listed Building

Notes

This drawing is scaled at paper size A3, therefore any prints taken at smaller sizes will affect accuracy of the measurement units and should not be scaled against.



Coordinate System: British National Grid
Sheet X Centroid Coordinate: 455,427.47 Sheet Y Centroid Coordinate: 458,964.29



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Issue	Date	Remarks	Drawn	Checked	Approved
2	MAR 21		COLLJ	DIMMR	CHADC

Title

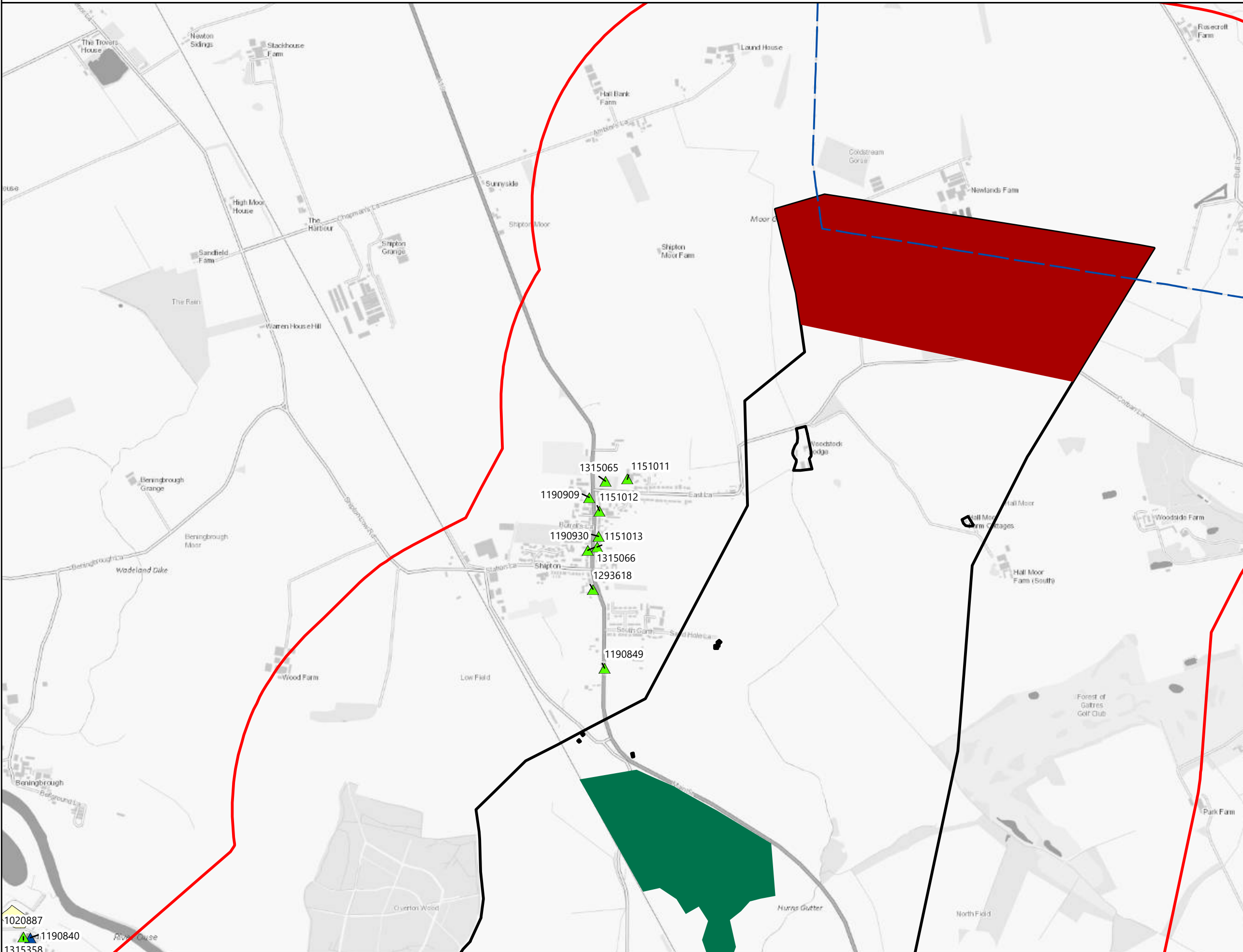
**SCOPING REPORT
CHAPTER 6: HISTORIC ENVIRONMENT
DESIGNATED HERITAGE ASSETS
WITHIN THE STUDY AREA AND
THOSE INITIALLY SCOPED WITHIN
THE EXTENDED STUDY AREA**



Figure Number: FIGURE 6.1

Drawing Reference: 806503-WOOD-0023

Scale	Sheet Size	Sheet	Issue
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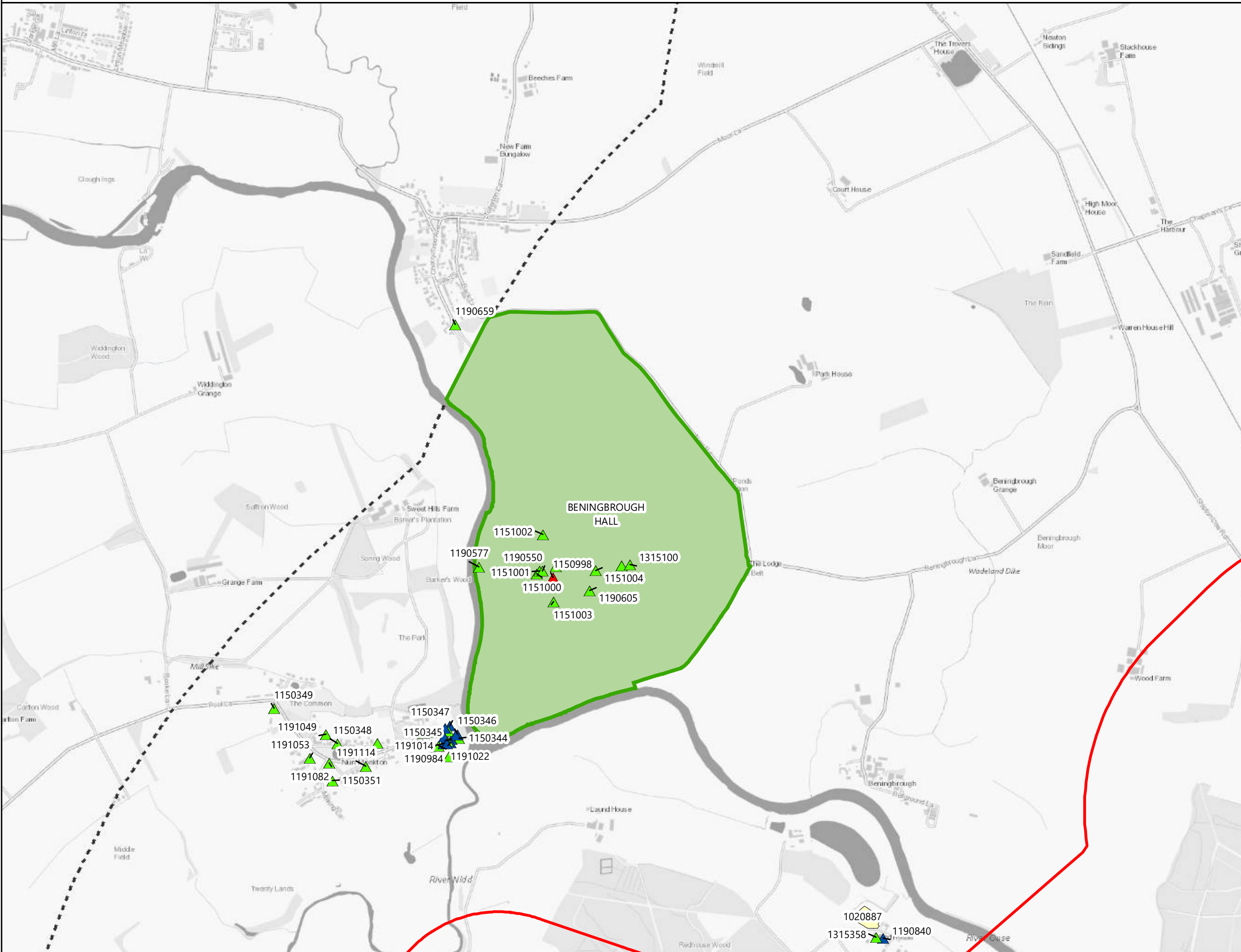
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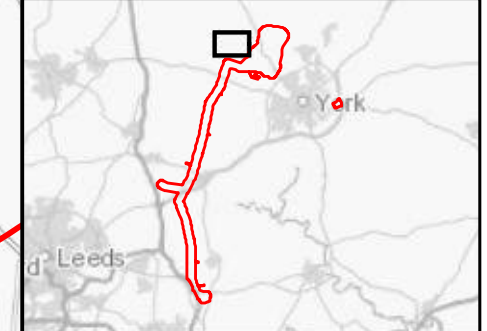
DESIGNATED HERITAGE ASSETS WITHIN THE STUDY AREA AND THOSE INITIALLY SCOPED WITHIN THE EXTENDED STUDY AREA

Legend

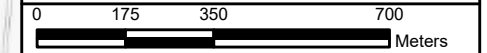
-  Scoping red line boundary
-  LVIA study areas
-  Registered Park and Garden
-  Scheduled Monument
- Listed Buildings
 -  Grade I Listed Building
 -  Grade II Listed Building
 -  Grade II* Listed Building



Notes
 This drawing is scaled at paper size A3, therefore any prints taken at smaller sizes will affect accuracy of the measurement units and should not be scaled against.



Coordinate System: British National Grid
 Sheet X Centroid Coordinate: 451,922.29 Sheet Y Centroid Coordinate: 458,970.67



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2	MAR 21		COLLJ	DIMMR	CHADC
Issue	Date	Remarks	Drawn	Checked	Approved

Title
 SCOPING REPORT
 CHAPTER 6: HISTORIC ENVIRONMENT
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 WITHIN THE STUDY AREA AND
 THOSE INITIALLY SCOPED WITHIN
 THE EXTENDED STUDY AREA



Figure Number: FIGURE 6.1

Drawing Reference: 806503-WOOD-0023

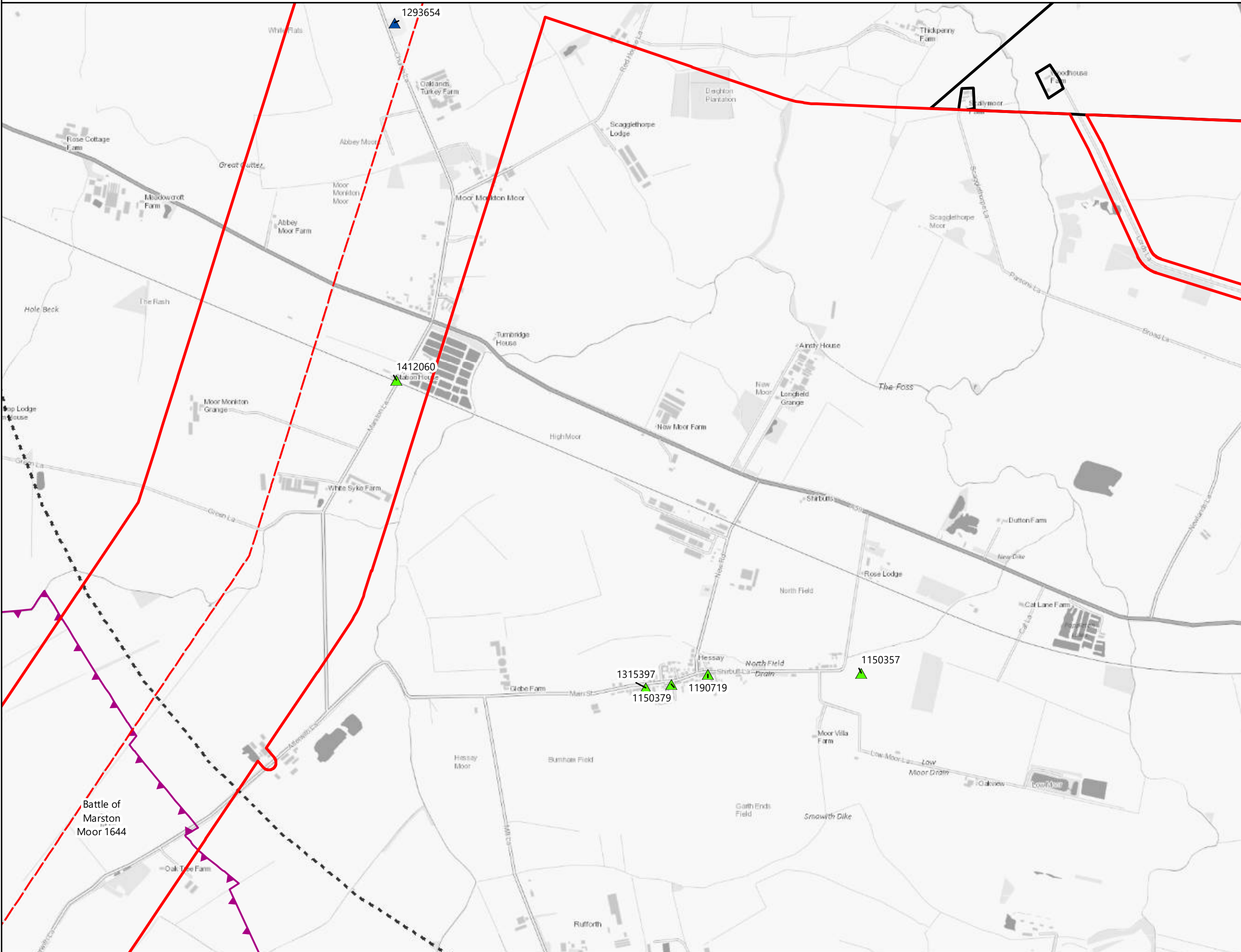
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DESIGNATED HERITAGE ASSETS WITHIN THE STUDY AREA AND THOSE INITIALLY SCOPED WITHIN THE EXTENDED STUDY AREA

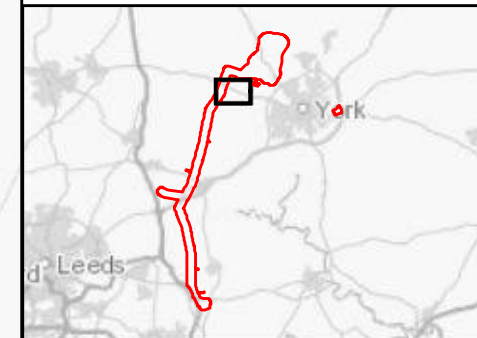
Legend

- Scoping red line boundary
- Existing 275kV overhead line
- New 400kV and 275kV overhead line corridor
- LVIA study areas
- Registered Battlefield
- Listed Buildings
 - Grade II Listed Building
 - Grade II* Listed Building

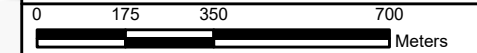


Notes

This drawing is scaled at paper size A3, therefore any prints taken at smaller sizes will affect accuracy of the measurement units and should not be scaled against.



Coordinate System: British National Grid
Sheet X Centroid Coordinate: 452,049.11 Sheet Y Centroid Coordinate: 454,157.89



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Issue	Date	Remarks	Drawn	Checked	Approved
2	MAR 21		COLLJ	DIMMR	CHADC

Title

**SCOPING REPORT
CHAPTER 6: HISTORIC ENVIRONMENT
DESIGNATED HERITAGE ASSETS
WITHIN THE STUDY AREA AND
THOSE INITIALLY SCOPED WITHIN
THE EXTENDED STUDY AREA**



Figure Number: FIGURE 6.1

Drawing Reference: 806503-WOOD-0023

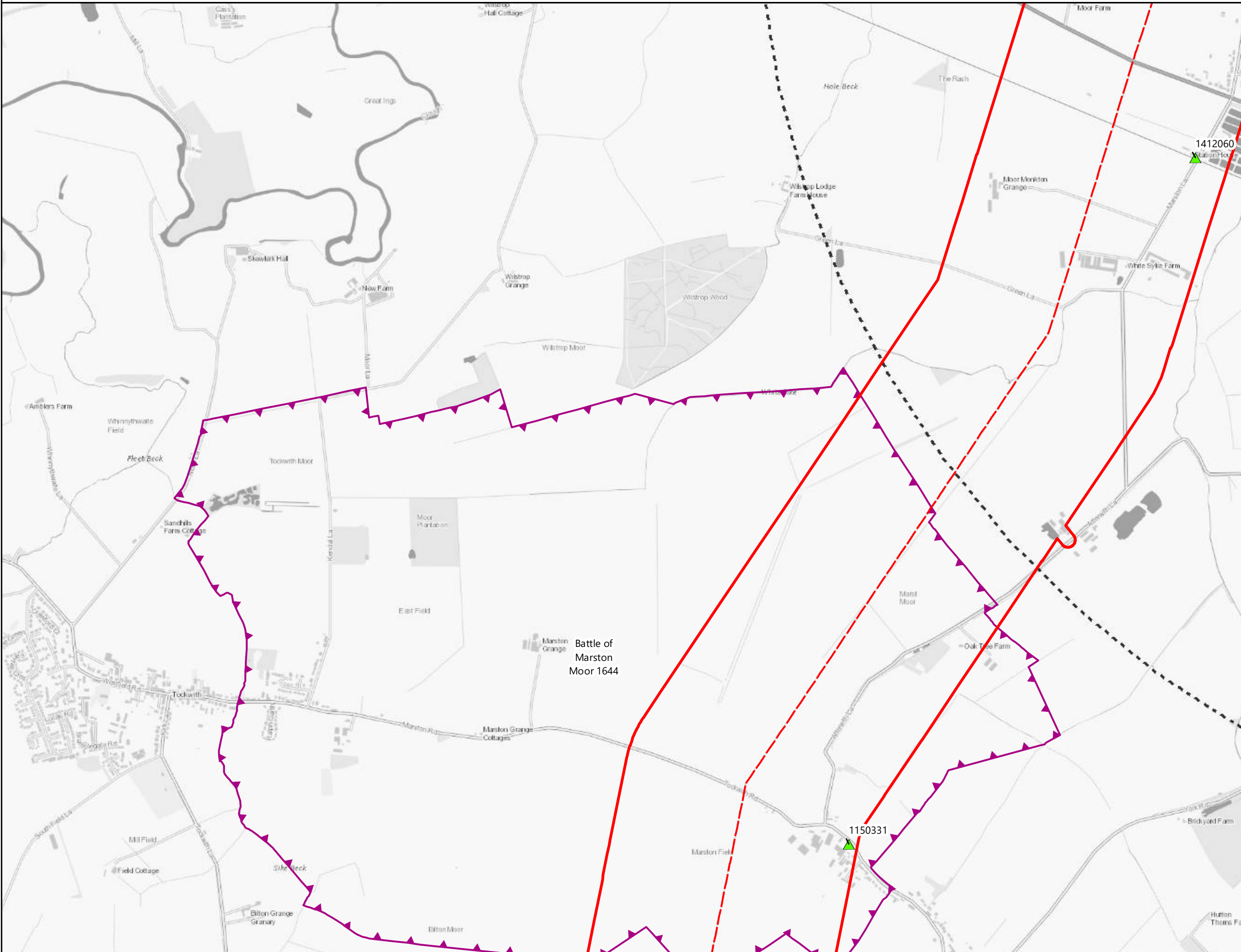
Scale	Sheet Size	Sheet	Issue
1:15,000	A3	SHEET 9 OF 23	2



DESIGNATED HERITAGE ASSETS WITHIN THE STUDY AREA AND THOSE INITIALLY SCOPED WITHIN THE EXTENDED STUDY AREA

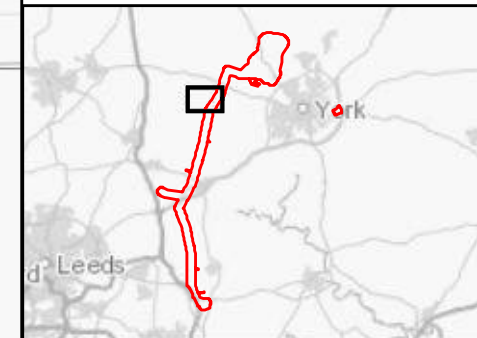
Legend

- Scoping red line boundary
- Existing 275kV overhead line
- LVIA study areas
- Registered Battlefield Listed Buildings
- Grade II Listed Building

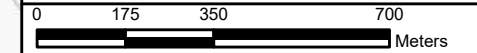


Notes

This drawing is scaled at paper size A3, therefore any prints taken at smaller sizes will affect accuracy of the measurement units and should not be scaled against.



Coordinate System: British National Grid
 Sheet X Centroid Coordinate: 448,763.86 Sheet Y Centroid Coordinate: 453,242.87



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2	MAR 21		COLLJ	DIMMR	CHADC
Issue	Date	Remarks	Drawn	Checked	Approved

Title

**SCOPING REPORT
 CHAPTER 6: HISTORIC ENVIRONMENT
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 THOSE INITIALLY SCOPED WITHIN
 THE EXTENDED STUDY AREA**



Figure Number: FIGURE 6.1

Drawing Reference: 806503-WOOD-0023

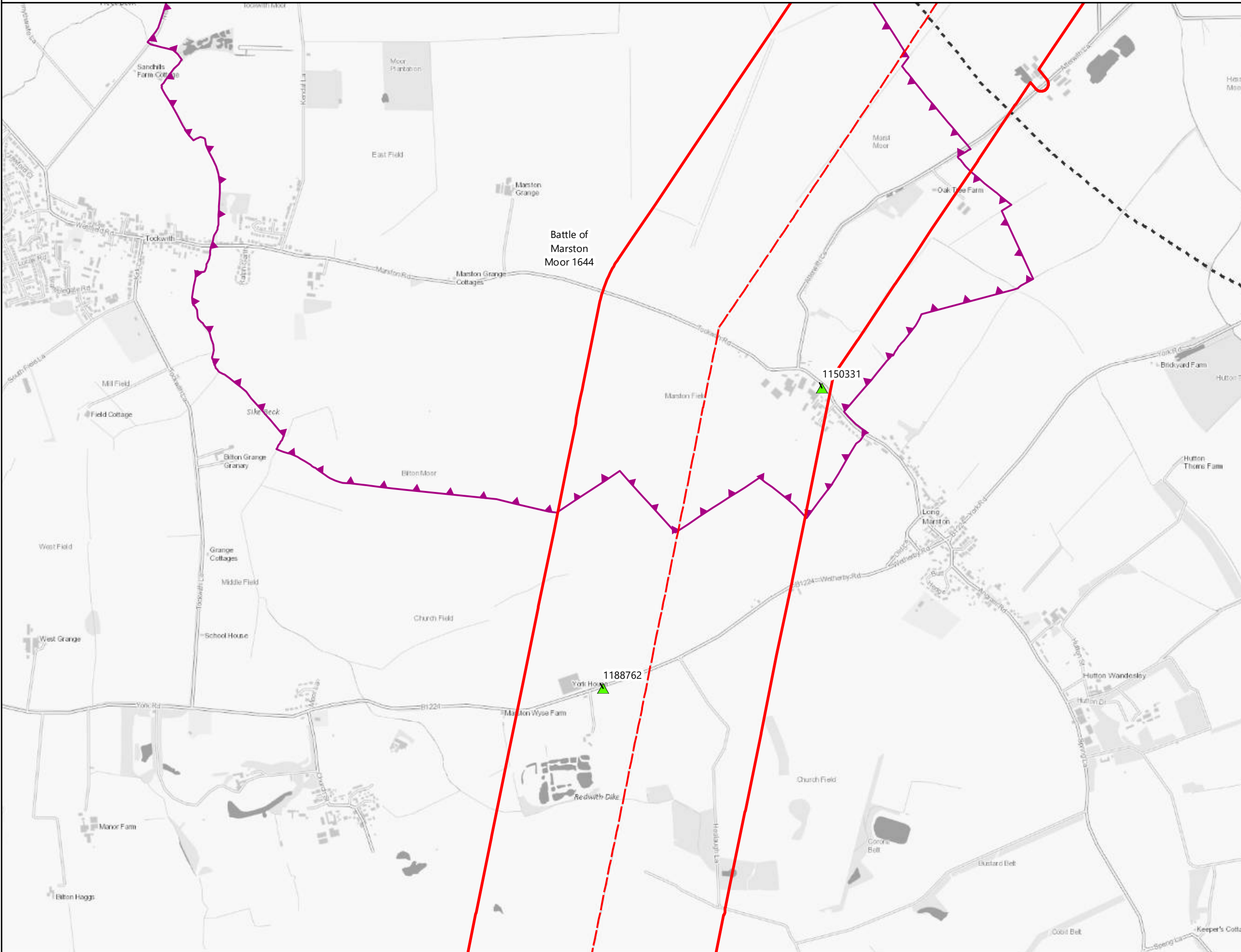
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DESIGNATED HERITAGE ASSETS WITHIN THE STUDY AREA AND THOSE INITIALLY SCOPED WITHIN THE EXTENDED STUDY AREA

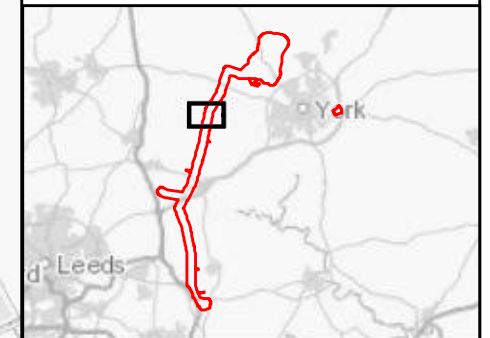
Legend

- Scoping red line boundary
- Existing 275kV overhead line
- LVIA study areas
- Registered Battlefield Listed Buildings
- Grade II Listed Building

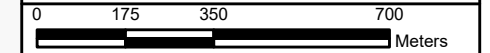


Notes

This drawing is scaled at paper size A3, therefore any prints taken at smaller sizes will affect accuracy of the measurement units and should not be scaled against.



Coordinate System: British National Grid
Sheet X Centroid Coordinate: 448,874.10 Sheet Y Centroid Coordinate: 451,368.73



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2	MAR 21				
Issue	Date	Remarks	Drawn	Checked	Approved

Title

**SCOPING REPORT
CHAPTER 6: HISTORIC ENVIRONMENT
DESIGNATED HERITAGE ASSETS
WITHIN THE STUDY AREA AND
THOSE INITIALLY SCOPED WITHIN
THE EXTENDED STUDY AREA**



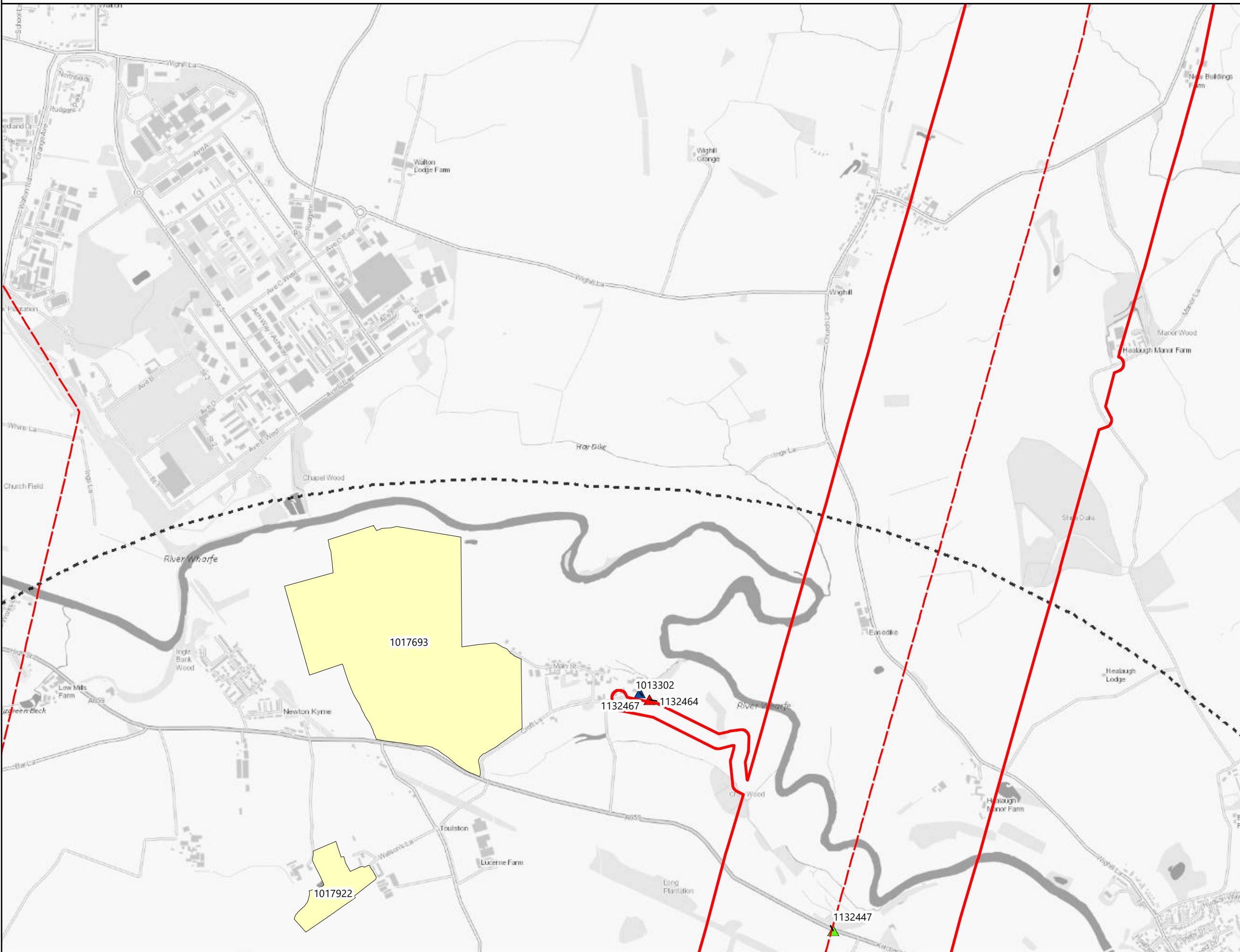
Figure Number	FIGURE 6.1				
Drawing Reference	806503-WOOD-0023				
Scale	Sheet Size	Sheet	Issue		
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DESIGNATED HERITAGE ASSETS WITHIN THE STUDY AREA AND THOSE INITIALLY SCOPED WITHIN THE EXTENDED STUDY AREA

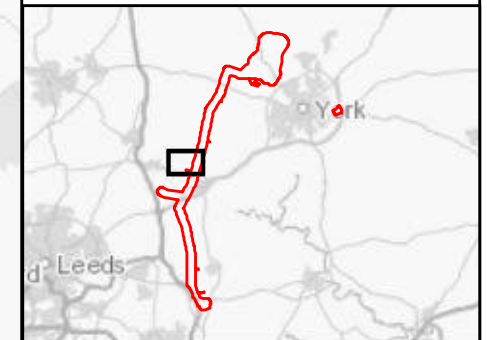
Legend

- Scoping red line boundary
- Existing 275kV overhead line
- LVIA study areas
- Scheduled Monument
- Listed Buildings
 - Grade I Listed Building
 - Grade II Listed Building
 - Grade II* Listed Building

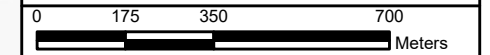


Notes

This drawing is scaled at paper size A3, therefore any prints taken at smaller sizes will affect accuracy of the measurement units and should not be scaled against.



Coordinate System: British National Grid
Sheet X Centroid Coordinate: 446,483.39 Sheet Y Centroid Coordinate: 445,787.04



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Issue	Date	Remarks	Drawn	Checked	Approved
2	MAR 21		COLLJ	DIMMR	CHADC

Title

**SCOPING REPORT
CHAPTER 6: HISTORIC ENVIRONMENT
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THOSE INITIALLY SCOPED WITHIN
THE EXTENDED STUDY AREA**



Figure Number
FIGURE 6.1

Drawing Reference
806503-WOOD-0023

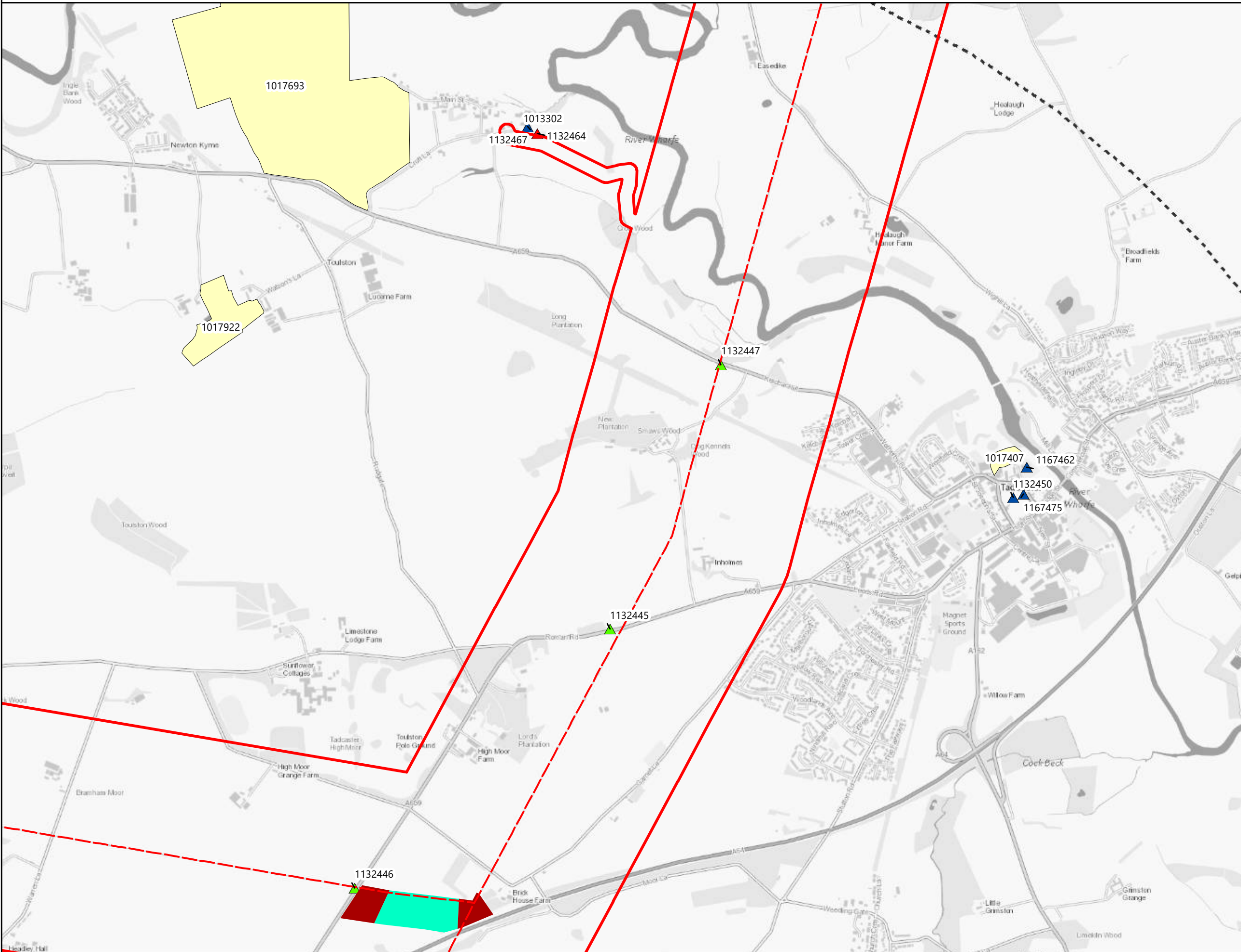
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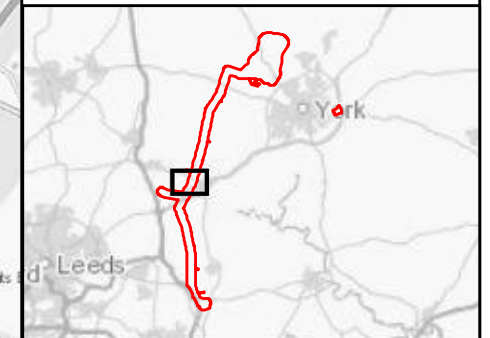
DESIGNATED HERITAGE ASSETS WITHIN THE STUDY AREA AND THOSE INITIALLY SCOPED WITHIN THE EXTENDED STUDY AREA

Legend

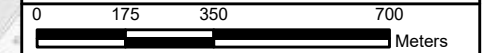
- Scoping red line boundary
- Existing 275kV overhead line
- Proposed Cable Sealing End Compound Siting Area
- Proposed Associated Infrastructure
- LVIA study areas
- Scheduled Monument
- Listed Buildings**
- Grade I Listed Building
- Grade II Listed Building
- Grade II* Listed Building



Notes
 This drawing is scaled at paper size A3, therefore any prints taken at smaller sizes will affect accuracy of the measurement units and should not be scaled against.



Coordinate System: British National Grid
 Sheet X Centroid Coordinate: 446,946.42 Sheet Y Centroid Coordinate: 443,460.91



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Issue	Date	Remarks	Drawn	Checked	Approved
2	MAR 21		COLLJ	DIMMR	CHADC

Title
 SCOPING REPORT
 CHAPTER 6: HISTORIC ENVIRONMENT
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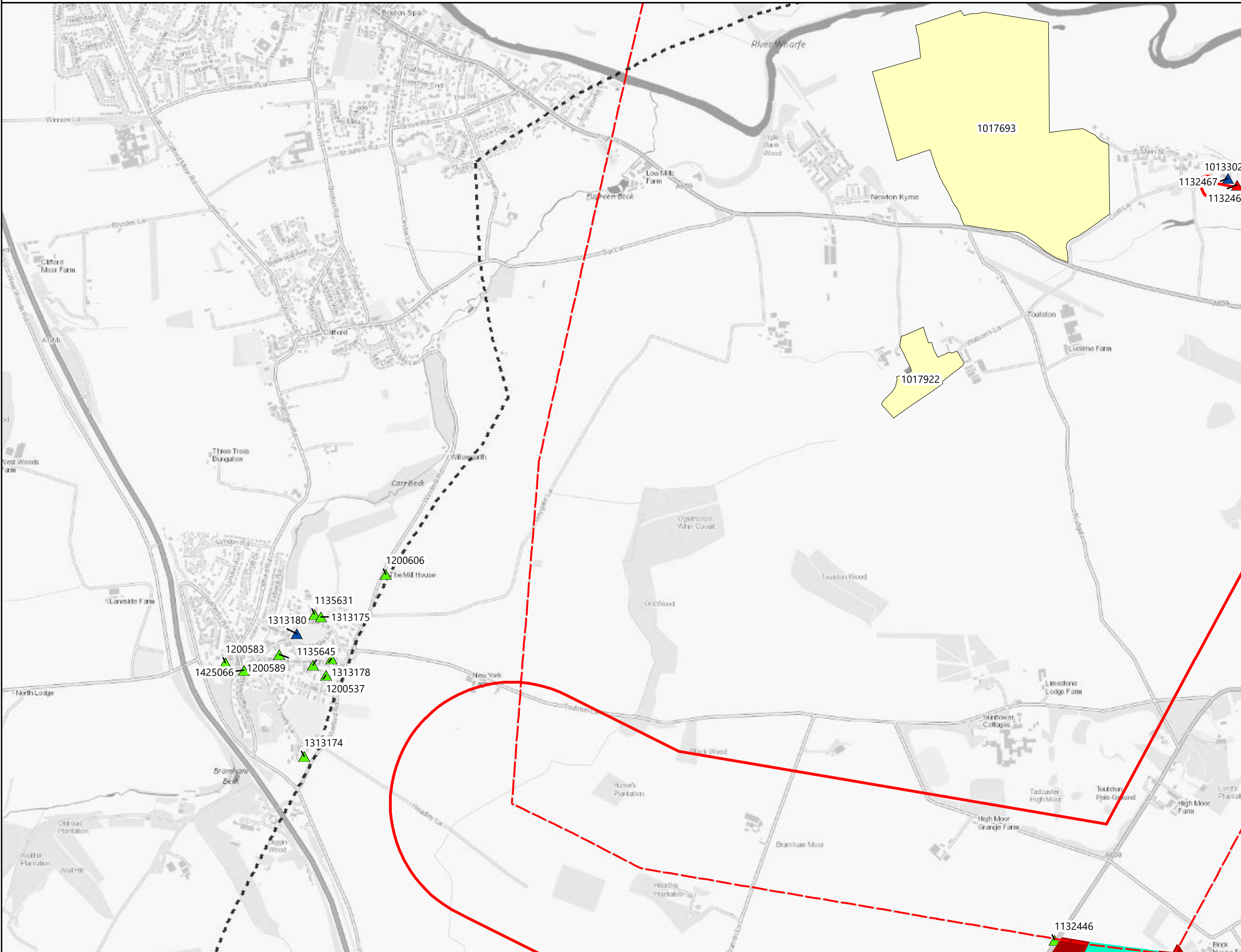
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Drawing Reference		806503-WOOD-0023	
Scale	Sheet Size	Sheet	Issue
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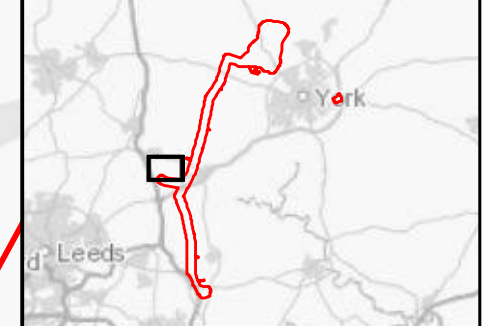
DESIGNATED HERITAGE ASSETS WITHIN THE STUDY AREA AND THOSE INITIALLY SCOPED WITHIN THE EXTENDED STUDY AREA

Legend

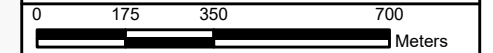
- Scoping red line boundary
- Existing 275kV overhead line
- Proposed Cable Sealing End Compound Siting Area
- Proposed Associated Infrastructure
- LVIA study areas
- Scheduled Monument
- Listed Buildings**
- Grade I Listed Building
- Grade II Listed Building
- Grade II* Listed Building



Notes
 This drawing is scaled at paper size A3, therefore any prints taken at smaller sizes will affect accuracy of the measurement units and should not be scaled against.



Coordinate System: British National Grid
 Sheet X Centroid Coordinate: 444,069.07 Sheet Y Centroid Coordinate: 443,673.90



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Issue	Date	Remarks	Drawn	Checked	Approved
2	MAR 21		COLLJ	DIMMR	CHADC

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 CHAPTER 6: HISTORIC ENVIRONMENT
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 THOSE INITIALLY SCOPED WITHIN
 THE EXTENDED STUDY AREA

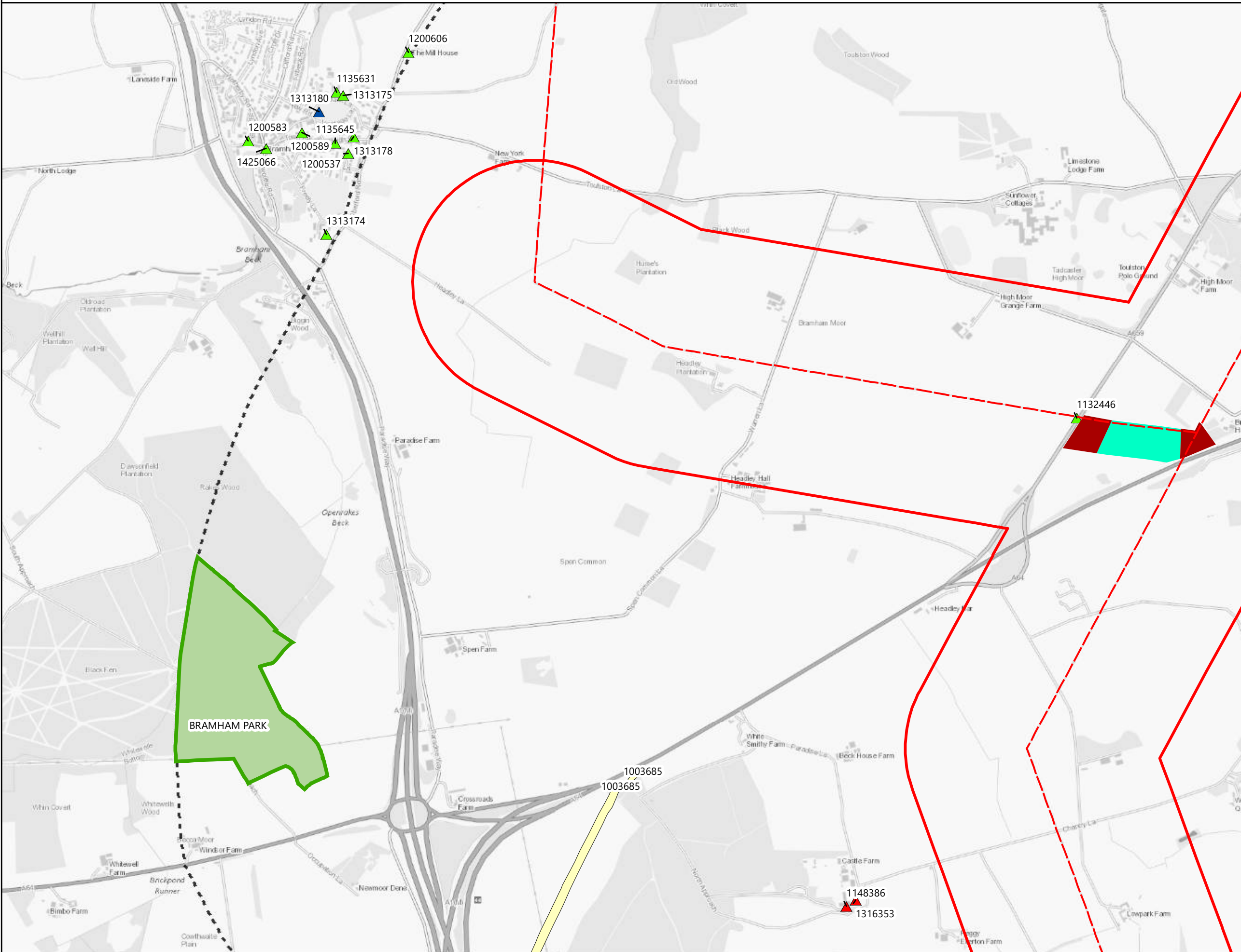
Figure Number	FIGURE 6.1		
Drawing Reference	806503-WOOD-0023		
Scale	Sheet Size	Sheet	Issue
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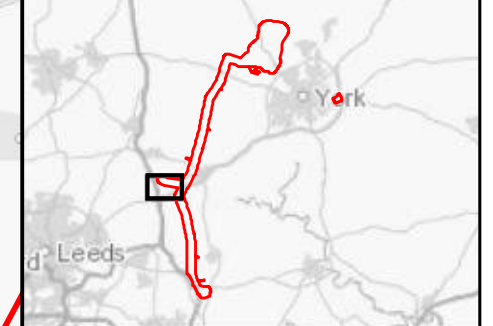
DESIGNATED HERITAGE ASSETS WITHIN THE STUDY AREA AND THOSE INITIALLY SCOPED WITHIN THE EXTENDED STUDY AREA

Legend

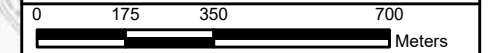
- Scoping red line boundary
- Existing 275kV overhead line
- Proposed Cable Sealing End Compound Siting Area
- Proposed Associated Infrastructure
- LVIA study areas
- Registered Park and Garden
- Scheduled Monument
- Listed Buildings**
- Grade I Listed Building
- Grade II Listed Building
- Grade II* Listed Building



Notes
 This drawing is scaled at paper size A3, therefore any prints taken at smaller sizes will affect accuracy of the measurement units and should not be scaled against.



Coordinate System: British National Grid
 Sheet X Centroid Coordinate: 443,977.34 Sheet Y Centroid Coordinate: 441,529.01



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2	MAR 21		COLLJ	DIMMR	CHADC
Issue	Date	Remarks	Drawn	Checked	Approved

Title
 SCOPING REPORT
 CHAPTER 6: HISTORIC ENVIRONMENT
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 WITHIN THE STUDY AREA AND
 THOSE INITIALLY SCOPED WITHIN
 THE EXTENDED STUDY AREA



Figure Number: FIGURE 6.1

Drawing Reference: 806503-WOOD-0023

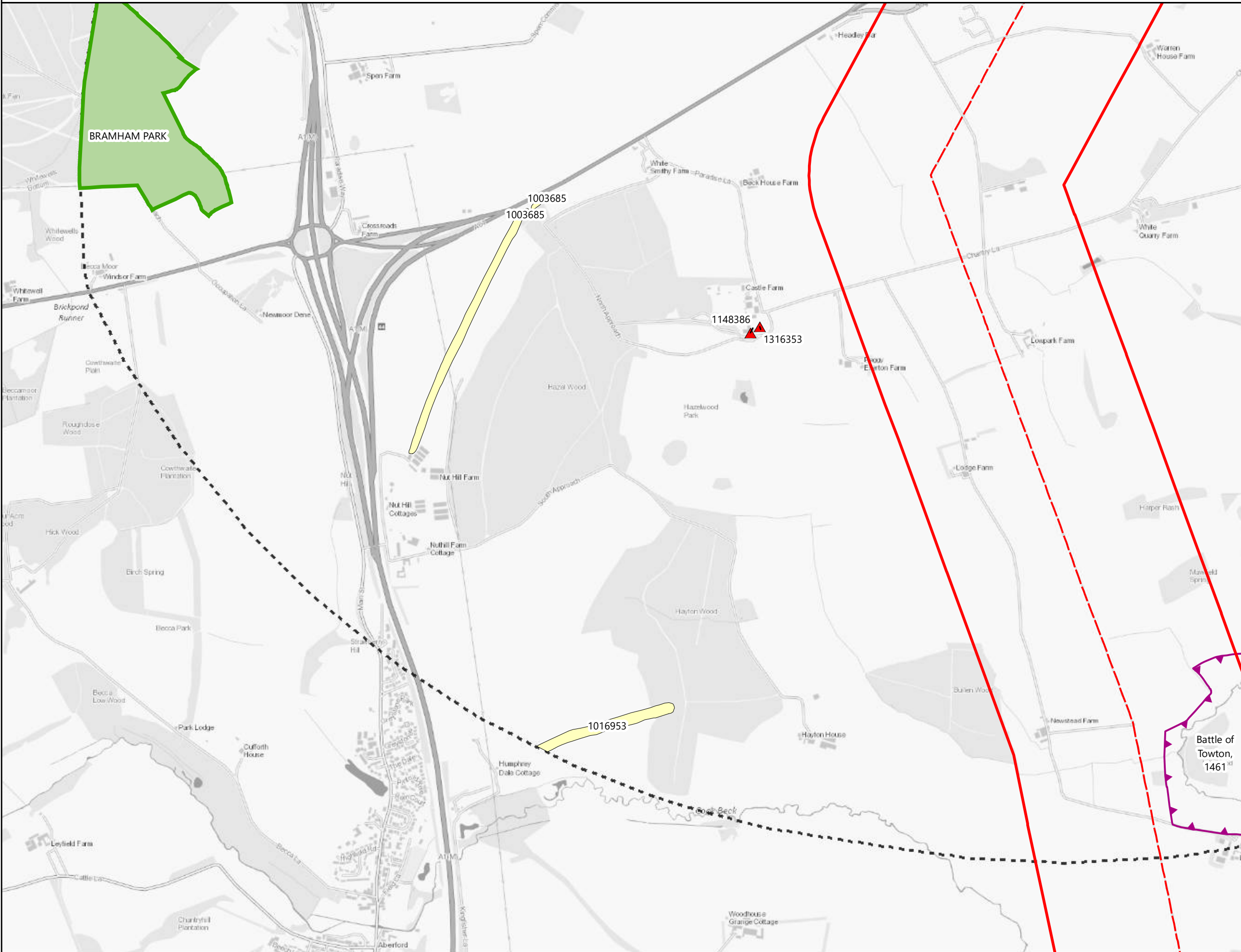
Scale	Sheet Size	Sheet	Issue
1:15,000	A3	SHEET 15 OF 23	2



DESIGNATED HERITAGE ASSETS WITHIN THE STUDY AREA AND THOSE INITIALLY SCOPED WITHIN THE EXTENDED STUDY AREA

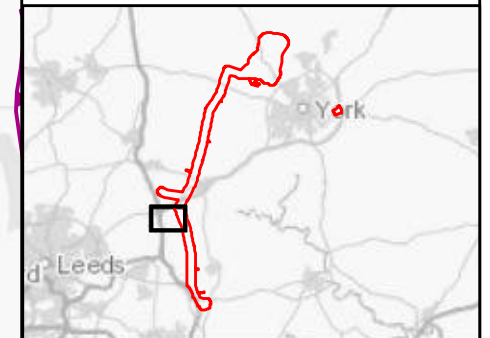
Legend

- Scoping red line boundary
- Existing 275kV overhead line
- LVIA study areas
- Registered Battlefield
- Registered Park and Garden
- Scheduled Monument
- Listed Buildings
- Grade I Listed Building

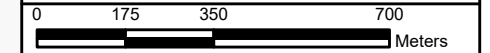


Notes

This drawing is scaled at paper size A3, therefore any prints taken at smaller sizes will affect accuracy of the measurement units and should not be scaled against.



Coordinate System: British National Grid
Sheet X Centroid Coordinate: 444,372.46 Sheet Y Centroid Coordinate: 439,172.45



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2	MAR 21		COLLJ	DIMMR	CHADC
Issue	Date	Remarks	Drawn	Checked	Approved

Title










**SCOPING REPORT
CHAPTER 6: HISTORIC ENVIRONMENT
DESIGNATED HERITAGE ASSETS
WITHIN THE STUDY AREA AND
THOSE INITIALLY SCOPED WITHIN
THE EXTENDED STUDY AREA**

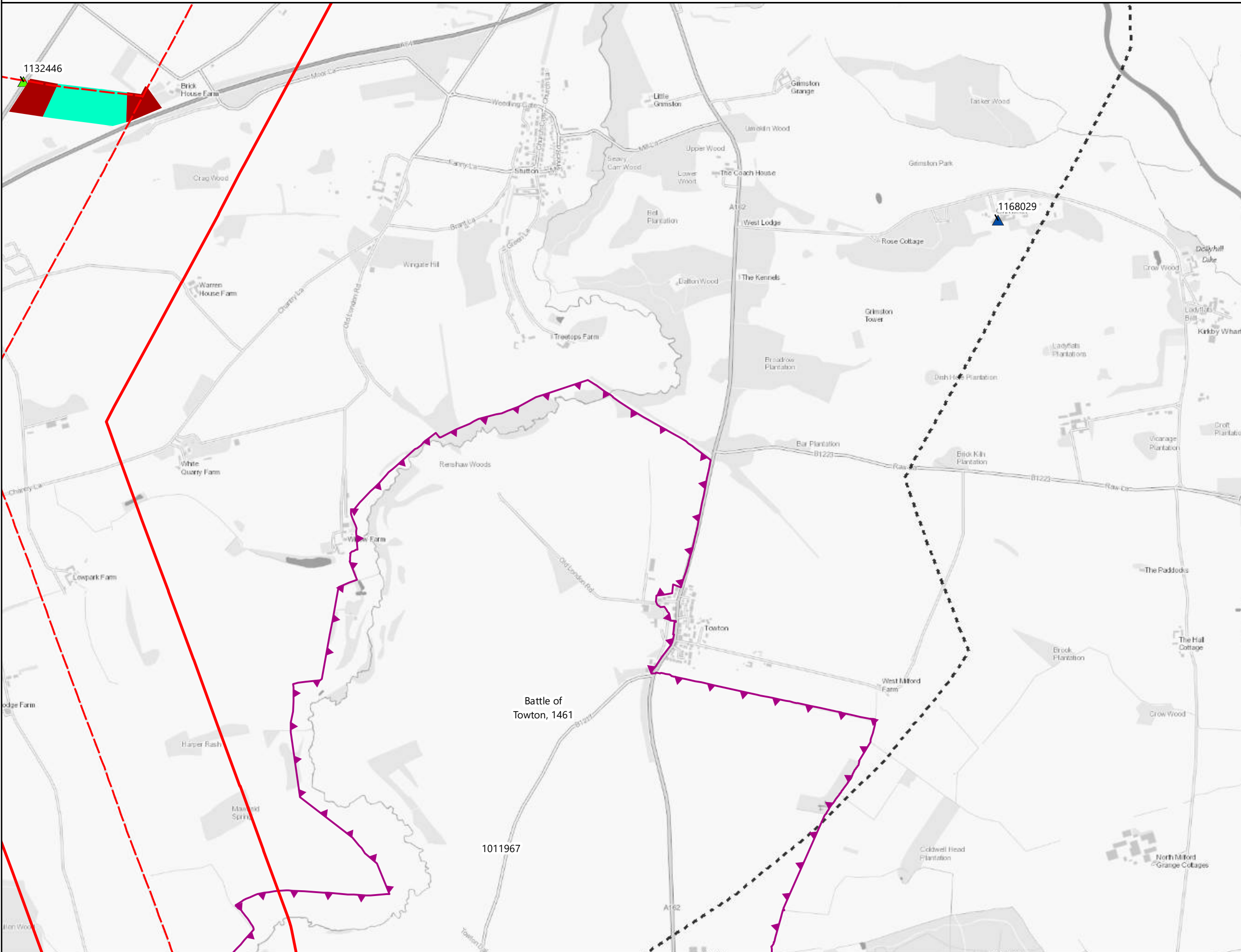
Figure Number	FIGURE 6.1		
Drawing Reference	806503-WOOD-0023		
Scale	Sheet Size	Sheet	Issue
1:15,000	A3	SHEET 16 OF 23	2



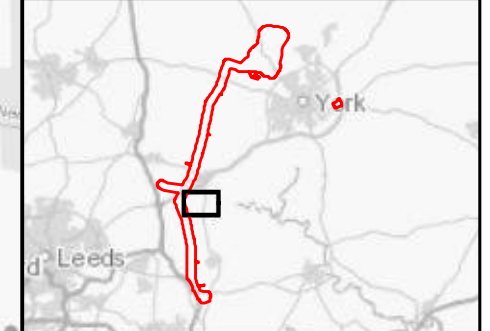
DESIGNATED HERITAGE ASSETS WITHIN THE STUDY AREA AND THOSE INITIALLY SCOPED WITHIN THE EXTENDED STUDY AREA

Legend

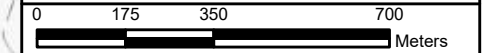
-  Scoping red line boundary
-  Existing 275kV overhead line
-  Proposed Cable Sealing End Compound Siting Area
-  Proposed Associated Infrastructure
-  LVIA study areas
-  Registered Battlefield
-  Scheduled Monument
- Listed Buildings**
-  Grade II Listed Building
-  Grade II* Listed Building



Notes
 This drawing is scaled at paper size A3, therefore any prints taken at smaller sizes will affect accuracy of the measurement units and should not be scaled against.



Coordinate System: British National Grid
 Sheet X Centroid Coordinate: 448,309.46 Sheet Y Centroid Coordinate: 440,146.12



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2	MAR 21					
Issue	Date	Remarks	Drawn	Checked	Approved	

Title
 SCOPING REPORT
 CHAPTER 6: HISTORIC ENVIRONMENT
 DESIGNATED HERITAGE ASSETS
 WITHIN THE STUDY AREA AND
 THOSE INITIALLY SCOPED WITHIN
 THE EXTENDED STUDY AREA



Figure Number: FIGURE 6.1

Drawing Reference: 806503-WOOD-0023

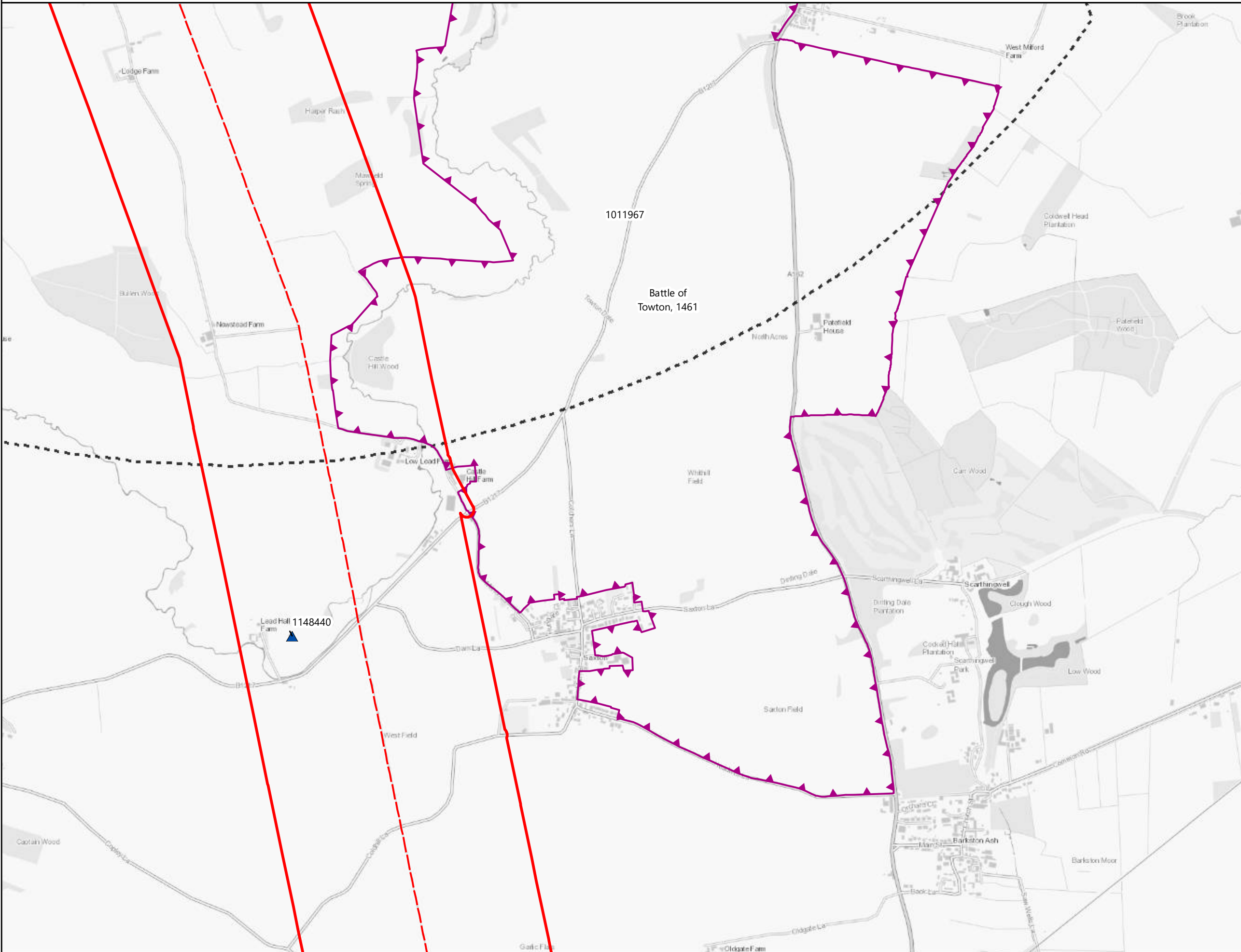
Scale	Sheet Size	Sheet	Issue
1:15,000	A3	SHEET 17 OF 23	2



DESIGNATED HERITAGE ASSETS WITHIN THE STUDY AREA AND THOSE INITIALLY SCOPED WITHIN THE EXTENDED STUDY AREA

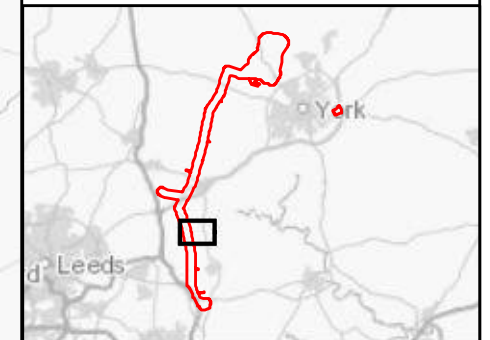
Legend

- Scoping red line boundary
- Existing 275kV overhead line
- LVIA study areas
- Registered Battlefield
- Scheduled Monument
- Listed Buildings
 - Grade II* Listed Building

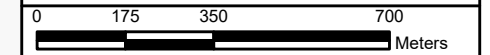


Notes

This drawing is scaled at paper size A3, therefore any prints taken at smaller sizes will affect accuracy of the measurement units and should not be scaled against.



Coordinate System: British National Grid
Sheet X Centroid Coordinate: 447,801.46 Sheet Y Centroid Coordinate: 437,542.61



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2	MAR 21		COLLJ	DIMMR	CHADC
Issue	Date	Remarks	Drawn	Checked	Approved

Title

**SCOPING REPORT
CHAPTER 6: HISTORIC ENVIRONMENT
DESIGNATED HERITAGE ASSETS
WITHIN THE STUDY AREA AND
THOSE INITIALLY SCOPED WITHIN
THE EXTENDED STUDY AREA**



Figure Number
FIGURE 6.1

Drawing Reference
806503-WOOD-0023

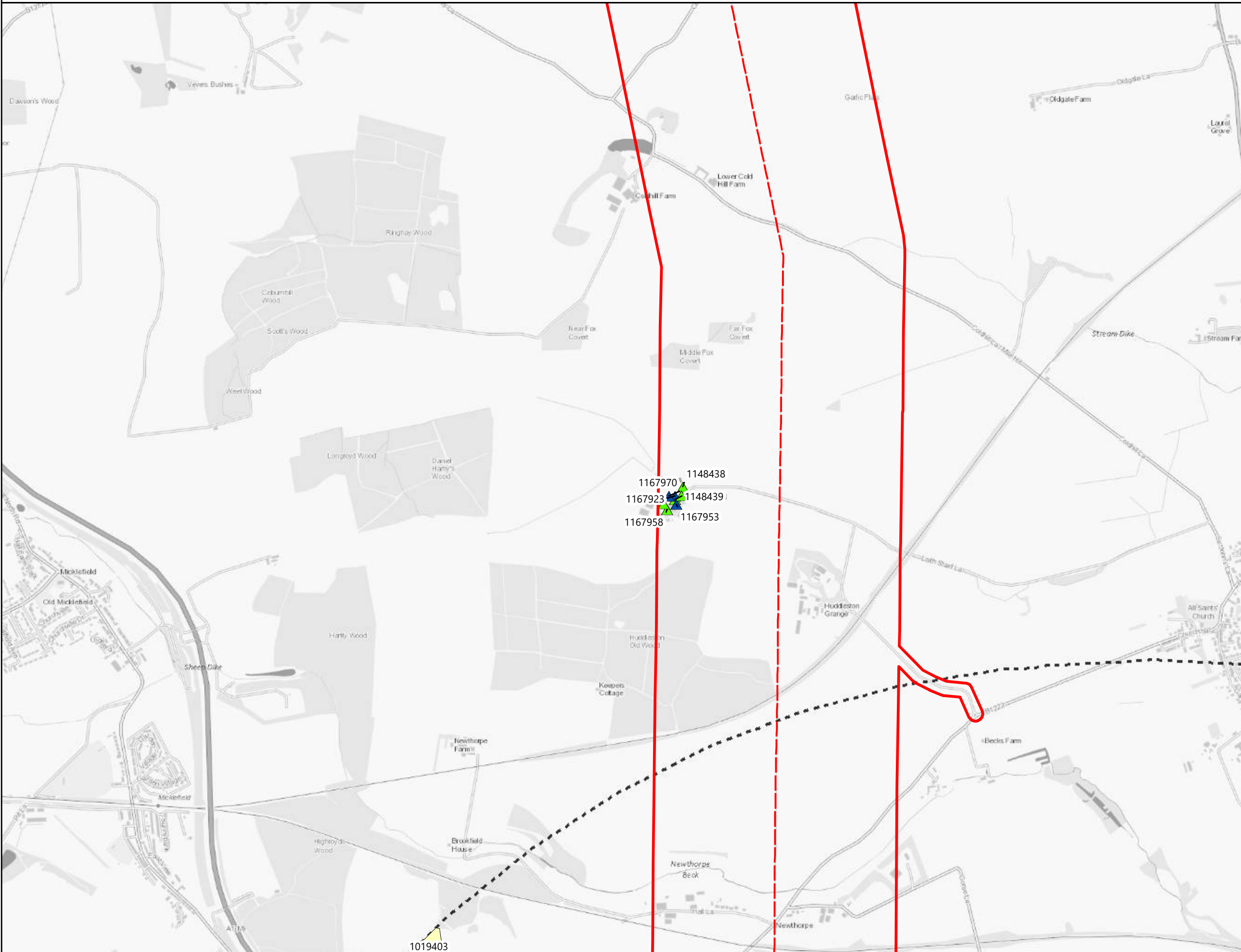
Scale	Sheet Size	Sheet	Issue
1:15,000	A3	SHEET 18 OF 23	2



DESIGNATED HERITAGE ASSETS WITHIN THE STUDY AREA AND THOSE INITIALLY SCOPED WITHIN THE EXTENDED STUDY AREA

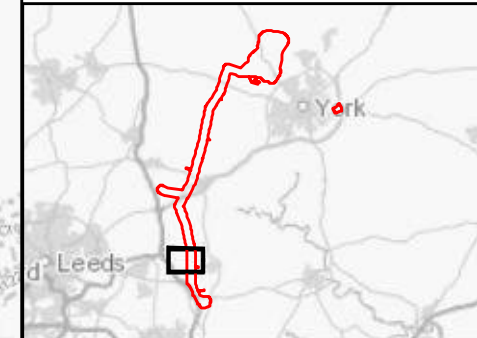
Legend

- Scoping red line boundary
- Existing 275kV overhead line
- LVIA study areas
- Scheduled Monument
- Listed Buildings
 - Grade II Listed Building
 - Grade II* Listed Building

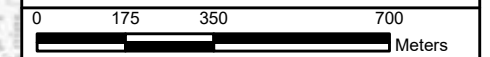


Notes

This drawing is scaled at paper size A3, therefore any prints taken at smaller sizes will affect accuracy of the measurement units and should not be scaled against.



Coordinate System: British National Grid
Sheet X Centroid Coordinate: 446,466.55 Sheet Y Centroid Coordinate: 434,051.52



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Issue	Date	Remarks	Drawn	Checked	Approved
2	MAR 21		COLLJ	DIMMR	CHADC

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**SCOPING REPORT
CHAPTER 6: HISTORIC ENVIRONMENT
DESIGNATED HERITAGE ASSETS
WITHIN THE STUDY AREA AND
THOSE INITIALLY SCOPED WITHIN
THE EXTENDED STUDY AREA**



Figure Number
FIGURE 6.1

Drawing Reference
806503-WOOD-0023

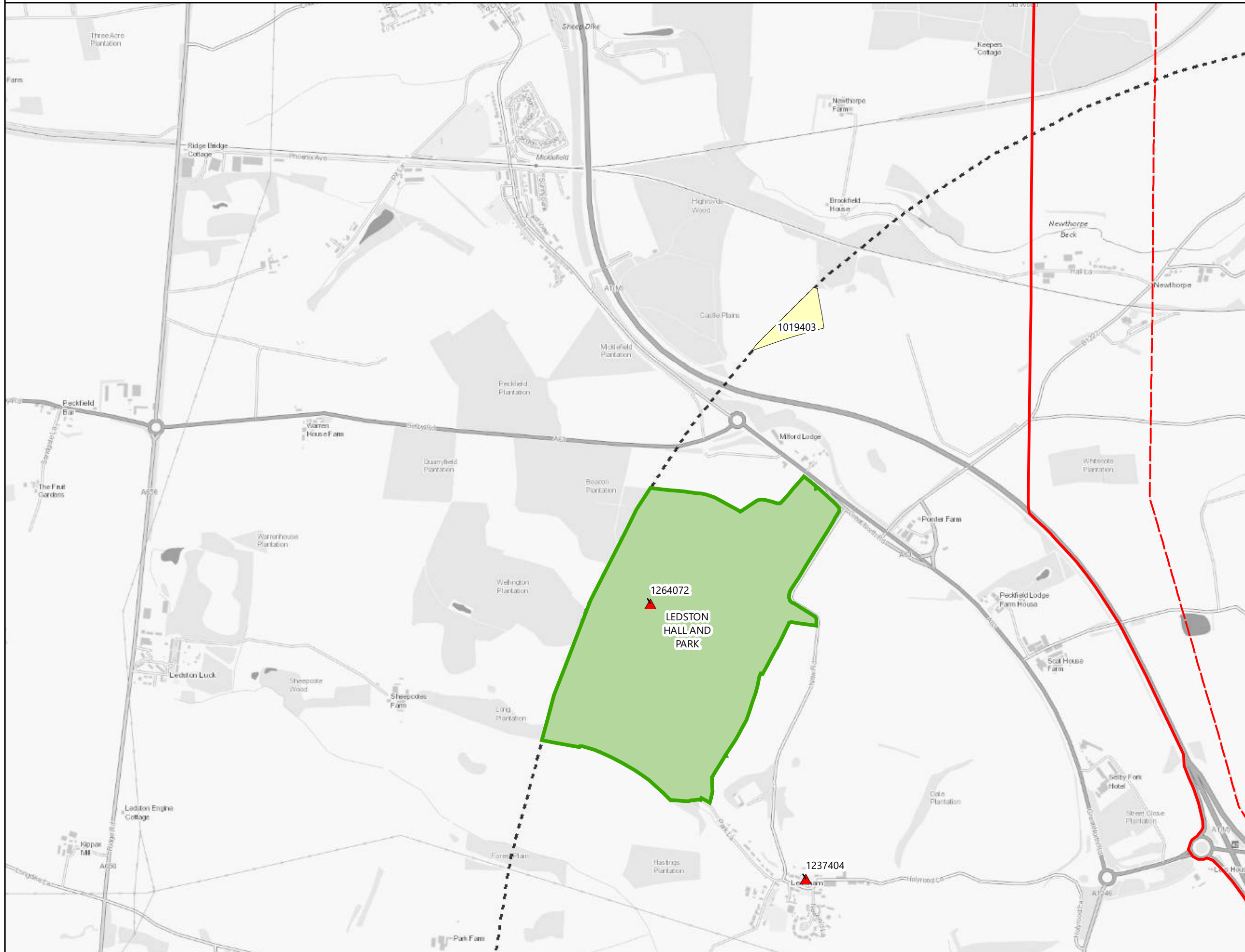
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DESIGNATED HERITAGE ASSETS WITHIN THE STUDY AREA AND THOSE INITIALLY SCOPED WITHIN THE EXTENDED STUDY AREA

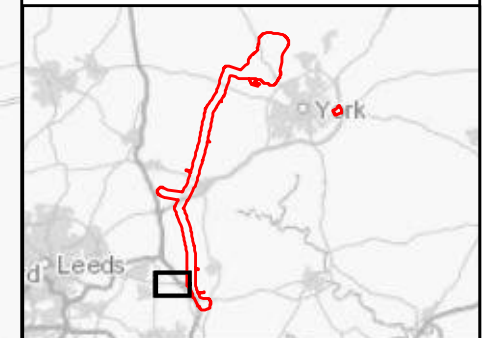
Legend

- Scoping red line boundary
- Existing 275kV overhead line
- LVIA study areas
- Registered Park and Garden
- Scheduled Monument
- Listed Buildings
 - Grade I Listed Building
 - Grade II Listed Building

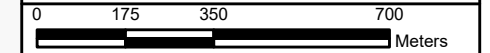


Notes

This drawing is scaled at paper size A3, therefore any prints taken at smaller sizes will affect accuracy of the measurement units and should not be scaled against.



Coordinate System: British National Grid
Sheet X Centroid Coordinate: 444,928.43 Sheet Y Centroid Coordinate: 431,419.79



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Issue	Date	Remarks	Drawn	Checked	Approved

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**SCOPING REPORT
CHAPTER 6: HISTORIC ENVIRONMENT
DESIGNATED HERITAGE ASSETS
WITHIN THE STUDY AREA AND
THOSE INITIALLY SCOPED WITHIN
THE EXTENDED STUDY AREA**



Figure Number **FIGURE 6.1**

Drawing Reference **806503-WOOD-0023**

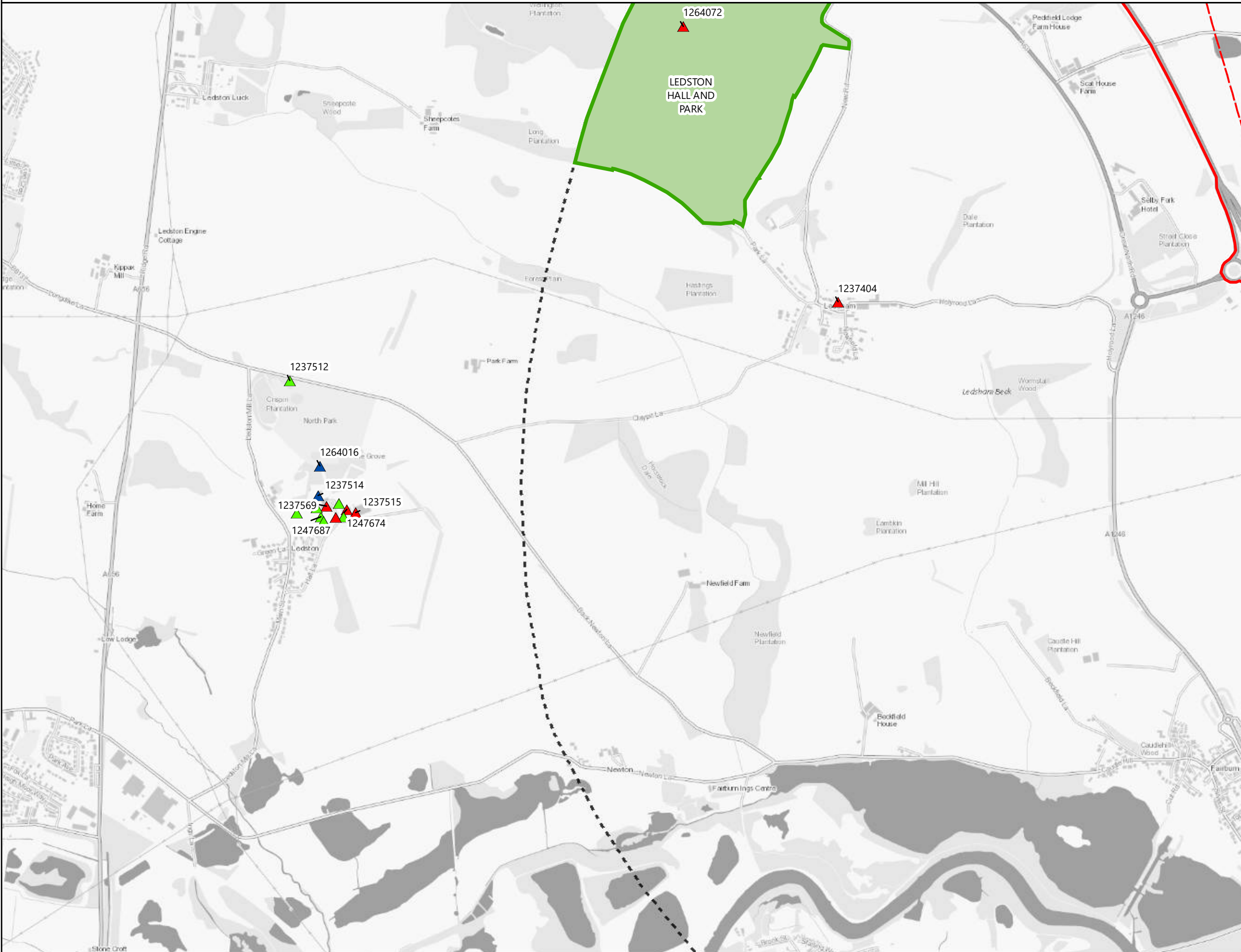
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1:15,000	A3	SHEET 20 OF 23	2



DESIGNATED HERITAGE ASSETS WITHIN THE STUDY AREA AND THOSE INITIALLY SCOPED WITHIN THE EXTENDED STUDY AREA

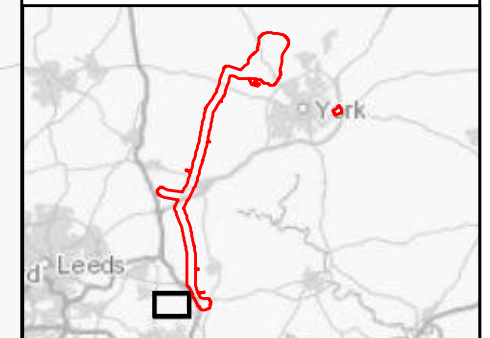
Legend

- Scoping red line boundary
- Existing 275kV overhead line
- LVIA study areas
- Registered Park and Garden
- Listed Buildings
 - Grade I Listed Building
 - Grade II Listed Building
 - Grade II* Listed Building

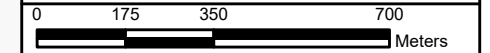


Notes

This drawing is scaled at paper size A3, therefore any prints taken at smaller sizes will affect accuracy of the measurement units and should not be scaled against.



Coordinate System: British National Grid
Sheet X Centroid Coordinate: 444,778.50 Sheet Y Centroid Coordinate: 429,047.35



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2	MAR 21		COLLJ	DIMMR	CHADC
Issue	Date	Remarks	Drawn	Checked	Approved

Title

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CHAPTER 6: HISTORIC ENVIRONMENT
DESIGNATED HERITAGE ASSETS
WITHIN THE STUDY AREA AND
THOSE INITIALLY SCOPED WITHIN
THE EXTENDED STUDY AREA**



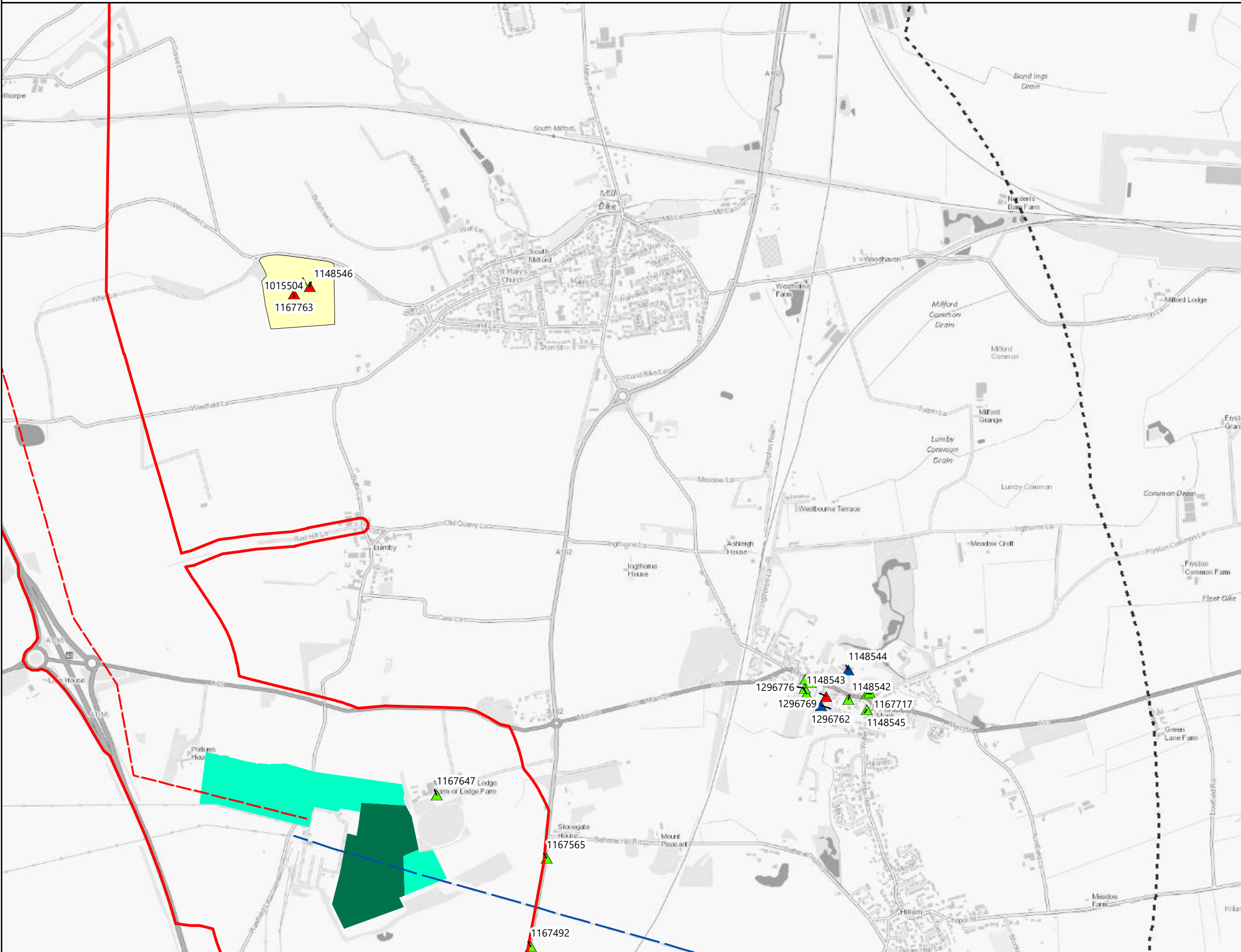
Figure Number	FIGURE 6.1				
Drawing Reference	806503-WOOD-0023				
Scale	Sheet Size	Sheet	Issue		
1:15,000	A3	SHEET 21 OF 23	2		



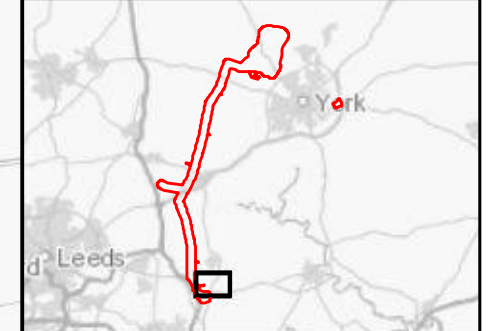
DESIGNATED HERITAGE ASSETS WITHIN THE STUDY AREA AND THOSE INITIALLY SCOPED WITHIN THE EXTENDED STUDY AREA

Legend

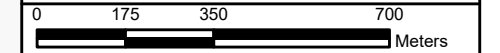
- Scoping red line boundary
 - Existing 275kV overhead line
 - Existing 400kV overhead line
 - Proposed Substation Siting Area
 - Proposed Associated Infrastructure
 - LVIA study areas
 - Scheduled Monument
- Listed Buildings
- ▲ Grade I Listed Building
 - ▲ Grade II Listed Building
 - ▲ Grade II* Listed Building



Notes
 This drawing is scaled at paper size A3, therefore any prints taken at smaller sizes will affect accuracy of the measurement units and should not be scaled against.



Coordinate System: British National Grid
 Sheet X Centroid Coordinate: 449,703.29 Sheet Y Centroid Coordinate: 430,641.91



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Issue	Date	Remarks	Drawn	Checked	Approved
2	MAR 21		COLLJ	DIMMR	CHADC

Title
 SCOPING REPORT
 CHAPTER 6: HISTORIC ENVIRONMENT
 DESIGNATED HERITAGE ASSETS
 WITHIN THE STUDY AREA AND
 THOSE INITIALLY SCOPED WITHIN
 THE EXTENDED STUDY AREA



Figure Number: FIGURE 6.1

Drawing Reference: 806503-WOOD-0023

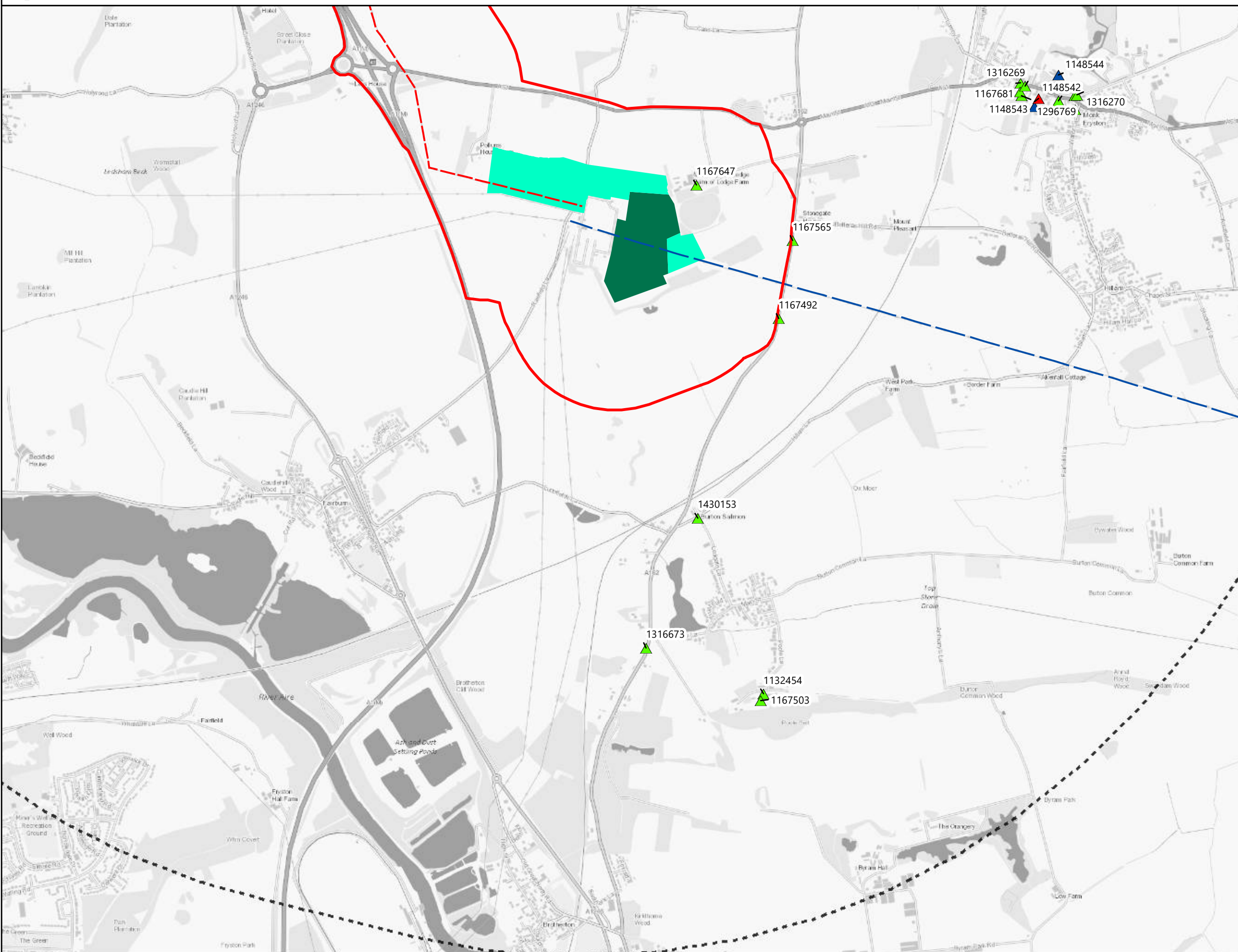
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1:15,000	A3	SHEET 22 OF 23	2



DESIGNATED HERITAGE ASSETS WITHIN THE STUDY AREA AND THOSE INITIALLY SCOPED WITHIN THE EXTENDED STUDY AREA

Legend

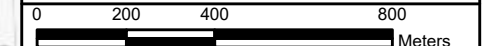
- Scoping red line boundary
- Existing 275kV overhead line
- Existing 400kV overhead line
- Proposed Substation Siting Area
- Proposed Associated Infrastructure
- LVIA study areas
- Listed Buildings
 - Grade I Listed Building
 - Grade II Listed Building
 - Grade II* Listed Building



Notes
 This drawing is scaled at paper size A3, therefore any prints taken at smaller sizes will affect accuracy of the measurement units and should not be scaled against.



Coordinate System: British National Grid
 Sheet X Centroid Coordinate: 448,590.71 Sheet Y Centroid Coordinate: 427,963.29



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2	MAR 21		COLLJ	DIMMR	CHADC
Issue	Date	Remarks	Drawn	Checked	Approved

Title
 SCOPING REPORT
 CHAPTER 6: HISTORIC ENVIRONMENT
 DESIGNATED HERITAGE ASSETS
 WITHIN THE STUDY AREA AND
 THOSE INITIALLY SCOPED WITHIN
 THE EXTENDED STUDY AREA



Figure Number: FIGURE 6.1

Drawing Reference: 806503-WOOD-0023

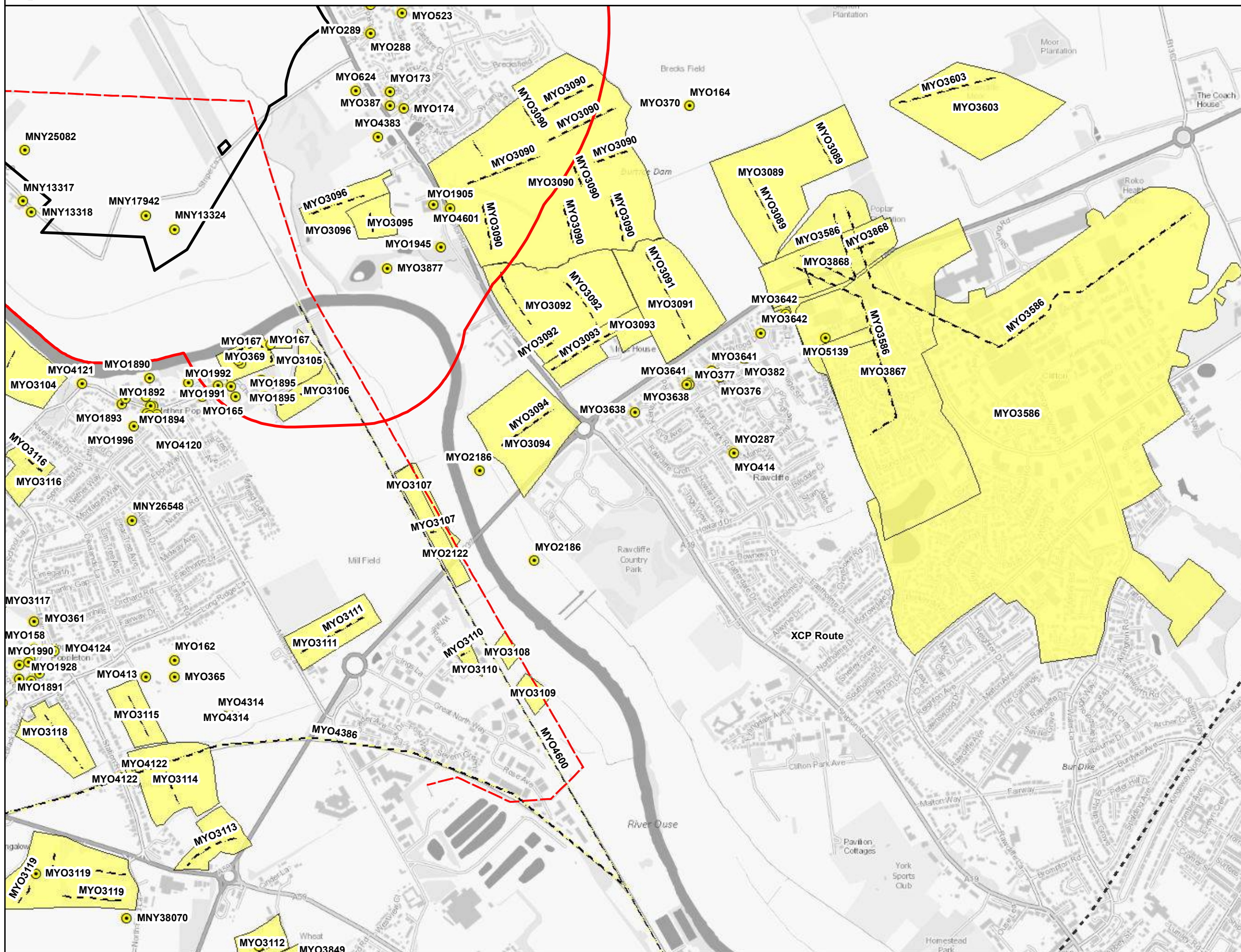
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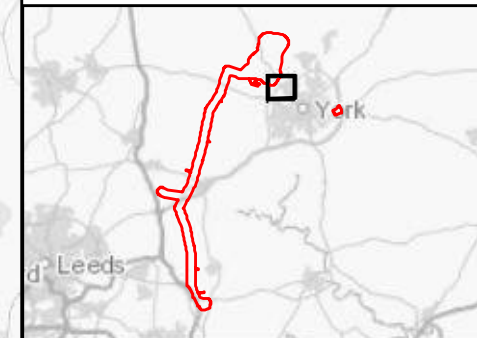
HISTORIC ENVIRONMENT RECORD DATA WITHIN STUDY AREA

Legend

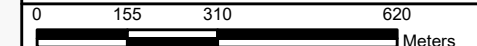
- Scoping red line boundary
- Existing 275kV overhead line
- New 400kV and 275kV overhead line corridor
- LVIA study area
- HER point
- HER line
- HER polygon



Notes
 This drawing is scaled at paper size A3, therefore any prints taken at smaller sizes will affect accuracy of the measurement units and should not be scaled against.



Coordinate System: British National Grid
 Sheet X Centroid Coordinate: 457,718.91 Sheet Y Centroid Coordinate: 454,702.29



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Issue	Date	Remarks	Drawn	Checked	Approved
2	MAR 21		COLLJ	DIMMR	CHADC

Title
 SCOPING REPORT
 CHAPTER 6: HISTORIC ENVIRONMENT
 HISTORIC ENVIRONMENT RECORD
 DATA WITHIN THE STUDY AREA

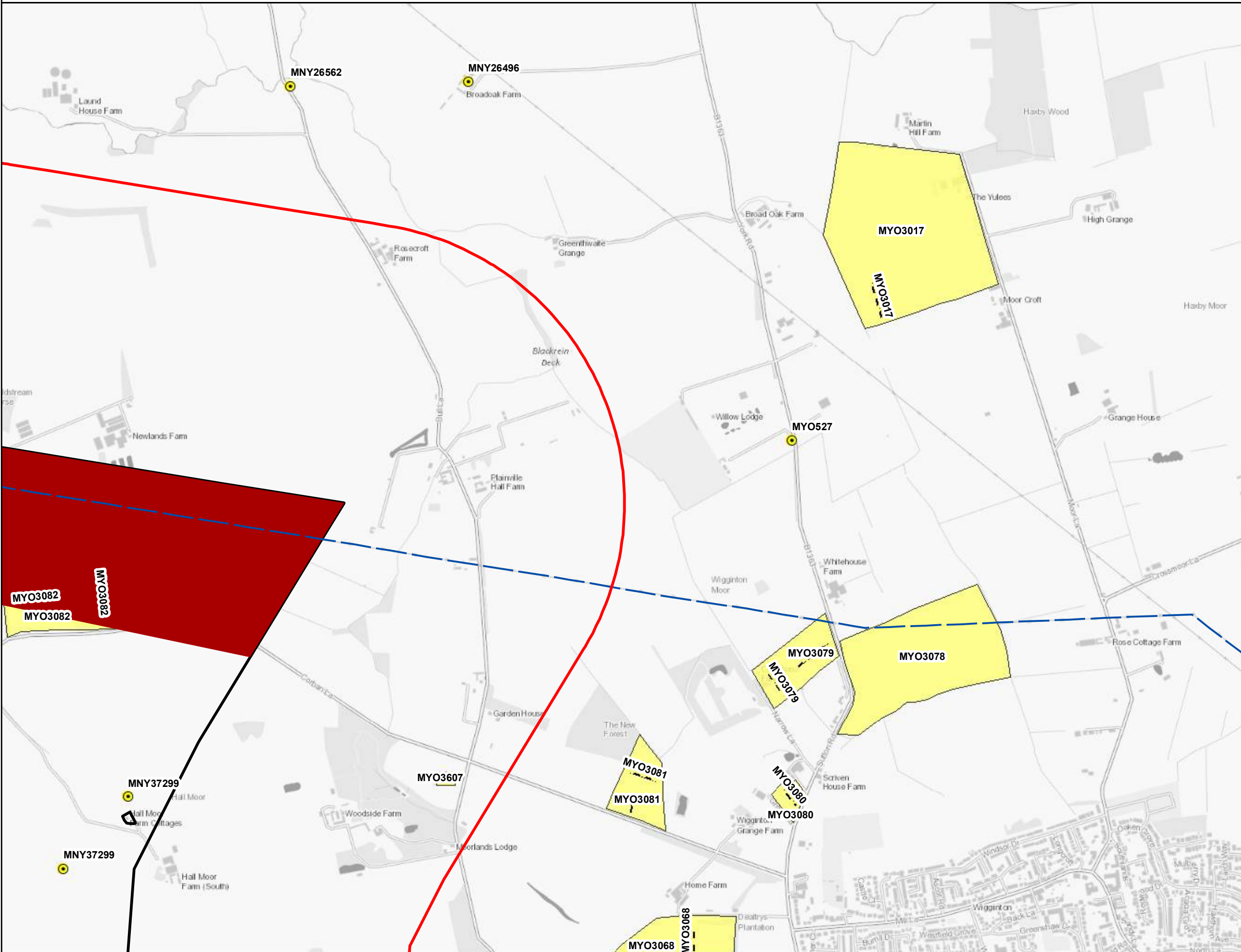
Figure Number	FIGURE 6.2		
Drawing Reference	806503-WOOD-0024		
Scale	Sheet Size	Sheet	Issue
1:13,000	A3	SHEET 2 OF 20	2



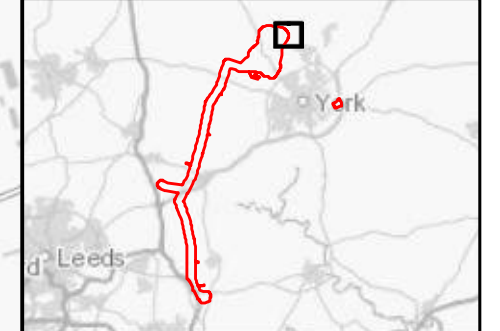
HISTORIC ENVIRONMENT RECORD DATA WITHIN STUDY AREA

Legend

- Scoping red line boundary
- Existing 400kV overhead line
- New 400kV and 275kV overhead line corridor
- Proposed Cable Sealing End Compound Siting Area
- LVIA study area
- HER point
- HER line
- HER polygon



Notes
 This drawing is scaled at paper size A3, therefore any prints taken at smaller sizes will affect accuracy of the measurement units and should not be scaled against.



Coordinate System: British National Grid
 Sheet X Centroid Coordinate: 458,595.87 Sheet Y Centroid Coordinate: 460,000.00
 0 155 310 620
 Meters

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Issue	Date	Remarks	Drawn	Checked	Approved

Title
 SCOPING REPORT
 CHAPTER 6: HISTORIC ENVIRONMENT
 HISTORIC ENVIRONMENT RECORD
 DATA WITHIN THE STUDY AREA



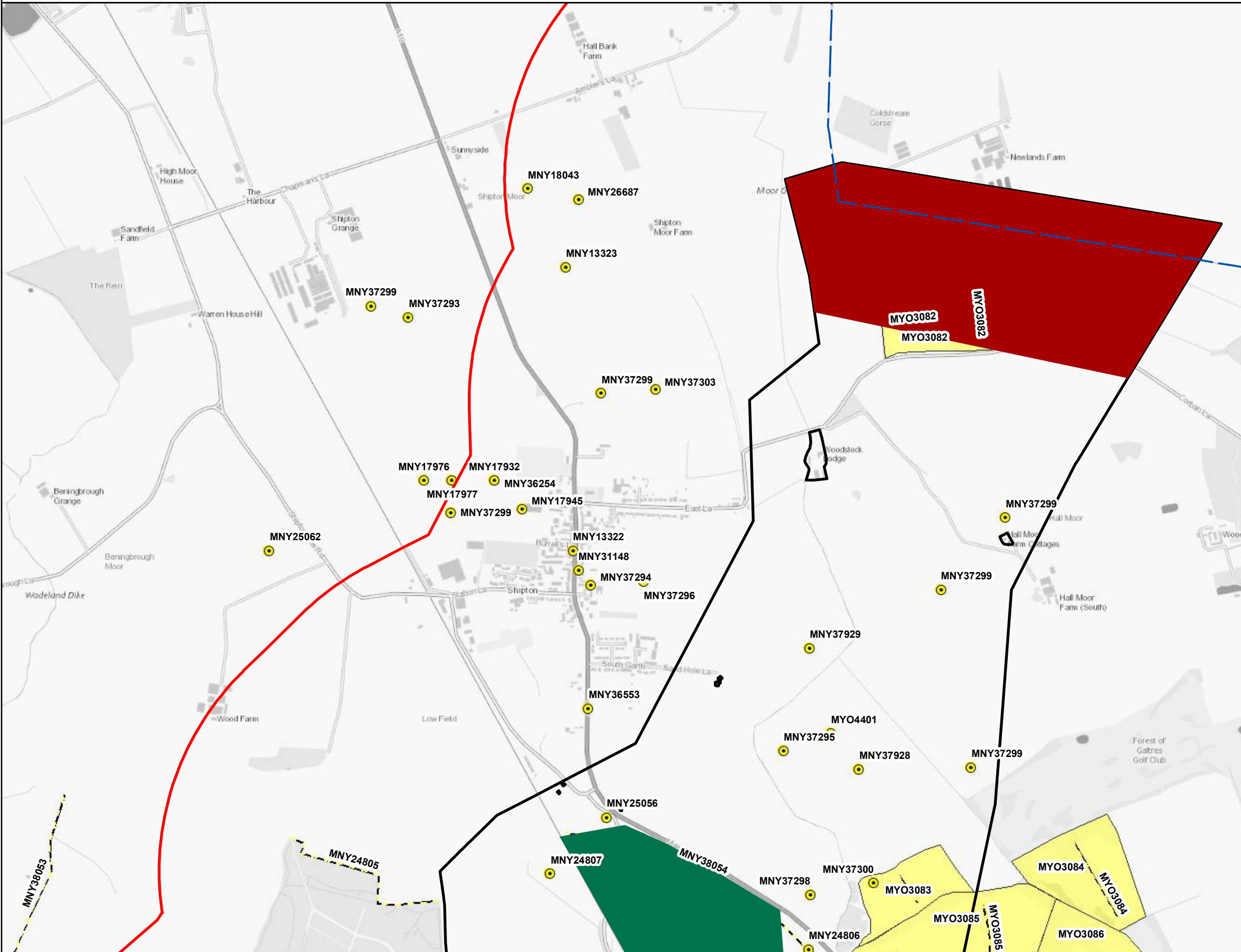
Figure Number	FIGURE 6.2				
Drawing Reference	806503-WOOD-0024				
Scale	Sheet Size	Sheet	Issue		
1:13,000	A3	SHEET 4 OF 20	2		



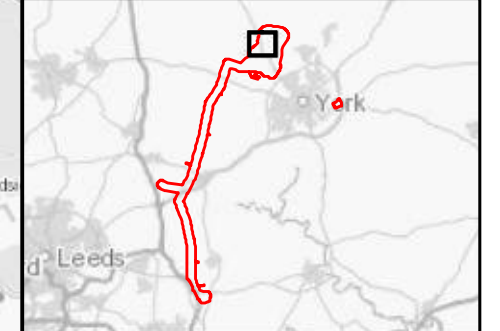
HISTORIC ENVIRONMENT RECORD DATA WITHIN STUDY AREA

Legend

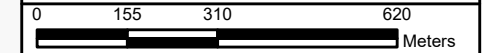
- Scoping red line boundary
- Existing 400kV overhead line
- New 400kV and 275kV overhead line corridor
- Proposed Substation Siting Area
- Proposed Cable Sealing End Compound Siting Area
- LVIA study area
- HER point
- HER line
- HER polygon



Notes
 This drawing is scaled at paper size A3, therefore any prints taken at smaller sizes will affect accuracy of the measurement units and should not be scaled against.



Coordinate System: British National Grid
 Sheet X Centroid Coordinate: 455,469.71 Sheet Y Centroid Coordinate: 459,005.76



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Issue	Date	Remarks	Drawn	Checked	Approved
2	MAR 21		COLLJ	DIMMR	CHADC

Title
 SCOPING REPORT
 CHAPTER 6: HISTORIC ENVIRONMENT
 HISTORIC ENVIRONMENT RECORD
 DATA WITHIN THE STUDY AREA



Figure Number: FIGURE 6.2

Drawing Reference: 806503-WOOD-0024

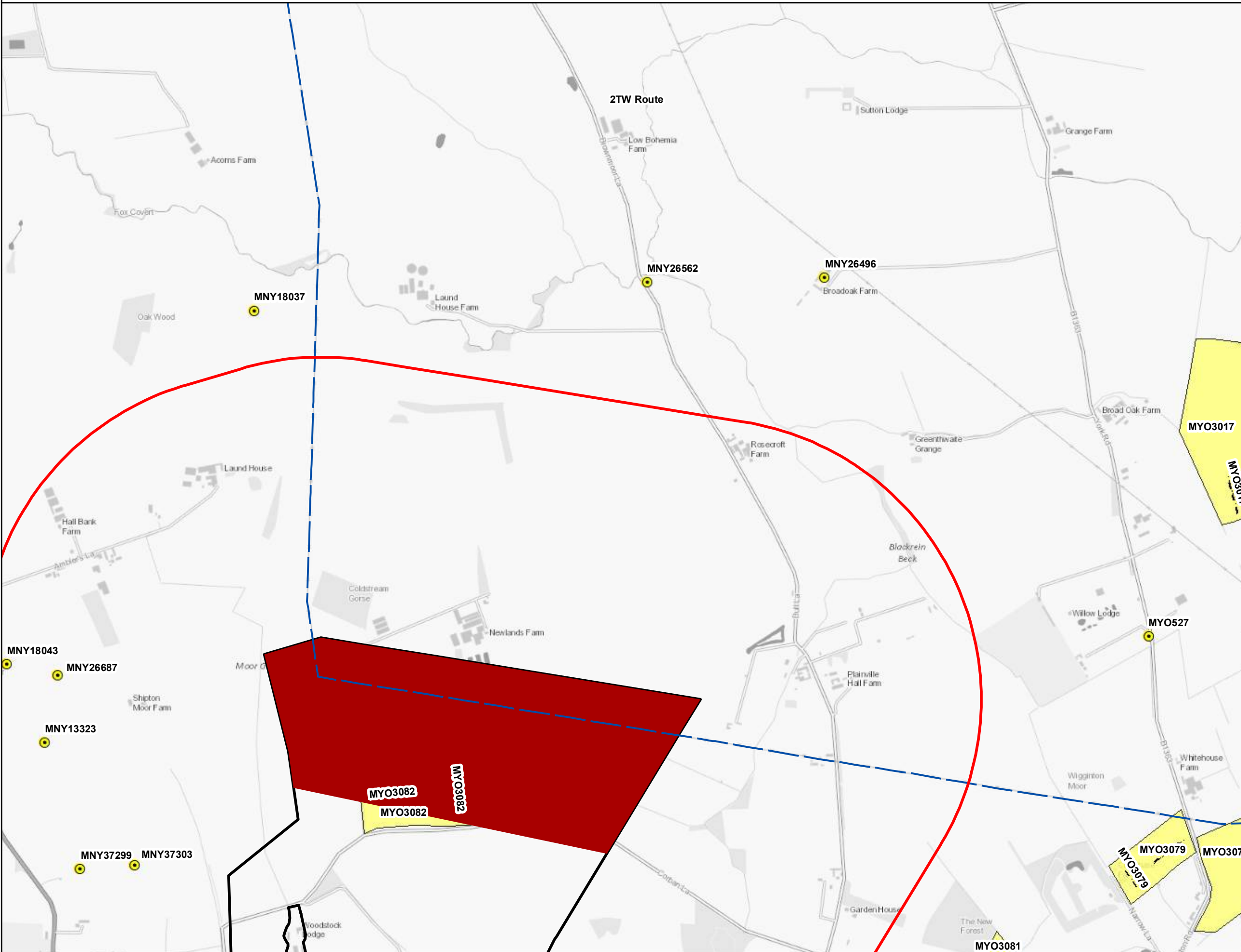
Scale	Sheet Size	Sheet	Issue
1:13,000	A3	SHEET 5 OF 20	2



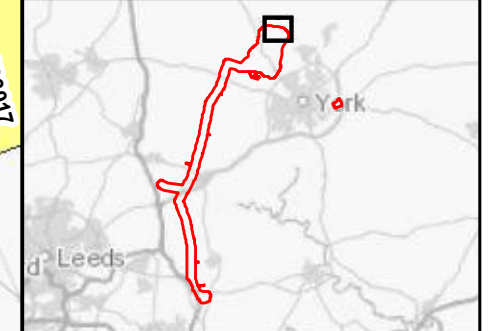
HISTORIC ENVIRONMENT RECORD DATA WITHIN STUDY AREA

Legend

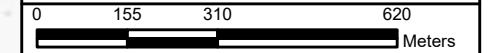
- Scoping red line boundary
- Existing 400kV overhead line
- New 400kV and 275kV overhead line corridor
- Proposed Cable Sealing End Compound Siting Area
- LVIA study area
- HER point
- HER line
- HER polygon



Notes
 This drawing is scaled at paper size A3, therefore any prints taken at smaller sizes will affect accuracy of the measurement units and should not be scaled against.



Coordinate System: British National Grid
 Sheet X Centroid Coordinate: 457,325.51 Sheet Y Centroid Coordinate: 460,699.03



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2	MAR 21		COLLJ	DIMMR	CHADC
Issue	Date	Remarks	Drawn	Checked	Approved

Title
 SCOPING REPORT
 CHAPTER 6: HISTORIC ENVIRONMENT
 HISTORIC ENVIRONMENT RECORD
 DATA WITHIN THE STUDY AREA



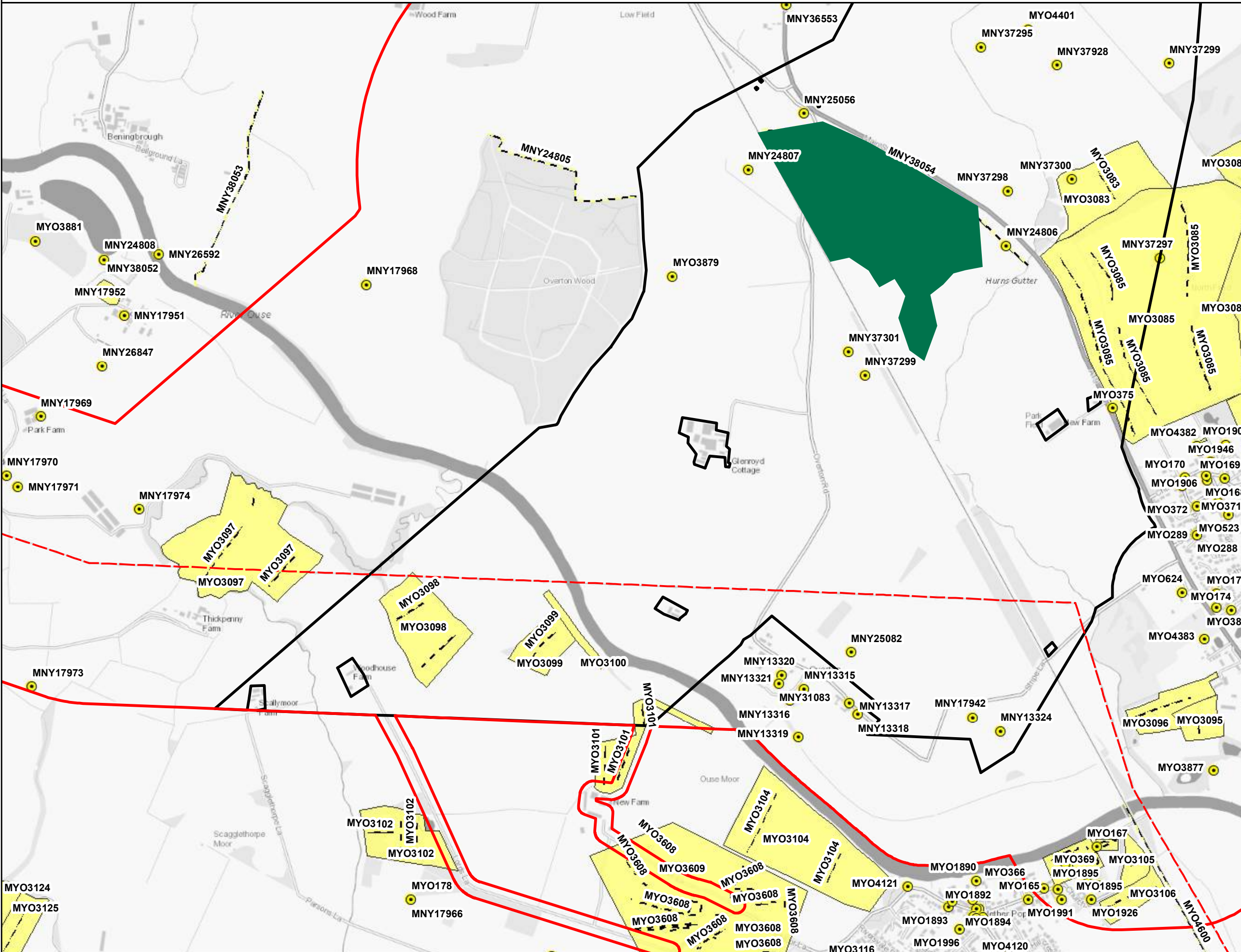
Figure Number	FIGURE 6.2				
Drawing Reference	806503-WOOD-0024				
Scale	Sheet Size	Sheet	Issue		
1:13,000	A3	SHEET 6 OF 20	2		



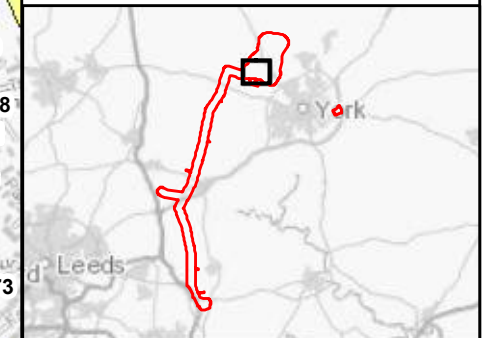
HISTORIC ENVIRONMENT RECORD DATA WITHIN STUDY AREA

Legend

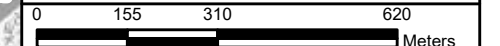
- Scoping red line boundary
- Existing 275kV overhead line
- New 400kV and 275kV overhead line corridor
- Proposed Substation Siting Area
- LVIA study area
- HER point
- HER line
- HER polygon



Notes
 This drawing is scaled at paper size A3, therefore any prints taken at smaller sizes will affect accuracy of the measurement units and should not be scaled against.



Coordinate System: British National Grid
 Sheet X Centroid Coordinate: 454,785.25 Sheet Y Centroid Coordinate: 456,498.69



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Issue	Date	Remarks	Drawn	Checked	Approved
2	MAR 21		COLLJ	DIMMR	CHADC

Title
 SCOPING REPORT
 CHAPTER 6: HISTORIC ENVIRONMENT
 HISTORIC ENVIRONMENT RECORD
 DATA WITHIN THE STUDY AREA

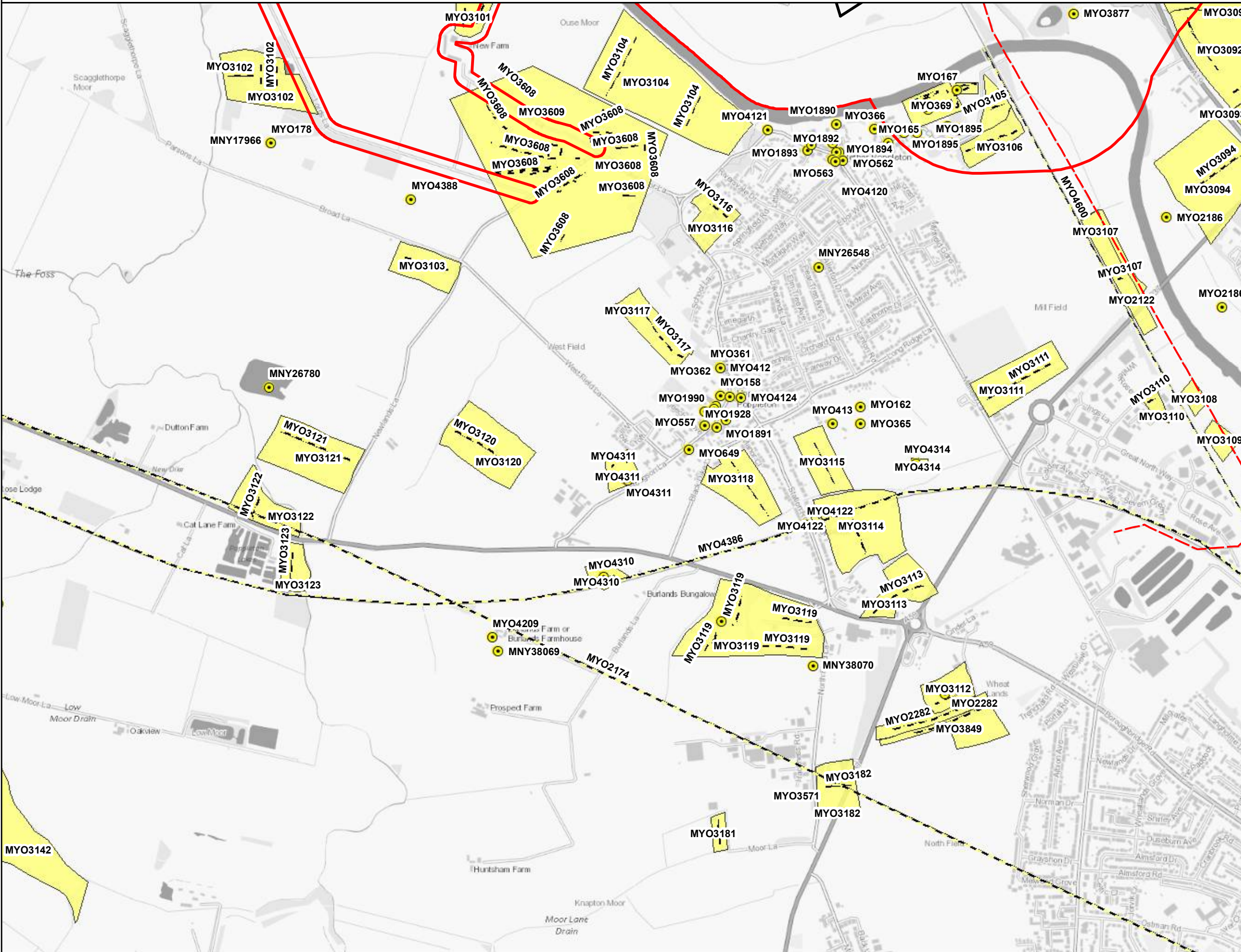
Figure Number	FIGURE 6.2		
Drawing Reference	806503-WOOD-0024		
Scale	Sheet Size	Sheet	Issue
1:13,000	A3	SHEET 7 OF 20	2



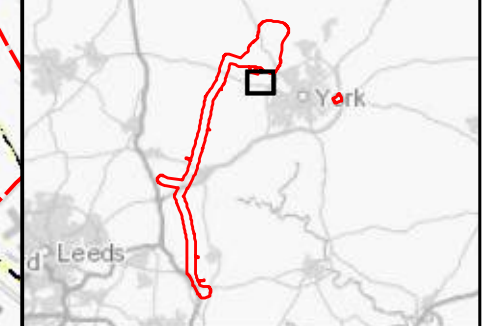
HISTORIC ENVIRONMENT RECORD DATA WITHIN STUDY AREA

Legend

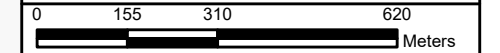
- Scoping red line boundary
- Existing 275kV overhead line
- New 400kV and 275kV overhead line corridor
- LVIA study area
- HER point
- HER line
- HER polygon



Notes
 This drawing is scaled at paper size A3, therefore any prints taken at smaller sizes will affect accuracy of the measurement units and should not be scaled against.



Coordinate System: British National Grid
 Sheet X Centroid Coordinate: 455,264.56 Sheet Y Centroid Coordinate: 453,804.19



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Issue	Date	Remarks	Drawn	Checked	Approved
2	MAR 21		COLLJ	DIMMR	CHADC

Title
 SCOPING REPORT
 CHAPTER 6: HISTORIC ENVIRONMENT
 HISTORIC ENVIRONMENT RECORD
 DATA WITHIN THE STUDY AREA

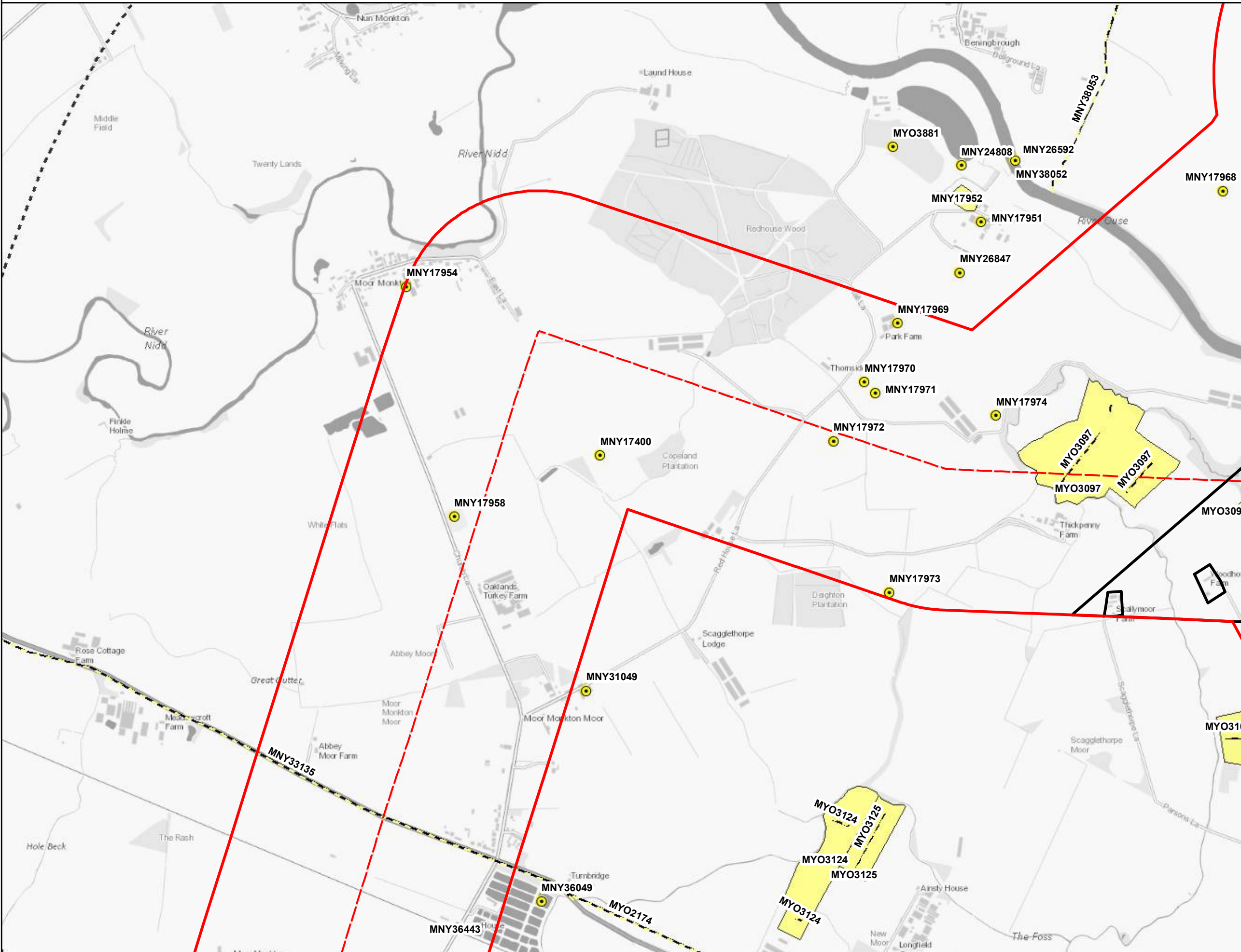
Figure Number	FIGURE 6.2		
Drawing Reference	806503-WOOD-0024		
Scale	Sheet Size	Sheet	Issue
1:13,000	A3	SHEET 8 OF 20	2



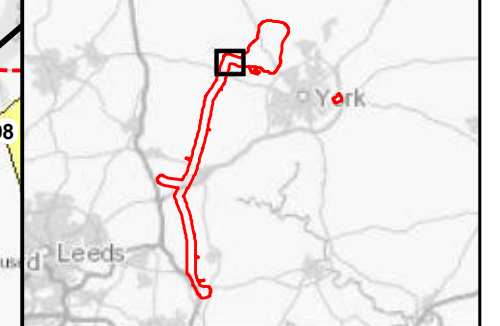
HISTORIC ENVIRONMENT RECORD DATA WITHIN STUDY AREA

Legend

- Scoping red line boundary
- Existing 275kV overhead line
- New 400kV and 275kV overhead line corridor
- LVIA study area
- HER point
- HER line
- HER polygon



Notes
This drawing is scaled at paper size A3, therefore any prints taken at smaller sizes will affect accuracy of the measurement units and should not be scaled against.



Coordinate System: British National Grid
Sheet X Centroid Coordinate: 451,711.87 Sheet Y Centroid Coordinate: 456,164.78
0 155 310 620
Meters

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Issue	Date	Remarks	Drawn	Checked	Approved
2	MAR 21		COLLJ	DIMMR	CHADC

Title
**SCOPING REPORT
CHAPTER 6: HISTORIC ENVIRONMENT
HISTORIC ENVIRONMENT RECORD
DATA WITHIN THE STUDY AREA**

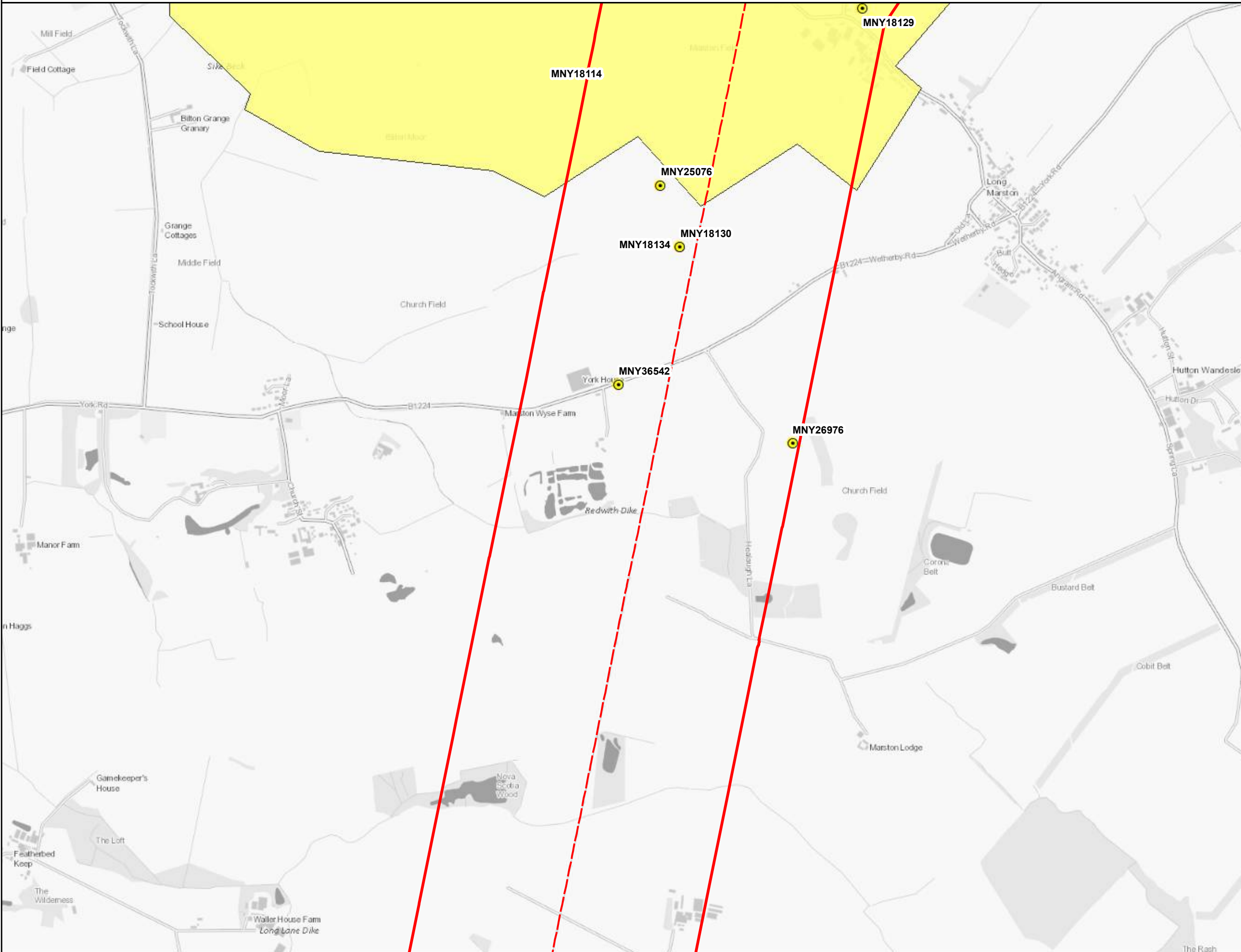
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Drawing Reference	806503-WOOD-0024		
Scale	Sheet Size	Sheet	Issue
1:13,000	A3	SHEET 9 OF 20	2



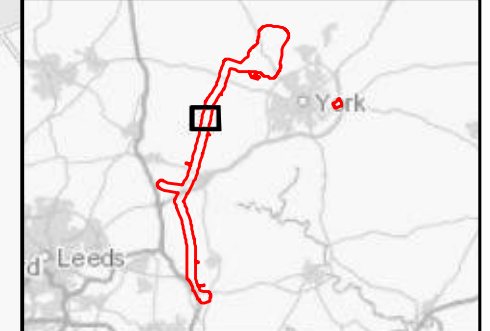
HISTORIC ENVIRONMENT RECORD DATA WITHIN STUDY AREA

Legend

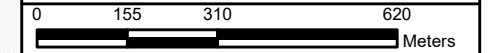
- Scoping red line boundary
- Existing 275kV overhead line
- HER point
- HER polygon



Notes
 This drawing is scaled at paper size A3, therefore any prints taken at smaller sizes will affect accuracy of the measurement units and should not be scaled against.



Coordinate System: British National Grid
 Sheet X Centroid Coordinate: 448,806.96 Sheet Y Centroid Coordinate: 450,174.22



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2	MAR 21		COLLJ	DIMMR	CHADC
Issue	Date	Remarks	Drawn	Checked	Approved

Title

SCOPING REPORT
 CHAPTER 6: HISTORIC ENVIRONMENT
 HISTORIC ENVIRONMENT RECORD
 DATA WITHIN THE STUDY AREA



Figure Number: FIGURE 6.2

Drawing Reference: 806503-WOOD-0024

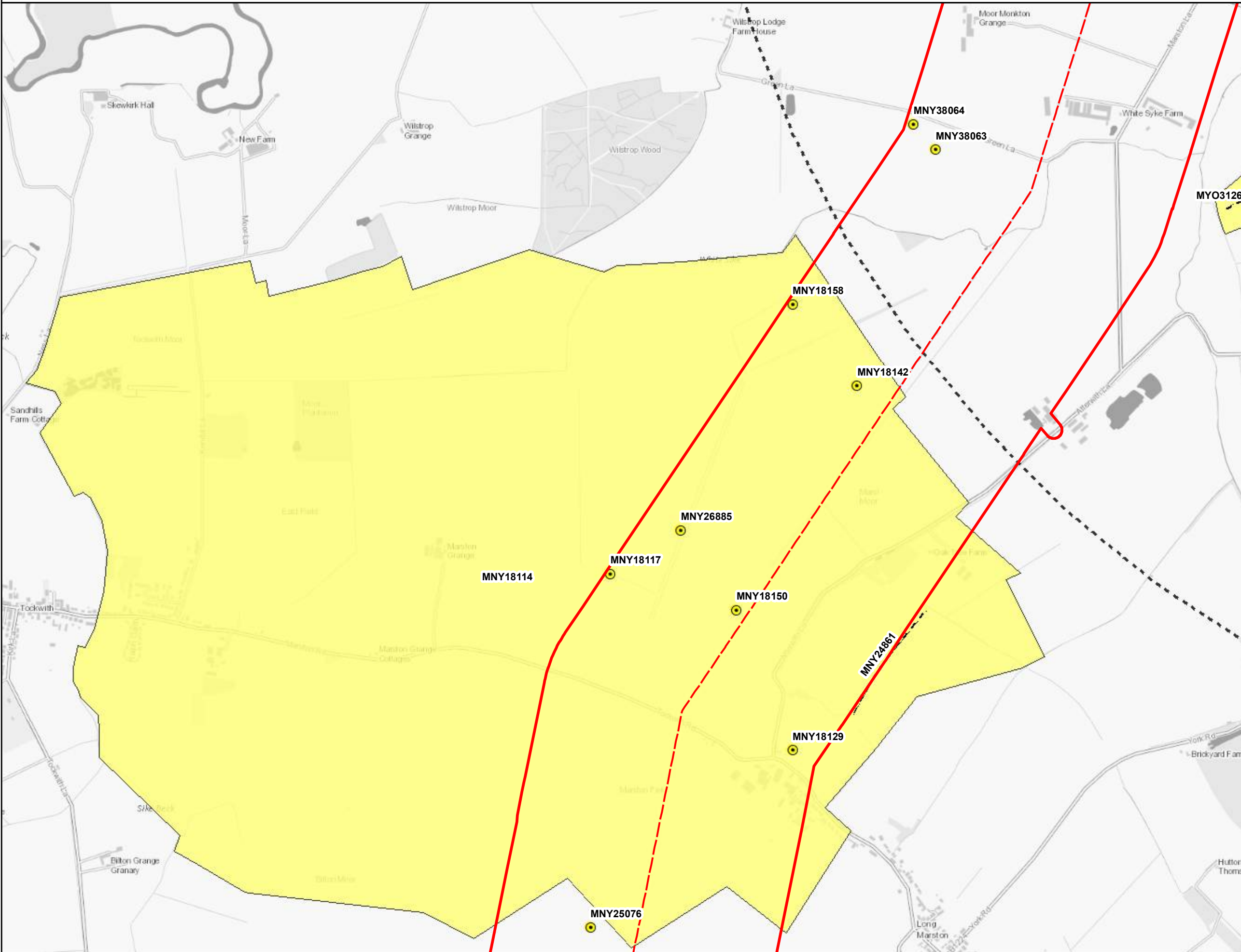
Scale	Sheet Size	Sheet	Issue
1:13,000	A3	SHEET 11 OF 20	2



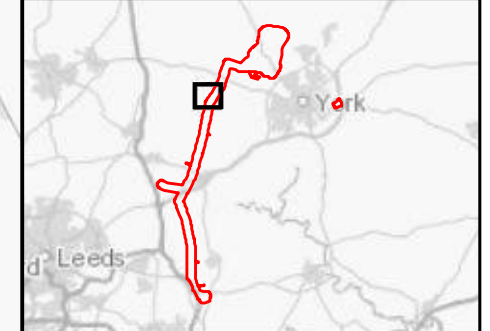
HISTORIC ENVIRONMENT RECORD DATA WITHIN STUDY AREA

Legend

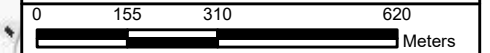
- Scoping red line boundary
- Existing 275kV overhead line
- LVIA study area
- HER point
- HER line
- HER polygon



Notes
 This drawing is scaled at paper size A3, therefore any prints taken at smaller sizes will affect accuracy of the measurement units and should not be scaled against.



Coordinate System: British National Grid
 Sheet X Centroid Coordinate: 449,056.84 Sheet Y Centroid Coordinate: 452,817.43



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2	MAR 21		COLLJ	DIMMR	CHADC
Issue	Date	Remarks	Drawn	Checked	Approved

Title
 SCOPING REPORT
 CHAPTER 6: HISTORIC ENVIRONMENT
 HISTORIC ENVIRONMENT RECORD
 DATA WITHIN THE STUDY AREA

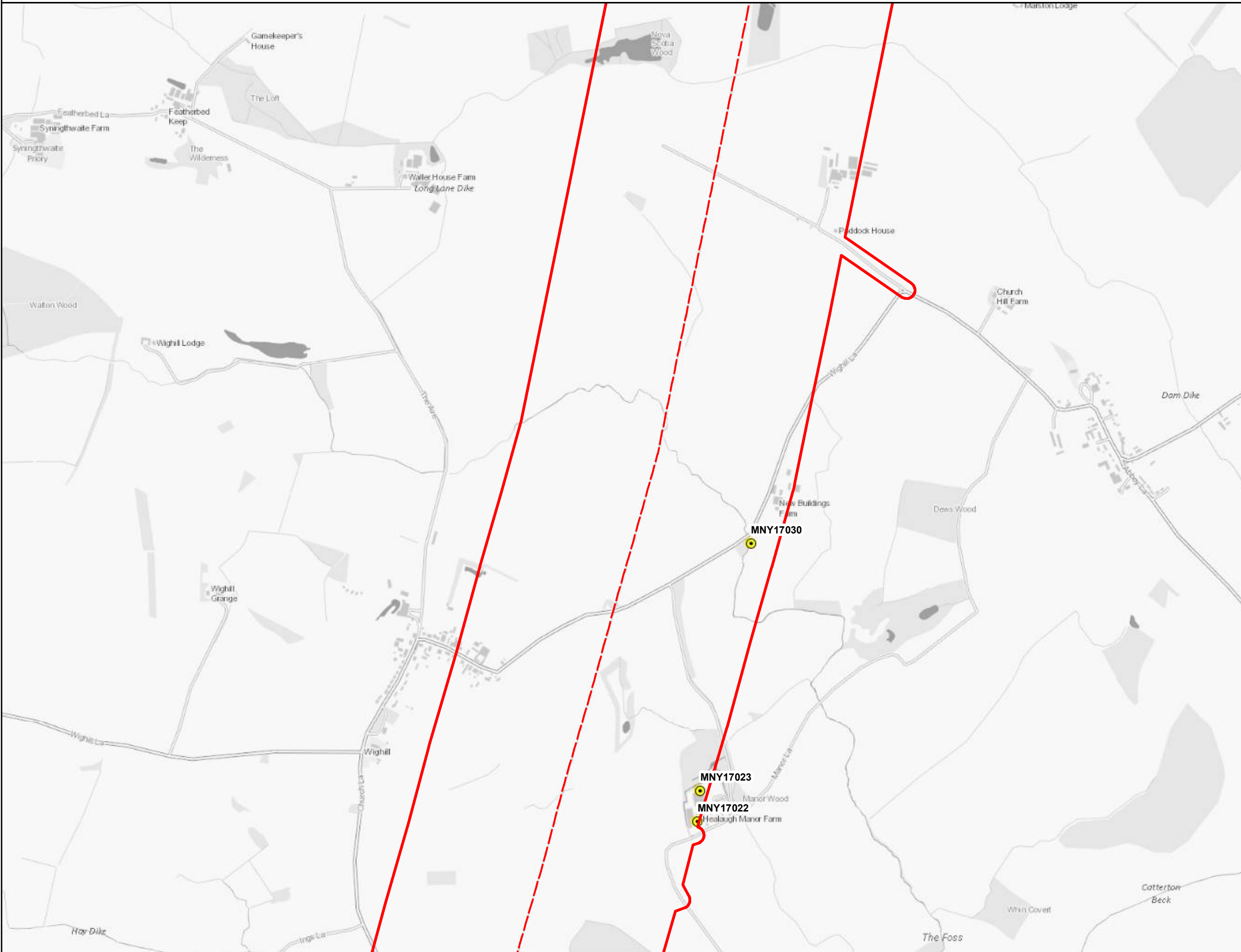
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Drawing Reference	806503-WOOD-0024		
Scale	Sheet Size	Sheet	Issue
1:13,000	A3	SHEET 12 OF 20	2



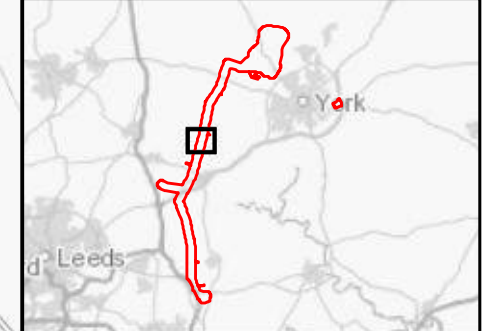
HISTORIC ENVIRONMENT RECORD DATA WITHIN STUDY AREA

Legend

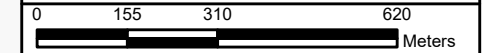
- Scoping red line boundary
- Existing 275kV overhead line
- HER point



Notes
 This drawing is scaled at paper size A3, therefore any prints taken at smaller sizes will affect accuracy of the measurement units and should not be scaled against.



Coordinate System: British National Grid
 Sheet X Centroid Coordinate: 448,255.40 Sheet Y Centroid Coordinate: 447,530.86



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2	MAR 21					
Issue	Date	Remarks	Drawn	Checked	Approved	

Title

SCOPING REPORT
 CHAPTER 6: HISTORIC ENVIRONMENT
 HISTORIC ENVIRONMENT RECORD
 DATA WITHIN THE STUDY AREA








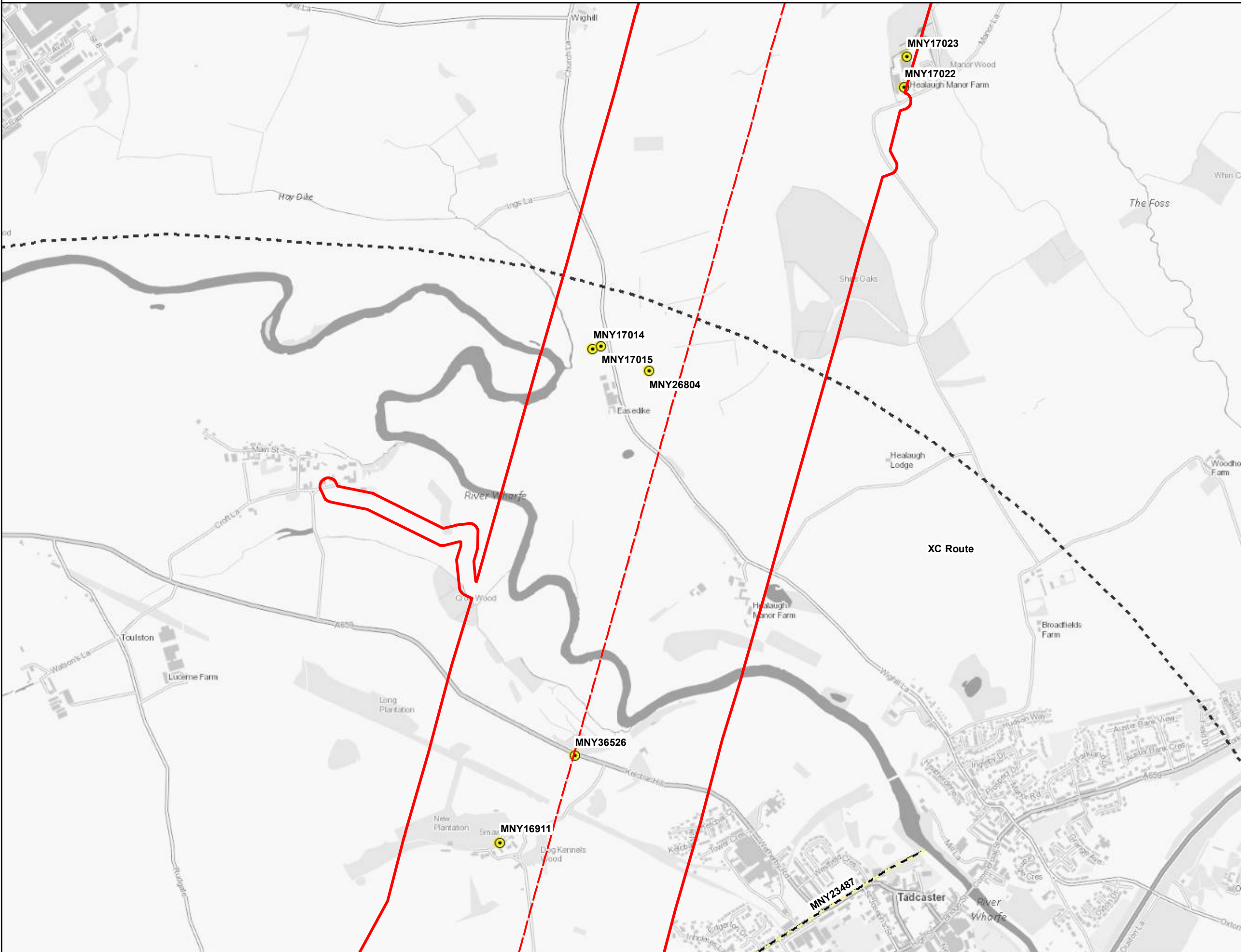
Figure Number	FIGURE 6.2		
Drawing Reference	806503-WOOD-0024		
Scale	Sheet Size	Sheet	Issue
1:13,000	A3	SHEET 13 OF 20	2



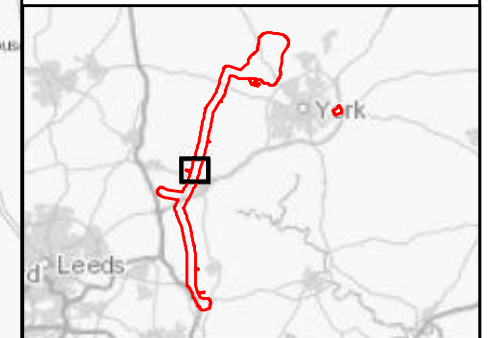
HISTORIC ENVIRONMENT RECORD DATA WITHIN STUDY AREA

Legend

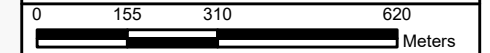
-  Scoping red line boundary
-  Existing 275kV overhead line
-  LVIA study area
-  HER point
-  HER line



Notes
 This drawing is scaled at paper size A3, therefore any prints taken at smaller sizes will affect accuracy of the measurement units and should not be scaled against.



Coordinate System: British National Grid
 Sheet X Centroid Coordinate: 447,517.78 Sheet Y Centroid Coordinate: 444,915.67



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Issue	Date	Remarks	Drawn	Checked	Approved
2	MAR 21		COLLJ	DIMMR	CHADC

Title
 SCOPING REPORT
 CHAPTER 6: HISTORIC ENVIRONMENT
 HISTORIC ENVIRONMENT RECORD
 DATA WITHIN THE STUDY AREA



Figure Number: FIGURE 6.2

Drawing Reference: 806503-WOOD-0024

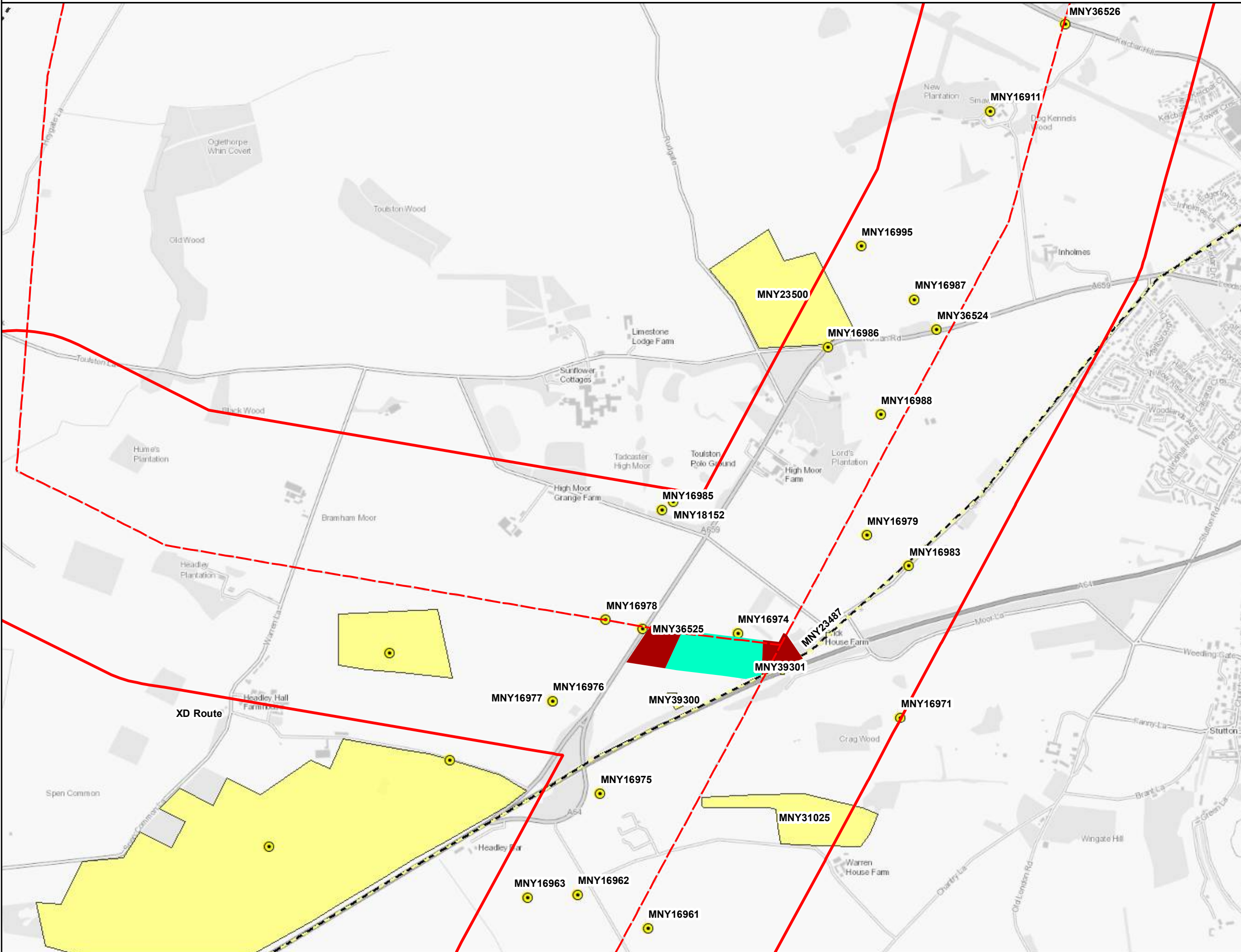
Scale	Sheet Size	Sheet	Issue
1:13,000	A3	SHEET 14 OF 20	2



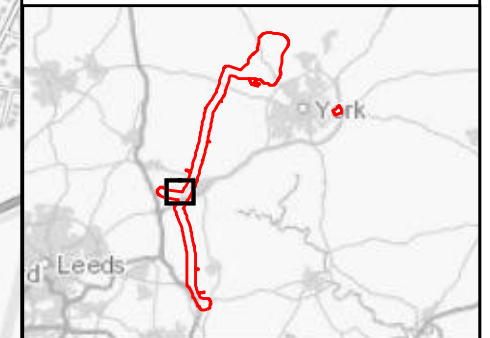
HISTORIC ENVIRONMENT RECORD DATA WITHIN STUDY AREA

Legend

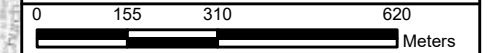
- Scoping red line boundary
- Existing 275kV overhead line
- Proposed Cable Sealing End Compound Siting Area
- Proposed Associated Infrastructure
- LVIA study area
- HER point
- HER line
- HER polygon



Notes
 This drawing is scaled at paper size A3, therefore any prints taken at smaller sizes will affect accuracy of the measurement units and should not be scaled against.



Coordinate System: British National Grid
 Sheet X Centroid Coordinate: 445,771.53 Sheet Y Centroid Coordinate: 442,309.52



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Issue	Date	Remarks	Drawn	Checked	Approved
2	MAR 21		COLLJ	DIMMR	CHADC

Title
 SCOPING REPORT
 CHAPTER 6: HISTORIC ENVIRONMENT
 HISTORIC ENVIRONMENT RECORD
 DATA WITHIN THE STUDY AREA









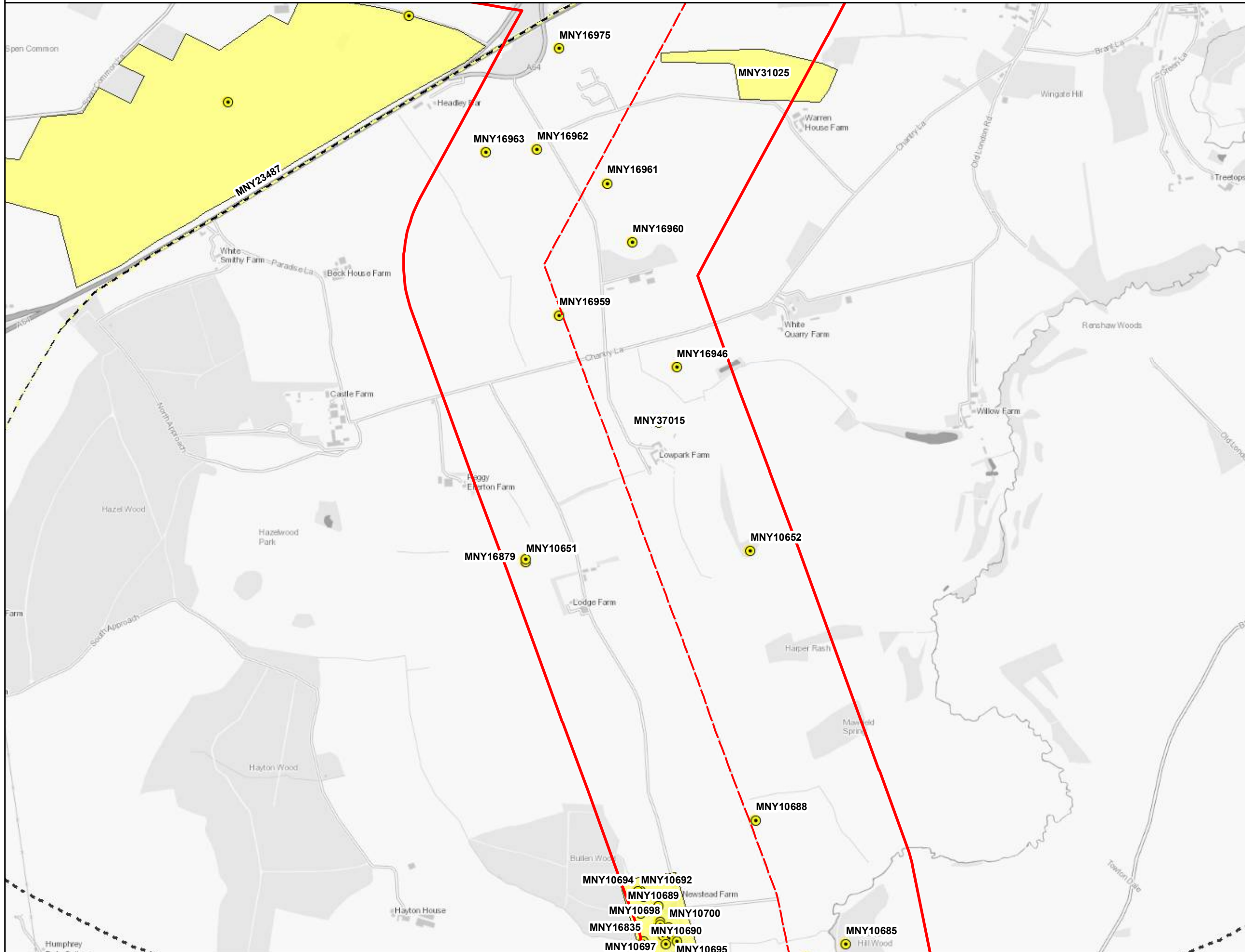
Figure Number	FIGURE 6.2		
Drawing Reference	806503-WOOD-0024		
Scale	Sheet Size	Sheet	Issue
1:13,000	A3	SHEET 15 OF 20	2



HISTORIC ENVIRONMENT RECORD DATA WITHIN STUDY AREA

Legend

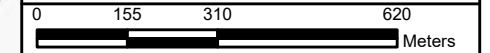
-  Scoping red line boundary
-  Existing 275kV overhead line
-  LVIA study area
-  HER point
-  HER line
-  HER polygon



Notes
 This drawing is scaled at paper size A3, therefore any prints taken at smaller sizes will affect accuracy of the measurement units and should not be scaled against.



Coordinate System: British National Grid
 Sheet X Centroid Coordinate: 445,930.28 Sheet Y Centroid Coordinate: 439,657.06




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Issue	Date	Remarks	Drawn	Checked	Approved
2	MAR 21		COLLJ	DIMMR	CHADC

Title

SCOPING REPORT
 CHAPTER 6: HISTORIC ENVIRONMENT
 HISTORIC ENVIRONMENT RECORD
 DATA WITHIN THE STUDY AREA

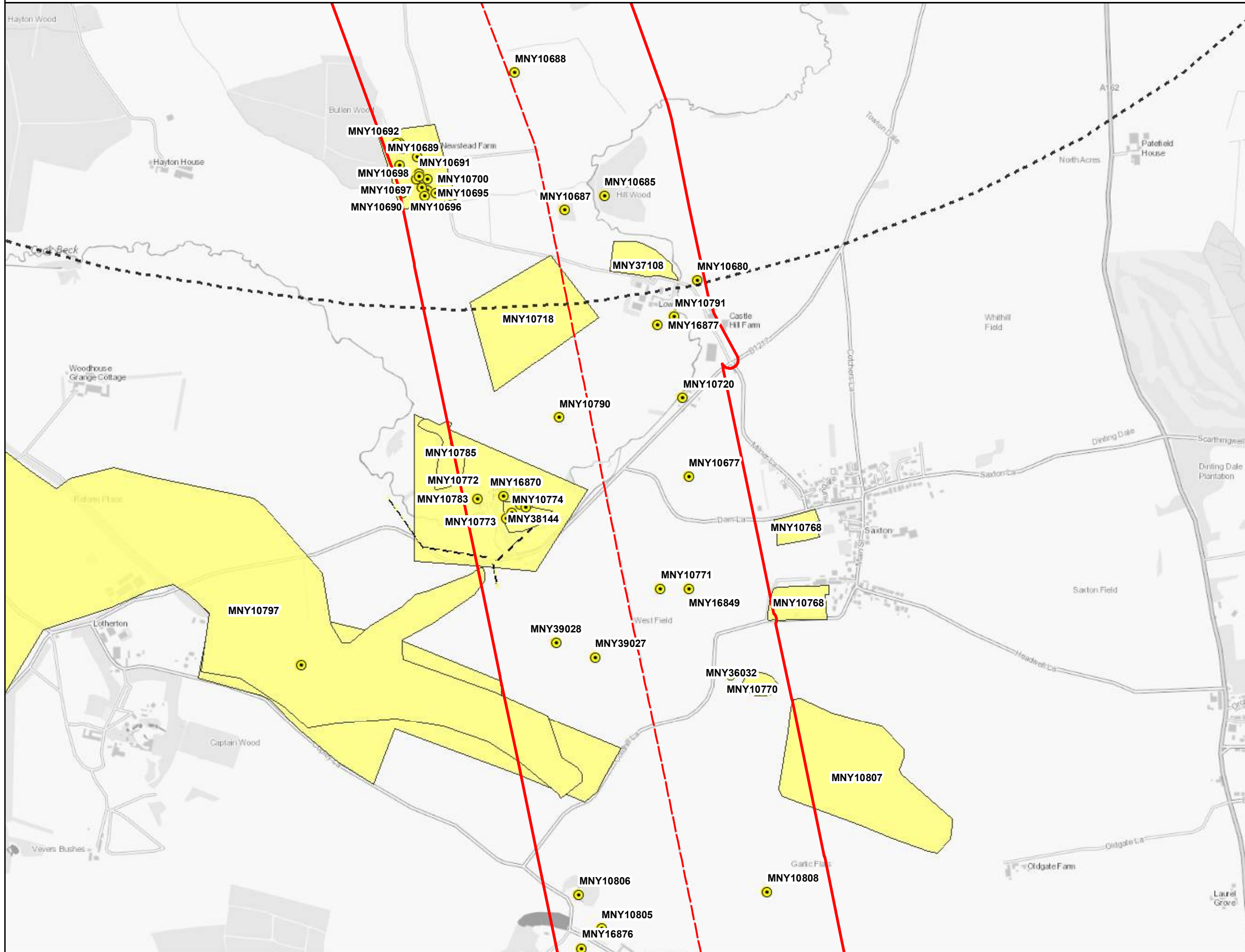
			
Figure Number	FIGURE 6.2		
Drawing Reference	806503-WOOD-0024		
Scale	Sheet Size	Sheet	Issue
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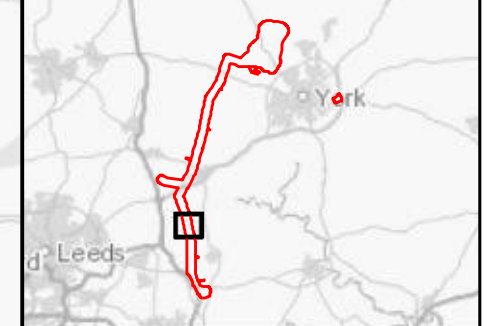
HISTORIC ENVIRONMENT RECORD DATA WITHIN STUDY AREA

Legend

- Scoping red line boundary
- Existing 275kV overhead line
- LVIA study area
- HER point
- HER line
- HER polygon



Notes
 This drawing is scaled at paper size A3, therefore any prints taken at smaller sizes will affect accuracy of the measurement units and should not be scaled against.



Coordinate System: British National Grid
 Sheet X Centroid Coordinate: 446,790.18 Sheet Y Centroid Coordinate: 436,991.38
 0 155 310 620
 Meters

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2	MAR 21		COLLJ	DIMMR	CHADC
Issue	Date	Remarks	Drawn	Checked	Approved

Title
 SCOPING REPORT
 CHAPTER 6: HISTORIC ENVIRONMENT
 HISTORIC ENVIRONMENT RECORD
 DATA WITHIN THE STUDY AREA



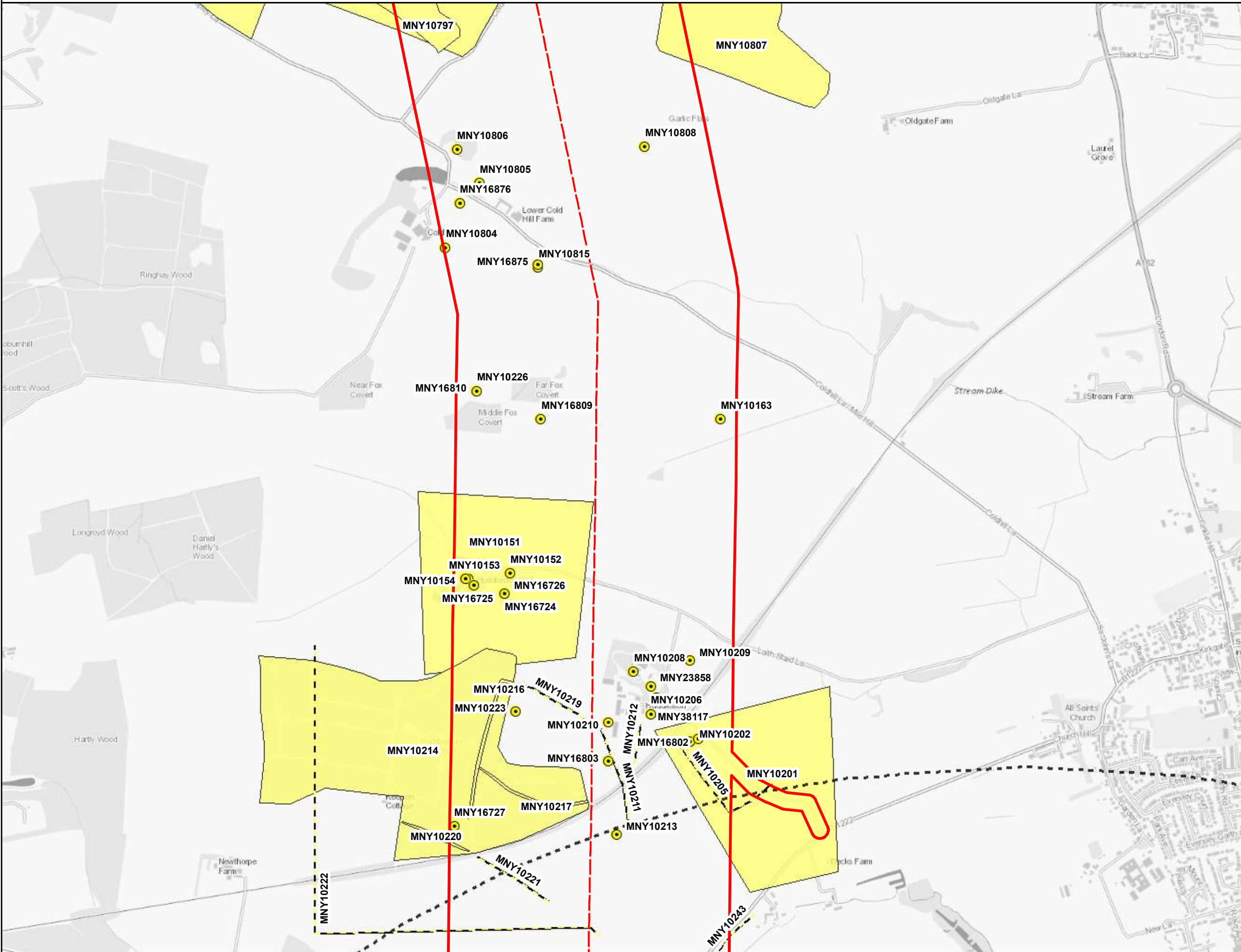
Figure Number	FIGURE 6.2				
Drawing Reference	806503-WOOD-0024				
Scale	Sheet Size	Sheet	Issue		
1:13,000	A3	SHEET 17 OF 20	2		



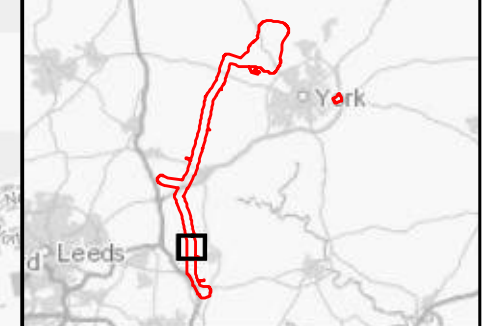
HISTORIC ENVIRONMENT RECORD DATA WITHIN STUDY AREA

Legend

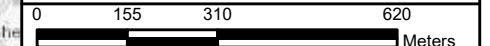
- Scoping red line boundary
- Existing 275kV overhead line
- LVIA study area
- HER point
- HER line
- HER polygon



Notes
 This drawing is scaled at paper size A3, therefore any prints taken at smaller sizes will affect accuracy of the measurement units and should not be scaled against.



Coordinate System: British National Grid
 Sheet X Centroid Coordinate: 447,212.37 Sheet Y Centroid Coordinate: 434,336.55



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Issue	Date	Remarks	Drawn	Checked	Approved
2	MAR 21		COLLJ	DIMMR	CHADC

Title
 SCOPING REPORT
 CHAPTER 6: HISTORIC ENVIRONMENT
 HISTORIC ENVIRONMENT RECORD
 DATA WITHIN THE STUDY AREA

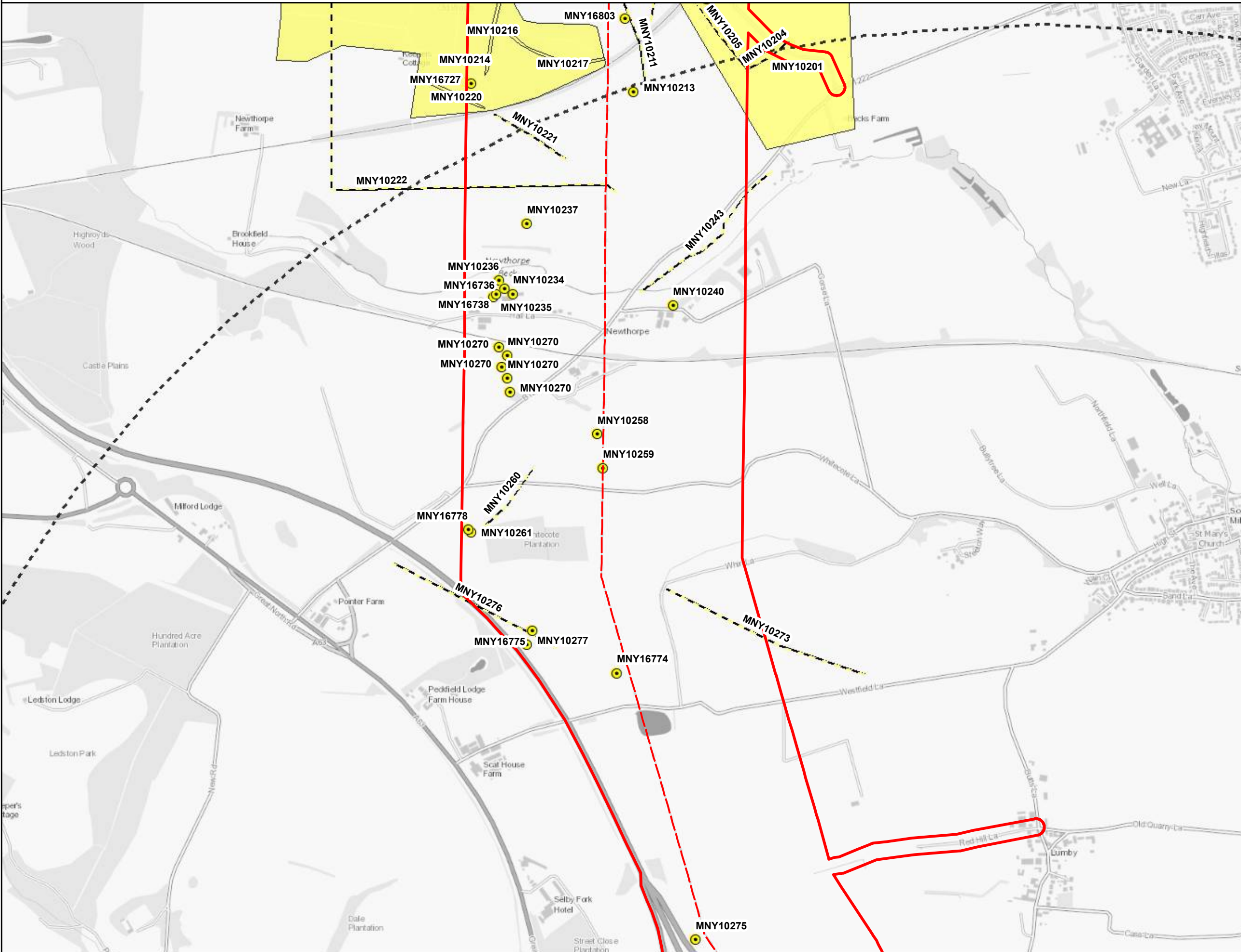
Figure Number		FIGURE 6.2	
Drawing Reference		806503-WOOD-0024	
Scale	Sheet Size	Sheet	Issue
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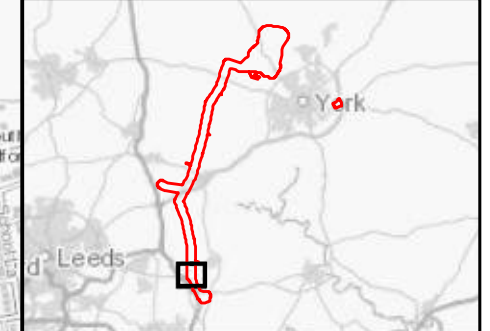
HISTORIC ENVIRONMENT RECORD DATA WITHIN STUDY AREA

Legend

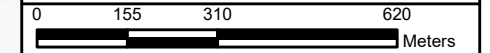
- Scoping red line boundary
- Existing 275kV overhead line
- LVIA study area
- HER point
- HER line
- HER polygon



Notes
 This drawing is scaled at paper size A3, therefore any prints taken at smaller sizes will affect accuracy of the measurement units and should not be scaled against.



Coordinate System: British National Grid
 Sheet X Centroid Coordinate: 447,152.84 Sheet Y Centroid Coordinate: 431,690.71



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2	MAR 21		COLLJ	DIMMR	CHADC
Issue	Date	Remarks	Drawn	Checked	Approved

Title
 SCOPING REPORT
 CHAPTER 6: HISTORIC ENVIRONMENT
 HISTORIC ENVIRONMENT RECORD
 DATA WITHIN THE STUDY AREA

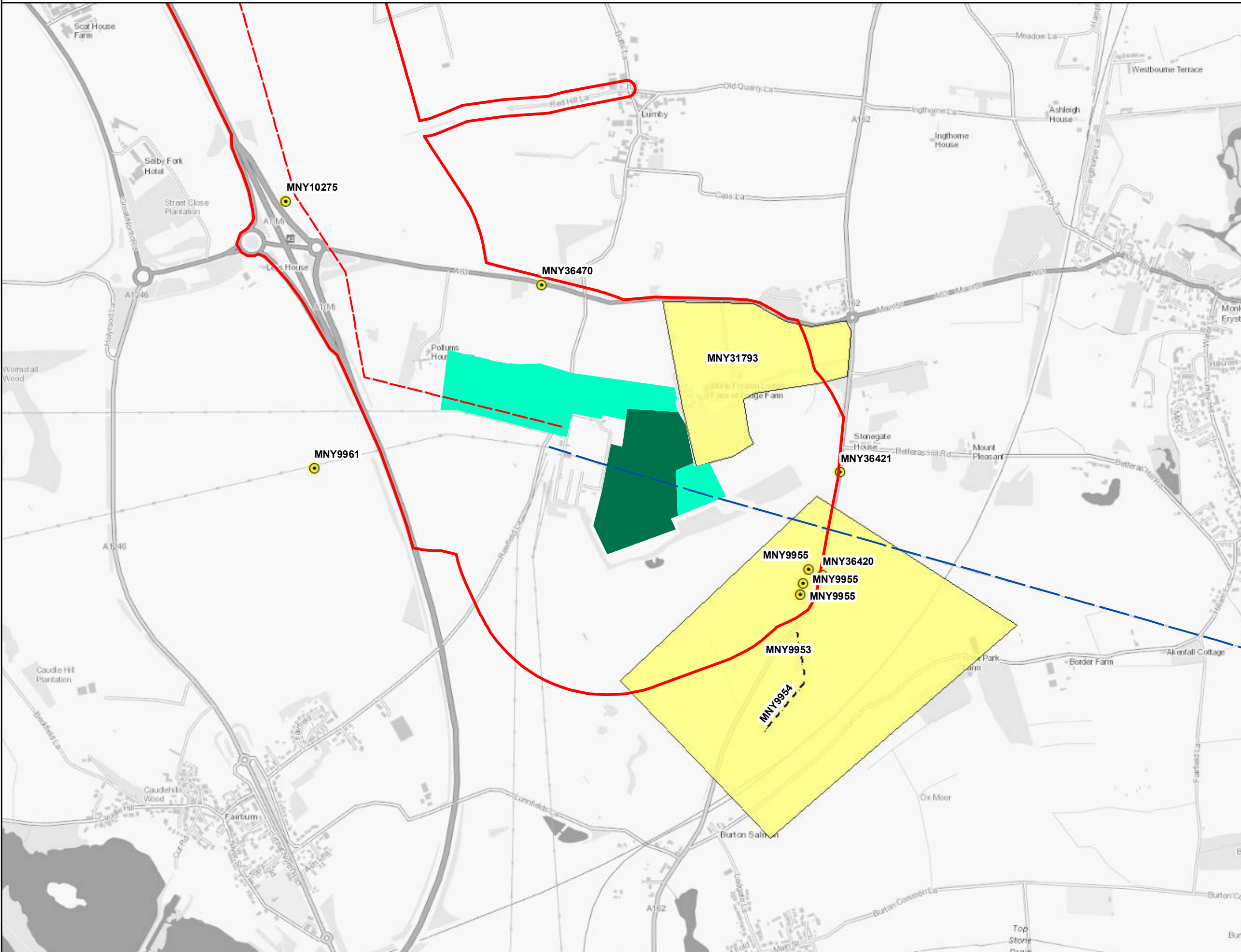
Figure Number	FIGURE 6.2		
Drawing Reference	806503-WOOD-0024		
Scale	Sheet Size	Sheet	Issue
1:13,000	A3	SHEET 19 OF 20	2



HISTORIC ENVIRONMENT RECORD DATA WITHIN STUDY AREA

Legend

- Scoping red line boundary
- Existing 275kV overhead line
- Existing 400kV overhead line
- Proposed Substation Siting Area
- Proposed Associated Infrastructure
- LVIA study area
- HER point
- HER line
- HER polygon



Notes
 This drawing is scaled at paper size A3, therefore any prints taken at smaller sizes will affect accuracy of the measurement units and should not be scaled against.



Coordinate System: British National Grid
 Sheet X Centroid Coordinate: 448,610.69 Sheet Y Centroid Coordinate: 429,060.75
 0 155 310 620
 Meters

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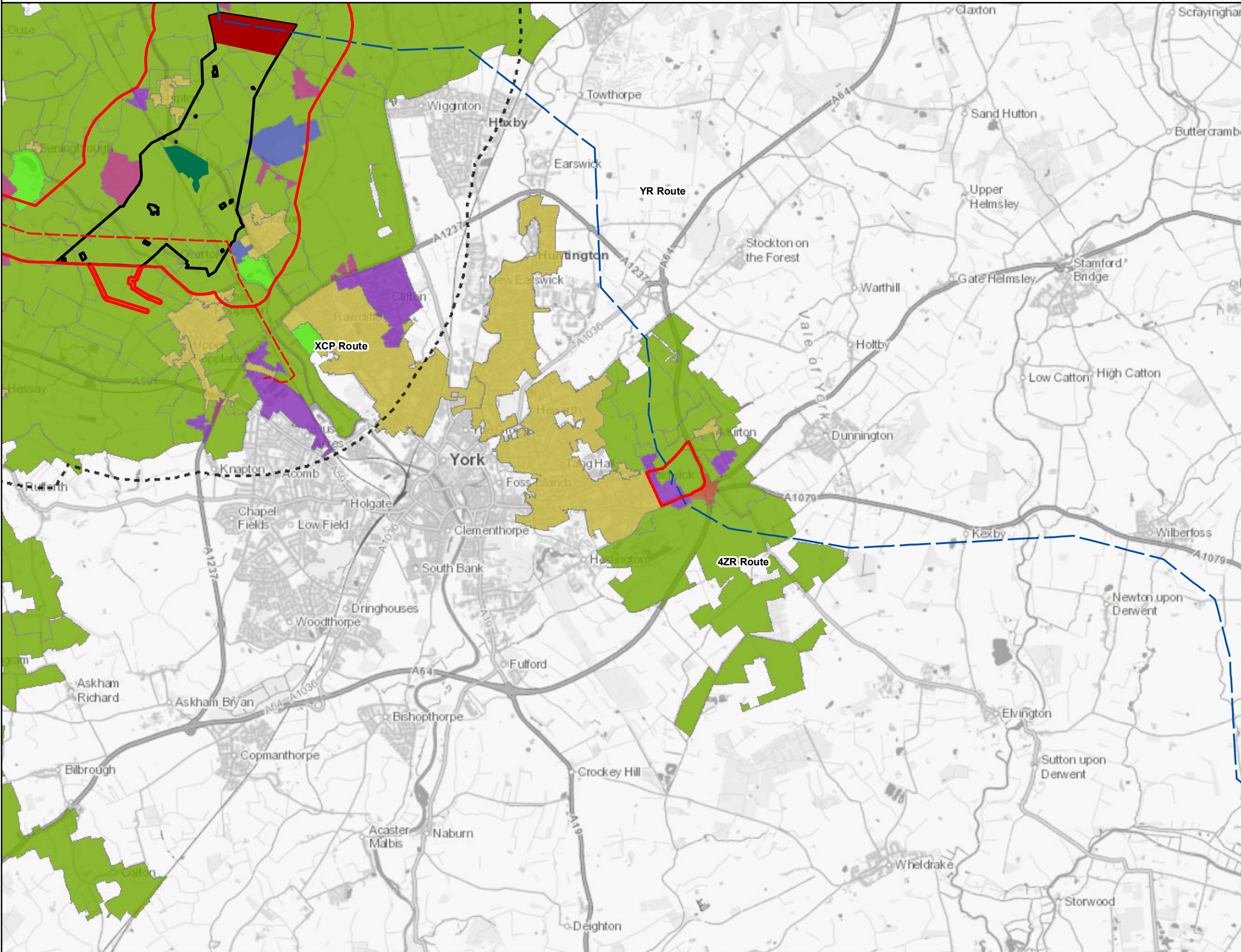
2	MAR 21		COLLJ	DIMMR	CHADC
Issue	Date	Remarks	Drawn	Checked	Approved

Title
 SCOPING REPORT
 CHAPTER 6: HISTORIC ENVIRONMENT
 HISTORIC ENVIRONMENT RECORD
 DATA WITHIN THE STUDY AREA

Figure Number	FIGURE 6.2		
Drawing Reference	806503-WOOD-0024		
Scale	Sheet Size	Sheet	Issue
1:13,000	A3	SHEET 20 OF 20	2



HISTORIC LANDSCAPE CHARACTER WITHIN STUDY AREA



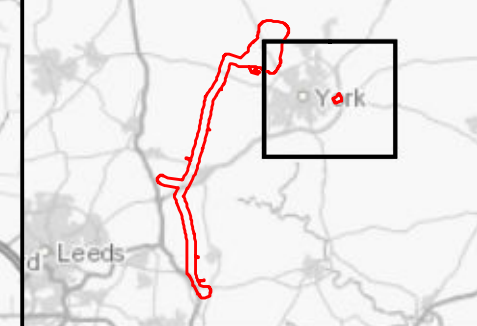
Legend

- Scoping red line boundary
- Existing 275kV overhead line
- Existing 400kV overhead line
- New 400kV and 275kV overhead line corridor
- Proposed Substation Siting Area
- Proposed Cable Sealing End Compound Siting Area
- LVIA study area

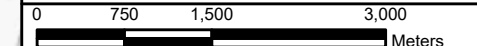
Historic Landscape Character

- Communications
- Designed landscape
- Enclosed land
- Industrial
- Recreational
- Settlement
- Woodland

Notes
This drawing is scaled at paper size A3, therefore any prints taken at smaller sizes will affect accuracy of the measurement units and should not be scaled against.



Coordinate System: British National Grid
Sheet X Centroid Coordinate: 463,469.65 Sheet Y Centroid Coordinate: 451,835.85



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Issue	Date	Remarks	Drawn	Checked	Approved
2	MAR 21		COLLJ	DIMMR	CHADC

Title

**SCOPING REPORT
CHAPTER 6: HISTORIC ENVIRONMENT
HISTORIC LANDSCAPE CHARACTER
WITHIN THE STUDY AREA**

nationalgrid

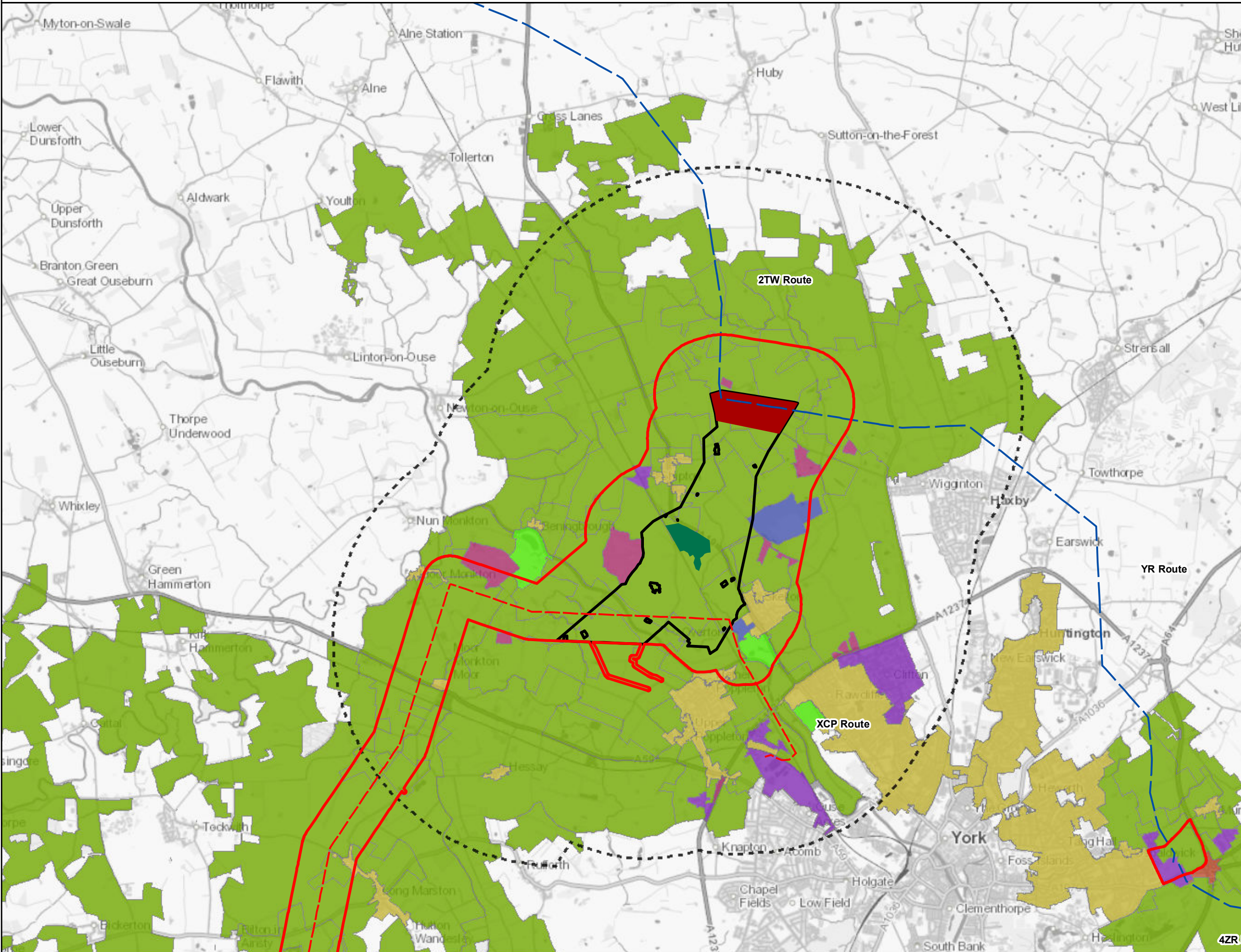
Figure Number: **FIGURE 6.3**

Drawing Reference: **806503-WOOD-0025**

Scale	Sheet Size	Sheet	Issue
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HISTORIC LANDSCAPE CHARACTER WITHIN STUDY AREA



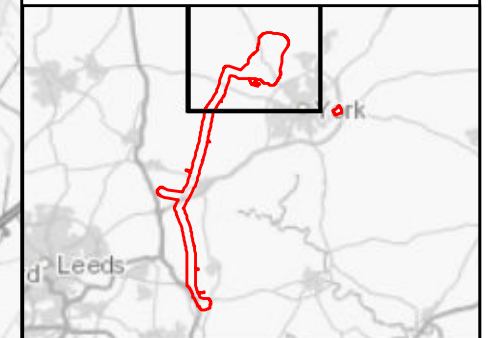
Legend

- Scoping red line boundary
- Existing 275kV overhead line
- Existing 400kV overhead line
- New 400kV and 275kV overhead line corridor
- Proposed Substation Siting Area
- Proposed Cable Sealing End Compound Siting Area
- LVIA study area

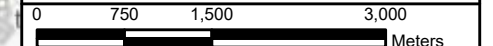
Historic Landscape Character

- Communications
- Designed landscape
- Enclosed land
- Industrial
- Recreational
- Settlement
- Woodland

Notes
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Coordinate System: British National Grid
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2	MAR 21		COLLJ	DIMMR	CHADC
Issue	Date	Remarks	Drawn	Checked	Approved












Title
 SCOPING REPORT
 CHAPTER 6: HISTORIC ENVIRONMENT
 HISTORIC LANDSCAPE CHARACTER
 WITHIN THE STUDY AREA

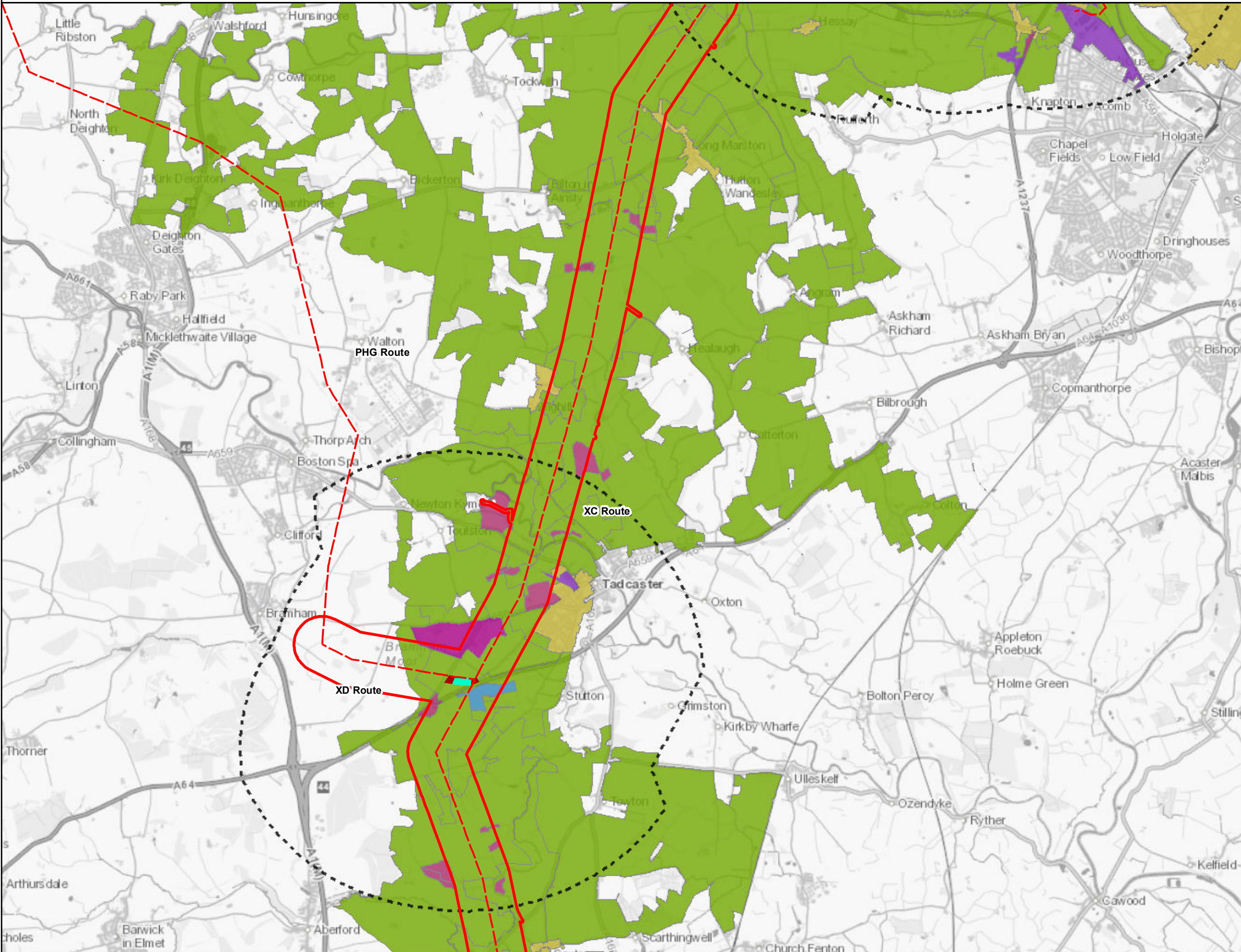
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Figure Number	FIGURE 6.3		
Drawing Reference	806503-WOOD-0025		
Scale	Sheet Size	Sheet	Issue
1:65,000	A3	SHEET 2 OF 4	2



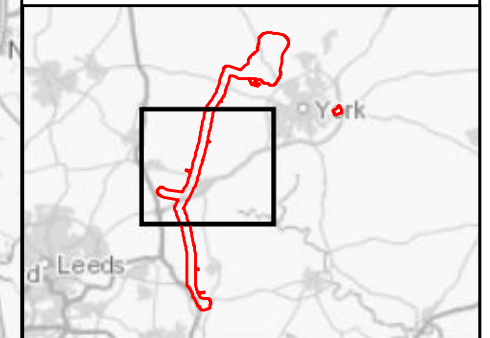
HISTORIC LANDSCAPE CHARACTER WITHIN STUDY AREA

Legend

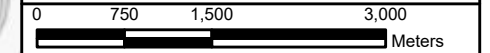
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-  Existing 275kV overhead line
-  Proposed Cable Sealing End Compound Siting Area
-  Proposed Associated Infrastructure
-  LVIA study area
- Historic Landscape Character**
-  Enclosed land
-  Extractive
-  Industrial
-  Institutional
-  Settlement
-  Woodland



Notes
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2	MAR 21		COLLJ	DIMMR	CHADC

Title
 SCOPING REPORT
 CHAPTER 6: HISTORIC ENVIRONMENT
 HISTORIC LANDSCAPE CHARACTER
 WITHIN THE STUDY AREA



Figure Number
 FIGURE 6.3

Drawing Reference
 806503-WOOD-0025

Scale	Sheet Size	Sheet	Issue
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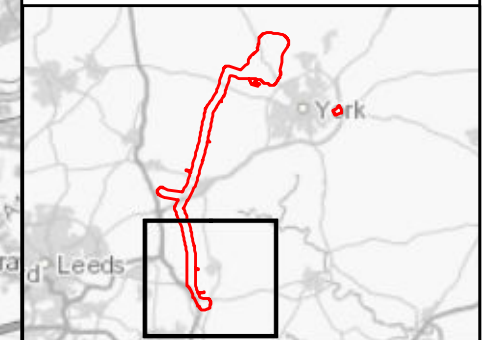
HISTORIC LANDSCAPE CHARACTER WITHIN STUDY AREA

Legend

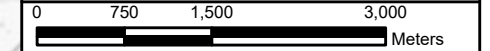
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- Existing 275kV overhead line
- Existing 400kV overhead line
- Proposed Substation Siting Area
- Proposed Associated Infrastructure
- LVIA study area
- Historic Landscape Character**
- Communications
- Enclosed land
- Settlement
- Woodland

Notes

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Issue	Date	Remarks	Drawn	Checked	Approved

Title

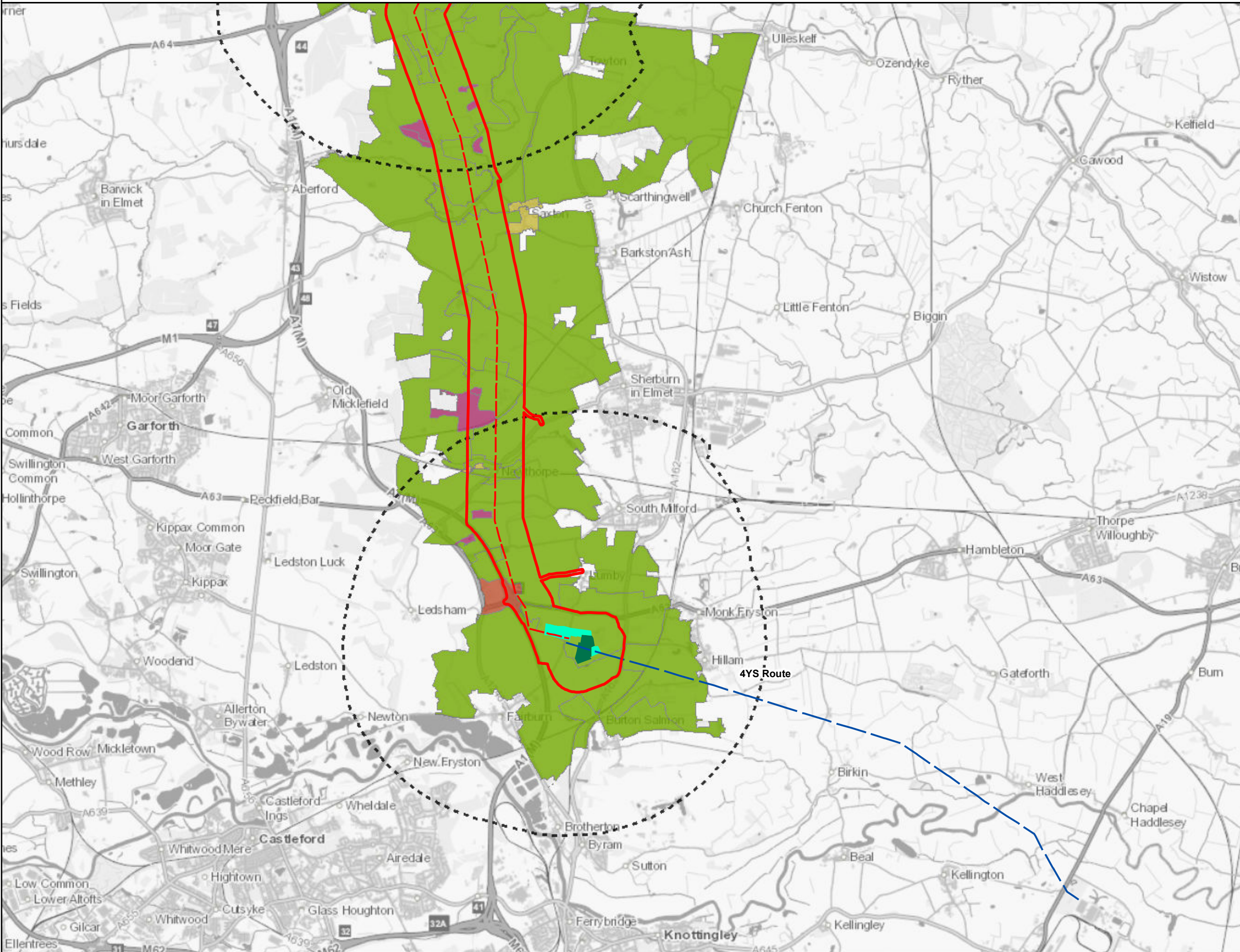
**SCOPING REPORT
 CHAPTER 6: HISTORIC ENVIRONMENT
 HISTORIC LANDSCAPE CHARACTER
 WITHIN THE STUDY AREA**



Figure Number: FIGURE 6.3

Drawing Reference: 806503-WOOD-0025

Scale	Sheet Size	Sheet	Issue
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7. Biodiversity

7. Biodiversity

7.1 Introduction

7.1.1 This chapter sets out the proposed approach to the assessment of the potentially significant effects⁴⁹ resulting from the Project on biodiversity. The assessment will consider terrestrial and freshwater ecological receptors, as well as ornithological receptors, hereafter referred to as ecological features⁵⁰. This chapter should be read in conjunction with Chapter 2: The Project, and given the interface with other aspects of the Project, considered alongside:

- Chapter 8: Arboriculture;
- Chapter 9: Hydrology;
- Chapter 10: Geology and Hydrogeology;
- Chapter 11: Agriculture and Soils;
- Chapter 12: Traffic and Transport;
- Chapter 13: Air Quality; and
- Chapter 14: Noise and Vibration.

7.2 Relevant legislation, planning policy and technical guidance

Planning Policy

7.2.1 A summary of the planning policies at both a national and local level relevant to the Project is given in **Table 7.1**.

Table 7.1 Planning policy relevant to biodiversity

Policy reference	Policy context	Section considered
National Policy		
Overarching National Policy Statement	Section 5.3 states that the applicant should ensure the ES (Environmental Statement) clearly sets out any effects on internationally, nationally and locally designated sites of ecological importance, on protected species and on habitats	Sections 7.2 and 7.3

⁴⁹ Other technical chapters use “likely significant effects” and “potential likely significant effects” to accord with the EIA Regulations 2017. Within the Biodiversity chapter the term “potentially significant effects” is used as it accords with Chartered Institute of Ecology and Environmental Management (CIEEM 2018, updated 2019) to describe effects that have the potential to be significant prior to their assessment (i.e. until the end of the “scope of the assessment”), and the term “likely significant effects”, only once assessment has determined that they would indeed be significant. This is not to be confused with Likely Significant Effects (LSEs) when used in the context of the Habitats Regulations Assessment (see Section XX).

⁵⁰ ‘Ecological feature’ is used within CIEEM guidance (2018, updated 2019) in place of the term ‘terrestrial ecology receptor’. The term ecological feature is used throughout this chapter.

Policy reference	Policy context	Section considered
(NPS) for Energy (EN-1)	<p>and other species identified as being of principal importance for the conservation of biodiversity.</p> <p><i>International Sites</i>: most important sites for biodiversity identified through international conventions and European Directives. The Habitats Regulations provide statutory protection for these sites. Listed Ramsar sites should also receive the same protection.</p> <p><i>Sites of Special Scientific Interest (SSSIs)</i>: for development considered likely to have an adverse effect on an SSSI consent should not normally be granted. For adverse effects after mitigation, consent should only be made where the benefits clearly outweigh the impact on features of the site and the national network of SSSIs.</p> <p><i>Regional / Local sites</i>: given the need for new infrastructure, these should not be used in themselves to refuse consent.</p> <p><i>Ancient woodland</i>: consent should not be granted that results in loss/damage unless outweighed by the benefits. The loss of aged/veteran trees outside of areas of ancient woodland should be avoided and where affected all alternatives considered prior.</p> <p><i>Species of Principal Importance (SPI) and Habitats of Principal Importance (HPI)</i>: important for the conservation of biodiversity in England and therefore should be protected from adverse effects.</p>	
National Policy Statement for Electricity Networks Infrastructure (EN-5)	<p>Section 2.7 states that consideration needs to be made of the potential for large birds to collide with overhead lines during flight or be electrocuted when perching, both with the potential to cause injury/death. If there is a risk of this occurring, measures should be implemented to avoid or minimise this.</p>	Sections 7.2 and 7.3
National Planning Framework (NPPF)	<p>NPPF requires planning policies and decisions to contribute to and enhance the natural and local environment by protecting and enhancing sites of biodiversity in proportion with statutory status or identified quality; recognising wider benefits from natural capital and ecosystem services; and minimising impacts on and providing net gains for biodiversity (paragraph 170).</p> <p>Plans should protect and enhance biodiversity interest, including green corridors and designated sites as well as promoting conservation, restoration and enhancement including HPI and SPI, as well as securable net gain (paragraph 174).</p> <p>If significant harm to biodiversity will result from a development that cannot be avoided, mitigated, or compensated for, permission will be refused unless the benefits of development outweigh impacts, or exceptional reasons and compensation apply (paragraph 175).</p>	Sections 7.2 and 7.3

Policy reference	Policy context	Section considered
	<p>Potential, possible, listed or proposed sites, and those that are an identified compensatory measure, are to be protected as the equivalent designation (paragraph 176).</p> <p>Potential impacts on sites requiring appropriate assessment will be considered ahead of the presumption for sustainable development (paragraph 177).</p>	
Development Plan Policies		
Harrogate Local Plan, 2020	<p><i>Policy NE3: Protecting the Natural Environment</i> states proposals that protect/ enhance and provide net gains in biodiversity will be supported. To be achieved by considering proposals affecting designated sites within the context of their statutory protection and permitting development that impacts local sites only where alternate sites are considered and harm can be avoided, mitigated or compensated for. Only permitting proposals impacting HPI/SPI/Harrogate priority habitats/species only if harm can be avoided or mitigated and refusing permission for development resulting in the loss or deterioration of irreplaceable habitats unless the need for development clearly outweigh the loss. Lastly proposals for developments should avoid net loss of biodiversity and provide net gain increasing connectivity of habitats and restoring HPI/other natural habitats if possible.</p> <p>Furthermore paragraph 9.25 notes that permission should be refused that likely adversely effects biodiversity unless the need for development clearly outweighs the loss. If avoidance/ mitigation is not possible on-site then off-site compensation may be required.</p>	Sections 7.2 and 7.3
Hambleton Local Development Framework: Core Strategy Development Plan Document 2007 (DPD); Development Policies DPD 2008,	<p><i>Policy CP16 Protecting And Enhancing Natural And Man-Made Assets</i> stipulates that development that harms biodiversity assets will not be supported but support will be given to development that improves the natural environment.</p> <p><i>Policy DP31 Protecting natural resources: biodiversity/nature conservation</i> states permission will not be given for development causing harm to sites/habitats of nature conservation or protected/notable species. Support will be given to habitat enhancement specifically Local Biodiversity Action Plan habitats. Furthermore, sites designated under national legislation will be protected while locally important sites will be protected and enhanced as appropriate to their local importance.</p>	Sections 7.2 and 7.3
Hambleton draft Local Plan –at	<p>Policy E3 The Natural Environment shows how the council will consider biodiversity and development in that any development that may impact a SINC, or a non-designated site or feature of</p>	Sections 7.2 and 7.3

Policy reference	Policy context	Section considered
examination stage	<p>biodiversity interest which will only be supported where the mitigation hierarchy is followed and the need outweighs the loss of any affected biodiversity features.</p> <p>Development that impacts an international site will only be supported where there will be no likely significant effects and no adverse effects on the integrity of the site unless there are no alternatives and it is justified by an 'imperative reasons of overriding public interest' (IROPI) assessment.</p>	
York Local Plan, 2005 (saved policies)	<p><i>Policy NE1: Trees, Woodlands and Hedgerows:</i> trees, woodlands and hedgerows which are of value will be protected;</p> <p><i>Policy NE2: River and Stream Corridors, Ponds and Wetland Habitats:</i> development impacting river and stream corridors, ponds or wetland habitats will not be permitted;</p> <p><i>Policy NE4a: International and National Nature Conservation Sites and Policy NE5a: Local Nature Conservation Sites:</i> development adversely affecting a designated site will only be permitted where need outweighs the loss;</p> <p><i>Policy NE5b: Avoidance of, Mitigation and Compensation for Harm to Designated Nature Conservation Sites:</i> if development is allowed, compensation is a last resort and there needs to be a net gain to the overall nature conservation interest;</p> <p><i>NE6: Species Protected by Law:</i> development having an effect on protected species/habitats will be expected to undertake an appropriate assessment demonstrating mitigation measures;</p> <p><i>Policy NE7: Habitat Protection and Creation:</i> development should retain natural habitats and, where possible, enhance these; and</p> <p><i>Policy NE8: Green Corridors:</i> permission will not be granted where green corridors will be destroyed.</p>	Sections 7.2 and 7.3
York draft Local Plan - at examination stage	<p><i>Policy GI2 : Biodiversity and Access to Nature.</i> Any development should avoid loss/harm to SINCS unless there is a need for the development that outweighs the loss. The mitigation hierarchy should be considered for loss and developments should where possible result in net gain to, and help to improve, biodiversity.</p> <p><i>Policy GI3: Green Infrastructure Network.</i> In order to protect and enhance green infrastructure, development should create/enhance 'stepping stones' and new green corridors improving connectivity between existing biodiversity sites and other open space.</p> <p><i>Policy GI4 : Trees and Hedgerows.</i> Development will be supported where it protects overall tree cover. In circumstances where the benefits outweigh retention of significant trees and</p>	Sections 7.2 and 7.3

Policy reference	Policy context	Section considered
	there are no alternatives, mitigation/compensatory planting will be required.	
Made Upper Poppleton and Nether Poppleton Neighbourhood Plan, 2017	<i>Policy PNP 10: Protection of Wooded areas and hedgerows.</i> Protects woodland and hedgerows by not supporting removal.	Sections 7.2 and 7.3
Leeds Saved UDP 2001 and UDP Review 2006 policies	<i>Policy N8:</i> development should enhance/retain/replace any corridor. <i>Policy N50:</i> development will not be permitted which harms a designated wildlife site. <i>Policy N51:</i> design of developments should enhance biodiversity.	Sections 7.2 and 7.3
Leeds Natural Resources and Waste Local Plan (adopted January 2013 & revised September 2015)	<i>Policy LAND 2: Development and Trees.</i> Any development (relating to natural resources or waste) should retain trees and introduce new tree planting. Where trees are removed, replacement should be provided on a minimum three for one basis.	Sections 7.2 and 7.3
Leeds Core Strategy (adopted November 2014 – Updated 2019)	<i>Policy G2: Creation Of New Tree Cover.</i> Removal of ancient woodland or veteran trees will be resisted. <i>Policy G8: Protection Of Important Species And Habitats.</i> Development will not be permitted which harms designated sites, protected species, HPI, SPI or WY BAP unless the need outweighs the loss and impacts are minimised via protection, mitigation, enhancement and compensatory measures. <i>Policy G9: Biodiversity Improvements.</i> Requirement to demonstrate a net gain for biodiversity and there is no adverse impact on the Leeds Habitat Network.	Sections 7.2 and 7.3
Selby District Local Plan (2005) (saved policies)	Development which would harm a Local Nature Reserve (LNR) or SINC (<i>Policy ENV9</i>), ancient woodland (<i>Policy ENV11</i>), river, stream and canal corridors (<i>Policy ENV12</i>) or wildlife value of a pond (<i>Policy ENV13</i>) will not be permitted unless the need outweighs the biodiversity value.	Sections 7.2 and 7.3
Selby District Core Strategy Local Plan (2013)	<i>Policy SP18: Protecting and Enhancing the Environment:</i> quality of the natural environment will be sustained by safeguarding designated sites from inappropriate development and ensuring development retain and enhance biodiversity features and provide mitigation or as a last resort are	Sections 7.2 and 7.3

Policy reference	Policy context	Section considered
	compensated for as well as seeking to produce a net gain in biodiversity.	
Selby Draft Local Plan - Preferred options January 2021	<i>Preferred Approach NE4: Protecting Designated Sites and Species.</i> Sites/species will be protected by supporting proposals that protect, restore and enhance features of ecological interest. <i>Preferred Approach NE5 - Biodiversity Net Gain for Ecological Networks</i> which will support proposals that deliver at least a 10% net gain in biodiversity for ecological networks.	Sections 7.2 and 7.3

Legislation

7.2.2 A summary of the legislation relevant to the biodiversity considered in the assessment of the effects on ecological features is given in **Table 7.2**.

Table 7.2 Legislation relevant to biodiversity

Legislation	Legislative context	Section considered
Natural Environment and Rural Communities (NERC) Act 2006 (as amended)	Section 40 states “every public authority must, in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity.” The NERC Act also places a duty on the Secretary of State to maintain lists of species and habitats which are regarded as being of principal importance for the conservation of biodiversity in England. These Habitats of Principal Importance (HPI) and Species of Principal Importance (SPI) are used to guide decision makers in implementing their duties to have regard to the conservation of biodiversity in England when carrying out their normal functions.	Sections 7.2 and 7.3
The Conservation of Habitats and Species Regulations 2017	The Conservation of Habitats and Species Regulations 2017 transpose Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (“the Habitats Directive) and elements of Directive 2009/147/EC on the conservation of wild birds (“the Birds Directive”) in England. The objective is to protect biodiversity through the conservation of natural habitats and species of wild fauna and flora. Regulations provide for the designation and protection of 'European sites', the protection of 'European protected species', and the adaptation of planning and other controls for the protection of European Sites. Under the Regulations,	Sections 7.2 and 7.3

Legislation	Legislative context	Section considered
	<p>competent authorities have a general duty to have regard to the EC Habitats Directive.</p> <p>Provides legal protection of animals listed on schedule two and plants on schedule five of the legislation.</p>	
Wildlife and Countryside Act 1981 (as amended)	<p>The Wildlife and Countryside Act 1981 (as amended) is the principle mechanism for the legislative protection of wildlife in England. This legislation is the means by which the Convention on the Conservation of European Wildlife and Natural Habitats (the 'Bern Convention') and the European Union Directives on the Conservation of Wild Birds (79/409/EEC) and Natural Habitats and Wild Fauna and Flora (92/43/FFC) are implemented in England.</p> <p>Affords various levels of protection to species of plants and animals listed on Schedules one, five, six and eight of the act, with Schedule nine listing species which it is an offence to allow to spread in the wild.</p>	Sections 7.2 and 7.3
Badger Act 1992	Provides legal protection for badgers by making it illegal to kill or injure a badger, disturb a badger while occupying a sett, or to damage or obstruct a badger sett.	Sections 7.2 and 7.3
Countryside and Rights of Way Act 2000 ('the CRoW Act')	This CRoW Act, amongst other elements, details further measures for the management and protection of Sites of Special Scientific Interest (SSSI) and strengthens wildlife enforcement legislation.	Sections 7.2 and 7.3
Hedgerow Regulations 1997	Legislation that protects 'important' hedgerows from damage or destruction.	Sections 7.2 and 7.3

Technical Guidance

7.2.3 A summary of the relevant technical guidance is given in **Table 7.3**:

Table 7.3 Technical guidance relevant to Biodiversity

Technical Guidance Document	Context	Section considered
Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal. Second	Provides guidance that is relevant to the assessment of potentially significant effects on biodiversity.	Section 7.6 (Assessment Methodology)

Technical Guidance Document	Context	Section considered
Edition v1.1 (2018 updated 2019) ⁵¹		
Guidelines for Baseline Ecological Assessment (1995) ⁵²	Provides guidance that is relevant to the assessment of potentially significant effects on biodiversity.	Section 7.6 (Assessment Methodology)
Guidelines for Preliminary Ecological Appraisal: Second Edition (2017) ⁵³	Provides guidance that is relevant to the assessment of potentially significant effects on biodiversity.	Section 7.6 (Assessment Methodology)

7.2.4 Technical guidance for features or groups of features that will be used during further surveys inform the assessment is noted in **Table 7.3**.

7.3 Consultation and engagement

7.3.1 In respect of biodiversity, key consultees have been identified and focussed engagement (through both informal and formal consultation) will be undertaken and recorded throughout the pre-application stages of the project. Consultees identified to date are:

- Natural England (NE);
- County Ecologists: North Yorkshire County Ecologist and West Yorkshire Ecology Service (WYES);
- Environment Agency (EA);
- Yorkshire Wildlife Trust (YWT); and
- RSPB.

7.3.2 During the Yorkshire Green Briefing #2 conference call (23 February 2021) it was confirmed that there was no requirement for bird flight activity surveys to be scoped into the survey schedule, and that the proposed approach to the ornithological survey scope was acceptable.

7.3.3 Engagement with key consultees will entail a suite of scheduled meetings with statutory and non-statutory consultees, which will be undertaken in parallel with the ongoing scoping, the biodiversity surveys and assessment work that will be carried out in advance of submission of the DCO application. The aim of consultation will be to seek agreement on the proposed Study Area, ecological features to be included in the assessment, proposed survey extent and methodology and the requirement for Habitats Regulation Assessment (HRA), in addition to seeking local knowledge to complement information and species/habitat records obtained during the desk study. Any variations to the agreed survey scope will be discussed with the key consultees (for example, if

⁵¹ Chartered Institute of Ecology and Environmental Management (CIEEM) (2018, updated 2019). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal. Second Edition v1.1. CIEEM, Winchester

⁵² IEA (1995). Institute of Environmental Assessment: Guidelines for Baseline Ecological Assessment. E & FN Spon, London. r

⁵³ CIEEM (2017). Guidelines for Preliminary Ecological Appraisal: Second Edition. CIEEM, Winchester

and when important ecological features are identified during the Extended Phase 1 Habitat Survey).

- 7.3.4 Local or specialist groups will be contacted should the assessment process identify a need to engage further detailed local knowledge, or if requested during the consultation process.

7.4 Baseline conditions

Study Area

- 7.4.1 The Study Area encompasses the area over which all desk-based data was gathered to inform the biodiversity scoping assessment presented in this section. Due to the presence of multiple ecological features and many potential effects, the level and type of data collection varies across the Study Area. The “Study Area” comprises:
- land within the Scoping red line boundary, (as shown on **Figure 7.1**);
 - the desk study areas (known as “areas of search”) for sites designated for their nature conservation interest at the international, European, national and local levels (as described in Table 7.7);
 - the area of search for legally protected and notable ecological features; and
 - the area of search for any legally controlled species.
- 7.4.2 The extent of the desk study areas of search (see ‘Data gathering methodology’) were determined based on best practice guidance (Table 7.7) and a high level overview of the types of ecological features present (see **Figure 7.1**), and the potential effects that could occur). The Study Area was defined on a precautionary basis to ensure that the Zones of Influence (ZOI) relevant to all ecological features were covered during baseline data collection activities. ZOIs are the areas within which a potentially significant effect associated with the Project may be identified for a particular ecological feature and vary from feature to feature.
- 7.4.3 Within the Scoping red line boundary consideration has been given to the indicative footprint of construction works, referred to as the ‘likely working areas’. These are located along the existing 275kV XC/XCP overhead line, at existing substations including the project components proposed around the existing Monk Fryston Substation, at the Tadcaster Area and the project components within the North-west of York Area including the graduated swathe as outlined in chapter 2 and shown on **Figures 2.2 and 2.3**.
- 7.4.4 The Study Area will be reviewed and amended in response to such matters as refinement of the Project design, the identification of additional impact pathways and where appropriate in response to feedback from consultation, to ensure that there is sufficient data on which to conduct the assessment. These refinements are expected to reduce the extent of the Study Area as the Project progresses, whilst still reflecting recognised good practice.

Data gathering methodology

- 7.4.5 To inform this scoping process, a desk study has been undertaken. The desk study (see **Figures 7.1 and 7.2**) considered all designated sites to 2km in respect of terrestrial

ecology, internationally and nationally important sites for bat interest to 10km, and for ornithological interests: nationally important sites to 10km and internationally important sites to 20km from the Scoping red line boundary. In addition, protected species and Species of Principal Importance (SPI) records (from the past ten years), Habitats of Principal Importance (HPI) and ancient woodland within 2km of the Scoping red line boundary (extended to 5km for bat roosts) were considered, along with other conservation-notable habitats and species within 2km e.g. species of conservation concern, Red Data Book species, Birds of Conservation Concern, and nationally rare and scarce species. European Protected Species (EPS) Mitigation Licences granted within 2km of the Scoping red line boundary (extended to 5km for bats) have also been included in the desk-based collation of baseline data.

- 7.4.6 The desk study included the examination of relevant Ordnance Survey maps and freely-available aerial photographs to identify the location of ponds and other waterbodies within 500m of likely working areas, substation siting areas, and CSEC siting areas (see **Figure 1.1** for the Project Components and **Figures 2.2** and **2.3** for the graduated swathes) in order that potential impacts on any local great crested newt populations can be considered.
- 7.4.7 A desk study carried out on behalf of National Grid by AECOM⁵⁴ presented breeding and wintering records obtained from a range of third parties that have been used to inform this scoping report.
- 7.4.8 No data is yet available from field surveys to inform the scoping report due to the early stage of the Project; however, terrestrial ecology and ornithology surveys are to be undertaken in 2021 and 2022.

Sources of data

- 7.4.9 Desk study data were obtained from the following sources:
- the Government's Multi Agency Geographic Information for the Countryside (MAGIC) website⁵⁵;
 - a review of aerial photographs using Google Earth;
 - UK Biodiversity Action Plan (UKBAP)⁵⁶ ;
 - North Yorkshire BAP and Leeds BAP;
 - North & East Yorkshire Ecological Data Centre (NEYEDC);
 - West Yorkshire Ecology Services (WYES);
 - Yorkshire Crayfish Distribution Maps (Environment Agency 2020);
 - XCP OHL Constraints Plan (Wood (formerly Amec Foster Wheeler), 2016);
 - The British Trust for Ornithology (BTO) Wetland Birds Survey (WeBS) - WeBS data was requested for Fairburn Ings Royal Society for the Protection of Birds (RSPB) Nature Reserve (Location Code 51003);

⁵⁴ National Grid (2020). Yorkshire GREEN Project – Wintering Bird Ornithological Desk Study and Survey Strategy

⁵⁵ www.magic.org.uk

⁵⁶ <http://ukbars.defra.gov.uk/plans/priority.asp>

- Yorkshire Red Kites⁵⁷;
- York Ornithological Club Report 2019; and
- Yorkshire Bird Report (Yorkshire Naturalists Union) 2015.

Current baseline

Designated Sites

7.4.10 The desk study completed to date has identified the following internationally and nationally designated sites within the Study Area outlined in **Table 7.4** and illustrated on (**Figure 7.1**). None of the sites identified fall within the Scoping red line boundary.

Table 7.4 Current baseline – statutory sites within Study Area

Site name	Designated feature summary	Distance and direction from the Scoping red line Boundary
Strensall Common SAC	Annex I habitats that are a primary reason for selection of this site are Northern Atlantic wet heaths with <i>Erica tetralix</i> and European dry heath.	~4.71km east
Lower Derwent Valley SPA and Ramsar	<p>SPA:</p> <p>ARTICLE 4.1 QUALIFICATION (79/409/EEC) Over winter the area regularly supports: Bewick's swan <i>Cygnus columbianus bewickii</i> (Western Siberia/North-eastern & North-western Europe) 0.7% of the GB population 5 year peak mean 1991/92-1995/96; Ruff <i>Philomachus pugnax</i> (Western Africa - wintering) 19% of the GB population 5 year peak mean 1991/92-1995/96; golden plover <i>pluvialis apricaria</i> [North-western Europe - breeding] 2.4% of the GB population 5 year peak mean 1991/92-1995/96</p> <p>ARTICLE 4.2 QUALIFICATION (79/409/EEC) During the breeding season the area regularly supports: shoveler <i>Anas clypeata</i> (North-western/Central Europe) 5% of the population in Great Britain 5 year mean 1986/7-1990/1 Over winter the area regularly supports: teal <i>Anas crecca</i> (North-western Europe) 1.5% of the population 5 year peak mean 1991/92-</p>	~5.78km east

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Site name	Designated feature summary	Distance and direction from the Scoping red line Boundary
	<p>1995/96 wigeon <i>Anas penelope</i> (Western Siberia/North-western/North-eastern Europe) 0.7% of the population 5 year peak mean 1991/92-1995/96</p> <p>ARTICLE 4.2 QUALIFICATION (79/409/EEC): AN INTERNATIONALLY IMPORTANT ASSEMBLAGE OF BIRDS Over winter the area regularly supports: 40616 waterfowl (5 year peak mean 1991/92-1995/96) including: <i>Cygnus columbianus bewickii</i>, <i>Anas penelope</i>, <i>Anas crecca</i>, <i>Pluvialis apricaria</i> [North-western Europe - breeding], and <i>Philomachus pugnax</i>.</p> <p><i>Ramsar</i>: Represents one of the most important examples of species-rich alluvial flood meadow habitat in the UK. The site has a rich assemblage of wetland invertebrates including 16 species of dragonfly and damselfly, 15 British Red Data Book wetland invertebrates as well as a leafhopper, <i>Cicadula ornata</i> for which Lower Derwent Valley is the only known site in Great Britain. Also, the site qualifies as a staging post for passage birds in spring with the nationally important numbers of ruff and whimbrel of particular note. Lastly the site supports bird assemblages of international importance.</p>	
<p>Madbanks and Ledsham Banks SSSI</p>	<p>Consists of two separate areas of permanent pasture developed over steep banks of magnesian limestone where a rich flora has developed.</p>	<p>~0.39km south-west</p>
<p>Sherburn Willows SSSI⁵⁸</p>	<p>Of interest for magnesian limestone grassland which is situated on a south-westerly facing slope containing flowering plants as purple milk vetch, common spotted orchid, common twayblade and bee orchid. A locally distributed bug <i>Macrotylus paykulli</i> is associated with the sainfoin plant and the site supports invertebrates and water birds.</p>	<p>~0.68km south-east</p>

⁵⁸ Includes ornithological interest within SSSI citation.

Site name	Designated feature summary	Distance and direction from the Scoping red line Boundary
Fairburn and Newton Ings SSSI	Consist of former ings along the river which have become permanently flooded in part as a result of mining subsidence. Supports a diverse botanical wetland flora and is noted for wintering and breeding bird assemblage and butterflies including small skipper and brimstone.	~1.14km south-west
Clifton Ings and Rawcliffe Meadows SSSI	A nationally important site for species-rich neutral grassland and the critically endangered tansy beetle. Site comprises two floristically-diverse fields supporting unimproved neutral grassland on river alluvium soils.	~1.26km south-east
Stutton Ings SSSI	Important example of flood plain mire located on low lying land. Plant communities including rich fen meadow and swamp present.	~1.57km south-east
Micklefield Quarry SSSI	An important site showing around 17 metres of Zechstein rocks.	~1.96km west
Tadcaster Mere SSSI	This site encompasses the central part of a former lake basin where the sub-surface sediments provide a long record of Devensian Late-glacial and early Flandrian vegetation history.	~2.01km east
Heslington Tillmire SSSI	This site is important for its tall herb fen plant community and for its marshy grassland and associated assemblage of breeding birds. The fact that the site is surrounded by intensively farmed arable and improved grassland makes it of particular importance for birds.	~3.44km south
River Derwent SSSI	Represents one of the best British examples of the classic river profile which supports diverse communities of aquatic flora and fauna, many elements of which are nationally significant. Supports a breeding population of otter, diverse fish species, an exceptionally rich assemblage of invertebrates and an excellent breeding bird community.	~5.28km east

Site name	Designated feature summary	Distance and direction from the Scoping red line Boundary
Mickletown Ings SSSI	As a result of mining subsidence these subsidence flashes now form a more or less linear wetland comprising shallow areas of open water fringed by marsh. A wide range of aquatic and marshland plants occur here including a number of increasingly local distribution. Along with its botanical interest the site supports diverse bird and invertebrate species.	~6.42km south-west
Derwent Ings SSSI	Consists of a series of neutral alluvial flood meadows, fen and swamp communities and freshwater habitats lying adjacent to the River Derwent between Sutton upon-Derwent and Menthorpe. The Derwent Ings represents one of the most important examples of agriculturally unimproved, species-rich, alluvial flood meadow habitat remaining in the UK and forms part of an internationally threatened resource.	~7.40km south-east
Acaster South Ings SSSI	Two large alluvial flood meadows adjacent to the River Ouse with these grasslands representing an increasingly rare habitat type which is threatened nationally as a result of drainage and agricultural improvement and are of particular importance for their neutral grassland flora.	~8.38km south-west
Melbourne and Thornton Ings SSSI	A series of flood meadows, pasture and woodland. Supports a rich diversity of plant species, outstanding ornithological interest and a considerable assemblage of dragonflies.	~9.31km south-east

7.4.11 In addition, 42 locally designated sites have been identified within the search area: two statutory sites, LNRs (Fairburn Ings LNR and St. Nicholas Fields LNR); 40 non-statutory sites made up of seven Local Wildlife Sites (LWS), four Sites of Ecological Importance (SEI), 26 SINCs, and three candidate SINCs.

Non-designated wildlife sites

7.4.12 A further 27 deleted⁵⁹ SINC^s have also been identified. These sites are also shown on **Figure 7.1**. Four Yorkshire Wildlife Trust (YWT) reserves (Ledsham Bank, Madbanks, Moorlands and Sherburn Willows) and one RSPB reserve (Fairburn Ings; parts of which are also designated as Fairburn Ings LNR) have also been identified within the search area and are shown on **Figure 7.1**.

Habitats of Principal Importance (HPI) / Ancient Woodland

7.4.13 The desk study completed to date has identified the following HPI either inside or within 2km of the Scoping red line boundary (**Figure 7.1**):

- Coastal and floodplain grazing marsh (present within Scoping red line boundary);
- Deciduous woodland (present within Scoping red line boundary);
- Traditional orchard (present within Scoping red line boundary);
- Lowland fens (present within Scoping red line boundary);
- Open mosaic habitats on previously developed land (draft) (present within Scoping red line boundary);
- Lowland calcareous grassland (closest ~390m south-west of Scoping red line boundary);
- Wood pasture and parkland (closest ~710m north of Scoping red line boundary); and
- Lowland meadows (closest ~1,760m south-west of Scoping red line boundary).

7.4.14 The desk study also identified the presence of a number of parcels of ancient woodland both within the Scoping red line boundary and the wider Study Area (**Figure 7.1**).

Habitats

7.4.15 Aerial imagery shows the dominant habitat throughout the Scoping red line boundary to be agricultural land, predominately arable fields bounded by hedgerows. Areas of denser vegetation, likely woodland or scrub, are present such as Whitecote Plantation and Overton Wood as well as other unnamed areas of dense vegetation, bordering linear features such as watercourses and railway lines. There are built-up areas including villages such as Shipton and Skelton, numerous farmyards, and clusters of residential dwellings along with associated road infrastructure. A number of watercourses are present throughout the Study Area including the River Ouse, the River Wharfe and Redwith Dike, as well as scattered smaller tributaries and ditches.

7.4.16 Connectivity from the Scoping red line boundary is provided to the wider landscape through the network of hedgerows, agricultural ditches and open green spaces along with larger landscape features such as the vegetated embankments of the East Coast Mainline railway, the River Wharfe and the River Ouse. Major roads are also present within the landscape with both the A64 and A1(M) within the Scoping red line boundary.

⁵⁹ Deleted SINC^s in North Yorkshire are former SINC^s which have been assessed against the SINC selection guidelines by the North Yorkshire SINC panel and found not to qualify, though they are still likely to be of higher ecological quality than other land in the area.

Waterbodies

7.4.17 To date, the desk study has identified ~317 waterbodies within 500m of likely working areas to which require further investigation into their suitability for great crested newts. It is anticipated that the number of waterbodies which will be scoped into the assessment will be greatly reduced as the screening and design evolution progresses.

Protected / Notable Species

7.4.18 A high level assessment of the habitats from aerial imagery within the Scoping red line boundary suggests they have potential to support a variety of protected and notable species. This includes, but is not limited to:

- Bats including the potential to support foraging, commuting and roosting within buildings and trees;
- badgers including habitats to support setts;
- watercourses and terrestrial habitat suitable for use by otters;
- watercourses that may support water vole and freshwater fish;
- habitats which may support wintering and breeding birds;
- habitats with the potential to support protected or notable invertebrate assemblages/species;
- habitats with the potential to support SPI such as brown hare and common toad; and
- veteran trees and notable plant species.

7.4.19 The desk study records returned from NEYEDC and WYES provide further insight into the protected and notable species within the Scoping red line boundary and surrounding 2km. Records of a number of species (from within the past ten years) were returned as summarised in **Table 7.5**.

Table 7.5 Species records returned from NEYEDC and WYJS

Group	Species
Bats	<ul style="list-style-type: none">• Brandt's bat• Daubenton's bat• Natterer's bat• Leisler's bat• Noctule• Common pipistrelle• Soprano pipistrelle• Brown long-eared bat• Whiskered bat

Group	Species		
Mammals (excl. bats)	<ul style="list-style-type: none"> • Otter • Water vole • Badger • Western European hedgehog 	<ul style="list-style-type: none"> • Harvest mouse • Polecat • Brown hare 	
	Amphibians	<ul style="list-style-type: none"> • Common frog • Common toad • Great crested newt 	<ul style="list-style-type: none"> • Smooth newt • Palmate newt
	Birds	<ul style="list-style-type: none"> • Barn owl • Black-headed gull • Bluetit • Bullfinch • Buzzard • Common tern • Coot • Cuckoo • Curlew • Dunnock • Fieldfare • Gadwall • Goldfinch • Great spotted woodpecker • Greenfinch • Grey heron • Greylag goose • House martin • Kestrel • Kingfisher • Lapwing • Linnet • Little owl • Mallard 	<ul style="list-style-type: none"> • Marsh tit • Moorhen • Mute swan • Nuthatch • Oystercatcher • Peregrine falcon • Red kite • Reed bunting • Robin • Sand martin • Shelduck • Skylark • Snipe • Song thrush • Sparrowhawk • Swallow • Swift • Teal • Treecreeper • Tufted duck • Willow warbler • Wood warbler • Wren • Yellowhammer

Group	Species
Fish	<ul style="list-style-type: none"> • Atlantic salmon • Barbel • Brown/sea trout • Bullhead • European eel • Sea lamprey
Invertebrates	<ul style="list-style-type: none"> • Depressed river mussel • Grayling • Small heath • Wall • Cinnabar • Large wainscot moths • Dark-barred twin-spot carpet • Shaded broad-bar • Rosy rustic • September thorn • Small phoenix • Banded dark bee • Ceraclea senilis • Auplopus carbonarius • Tansy beetle • Bembidion (Diplocampa) clarkii

7.4.20 Riparian habitat adjacent to the River Ouse containing the tansy plant is one of only two known locations in the UK to support the tansy beetle⁶⁰, a SPI.

7.4.21 In addition, from previous ecology survey work carried out by Wood on the 275kV OHL proposed for reconductoring (XCP OHL)⁶¹, great crested newts are known to be present in a waterbody within the Scoping red line boundary with additional waterbodies identified in the Study Area with the potential to support great crested newts.

7.4.22 Data presented within the Wintering Bird Ornithological Desk Study and Survey Strategy⁶ identified a range of key bird species within or adjacent to the Scoping red line boundary. Schedule 1 species included barn owl, hobby, honey buzzard, kingfisher, marsh harrier, peregrine and red kite. SPI species were also identified including bullfinch, corn bunting, dunnock, grey partridge, house sparrow, lapwing, linnet, reed bunting, skylark, song thrush, spotted flycatcher, starling, tree sparrow, yellow wagtail and yellowhammer. In addition, corn bunting, fieldfare, grey partridge, house sparrow, lapwing, linnet, mistle thrush, redwing, skylark, song thrush, spotted flycatcher, starling, tree sparrow, woodcock, yellow wagtail and yellowhammer, all BoCC Red list species, were recorded as present. Data from the five-year WeBS summary for Fairburn Ings presented within the Wintering Bird Ornithological Desk Study indicates that the Fairburn Ings RSPB Nature Reserve and LNR supports a large and diverse assemblage of non-breeding waterfowl, including whooper swan, lapwing and curlew.

Survey period

7.4.23 Dates of field surveys will depend on the availability of land access and it is likely that it will be necessary to split survey seasons across 2021 and 2022 for those species for which the optimal survey window includes spring field visits (e.g. bats and water vole).

⁶⁰ <https://www.buglife.org.uk/resources/species-hub/tansy-hub/>

⁶¹ Amec Foster Wheeler (2016) XCP Constraints Plan.

However, all surveys will be undertaken in the appropriate season to inform the ES (Environmental Statement). Further engagement with Natural England and other consultees regarding the indicative field survey programme (**Table 7.6**) will take place as the scope of works is refined.

Table 7.6 Optimal survey period

Potential survey	Optimal survey period
Extended Phase 1 habitat survey	Optimal survey period is March to September
Great crested newt	HSI survey: not seasonally dependent - assessments to be conducted in conjunction with extended Phase 1 habitat survey eDNA surveys: mid-April to June Population surveys: mid-March to mid-June (with at least half of surveys between mid-April and mid-May)
Bats	Activity surveys: April to October
Water vole	Mid-April to June and July to September
Otter	Not seasonally dependent but periods of high water to be avoided. Surveys to be undertaken in conjunction with water vole surveys where possible
Badger	Not seasonally dependent assessments to be conducted in conjunction with extended Phase 1 habitat survey where access allows
Invertebrates	Species-dependent
Schedule 1 Breeding birds	April to July
Winter birds	October to March
Hedgerows	June to September
Ancient and veteran trees	Not seasonally dependent
NVC	May to August

Future baseline

- 7.4.24 It is not known at this stage whether a different future baseline (in the absence of the Project) is more likely to occur than that currently present. Due to climate change it is possible that in the medium to long term the range of some species may be altered. Any potentially relevant changes to the baseline would be reviewed during the EIA process and, should any likely instances be identified, the implications will be considered on a case-by-case basis within the EIA. A description of the potential future baseline will also be provided in the ES.

7.5 Embedded Environmental Measures

- 7.5.1 As part of the project design process, a number of embedded environmental measures will be proposed to reduce the potential for impacts on biodiversity interests (see **Table 7.7**). These will evolve over the development process as the EIA progresses and in response to consultation, they will be fed iteratively into the assessment process. These measures typically include those that have been identified as good or standard practice and include actions that would be undertaken to meet existing legislation requirements.
- 7.5.2 As there is a commitment to implementing these embedded environmental measures, and also to various standard sectoral practices and procedures, they are considered inherently part of the design of the Project and have, therefore, been considered in the scoping assessment (and are noted in **Table 7.7**).

Table 7.7 Relevant biodiversity embedded environmental measures

Embedded environmental measure proposed
An environmental gain (EG) equivalent to a 10% uplift above the current baseline situation will be built into the Project through the design process ⁶² .
At sensitive crossing locations (e.g. rivers), existing access routes would be used as far as possible and the width of any required working area reduced as far as practicable. If access upgrades are required, temporary bridges will be used in preference to culverts. Where culverts are unavoidable, these will either be arch culverts, leaving the natural bed alone, or they would be installed with the invert set below the natural bed level for a semi-natural bed to establish within the culvert.
Where practical, sensitive sites including SSSIs, LNRs, SINCs, Ancient Woodland, YWT and RSPB reserves would be avoided when micro-siting the likely working areas.
Vegetation would be retained where possible. In order to avoid destruction of active nests, where practicable, in any areas where vegetation clearance is required, such works would be undertaken outside the breeding bird season (outside mid-March-July). Where this is not possible, vegetation removal would be undertaken under supervision and appropriately managed to remove the risk of damaging or destroying active nests, young or eggs. However, for all breeding birds, should damage, or in the case of Schedule 1 species only, disturbance, be unavoidable, a derogation licence would be obtained from NE before proceeding. Suitable methods would also be used to ensure vegetation with potential to support other legally

⁶² <https://www.nationalgrid.com/responsibility/environment/environmental-sustainability/performance-environmental-sustainability/natural-environment>

Embedded environmental measure proposed

protected species (e.g. reptiles) is removed sensitively and in compliance with legal requirements.

In line with good practice, pollution prevention plans will be drawn up to detail how ground and surface waters would be protected during construction and operation. These will include information on the storage of any fuels, oils and other chemicals and pollution incidence response planning.

In line with good practice, a Construction Environmental Management Plan (CEMP) will ensure that any risk of effects on ecological features from dust emission is negligible through the use of standard dust suppression methods.

Areas of temporary habitat loss would be reinstated, wherever practicable, following the completion of construction in each area. Wherever possible, reinstatement would be back to the type of habitat affected. Areas of permanent habitat loss would be considered during the environmental gain described above.

A lighting design of all temporary and permanent lighting would be developed once contractors are appointed; however the principles of lighting design will be detailed at the time of application and informed by the joint guidance provided by the Bat Conservation Trust and Institution of Lighting Professionals. The lighting design will account for the potential effects on terrestrial ecology by taking measures to minimise lighting usage, minimise light spill, use most appropriate wave lengths of light and locate lighting in the most appropriate locations – this is to decrease the potential displacement effects on light sensitive fauna such as bats.

Speed limits would be imposed on all construction haul roads and access tracks to minimise the risk of road traffic collisions with fauna such as badgers, otters, bats and barn owls.

The use of tried and tested invasive species control and biosecurity measures to avoid the spread of non-native invasive species and infested materials would be applied.

7.6 Scope of the assessment

Introduction – scoping assessment

- 7.6.1 The project-wide approach to the assessment methodology is set out in Chapter 4: The EIA Process. However, whilst this has informed the approach that has been used in this biodiversity chapter, it is necessary to set out how this methodology will be applied, and adapted as appropriate, to address the specific needs of the biodiversity assessment.
- 7.6.2 The starting point for defining the scope of the biodiversity assessment was to use the baseline data that were collected through the desk study to determine which of the identified ecological features are 'important'. Following CIEEM (2018, updated 2019) guidance, the importance of each ecological features was determined using a geographic scale (see Table 7.8). The importance of the ecological features has been described in relation to UK legislation and policy and with regard to the extent of habitat or size of population that may be significantly affected by the Project.
- 7.6.3 The importance of ecological features can therefore differ from that which would be conferred solely by legislative protection or identification as a conservation notable

species. For example, house sparrow is important at a national level (in policy terms) because it is a Species of Principal Importance and features on the Birds of Conservation Concern red list. However, a small population that could be affected by a development might be assessed as being of local importance only due to the large, albeit declining, UK population (in excess of five million pairs). Similarly, a small length of hedgerow (a Habitat of Principal Importance), even if deemed to be ‘important’ with regard to the Hedgerow Regulations, is unlikely to be considered to have greater than ‘local’ importance due to the extent of this habitat type across a given county.

7.6.4 Wherever possible, information regarding the extent and population size, population trends and distribution of the ecological features was used to inform the categorisation and determine their importance at the project level. Where detailed criteria or contextual data were not available at this stage of the project, professional judgement was used to determine importance (**Table 7.8**).

Table 7.8 Defining Importance of Ecological Features

Geographic context of importance	Description
International or European	<p>European sites⁶³ including Special Protection Areas, Special Areas of Conservation, candidate SACs and Sites of Community Importance (SCI). Potential SPAs (pSPA), possible SACs (pSACs), Ramsar sites (designated under international convention) and proposed Ramsar sites are also considered in the same manner in accordance with national planning policy.</p> <p>Areas of habitat or populations of species which meet the published selection criteria based on discussions with Natural England and field data collected to inform the EclA for designation as a European site, but which are not themselves currently designated at this level.</p>
National (UK context)	<p>A nationally designated site including Sites of Special Scientific Interest (SSSI) and National Nature Reserves (NNRs).</p> <p>Areas (and the populations of species which inhabit them) which meet the published selection criteria guidelines for selection of biological SSSIs but which are not themselves designated based on field data collected to inform the EclA, and in agreement with Natural England.</p> <p>Species of Principal Importance (SPI) and Habitats of Principal Importance (HPI), Red listed and legally protected species that are not addressed directly in Part 2 of the “Guidelines for Selection of Biological SSSIs” but can be determined to be of national importance using the principles described in Part 1 of the guidance.</p> <p>Areas of Ancient Woodland, for example woodland listed within the Ancient Woodland Inventory and ancient and veteran trees.</p>

⁶³ These statutory sites are defined collectively as “European sites” within Advice Note 10 Habitats Regulations Assessment relevant to nationally significant infrastructure projects (The Planning Inspectorate 2017 (version 8)).

Geographic context of importance	Description
Regional (Northern England)	Regularly occurring HPI or populations of SPI, Red listed and legally protected species may be of regional importance in the context of published information on population size and distribution.
County (Yorkshire)	Local Nature Reserves (LNR) and Non-Statutory Designated sites including: Local Wildlife Sites (LWS) and notable roadside verges. Areas which, based on field data collected to inform the EclA, meet the published selection criteria for those sites listed above (for habitats or species, including those listed in relevant Local Biodiversity Action Plans) but which are not themselves designated.
Local	<p>HPI and SPI, Red listed and legally protected species that based on their extent, population size, quality etc are determined to be at a lesser level of importance than the geographic contexts above.</p> <p>Common and widespread semi-natural habitats occurring within the Study Area in proportions greater than may be expected in the local context.</p> <p>Common and widespread native species occurring within the Study Area in numbers greater than may be expected in the local context.</p>
Negligible	<p>Common and widespread semi-natural habitats and species that do not occur in levels elevated above those of the surrounding area.</p> <p>Areas of heavily modified or managed land uses (for example, hard standing used for car parking, as roads etc.)</p>

7.6.5 Where protected species are present and there is the potential for a breach of the legislation, those species are considered to be ‘important’ features. Except for such species receiving specific legal protection, or those subject to legal control (for example, invasive species), all ecological features determined to be important at negligible level are scoped out of the assessment. This approach is consistent with that described in CIEEM 2018.

7.6.6 Legally protected species and ecological features that are of sufficient importance that effects upon them as a result of the development of the Project could be significant, were then taken through to the next stage of the scoping assessment. Through an understanding of the activities associated with the Project and the resulting environmental change, it is possible to identify ecological features that may be subject to potentially significant effects. In order to identify such ecological features, all the activities and consequent environmental changes associated with the construction and operation of the Project have been considered. Given the ongoing design process, at this stage of the Project the environmental changes have been considered in broad categories only. Wherever there is uncertainty as to the potential level of effect or the occurrence of a particular ecological feature, a precautionary approach has been taken.

Spatial scope

- 7.6.7 Key to establishing a potentially significant effect is the determination of a ZOI (see **Baseline Conditions** section for definition) for each ecological feature. ZOIs differ depending on the type of environmental change (in other words the change from the existing baseline) as a result of the Project, and the ecological feature being considered.
- 7.6.8 The construction and operation phases of the Project may result in the following broad environmental changes:
- Permanent (e.g. the concrete footings of the OHL towers) or temporary (e.g. temporary trackway access route installed for the duration of construction) land take / land cover change (resulting in habitat loss or degradation and/or loss of fauna);
 - fragmentation of habitats (resulting in a reduction in connectivity);
 - increased noise and vibration (resulting in disturbance / displacement);
 - increased light levels (resulting in disturbance / displacement);
 - changes in ground water levels resulting in habitat change); and
 - introduction of invasive non-native species (resulting in habitat degradation).
- 7.6.9 The most straightforward ZOI to define is the area affected by land-take and direct land-cover changes associated with the Project. This ZOI is the same for all affected ecological features. By contrast, for each environmental change that can extend beyond the area affected by land-take and land-cover change (for example noise created by construction), the ZOI may vary between ecological features, dependent upon their sensitivity to the change and the precise nature of the change. For example, a dormouse might only be disturbed by noise generated very close to its nest, whilst nesting lapwing might be disturbed by noise generated at a much greater distance; other species (for example many invertebrates) may be unaffected by changes in noise. In view of these complexities, the definition of the ZOI that extends beyond the land-take area was based upon professional judgement informed, as far as possible, by a review of published evidence (for example disturbance criteria for various species).
- 7.6.10 It should be noted that the avoidance of potential effects through design are implicitly taken into account through the consideration of each ZOI. Furthermore, when scoping in or out ecological features from further assessment, embedded environmental measures associated with good practice have been taken into account (for example dust suppression, appropriately scheduled vegetation removal etc.).

Potentially significant effects

- 7.6.11 The assessment of potential effects will assume the effective implementation of best practice, 'tried and tested' embedded environmental measures built into the design of the Project as described in **Table 7.7**. As such, the potentially significant effects on ecological features that will be taken forward for assessment in the ES are summarised in **Table 7.9**. Additional potential impacts and resulting effects may be identified as the scheme design and scope of works develops further.

Table 7.9 Environmental changes (impacts) and potentially significant effects

Activity	Environmental change (impact) & effect	Ecological feature
Construction		
Development construction: general activities	Noise and physical activities leading to disturbance	Schedule 1 breeding birds
Development construction: culverts	Disturbance, direct killing or reduced chance of survival of individual animals through aquatic habitat loss/damage	Protected and/or notable aquatic species and habitats
Development construction: vehicles / machinery	Noise/vibration as a result of construction activities affecting surrounding features.	Protected and/or notable species.
Development construction: habitat removal e.g. earthworks	Habitat fragmentation through working areas creating barriers to species dispersal.	Protected and/or notable species, species listed on designated site citations.
Development construction: habitat removal e.g. earthworks	Direct killing or reduced chance of survival of individual animals and local species populations through habitat loss/damage.	Protected and notable plant and animal species and/or species listed on designated site citations.
Development construction: habitat removal e.g. earthworks	Removal/degradation of irreplaceable habitats e.g. ancient woodland.	Protected or notable habitats, designated sites.
Development construction: habitat removal e.g. vegetation clearance	Damage or destruction of nests	Breeding birds
Development construction: habitat removal e.g. vegetation clearance	Loss of roosting habitat	Roosting bats
Development construction: lighting	Light pollution through security lighting used at working areas spilling onto surrounding habitats.	Protected and/or notable species.
Operation		
Operation: vehicles / machinery	Noise/vibration as a result of operation activities affecting surrounding features.	Protected and/or notable species.

Activity	Environmental change (impact) & effect	Ecological feature
Operation: lighting	Light pollution through security lighting used at the development spilling onto surrounding habitats.	Protected and/or notable species.
Operation: habitat effects	Habitat fragmentation through the development creating a barrier to species dispersal.	Protected and/or notable species.

Ecological features scoped out from further assessment

- 7.6.12 The following designated sites, species and habitats have been scoped out of the assessment.
- 7.6.13 **Strensall Common SAC** is located ~4.71km east of the Scoping red line boundary at its closest point. Its primary reason for designation is the presence of two Annex 1 habitats: northern Atlantic wet heath with *Erica tetralix*, and European dry heaths, both of which are sensitive to air pollution. However, due to the distance between the Project and the SAC, the potential for air quality effects on this site is scoped out as dust soiling would be limited to within 50m of construction activities and roads within 500m of the construction site entrances. Furthermore, the potential for negative effects arising due to air pollution associated with additional vehicular movements is negligible as the Project is unlikely to generate an additional 1,000 vehicles or 200 Heavy Duty Vehicles (HDVs) per day on roads within 200m of the SAC.
- 7.6.14 **Micklefield Quarry SSSI and Tadcaster Mere SSSI** located ~1.96km west and ~2.01km east respectively are both designated for their geological interest. As no ecological features are cited on the designation both sites are scoped out from further biodiversity assessment.
- 7.6.15 **Dormice** - any resulting effects on dormice has been scoped out of the assessment due to the location of the Project being outside their known geographical range, lack of suitable connective habitat to the nearest known populations and lack of desk study records within 2km.
- 7.6.16 **Reptiles** - the potential for significant effects on reptiles has been scoped out of the assessment in view of the geographical location of the Project, the limited Project footprint located within predominantly sub-optimal agricultural landscape and lack of previous reptile records within 2km returned during the desk study from either WYJS or NEYEDC, along with the employment of embedded environmental measures which would avoid significant effects on reptiles (see **Table 7.7**).
- 7.6.17 **White-clawed crayfish** - any effect on this species has also been scoped out of the assessment based on their restricted distribution, lack of records in the search area, prevalence of non-native signal crayfish within local river catchments⁶⁴, and embedded environmental measures (see **Table 7.7**) to avoid the spread of non-native crayfish

⁶⁴ Environment Agency (2020) Yorkshire Area Biosecurity Protocol – Crayfish Distribution Maps.

species (and associated disease) should any works be required at watercourses known to support non-native crayfish.

7.6.18 **Non-Schedule 1 nesting birds** - Breeding bird surveys targeted at non-Schedule 1 species have been scoped out of the assessment as it is considered that any effects upon active nests of breeding birds can be mitigated by embedded environmental measures such as timing of vegetation clearance works outside the breeding bird season, and where this is not possible carrying out pre-construction nest checks.

7.6.19 **Waterbird assemblage** - the potential for significant effects on waterbirds has been scoped out of the assessment. Whilst the northern section within the Scoping red line boundary (North-west of York Area) is close to the River Ouse (which frequently inundates the surrounding farmlands during winter floods), the value of these flooded areas in relation to significant waterbird assemblages is minimal and these areas are not functionally linked to any designated sites; the nearest one with a key waterbird population is the Lower Derwent SPA which is over 14km to the south of the city of York. Similarly, the southern section within the Scoping red line boundary is not functionally linked to any designated site, falling over 20km from the Lower Derwent SPA.

Environmental changes scoped out from further assessment

7.6.20 The following environmental changes have been scoped out of the assessment in respect of their effects on all ecological features.

7.6.21 Emission of dust resulting in dust deposition on surrounding relevant ecological features (designated sites and HPis) during the construction phase, is scoped out of further assessment based on the temporary nature and the likely effect (which would be limited to within 50m of construction activities and roads within 500m of the construction site entrances) and inclusion of best practice dust suppression methods as embedded environmental measures within the CEMP (see Chapter 13 Air Quality).

7.6.22 Emissions associated with construction and operational traffic and plant are scoped out for all relevant ecological features (designated sites and HPis) based on the temporary nature and effect, location of relevant ecological features and the relatively limited amount of traffic involved (see Chapter 12 Traffic and Transport).

7.6.23 Reduction in water quality through pollution, silt, run-off, entering watercourses and alterations to the quantity of water within watercourses during the construction and operational phases are scoped out for relevant ecological features (designated sites and HPI with freshwater habitats and species associated with freshwater habitats), due to the incorporation of best practice pollution prevention embedded environmental measures (see Table 7.7) (see Chapter 9 Hydrology).

7.7 Assessment methodology

7.7.1 The proposed generic project-wide approach to the assessment methodology is set out in **Chapter 4**, and specifically in **Section 4.3**. However, whilst this has informed the approach that has been used in this biodiversity chapter, it is necessary to set out how this methodology will be applied, and adapted as appropriate, to address the specific needs of the biodiversity assessment in the ES.

- 7.7.2 The assessment methodology will be aligned with the standard industry guidance provided by CIEEM⁵¹. The assessment will be based upon not only the results of the desk study and field surveys, but also relevant published information (for example on potential ecological features' status, distribution, sensitivity to environmental changes and ecology, where this information is available), technical engagement with Natural England and other key consultees, and professional knowledge of ecological processes and functions.
- 7.7.3 For each scoped-in ecological feature, effects will be assessed against the predicted future baseline conditions (equivalent to the current baseline confirmed following completion of extended Phase 1 habitat survey and protected species surveys) for that ecological feature during construction and operation. Throughout the assessment process, findings about potentially significant effects will be used to inform the definition of requirements for additional baseline data collection and the identification of embedded environmental measures to avoid or reduce adverse effects or to deliver enhancements. Measures to comply with relevant policies and legislation will also be included. The results of the assessment will reflect the final scheme design (i.e. incorporating the embedded environmental measures).
- 7.7.4 The spatial extent of the assessment of each potentially significant effect will reflect the area occupied by the ecological feature that is being assessed and the ZOI associated with the environmental changes that are likely to affect it. Thus, if part of a designated biodiversity site is located within the ecological ZOI relating to a particular environmental change, an assessment will be made of the effects on the site as a whole. A similar approach will be taken for areas of important habitat. For species that occur within an ecological ZOI that relates to a change that could significantly affect the species, an assessment will be carried out on the total area that is used by the affected individuals or population of the species (for example for foraging or as breeding territories).
- 7.7.5 For each ecological feature, the assessment will deal, in an integrated way, with the effects of construction and operation. As progressively more information is available about the Project and about the populations of important and legally protected species, and throughout the consultation process, an ongoing detailed scoping exercise will be undertaken to identify which ecological features have the potential to be significantly affected by the Project. Each scoped-in ecological feature will then be subject to further assessment work that addresses how it is likely to be affected by the Project, allowing for environmental changes that could affect it during construction and operation.

Significance evaluation methodology

- 7.7.6 CIEEM⁵¹ defines a significant effect as one "that either supports or undermines biodiversity conservation objectives for 'important ecological features' or for biodiversity in general".
- 7.7.7 When considering potentially significant effects on ecological features, whether these are negative or positive, the following characteristics of environmental change are taken into account:
- extent – the spatial or geographical area over which the environmental change may occur;
 - magnitude – the size, amount, intensity or volume of the environmental change;

- duration – the length of time over which the environmental change may occur;
- frequency – the number of times an environmental change may occur;
- timing – the periods of the day / year / season during which an environmental change may occur; and
- reversibility – whether the environmental change can be reversed through restoration actions or regeneration.

7.7.8 Although the characteristics described above are all important in assessing effects, the magnitude of the environmental change as a result of the Project will also be used, as described in **Table 7.10**, to provide a contextual understanding of the relative scale of change from the baseline position.

Table 7.10 Guidelines for the assessment of the scale of magnitude

Magnitude	Criteria and resultant effect
High	The change permanently (or over the long-term) affects the conservation status of a habitat/species, reducing or increasing the ability to sustain the habitat or the population level of the species within a given geographic area. Relative to the wider habitat resource / species population, a large area of habitat or large proportion of the wider species population is affected. For designated sites, integrity is compromised. There may be a change in the level of importance of the ecological feature in the context of the Project.
Medium	The change permanently (or over the long term) affects the conservation status of a habitat/species reducing or increasing the ability to sustain the habitat or the population level of the species within a given geographic area. Relative to the wider habitat resource / species population, a small-medium area of habitat or small-medium proportion of the wider species population is affected. There may be a change in the level of importance of this ecological feature in the context of the Project.
Low	The quality or extent of designated sites or habitats or the sizes of species' populations, experience some small-scale reduction or increase. These changes are likely to be within the range of natural variability and they are not expected to result in any permanent change in the conservation status of the species / habitat or integrity of the designated site. The change is unlikely to modify the evaluation of the ecological feature in terms of its importance.

Magnitude	Criteria and resultant effect
Very Low	Although there may be some effects on individuals or parts of a habitat area or designated site, the quality or extent of sites and habitats, or the size of species populations, means that they would experience little or no change. Any changes are also likely to be within the range of natural variability and there would be no short-term or long-term change to conservation status of habitats/species ecological features or the integrity of designated sites.
Negligible	A change, the level of which is so low, that it is not discernible on designated sites or habitats or the size of species' populations, or changes that balance each other out over the lifespan of a project and result in a neutral position.

Negative effects

- 7.7.9 A negative effect is assessed as being significant if the favourable conservation status of an ecological feature would be compromised or lost as a result of the Project. Conservation status is defined by CIEEM⁵¹ as being:
- for habitats - the sum of the influences acting on the habitat and its typical species, that may affect its long-term distribution, structure and functions as well as the long-term survival of its typical species within a given geographical area; and
 - for species - the sum of the influences acting on the species concerned that may affect the long-term distribution and abundance of its populations within a given geographical area.
- 7.7.10 The decision as to whether the conservation status of an ecological feature has been compromised will be made using professional judgement, drawing upon the results of the assessment of how each feature is likely to be affected by the Project.
- 7.7.11 A similar procedure will be used for designated sites that may be affected by the Project, except that the focus will be on the effects on the integrity of each site, defined by CIEEM⁵¹ as *“the coherence of its ecological structure and function, across its whole area, that enables it to sustain the habitat, complex of habitats and/or the levels of populations of the species for which it was classified.”* The assessment of effects on integrity will draw upon the assessment of effects on the conservation status of the features for which the site has been designated.

Positive effects

- 7.7.12 A development may result in positive effects where there is a resulting change from baseline that improves the quality of the environment (for example increases species diversity, increases the extent of a particular habitat etc.), or halts or slows down an *existing* decline. For a positive effect to be considered significant, the level of importance of an ecological feature determined at the baseline state would need to increase by one or more geographical levels (for example where an ecological feature of borough importance becomes of county importance following delivery of the Project).

Habitat Regulations Assessment

- 7.7.13 In line with the Planning Inspectorate's Advice Note 10⁶⁵, the relevant Secretary of State is the competent authority for the purposes of the Habitats Directive and the Habitats Regulations in relation to applications for Nationally Significant Infrastructure Projects (NSIPs). The Habitats Regulations require competent authorities, before granting consent for a plan or project, to carry out an appropriate assessment (AA) in circumstances where the plan or project is likely to have a significant effect on a European site (either alone or in combination with other plans or projects).
- 7.7.14 A HRA Screening Report will be prepared in accordance with the Planning Inspectorate's Advice Note 10 to determine whether the Project will have Likely Significant Effects (LSEs) on any European sites. The HRA will include the Lower Derwent SPA and Ramsar Site (designated for waterfowl and wader species) which lies ~5.78km to the southeast of the Scoping red line boundary. Whilst the majority of LSEs are expected to be screened out within the Screening Report, some may remain. In this instance, sufficient information will be provided to allow the relevant competent authority to determine whether there will be a resulting adverse effect on the integrity of European sites. NE will be consulted on the draft HRA prior to the submission of the DCO application.

7.8 Proposed survey and assessment approach

Baseline

- 7.8.1 Future baseline data collection will consist of a programme of field surveys as outlined in **Table 7.6** (following discussion and agreement from Natural England and other statutory consultees) This programme will be regularly reviewed in light of the results of the surveys, ongoing consultation and the evolution of the design of the Project.
- 7.8.2 The following surveys will be carried out during 2021 and 2022 to inform the assessment of potentially significant effects on ecological features. The proposed field survey programme is based on the results of the desk study, industry guidance and preliminary discussions with Natural England regarding ornithology surveys. In order to ensure a focussed and proportionate approach (as advocated by CIEEM⁵¹), the areas that will be the focus of the field surveys will not encompass the whole Scoping red line boundary. This is because as the design evolves, the potential environmental changes (such as land take) will become refined allowing for a more targeted survey programme to take place to inform the assessment. As such, baseline surveys will be carried out within an appropriate buffer of likely working areas along the existing 275kV OHL, at existing substation and the proposed Substation Siting Areas and CSEC siting areas and infrastructure associated with these (see **Figure 1.2**) and within the graduated swathe as shown in **Chapter 2, Figure 2.2 and 2.3**.

⁶⁵ The Planning Inspectorate (2017). Advice Note Ten: Habitats Regulations Assessment relevant to Nationally Significant Infrastructure Projects (Version 8).

Table 7.11 Field survey programme

Survey	Summary	Coverage of Study Area
Phase 1 habitat survey	<p>An extended Phase 1 habitat survey following JNCC (2010)⁶⁶ is to be undertaken across proposed areas of land take to provide general information on each habitat and where appropriate within an additional suitable feature specific buffer e.g. to map habitat connectivity to potential great crested newt ponds) during 2021 to establish baseline conditions. Distinct habitats will be identified and mapped and as the standard Phase 1 Habitat survey methodology is, in the main, concerned only with vegetation communities, the survey will be extended to allow for the provision of information on other ecological features, particularly to identify the presence/potential presence of legally protected species. In addition, habitats will also be mapped in accordance with UK Habitats Classification methodology and the condition criteria provided in the technical guidance that accompanies the Biodiversity Metric v.2.0 (or v3.0 depending on its release date).</p>	<p>Surveys will focus on likely working areas and a buffer of 50m.</p>
Great crested newt surveys	<p>Following completion of the desk-based screening exercise, those waterbodies (including ponds and ditches) classed as potentially suitable to support great crested newts and located within a suitable buffer of potential area of land take will be assessed in conjunction with the extended Phase 1 habitat survey to determine the requirement for targeted great crested newt surveys. Where required, great crested newt surveys will follow best practice^{67 68 69} or for eDNA surveys, the manufacturer's protocol.</p>	<p>Suitable water bodies (ponds and ditches) within 500m of likely working areas not separated from work areas by barriers to great crested newt dispersal.</p>

⁶⁶ Joint Nature Conservation Committee (JNCC) (2010). Handbook for Phase 1 Habitat Survey: a Technique for Environmental Audit. JNCC, Peterborough

⁶⁷ English Nature (2001). Great Crested Newt Mitigation Guidelines. English Nature, Peterborough

⁶⁸ Natural England (2015) Great crested newts: surveys and mitigation for development projects. <https://www.gov.uk/guidance/great-crested-newts-surveys-and-mitigation-for-development-projects>

⁶⁹ Froglife (2001). Great Crested Newt Conservation Handbook. Froglife, Suffolk

Survey	Summary	Coverage of Study Area
Bat surveys	In accordance with best practice ^{70 71 72 73} , any trees likely to be affected will be assessed from ground level to determine whether they are likely to contain roosts and their potential to support roosting bats. The results of these surveys will enable the scoping of any subsequent bat emergence and/or re-entry surveys / tree climbing surveys that may be required with a view to identifying potential or confirmed bat roosts. If required, bat activity transect surveys and remote static detector deployment will also be undertaken to inform the baseline and the assessment of potential effects on bats.	Surveys will be targeted within 50m of likely working areas.
Otter and water vole surveys	Aerial imagery shows the presence of watercourses within the Scoping red line boundary. Otter and water vole surveys will be undertaken in line with best practice guidance ^{74 75} at those ditches and watercourses within the Scoping red line boundary identified as providing potentially suitable habitat for these species during the extended Phase 1 habitat survey, where potential for significant effects are likely (for example river crossings). For water voles this will involve two survey visits (one during spring and one during summer) unless a single visit survey can be justified in line with best practice guidance.	Surveys will take place in areas where direct land take or effects may occur within the Scoping red line boundary and to a suitable buffer determined by best practice guidance.
Badger surveys	The badger survey will involve looking for evidence of badger including setts, foraging pits, footprints, latrines and mammal paths. Where setts are encountered, the sett type (main, annexe,	Surveys will focus on suitable habitat (typically scrub, hedgerows, tall ruderal, woodland)

⁷⁰ Mitchell-Jones, A. and McLeish, A. (2004). *Bat Workers Manual*. Joint Nature Conservation Committee, Peterborough.

⁷¹ Mitchell-Jones, A. (2004). *Bat mitigation Guidelines (IN136)*. English Nature, Peterborough.

⁷² Collins, J. (2016). *Bat Surveys for Professional Ecologists: Good Practice Guidelines, 3rd Edition*. The Bat Conservation Trust, London.

⁷³ Institution of Lighting Professionals and Bat Conservation Trust (2018). *Bats and artificial lighting in the UK*. Bats and the Built Environment series (Guidance Note 08/18).

⁷⁴ Chanin P (2003). Monitoring the Otter *Lutra lutra*. Conserving Natura 2000 Rivers Monitoring Series No. 10, English Nature, Peterborough. 2000 Rivers Monitoring Series No. 10, English Nature, Peterborough.

⁷⁵ Dean, M., Strachan, R., Gow, D. and Andrews, R. (2016) *The Water Vole Mitigation Handbook* (Mammal Society Mitigation Guidance Series). Eds Fiona Mathews and Paul Chanin. Mammal Society, London

Survey	Summary	Coverage of Study Area
	outlier, subsidiary) will be determined if possible. These surveys will be completed in line with best practice guidance ⁷⁶ .	and undertaken in conjunction with the extended Phase 1 habitat survey (covering a survey area up to 50m from likely working areas).
Invertebrate surveys	Should the extended Phase 1 habitat survey identify habitats with the potential to support important species or assemblages of invertebrate species in areas likely to be subject to significant effects, these areas would be surveyed further. Invertebrate survey scope and methods vary between species. In determining site-specific survey details, account will be taken of known records, habitat mix, landscape features and potentially significant effects. Survey methods will reflect standard guidance and could include, for example, direct observation, sweep netting, hand searching, aquatic netting, beating and pitfall traps.	Any areas identified during the extended Phase 1 habitat survey with potential to support notable or diverse invertebrates species/assemblages. The need for surveys within riparian habitat along the River Ouse for the SPI tansy beetle will be considered in light of the developing scope of works, ongoing consultation with relevant consultees and potential for embedded environmental mitigation measures to avoid effects.
Schedule 1 breeding bird surveys	Surveys for breeding Schedule 1 birds will be carried out over a four-month period in a single year (April – July). During each survey visit, surveys will be targeted at areas identified as supporting suitable habitat for Schedule 1 breeding bird species such as kingfisher, barn owl, red kite and peregrine. Surveys will be undertaken in accordance with survey methods outlined in Gilbert et al (2001) ⁷⁷ ,	Within the Scoping red line boundary.

⁷⁶ Scottish Natural Heritage (2003). *Best Practice Badger Survey Guidance Note*: <https://www.nature.scot/guidance-licensing-badgers-badger-survey-best-practice>

⁷⁷ Gilbert, G., Gibbons, D.W., and Evans, J. (2001). *Bird Monitoring Methods: a manual of techniques for key UK species*. RSPB

Survey	Summary	Coverage of Study Area
<p>Winter bird walkover surveys</p>	<p>Hardey et al. (2013)⁷⁸ and Sawyer (2011)⁷⁹.</p> <p>Winter bird survey methods involve walking a number of transects using roads and public rights of way (PRoWs). Although a full suite of surveys will be undertaken between October 2021 to March 2022, additional visits were also undertaken from mid-February to March 2021.</p>	<p>Surveys will be undertaken in two key areas within the Scoping red line boundary to identify the distribution of bird species within the Study Area. These areas are located at Monk Fryston and the North-west of York Area.</p>
<p>Hedgerows Regulations Assessment survey</p>	<p>An initial assessment of hedgerows will be made during the extended Phase 1 habitat surveys to assess whether any of the hedgerows have the potential to be classified as 'important' under the Hedgerows Regulations (1997). Those hedgerows identified as having sufficient potential and likely to be impacted by the Project will undergo a more detailed assessment⁸⁰, including, size, number of woody species, associated features, connections and flora. The ecological importance of the hedge will subsequently be assessed against the set criteria within the Regulations.</p>	<p>Surveys will focus on areas where direct land take may occur and within 15m of this. The extent of the survey area will reduce as work area locations become more defined.</p>
<p>Ancient and Veteran Tree assessments</p>	<p>During the extended Phase 1 habitat survey, any trees which have the potential to be classified as ancient and/or veteran will be noted. Should any such trees be recorded in areas where significant effects are likely, an ancient/veteran tree survey assessment will be undertaken in line with best practice guidance⁸¹ to record the presence of any ancient or veteran</p>	<p>Surveys will focus on areas where direct land take may occur and within 50m of this. The extent of the survey area will reduce as likely work areas become more defined.</p>

⁷⁸ Hardey, J., Crick, H., Wernham, C., Riley, H., Etheridge, B. and Thompson, D. (2013). *Raptors: a field guide to survey and monitoring*. Stationary Office

⁷⁹ Sawyer, C. (2012). *Barn owl Tyto alba Survey Methodology and techniques for use in Ecological Assessment*. Wildlife Conservation Partnership.

⁸⁰ Defra (2007) *Hedgerow Survey Handbook. A standard procedure for local surveys in the UK*. Defra, London.

⁸¹ Fey, N (2007) *Defining and Surveying Veteran and Ancient Trees*.

Survey	Summary	Coverage of Study Area
National Vegetation Classification (NVC) surveys	<p>features present on the tree such as evidence of trunk hollowing, fruiting bodies, epiphytes, rot holes, dead wood within the canopy and cavities, along with tree measurements including height, approximate diameter at breast height (DBH) and crown width.</p> <p>The results of the desk study and aerial imagery suggest that the majority of habitats within the Scoping red line boundary are likely to be common and widespread. This will be confirmed during the extended Phase 1 habitat survey in 2021. Should any habitats be identified that may qualify as HPis and could be subject to loss or degradation due to the Project, detailed botanical surveys will be undertaken in line with the NVC Users' Handbook⁸².</p>	<p>Surveys will focus on areas where direct land take may occur and within 50m of this. The extent of the survey area will reduce as work area locations become more defined.</p>

⁸² Rodwell, J.S. (2006) *NVC Users' Handbook*. JNCC, Peterborough.



DESIGNATIONS IN STUDY AREA

Legend continued

Habitats of Principal Importance (HPI)

- Coastal and floodplain grazing marsh
- Deciduous woodland
- Lowland calcareous grassland
- Lowland fens
- Traditional orchard

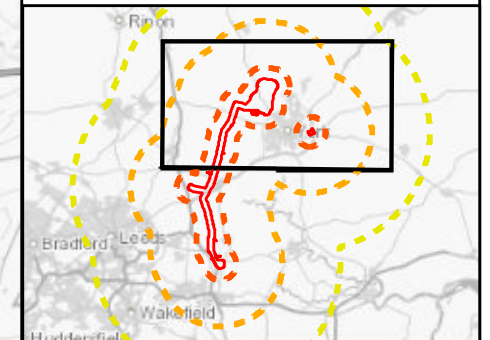
* For clarity, the full extent of the Study Area (up to 20km from the Scoping red line boundary dependent on designation) is not shown on this figure. However, all designated sites within the relevant buffers from the Scoping red line boundary (including those scoped out of further assessment) are shown.

Legend

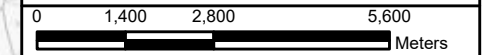
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- Existing 400kV overhead line
- Existing Osbalwick substation
- New 400kV and 275kV overhead line corridor
- Proposed Substation Siting Area
- Proposed Cable Sealing End Compound Siting Area
- Proposed Associated Infrastructure
- 2km buffer
- 10km buffer
- 20km buffer
- Yorkshire Wildlife Trust (YWT) Reserve
- Site of Importance for Nature Conservation (SINC)
- Candidate SINC
- Deleted SINC
- Local Wildlife Site (LWS)
- Site of Ecological Importance (SEI)
- Special Protection Area (SPA)
- Ramsar site
- Special Area of Conservation (SAC)
- Site of Special Scientific Interest (SSSI)
- Local Nature Reserve (LNR)
- Ancient Woodland
- Wood pasture and parkland
- Open mosaic habitats on previously developed land (draft)

Notes

This drawing is scaled at paper size A3, therefore any prints taken at smaller sizes will affect accuracy of the measurement units and should not be scaled against.



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Issue	Date	Remarks	Drawn	Checked	Approved
2	MAR 21		COLLJ	DIMMR	CHADC

Title
**SCOPING REPORT
CHAPTER 7: BIODIVERSITY
DESIGNATIONS IN STUDY AREA**



Figure Number
FIGURE 7.1

Drawing Reference
806503-WOOD-0030

Scale	Sheet Size	Sheet	Issue
1:120,000	A3	SHEET 1 OF 2	2



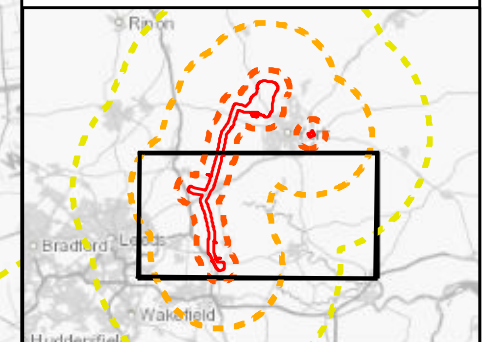
DESIGNATIONS IN STUDY AREA

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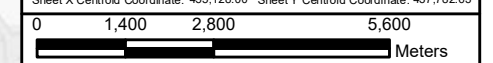
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- Existing 400kV overhead line
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- Deleted SINC
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- Site of Ecological Importance (SEI)
- Special Protection Area
- Ramsar site
- Site of Special Scientific Interest (SSSI)
- Royal Society for the Protection of Birds (RSPB) Reserve
- Local Nature Reserve (LNR)
- Ancient Woodland
- Wood pasture and parkland
- Open mosaic habitats on previously developed land (draft)

Notes

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Issue	Date	Remarks	Drawn	Checked	Approved
2	MAR 21		COLLJ	DIMMR	CHADC

Title

**SCOPING REPORT
CHAPTER 7: BIODIVERSITY
DESIGNATIONS IN STUDY AREA**



Figure Number: FIGURE 7.2

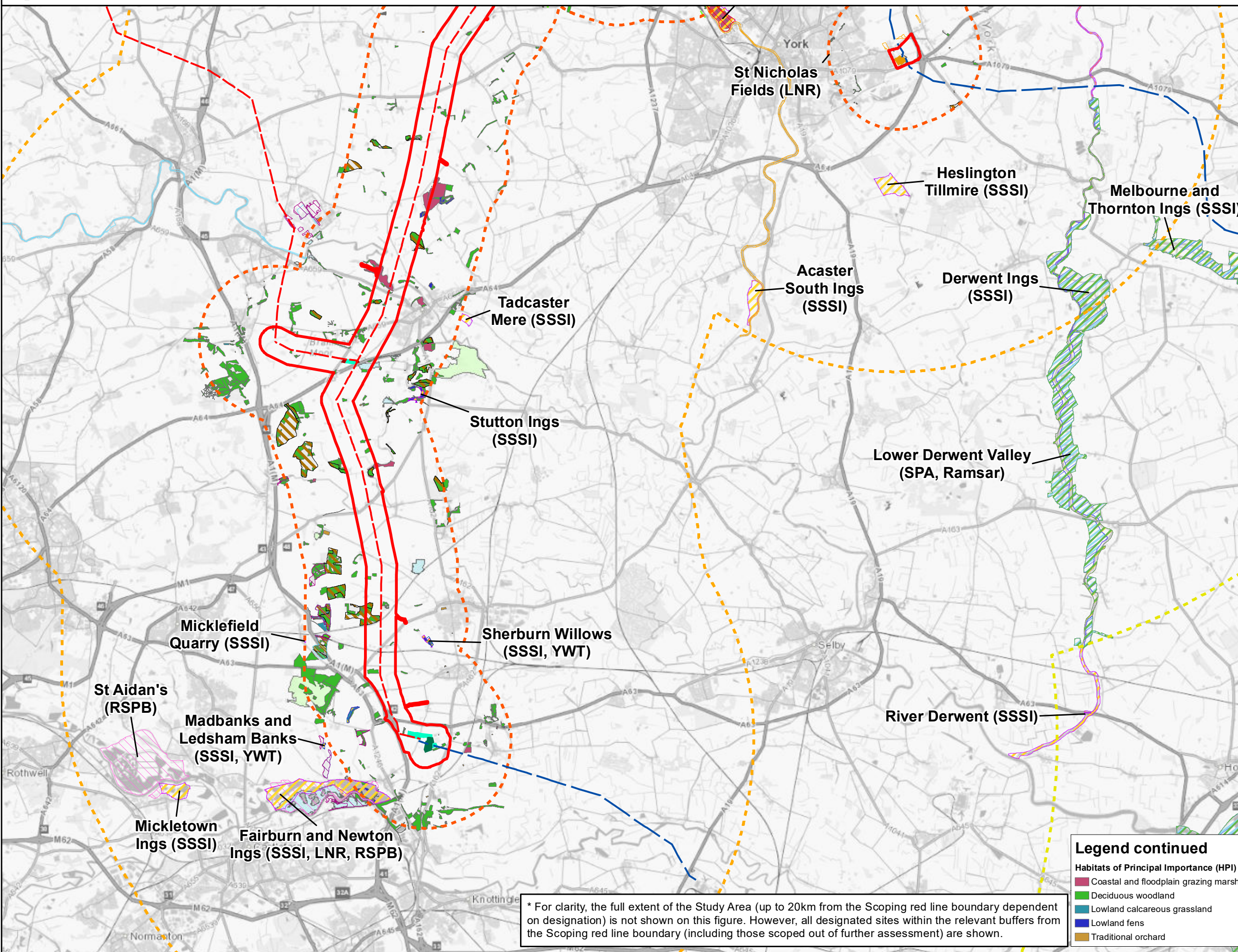
Drawing Reference: 806503-WOOD-0031

Scale	Sheet Size	Sheet	Issue
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Legend continued

- Habitats of Principal Importance (HPI)**
- Coastal and floodplain grazing marsh
 - Deciduous woodland
 - Lowland calcareous grassland
 - Lowland fens
 - Traditional orchard

* For clarity, the full extent of the Study Area (up to 20km from the Scoping red line boundary dependent on designation) is not shown on this figure. However, all designated sites within the relevant buffers from the Scoping red line boundary (including those scoped out of further assessment) are shown.



8. Arboriculture

8. Arboriculture

8.1 Introduction

8.1.1 The arboricultural assessment will consider the potentially direct and indirect impacts on trees that may arise from the construction and operation of the Project. This chapter of the Scoping Report describes the methodology to be used within the arboricultural impact assessment (AIA), the datasets to be used to inform the AIA, an overview of the baseline conditions at the site, the likely direct and indirect arboricultural impacts to be considered within the AIA, and how these likely significant impacts will be assessed for the purpose of an AIA.

8.1.2 Arboriculture interfaces with many other aspects and as such, should be considered alongside the following chapters:

- Chapter 5: Landscape and Visual Amenity;
- Chapter 6: Historic Environment; and
- Chapter 7: Biodiversity.

8.2 Relevant legislation, planning policy, and technical guidance

8.2.1 The legislation and planning policies relevant to arboriculture are detailed below.

Legislation

8.2.2 A summary of the relevant legislation is given in **Table 8.1**.

Table 8.1 Legislation relevant to Arboriculture

Legislation	Legislative context	Section considered
Town and Country Planning Act 1990 (as amended) and; Town and Country Planning (Tree Preservation) (England) Regulations 2012	<p>A Tree Preservation Order is an order made by a local planning authority in England to protect specific trees, groups of trees or woodlands in the interests of amenity. There is no minimum size of tree. Exceptions to the requirement to apply for consent to fell or prune a tree subject to a Tree Preservation Order include tree works to make dead or dangerous trees safe, to abate a (legal) nuisance, to facilitate a development with full planning consent (where the tree works were identified at the application stage) and tree works by statutory undertakers.</p> <p>Trees in Conservation Areas are protected by Section 211 of the Town and Country Planning Act.</p>	Section 8.4 (Baseline Conditions)

Legislation	Legislative context	Section considered
The Forestry Act 1967	<p>The local planning authority must be informed at least six weeks before the pruning or removal of trees within the designated area. They can then either make a TPO or allow the works to go ahead. Trees smaller than 75mm in diameter are exempt from this requirement along with similar exceptions to those for Tree Preservation Orders (including full planning consent).</p>	Section 8.4 (Baseline Conditions)
The Hedgerow Regulations 1997	<p>The Hedgerow Regulations (1997) protect agricultural or countryside hedgerows which meet the requirements of an ‘important hedgerow’. These include a minimum length of 20m (unless it meets another hedge at each end, in which case its length may be less than 20m) and a minimum age of at least 30 years. A wide range of other ecological and archaeological/heritage features can constitute an important hedgerow and further advice from a qualified ecologist is recommended in advance of any planned works which could impact established hedgerows on or bordering agricultural or countryside land. Prior to the removal or destruction of a protected hedgerow an application must be made to the Local Planning Authority. Full planning consent is an exemption to this requirement.</p>	Section 8.4 (Baseline Conditions)

Planning Policy

8.2.3 A summary of the relevant planning policies is given in **Table 8.2**.

Table 8.2 Planning policy relevant to Arboriculture

Policy reference	Policy context	Section considered
National Policy		
Overarching National Policy Statement for Energy (EN-1)	<p>The main points of the Government’s biodiversity strategy are to ensure a halting, and if possible, a reversal of declines in priority habitats and species, with wild species and habitats as part of healthy, functioning ecosystems.</p> <p>In relation to ancient woodland the policy states that the Infrastructure Planning Commission should not grant development consent for any development that would result in its loss or deterioration unless the benefits (including need) of the development, in that location outweigh the loss of the woodland habitat. It also provides for the consideration of aged or ‘veteran’ trees where found outside ancient woodland, considering their value particularly for biodiversity and stating that their loss should be avoided.</p>	Section 8.4 (Baseline conditions).
National Policy Statement for Electricity Networks Infrastructure (EN-5)	<p>Section 2.8.5 sets out guidelines for the routing of new overhead lines based on the Holford Rules (develop by Lord Holford in 1959). The guidelines have been subsequently reviewed and updated and should be followed by developers when designing new overhead line. The Holford Rules requirements in relation to trees include routing overhead lines to maximise the screening benefit of trees:</p> <p>Section 2.8.11 identifies mitigation for new overhead lines which can include off site tree and hedgerow planting to provide screening and to soften visual impacts, this requires agreement with relevant landowners.</p>	Section 8.4 (Baseline conditions).
National Planning Policy Framework (NPPF)		
	<p>The NPPF seeks to ensure that new development is sustainable and underlines the importance of Green Infrastructure, of which trees form an integral part. This encompasses a recognition of the importance of trees in relation to the management of air, soil and water quality along with other associated ecosystem services and climate change adaption. The NPPF requires planning policies and decisions to contribute to and enhance the natural and local environment by enhancing landscapes and providing net gains for</p>	Section 8.4 (Baseline conditions).

Policy reference	Policy context	Section considered
	<p>biodiversity. Finally, it specifically identifies veteran and ancient trees and woodland as a highly valuable and irreplaceable habitat and that planning permission should be refused for any development that would result in any loss or damage to trees of this nature unless there are ‘<i>wholly exceptional</i>’ circumstances.</p>	
Development Plan Policies		
Harrogate Local Plan, 2024-2035	<p>Policy NE7 Trees and Woodlands states that development must protect and enhance existing trees of value unless there are “clear and demonstratable” reasons why tree removal is preferential for development.</p> <p>Proposals which cause damage or loss to ancient or veteran trees and/or trees subject to a tree preservation order will not be permitted unless there is an overriding need for the development and where there is no alternative for the developments location.</p> <p>Policy NE7 states the requirements for new tree planting to mitigate against tree removal, to be required on-site. Where this is not feasible, off-site planting may be undertaken.</p>	<p>Section 8.4 (Baseline conditions) and Section 8.6 (Scope of the Assessment).</p>
Harrogate Borough Council, Tree and Woodland Policy, 2016-2021	<p>Policy 45 states that Harrogate Borough Council will refer to the Trees & Design Action Group (TDAG) 2014 publication “Trees in Hard Landscapes – A Guide for Delivery” when commenting on applications for proposed development.</p> <p>Policy 46 requires planning applications relating to trees to be submitted in accordance with BS5837:2012.</p> <p>Tree retention is identified as being secured by three primary actions in Policy 47, through the creation of Tree Preservation Orders; through conditions of planning consent; and by ensuring planning conditions include replacement planting which will be monitored and enforced.</p> <p>Policy 48 requires all new tree planting to be in keeping with local landscape character; planted in accordance with BS 8545:2014; and be replaced where any new tree planting fails within five years of development completion.</p>	<p>Section 8.4 (Baseline conditions) and Section 8.6 (Scope of the Assessment).</p>

Policy reference	Policy context	Section considered
Hambleton Local Development Framework: Core Strategy Development Plan Document, 2007 (DPD)	CP16 states that proposed development will be supported where the District's natural assets are enhanced, with particular support to improve the natural environment where it is poor and lacking in diversity. Development will not be supported which has a detrimental impact on the interests of natural assets, with mitigation and/or compensation required to address harmful implications of development.	Section 8.4 (Baseline conditions) and Section 8.6 (Scope of the Assessment).
Hambleton Development Policies DPD, 2008	Policy DP10 identifies that permission for development will only be granted where it respects, by protecting or enhancing, the intrinsic qualities of open areas that have particular importance in contributing to the identity or character of settlements, including protected trees and woodlands.	Section 8.4 (Baseline conditions) and Section 8.6 (Scope of the Assessment)
Hambleton Draft Local Plan, July 2019	<p>Section 6.40 identifies the importance of protecting and enhancing ancient woodland and veteran trees. Their loss will only be permitted "where the benefits of development in that location can clearly be demonstrated to outweigh their loss."</p> <p>Policy E4 identifies that the Council will seek to protect existing green infrastructure, secure improvements to its safety and accessibility and secure net gains to green infrastructure provision.</p> <p>Policy E7 states that proposals will be supported where they seek to conserve and enhance any existing tree, hedgerow or woodland of value that would be affected by the proposed development.</p> <p>Policy E7 requires mitigation from harm to trees by development be achieved through new tree planting; and sustainable tree management programmes.</p> <p>Section 6.74 identifies that the Council will encourage proposals which seek to increase the planting of trees, woodland and hedgerows.</p>	Section 8.4 (Baseline conditions) and Section 8.6 (Scope of the Assessment)
York 2005 Draft Development Control Local Plan (approved for the purpose of making development control decisions)	<p>Section 2.32 identifies the requirement for the retention of important trees in new developments.</p> <p>Policy NE1: Trees, Woodlands and Hedgerows states that development will be refused which results in loss or damage to trees; will require the adequate protection of trees and hedgerows</p>	Section 8.4 (Baseline conditions) and Section 8.6 (Scope of the Assessment)

Policy reference	Policy context	Section considered
	<p>which are to be retained; and important trees will be protected through the creation of TPOs.</p> <p>Policy NE1 requires appropriate replacement planting for tree removals, with proposed developments required to make provision for planting of new trees as part of landscaping schemes.</p> <p>Section 3.11 further identifies the requirement for mitigation for tree loss noting that this may be secured via condition and would include a replacement scheme for trees which die within a set timescale following planting. Tree protection may be secured in the form of a bond or financial contribution from developers to ensure tree protection is fully implemented during construction and implementation.</p>	
York draft Local Plan (2018) - at examination stage	<p>Policy GI4 Trees and Hedgerows sets out that the council will support development that recognises the value of tree cover and seeks to increase it. Development that retains trees that provide a positive contribution to their setting, provides protection for existing trees worthy of retention for the long term and where there would not be a conflict between trees and new development.</p>	<p>Section 8.4 (Baseline conditions) and Section 8.6 (Scope of the Assessment)</p>
Minerals and Waste Joint Plan (North Yorkshire CC, York City Council, North York Moors National Park Authority) - at examination stage	<p>Policy D07 Biodiversity and Geodiversity, section 3 states: <i>Development which would have an unacceptable impact on the notified special interest features of a SSSI or a broader impact on the national network of SSSIs, or the loss or deterioration of ancient woodland or aged or veteran trees, will only be permitted where the benefits of the development would clearly outweigh the impact or loss.</i></p>	<p>Section 8.4 (Baseline conditions) and Section 8.6 (Scope of the Assessment)</p>
Leeds City Council: Saved UDP 2001 and UDP Review 2006 policies	<p>Policy N20 identifies that removal of trees within a Conservation Area will be resisted.</p> <p>Section 4.3.6 identifies that all development is subject to considerations including the retention of trees, and should avoid environmental intrusion and loss of amenity. Development should reflect concepts of sustainability.</p>	<p>Section 8.4 (Baseline conditions) and Section 8.6 (Scope of the Assessment)</p>
Leeds City Council Natural Resources and Waste Local	<p>Policy Land 2: Development and Trees states that development should conserve trees wherever possible and include new tree planting in designs.</p>	<p>Section 8.4 (Baseline conditions) and</p>

Policy reference	Policy context	Section considered
Plan (adopted January 2013 & revised September 2015)	Where trees are to be removed, an expected replacement standard of three to one will be required on the site, forming part of the landscaping scheme. Where this cannot be achieved, either of site planting or agreed financial contributions will be required.	Section 8.6 (Scope of the Assessment)
Leeds City Council Supplementary Guidance No. 25 Greening the built edge	Section 3.4 identifies that tree surveys should extend up to 10m beyond the site boundary to take due account of off-site features. Section 9.7 identifies that trees, either existing or proposed, may be protected by a Tree Preservation Order.	Section 8.4 (Baseline conditions) and Section 8.6 (Scope of the Assessment)
Leeds City Council Core Strategy (as amended by the Core Strategy Selective Review 2019) Leeds Local Plan, 2014	Policy G1: Enhancing and Extending Green Infrastructure states that development proposals should ensure that green infrastructure and/or corridors are retained and improved; the green infrastructure is extended; that opportunities are taken to increase woodland cover; and provision of biodiversity and its retention are identified. Policy G2: Creation of New Tree Cover states that development which results in harm to or the loss of Ancient Woodland and Veteran trees will be resisted.	Section 8.4 (Baseline conditions) and Section 8.6 (Scope of the Assessment)
Selby District Local Plan (2005) (saved policies)	Policy ENV1 identifies that when considering granting planning consent, the potential loss of and impact to trees will be considered.	Section 8.6 (Scope of the Assessment)
Selby District Core Strategy Local Plan (2013)	Policy SP15 Sustainable Development and Climate Change B. Design and Layout of Development states: <i>In order to ensure development contributes toward reducing carbon emissions and are resilient to the effects of climate change, schemes should where necessary or appropriate: e) Include tree planting, and new woodlands and hedgerows in landscaping schemes to create habitats, reduce the ‘urban heat island effect’ and to offset carbon loss;.</i>	Paragraph 8.6.23 (Arboricultural Impact Assessment)

Technical Guidance

8.2.4 A summary of the relevant technical guidance is given in **Table 8.3**.

Table 8.3 Technical guidance relevant to Arboriculture

Technical Guidance Document	Context	Section considered
British Standards BS5837:2012 Trees in relation to design, demolition and construction - Recommendations	<p>Gives recommendations and guidance on the relationship between trees and design, demolition and construction processes taking account of current practice regarding planning for the management, protection and planting of trees in the vicinity of structures, and for the protection of structures near trees.</p> <p>It sets out the principles and procedures to be applied to achieve a harmonious and sustainable relationship between trees and structures.</p>	Section 8.6 (Scope of the Assessment)
National Joint Utilities Group (NJUG) Vol 4 Issue 2 – Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees. 2007	<p>Technical guidance to allow the co-existence of trees and utility apparatus where they are required to share available space both above and below ground.</p>	Section 8.6.23 (Arboricultural Impact Assessment)
BS3998:2010 Tree Work - Recommendations	<p>Guidance on the management options for established trees and overgrown hedges including the impact of that work both on the individual tree and in relation to neighbouring trees.</p>	Section 8.6.23 (Arboricultural Impact Assessment)
<p>Ancient woodland, ancient trees and veteran trees: protecting them from development. Forestry Commission and Natural England Standing Advice (2018)</p>	<p>Guidance for local planning authorities and developers on how ancient woodland and veteran trees should be considered in relation to new development. The guidance sets out that local planning authorities should refuse applications where trees or woodlands of this nature would be subject to loss or damage unless there are wholly exceptional reasons and a</p>	Section 8.6.23 (Arboricultural Impact Assessment)

Technical Guidance Document	Context	Section considered
BS8545:2014 Trees: from nursery to independence in the landscape - Recommendations	suitable mitigation strategy is in place. The guidance stipulates that a minimum 15m buffer zone should be applied to ancient woodlands and that a buffer zone equivalent to 15x stem diameter or the canopy spread + 5m (whichever is greatest) be applied to veteran or ancient trees.	Section 8.5 (Embedded Environmental Measures)

8.3 Consultation and engagement

- 8.3.1 No consultation has been undertaken to date although it is intended that this Scoping study shall form the basis for consultation with key stakeholders including the tree officers of local planning authorities that fall within the Arboriculture Impact Assessment Study Area, namely:
- York City Council;
 - Hambleton District Council; and
 - Selby District Council;
- 8.3.2 Consultation will be undertaken with the relevant local authority tree officers during the preparation of and following completion of the PEIR to ensure any necessary amendments can be incorporated. Engagement will also be undertaken with Natural England where any potential impacts on ASNW have been identified and with the Forestry Commission as necessary, to confirm there are no impacts on land under their ownership, or, where it is likely a felling licence may be required to fell more than 5m³ of timber in any calendar quarter.

8.4 Baseline conditions

- 8.4.1 The Scoping Study Area is defined as the Scoping red line boundary (**Figure 1.1**) which encompasses all elements of the Project. A full project description is provided in **Chapter 2: The Project**.
- 8.4.2 Once scoping is complete, and the Project design is developed in more detail the Arboricultural Impact Assessment Study Area will be based on the location of Project components (**Figure 1.2**) including buffers for construction works within the Scoping red line boundary.
- 8.4.3 Within the Scoping red line boundary consideration has been given to the indicative footprint of construction works, referred to as the 'likely working areas'. These are located along the existing 275kV XC/XCP overhead line, at existing substations including the project components proposed around the existing Monk Fryston Substation, at the Tadcaster Area and the project components within the North-west of York Area including the graduated swathe as outlined in **Chapter 2** and shown on **Figures 2.2** and **2.3**.
- 8.4.4 The Study Area will be reviewed and amended as refinement of the Project design, the identification of additional impact pathways and, where appropriate, in response to feedback from consultation, to ensure that there is sufficient data on which to conduct the assessment. These refinements are expected to reduce the extent of the Study Area as the Project progresses, whilst still reflecting recognised good practice.
- 8.4.5 It is assumed that following the above refinement processes that post-scoping the Study Area for the Arboricultural Impact Assessment within the North-west of York Area will comprise of a refined boundary area 375m in width along the new cabling corridor. For all three component parts the Arboricultural Impact Assessment Study Area will further extend to include 15m beyond the refined locations of the substation and cable sealing end compounds (CSECs) and land required for construction, laydown and access.

Data gathering methodology

- 8.4.6 The Arboriculture scoping exercise has been undertaken reviewing several data sources as listed below:
- Ordnance Survey (OS) 1:25,000 scale mapping;
 - Aerial photography (Google Earth);
 - Multi-Agency Geographic Information for the Countryside (MAGIC);⁸³
 - National Tree Map (NTM) dataset;
 - Ancient Tree Inventory (The Woodland Trust) data;⁸⁴
 - York City Council TPO online mapping;⁸⁵

⁸³ Multi-Agency Geographic Information for the Countryside (MAGIC) website. <https://magic.defra.gov.uk/magicmap.aspx> [accessed 16/02/21]

⁸⁴ Ancient Tree Inventory website <https://ati.woodlandtrust.org.uk/> [accessed 16/02/21]

⁸⁵ York City Council TPO online mapping https://cyc.maps.arcgis.com/apps/Embed/index.html?webmap=80019297f50a489599184a8279f513ea&extent=-1.1918,53.9249,-0.9518,54.0047&home=true&zoom=true&scale=true&search=true&searchextent=false&details=true&legend=true&active_panel=%20legend&di sable_scroll=false&theme=light [accessed 16/02/21]

- Hambleton District Council TPO online mapping;⁸⁶
- Harrogate Borough Council TPO online mapping;⁸⁷
- Selby District Council TPO online mapping⁸⁸; and
- Leeds City Council TPO online mapping.⁸⁹

8.4.7 Reference has also been made to **Chapter 2: The Project**.

Current baseline: Current land use

8.4.8 The land uses within the Scoping red line boundary are dominated by agricultural land with a high proportion of arable land which is divided into fields of varying size. Typically, managed hedgerows form field boundaries with occasional individual trees. Some individual trees, likely remnant of old field boundaries, are present within larger fields and are also noted along highways crossing the Scoping red line boundary. Woodland groups provide a break from the repetition of agricultural fields together with smaller tree copses generally close to watercourses or adjacent to farmsteads.

8.4.9 Within the Tadcaster Area the tree population includes sections of plantation woodland whilst at Monk Fryston Substations Area deciduous woodland groups are present to the southern and eastern boundaries with small tree groups also present to the south of the existing substation. At Osbaldwick the existing substation is surrounded to the north, south and west by dense deciduous tree planting whilst in the remainder of the Study Area mature trees are present along field boundaries and along the edge of the A64.

Current baseline: Statutory Designations applicable to trees

Tree Preservation Orders (TPOs)

8.4.10 A number of TPOs have been identified within the Scoping red line boundary (or directly along the outer edge) which are administered by City of York Council, Hambleton District Council and Selby District Council. Although all the TPOs present within the Scoping red line boundary will be considered, TPOs that are located within residential gardens that will not be directly affected by the Project have been excluded from **Table 8.4** below.

Table 8.4 TPOs located within the Study Area

LPA	TPO Ref	TPO Name / Location	TPO Type	Species
York	1985/77	Moorlands Lodge, Skelton	Individual	Oak
York	1989/137	Moorlands, Skelton	Woodland	Various

⁸⁶ Hambleton District Council TPO online mapping <https://www.hambleton.gov.uk/planning/trees-conservation/1> [accessed 16/02/21]

⁸⁷ Harrogate Borough Council TPO online mapping <https://secure.harrogate.gov.uk/inmyarea/property/?uprn=100052003563> [accessed 16/02/21]

⁸⁸ Selby District Council TPO online mapping <https://selby-dc.maps.arcgis.com/apps/webappviewer/index.html?id=def3546e04184c3a852d3ec02cd1d5d1> [accessed 16/02/21]

⁸⁹ Leeds City Council TPO online mapping <https://leedscouncil.maps.arcgis.com/apps/MapSeries/index.html?appid=daeefe7a292b4f80a0ee284afe0926e4> [accessed 16/02/21]

LPA	TPO Ref	TPO Name / Location	TPO Type	Species
			Group	Various
York	1990/158	By River Ouse, Skelton	Area	N/A
			4x Individual	N/A
York	1989/125	Fairfields,	16x Individual	Oak, Beech, Lime, Sweet Chestnut, Willow, Sycamore, Yew, Horse Chestnut.
Selby	2/2006	1 Garnet Lane, Tadcaster	Individual	Beech
Selby	9/1988	Inholmes Lane, Tadcaster	Individual	Sycamore
Selby	1/1980	Lord's Plantation, Leeds Road, Tadcaster	Woodland	Mixed, mainly Sycamore, Silver Birch, Beech, Ash & Scots Pine.
Selby	9/1984	Peckfield Lodge South Milford	Woodland	Sycamore, Ash, Horse Chestnut, Oak, Laburnum, Beech, Silver Birch, Poplar, Thorn, Larch.
Selby	3/1991	Toulston Polo Ground, Toulston, Tadcaster	Area	Beech, Sycamore, Ash, Oak, Chestnut, Lime, Sorbus & Birch.
Selby	6/1993	Field OS No 3571 Toulston, Tadcaster	Woodland	Beech, Sycamore, Oak, Chestnut & Ash.
Hambleton	20/00003/TPO2	North East of Stable Barn, Overton	Individual	Sycamore
Hambleton	1991/13	Yorburgh, Station Lane, Shipton by Beningbrough	Individual	Oak

Conservation Areas

- 8.4.11 Three conservation areas are located wholly within or partly within the Study Area, Newton Kyme Conservation Area to the west of Tadcaster, Skelton Conservation Area, which is located to the southeast of North west of York area and the eastern extent of Nether Poppleton Conservation Area which is also within the North-west of York area.
- 8.4.12 The very southern extent of Nether Poppleton Conservation Area, along Ouse Moor Lane, extends into the preferred route corridor for the new 400kV and 275kV overhead lines. No other conservation areas lie within the Scoping red line boundary.

Current baseline: Non-Statutory Designations applicable to trees

Ancient Woodland

- 8.4.13 The Ancient Woodland Inventory⁹⁰ identifies woodlands that have had continuous woodland cover since the year 1600. These woodlands are typically more ecologically diverse and of a higher nature conservation value than those developed recently or those where woodland cover on the site has been intermittent. These woodlands may also be culturally important. The Ancient Woodland Inventory places woodland into one of four categories: Ancient Semi-Natural Woodland (ASNW); Plantation on Ancient Woodland Sites (PAWS); Restored Ancient Woodland Sites (RAWS) and Ancient Woodland Site of Unknown Category (AWSUC).

Table 8.5 Ancient Woodland within the Study Area

Name / Location	Total Area of Ancient Woodland (ha)	Woodland Classification
Overton Wood	47.75	PAWS
Redhouse Wood	48.06	PAWS
Nova Scotia Wood	1.81	PAWS
Shire Oaks	11.79	ASNW
Shire Oaks	3.07	PAWS
Smaws Wood	2.64	ASNW
Bullen Wood	2.51	PAWS
Castle Hill Wood	3.56	PAWS
Huddleston Old Wood	3.38	ASNW
Huddleston Old Wood	38.20	PAWS

⁹⁰ [Ancient Woodland \(England\) - data.gov.uk](https://data.gov.uk)

- 8.4.14 All areas of ancient woodland are considered to be irreplaceable. Standing advice from Natural England and the Forestry Commission⁹¹ sets out that a minimum buffer of 15m is typically required between ancient woodland and any new development.
- 8.4.15 In addition, the guidance identifies that the current quality of ancient woodland should not be considered in favour of development. A 15m buffer surrounding the ancient woodland will be applied to the tree constraints information for all recorded ancient woodland to inform the design process (**Figures 8.1 to 8.3**).
- 8.4.16 Ancient woodlands and their associated buffer are defined within the Scoping red line boundary but are not currently within the anticipated Arboricultural Impact Assessment Study Area and do not overlap with the project components (**Figure 1.2**).

Veteran Trees

- 8.4.17 Veteran Trees are trees that, because of their age, size or condition, are considered to have exceptional cultural, landscape or nature conservation value.
- 8.4.18 Any veteran trees are considered to be irreplaceable. Standing advice from Natural England and the Forestry Commission sets out that for veteran trees a buffer should be maintained which is an area equivalent to a radius of 15 x the stem diameter (measured at 1.5m) or the canopy spread plus 5m (whichever is greater).
- 8.4.19 In addition, the guidance identifies that trees with future veteran potential should also be taken into account and protected.

Ancient Tree Inventory

- 8.4.20 The Ancient Tree Inventory, administered by the Woodland Trust, is a mapping tool recording the oldest and most important trees in the UK (where identified). There are three categories of trees recorded which are: ancient, veteran and notable. Notable trees are included as they are usually mature trees which stand out in the local environment due to their size or rarity.
- 8.4.21 There are a number of trees recorded in the Ancient Tree Inventory within the Study Area, the locations are summarised below.

Table 8.6 Trees Recorded on the Ancient Tree Inventory within the Study Area

Location	Study Area	Veteran Status	Species
West of Wigginton /	North-west of York	Veteran	Beech
Hutton Wandesley	N/A (Existing XC Route)	Veteran	Pedunculate Oak
Hutton Wandesley	N/A (Existing XC Route)	Notable	Oak
Hull Road	N/A (Osbalwick substation)	Notable	Atlas Cedar

⁹¹ <https://www.gov.uk/guidance/ancient-woodland-and-veteran-trees-protection-surveys-licences>

Other Statutory and Non-Statutory Designations

- 8.4.22 In accordance with the Forestry Act (1967) a felling licence may be required by the Forestry Commission to fell more than 5m³ of timber in any calendar quarter (subject to relevant exemptions including tree safety works, tree works for a statutory undertaking and tree works in gardens, churchyards and designated public open space).
- 8.4.23 Although full planning consent is an exception from the need to apply for a felling licence, and the Forestry Commission would be consulted as part of determination of the DCO application, some works associated with development are not strictly necessary to achieve the development and therefore might fall outside of this exception. Such works may include the location of compounds and haul roads for example.
- 8.4.24 The Hedgerow Regulations (1997) protect agricultural or countryside hedgerows which meet the requirements of an 'important hedgerow'. These include a minimum length of 20m (except where a hedge meets another hedge at each end) and a minimum age of at least 30 years. A wide range of other ecological and archaeological/heritage features can constitute an important hedgerow and further advice from a qualified ecologist is recommended in advance of any planned works which could impact established hedgerows on or bordering agricultural or countryside land. Prior to the removal or destruction of a protected hedgerow an application must be made to the Local Planning Authority. Full planning consent is an exception to this requirement.

Future baseline

- 8.4.25 Trees change over time. It is an inevitable process which will occur across the Study Area regardless of the Project. Natural events such as storms, including high winds and flooding, can significantly impact trees as can the progression of pests and diseases (such as Chalara Ash Dieback). The contribution of individual trees will also change in value as they mature as well as when they eventually die.
- 8.4.26 Human activity can also result in change to any tree population through changes to land use and through management activities.

8.5 Embedded Environmental Measures

- 8.5.1 As part of the project design process, a number of embedded environmental measures will be proposed to reduce the potential for impacts on arboricultural interests. These will evolve over the development process as the EIA progresses and in response to consultation, they will be fed iteratively into the assessment process. These measures typically include those that have been identified as good or standard practice and include actions that would be undertaken to meet existing legislation requirements.
- 8.5.2 As there is a commitment to implementing these embedded environmental measures, and also to various standard sectoral practices and procedures, they are considered inherently part of the design of the Project and have, therefore, been considered in the scoping assessment (and are noted in **Table 8.7**).

Table 8.7 Relevant Arboricultural embedded environmental measures

Embedded environmental measure proposed

Where practical, sensitive sites including Ancient Woodland and veteran trees would be avoided when micro-siting the likely working areas.

The Arboricultural Impact Assessment will consider existing species range and diversity to help inform mitigation planting as appropriate in accordance with BS8545:2014 Trees: from nursery to independence in the landscape - Recommendations

An Arboricultural Method Statement will be developed in support of the Construction Environmental Management Plan (CEMP) to ensure the protection and retention of significant individual trees and groups as fully as possible.

8.6 Scope of the assessment

Potential receptors

8.6.1 Individual arboricultural features, their quality and the spatial constraints associated with them will be identified through on-site walkover survey using the methodology set out within BS:5387:2012 Trees in relation to design, demolition and construction - Recommendations. This will focus on the likely working areas of development activity (i.e. the new 400kV and 275kV overhead line installations, new substation and CSEC siting areas within to the North-west of York Area and the substations and CSECs siting areas at the Tadcaster Area and Monk Fryston Substation Areas) but will exclude the reconductoring of the 275kV XC/XCP (Poppleton to Monk Fryston) overhead line as the works to this overhead line would comprise reconductoring of wires, replacement of steelwork and the replacement of a limited number of pylons and would therefore be unlikely to result in extensive tree removals or other arboricultural impacts (as this is an existing overhead line predominantly located in open agricultural land), and would be managed via a precautionary working methodology. This would be reviewed as engineering design is undertaken. Should the works to the existing 275kV XC/XCP overhead line require tree removal this would be reviewed and can be considered as part of the assessment.

Likely arboricultural impacts

8.6.2 The likely arboricultural impacts that will be taken forward for assessment in support of the AIA are summarised in **Table 8.8**.

Table 8.8 Likely Arboricultural impacts

Activity	Impact	Receptor
Construction		
Land preparation, earthworks, excavation	Tree removals, pruning of branches and roots.	Trees in proximity to construction operations

Activity	Impact	Receptor
Construction access	Emission of dust causing reduction of tree health/ vitality Construction vehicles resulting in compaction to soils within RPA Clearance requirements resulting in tree pruning	Retained trees in proximity to construction and enabling works.
Operation		
Clearance for operational lines	Height reduction of features under operational lines	Arboricultural features located beneath or adjacent to overhead lines
Access clearance requirements for maintenance	Access clearance requirements resulting in tree pruning	Retained trees in proximity to operational access areas.

8.6.3 It is understood that the changes to the existing Osbaldwick 400kV substation, comprising a circuit breaker and an isolator would likely be sited on operational land, and largely confined to the existing substation site. Consequently, the proposed works at Osbaldwick are unlikely to impact on existing trees and therefore have been scoped out of further consideration in the Arboriculture Impact Assessment.

8.7 Assessment methodology

8.7.1 Whilst the overall approach to the methodology aligns with the assessment methodology set out in **Chapter 4**, there is no recognised or consolidated methodology or practice for the determination of significance in relation to arboricultural effects.

8.7.2 The methodology outlined in this section is based on BS5837: 2012 which is industry best practice for the consideration for of trees in relation to development in the UK. Arboriculture does not readily align to the wider EIA methodology and there is no industry standard, guidance or consensus on how arboriculture should be considered or managed as part of the EIA process or an agreed definition for significant arboricultural effects, and for this reason it is typically managed as a stand-alone technical assessment in accordance with BS5837 and included as a technical appendix to the ES. This approach is proposed for the Project ES on that basis. The information from the AIA will be used to inform the assessment of likely significant effects in relation to landscape, visual, historic environment and biodiversity effects and will form an appendix to the ES.

8.7.3 An initial desk study of the entire Study Area will be undertaken incorporating a high-level tree assessment methodology. A more detailed tree survey will then be carried out for specific areas of the Project as the design is progressed.

8.7.4 The high-level tree assessment will utilise the National Tree Map (NTM) dataset from the data providers Bluesky International Ltd. NTM is a digital map layer and database that accurately depicts and records the location and extent of trees. NTM data is generated from a combination of high-resolution aerial photography, Digital Surface

Models (DSM) and Digital Terrain Models (DTM). It provides approximate tree canopies and heights for individual tree features.

- 8.7.5 Canopies are delineated based upon processing of the Red, Green, Blue (RGB) values within the aerial photography and the identification of a distinct tree top. Where trees are closely spaced or have a very homogenous height then a single NTM feature can cover multiple trees. As it is based upon an airborne dataset any trees obscured from above, for example a small tree growing under the canopy of a much larger tree, will not be recorded. It is impossible to have a 100% accurate dataset and trees can also be missing for a number of reasons including: temporal (size or presence of tree has changed since survey); distortions due to steeply sloping terrain; or shadow effects from tall structures.
- 8.7.6 Tree heights are based upon a Digital Height model (DHM) which is created by looking at the difference between a DSM and DTM. This provides a maximum height attribute for each generated tree feature.
- 8.7.7 A database of over 16,000 individual trees that have been surveyed in detail (in accordance with 'BS5837:2012: Trees in relation to design demolition and construction – Recommendations') formed the baseline data for an assessment to ascertain the approximate maximum average stem diameter for defined tree height ranges. These were then used to calculate the maximum average Root Protection Area (RPA) radius for these height ranges (calculated as per BS5837:2012, Chapter 4.6 "...RPA should be calculated as an area equivalent to a circle with a radius 12 times the stem diameter.").
- 8.7.8 With ArcGIS this data is then used to apply the respective notional RPA buffer zones for each individual tree's height. Merged into a single layer this forms our 'Approximate RPA Buffer Constraint Zones' to give a high-level indication of the likely zone of constraint associated with each tree feature.
- 8.7.9 This process will be applied to refine the Study Area for detailed walkover tree surveys and to inform the optioneering and design process for all elements of the Project.
- 8.7.10 For the reconductoring of the existing 275kV OHL and other areas of the Project including Osbaldwick substation, a walkover tree survey will not be carried out, however the high-level tree assessment will be used to understand the likely spatial constraints associated with trees and to inform the location of areas of storage and access. General guidance will also be provided in relation to tree protection measures and appropriate working methodologies.
- 8.7.11 The fieldwork will comprise of a preliminary, non-intrusive, visual survey undertaken from ground level with the specific intention of evaluating the quality and benefits of trees within the final Study Area for the new 400kV and 275kV overhead lines and the York North and Monk Fryston substations and associated CSECs including those proposed at Tadcaster.
- 8.7.12 The fieldwork will include the collection of dimensional data and observational information and a diameter tape measure, clinometer and distometer will be used to measure stem diameters, heights and canopy spreads respectively where feasible. Average dimensions or dimensional ranges have occasionally been used, where appropriate, to best describe features.

- 8.7.13 Where further inspection is deemed appropriate to ascertain the condition of the tree or other arboreal features, this will be identified within the preliminary management recommendations.
- 8.7.14 The Root Protection Area (RPA) is the notional extent of what is considered to be the key rooting area for tree health and function. This is generally depicted as a circle but can be amended to a polygon with an equivalent area in accordance with Section 4.6.2 of BS5837 where the RPA is likely to have developed asymmetrically.
- 8.7.15 A Tree Constraints Plan showing the position of trees and the spatial constraints associated with them together with a Tree Survey Schedule will form part of the AIA.
- 8.7.16 The tree categorisation process recommended by BS5837:2012 is summarised in **Table 8.8** and will correspond with the tree canopy outline shown on the Tree Constraints Plan and the information in the Tree Survey Schedule.

Table 8.8 BS5837:2012 Tree Categorisation process

Category	Definition
A	High quality, minimum of 40+ years remaining contribution
B	Moderate quality, minimum of 20+ years remaining contribution
C	Low quality, minimum of 10+ years remaining contribution
U	Unsuitable for retention, <10 years remaining contribution
1	Arboricultural value
2	Landscape value
3	Conservation or cultural value

Data Capture

- 8.7.17 A set of GIS feature classes will be created in ArcGIS desktop, for the different arboricultural features that will then be recorded on site on a Global Positioning System (GPS) enabled Panasonic Tough Pad utilising ArcGIS software.
- 8.7.18 The GIS feature classes that will be used to collect the information as part of the tree survey are as set out below:
- tree number;
 - species (for groups the primary species are listed);
 - life-stage (young, semi-mature, early-mature, mature, over-mature or veteran);
 - height (for groups an average height is recorded);
 - stem diameter at 1.5m (for groups a maximum diameter is recorded);
 - crown radius (recorded at the four cardinal points);
 - height of first branch and direction;
 - physiological and structural condition (good/fair/poor/dead);

- estimated remaining contribution in years;
- category (A, B, C, or U); and
- sub category (1, 2 or 3).

8.7.19 Trees will be identified on site and positions mapped using GPS with an accuracy of between 3m and 5m. Where the tree locations are not based on accurate topographical survey points their positions will be considered to be indicative.

8.7.20 A number of post-processing tools will be used in the office to 'clean up' the data, for example to snap vertices to Ordnance Survey MasterMap features and to remove any overlaps between polygons. Tree locations will also be checked using aerial photography.

Arboricultural Impact Assessment

8.7.21 A desk top review of tree constraint information will then be undertaken in relation to the Project development proposals which will identify the quality and value of trees (number per BS5837 category) to be removed, impacted and retained (with appropriate mitigation), or retained and unaffected. This information will be initially collated in support of the PEIR with an updated AIA produced to assess the impact of the final design and reported in the ES.

8.7.22 A Tree Protection Plan will be produced to identify trees to be removed or retained and how retained trees will be protected. The outputs from the AIA will also inform the Landscape and Biodiversity assessments.



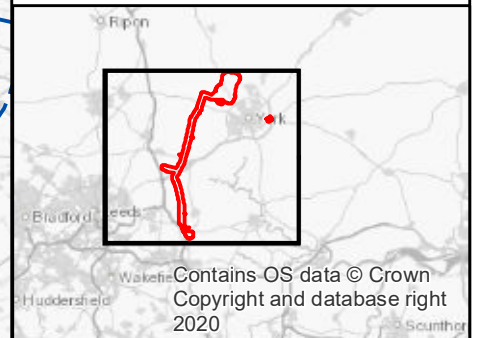
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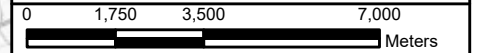
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- Existing 400kV overhead line
- New 400kV and 275kV overhead line corridor
- Proposed Substation Siting Area
- Proposed Cable Sealing End Compound Siting Area
- Proposed Associated Infrastructure
- Existing Substation
- Ancient Tree Inventory Recorded Tree
- Tree Preservation Orders - individual trees
- Tree Preservation Orders - groups/woodlands/areas
- Ancient Woodland
- 15m buffer to Ancient Woodland

Notes

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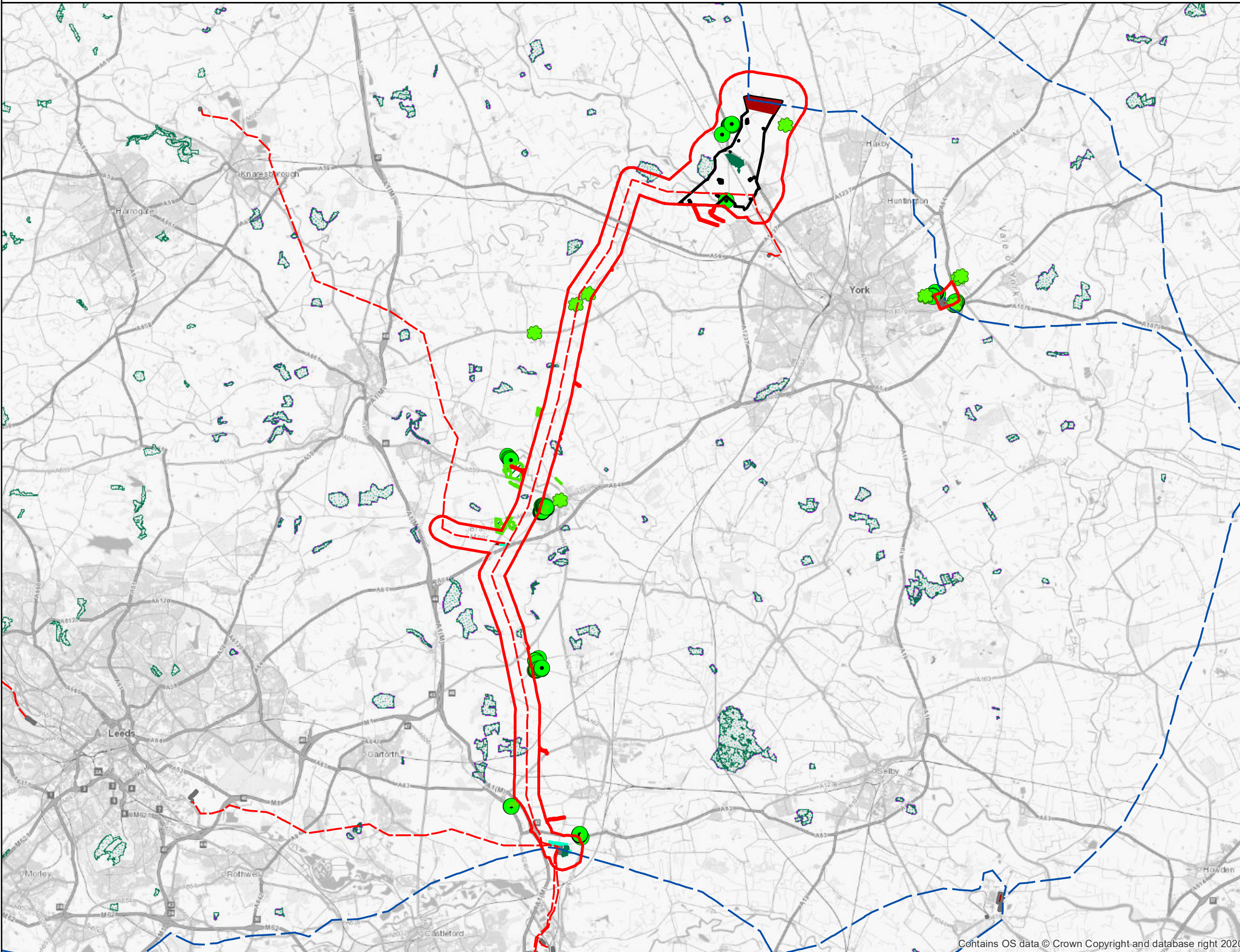
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Figure Number: **FIGURE 8.1**

Drawing Reference: **806503-WOOD-0049**

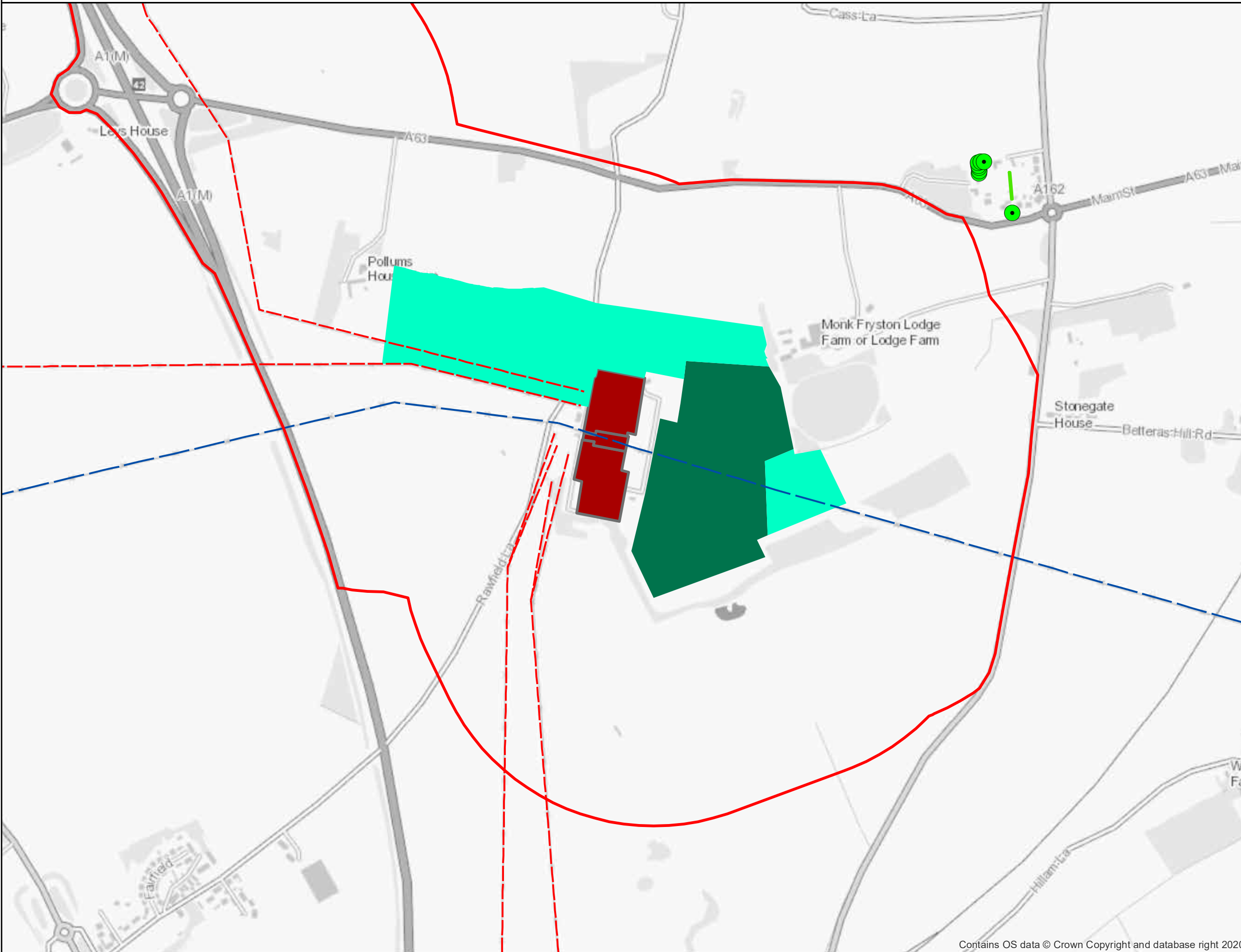
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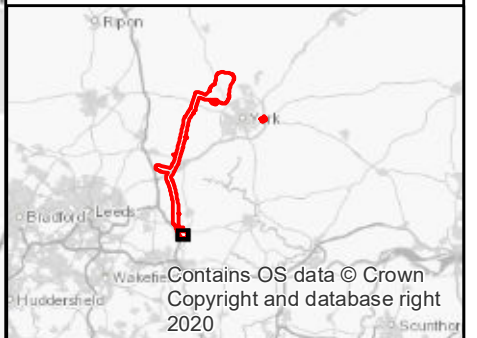


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- Legend**
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 - Existing 275kV overhead line
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Figure Number: FIGURE 8.2

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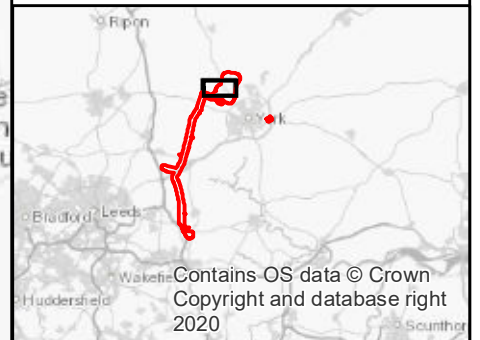
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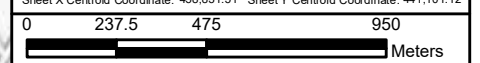
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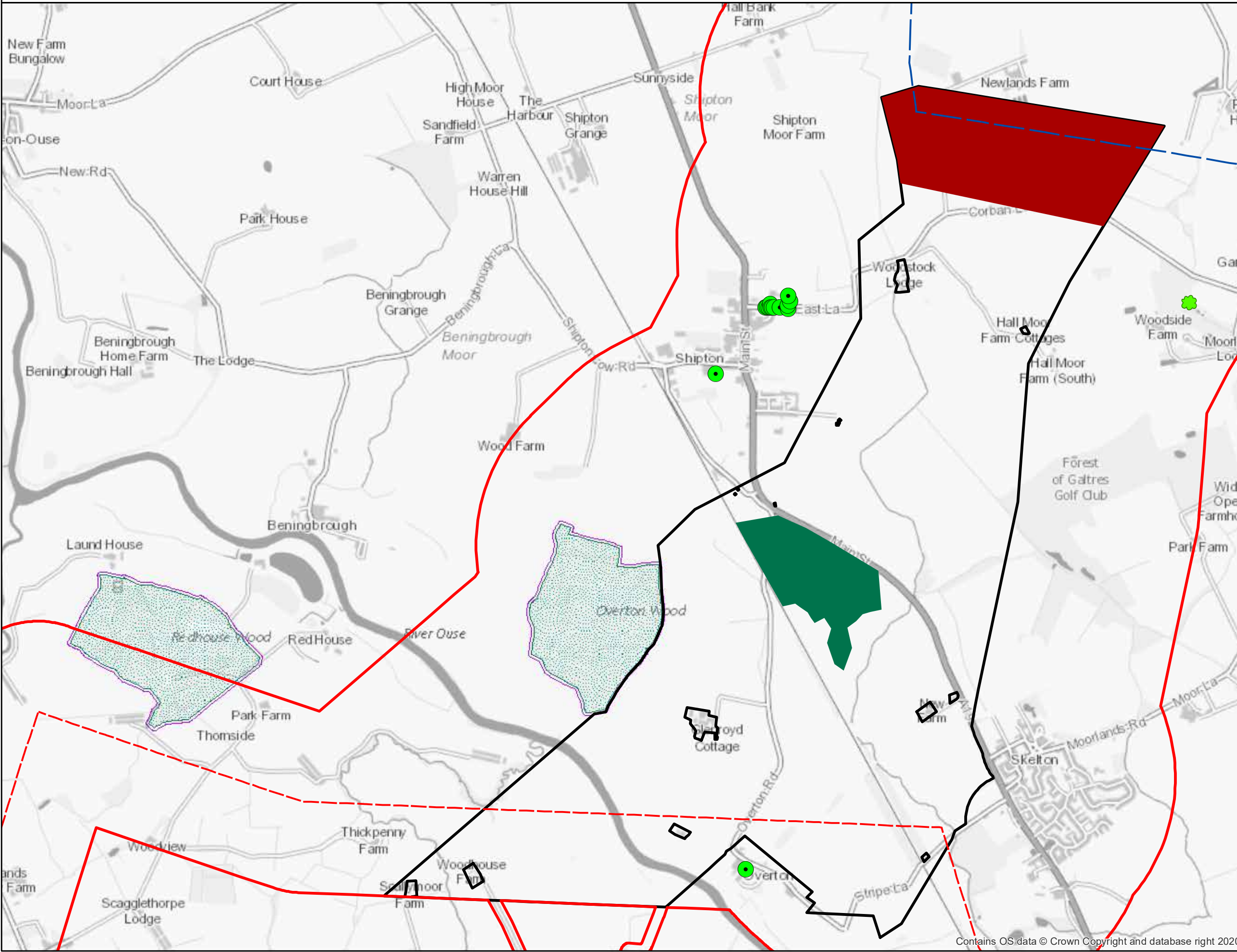
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Figure Number: **FIGURE 8.3**

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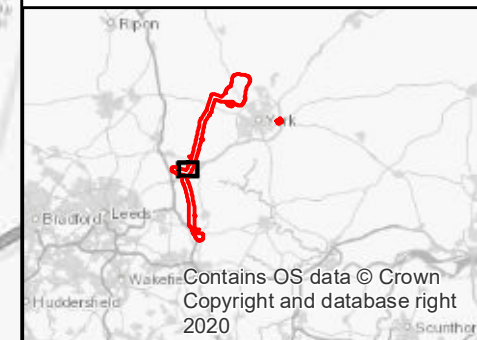
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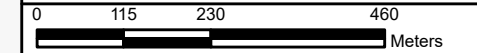
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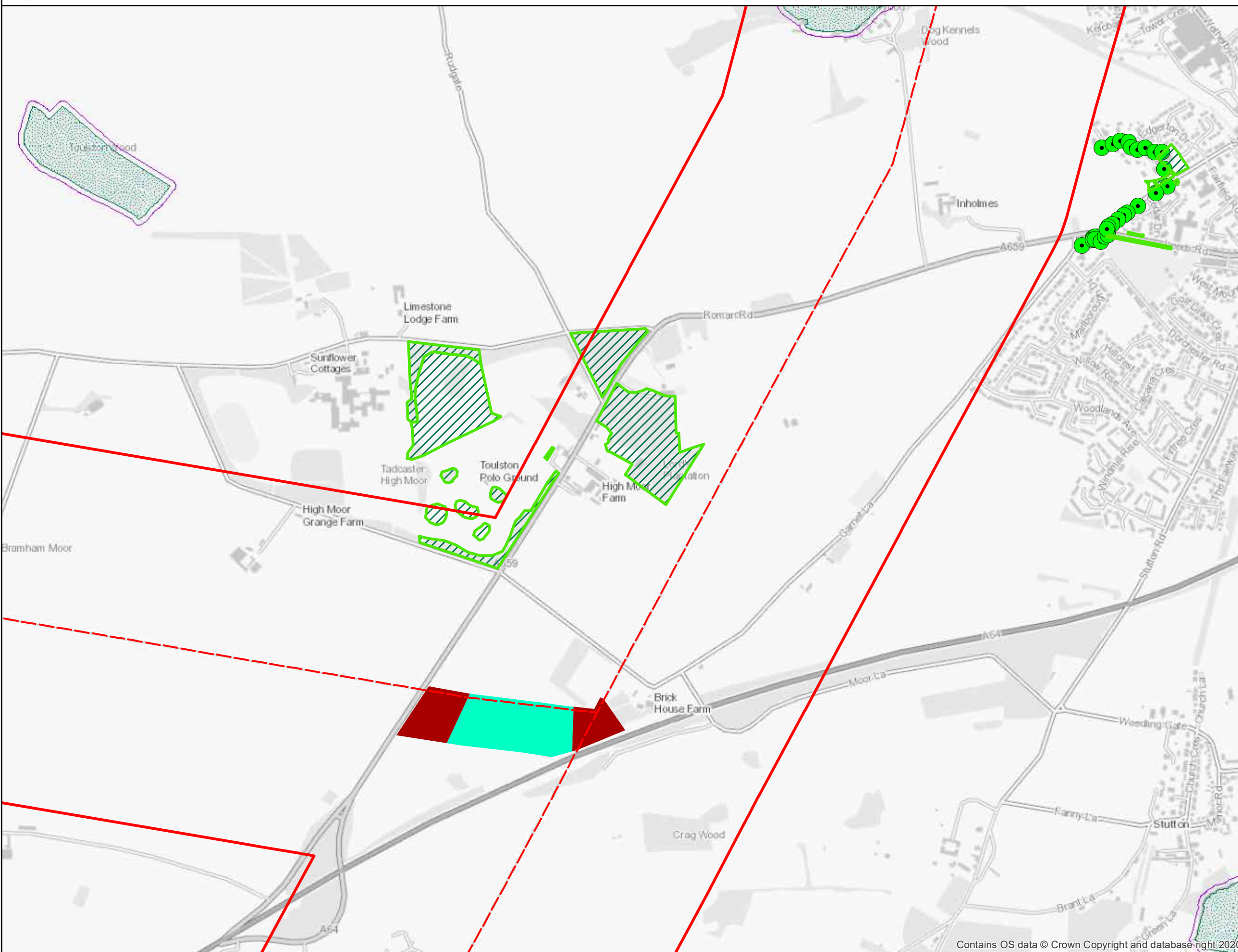
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Figure Number: FIGURE 8.4

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9. Hydrology

9. Hydrology

9.1 Introduction

9.1.1 The Hydrology and Flood Risk assessment will consider the potentially significant effects on the surface water environment that may arise from the construction and operation of the Project. This chapter of the Scoping Report describes the methodology to be used within the Environmental Impact Assessment (EIA), the datasets to be used to inform the assessment, an overview of the baseline conditions within the Scoping red line boundary, the likely significant effects to be considered within the assessment, and how these likely significant effects will be assessed for the purpose of an EIA.

9.1.2 Hydrology and Flood Risk interfaces with many other topics and as such, should be considered alongside the following environmental topic chapters;

- Chapter 7: Biodiversity (including ornithology);
- Chapter 10: Geology and Hydrogeology; and
- Chapter 11: Agriculture and Soils.

9.2 Relevant legislation, planning policy and technical guidance

9.2.1 This section sets out the policy, legislation and guidance in the context of the Water Environment. In the vicinity of the Project, there are two key groups of regulators (see **Figure 9.1**):

- The Environment Agency (comprised of individual operational areas) - regulate flood risk with regards to main rivers as well as water quality and Water Framework Directive compliance for all water bodies; and
- Lead Local Flood Authorities (LLFAs) and Internal Drainage Boards (IDBs) – regulate land drainage as well as flood risk from ordinary watercourses and groundwater.

9.2.2 LLFAs are county councils and unitary authorities whereas IDBs are independent public bodies within their district. The Project interfaces with:

- One Environment Agency Area – Yorkshire and North East;
- Three LLFAs – North Yorkshire County, York City and Leeds City; and
- Three IDBs – Ainsty, Foss and Kyle and Upper Ouse.

Legislation

9.2.3 There is a range of environmental legislation relevant to the life-cycle of any large development. Key legislative drivers relating to the water environment considered in this assessment include, but not limited to, those listed in **Table 9.1**.

Table 9.1 Legislation relevant to Hydrology and Flood Risk

Legislation	Legislative context	Section considered
Reservoirs Act 1975	Reservoirs present a potential flood risk to the project. The Reservoirs Act 1975 provides regulation for the operation and maintenance of reservoirs to ensure the design is fit for purpose, and that maintenance (including frequent inspections of reservoir embankments) ensures the condition of the embankments. As such, the chance of them failing and giving rise to flooding problems is remote.	9.4 (Current and Future Baselines) 9.6 (Scope of the assessment)
Environment Protection Act 1990	The Environmental Protection Act 1990 makes provision for the improved control of pollution arising from certain industrial and other processes. It re-enacts the provisions of the Control of Pollution Act 1974 relating to waste on land, including modifications to the functions of the regulatory and other authorities concerned in the collection and disposal of waste and makes further provision in relation to such waste.	9.5 (Embedded Environmental Measures)
Land Drainage Act 1991 and 1994	The Land Drainage Act (as amended), in combination with the Water Resources Act, stipulates that before work on or near an 'Ordinary Watercourse' is carried out, an Ordinary Watercourse Consent is required. The Flood Defence consenting regime, which used to be part of this Act, was replaced by flood risk activities permits under the Environmental Permitting Regulations 2016.	9.4 (Current and Future Baselines) 9.5 (Embedded Environmental Measures) 9.6 (Scope of the assessment)
Water Resources Act 1991 (Amendment) (England and Wales) Regulations 2009	The Water Resources Act 1991 states that it is an offence to cause or knowingly permit polluting, noxious, poisonous or any solid waste matter to enter controlled waters. The Act was revised by the Water Act 2003, which sets out regulatory controls for water abstraction, water impoundment and protection of water resources. Important for the Project is the requirement to obtain a licence for dewatering of engineering works and to ensure that any impact on the environment can be mitigated. Provisions for the regulation of water discharges to controlled	9.5 (Embedded Environmental Measures)
Water Act 2003		

Legislation	Legislative context	Section considered
	waters are set out in the Environmental Permitting (England and Wales) Regulations 2016. These have replaced provisions in the earlier Acts.	
Environment Act 1995	The Environment Act 1995 established the Environment Agency and gave it responsibility for environmental protection and flood defence.	The principal regulator considered throughout the document
Control of Pollution Act 1974	An Act to make further provision with respect to waste disposal, water pollution, noise, atmospheric pollution and public health.	9.5 (Embedded Environmental Measures)
The European Union (EU) Water Framework Directive (2000/60/EC) (WFD) as enacted into domestic law by the Water Environment WFD (England and Wales) (Amendment) Regulations 2017	The EU WFD is enacted into domestic law by the Water Environment (WFD) (England and Wales) Regulations 2017. A fundamental requirement of the WFD is to attain Good Ecological Status, or Good Ecological Potential within each defined water body, by December 2027 at the latest and to ensure that any deterioration in status is prevented.	9.4 (Current and Future Baselines) 9.5 (Embedded Environmental Measures)
Water Quality (Water Supply) Regulations 2000 (as amended)	This regulation is primarily concerned with the quality of water supplied in England for drinking, washing, cooking and food preparation, and for food production, and with arrangements for the publication of information about water quality.	9.4 (Current and Future Baselines) 9.5 (Embedded Environmental Measures)
Water Resources (Environmental Impact Assessment) Regulations (England and Wales) 2003 (as amended)	Sets out the requirement for an assessment of the impact on the environment of projects likely to have significant effects on the water environment.	9.6 (Scope of the assessment)

Legislation	Legislative context	Section considered
Private Water Supplies (England) Regulations 2016	The Regulations require Local Authorities to monitor Private Water Supplies.	9.5 (Embedded Environmental Measures)
The EU Floods Directive (2007/60/EC), as enacted into domestic law by the Flood Risk Regulations 2009	The EU Floods Directive is enacted into domestic law by the Flood Risk Regulations 2009. It requires that in accordance with flood risk management plans, there should be a focus on the prevention of flooding, through avoidance of planned development in present and future flood prone areas, and protection by taking measures to reduce the likelihood of flooding.	9.4 (Current and Future Baselines) 9.5 (Embedded Environmental Measures) 9.6 (Scope of the assessment)
Conservation of Habitats and Species Regulations 2017	The Conservation of Habitats and Species Regulations 2017 is enacted within England and Wales to transpose the EU Habitats Directive (92/43/EEC) and aspects of the Wild Birds Directive (2009/147/EC). The Regulations cover the selection, designation, registration and management of European sites (also known as Natura 2000 sites), and list European protected species of animals and plants. Conservation Objectives must ensure that the European protected species identified as qualifying features of a Natura 2000 site remain or reach favourable condition (such as by maintaining the extent and distribution of habitats of qualifying features). This means that where a proposed development may affect a Conservation Objective of a Natura 2000 site, the design will need to include appropriate measures to ensure the Conservation Objectives are not adversely affected.	9.4 (Current and Future Baselines) 9.5 (Embedded Environmental Measures) 9.6 (Scope of the assessment)
Environmental Permitting (England and Wales) Regulations (EPR), 2016 (as amended)	The 2016 Environmental Permitting (England and Wales) (Amendment No,2) replaces the previous 2010 regulations. It provides a consolidated framework for environmental permits and exemptions for waste operations and water discharge activities (previously consented under the Water Resources Act 1991, and the Control	9.5 (Embedded Environmental Measures) 9.6 (Scope of the assessment)

Legislation	Legislative context	Section considered
	of Pollution Act 1974), and groundwater activities. It also sets out the powers, functions and duties of the regulators.	
	The Project will need to be in compliance with the Environmental Permitting Regulations.	
Priority Substances Directive (2008/105/EC) Revision of the Priority Substances Directive (2013/39/EU)	Sets out environmental quality standards in the field of water policy for Europe, with the aim of minimising the threat to the aquatic environment and effects such as acute and chronic toxicity to aquatic organisms, accumulation in the ecosystem and losses of habitats and biodiversity, as well as a threat to human health.	9.4 (Current and Future Baselines) 9.5 (Embedded Environmental Measures) 9.6 (Scope of the assessment)
Flood and Water Management Act 2010	The Flood and Water Management Act sets out the Government's proposals to improve flood risk management, water quality and ensure water supplies are more secure. The Act includes consideration and responsibilities for managing flood risk and consideration of drainage including the use of SuDS.	9.4 (Current and Future Baselines) 9.5 (Embedded Environmental Measures) 9.6 (Scope of the assessment)
River Basin Districts Typology, Standards and Groundwater threshold values (Water Framework Directive) (England and Wales) Directions 2015	Sets out the environmental standards to be used for the second cycle of river basin plans. Along with the updated Water Environment (WFD) (England and Wales) Regulations 2003, they transpose Directive 2013/39/EC on environmental quality standards for priority substances.	9.4 (Current and Future Baselines) 9.5 (Embedded Environmental Measures) 9.6 (Scope of the assessment)

Planning Policy

9.2.4 A summary of the relevant planning policies is given in **Table 9.2**.

Table 9.2 Planning policy relevant to Hydrology and Flood Risk

Policy reference	Policy context	Section considered
National Policy		
Overarching National Policy Statement for Energy (EN-1)		
4.8 Climate change adaptation	Sets out how the effects of climate change should be considered.	9.4 (Future Baseline)
5.7 Flood risk	To ensure that flood risk from all sources is considered at all stages in the planning process to avoid inappropriate development in areas at risk of flooding, and to direct development away from areas at highest risk.	9.4 (Current Baseline)
5.15 Water quality and resources	To ensure that all potential adverse effects on water quantity and quality including the ecological effects resulting from physical modifications are considered at all stages of the development.	9.4 (Current and Future Baselines), 9.5 (Embedded Environmental Measures)
National Policy Statement for Electricity Networks Infrastructure (EN-5)		
2.4 Climate change adaptation	Sets out how the effects of climate change should be considered.	9.4 (Future Baseline)
National Planning Policy Framework (NPPF)		
Sequential Test	To steer new development to areas with the lowest probability of flooding.	9.5 (Embedded Environmental Measures)
Exception Test	The Exception Test is a method to demonstrate and help ensure that flood risk to people and property will be managed satisfactorily, while allowing necessary development to go ahead in situations where suitable sites at lower risk of flooding are not available.	9.5 (Embedded Environmental Measures)
Climate Change	To ensure the impact of climate change is taken into account for the expected lifetime of development.	9.4 (Future Baseline), 12.5 (Embedded Environmental Measures)
Sustainable Drainage Systems (SuDS)	A presumption that SuDS will be incorporated into new developments to minimise the impacts of development from any increase in surface runoff.	9.4 (Future Baseline), 12.5 (Embedded Environmental Measures)
Development Plan Policies		

Policy reference	Policy context	Section considered
Hambleton District- Local Development Framework Development Plan Document Core Strategy Adopted 3 April 2007		
CP1	Provides support for proposals where they promote, encourage, protect or enhance the quality of natural resources including water, and the natural drainage of surface water.	9.4 (Baseline Conditions), 12.5 (Embedded Environmental Measures)
CP21	Seeks to protect communities and the environment. Proposals must take particular account of the need to ensure protection from, and not worsen the potential for flooding and mitigate development from the consequences of pollution.	9.4 (Baseline Conditions), 9.5 (Embedded Environmental Measures)
Hambleton District- Development Policies 2008		
DP2x	Commits developers to the provision of additional infrastructure whenever there is a need generated by the new development. This could include provision of flood protection measures and sustainable drainage systems.	9.5 (Embedded Environmental Measures)
DP6	Covers the provision of additional infrastructure in a sustainable manner, minimising environmental consequences and preventing degradation of services (including surface water and flood risk defences) currently benefiting the community.	9.4 (Baseline Conditions), 9.5 (Embedded Environmental Measures)
DP32 xii	Sets out the expectation for new development to be sustainable. This includes, where possible, the inclusion of SuDS.	9.5 (Embedded Environmental Measures)
DP33 ii	Describes the approach to landscaping as an integrated part of the design and provide a sustainable solution, incorporating the potential implications of climate change.	9.4 (Baseline Conditions), 9.5 (Embedded Environmental Measures)
DP43	States “ <i>development proposals will not be permitted where they would have an adverse effect on watercourses or increase the risk of flooding elsewhere</i> ” and goes on to set out further requirements where there is a risk of flooding.	9.4 (Baseline Conditions), 9.5 (Embedded Environmental Measures)
Harrogate Borough Council: Harrogate Local Plan, 2020		
CC1	Sets out the requirements for compliance with national policy. Part D states “ <i>all proposals will be expected to include flood mitigation measures to be identified through a site specific FRA including</i>	9.4 (Baseline Conditions), 9.5 (Embedded Environmental Measures)

Policy reference	Policy context	Section considered
	<i>consideration of the creation of additional sustainable flood storage areas”.</i>	
NE4a	Provisions for the protection and enhancement of the landscapes, specifically requiring development to maintain the aesthetic and biodiversity qualities of watercourses, ponds, reservoirs and lakes.	9.4 (Baseline Conditions), 9.5 (Embedded Environmental Measures)
Selby District Core Strategy Local Plan (2013)		
SP19	Seeks to protect against risk or adverse effect from pollution or land instability.	9.4 (Baseline Conditions), 9.5 (Embedded Environmental Measures)
SP2	Sets out the requirement to follow a sequential approach to the assessment of sites, directing development to areas with the lowest flood risk.	9.4 (Baseline Conditions), 9.5 (Embedded Environmental Measures)
SP15	Ensures a sustainable approach to flood management measures, design (including SuDs) and construction.	9.4 (Baseline Conditions), 9.5 (Embedded Environmental Measures)
SP18	Provisions for the safeguarding and, where possible, enhancement of the natural and manmade environment.	9.4 (Baseline Conditions), 9.5 (Embedded Environmental Measures)
Selby District Local Plan (2005) (saved policies)		
ENV2a	Proposals giving rise to unacceptable levels of environmental pollution (including groundwater pollution) will not be permitted unless satisfactory remedial or preventative measures are incorporated as an integral element in the scheme.	9.5 (Embedded Environmental Measures)
York draft Local Plan		
DP1 ix	States “ <i>development within the City of York area will not lead to environmental problems including flood risk</i> ”	9.4 (Baseline Conditions), 9.5 (Embedded Environmental Measures)
DP2iii and ENV5	DP2iii sets out the principles around sustainability all development should align with (including themes such as flood risk, water quality, land remediation, protection of groundwater, sustainable design and low carbon energy resources). ENV5 sets out further specifics for SuDS.	9.4 (Baseline Conditions), 9.5 (Embedded Environmental Measures)

Policy reference	Policy context	Section considered
DP3 xii, SS1, and ENV4	Manages flood risk by ensuring development does not contribute to or is not subject to flooding and ensuring flood risk is appropriately managed.	9.4 (Baseline Conditions), 9.5 (Embedded Environmental Measures)
D2	Encourages understanding of the local and wider landscape quality and character and for this understanding to inform design.	9.4 (Baseline Conditions)
GI2	Provisions for conservation and enhancement of York's biodiversity, cultural and historic landmarks through maintaining and enhancing all aspects of the water environment.	9.4 (Baseline Conditions), 9.5 (Embedded Environmental Measures)
CC1	Applications need to consider the impact of the scheme on local communities, residential amenity and the environment (including local protected sites and other sites of conservation importance) throughout the lifespan of the development.	9.4 (Baseline Conditions), 9.5 (Embedded Environmental Measures)
Made Upper Poppleton and Nether Poppleton Neighbourhood Plan, 2017		
PNP11	Encourages developers to consider the provision of porous surfaces wherever appropriate.	9.5 (Embedded Environmental Measures)
York City Council 2005 Draft Development Control Local Plan (approved for the purpose of making development control decisions)		
GP1c	Development proposals will avoid the loss of water features that contribute to the quality of the local environment.	9.4 (Baseline Conditions), 9.5 (Embedded Environmental Measures)
GP4	Sets out the principles around sustainability all proposals for development should align with.	9.5 (Embedded Environmental Measures)
GP15	Sets out the expectation regarding development within areas at risk of flooding, the use of SuDS to reduce surface water run-off, discharges from new developments and provision of flood mitigation and defences.	9.4 (Baseline Conditions), 9.5 (Embedded Environmental Measures)
NE2 and NE3	Considers protection of the water environment. Development likely to have a detrimental impact will not be permitted.	9.4 (Baseline Conditions), 9.5 (Embedded Environmental Measures)
Leeds City Council Saved Unitary Development Plan 2001 and Unitary Development Plan Review 2006 policies		
N9	States all development proposals should respect and where possible enhance the natural environment.	9.4 (Baseline Conditions), 9.5 (Embedded Environmental Measures)

Policy reference	Policy context	Section considered
N39a	Sets out the expectation for the incorporation of SuDS into development proposals.	9.5 (Embedded Environmental Measures)
LT6	Considers the importance of waterways for tourism potential and necessary consideration of the likely impact of any proposed development.	9.4 (Baseline Conditions), 9.5 (Embedded Environmental Measures)
N38a and N38b	Considers development and flood risk, and the requirement for an FRA.	9.4 (Baseline Conditions), 9.5 (Embedded Environmental Measures)
GP5	States development proposals should resolve detailed planning considerations (including drainage). Proposals should seek to avoid environmental intrusion or pollution.	9.5 (Embedded Environmental Measures)
Leeds City Council Natural Resources and Waste Local Plan (adopted January 2013 and revised September 2015)		
Water 1 and Water 7	Promotes better management of water, encouraging a reduction in water waste through the use of SuDS, amongst other measures. <i>Water 7</i> provides further detail specific to SuDS.	9.4 (Baseline Conditions), 9.5 (Embedded Environmental Measures)
Water 2	Provides for the protection of water quality during the lifetime of the development, including construction.	9.5 (Embedded Environmental Measures)
Water 3 to 6	Ensures flood risk is appropriately managed, taking into account the effects of climate change	9.4 (Baseline Conditions), 9.5 (Embedded Environmental Measures)
Leeds City Council Core Strategy (adopted November 2014 – Updated 2019)		
P10	Encourages enhancement of the existing landscape.	9.4 (Baseline Conditions), 9.5 (Embedded Environmental Measures)
EN5	Sets out the council's commitments for the management of flood risk.	9.4 (Baseline Conditions), 9.5 (Embedded Environmental Measures)

Technical Guidance

9.2.5 A range of general good practice advice and technical guidance is of relevance to this assessment. **Table 9.3** considers some of the key relevant guidance,

Table 9.3 Technical guidance relevant to Hydrology and Flood Risk

Technical Guidance Document	Context	Section considered
Construction Industry Research and Information Association (CIRIA) reports		
Report C532: Control of Water Pollution from Construction Sites (2001) ⁹²	Provides practical support for consultants and contractors on how to plan and manage construction projects to control water pollution.	9.5 (Embedded Environmental Measures)
Report C624: Development and Flood Risk - Guidance for the Construction Industry (2004) ⁹³	Guidance for developers and the construction industry on the implementation of good practice in the assessment and management of flood risk as part of the development process, and is intended to promote development that is sustainable in terms of flood risk.	9.5 (Embedded Environmental Measures)
Report C648: Control of Water Pollution from Linear Construction Projects (2006) ⁹⁴	Guidance for clients, consultant, designers, contractors and regulators on how to plan and manage water pollution from linear construction projects.	9.5 (Embedded Environmental Measures)
Report C649: Control of Water Pollution from Linear Construction Projects - Site Guidance (2006) ⁹⁵	Guidance specifically aimed at on-site construction personnel working on linear infrastructure construction projects.	9.5 (Embedded Environmental Measures)
Report C650: Environmental Good Practice on Site, second edition (2005) ⁹⁶	Provides practical guidance about managing construction on-site to control environmental impacts.	9.5 (Embedded Environmental Measures)
Report C651: Environmental Good Practice - Pocket Book (2005) ⁹⁷	Contains a series of good practice checklists to follow while working on a project, from design and planning through the construction phase on-site, to project completion.	9.5 (Embedded Environmental Measures)
Report C689: Culvert Design and Operation Guide (2010) ⁹⁸	Comprehensive guidance covering a range of issues pertinent to the management and design of culverts.	9.5 (Embedded Environmental Measures)

⁹² Masters-Williams, H., Heap, A., Kitts, H., Greenshaw, L., Davis, S., Fisher, P., Hendrie, M. and Owens, D. (2001) Control of Water Pollution from Construction Sites – Guidance for Consultants and Contractors. C532. London: CIRIA.

⁹³ Lancaster, J., Preene, M. and Marshall, C. (2004) Development and Flood Risk – Guidance for the Construction Industry. C624. London: CIRIA.

⁹⁴ Murnane, E., Heap, A. and Swain, A. (2006) Control of Water Pollution from Linear Construction Projects – Technical Guidance. C648. London: CIRIA.

⁹⁵ Murnane, E., Heap, A. and Swain, A. (2006) Control of water pollution from Linear Construction Projects – Site Guide. C649. London: CIRIA.

⁹⁶ Charles, P. and Connolly, S. (2005) Environmental Good Practice Site Guide (second edition). C650. London: CIRIA.

⁹⁷ Chant-Hall, G., Charles, P. and Connolly, S. (2005) Environmental good practice on site – pocket book. C651. London: CIRIA.

⁹⁸ Balkham, M., Fosbeary, C., Kitchen, A. and Rickard, C. (2010) *Culvert design and operation guide*. C689. London: CIRIA.

Technical Guidance Document	Context	Section considered
Report C692: Environmental Good Practice on Site (2010) ⁹⁹	General good practice guidance and practical advice for the management of construction sites to minimise environmental impacts.	9.5 (Embedded Environmental Measures)
Report C698: Site Handbook for the Construction of SuDS (2007) ¹⁰⁰	Guidance for site engineers and SuDS practitioners on the construction of SuDS to facilitate their effective implementation within developments.	9.5 (Embedded Environmental Measures)
Report C753: The SuDS Manual (2015) ¹⁰¹	Best practice guidance on the planning, design, construction, operation and maintenance of SuDS to facilitate their effective implementation within developments.	9.5 (Embedded Environmental Measures)
Pollution Prevention Guidance Notes (PPGs) and Guidance for Pollution Prevention Notes (GPPs) (both are maintained by NetRegs and provide environmental good practice guidance for the whole UK, and environmental regulatory guidance directly to Northern Ireland, Scotland and Wales only. For businesses in England, regulatory guidance is available from GOV.UK instead)		
GPP 1: A general guide to preventing pollution (October 2020) ¹⁰²	Guidance document based on relevant legislation and reflects current good practice.	9.5 (Embedded Environmental Measures)
GPP 2: Above ground oil storage tanks (January 2017) ¹⁰³	Guidance to support the safety of above ground oil storage tanks and minimise the risk of causing pollution.	9.5 (Embedded Environmental Measures)
PPG 3: Use and design of oil separators in surface water drainage systems (April 2006) ¹⁰⁴	Guidelines to support decision making on whether an oil separator is needed for a site, and if so what size and type of separator is appropriate.	9.5 (Embedded Environmental Measures)
GPP 5: Works and maintenance in or near water (February 2018) ¹⁰⁵	Guidance document based on relevant legislation and reflects current good practice for working in or near water.	9.5 (Embedded Environmental Measures)

⁹⁹ Audus, I., Charles, P. and Evans, S. (2010) Environmental good practice on site (third edition). C692. London: CIRIA.

¹⁰⁰ Woods Ballard, B., Kellagher, R., Martin, P., Jefferies, C., Bray, R. and Shaffer, P. (2007) Site Handbook for the Construction of SUDS. C698. London: CIRIA.

¹⁰¹ Woods Ballard, S., Wilson, S., Udale-Clarke, H., Illman, S., Scott, T., Ashley, R. and Kellagher, R. (2015) The SuDS Manual. C753. London: CIRIA.

¹⁰² Natural Resources Wales, Northern Ireland Environment Agency and Scottish Environmental Protection Agency (2020) GPP 1: A general guide to preventing pollution. Available at: <https://www.netregs.org.uk/media/1835/gpp-1.pdf> (Accessed: 19 February 2021).

¹⁰³ Natural Resources Wales, Northern Ireland Environment Agency and Scottish Environmental Protection Agency (2017) Above ground oil storage tanks: GPP 2. Available at: <https://www.netregs.org.uk/media/1475/gpp-2-pdf-jan-2018.pdf> (Accessed 19 February 2021).

¹⁰⁴ Environment and Heritage Service, Scottish Environmental Protection Agency and Environment Agency (2006) Use and design of oil separators in surface water drainage systems: PPG 3. Available at: <https://www.netregs.org.uk/media/1671/ppg-3.pdf> (Accessed 19 February 2021).

¹⁰⁵ Natural Resources Wales, Northern Ireland Environment Agency and Scottish Environmental Protection Agency (2018) *Works and maintenance in or near water: GPP 5. Version 1.2*. Available at: https://www.netregs.org.uk/media/1418/gpp-5-works-and-maintenance-in-or-near-water.pdf?utm_source=website&utm_medium=social&utm_campaign=GPP5%2027112017 (Accessed: 19 February 2021).

Technical Guidance Document	Context	Section considered
PPG 6: Working at construction and demolition sites (2012) ¹⁰⁶	Practical advice and guidance to help prevent pollution from construction and demolition sites. Sets out legislative requirements and good practice measures to reduce the risk of a pollution incident.	9.5 (Embedded Environmental Measures)
PPG 7: Safe storage - The safe operation of refuelling facilities (July 2011) ¹⁰⁷	Guidelines for liquid refuelling facilities, based on relevant legislation and reflects current good practice.	9.5 (Embedded Environmental Measures)
GPP 8: Safe storage and disposal of used oils (July 2017) ¹⁰⁸	Guidance based on relevant legislation and reflects current good practice for the safe storage and disposal of used oils.	9.5 (Embedded Environmental Measures)
GPP 13 Vehicle washing and cleaning (April 2017) ¹⁰⁹	Guidance for businesses that wash vehicles.	9.5 (Embedded Environmental Measures)
PPG 18: Managing fire water and major spillages (June 2000) ¹¹⁰	Guidance to assist in the identification of the equipment and techniques available to prevent and mitigate the damage to the water environment caused by fires and major spillages.	9.5 (Embedded Environmental Measures)
GPP 19: Vehicles: Service and Repair (June 2017) ¹¹¹	Guidance aimed at businesses that deal with vehicles (applicable to other machinery, plant and equipment).	9.5 (Embedded Environmental Measures)
GPP 20: Dewatering underground ducts and chambers (January 2018) ¹¹²	Guidelines for dewatering underground ducts and chambers, based on relevant legislation and reflects current good practice.	9.5 (Embedded Environmental Measures)
GPP 21: Pollution incident response planning (July 2017) ¹¹³	Guidelines setting out current best practice for producing an incident response plan.	9.5 (Embedded Environmental Measures)

¹⁰⁶ Environment Agency (2012) Working at construction and demolition sites: PPG6. Second edition. Bristol: Environment Agency.

¹⁰⁷ Environment Agency, Scottish Environmental Protection Agency and Northern Ireland Environment Agency (2011) The safe operation of refuelling facilities: PPG 7. Available at: <https://www.netregs.org.uk/media/1673/ppg-7.pdf> (Accessed: 19 February 2021).

¹⁰⁸ Natural Resources Wales, Northern Ireland Environment Agency and Scottish Environmental Protection Agency (2017) GPP 8 Safe storage and disposal of used oils. Available at: <https://www.netregs.org.uk/media/1435/gpp-8-v3-swni.pdf> (Accessed: 19 February 2021).

¹⁰⁹ Natural Resources Wales, Northern Ireland Environment Agency and Scottish Environmental Protection Agency (2017) GPP 13: Vehicle washing and cleaning. Available at: <https://www.netregs.org.uk/media/1414/gpp-13-v2-plussepa-plusniea-plusnrv.pdf> (Accessed: 19 February 2021).

¹¹⁰ Environment and Heritage Service, Scottish Environmental Protection Agency and Environment Agency (n.d.) Managing fire water and major spillages: PPG18. Available at: <https://www.netregs.org.uk/media/1674/ppg-18.pdf> (Accessed: 19 February 2021).

¹¹¹ Natural Resources Wales, Northern Ireland Environment Agency and Scottish Environmental Protection Agency (n.d.) GPP 19: Vehicles: Servicing and Repairs. Available at: <https://www.netregs.org.uk/media/1437/new-gpp-19-pdf.pdf> (Accessed: 19 February 2021).

¹¹² Natural Resources Wales, Northern Ireland Environment Agency and Scottish Environmental Protection Agency (n.d.) GPP 20 Dewatering underground ducts and chambers. Available at: <https://www.netregs.org.uk/media/1477/gpp-20-publisher-pdf-version.pdf> (Accessed: 19 February 2021).

¹¹³ Natural Resources Wales, Northern Ireland Environment Agency and Scottish Environmental Protection Agency (2017) GPP 21: Pollution Incident Response Plans. Available at: <https://www.netregs.org.uk/media/1436/gpp-21-final.pdf> (Accessed: 19 February 2021).

Technical Guidance Document	Context	Section considered
GPP 22: Dealing with spills (October 2018) ¹¹⁴	Guidance applicable to those responsible for storing and transporting materials that could cause pollution if they spill. It may also be useful for those who respond to spills, or those responsible for transporting or storing waste from spills.	9.5 (Embedded Environmental Measures)
GPP 26 Safe storage - drums and intermediate bulk containers (IBCs) (July 2018) ¹¹⁵	Guidance aimed at site operators and those responsible for the storing and handling of drums and IBCs.	9.5 (Embedded Environmental Measures)

9.3 Consultation and engagement

- 9.3.1 Whilst no consultation has been carried out to date regarding the water environment, data requests have been submitted to a number of organisations with specific interests in the water environment within the Scoping red line boundary. This includes the Environment Agency and the Internal Drainage Boards (IDBs) (Ainsty, Foss and Kyle and Upper Ouse) (see **Figure 9.1**). The responses to these requests had not yet been received at the time of producing this chapter.
- 9.3.2 Further specific meetings with the Environment Agency, LLFAs, IDBs and landowners are proposed following determination of the preferred overhead line alignment route, in order to discuss specific Project elements such as individual watercourse crossings and micro-siting of pylons.
- 9.3.3 Engagement with relevant stakeholders will be carried out during the preparation of the PEIR and ES to supplement desk-based analysis and site-based observations as the assessment of potential effects on Hydrology and Flood Risk progresses.

9.4 Baseline conditions

Study Area

- 9.4.1 For the purpose of this assessment, the Study Area is defined as the Scoping red line boundary with an additional 500m buffer.
- 9.4.2 The description of the baseline conditions in this section of the Scoping Report includes, where appropriate specific detail/focus on three locations where the nature of the Project is likely to involve greater ground disturbance and therefore the baseline are of greater relevance (see **Figure 1.2**). These locations are:

¹¹⁴ Natural Resources Wales, Northern Ireland Environment Agency and Scottish Environmental Protection Agency (2018) Dealing with spills: GPP 22. Version 1. Available at: <https://www.netregs.org.uk/media/1643/gpp-22-dealing-with-spills.pdf> (Accessed: 19 February 2021).

¹¹⁵ Natural Resources Wales, Northern Ireland Environment Agency and Scottish Environmental Protection Agency (2018) *GPP 26: Safe storage of Drums and Intermediate Bulk Containers (IBCs)*. Available at: <https://www.netregs.org.uk/media/1693/gpp-26-safe-storage-of-drums-and-ibcs.pdf> (Accessed: 19 February 2021).

- North-west of York Area;
- Tadcaster Area; and
- Monk Fryston Substation Area.

Data gathering methodology

- 9.4.3 This chapter has been prepared primarily via a desk-study exercise undertaken in January and February 2021. The most up to date information and mapping available via public sources has been used (see **Table 9.4**).
- 9.4.4 The data and sources of information collected are listed in **Table 9.4**.

Table 9.4 Hydrology and Flood Risk – Sources of information

Data topic	Sources of information
Climate	Met Office UK Climate averages at Linton on Ouse ¹¹⁶
Topography	Ordnance Survey mapping 1:50,000 and 1:25,000 scales ¹¹⁷
Geology	British Geological Survey (BGS) map viewer ¹¹⁸
Soils and land use	MAGIC natural environment map viewer ¹¹⁹ National Soil Research Institute Soilscales map viewer ¹²⁰
Hydrology	National River Flow Archive ¹²¹
Flood risk	The Environment Agency's Flood Map for Planning ¹²² . The Environment Agency's Risk of Flooding from Surface Water (RoFSW) ¹²³
Water quality and Water Framework Directive status	The Environment Agency's Catchment Data Explorer (CDE) ¹²⁴

¹¹⁶ Met Office (2021) *UK climate averages at Linton on Ouse*. Available at: <https://www.metoffice.gov.uk/research/climate/maps-and-data/uk-climate-averages/gcx57w9fb> (Accessed: 04 February 2021).

¹¹⁷ Microsoft (2021) *Bing maps. Images courtesy of OS*. Available at: <https://www.bing.com/maps> (Accessed: 04 February 2021).

¹¹⁸ British Geological Survey (2021) *Geology of Britain viewer (classic)*. Available at: <http://mapapps.bgs.ac.uk/geologyofbritain/home.html> (Accessed: 04 February 2021).

¹¹⁹ Natural England (2021) *MAGIC*. Available at: <http://www.magic.gov.uk/MagicMap.aspx> (Accessed: 04 February 2021).

¹²⁰ Cranfield Soil and AgriFood Institute (2021) *Soilscales map*. Available at: <http://www.landis.org.uk/soilscales/> (Accessed: 04 February 2021).

¹²¹ UK Centre for Ecology and Hydrology (2021) *National River Flow Archive*. Available at: <http://www.ceh.ac.uk/data/nrfa/index.html> (Accessed: 04 February 2021).

¹²² Environment Agency (2021) *Flood map for planning*. Available at: <https://flood-map-for-planning.service.gov.uk/> (Accessed: 04 February 2021).

¹²³ Environment Agency (2021) *Long term flood risk*. Available at: <https://flood-warning-information.service.gov.uk/long-term-flood-risk/map> (Accessed: 04 February 2021).

¹²⁴ Environment Agency (2020) *Catchment Data Explorer*. Available at: <https://environment.data.gov.uk/catchment-planning/> (Accessed: 04 February 2021).

Data topic	Sources of information
Water abstractions	Data request made to the Environment Agency for all abstractions within 500m of the Scoping red line boundary
Consented discharges	Data request made to the Environment Agency for all discharges within 500m of the Scoping red line boundary

Current baseline

Climate

- 9.4.5 Average annual rainfall estimates for the period of 1981-2010 were taken from the Met Office¹²⁵. These demonstrate the average annual total rainfall in the locality of the Project was 626mm, based on the Linton on Ouse station¹²⁶ record. This is lower than the North East and Eastern district of England average (1981-2010) of 779mm. The national annual average figures suggest the average rainfall values are similar along the length of the Project.
- 9.4.6 The distribution of rainfall varied throughout the year (2010) with highest precipitation recorded during August (62mm) followed by November (58mm) and October (58mm). The driest months were February (40mm) and March (45mm), based on the Linton on Ouse 1981-2010 record.
- 9.4.7 Average monthly maximum and minimum temperature estimates for the period of 1981-2010 were also observed to vary throughout the year. The Summer months (June-August) featured the highest monthly maximum temperatures, and the Winter months (December-February) featured the lowest monthly minimum temperatures. The temperature profile is consistent with the range to be expected for the north-east of England. The national annual average figures suggest the mean daily maximum temperatures and mean temperature values are similar along the length of the Project whereas mean daily minimum temperature in the Monk Fryston Substation Area could be expected to be approximately 1°C warmer than in the Tadcaster Area and North-west of York Area of the Project.

Topography

- 9.4.8 Ordnance Survey (OS) mapping indicates that the topography in the North-west of York Area is relatively flat varying between 15 and 20mAOD and close to the River Ouse, the topography is around 10mAOD. In the northern part of the North-west of York Area, the Moor Gutter drains to the south becoming Hurns Gutter which issues into the River Ouse close to the southern boundary of the North-west of York Area (see **Figure 9.2**). The existing 275kV XC/XCP overhead line (Poppleton to Monk Fryston) route corridor crosses the River Ouse in two locations and further to the south-southwest, across agricultural land, before crossing the River Wharfe by Tadcaster (see **Figure 9.2**). The existing 275kV XC/XCP overhead line (Poppleton to Monk Fryston) route continues southwards approximately adjacent to the A1(M) motorway crossing tributaries of the

¹²⁵ Met Office (2021) *UK climate averages*. Available at: <https://www.metoffice.gov.uk/research/climate/maps-and-data/uk-climate-averages/gcx57w9fb> (Accessed: 01 February 2021).

¹²⁶ The Linton of Ouse station is located approximately 4km north north-east of the northern extent of the existing XC Route and 6km west of the southern extent of the existing 2TW/north western extent of the existing YR route.

River Wharfe and River Ouse to the Monk Fryston Substation Area (see **Figure 9.2**). OS mapping indicates that the topography over the land within the proposed Scoping red line boundary is relatively subdued, with elevations varying between 10mAOD by the River Ouse crossing in the North-west of York Area and approximately 60mAOD by Stutton with Hazelwood, to the south of the Tadcaster Area. At the Monk Fryston Substation Area, the topography is approximately 35mAOD with the topography increasing in height to the west and decreasing to the east. At Osbaldswick Substation the topography is between 15 and 20mAOD with land sloping downwards from south to north. A description of the underlying geology and soil environment is provided in **Chapter 10**.

Hydrology

9.4.9 Main Rivers which could be affected by the Project include the River Ouse, River Nidd, River Wharfe and Cock Beck (see **Figure 9.2**). In addition, a number of tributaries and drainage ditches also interact with the Project, which largely fall within the Main River catchments and are tributaries of River Ouse. Specifically, Hurns Gutter, White Sike, Stream Dyke and Mill Dyke and associated flood zones may interact with the Project.

9.4.10 The furthest upstream flow gauge on the River Ouse is located at Skelton (NGR SE568553), adjacent to Nether Poppleton. There are also gauges on the River Nidd, River Kyle and River Wharfe in proximity of the Project. Summary data from these flow gauges are presented in **Table 9.5**, which demonstrates that the River Ouse drains a substantial catchment upstream of York and the River Wharfe drains a substantial area upstream of Tadcaster.

Table 9.5 Summary of river flows*

Gauge Ref.	Gauge Name	Watercourse	NGR	Catchment Area (km ²)	Mean Flow (m ³ /s)	Q10 ¹ (m ³ /s)	Q95 ² (m ³ /s)	BFI ³	Period of Record
27009	Ouse at Skelton	River Ouse	SE568553	3	51.24	126.50	7.79	0.45	1969-2019
27062	Nidd at Skip Bridge	River Nidd	SE482560	516	8.49	19.56	1.64	0.49	1979-2019
27060	Kyle at Newton on Ouse	River Kyle	SE509602	168	12.46	44.20	0.13	0.11	1979-2019
27089	Wharfe at Tadcaster	River Wharfe	SE477441	818	17.32	41.30	2.79	0.41	1991-2019

*Source: National River Flow Archive

¹Q10: the flow that is equalled or exceeded 10% of the time – an index of high flow.

²Q95: the flow that is equalled or exceeded 95% of the time – an index of low flow.

³BFI: baseflow index, the proportion of the total river flow that is derived from gradual release from groundwater storage, as opposed to rapid surface or near-surface runoff.

9.4.11 No Sites of Special Scientific Interest (SSSI) were identified within the Scoping red line boundary. The closest SSSI to the Project is Madbanks and Ledsham Banks SSSI (calcareous grassland) located approximately 1km west of the existing 275kV XC/XCP overhead line (Poppleton to Monk Fryston) by Selby Fork. No Special Protection Areas (SPA), Special Area of Conservations (SAC) or Ramsar sites were identified within the Scoping red line boundary.

Flood Risk

9.4.12 The Environment Agency's Flood Map for Planning provides an indication of the likelihood of flooding from fluvial and tidal sources, with Flood Zones 1 to 3 indicating a Low, Medium and High¹²⁷ likelihood of flooding respectively. Flood Zones extents are shown on **Figure 9.3** (any area not highlighted on these maps is Flood Zone 1).

9.4.13 The approach to siting of CSECs and Substations is compliant with the NPPF and Section 5.7 National Policy Statement for Energy (EN-1) (see **Table 9.2**), in that the sequential approach has been taken to identify potential locations for the new infrastructure, which are preferentially located within Flood Zone 1.

9.4.14 Much of the North-west of York Area, particularly the northern part, is located within Flood Zone 1. There are a number of areas at risk of surface water flooding within the Scoping red line boundary, according to the Environment Agency's RoFSW mapping. These are classified as being at High, Medium, Low and Very Low¹²⁸ likelihood of surface water flooding (see **Figure 9.4**).

9.4.15 The proposed York North Substation Siting Area is located entirely within Flood Zone 1 (see **Figure 9.3**). The boundary of Flood Zone 2, associated with Hurns Gutter, approximately aligns with the south-west boundary of the proposed York North Substation Siting Area. Much of the proposed York North Substation Siting Area is at Very Low risk of surface water flooding. A surface water flow path associated with Hurns Gutter is located within the proposed York North Substation Siting Area, approximately 40m from the south west boundary, running parallel to the railway line. Within the north west of the proposed York North Substation Siting Area, to the north of the Overton Road railway bridge, an area of surface water accumulation is present. This is classified as High, Medium and Low. Within the rest of the proposed York North Substation Area, some isolated areas classified as Low, Medium and High and are likely associated with localised topography (see **Figure 9.4**).

9.4.16 The most significant areas of Flood Zones 2 and 3 are located adjacent to the Main Rivers (see **paragraph 9.4.9**). However, there is an area of Flood Zone 2 within the North-west of York Area north of the A19 associated with Hurns Gutter. Within the Scoping red line boundary the existing 275kV XC/XCP overhead line (Poppleton to Monk Fryston) crosses over River Ouse, River Foss and River Wharfe with a number of

¹²⁷ Flood Zone 1 (low probability) is defined as land having a less than 0.1% annual probability of river or sea flooding. Flood Zone 2 (medium probability) is defined as land having between a 1% and 0.1% annual probability of river flooding; or land having between a 0.5% and 0.1% annual probability of sea flooding. Flood Zone 3 (high probability) is defined as land having a 1% or greater annual probability of river flooding; or land having a 0.5% or greater annual probability of sea flooding.

¹²⁸ High risk means that each year this area has an annual probability of surface water flooding of greater than 3.3%. Medium risk means that each year this area has an annual probability of surface water flooding of between 1% and 3.3%. Low risk means that each year this area has an annual probability of surface water flooding of between 0.1% and 1%. Very low risk means that each year this area has an annual probability of surface water flooding of less than 0.1%.

the pylons in the immediate vicinity of these watercourses located within the respective Flood Zone 2/3 (see **Figure 9.3**). In addition, there are more localised areas of Flood Zones 2 and 3 associated with White Sike, Mill Dyke, Stream Dyke and Cock Beck which could potentially impact access to pylon locations.

- 9.4.17 The Tadcaster Area is located entirely within Flood Zone 1 (see **Figure 9.3**). Much of the Tadcaster Area is at Very Low risk of surface water flooding. A small area of surface water accumulation is located adjacent to the A64 (see **Figure 9.4**) and is classified as High, Medium and Low risk.
- 9.4.18 The Monk Fryston Substation Area is located entirely within Flood Zone 1 (see **Figure 9.3**). A small area of surface water accumulation/ponding is located within the Monk Fryston Substation Area towards the south (see **Figure 9.4**), classified as High, Medium and Low RoFSW. A surface water flow path runs from west of Pollums House Farm to the north on Main Street (A63) and west of Butt's Lane across the Monk Fryston Substation Area.
- 9.4.19 The existing Osbaldwick Substation is also located entirely within Flood Zone 1 (see **Figure 9.3**). A small area of surface water accumulation is located within the Osbaldwick Substation Area, to the north-west (see **Figure 9.4**), which is classified as Low risk.
- 9.4.20 Information on flood risk from groundwater was sourced from a review of the LLFA Flood Risk Assessment (addendum)'s. City of York Council concluded there was no significant risk of flooding from groundwater, presently or future, and has no record of areas where groundwater emergence is known to be a cause of flooding¹²⁹. North Yorkshire County Council report no substantial evidence of direct groundwater flooding in the majority of North Yorkshire¹³⁰. However, they are aware of specific circumstances where groundwater emergence may exacerbate surface water flooding. For example, it is known to be a cause of flooding to a small number of properties in some areas as a result of natural springs in the hillside next to properties, and, that both groundwater and surface water flooding both pond in the same nearby low-lying areas, however this is out with the Scoping red line boundary. North Yorkshire County Council hold no local information providing evidence on future groundwater flood risk, however they do note that should groundwater flooding occur, it is likely to be in low points and depressions where surface water flooding occurs. Leeds City Council identified groundwater flooding within a localised area of North Leeds¹³¹. This location is outside the Scoping red line boundary and is therefore not considered further.
- 9.4.21 Risk of flooding from sewers is not considered as a significant source of flooding due to the rural setting of the Project.
- 9.4.22 Tidal flooding does not pose a risk to the Project due to the height of the land to which the Project relates (>10mAOD).
- 9.4.23 Known flood defences associated with River Ouse and River Warfe are located within the Scoping red line boundary. In addition, flood defences associated with River Ouse, River Nidd and River Wharfe are located upstream and downstream of the Scoping red line boundary. No further details regarding these flood defences are available at this

¹²⁹ City of York Council (2017) Preliminary Flood Risk Assessment (addendum)

¹³⁰ North Yorkshire County Council (2017) Preliminary Flood Risk Assessment (addendum)

¹³¹ Leeds City Council (2017) Preliminary Flood Risk Assessment (addendum)

stage but have been requested from the Environment Agency and will be considered in the FRA.

9.4.24 The Environment Agency’s on-line mapping shows that the Main Rivers could convey floodwater originating from the failure of upstream reservoirs. Generally, the risk of flooding from reservoir extents are smaller than the fluvial Flood Zones along the same river reaches and no risk of flooding from reservoir failure is identified within any of the proposed locations for the CSEC or substation siting areas.

Water Resources, Abstractions and Discharges

9.4.25 A Drinking Water Protection Area (Surface Water) and Drinking Water Safeguard Zone (Surface Water) are present within the North-west of York Area of the Scoping red line boundary. The water resources which are likely to interact with the Project are summarised in **Table 9.6**.

Table 9.6 Water resources protection designations intersecting with the Project

Name	Reference Number	Designation Type
Ouse from River Nidd to Stillingfleet Beck	GB104027069593	Drinking Water Protection Area (SW)
Humber_SWSGZ6007_Acomb Landing & Moor Monkton	SWSGZ6007	Drinking Water Safeguard Zone (SW)

9.4.26 Within the Scoping red line boundary, the Swale, Ure, Nidd and Upper Ouse Abstraction Licensing Strategy¹³² shows the main channel of the River Ouse and tributaries, have water resource available at least 50% of the time. Wharfe and Lower Ouse Abstraction Licensing Strategy¹³³ shows the main channel of the River Wharfe and tributaries, have water resource available at least 95% of the time. The main channel of the Lower Ouse and tributaries have water resource available at least 50% of the time.

9.4.27 No information is available at this stage regarding licensed abstractions and discharges to/ from the surface water environment, however these have been requested from the Environment Agency.

Water Quality and Water Framework Directive Status

9.4.28 The River Ouse and surrounding watercourses are within the Environment Agency’s Humber River Basin District.

9.4.29 The Humber River Basin Management Plan (RBMP) divides surface water catchments into discrete water bodies. A fundamental requirement of the Water Framework Directive (WFD) is to attain good ecological status (GES) within each defined water body and to ensure that deterioration in the status is prevented.

¹³² Environment Agency (2013) Swale, Ure, Nidd and Upper Ouse Abstraction Licensing Strategy, February 2013: A licensing strategy to manage water resources sustainably. Ref LIT 7868. Bristol: Environment Agency.

¹³³ Environment Agency (2013) Wharfe and Lower Ouse Abstraction Licensing Strategy, February 2013: A licensing strategy to manage water resources sustainably. Ref LIT 7869. Bristol: Environment Agency.

- 9.4.30 Where the physical characteristics of a water body have been substantially altered by human activity, the water body may be designated as a Heavily Modified Water Body (HMWB). HMWBs are required to meet Good ecological 'potential' (GEP) rather than 'status'. The ecological potential of a water body represents the degree to which the quality of the water body's aquatic ecosystem approaches the maximum it could achieve, given the heavily modified characteristics of the water body that are necessary for the use or for the protection of the wider environment.
- 9.4.31 Those WFD water bodies that may potentially be affected by the Project are listed in **Table 9.7** and are shown on **Figure 9.5**. These have been identified on the basis of their direct hydrological connectivity with the Scoping red line boundary, i.e. where any part of their catchment area coincides with the Project. **Table 9.7** provides further information on the water body type, current ecological status or potential, and a summary of those elements of the overall status assessment that do not meet the requirements of GES/GEP.

Table 9.7 WFD Water bodies in direct connectivity with the Project

Water body (ID)	Water body type (Cycle 2)	Overall water body status (2019)¹	Supporting elements at Less Than Good/Supports Good
Hurns Gutter from Source to River Ouse (GB104027063780)	Heavily modified	Moderate	Phosphate, Invertebrates, Mitigation Measures Assessment, Mercury and Its Compounds, Polybrominated diphenyl ethers (PBDE)
Ouse from River Nidd to Stillingfleet Beck (GB104027069593)	Heavily modified	Moderate	Mercury and Its Compounds, Perfluorooctane sulphonate (PFOS), PBDE, Phosphate
The Foss (GB104027063730)	Not designated artificial or heavily modified	Bad	Macrophytes and Phytobenthos Combined, Fish, Invertebrates, Dissolved oxygen, Phosphate, PBDE, Mercury and Its Compounds
Nidd from Crimple Beck to River Ouse (GB104027068292)	Heavily modified	Moderate	PBDE, Mercury and Its Compounds, Phosphate, Mitigation Measures Assessment
The Foss Catchment (trib of Wharfe) (GB104027063980)	Not designated artificial or heavily modified	Bad	Dissolved oxygen, PBDE, Mercury and Its Compounds, Invertebrates, Fish
Cock Beck Catchment (trib of Wharfe) (GB104027063940)	Not designated artificial or heavily modified	Bad	Fish, Phosphate, PFOS, PBDE, Mercury and Its Compounds
Tang Hall Bk/Old Foss Bk catch, trib of River Foss (GB104027063500)	Heavily modified	Moderate	PBDE, Invertebrates, Dissolved oxygen, Mitigation Measures Assessment, Ammonia (Phys-Chem), Mercury and Its Compounds, Phosphate

Water body (ID)	Water body type (Cycle 2)	Overall water body status (2019)¹	Supporting elements at Less Than Good/Supports Good
Wharfe from Collingham Beck to Tadcaster Weir (GB104027064255)	Heavily modified	Moderate	Mercury and Its Compounds, PFOS, PBDE, Phosphate, Macrophytes and Phytobenthos Combined, Mitigation Measures Assessment
Dorts Dike Catchment (trib of Wharfe) (GB104027063930)	Heavily modified	Moderate	Mercury and Its Compounds, PBDE, Invertebrates
Selby Dam from Conf. Fox Dike and Carr Dike to Ouse (GB104027063620)	Heavily modified	Moderate	Mercury and Its Compounds, PFOS, PBDE, Cypermethrin (Priority hazardous), Phosphate, Dissolved oxygen, Ammonia (Phys-Chem), Fish, Mitigation Measures Assessment
Mill Dike from Source to Bishop Dike (GB104027063640)	Not designated artificial or heavily modified	Poor	Mercury and Its Compounds, PBDE, Phosphate, Invertebrates, Macrophytes and Phytobenthos Combined
Bishop Dike (Trib of Ouse) (GB104027063660)	Not designated artificial or heavily modified	Poor	Mercury and Its Compounds, PBDE, Macrophytes and Phytobenthos Combined, Mitigation Measures Assessment
Stillingfleet Beck Source to Ouse (GB104027063710)	Heavily modified	Moderate	Mercury and Its Compounds, PBDE, Phosphate
Foss Dike (GB104027063720)	Not designated artificial or heavily modified	Poor	Mercury and Its Compounds, PBDE, Phosphate, Invertebrates
The Fleet from Source to River Aire (GB104027062740)	Artificial	Moderate	Mercury and Its Compounds, PBDE, Cypermethrin (Priority hazardous), Phosphate, Dissolved oxygen, Invertebrates, Mitigation Measures Assessment

Water body (ID)	Water body type (Cycle 2)	Overall water body status (2019) ¹	Supporting elements at Less Than Good/Supports Good
Aire from River Calder to River Ouse (GB104027062760)	Heavily modified	Moderate	Mercury and Its Compounds, PFOS, PBDE, Cypermethrin (Priority hazardous), Diazinon, Phosphate, Invertebrates, Macrophytes and Phytobenthos Combined, Mitigation Measures Assessment
New Parks Beck from Source to Huby Burn (GB104027063830)	Not designated artificial or heavily modified	Poor	Mercury and Its Compounds, PBDE, Phosphate, Dissolved oxygen, Ammonia (Phys-Chem), Invertebrates

¹ These are the 2019 statuses as obtained from the Catchment Data Explorer; ² Mitigation measures may be considered to be those environmental improvements that would assist the WFD water body to achieve Good Ecological Potential

Additional baseline information required

- 9.4.32 Additional baseline information will be gathered via specific non-statutory pre-application consultations with the Environment Agency and the Ainsty, Foss and Kyle and Upper Ouse IDB's (see **Paragraphs 9.3.1 to 9.3.3** and **Table 9.4**).
- 9.4.33 A data request has been submitted to the Environment Agency for details of licensed abstractions and discharges within 500m of the Scoping red line boundary and the 'Product 6' modelling package¹³⁴ for the River Ouse at the northern extent of the Scoping red line boundary. This includes: Flood Zone extents; extents of historical flooding; output from flood models and flood defence details.
- 9.4.34 Targeted watercourse characteristics (e.g. flow, control measures, maintenance regimes) will be gathered from the IDBs during non-statutory pre-application consultation.
- 9.4.35 Details of private water supplies and any flood risk issues associated with surface water and non-IDB Ordinary Watercourses will be requested from the local authorities.
- 9.4.36 A walkover will inform the understanding of the localised baseline hydrology (e.g. flow routes), land use and water quality considerations.
- 9.4.37 At this stage it is assumed that no hydrological monitoring of flows or sampling for water quality, will be required to further characterise the baseline hydrology.

Future baseline

Climate change

- 9.4.38 As a result of climate change, it is predicted that Winters will become generally wetter and Summers generally drier¹³⁵. It is also likely that peak rainfall intensities could increase, and that the magnitude of flood events could also increase as a consequence. The Environment Agency¹³⁶ provides guidance on the potential future increases in river flood flows and extreme rainfall intensity to guide flood management scheme design. The potential increase in these parameters that should be designed for is dependent on the Project's expected lifetime, as shown in **Table 9.8**.

¹³⁴ Environment Agency (2017) *Flood risk assessments if you're applying for planning permission*. Available at: <https://www.gov.uk/guidance/flood-risk-assessment-for-planning-applications#get-information-to-complete-an-assessment> (Accessed: 01 February 2021).

¹³⁵ Met Office (2019) *UK Climate Projections: Headline Findings*. Version 2. Devon: Met Office.

¹³⁶ Environment Agency (2020) *Flood risk assessments: climate change allowances*. Available at <https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances#table-1>, (Accessed: 01 February 2021).

Table 9.8 Humber Climate change allowances

Allowance category	Potential change anticipated for the 2020s	Potential change anticipated for the 2050s	Potential change anticipated for 2080s
Peak river flows			
H++	20%	35%	65%
Upper end	20%	30%	50%
Higher central	15%	20%	30%
Central	10%	15%	20%
Extreme rainfall intensity*			
Upper end	10%	20%	40%
Central	5%	10%	20%

*Rainfall intensity values are for the whole of the UK

Land use change

9.4.39 Land use change can affect the permeability of the ground, which can affect surface water run-off. Given the low-lying nature of the majority of the land within the proposed Scoping red line boundary alongside the intensively drained agricultural land use, it is unlikely that the run-off regime will change significantly within and surrounding the Scoping red line boundary.

WFD change

9.4.40 Given the current Ecological Status/Potential of all the WFD waterbodies within the Scoping red line boundary is Less Than Good, it is anticipated the future status will improve, ultimately to one of Good Status/Potential, as required by the WFD.

9.4.41 It may be appropriate to assess construction related effects against the existing baseline surface water environment, however potential operational effects should take account of a future baseline environment that assumes Good Ecological Status/Potential will be attained during the lifetime of the Project. This is because the WFD is still in effect and requires progression towards Good Ecological Status/Potential.

9.5 Embedded environmental measures

9.5.1 Embedded environmental measures include all mitigation usually assumed to be in place during construction and operation and is generally regarded as industry standard or best practice. This includes production of a Construction Environmental Management Plan (CEMP) that will detail the best practice methods to be adopted during the construction phase, in addition to the environmental management measures. The assessment of potential effects will assume the effective implementation of 'embedded environmental measures' built into the design of the Project.

Micro siting of infrastructure

- 9.5.2 A high-level optioneering study (the CPRS Study, Chapter 2) has been undertaken to identify the preferred siting of the proposed infrastructure to ensure that, amongst a number of other factors, none of the CSECs or substation siting areas are at risk of flooding from rivers. Surface water flood risk was not considered as part of the CPRS Study, however, micro-siting of the infrastructure at the preferred locations will be possible to minimise the potential displacement of surface water flooding and flowpaths.
- 9.5.3 The route of the new overhead 400kV and 275kV lines and therefore the locations of the new pylons have yet to be identified. Where pylons need to be located in areas of higher flood risk, they are themselves resilient to flooding and do not displace significant volumes of water due to their open lattice structure, so do not increase flood risk elsewhere.

Pollution Prevention

- 9.5.4 In addition to complying with the following general good practice for chemical spillage prevention and control, a specific Pollution Incident Response Plan (PIRP) will be prepared and implemented during project delivery. See also *A General Guide to Preventing Pollution* (2020), GPP 1¹⁰², and *Pollution Incident Response Planning* (2017), GPP 21¹¹³.
- 9.5.5 All fuels, chemicals and oils will be stored within bunded areas in accordance with good practice guidance such as *Above Ground Oil Storage Tanks*, GPP 2 (2018)¹⁰³; *Use and Design of Oil Separators in Surface Water Drainage Systems*, PPG 3 (2006)¹⁰⁴; and *Safe Storage – Drums and Intermediate Bulk Containers*, GPP 26 (2019)¹¹⁵.
- 9.5.6 All stationary plant used will be fitted with measures such as drip trays to retain any leakage of oil or fuel. To prevent overflow, the contractor will empty trays at regular intervals and correctly dispose via a licensed waste disposal operator.
- 9.5.7 Fuel and chemical storage will be located in Flood Zone 1 and a minimum of 10m away from a watercourse.
- 9.5.8 Mobile plant will be maintained in good working order. Larger items of plant such as excavators will undergo daily recorded inspections by a competent person (usually the operator) for any defects. Where defects are evident, the item or plant shall be removed from the land within the proposed construction working area immediately and serviced or replaced as soon as possible.
- 9.5.9 Leaking or empty oil drums will be removed from land within the proposed construction working area immediately and disposed of via an appropriately licensed waste disposal contractor.
- 9.5.10 All water runoff from designated refuelling areas will be channelled to an oil separator or an alternative treatment system prior to discharge.
- 9.5.11 Wheel washing will be undertaken in a designated area in accordance with *Vehicle Washing and Cleaning*, GPP13 (2017). Water from wheel washing facilities and wash down areas will be recycled or fully contained and disposed of via tanker or through connection with the foul sewer. Spill kits will be held on-site with a variety of absorbent materials to be used in the event of a spill of fuel, oil or chemicals. Staff will be trained in

their use, and they will be checked regularly and replaced after an event. Where reasonably practicable, spill kits will also be stored with mobile fuel bowzers.

- 9.5.12 Any mixing of wet concrete (and cement) that is required on-site will be undertaken in designated areas. These will be provided in Flood Zone 1 and at least 10m from any watercourse or surface water drain to minimise the risk from pollution from highly alkaline wash water, in accordance with good practice guidance such as Working at Construction and Demolition Sites, PPG 6 (2012).
- 9.5.13 Designated areas will also be used for any washing down or equipment cleaning associated with concrete or cementing processes and facilities provided to remove sediment prior to disposal. Measures will be in place to control, store, recirculate and treat concrete wash water prior to disposal off-site using authorised waste management service. Wash water from concrete and cement works will not be discharged untreated into the water environment (e.g. rivers, surface water drains and gullies) as this can have a significant impact on water quality.

Stand-off distances from watercourses

- 9.5.14 To minimise the potential for impacts to watercourses, an absolute minimum 9m stand-off distance from all watercourses/waterbodies will be applied (with the exception of crossings and where existing field access roads are already located adjacent to watercourses are to be utilised).
- 9.5.15 Where possible, works within 8m of a Main River banktop (or 8m of the landward side of a flood defence), increasing to 16m for a tidal Main River, will be avoided to minimise the number of Flood Risk Activity Permits (FRAP) required. Typically, LLFAs and IDBs do not specify standoff distances as a requirement for Ordinary Watercourse Consents (OWC), however, these vary between the local administrations and will be reviewed when available.

Groundwater dewatering discharges

- 9.5.16 No silty water will be discharged directly into any watercourse. Where practicable, groundwater dewatered from excavations (e.g. pylon foundation excavations) will be discharged to adjacent grassed/vegetated agricultural land, away from watercourses. Where there remains the potential for this silty water to runoff into nearby surface water features or agricultural land used for crops, additional control measures will be put in place, which may include surrounding the discharge area (grassed/vegetated agricultural land) with sediment fencing or passing the silt-laden water through a Siltbuster® or similar. Infiltration is the preferred option for any dewatering discharges. The discharge rate must match the rate of infiltration into the soil which will vary with the soil type, amount of vegetation cover and the gradient. If infiltration is not possible, and discharge to a watercourse is required, this may be subject to a permit from the Environment Agency IDB or LLFA (dependant on the type of watercourse) and will be proactively managed to meet the permit conditions. However, it is considered as it will be temporary discharge of rainwater or infiltrated groundwater which has collected in the bottom of temporary excavations, they will be exempt. Dewatering will cease if a Flood Alert or Flood Warning has been issued by the Environment Agency for an area downstream. The receipt of the Flood Alert/Warning and actions to be taken will be detailed in the Emergency Response Plan for Flood Events discussed further in **Paragraphs 9.5.29 to 9.5.31.**

Surface water management

- 9.5.17 Surface water run-off (both during construction and operation) will be managed to avoid any increase in flood risk downstream and to protect downstream water quality. The drainage management measures will be developed by National Grid and will be presented in a Drainage Management Plan (DMP). The DMP will be reviewed and summarised in the FRA.
- 9.5.18 Consultation with the Environment Agency, IDBs and LLFAs in relation to measures to contain and manage surface water runoff from the land within the proposed construction working area will be undertaken. Measures to be implemented could include the following, where relevant:
- The provision of dedicated site surface water drainage systems including SuDS with appropriately sized attenuation and treatment facilities such as attenuation basins and/or ponds, settlement or detention basins, and hydrocarbon interceptors, as necessary.
 - Implementation of further embedded measures as necessary to protect the water environment. These may include:
- 9.5.19 The design of both the construction and operational land within the proposed construction working area surface water drainage systems will draw on Department for Environment, Food and Rural Affairs (DEFRA)'s Non-statutory technical standards for sustainable drainage systems (with due regard to the lifetime of the site).
- 9.5.20 Work will comply with BS 6031 Code of Practice for earthworks, BSI (2009c) in relation to the general control of site drainage. Measures to be implemented will also be determined with due regard to good practice guidance, including the Design Manual for Roads and CIRIA guidance listed in **Table 9.3**¹³⁷.
- 9.5.21 For temporary construction land within the proposed construction working area, drainage measures will be phased to be completed before the commencement of earthwork operations, in a specific area, and will be retained until the drainage system of the completed Project is fully operational, or site restoration works are completed.
- 9.5.22 Water abstracted from and/or during excavations will either be kept entirely separate from surface water run-off arising from outside of excavations (separate systems), or if managed in combined systems, designed specifically to accommodate attenuation storage and treatment facilities from both sources of water (rainfall and dewatering) to ensure neither source would compromise the other's effectiveness during either extreme rainfall events, or high water table/periods of high groundwater ingress. Both approaches will be subject to consultation with the Environment Agency and LLFAs.

Sediment control

- 9.5.23 The following general measures will be implemented to limit and manage sediment erosion, control sediment mobilisation and entrainment, and manage sediment transport and deposition (on land to stop it reaching a watercourse):
- Management of erosion – source control:

¹³⁷ In particular, Section 3 (designing for quantity), Section 4 (designing for quality) and Section 31 (construction) in The SuDS Manual (C753)¹⁰¹.

- Areas of exposed ground and stockpiles will be minimised where reasonably practicable to reduce silty runoff. Geotextiles will be used as necessary to shield stockpiles, and soil stockpiles to be left for more than three months will be seeded¹³⁸.
- Minimisation of the movement of entrained sediment:
 - Mud will be controlled at site entry and exit points using wheel cleaning areas and road sweepers as appropriate.
 - Tools and plant will be washed out and cleaned in designated areas within the construction compounds where runoff is isolated for treatment before discharge.
 - Where works are adjacent to watercourses/water bodies, appropriate restrictions and barriers will be installed along their edge to prevent damage to riparian vegetation and to manage the pathway for untreated silt laden runoff to enter the watercourse. Measures could include the use of straw bale traps, silt fences, gravel and geotextiles as required on a site-specific basis along drains, ditches and watercourses in the vicinity of earthworks.
- Treatment of sediment entrained run-off: Provision will be made on-site for the settlement of sediment; this will include adequate provision for the removal of sediment from site run-off. Treatment could include settlement tanks/ponds, combined with additional polishing technologies, such as Siltbusters® as required.

Pylon Foundations

9.5.24 Suitably corrosion and pH resistant concrete formulas will be utilised for pylon foundations to minimise the risk of leaching of harmful compounds into soil- and groundwater.

Flood risk management during construction

9.5.25 The design/planning of construction/temporary activities will consider the potential impacts to flood risk. Several measures may be implemented to avoid significant impacts to flood risk including:

- Avoid siting/storing any activity/material in the floodplain.
- Removing obstacles, plant and debris from watercourse pathways.
- Access roads (and working areas) in the floodplain are to be as close to ground level as possible (a slight raise surface is often required to allow to for drainage). This is to minimise the loss of floodplain storage volumes associated with raised structures such as raised access roads, working areas and associated topsoil stockpiles (for example Trackway may be used). Cross drainage would be provided as necessary at topographic low points.
- At specific locations, in the vicinity of identified receptors, no raised structures will be located within the floodplain. Access roads and working areas will be 'at grade' and any associated stockpiles will be located outside of the floodplain.

¹³⁸ DEFRA (2009) Construction Code of Practice for the Sustainable Use of Soils on Construction Sites. London: DEFRA.

- 9.5.26 Works will not be carried out during flood flows to avoid undue erosion of the riverbeds and/or banks, to protect construction personnel and plant, and to ensure that flood conveyance is not reduced.
- 9.5.27 Where possible, existing watercourse crossings will be used. However, in some locations may be required. Where reasonably practicable, temporary bridges will be used in preference to culverts and designed to ensure an appropriate level of flood conveyance in the construction phase. Where culverts are required, these will either be arch culverts, leaving the natural bed alone, or they would be installed with the invert set below the natural bed level for a semi natural bed to establish within the culvert. These are highly unlikely to be required on Environment Agency main rivers; though if required these would be designed to convey the 1% AEP flood flow with an appropriate climate change uplift for their lifetime. Where reasonably practicable, crossings of ordinary watercourses will use a clear span bridge, requiring no in channel works. Where culverts are required, these will either be arch culverts, leaving the natural bed alone, or they would be installed with the invert set below the natural bed level for a semi natural bed to establish within the culvert.
- 9.5.28 Access routes and works areas (including laydown compounds and pylon working areas) will, in most cases, be constructed from compacted aggregate, which may allow some infiltration of incident rainfall. However, fuel storage areas in the construction compounds which will be underlain by low permeability material to specifically exclude infiltration in order to ensure that any pollution incidents associated with spillages/leakages can be contained (the detail of these will be contained within the DMPs). Furthermore, there are some areas where temporary trackway may be utilised in preference to compacted aggregate, which would also not allow infiltration (to be considered in the DMPs).

Emergency Response Plan for Flood Events

- 9.5.29 Emergency Response Plan for Flood Events (The Plan) will be prepared for all working areas located in Flood Zones 2 and 3. The Plan will also cover those working areas that are accessed via Flood Zones 2 and/or 3, to/from which access/egress could be compromised during a flood event.
- 9.5.30 Details of emergency responses for different parts of the Project will be developed prior to commencement of construction in that area. The Plan will detail the procedure to be followed if flooding of the construction site is expected:
- personnel to evacuate the working areas at risk of flooding – this is the primary safety consideration and is the highest priority in the unlikely event that there is insufficient time to undertake the following activities:
 - making the site safe prior to evacuation – this would include appropriate storage of equipment and materials, securing items to prevent them being mobilised in, or causing pollution of flood water; and
 - removal of critical plant and equipment from at risk areas – this may be removal from access roads or working areas and could include raising critical items above the design flood level or removing them from the floodplain completely to one of the compounds.

- To expedite response upon receiving an alert/warning, the following elements should be specified in the plan:
- areas at risk of flooding should be clearly marked on-site access plans, including details of Environment Agency Flood Warning Areas;
- evacuation routes from flood risk areas should be clearly defined;
- the circumstances under which different responses would be implemented should be specified, with an escalation of response associated with increasing levels of danger. For example, a 'be prepared' alert may be raised upon receipt of an Environment Agency Flood Alert or a Met Office Severe Weather Warning for heavy rain, followed by an 'evacuate' order upon receipt of an Environment Agency Flood Warning, or at the discretion of the site HSSE Manager, based upon an appraisal of local conditions; and
- those items of plant and equipment that could be left in-situ without risk of damage or causing pollution should be identified, together with those items that should be evacuated, provided sufficient notice is provided and it is safe to do so.

9.5.31 In addition, as discussed previously, dewatering activities should cease when a Flood Alert or Flood Warning is received for area of construction, the flood response and evacuation plan(s) for that area should be finalised before commencement of works on-site. All personnel should be briefed on the contents of the plan as part of the site induction process.

9.6 Scope of the assessment

Potential receptors

9.6.1 The project-wide approach to the assessment methodology is set out in **Chapter 4**, and specifically in **Section 4.3**. However, whilst this has informed the approach that has been used in this chapter, it is necessary to set out how this methodology will be applied, and adapted as appropriate, to address the specific needs of the Hydrology and FRA in the Environmental Statement.

9.6.2 Potential effects on Hydrology and Flood Risk are most likely to be generated during the construction phase, however the assessment will also cover the operational phase of the Project. The potentially significant effects from the Project, which will be subject to further assessment with respect to Hydrology and Flood Risk, are summarised in **paragraph 9.6.9**.

9.6.3 During the construction phase, access to the pylon locations will be made via temporary access tracks and working areas and new watercourse crossings. Construction activities have the potential to cause blockages in watercourses and some infrastructure may be located in Flood Zones 2 and 3 which will have the potential to affect fluvial flood risk and pluvial flood risk for the period over which they are installed.

9.6.4 It is assumed that a FRA will be required for the Project, the final scope of which will be determined through further pre-application consultation with statutory consultees. The FRA will be undertaken to appropriately assess the flood risk impacts through the lifecycle of the Project. As the preferred location of all infrastructure has so far been sited wholly within FZ1, the primary focus of the FRA will be to ensure that the drainage

strategies are appropriate so as not to increase flood risk away from the Project. The FRA will be undertaken in parallel with the construction design process, in order that it may influence the placement of temporary infrastructure with respect to flood risk. However, the potential effects on flood risk receptors during the operational phase are effects scoped out from further assessment.

- 9.6.5 The Project could have potential effects on the hydrology, water quality and morphology of surface waterbodies which includes both watercourses and standing waterbodies such as ponds and lakes. There is potential for effects with regards to flows or water levels in receptor water bodies arising from changes to the infiltration characteristics of ground surfaces, disruption of shallow sub-surface and surface drainage pathways, and changes to channel conveyance arising from the installation of temporary or permanent watercourse crossings, pylon footings or temporary access tracks and pylon working areas. Water quality impacts arise from the potential for runoff from working areas with elevated levels of suspended solids to enter nearby watercourses, or for watercourses to be affected by accidental spillage of polluting substances. Morphology impacts arise from direct works to watercourses, such as the installation of temporary watercourse crossings.
- 9.6.6 Indirect effects on land drainage infrastructure, abstractions and discharges may also arise, resulting from direct effects on hydrology, water quality and morphology. These will also be assessed.
- 9.6.7 Effects on hydrology, water quality and morphology combine with any direct effects on aquatic biology to potentially affect the overall WFD status of surface waterbodies. The EIA will be supported by a standalone Water Framework Directive (WFD) compliance assessment in relation to hydrological receptors. The hydrology WFD assessment will be integrated within the ES. WFD compliance for surface waterbodies will be assessed, based on the results of assessments for hydromorphology and water quality, plus the results of the assessment of effects on aquatic biology from the biodiversity chapter. Assessment of WFD compliance for groundwater bodies will be carried out within the Geology and Hydrogeology chapter of the ES.
- 9.6.8 The Hydrology and FRA will consider the potential effects of the Project in combination with other developments. Other major developments need to be considered in assessing cumulative effects and include those under construction; permitted but not yet implemented; submitted but not yet determined; projects on the Planning Inspectorate's programme of projects; and those identified in development plans and other plans which are reasonably likely to come forward (see **Chapter 4**).

Likely significant effects

- 9.6.9 Based on the assessment of the current design and the incorporation of the embedded mitigation and best practice outlined above, it is considered that there are unlikely to be any significant Hydrology and Flood Risk effects that need to be taken forward for assessment in the ES. Potential effects on Hydrology and Flood Risk are most likely to be generated during the construction phase, however, by incorporating the embedded measures/best practice outlined in **Paragraphs 9.5.1 to 9.5.31** into the CEMP, any effects should be negligible. Once temporary access roads and watercourse crossings are removed, the only potential effects of the Project on flood risk would be via the displacement effect that positioning pylons in the flood plain and new impermeable areas at substations and CSECs. However, since the volume of water displaced by the

pylons would be minimal in comparison with overall flood volumes, any effect is likely to be insignificant. The FRA will ensure that appropriate drainage areas have been developed for any new impermeable area. Maintenance activities during the operational phase of the Project would still be considered as part of the FRA.

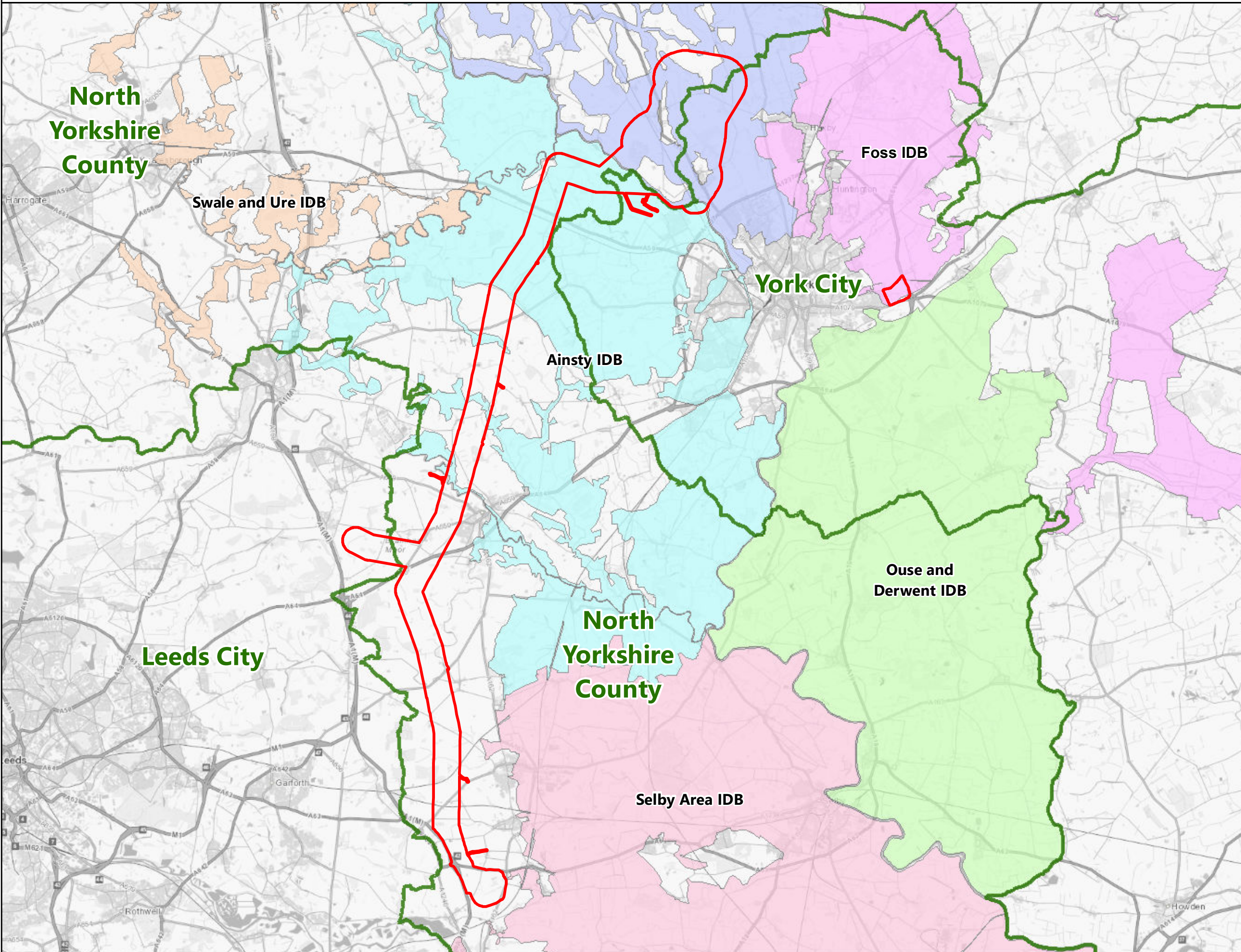
- 9.6.10 The Project design will be continually monitored. If an element of the design were to change and it was considered that this had the potential to impact Hydrology and Flood Risk beyond what could be reasonably be managed, Hydrology and Flood Risk will be scoped back into the assessment.
- 9.6.11 Assuming that hydrology and Flood Risk remains scoped out of the ES a brief WFD compliance statement will be provided as part of the main ES.



PRINCIPAL LOCAL WATER ENVIRONMENT REGULATORS

Legend

- Scoping red line boundary
- Lead Local Flood Authorities
- Internal Drainage Boards
- Ainsty
- Foss
- Kyle and Upper Ouse
- Ouse and Derwent
- Selby Area
- Swale and Ure



Notes
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2	MAR 21		COLLJ	DIMMR	CHADC
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Title
 SCOPING REPORT
 CHAPTER 9: HYDROLOGY AND
 FLOOD RISK
 PRINCIPAL LOCAL WATER
 ENVIRONMENT REGULATORS

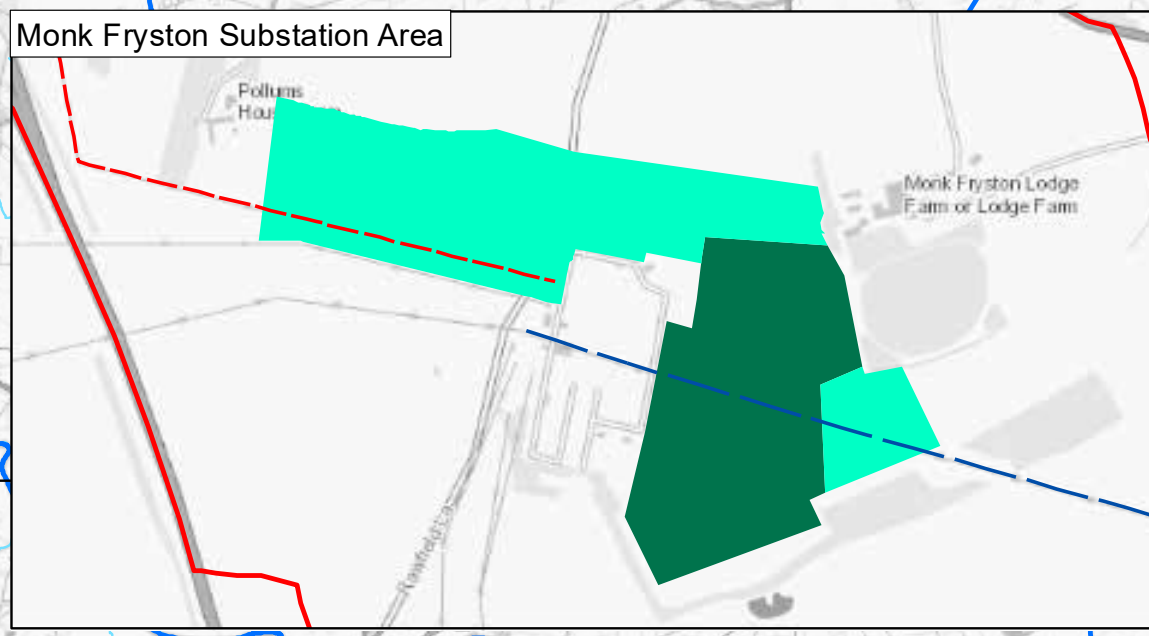
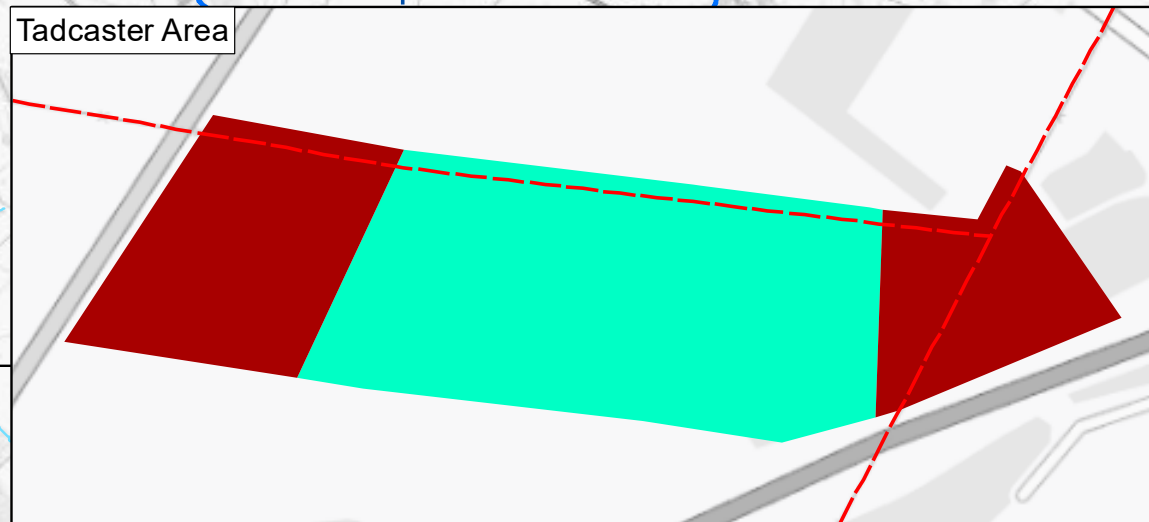
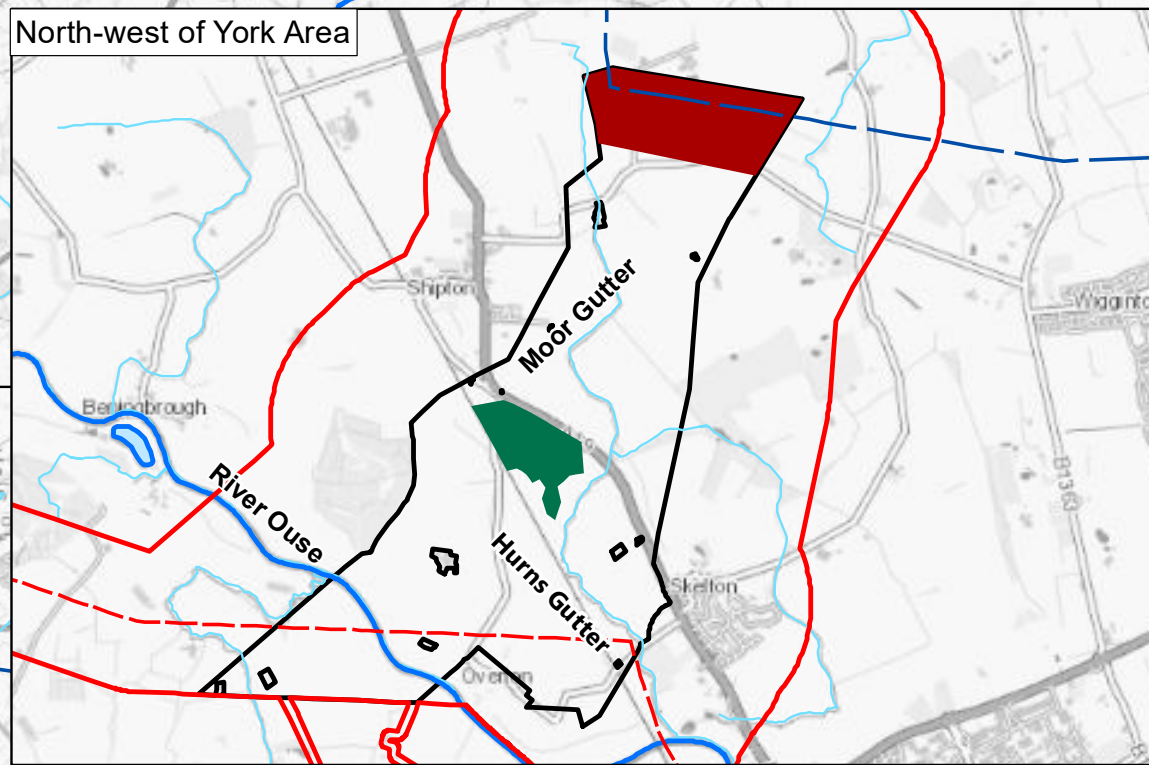
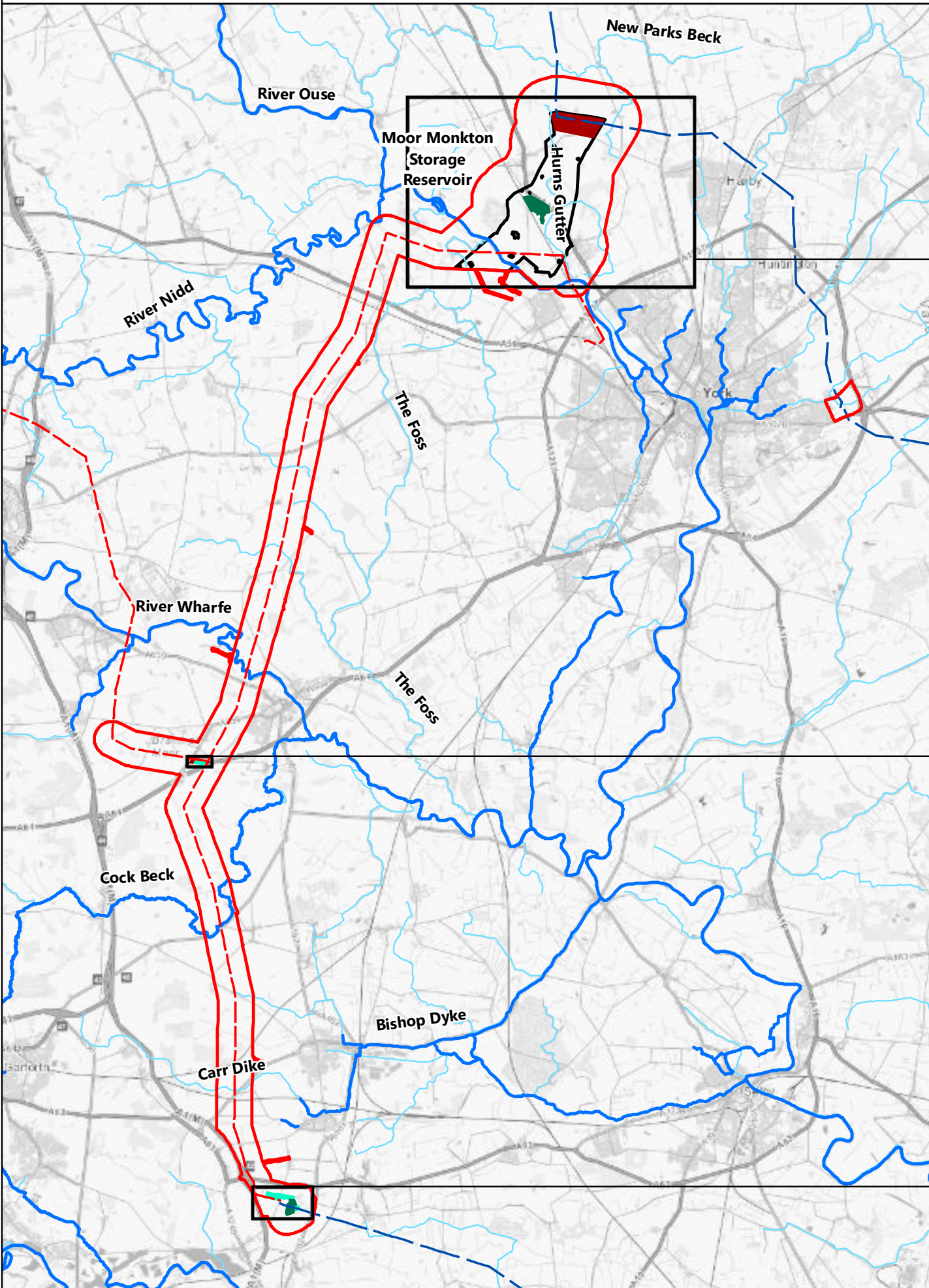
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Drawing Reference	806503-WOOD-0032		
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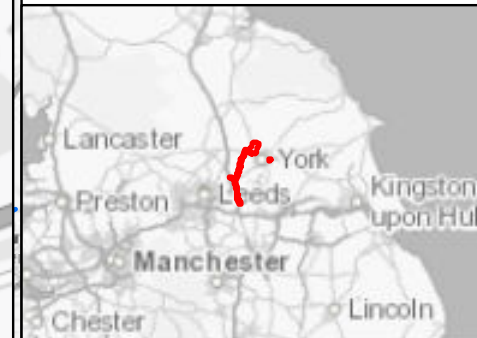
SURFACE WATER FEATURES LOCAL TO THE PROJECT

Legend

- Scoping red line boundary
- Existing 275kV overhead line
- Existing 400kV overhead line
- New 400kV and 275kV overhead line corridor
- Proposed Substation Siting Area
- Proposed Cable Sealing End Compound Siting Area
- Proposed Associated Infrastructure
- EA Main Rivers
- Watercourses
- WFD Lakes



Notes
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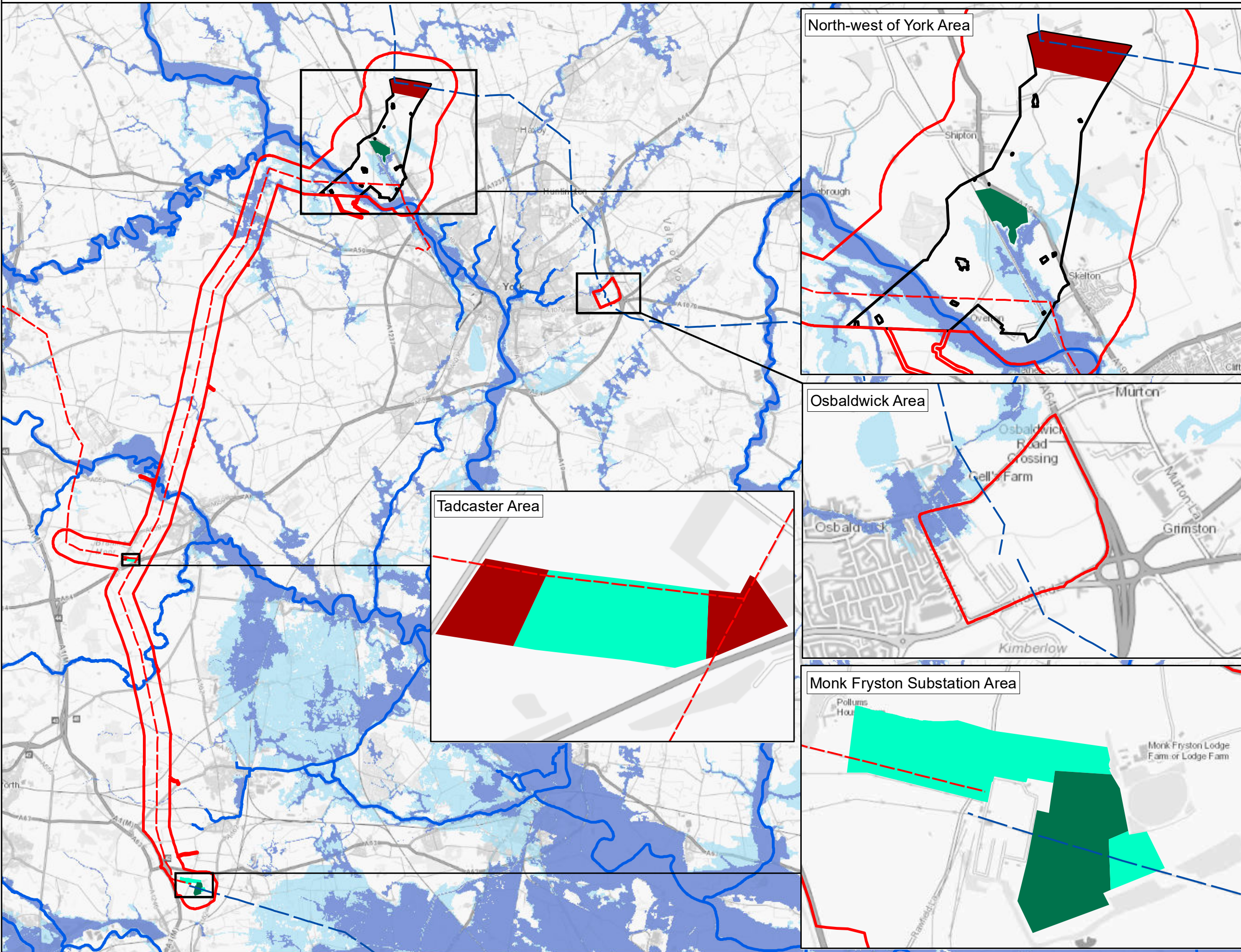
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SCOPING REPORT
CHAPTER 9: HYDROLOGY AND FLOOD RISK
SURFACE WATER FEATURES LOCAL TO THE PROJECT

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Figure Number	FIGURE 9.2		
Drawing Reference	806503-WOOD-0033		
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FLUVIAL FLOOD RISK



Legend

- Scoping red line boundary
- Existing 275kV overhead line
- Existing 400kV overhead line
- New 400kV and 275kV overhead line corridor
- Proposed Substation Siting Area
- Proposed Cable Sealing End Compound Siting Area
- Proposed Associated Infrastructure
- EA Main Rivers
- Flood Zone 3 (1% AEP)
- Flood Zone 2 (0.1% AEP)

AEP = Annual Exceedance Probability
Where no flood risk is mapped the fluvial flood risk is categorised as 'Very Low'.

Notes
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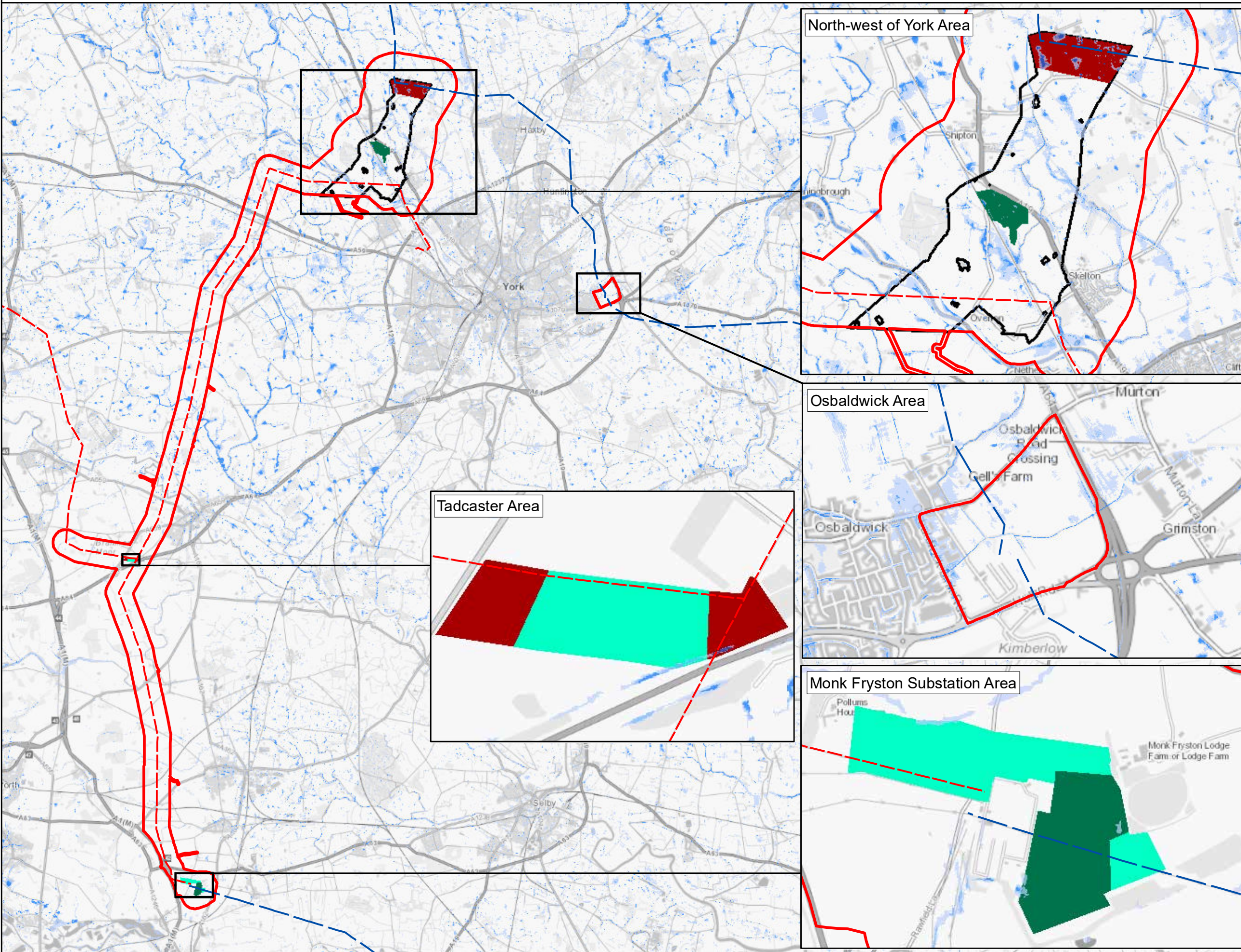
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2	MAR 21		COLLJ	DIMMR	CHADC

Title
**SCOPING REPORT
CHAPTER 9: HYDROLOGY AND
FLOOD RISK
FLUVIAL FLOOD RISK**

nationalgrid			
Figure Number	FIGURE 9.3		
Drawing Reference	806503-WOOD-0034		
Scale	Sheet Size	Sheet	Issue
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RISK OF FLOODING FROM SURFACE WATER



Legend

- Scoping red line boundary
- Existing 275kV overhead line
- Existing 400kV overhead line
- New 400kV and 275kV overhead line corridor
- Proposed Substation Siting Area
- Proposed Cable Sealing End Compound Siting Area
- Proposed Associated Infrastructure

RoFSW Extents

- High (3.3% AEP)
- Medium (1% AEP)
- Low (0.1% AEP)

AEP = Annual Exceedance Probability
Where no flood risk is mapped the RoFSW is categorised as 'Very Low'.

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SCOPING REPORT
CHAPTER 9: HYDROLOGY AND
FLOOD RISK
RISK OF FLOODING FROM
SURFACE WATER



Figure Number: FIGURE 9.4

Drawing Reference: 806503-WOOD-0035

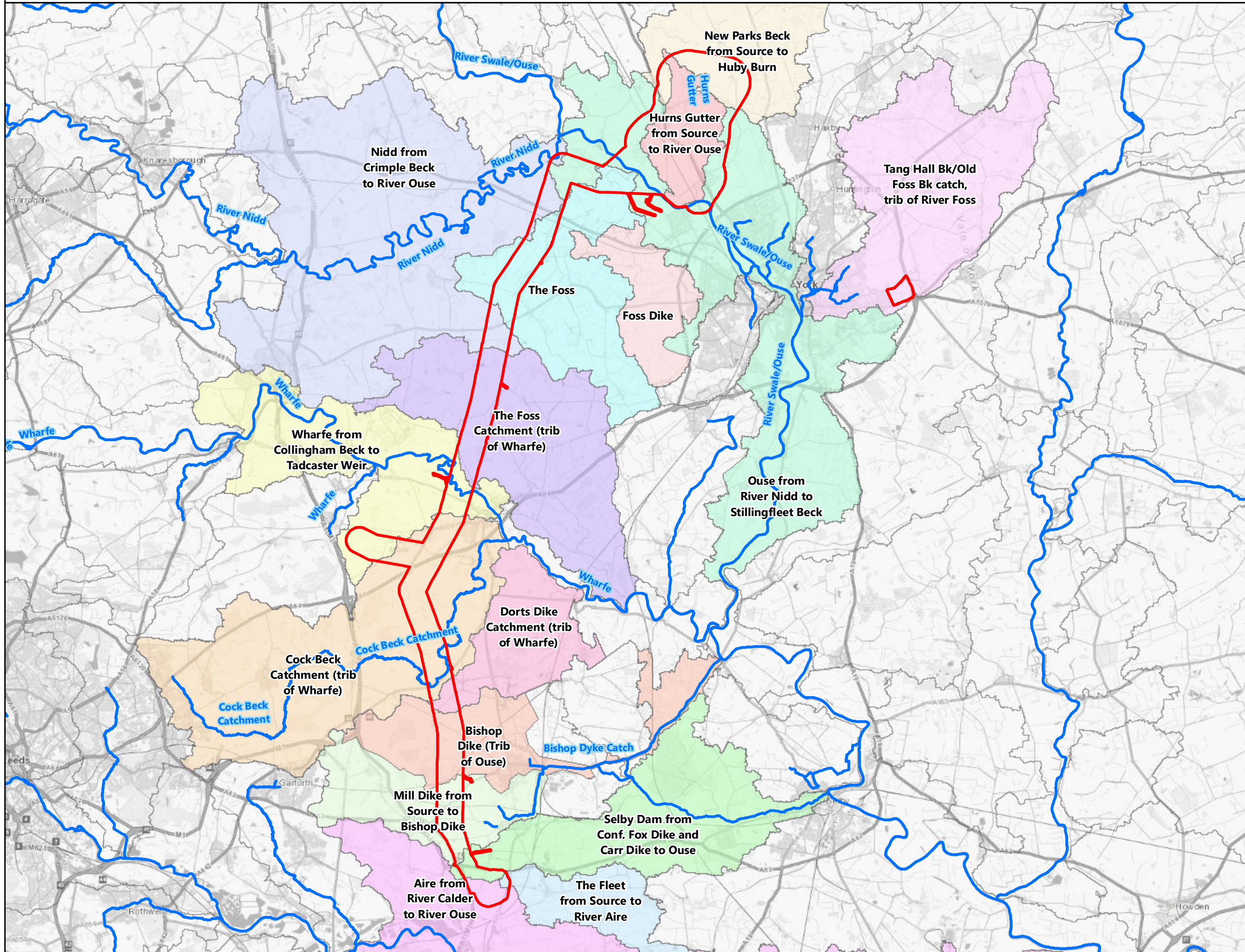
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WFD RIVER WATER BODY CATCHMENTS

Legend

- Scoping red line boundary
- EA Main Rivers
- WFD River Water Body Catchments



Notes
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Title
 SCOPING REPORT
 CHAPTER 9: HYDROLOGY AND
 FLOOD RISK
 WFD RIVER WATER BODY
 CATCHMENTS

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Figure Number	FIGURE 9.5		
Drawing Reference	806503-WOOD-0036		
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10. Geology and Hydrogeology

10. Geology and Hydrogeology

10.1 Introduction

10.1.1 The Geology and Hydrogeology assessment will consider the potentially significant effects on groundwater, designated geological sites and land contamination and ground instability receptors (e.g. human health, buildings) that may arise from the construction and operation of the Project. This chapter of the Scoping Report describes the methodology to be used within the EIA for Geology and Hydrogeology, the datasets to be used to inform the assessment, an overview of the baseline conditions within the Study Area, the likely significant effects to be considered within the assessment, and how these likely significant effects will be assessed for the purpose of an EIA.

10.1.2 Geology and Hydrogeology interfaces, and should be considered alongside, the following environmental aspects:

- Chapter 7: Biodiversity.
- Chapter 9: Hydrology.
- Chapter 11: Agriculture and Soils.
- Chapter 13: Air Quality.

10.2 Relevant legislation, planning policy and technical guidance

10.2.1 This section identifies the relevant legislation, national and local policy and guidance which has informed the scope of the assessment relevant to geology and hydrogeology.

Legislation

10.2.2 A summary of the relevant legislation is given in **Table 10.1**.

Table 10.1 Legislation relevant to Geology and Hydrogeology

Legislation	Legislative context	Section considered
The Environmental Protection Act (EPA) 1990 – Part 2A	Provides key definitions and overall legislative framework for assessment relating to the contamination of land and Controlled Waters.	Approach in Section 10.6 (Scope of the Assessment) is compliant with the legislative context in the EPA (e.g. to ensure that as a minimum development land does not qualify as “contaminated land” under Part 2A).
The Contaminated Land (England) Regulations 2006 (which consolidate the provisions of the	Relate primarily to Special Sites as defined in the regulations	General approach in Section 10.6 (Scope of the Assessment) compliant with the regulations (i.e. fully assess contamination risks,

Legislation	Legislative context	Section considered
Contaminated Land (England) Regulations 2000 and subsequent amendments), as amended by the Contaminated Land (England) (Amendment) Regulations 2012		identify whether any remediation is needed etc.).
Environmental Protection Act (EPA) 1990: Part 2A Contaminated Land Guidance	Provides information on how to implement Part 2A of the EPA. It also defines relevant ecological receptors requiring consideration as part of Part 2A contaminated land assessments, which are restricted to sites with recognised ecological status (e.g. SSSIs, Ramsar sites, national nature reserves etc.).	Section 10.6 (Scope of the Assessment). Applying this approach will ensure that as a minimum the Project does not result in “contaminated land” under Part 2A.
The Environmental Damage (Prevention and Remediation) Regulations 2009	Requirement to ensure that the Project will not cause damage to ecosystems, Controlled Waters or land.	Considered to the extent relevant to this Chapter (i.e. land and groundwater) via Section 10.5 (Embedded Environmental Measures) and Section 10.6 (Scope of the Assessment), which includes consideration of the potential effects of construction activities.
The Water Environment (Water Framework Directive) (England and Wales) Regulations 2003 (as amended, 2015)	Provides legislative context for compliance with the Water Framework Directive (WFD).	WFD status of aquifers considered in the assessment criteria in Section 10.6 (Scope of the Assessment)
The Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015	Provides water classification and compliance framework and numerical standards.	Reflected in the proposed assessment methodology i.e. magnitude of effect criteria in Table 10.6.
The Water Supply (Water Quality) Regulations 2010	Primarily relate to water quality for human use / consumption (include drinking water standards).	Section 10.6 (Scope of the Assessment) – aquifer designations and Source Protection Zones (SPZ) to be considered as part of the assessment system. Regulations directly referenced in Table 10.6.

Planning Policy

10.2.3 A summary of the relevant planning policies is given in **Table 10.2**.

Table 10.2 Planning policy relevant to Geology and Hydrogeology

Policy reference	Policy context	Section considered
Overarching National Policy Statement for Energy (EN-1)		
Policies 4.10 (Pollution Control) and 5.10 (Land Use)	Applicants should provide adequate land contamination risk assessments. Proposals should be considered within the context of existing pollution control regimes.	Section 10.6 (Scope of the Assessment) and Section 10.5 (Embedded Environmental Measures; covers the interface with other pollution control regimes).
Policy 5.3 (Biodiversity and Geological Conservation)	The application should clearly set out any effects on designated sites of geological conservation importance, including Regionally Important Geological Sites (RIGS). Development should aim to avoid significant harm to receptors; where this is not possible then compensation is required. Sites of Special Scientific Interest (SSSIs) should be given a high level of protection. The applicant should show how the project has taken advantage of opportunities to conserve and enhance geological conservation interests.	Section 10.6 (Scope of the Assessment) – explains the approach in relation to geological conservation.
Policy 5.15 (Water Quality and Resources)	Assessments should consider the physical and chemical characteristics of groundwater and its importance as a resource, with reference to abstractions, discharges and drinking water SPZ.	Section 10.6 (Scope of the Assessment) covers the aspects of groundwater referred to in this policy.
National Policy Statement for Electricity Networks Infrastructure (EN-5)		
2.2. (Site Selection), 2.6 (Impacts of Electricity Networks), 2.7 (Biodiversity and Geological Conservation)	Requirement for transmission and distribution licence holders to have due regard to geological conservation features. NPS-EN5 also specifically highlights the relevance of effects on soils and geology in relation to	Section 10.6 (Scope of the Assessment) explains the approach in relation to geological conservation.

Policy reference	Policy context	Section considered
	undergrounding as a technology option.	
National Planning Policy Framework (NPPF)		
Section 15 (Conserving and Enhancing the Natural Environment)	Policies and decisions should prevent development contributing to, being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil pollution, water pollution or land instability.	Section 10.6 (Scope of the Assessment) – the assessment methodology covers the aspects of the policy that are relevant to Geology and Hydrogeology.
Section 15 (Conserving and Enhancing the Natural Environment) – Ground Conditions and Pollution	Development proposals must take account of risks from contamination and land instability, including appropriate remediation proposals where necessary.	Section 10.6 (Scope of the Assessment) – the assessment methodology explains how risks from contamination and instability will be assessed.
Development Plan Policies		
Harrogate Local Plan (2020)	NE2 – Water quality assurance should be delivered through appropriate risk assessments of surface and ground water systems.	Section 10.6 (Scope of the Assessment) – aquifer designations and SPZ are considered as part of the assessment system.
	NE3 – Protection of natural environments, including geology, from the risks posed by construction works must be considered.	10.6 (Scope of the Assessment) – explains the approach in relation to geological conservation.
	NE9 – Risks posed by unstable and contaminated land are to be assessed prior to development to ensure safe working/living conditions to future land users.	Section 10.6 (Scope of the Assessment) – the assessment methodology explains how risks from contamination and instability will be assessed.
Hambleton Local Development Framework: Core Strategy Development Plan Document 2007 (DPD); Development Policies DPD 2008,	DP9 – Protection of geology from damage incurred due to construction works. DP31 – Protection of natural sites including for geological and geomorphological preservation. Potential effects on receptors should be assessed and risks	Section 10.6 (Scope of the Assessment) – the assessment methodology explains how risks from contamination and instability will be assessed to identify any necessary mitigation requirements, as well as the proposed approach in relation to geological conservation.

Policy reference	Policy context	Section considered
Allocations DPD, 2010	posed to receptors should be minimised when possible.	
York Local Plan, 2005	NE3 – Water Protection through impact assessments on water supplies. GP6 – Contaminated Land assessments: appropriate remediation and verification should be detailed prior to developments if required.	Section 10.6 (Scope of the Assessment) – the assessment methodology covers how potential effects on groundwater and potential risks posed by contamination and unstable land will be assessed.
Leeds City Council Core Strategy Local Plan 2019	G8 – Protection of species and habitats, including sites of geological importance.	Section 10.6 (Scope of the Assessment) – explains the approach in relation to geological conservation.
Selby District Local Council Plan (saved policies) (2005)	ENV2 – Contaminated land should be assessed to investigate potential implications for future occupants. Groundwater stored in aquifers is abstracted as potable water so quality and quantity need to be assessed prior to and during developments.	Section 10.6 (Scope of the Assessment) – the assessment methodology covers the aspects of land contamination risk assessments and groundwater protection that are referred to in policy ENV2.
	ENV9 – Geologically sensitive sites will be protected and where there is an alternative option it shall be chosen over the sensitive site.	Section 10.6 (Scope of the Assessment) – explains the approach in relation to geological conservation.

Technical Guidance

10.2.4 A substantial volume of technical guidance is available in relation to Geology and Hydrogeology. A summary of some of the key relevant technical guidance is given in **Table 10.3**.

Table 10.3 Technical guidance relevant to Geology and Hydrogeology

Technical Guidance Document	Context	Section considered
Land Contamination Risk Management ¹³⁹	Overarching technical guidance for land contamination risk assessments.	Proposed methodology in Section 10.6 (Scope of the Assessment) accords with the guidance, including assessment via a risk-based source-pathway-receptor approach that considers suitability for the proposed end use.
Assessing risks posed by hazardous ground gases to buildings (CIRIA publication 665) ¹⁴⁰	Technical guidance on ground gas risk assessment.	Proposed approach in Section 10.6 (Scope of the Assessment) accords with the guidance i.e. desk study to assess ground gas risks, which will then inform future monitoring and mitigation requirements.
Geological Conservation – A guide to good practice ¹⁴¹	Explains the key factors to be considered when assessing geological conservation sites.	Section 10.6 (Scope of the Assessment) explains the approach in relation to geological conservation.
Contaminated Land Risk Assessment: A Guide to Good Practice (CIRIA publication 552) ¹⁴²	Guidance on land contamination risk assessment principles.	The risk-based assessment system in Section 10.6 (Scope of the Assessment) is an application of the guidance in CIRIA 552.
Environment Agency Groundwater Protection guidance ¹⁴³	Collection of guidance documents covering groundwater permissions, risk assessments and controls.	Section 10.5 (Embedded Environmental Measures) and Section 10.6 (Scope of the Assessment), which includes a risk assessment methodology.

¹³⁹ Environment Agency, 2020 (accessed 2021). *Land Contamination: risk management*. <https://www.gov.uk/government/publications/land-contamination-risk-management-lcrm>

¹⁴⁰ Construction Industry Research and Information Association (CIRIA), 2007. *Assessing risks posed by hazardous ground gases to buildings (C665)*.

¹⁴¹ English Nature, 2006. *Geological Conservation – A guide to good practice*.

¹⁴² Construction Industry Research and Information Association (CIRIA), 2001. *Contaminated Land Risk Assessment: A Guide to Good Practice (C552)*.

¹⁴³ Environment Agency, 2017 (accessed 2021). *Groundwater Protection*. <https://www.gov.uk/government/collections/groundwater-protection>

10.3 Consultation and engagement

- 10.3.1 Written correspondence has been provided to the Coal Authority in relation to the potential risks from ground instability associated with historical coal mining (**Appendix 10.1**).
- 10.3.2 Following receipt of the Scoping Opinion, consultation will be held as necessary to ensure that all consultee comments are fully addressed and incorporated as necessary for the EIA. This may include written or telephone / video consultation with the local planning authorities (e.g. in relation to land contamination), the Environment Agency (e.g. in relation to groundwater) etc.

10.4 Baseline Conditions

- 10.4.1 This section of the Scoping Report comprises an overview of the baseline conditions for Geology and Hydrogeology, in order to establish the type and nature of potentially significant effects.

Study Area and Terminology

- 10.4.2 For the purpose of establishing the baseline conditions, a general Study Area of the Scoping red line boundary (as shown on **Figure 1.2**) plus a 250m buffer has been defined. Given the scale and nature of the Project, this is generally considered a robust yet proportionate approach. However, for hydrogeological baseline information (e.g. SPZ, water abstractions etc.) the Study Area for baseline data collection will be extended to 500m from the Scoping red line boundary, due to the mobile nature of groundwater and the corresponding potential for the Project to affect receptors at a greater distance.
- 10.4.3 The description of the baseline conditions in this section of the Scoping Report includes specific detail and focus on three locations where the nature of the Project is likely to involve greater ground disturbance and therefore the baseline geological and hydrogeological conditions are of greater relevance. These locations are:
- North West of York Area: Inset area labelled North West of York Area on **Figure 1.2**.
 - Tadcaster Area: Inset area labelled Tadcaster on **Figure 1.2**.
 - Monk Fryston Substation Area: Inset area labelled Monk Fryston Substation Area on **Figure 1.2**.
- 10.4.4 For clarity, the terminology used in this chapter of the Scoping Report is:
- Scoping red line boundary: The red line boundary shown on **Figure 1.2**.
 - Study Area: The Scoping red line boundary plus 250m of surrounding land, with additional consideration for hydrogeological features of up to 500m from the Scoping red line boundary.
 - The North West of York Area, the Tadcaster Area and the Monk Fryston Substation Area: The parts of the Study Area that relate to the corresponding inset boxes shown on **Figure 1.2**.

Data gathering methodology

- 10.4.5 The initial overview of baseline information undertaken to support scoping has been carried out through a review of publicly available geological information, including:
- British Geological Survey (BGS) geological mapping¹⁴⁴.
 - Scans of historical boreholes available from the BGS¹⁴⁵.
 - MAGIC Interactive Map¹⁴⁶.
 - Source Protection Zone shapefile data¹⁴⁷.
 - Coal Authority Interactive Map¹⁴⁸ and mining risk data sets¹⁴⁹.
 - Historical landfill records¹⁵⁰.
 - Information about designated geological sites within local planning policy documents, the JNCC Geological Conservation Review database¹⁵¹, and online information provided by the West Yorkshire Geology Trust¹⁵² and North Yorkshire Geodiversity Partnership¹⁵³.
 - Satellite imagery.
 - Environment Agency Catchment Data Explorer¹⁵⁴.
- 10.4.6 The initial overview of baseline conditions provided in this chapter of the Scoping Report is intended only to establish the scope of effects that require assessment, so is focussed only on key data sets and should not be considered exhaustive. More detailed information will be obtained and reported in the PEIR and ES. Details of the proposed additional data gathering are provided in Section 10.6 (Scope of the Assessment).

Current baseline

- 10.4.7 The Study Area measures approximately 35km in length (north-south) and displays variable geology. The geology of the Study Area can generally be split into two distinct parts (north and south), which contain different geological units; primarily sandstones (and occasional mudstones) in the north and primarily limestone and dolomite (interbedded with mudstones, sandstones and siltstones) in the south. The geological boundary between these two parts intersects the Scoping red line boundary approximately 1.5km north east of Tadcaster town centre. There are several northeast to southwest trending faults across the Study Area. Due to the size and shape of the Study Area, it extends across several Nitrate Vulnerable Zones (NVZ).

¹⁴⁴ British Geological Survey, accessed 2021. *Web Mapping Services* <https://www.bgs.ac.uk/technologies/web-map-services-wms/>

¹⁴⁵ British Geological Survey, accessed 2021. *GeoIndex* <https://mapapps2.bgs.ac.uk/geoindex/home.html>

¹⁴⁶ DEFRA, accessed 2021. *MAGIC map application* <https://magic.defra.gov.uk/magicmap.aspx>

¹⁴⁷ Data.gov.uk, accessed 2021. *Source Protection Zones [Merged]*. <https://data.gov.uk/dataset/09889a48-0439-4bbe-8f2a-87bba26fbbf5/source-protection-zones-merged>

¹⁴⁸ Coal Authority, accessed 2021. *Interactive viewer and WMS data* <https://mapapps2.bgs.ac.uk/coalauthority/home.html>

¹⁴⁹ British Geological Survey / Coal Authority, accessed 2021. *Web Mapping Services* <https://www.gov.uk/guidance/using-coal-mining-information#web-mapping-services>

¹⁵⁰ Data.gov.uk, accessed 2021. *Historic Landfill Sites* <https://data.gov.uk/dataset/17edf94f-6de3-4034-b66b-004ebd0dd010/historic-landfill-sites>

¹⁵¹ Joint Nature Conservation Council, 2019 (accessed 2021). *Geological Conservation Review (GCR) csv extract of the GCR database (part)*. <https://hub.jncc.gov.uk/assets/b0f53582-f93d-4e70-8ff9-0f16b660e4ad>

¹⁵² West Yorkshire Geology Trust, 2011-2018 (accessed 2021). *Local Geology Sites*. <http://www.wyorksgeologytrust.org/localsites.html>

¹⁵³ North Yorkshire Geodiversity Partnership, accessed 2021. *Geological Sites*. <https://www.nygp.org.uk/geological-sites/>

¹⁵⁴ Environment Agency, accessed 2021. *Catchment Data Explorer*. <https://environment.data.gov.uk/catchment-planning/>

10.4.8 Further details on the baseline conditions within the Study Area are described on a geographical basis below. The information is first presented for each of the three locations of particular focus previously established (North West of York Area, Tadcaster Area and Monk Fryston Substation Area), and then for the remainder of the Study Area between those locations (i.e. land between the North West of York Area and the Tadcaster Area, and then land between the Tadcaster Area and Monk Fryston Substation Area).

North West of York Area

10.4.9 The North West of York Area is located at the northern end of the Project and is recorded on BGS mapping to be directly underlain by various superficial deposits, predominantly lacustrine clay deposits. There are localised glacial sand and gravel deposits in the south, and alluvium in the centre. The superificials are underlain entirely by bedrock comprising Triassic interbedded sandstones and conglomerates.

10.4.10 The North West of York Area lies within the 'SUNO Sherwood Sandstone' groundwater body, which has been classified by the Environment Agency as 'Poor' WFD status in 2019. The Environment Agency has published reasons why the groundwater body has not achieved 'Good' status, which include poor nutrient management from agricultural sources and private sewage treatment. It is also noted that natural conditions are a factor in the quality of the groundwater body.

10.4.11 The superficial deposits within the North West of York Area are mainly designated as Secondary A Aquifer deposits (permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers) with localised Secondary Undifferentiated Aquifer deposits (rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow). The bedrock in the North West of York Area is designated as a Principal Aquifer (layers of rock that have high intergranular and/or fracture permeability and a high level of water storage, they may support water supply and/or river base flow on a strategic scale).

10.4.12 Within the Study Area (and also within the Scoping red line boundary), there are two small scale Source Protection Zones (SPZ), which are circular and 100m in diameter and comprise only an inner SPZ (SPZ 1). These are located at Newlands Farm and Oaklands Turkey Farm. The locations of these are shown on **Figure 10.1**.

10.4.13 Within the North West of York Area, the land within the Study Area currently comprises mainly agricultural land, together with the A19 aligned northwest to southeast. There are small areas of residential dwellings and farms.

Tadcaster Area

10.4.14 For ease of reference, the description of baseline conditions in the Tadcaster Area also includes land within the Scoping red line boundary (and associated Study Area buffers) that is immediately to the west of the Tadcaster Area i.e. the 'spur' of the Scoping red line boundary shown on **Figure 1.2** that contains the existing 275kV XD/PHG overhead line (Tadcaster Tee to Knaresborough).

10.4.15 The Tadcaster Area is, geographically, located centrally within the Project. This area is not recorded on BGS mapping to be underlain by any superficial deposits, other than the spur which is recorded to be underlain by sporadic deposits of glacial till (Harrogate

Till Formation) and Head (a deposit of clay, silt sand and gravel). The superficial deposits are designated as Secondary Undifferentiated aquifers.

- 10.4.16 The Tadcaster Area is mapped to be underlain almost entirely by dolomitised limestones and dolomites of the Zechstein Group, with less prevalent Permian mudstones. The spur is mapped to be underlain by the same solid geology. The bedrock within the Zechstein Group is designated as a Principal Aquifer, with the Permian Mudstones designated as Secondary B Aquifer deposits (lower permeability layers which may store or yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons and weathering).
- 10.4.17 The Tadcaster Area lies within the 'Wharfe Magnesian Limestone' groundwater body, which has been classified by the Environment Agency as being of 'Poor' WFD status in 2019.
- 10.4.18 As shown on **Figure 10.1**, the Tadcaster Area (and the spur) is recorded by the Environment Agency as mainly falling within a Zone 3 SPZ (total catchment), with smaller parts within a Zone 2 SPZ.
- 10.4.19 Zone 1 (inner protection) of this SPZ is also located within the Scoping red line boundary (although not within the Tadcaster Area inset shown on **Figure 1.2**), being c.320m south of the proposed CSEC siting location at Tadcaster.
- 10.4.20 The Tadcaster Area contains farm buildings and agricultural land and is crossed by a road (the A64). Jackdaw Crag Quarry is located immediately adjacent to the south of the A64 (outside the locations of proposed new infrastructure shown on **Figure 1.2**). This quarry is currently operational and the BGS records the presence of 'artificial ground' at and around it (**Figure 10.3**).
- 10.4.21 An area of artificial ground is also shown on BGS mapping c.70m north of the 'spur' (outside the Scoping red line boundary but within the Study Area), in a location that is currently occupied by an athletics track at Tadcaster Grammar School (**Figure 10.3**).

Monk Fryston Substation Area

- 10.4.22 The Monk Fryston Substation Area is located at the southern end of the Project. The majority of the Monk Fryston Substation Area is recorded on BGS mapping to be underlain by glacial till deposits, other than a small area in the north that is mapped to be devoid of superficial deposits and a small area in the south that is mapped to be underlain by sand and gravel. The solid geology underlying the majority of the Monk Fryston Substation Area comprises the same dolomitised limestones and dolomites as found in the Tadcaster Area, with localised mudstones.
- 10.4.23 The superficial deposits underlying the Monk Fryston Substation Area are designated as Secondary Aquifers. As at the Tadcaster Area, the bedrock is designated as a Principal Aquifer, with localised Secondary B Aquifers corresponding to the Permian mudstones.
- 10.4.24 The Monk Fryston Substation Area lies within the 'Aire & Don Magnesian Limestone' groundwater body, which was classified by the Environment Agency as Poor WFD status for 2019. The Environment Agency has published reasons why the groundwater body has not achieved Good status, which include farm/site infrastructure and poor pesticide and nutrient management from agricultural sources. It is also noted that private sewage treatments are a factor in the quality of the groundwater body.

- 10.4.25 The Monk Fryston Substation Area currently generally comprises agricultural land and small structures associated with farms. The existing Monk Fryston substation is located within the Scoping red line boundary.
- 10.4.26 The Monk Fryston Substation Area, together with adjacent land within the Scoping red line boundary to the north (i.e. the full Scoping red line boundary and Study Area from the Monk Fryston Substation Area northwards to approximately 1.2km west of Sherburn-in-Elmet) is recorded to be in a Coal Mining Reporting Area. However, it does not lie within a Development High Risk Area for coal mining, there are no recorded mine entries within the Scoping red line boundary or within 250m of it, and available historical borehole logs indicate that coal in this area is at greater than 60m depth with substantial rock (e.g. limestone) cover.
- 10.4.27 One historical landfill site (Mile Gap Quarry) is recorded in the Monk Fryston Substation Area (shown on **Figure 10.3**). This is within the Scoping red line boundary c.450m north of the existing Monk Fryston substation. There is a currently authorised / active landfill (Powergen Plc) within the Scoping red line boundary, approximately 1.5km west of the village of Monk Fryston. There is also a currently authorised landfill (Thorne Recycling Ltd) approximately 210m east of the Scoping red line boundary (shown on **Figure 10.3**).
- 10.4.28 BGS mapping records the presence of artificial ground at the existing Monk Fryston substation, as well as both at and immediately adjacent to the east of, the Powergen landfill. The mapped extent of artificial ground is shown on **Figure 10.3**.

Remainder of the Study Area

Between the North West of York Area and Tadcaster Area

- 10.4.29 The land within the Study Area between the North West of York Area and the Tadcaster Area is underlain by various superficial deposits including: lacustrine clay deposits, glacial till, alluvium and river terrace deposits (occurring north to south). These are designated as Secondary A and Secondary Undifferentiated aquifers.
- 10.4.30 The solid geology underlying the Study Area between the North West of York Area and the Tadcaster Area comprises Triassic sandstones in the north. Further south, Permian mudstones, sandstones and siltstones are encountered followed by Permian dolomitised limestones. The solid strata underlying the land within the Study Area between the North West of York Area and the Tadcaster Area are mainly designated as Principal Aquifers (other than a small area recorded to be underlain by mudstone c.1km east of Newton Kyme, which is a Secondary B Aquifer), and form part of the SUNO Sherwood Sandstone and Wharfe Magnesian Limestone groundwater bodies.
- 10.4.31 As shown on **Figure 10.1**, a SPZ (additional to the one described previously in relation the Tadcaster Area) is located within the Study Area between the North West of York Area and Tadcaster Area. This includes SPZ 1, SPZ 2 and SPZ 3 designations, although where it falls within the Scoping red line boundary (immediately adjacent to the town of Tadcaster) the designation is primarily SPZ 2.
- 10.4.32 There is also a small circular SPZ at Healaugh Farm (**Figure 10.1**). This is c.100m in diameter and consists of only an inner SPZ (SPZ 1).
- 10.4.33 As shown on **Figure 10.3**, an historical landfill (Hargreaves Tip) is located approximately 140m west of (i.e. outside) the Scoping red line boundary to the west of

Tadcaster (approximately 700m north east of Tadcaster Grammar school). The historical landfill falls within a larger active/authorised landfill that extends to c.20m west of the Scoping red line boundary.

10.4.34 The BGS records areas of artificial ground within the Study Area, as shown on **Figures 10.2** and **10.3**. The locations of this artificial ground are listed below. These cannot be readily attributed to any specific origin at present, and will be considered further as part of the EIA (e.g. by assessment of historical maps, as described in **Section 10.6** (Scope of the Assessment)):

- Immediately to both the north and south of Lordswood cricket school (within the Scoping red line boundary). This land appears to contain woodland.
- Several small areas of artificial ground c.0.9km to c.1.7km north west of Tadcaster both within and surrounding the Scoping red line boundary (i.e. within the Study Area boundary of 250m).
- Approximately 900m south east of Wighill (within the Scoping red line boundary). This land appears to currently be occupied by commercial or farm buildings.

Between the Tadcaster Area and the Monk Fryston Substation Area

10.4.35 The land within the Study Area between the Tadcaster Area and the Monk Fryston Substation Area contains only sporadic superficial deposits, which are generally glacial till. The bedrock is comprised of Zechstein Group dolomitised Permian limestones interbedded with Permian mudstones, sandstones and siltstones. The solid strata underlying the land between the Tadcaster Area and the Monk Fryston Substation Area are predominantly designated as Principal Aquifers, and form part of the Wharfe Magnesian Limestone and Aire & Don Magnesian Limestone groundwater bodies. Where there are superficial deposits south of Tadcaster, they are recorded as Secondary A and Secondary Undifferentiated aquifers.

10.4.36 Source Protection Zones (SPZ) between the Tadcaster Area and the Monk Fryston Area are shown on **Figure 10.1**, and are as follows:

- There is a small scale SPZ, which is circular and 100m in diameter and comprises only an inner SPZ (SPZ 1), approximately 280m west of the Scoping red line boundary (i.e. outside the boundary but within the Study Area) immediately to the south of the junction between the A63 and Westfield Lane.
- Southwards continuation of the SPZ described earlier when discussing the Tadcaster Area (**paragraphs 10.4.18** and **10.4.19**).

10.4.37 The BGS records areas of artificial ground within the Study Area, as shown on **Figure 10.3**. The locations of this artificial ground are listed below. These cannot be readily attributed to any specific origin at present, and will be considered further as part of the EIA (e.g. by assessment of historical maps, as described in Section 10.6 (Scope of the Assessment)):

- At Newthorpe (within the Scoping red line boundary).
- Approximately 1.2km north of Newthorpe (within the Scoping red line boundary). This location is currently occupied by commercial premises / an equestrian centre.
- Approximately 1.7km north west of Saxton (within the Scoping red line boundary).

Osballdwick

- 10.4.38 The Scoping red line boundary includes a separate parcel of land at Osballdwick that is not contiguous with the rest of the boundary. This land and associated Study Area (i.e. buffers as previously described) are recorded to be underlain by natural superficial deposits of the Alne Glaciolacustrine Formation (silty clay) in the north and the York Moraine Member (gravelly sand and sandy gravelly clay) in the south. The superficial deposits are recorded to be underlain by solid strata of the Sherwood Sandstone Group (sandstone).
- 10.4.39 The deposits of the York Moraine Member are variably classified as Secondary A and Secondary Undifferentiated aquifers. The Sherwood Sandstone deposits are classified as a Principal Aquifer, and form part of the 'SUNO Sherwood Sandstone' groundwater body. A SPZ is present c.320m east of (i.e. outside) the Scoping red line boundary. This is an inner SPZ (SPZ I) only, and does not have associated outer (SPZ II) or total catchment (SPZ III) zones.
- 10.4.40 The following features are noted in relation to the current land use in the Study Area at Osballdwick:
- An historical landfill (Grimston Bar Borrow Pit) is present immediately adjacent (i.e. outside) the Scoping red line boundary to the south. This is currently occupied by a Park and Ride.
 - The land within the Scoping red line boundary at Osballdwick contains the existing Osballdwick 400kV substation in the south west and commercial units in the north west. Otherwise, satellite imagery indicates that it is generally agricultural land.

Future baseline

- 10.4.41 To assess the potential effects of the Project, it is necessary to predict how those conditions observed and recorded at the time of baseline data collection could change prior to the commencement of development and during its construction and operation.
- 10.4.42 It is currently anticipated that construction will run from 2025 to 2028. Prior to and during that period ground conditions in relation to geology or land contamination would not be expected to change substantively, assuming that any future activities would be permitted/controlled in accordance with current contaminated land legislation.
- 10.4.43 Hydrogeological conditions are more prone to change, and may be affected by the following:
- Future provision of housing development – an increase in housing in the region has the potential to affect recharge to the aquifers and the demand for drinking water, which could affect future water resources and groundwater levels in aquifers (noting that the land within the Scoping red line boundary includes two SPZs).
 - Changes in the water supply and waste water infrastructure – leaking waste water infrastructure represents a potential diffuse source of nutrients (nitrogen and phosphorus), other contaminants (e.g. heavy metals) and coliform bacteria to groundwater. Leakage of new water supply infrastructure has the potential to input higher concentrations of nitrate where baseline levels are currently lower.
 - Climate change – Changes in rainfall may affect aquifer recharge, groundwater levels and flow gradients.

10.4.44 Given the nature of the Project, it is not currently considered that any change in baseline resulting from these factors would be likely to have a meaningful influence on the assessment of effects. However, this would be reviewed during the EIA and, should any instances where this is not the case be identified, they will be considered on a case-by-case basis within the EIA.

10.5 Embedded Environmental Measures

10.5.1 For the purpose of assessing the effects of the Project, it will be assumed that routine health and safety and environmental controls will be in place during construction, in accordance with standard good practice across the construction industry. These are referred to as embedded environmental measures.

10.5.2 A Construction Environmental Management Plan (CEMP) will be produced to detail the best practice methods to be adopted during the construction phase. This would typically include the following embedded environmental measures:

- The control of earthworks or material movements under appropriate environmental permits, exemptions or CLAIRE 'The Definition of Waste: Development Industry Code of Practice' (2011).
- Use of appropriate Personal Protective Equipment (PPE) and statutory health and safety compliance (e.g. compliance with the *Confined Spaces Regulations, 1997* in relation to ground gas risks from working in trenches), to minimise the potential risks associated with encountering expected and/or unexpected contamination or ground gas.
- Contingency procedures (e.g. stop protocol), in the event that unexpected contamination is encountered during construction.
- Appropriate training of construction workers in the handling and use of potentially dangerous substances, and associated risks.
- General construction site good environmental and waste management procedures (e.g. regular vehicle checks, use of spill kits, correct waste storage and disposal).
- Siting of vehicle parking areas away from vulnerable areas (SPZ1).
- All water discharges to be undertaken under the correct Environment Agency permits, with appropriate pre-treatment (e.g. de-silting) where required.
- Correct environmental management, handling and storage of fuels and chemicals (e.g. compliance with *The Control of Pollution (Oil Storage) Regulations 2001* and Environment Agency guidance *Protect groundwater and prevent groundwater pollution* (part of the Groundwater Protection guidance on the UK.gov website)).
- Dewatering to be limited to the depth and time required to facilitate construction activities.
- If required (e.g. for maintenance during the operational phase), herbicides to be used in accordance with DEFRA *Code of Practice for Using Plant Protection Products* (2001).

10.5.3 For the purpose of the EIA, it will be assumed that the engineering design for the new infrastructure and structures that would be built as part of the Project would incorporate

suitable consideration of ground instability risks and any risks that may exist from chemically aggressive ground conditions, such that the new infrastructure and structures are not susceptible to significant effects resulting from ground instability or chemical damage of concrete. This is a fundamental engineering requirement and will be considered equivalent to an embedded environmental measure (i.e. an 'embedded engineering measure').

10.6 Scope of the assessment

Potential receptors

10.6.1 Several potential receptors are already present within the Study Area. In addition, it is likely that further receptors will be introduced as a result of the Project. The potential receptors (from both of these categories) are listed below:

- Groundwater in aquifers. In accordance with the legislation, policy and guidance described in **Section 10.2** (Relevant Legislation, Planning Policy and Technical Guidance), designated aquifers should be considered receptors in relation to groundwater quality and quantity. As described in **Section 10.4** (Baseline Conditions), the Study Area contains various aquifers, including large sections underlain by Principal Aquifers (sandstone and limestone).
- Abstracted groundwater. This is a relevant receptor in relation to groundwater quality and quantity. SPZs around groundwater abstractions are present at three locations in the Study Area (as described in **Section 10.4** (Baseline Conditions)). Two of these include land within the Scoping red line boundary, and in both of these cases this includes SPZ I designations.
- Adjacent land users, construction workers and future land users. These are all potential receptors in relation to human health risks from ground contamination and risks from ground gas. Adjacent land users comprise people using land adjacent to active construction locations during the construction of the Project, who could be affected by soil contamination or gas/vapours mobilised by ground disturbance. Future land users include people who will use land that is temporarily used by the Project during construction but is returned to a different use once the project is operational. In both cases (i.e. adjacent and future land users), given the nature of the Study Area these are likely to primarily be agricultural workers and recreational users (e.g. walkers). Future land users also include any workers involved in operating or maintaining the infrastructure during the operational phase.
- Soil / land quality. These are potential receptors in relation to land contamination assessments and features of the receptor that may be affected include crops, livestock and landscaping schemes. Soil and land quality receptors are only relevant to the Geology and Hydrogeology assessment insofar as is relevant to land contamination. Other effects in relation to these receptors fall under **Chapter 11: Agriculture and Soils**.
- Existing structures. It is evident from satellite imagery that there are a number of structures (farm buildings, houses etc.) within the Study Area. Structures are relevant receptors for contamination assessments due to the potential for them to be affected by ground gas migration, should construction activities disturb existing

ground gas sources substantially. They are also relevant receptors when considering potential ground instability effects.

- Proposed structures – these are relevant in relation to ground gas ingress. These structures will not be considered as receptors in relation to ground instability, as this is considered to be a matter of routine engineering design (see **paragraph 10.5.3**) rather than an environmental impact.

10.6.2 At present, no geological conservation receptors have been identified. An initial overview does not indicate the presence of any Sites of Special Scientific Interest (SSSIs) that are designated based on their geological features within the Study Area (noting that SSSIs designated for ecological reasons will be considered within **Chapter 7: Biodiversity** (as an ecological receptor)). Similarly, the overview of baseline conditions has not identified any locally designated geological sites (Local Geodiversity Sites / Regionally Important Geological Sites) within the Study Area.

Inter-Topic Effects

10.6.3 Surface water receptors (rivers) and ecological receptors (designated ecological sites and groundwater dependant terrestrial ecosystems) are not listed as receptors above. These receptors fall within other EIA topic areas (Hydrology and Biodiversity respectively) but may be affected by geological and hydrogeological factors (ground contamination, dewatering etc). Where such inter-topic effects occur, assessments will be reported in the PEIR and ES within the topic area that the receptor falls (e.g. rivers in Hydrology, and designated ecological sites in Biodiversity). This approach will be supported by collaborative working between specialists in the different topic areas to ensure that all relevant policy requirements are met.

10.6.4 Notwithstanding this, from an initial appraisal of baseline information (i.e. groundwater dependant terrestrial ecosystem (GWDTE) designation data), it appears that the closest GWDTE to the Scoping red line boundary is Sherburn Willows SSSI, located c.670m east of the Scoping red line boundary (approximately 800m north west of South Milford), with no other GWDTE within 1km of the Scoping red line boundary.

Water Framework Directive (WFD) Assessment

10.6.5 The EIA will be supported by a standalone WFD compliance assessment in relation to hydrogeological receptors. The proposed assessment approach in **Tables 10.5 - 10.8** incorporates WFD status and quality/quantity effects, providing for consistency and compatibility between the EIA and the WFD compliance assessment.

10.6.6 As explained in **Chapter 9: Hydrology**, a summary statement on overall WFD compliance (i.e. integrating hydrogeology and hydrology) will also be included in the ES.

Likely significant effects

10.6.7 The likely significant Geology and Hydrogeology effects that will be taken forward for assessment in the ES are summarised in **Table 10.4**. Each potential effect has been assigned a shorthand identifier (GH1, GH2 etc.) for ease of future reference.

Table 10.4 Likely Significant Geology and Hydrogeology Effects

Activity	Effect	Receptor
Construction		
Ground disturbance during construction	Exposure to pre-existing soil contamination (including dust and vapours) (GH1)	Construction workers and adjacent land users (human health)
Ground disturbance during construction (excavations etc.)	Deterioration in chemical quality of land and/or groundwater, from the mobilisation of pre-existing contamination (GH2A)	Groundwater bodies, groundwater abstractions, soil / land quality
Dewatering (trenches for new underground cables, foundation excavations for new structures)	Deterioration in chemical quality of groundwater due to the mobilisation of pre-existing contamination as a result of dewatering (GH2B)	Groundwater bodies, groundwater abstractions
Construction activities	Deterioration in the chemical quality of land and groundwater due to the release of contamination by activities associated with the development (e.g. loss of fuels to an aquifer) (GH3)	Groundwater bodies, groundwater abstractions, soil quality
Construction activities including dewatering, spills, ground disturbance	Physical effects on groundwater such as depletion of the aquifer and increased solids / turbidity (GH4)	Groundwater bodies, groundwater abstractions
Discharge of groundwater from dewatering	Physical and chemical effects on groundwater as a result of the discharge of groundwater arising from dewatering (GH5)	Groundwater bodies, groundwater abstractions
Ingress and accumulation of ground gas within buildings or other confined spaces	Explosion or asphyxiation as a result of ingress and accumulation of ground gas, including the risk that construction activities can cause gas migration to adjacent properties (GH6)	Construction workers and adjacent land users (human health), structures (e.g. existing structures and temporary construction compounds)
Construction activities	Construction activities can exacerbate and/or may be affected by naturally occurring geological hazards, such as unstable slopes or ground dissolution (e.g. in limestone) or	Construction workers and adjacent land users (human health), structures (e.g. existing structures and temporary construction compounds)

Activity	Effect	Receptor
	are similarly affected by unstable areas of artificial ground (GH7)	
Operation		
Ground disturbance during the operational phase	Exposure to residual soil contamination, e.g. if soils containing elevated contaminant levels were excavated during construction and then redeposited at shallow depths in areas of temporary land take that were then returned to agriculture (GH8)	Future site users (human health)
Manual access to operate / maintain the infrastructure	Exposure to soil contamination, dust or vapours (GH9)	Future site users (human health)
Manual access to operate / maintain the infrastructure	Accumulation of ground gas within permanent structures, resulting in asphyxiation of occupants or explosion (GH10)	Future site users (human health), structures
Presence of impermeable surfaces	Changes to infiltration and corresponding effects on groundwater levels as a result of the presence of new structures and surfaces (GH11)	Groundwater bodies

10.6.8 The effects scoped out from further assessment in the ES are:

- Dewatering effects within the operational phase, as there would be no dewatering during this phase.
- Ground instability effects on proposed structures. As previously explained, these are considered matters of engineering design and will be described outside the EIA to demonstrate that safe construction will be achieved that will not be adversely affected by ground instability.
- Risk of damage to structures from vibrations caused by piling. If relevant, this would require consideration by a structural engineer, so is outside the scope of a Geology & Hydrogeology EIA (i.e. it is an engineering issue).
- Ground instability effects relating to historical coal mining. Whilst the site is within a Coal Mining Reporting Area, it does not lie within a Development High Risk Area for coal mining, there are no recorded mine entries within or within 250m of the Scoping red line boundary, and available historical borehole logs indicate that coal is at greater than 60m depth with substantial rock (e.g. limestone) cover. Therefore, it is considered that there are no likely significant effects to assess.

- Effects on designated geological conservation sites. These are scoped out because no such sites have been identified within the Study Area. This is based on publicly available information, including information available from the local planning authorities (e.g. constraints mapping within local policy documents), the West Yorkshire Geology Trust, and the North Yorkshire Geodiversity Partnership. For completeness, confirmatory formal data requests will be undertaken to inform the EIA.

10.7 Assessment methodology

10.7.1 The proposed generic project-wide approach to the assessment methodology is set out in **Chapter 4**, and specifically in **Section 4.3**. However, whilst this has informed the approach that has been used in this Geology and Hydrogeology chapter, it is necessary to set out how this methodology will be applied, and adapted as appropriate, to address the specific needs of the Geology and Hydrogeology assessment in the ES.

Data Gathering

- 10.7.2 To inform the EIA, a comprehensive data gathering exercise will be undertaken. This will build upon the initial appraisal of baseline conditions provided in this Scoping Report, and will include a review of the following information sources:
- Landmark Information Group Ltd Envirocheck report for the Study Area, including waste records (landfills etc.) and published historical mapping to identify potentially contaminative former land uses.
 - Public Health England radon mapping.
 - Geological mapping published by the BGS.
 - Historical borehole records held by the BGS.
 - Groundwater abstraction details (public and private), as available from the Environment Agency and Local Planning Authorities.
 - BGS hazard mapping for naturally occurring geohazards.
 - Any relevant information regarding historical ground contamination that is available from the local planning authorities. This would be obtained through formal data requests to the Environment Protection departments (or equivalent) of each authority.
 - Targeted walkover inspections of the Study Area, at locations determined based on the desk study information e.g. sites with a previously contaminative use where the Project will involve notable ground disturbance. This is considered a proportionate approach, rather than completing walkovers across the entire c.35km Study Area which is primarily currently occupied by agricultural land and open fields.

Assessment methodology

10.7.3 The information from the data gathering will form a comprehensive but proportionate baseline for the ES. The baseline information will then be used to identify potential source-pathway-receptor linkages and inform a risk-based assessment of the effects of

the Project. This approach accords with published guidance (e.g. LCRM¹⁵⁵), and will be transposed into an EIA classification as follows:

- For each potential effect, the receptor sensitivity and magnitude of effect will be assigned using **Tables 10.5** and **10.6**, which will then be combined to give an output using **Table 10.7**.
- This output will then be adjusted for the probability of the effect occurring, to provide an overall assessment of significance (using **Table 10.8**).

10.7.4 This approach integrates the topic-specific requirement for effects to be assessed via a risk-based approach into the EIA methodology, and is an application of the methodology provided within CIRIA C552¹⁵⁶, which recommends considering potential effects as a function of ‘consequence’ (effectively the output of **Table 10.7**) and the probability of the effect occurring (as achieved by **Table 10.8**).

10.7.5 The output of the assessment will be the level of effect determined from **Table 10.8**. This will classify each potential effect as either negligible, minor, moderate or major. However, it should be noted that the output of the assessment is a risk classification, rather than a predicted effect. For example, minor ‘effects’ in relation to health risks from exposure to soil contamination would reflect an assessment that there is a low/very low risk of significant effects occurring, rather than indicating that there is a predicted adverse effect that would be of a minor nature.

10.7.6 Where the outcome of the assessment is a moderate or major risk, then the effect (risk) will be considered significant and mitigation would be required. Where the outcome is a minor or negligible risk, then the effect (risk) will be considered non-significant and mitigation would not ordinarily be required.

10.7.7 The potential effects will be assessed for both the construction and operational phases of the Project.

Table 10.5 Receptor Sensitivity

Sensitivity	Land Contamination and Ground Instability Criteria	Hydrogeological Criteria
High	Human health risk, where receptor characteristics promote exposure and/or vulnerability to soil contamination or ground gas. Structures of high susceptibility to ground instability and/or high importance.	Groundwater that is used for human consumption, and/or is within geological units that display a high level of water storage and may support water supply and/or river base flow on a strategic scale. Includes all Principal Aquifers and SPZ.

¹⁵⁵ Environment Agency, 2020 (accessed 2021). *Land Contamination: risk management*. <https://www.gov.uk/government/publications/land-contamination-risk-management-lcrm>

¹⁵⁶ Construction Industry Research and Information Association (CIRIA), 2001. *Contaminated Land Risk Assessment: A Guide to Good Practice (C552)*.

Sensitivity	Land Contamination and Ground Instability Criteria	Hydrogeological Criteria
Medium	<p>Human health risk, where receptor characteristics limit exposure and/or vulnerability to soil contamination and ground gas.</p> <p>Soil / land: crops, livestock or plants in managed planting/landscaping schemes (parks/verges) etc. Agricultural assets whose quality may be affected by exposure to contamination.</p> <p>Structures of medium susceptibility to ground instability and/or medium importance.</p>	<p>Groundwater that is not currently used for human consumption, but which is within Secondary Aquifers that display generally good chemical quality (e.g. WFD Good chemical status) and/or groundwater quantities.</p> <p>Groundwater that is currently used for agricultural purposes (e.g. field irrigation).</p>
Low	<p>Human health risk, where receptor characteristics significantly minimise exposure and/or vulnerability to soil contamination and ground gas.</p> <p>Structures of low susceptibility to ground instability and low importance.</p>	<p>Groundwater that is not currently used for human consumption and is within Secondary Aquifers that display poor chemical quality (i.e. WFD Poor chemical status) and groundwater quantities.</p> <p>Groundwater that is abstracted for low sensitivity industrial purposes (e.g. cooling water).</p>
Negligible	<p>Land / soil: Phytotoxic effects on non-agricultural plants that are not part of managed planting/landscaping schemes.</p>	<p>Groundwater that does not contribute meaningfully towards river base flow and is not used, and does not have a potential to be used, for drinking water supply.</p>

Table 10.6 Magnitude of Effect

Magnitude	Land Contamination and Ground Instability Criteria	Hydrogeological Criteria
High	<p>Short-term (acute) risk to human health.</p> <p>Ground instability resulting in direct harm to health (for example, severe injury or death),</p>	<p>Release of Priority Hazardous Substances or substances regulated under 'The Water Framework Directive (Standards and Classification) Directions</p>

Magnitude	Land Contamination and Ground Instability Criteria	Hydrogeological Criteria
Medium	<p>and/or resulting in severe structural damage to, or immediate collapse of, buildings or infrastructure.</p> <p>Long-term (chronic) risk to human health.</p> <p>Death or major health effects on livestock or significant direct damage to crops or plants in a managed planting/ landscaping scheme that is directly attributable to soil contamination.</p> <p>Ground instability that may cause structural damage gradually over time.</p>	<p>(England and Wales) 2015' of the 'Water Supply (Water Quality) Regulations 2000' at concentrations that may present a direct/imminent risk to abstractions.</p> <p>Physical or chemical effects on an aquifer (i.e. changes in groundwater levels, flows or quality) that substantively restrict its viability as an abstractable resource and/or its WFD status.</p> <p>Release of Priority Hazardous Substances or substances regulated under "The Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015' of the 'Water Supply (Water Quality) Regulations 2000' at concentrations that exceed regulatory compliance criteria, and may lead to substantial localised degradation in groundwater quality, but not present a direct/imminent risk to abstractions.</p> <p>Physical or chemical effects on an aquifer (i.e. changes in groundwater levels, flows or quality) that limit its effectiveness as a resource and may affect its status.</p>
Low	<p>Minor damage to crops or plants in a managed planting/ landscaping scheme that is directly attributable to soil contamination.</p>	<p>Release of Priority Hazardous Substances or substances regulated under "The Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015' of the 'Water Supply (Water Quality) Regulations 2000' at concentrations that may lead to minor localised degradation in groundwater quality, but have no</p>

Magnitude	Land Contamination and Ground Instability Criteria	Hydrogeological Criteria
		significant potential to present a risk to abstractions. Reduction of groundwater levels/quantities or changes in groundwater flows, but with little effect on the use or status of the groundwater resource.
Negligible	No significant potential for adverse human health effects. No damage to crops, livestock or plants. No damage to structures from ground instability.	No / minimal measurable effect on groundwater levels, quantities, flows or chemical quality, or on the use or status of a groundwater resource.

Table 10.7 Matrix to Determine the Level of Effect on Receptors (unadjusted for probability)

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

Table 10.8 Matrix to Determine the Level of Effect (adjusted for probability)

		Probability of Effect Occurring ^a			
		High	Medium	Low	Negligible
Unadjusted Level of Effect (from Table 10.7)	Major	Major (Significant)	Major (Significant)	Moderate (Significant)	Negligible (Not significant)
	Moderate	Major (Significant)	Moderate (Significant)	Minor (Not significant)	Negligible (Not significant)
	Minor	Moderate (Significant)	Minor (Not significant)	Minor (Not significant)	Negligible (Not significant)
	Negligible	Negligible (Not Significant)	Negligible (Not significant)	Negligible (Not significant)	Negligible (Not significant)

Notes

^a The probability assessment will be based on professional judgement and consideration of the specific circumstances relevant to the effect i.e. the nature of the source-pathway-receptor linkage and the likelihood of a significant risk to human health or any other relevant receptor.

Assumptions and Limitations

10.7.8 The following assumptions and limitations apply to this chapter of the Scoping Report:

- Mineral safeguarding and mineral rights are outside of the scope of this chapter. These will be addressed in the Planning Statement.
- A comprehensive and proportionate baseline data gathering exercise will be undertaken as part of the EIA and reported in the ES. Whilst this is essential to inform the assessment of effects, it is considered unlikely that the findings will substantively alter the scope of, or approach to, the assessment described in this Scoping Report chapter, which has been determined with regard to this data limitation.
- The proposed assessment approach in this chapter is based on desk study and walkover information. ‘Reasonable worst case’ assumptions regarding the likely ground conditions will be made when assessing effects in the EIA, determined from the desk study and walkover information. It is not proposed to undertake ground investigation to support the EIA unless specific high risk circumstances are identified by the desk study that warrant this.
- The scope of assessment and likely significant effects described in this chapter are based on the current Scoping red line boundary and the Project description provided in Chapter 2 of this Scoping Report. It is anticipated that these details of the development will be subject to refinement as the project progresses. The approach

to data gathering and assessment provided within this chapter is intended to be flexible and is expected to remain applicable as the design develops.



FIGURE 10.2 Artificial Ground and Landfills

Legend

- Scoping Red Line Boundary
- Historical landfill sites
- 250m Buffer
- British Geological Survey (BGS) 1:50k artificial ground data

Notes

This drawing is scaled at paper size A3, therefore any prints taken at smaller sizes will affect accuracy of the measurement units and should not be scaled against.

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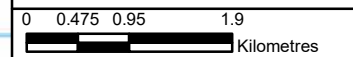
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Landfill data is displayed only for the Study Area i.e. Scoping Red Line Boundary and 250m buffer
The BGS artificial ground data includes areas of reclaimed, disturbed, landscaped, artificial, filled or worked ground, as well as voids, as recorded by the BGS

Coordinate System: British National Grid
Sheet X Centroid Coordinate: 454049 Sheet Y Centroid Coordinate: 446014



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Title

ARTIFICIAL GROUND AND LANDFILLS (North)



Figure Number: FIGURE 10.2

Drawing Reference: GM11455/FIGURE 10.2

Scale	Sheet Size	Sheet	Issue
1:70,000	A3	SHEET 1 OF 1	A

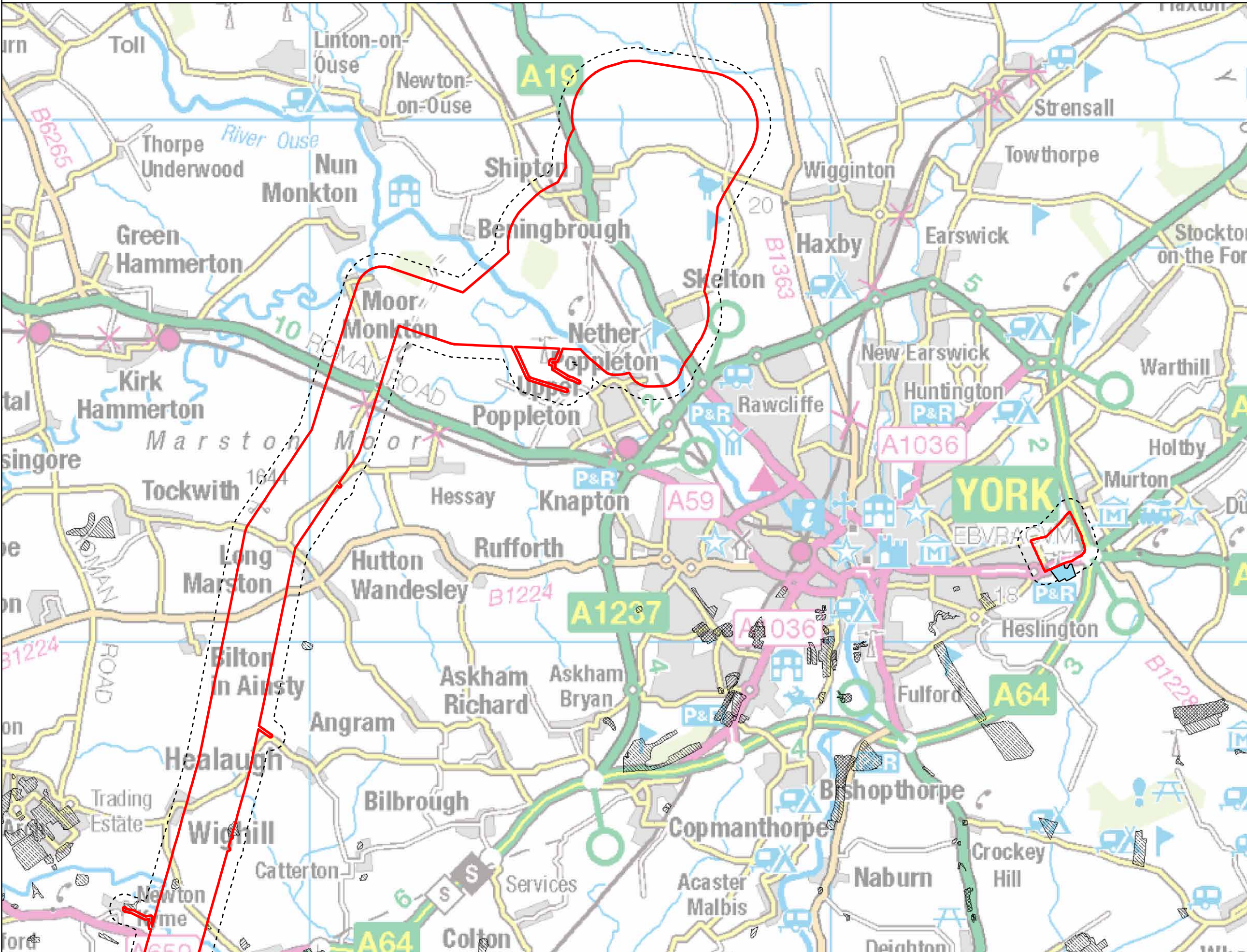
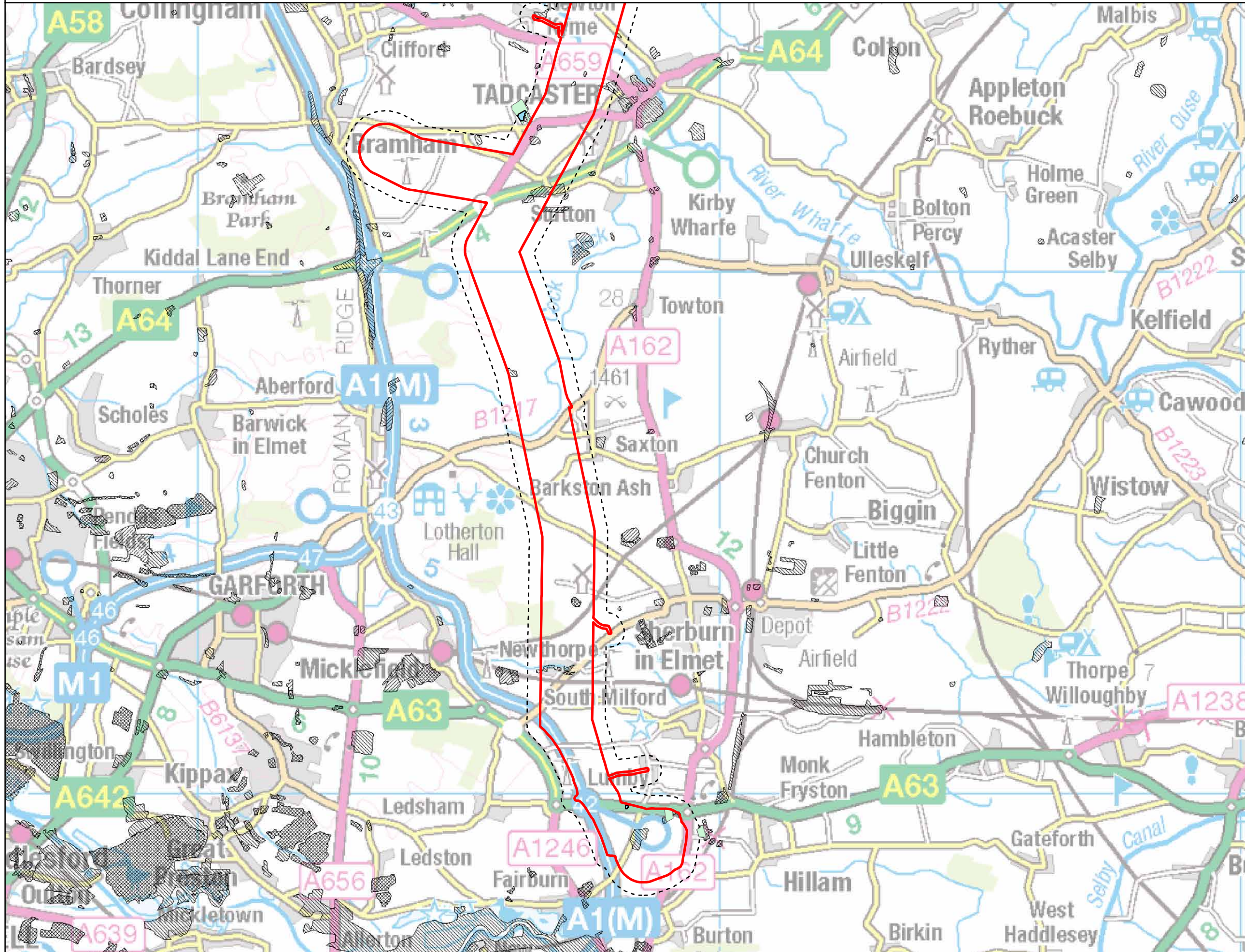




FIGURE 10.3 Artificial Ground and Landfills



Legend

- Scoping Red Line Boundary
- Historical landfill sites
- Authorised landfill sites
- 250m Buffer
- British Geological Survey (BGS) 1:50k artificial ground data

Notes
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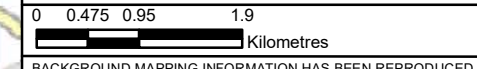
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Landfill data is displayed only for the Study Area i.e. Scoping Red Line Boundary and 250m buffer

The BGS artificial ground data includes areas of reclaimed, disturbed, landscaped, artificial, filled or worked ground, as well as voids, as recorded by the BGS

Coordinate System: British National Grid
 Sheet X Centroid Coordinate: 454049 Sheet Y Centroid Coordinate: 446014



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Issue	Date	Remarks	Drawn	Checked	Approved

Title
ARTIFICIAL GROUND AND LANDFILLS (South)



Figure Number
 FIGURE 10.3

Drawing Reference
 GM11455/FIGURE 10.3

Scale	Sheet Size	Sheet	Issue
1:70,000	A3	SHEET 1 OF 1	A

11. Agriculture and Soils

11. Agriculture and Soils

11.1 Introduction

- 11.1.1 This chapter of the Scoping Report sets out the approach to assessing potentially significant effects on agricultural land and soils that may arise from the construction and operation of the Project. It describes the methodology to be used within the EIA, the datasets to be used to inform the EIA, an overview of the baseline conditions within the Study Area, the likely significant effects to be considered within the EIA, and how these likely significant effects will be assessed for the purpose of an EIA.
- 11.1.2 The Agriculture and Soils chapter interfaces with, and should be considered alongside, the following environmental aspect chapters:
- Chapter 7: Biodiversity;
 - Chapter 9: Hydrology;
 - Chapter 10: Geology and Hydrogeology; and
 - Chapter 16: Socio-economics

Definitions

- 11.1.3 The following definitions are provided as they provide context to the Chapter.
- 11.1.4 Agricultural Land Classification (ALC) is a standardised method for classifying agricultural land according to its versatility, productivity and workability, based upon inter-related parameters including climate, relief, soil characteristics and drainage. These factors form the basis for classifying agricultural land into one of five grades (with Grade 3 land divided into Subgrades 3a and 3b), ranked from excellent (Grade 1) to very poor (Grade 5). ALC is determined using the Ministry of Agriculture, Fisheries and Food (MAFF) Agricultural Land Classification of England and Wales: Revised guidelines and criteria for grading the quality of agricultural land, 1988¹⁵⁷.
- 11.1.5 Best and Most Versatile (BMV) agricultural land is described in the National Planning Policy Framework, 2019 (NPPF)¹⁵⁸ which defines BMV agricultural land as land of excellent (ALC Grade 1), very good (Grade 2) and good (Subgrade 3a) agricultural quality. BMV agricultural land is afforded a degree of protection against development within planning policy (Section 11.2). Moderate, poor and very poor quality land is designated Subgrade 3b or Grades 4 and 5, respectively, and is restricted to a narrower range of agricultural uses.
- 11.1.6 Soil series are the lowest category in the soil classification system and are precisely defined based upon particle-size distribution, parent material (substrate) type, colour and mineralogical characteristics. Soil Associations are groupings of related soil series.

¹⁵⁷ MAFF (1988) 'Agricultural Land Classification of England and Wales: Revised guidelines and criteria for grading the quality of agricultural land'. Available at <http://publications.naturalengland.org.uk/publication/6257050620264448>. Accessed 15 February 2021.

¹⁵⁸ Department for Communities and Local Government (2019). The National Planning Policy Framework (NPPF). Available at https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/6077/2116950.pdf Accessed 15 February 2021.

11.2 Relevant legislation, planning policy and technical guidance

11.2.1 This section identifies the relevant legislation, national and local policy and guidance which has informed the scope of the assessment relevant to Agriculture and Soils.

Legislation

11.2.2 A summary of the relevant legislation is given in **Table 11.1**.

Table 11.1 Legislation relevant to Agriculture and Soils

Legislation Reference	Legislation context	Section considered
The Town and Country Planning (Development Management Procedure) (England) Order 2015. ¹⁵⁹ Schedule 4, Part (y)	Requires that the local planning authority consults Natural England if the area of a proposed permanent development exceeds 20 ha of BMV agricultural land	Section 11.3 (Consultation). Section 11.6 (Scope of the Assessment).
The Agriculture Act, November 2020 ¹⁶⁰ Chapter 1 'New Financial Assistance Powers'	The Secretary of State may give financial assistance for, or in connection with, ...protecting or improving the quality of soil.	Section 11.4 (Baseline Conditions).

11.2.3 Currently there is no other legislation which is relevant to Agriculture and Soils. The implications of any new legislation which may come into force during the planning stages of the Project will be fully considered as appropriate.

Planning Policy

11.2.4 A summary of the relevant planning policies is given in **Table 11.2**, below.

Table 11.2 Planning policy relevant to Agriculture and Soils

Policy reference	Policy context	Section considered
National Policy		
Overarching National Policy Statement for Energy (EN-1) ¹⁶¹		
Paragraph 5.10.8 of Section 5: Land use including open space, green infrastructure & Green Belt	Minimise impacts on BMV agricultural land) and direct development towards non-agricultural land or land of poorer quality. Identify any effects and seek to minimise impacts on soil	Section 11.4 (Baseline Conditions); Section 11.5 (Embedded Environmental Measures); and Section 11.6 (Scope of the Assessment).

¹⁵⁹ HM Government (2015). Statutory Instrument 2015 No. 595, The Town and Country Planning (Development Management Procedure) (England) Order 2015. Available at <https://www.legislation.gov.uk/uksi/2015/595/contents/made> Accessed 15 February 2021.

¹⁶⁰ HM Government (2020). The Agriculture Act. Available at <https://www.legislation.gov.uk/ukpga/2020/21/contents/enacted> Accessed 15 February 2021.

¹⁶¹ Department for Energy and Climate Change (2011). Overarching National Policy Statement for Energy (EN-1). Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/47854/1938-overarching-nps-for-energy-en1.pdf Accessed 15 February 2021.

Policy reference	Policy context	Section considered
	quality taking into account any mitigation measures proposed.	
National Policy Statement for Electricity Networks Infrastructure (EN-5)¹⁶²		
Paragraph 1.7.5 of Section 1	The effects of electricity network infrastructure on soil to be considered both in the short-term and long-term, taking into consideration specific location and the sensitivity of the receiving environment.	Section 11.4 (Baseline Conditions); Section 11.5 (Embedded Environmental Measures); and Section 11.6 (Scope of the Assessment).
Paragraph 2.8.9	Undergrounding a 400 kV line may mean disturbing a corridor of ground up to 40 metres across, which, in many cases, will have a greater environmental consequence to soils than an overhead line will.	Section 11.6 (Scope of the Assessment).
National Planning Policy Framework (NPPF)¹⁵⁸		
Paragraph 170	Protection and enhancement of valued landscapes, sites of biodiversity or geological value and soils, and recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the BMV agricultural land	Section 11.4 (Baseline Conditions); Section 11.5 (Embedded Environmental Measures); and Section 11.6 (Scope of the Assessment).
Paragraph 171	Where significant development of agricultural land is demonstrated to be necessary, areas of poorer quality land should be preferred to those of a higher quality. Defra considers land of “higher quality” as that described as BMV.	Section 11.4 (Baseline Conditions); Section 11.5 (Embedded Environmental Measures); and Section 11.6 (Scope of the Assessment).
A Green Future: Our 25 Year Plan to Improve the Environment¹⁶³		

¹⁶² Department for Energy and Climate Change (2011). National Policy Statement for Electricity Networks Infrastructure (EN-5). Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/37050/1942-national-policy-statement-electricity-networks.pdf Accessed 15 February 2021.

¹⁶³ HM Government (2018). ‘A Green Future: Our 25 Year Plan to Improve the Environment’. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/693158/25-year-environment-plan.pdf Accessed 15 February 2021.

Policy reference	Policy context	Section considered
	<p>The policy document sets out the government’s 25-year plan to improve the health of the environment by using natural resources more sustainably and efficiently. It plans to protect the best agricultural land, put a value on soils as part of our natural capital, manage soils in a sustainable way by 2030 and restore and protect peatland.</p>	<p>Section 11.4 (Baseline Conditions) and Section 11.6 (Scope of the Assessment).</p>
Development Plan Policies		
<p>Harrogate District Local Plan 2014 – 2035¹⁶⁴ Policy NE8: Protection of Agricultural Land</p>	<p>Directs development towards non-agricultural land and land of lower agricultural quality (non-BMV). An overriding need for the development of BMV agricultural land must be proven.</p> <p>Sites of over five hectares which may affect BMV agricultural land should produce an ALC survey to determine the quality, quantity, and location of BMV agricultural land.</p> <p>Proposals for development should demonstrate that soil resources have been protected and used sustainably in line with best practice.</p>	<p>Section 11.4 (Baseline Conditions); Section 11.5 (Embedded Environmental Measures); and Section 11.6 (Scope of the Assessment).</p>
<p>Hambleton draft Local Plan¹⁶⁵ – at examination stage Policy S5: Development in the Countryside</p>	<p>Minimise impacts on BMV agricultural land. Direct development towards non-agricultural land or land of poorer non-BMV quality. Where development of BMV agricultural land is unavoidable development to be directed to the lowest quality land available - except where other sustainability considerations outweigh agricultural land quality issues or where the benefits of the</p>	<p>Section 11.4 (Baseline Conditions); Section 11.5 (Embedded Environmental Measures); and Section 11.6 (Scope of the Assessment).</p>

¹⁶⁴ Harrogate Borough Council (2020). Harrogate District Local Plan 2014 – 2035. Available at <https://www.harrogate.gov.uk/planning-policy-guidance/harrogate-district-local-plan-2014-2035>. Accessed 15 February 2021.

¹⁶⁵ Hambleton District Council (2019), Hambleton Local Plan – Publication Draft. Available at: <https://www.hambleton.gov.uk/downloads/download/224/local-plan-submission-core-documents> Accessed 15 February 2021.

Policy reference	Policy context	Section considered
	<p>development justify the loss of BMV.</p> <p>Where agricultural land would be lost the proposal will be expected to be designed so as to retain as much soil resource as possible. Sterilisation of other agricultural land, for example by severing access to farmland is to be avoided.</p>	
<p>Saved Policies of the York Local Plan, 2005¹⁶⁶</p> <p>Policy GP14: Agricultural Land</p>	<p>For development that would result in the loss of the BMV agricultural land, planning permission will only be granted if it can be clearly demonstrated that very special circumstances exist which determine that the proposal cannot be located elsewhere.</p>	<p>Section 11.4 (Baseline Conditions); Section 11.5 (Embedded Environmental Measures); and Section 11.6 (Scope of the Assessment).</p>
<p>York draft Local Plan¹⁶⁷ – at examination stage</p>	<p>Reference is made to protection of agricultural land throughout the Local Plan, however no specific Policies for the protection of BMV agricultural land or soil resources are included.</p>	<p>Not discussed further.</p>
<p>Upper Poppleton and Nether Poppleton Neighbourhood Plan, 2016 - 2036¹⁶⁸</p> <p>Aim of the Neighbourhood Plan and Policy PNP 8B</p>	<p>Promote the development of brownfield sites as a priority over any greenfield site particularly those impacting BMV agricultural land.</p>	<p>The Chapter will detail how the route selection process used available data to avoid areas of Greenfield or BMV agricultural land where possible.</p>
<p>Saved Policies of the North Yorkshire Waste Local Plan, 2006¹⁶⁹</p> <p>Policy 4/7: Protection of agricultural land.</p>	<p>Directs development towards non-agricultural land and land of lower agricultural quality (non-BMV). An overriding need for the development of BMV agricultural land must be proven.</p>	<p>Section 11.4 (Baseline Conditions) and Section 11.6 (Scope of the Assessment).</p>

¹⁶⁶ City of York Council (2005). Local Plan Incorporating the 4th Set of Changes (April 2005). Available at: <https://www.york.gov.uk/downloads/file/2822/the-local-plan-2005-development-control-local-plan-full-document-and-appendices> Accessed 15 February 2021.

¹⁶⁷ City of York Council (2018). Local Plan – Publication Draft. Available at: <https://www.york.gov.uk/downloads/file/1314/cd001-city-of-york-local-plan-publication-draft-regulation-19-consultation-february-2018-> Accessed 15 February 2021.

¹⁶⁸ City of York Council (2017). Upper Poppleton and Nether Poppleton Neighbourhood Plan, 2016 – 2036. <https://www.york.gov.uk/downloads/file/2832/upper-and-nether-poppleton-neighbourhood-plan-submission-document-2016-> Accessed 15 February 2021.

¹⁶⁹ North Yorkshire County Council (2006). North Yorkshire Waste Local Plan (Saved Policies). Available at <https://www.northyorks.gov.uk/local-plan-waste>. Accessed 15 February 2021.

Policy reference	Policy context	Section considered
(Considered as policies relate to developments in which there is temporary disturbance to soils and agricultural land as for the Underground Cable and Overhead Line)		
<p>Minerals and Waste Joint Plan¹⁷⁰ (North Yorkshire County Council, York City Council, North York Moors National Park Authority) - at examination stage</p> <p>Policy D12: Protection of agricultural land and soils (Considered as policies relate to developments in which there is temporary disturbance to soils and agricultural land as for Underground Cable and Overhead Line.)</p>	<p>BMV agricultural land will be protected from unnecessary and irreversible loss. Where development is justified, protection and enhancement of soils and the long-term potential to recreate BMV agricultural land is prioritised.</p> <p>Where relevant, development will be subject to aftercare requirements and will be required to demonstrate that all practicable steps will be taken to conserve and manage on-site soil resources, including soils with environmental value, in a sustainable way. Development which would disturb or damage soils of high environmental value such as peat or other soil contributing to ecological connectivity or carbon storage will not be permitted.</p>	<p>Section 11.4 (Baseline Conditions); Section 11.5 (Embedded Environmental Measures); and Section 11.6 (Scope of the Assessment).</p>
<p>Saved Policies of the Selby District Local Plan (2005)¹⁷¹</p> <p>EMP9</p> <p>EMP11</p>	<p>Expansion of existing employment uses onto adjoining land to not result in the loss of BMV agricultural land.</p> <p>Irreversible loss of BMV agricultural land will not be permitted unless there is an exceptional overriding need and there is no suitable alternative site available.</p> <p>Minimise the loss of BMV agricultural land</p>	<p>Section 11.4 (Baseline Conditions); Section 11.5 (Embedded Environmental Measures); and Section 11.6 (Scope of the Assessment).</p>

¹⁷⁰ North Yorkshire County Council, York City Council, North York Moors National Park Authority (2016). Minerals and Waste Joint Plan – Publication Draft. Available at: <https://www.northyorks.gov.uk/minerals-and-waste-joint-plan> Accessed 15 February 2021.

¹⁷¹ Selby District Council (2005). Selby District Local Plan. Available at: <https://www.selby.gov.uk/selby-district-local-plan-sdlp-2005> Accessed 15 February 2021.

Policy reference	Policy context	Section considered
<p>Selby District Core Strategy Local Plan (2013)¹⁷²</p> <p>EMP9</p>	<p>Expansion of existing employment uses onto adjoining land should not result in the loss of BMV land.</p> <p>Irreversible loss of BMV agricultural land will not be permitted unless there is an exceptional overriding need and there is no suitable alternative site available.</p>	<p>Section 11.4 (Baseline Conditions); Section 11.5 (Embedded Environmental Measures); and Section 11.6 (Scope of the Assessment).</p>
<p>EMP11</p>	<p>Minimise the loss of BMV agricultural land</p>	
<p>Selby Draft Local Plan – Preferred options January 2021¹⁷³</p> <p>SG5 – Development in the countryside</p>	<p>Avoid irreversible loss of BMV agricultural land. Where BMV agricultural land is to be developed this is to be directed at land of the lowest possible Grade. Grade 1 agricultural land to be avoided unless there are exceptional circumstances where the benefits of the proposal significantly outweigh the loss of land.</p> <p>Proposals for development should demonstrate that soil resources have been protected and used sustainably in line with best practice.</p> <p>EM4 – The Rural Economy</p> <p>Protect areas of BMV agricultural land.</p>	<p>Section 11.4 (Baseline Conditions); Section 11.5 (Embedded Environmental Measures); and Section 11.6 (Scope of the Assessment).</p>

Technical Guidance

11.2.5 A summary of the relevant technical guidance is given in **Table 11.3:**

¹⁷² Selby District Council (2013). Selby District Core Strategy Local Plan. Available at: https://www.selby.gov.uk/sites/default/files/Documents/CS_Adoption_Ver_OCT_2013_REDUCED.pdf Accessed 15 February 2021.

¹⁷³ Selby District Council (2021). Selby District Council Local Plan Preferred Options Consultation 2021. Available at https://www.selby.gov.uk/sites/default/files/Local_Plan_Prefered_Options_29-01-2021_%28Web%20Version%29.pdf Accessed 15 February 2021.

Table 11.3 Technical guidance relevant to Agriculture and Soils

Technical Guidance Document	Context	Section considered
Planning Practice Guidance for the Natural Environment (PPGNE) 2019 ¹⁷⁴ Paragraphs 001 and 002	The Technical Guidance explains the need for planning decisions to take into account the value of soils and agricultural land to enable informed choices on the future use of soil resources and agricultural land within the planning system.	Section 11.4 (Baseline Conditions) and Section 11.6 (Scope of the Assessment).
Natural England (2012) Technical Information Note 049 (TIN049): Agricultural Land Classification: Protecting the BMV agricultural land ¹⁷⁵	The Technical Guidance explains the Government Policy to protect agricultural land and the ALC system and uses.	Section 11.6 (Scope of the Assessment).
Department for the Environment, Food and Rural Affairs (DEFRA): Construction Code of Practice for the Sustainable Use of Soil on Development Site (2009) ¹⁷⁶	The Technical Guidance provides relevant advice on the use of soil within construction projects.	Section 11.5 (Embedded Environmental Measures); and Section 11.6 (Scope of the Assessment).
Ministry of Agriculture, Fisheries and Food (MAFF) Agricultural Land Classification of England and Wales Revised guidelines and criteria for grading the quality of agricultural land ¹⁵⁷	The Technical Guidance from MAFF provides revised guidelines and criteria for grading the quality of agricultural land.	Section 11.4 (Baseline Conditions) and Section 11.6 (Scope of the Assessment).

11.3 Consultation and engagement

- 11.3.1 Whilst there have been no consultations on Agriculture and Soils at the time of writing consultations with Natural England regarding the methodology for baseline data collection are intended with particular reference to the level of soil survey to be undertaken in areas of temporary development.
- 11.3.2 There will be ongoing communication between the Project's Lands Team and farmers and landowners throughout the planning process. The site specific information gained

¹⁷⁴ HM Government (2019). Planning Practice Guidance for the Natural Environment. Available at: <https://www.gov.uk/guidance/natural-environment> Accessed 15 February 2021.

¹⁷⁵ Natural England (2012). Technical Information Note 049, 'Agricultural Land Classification: protecting the Best and Most Versatile agricultural land'. Available at: <http://publications.naturalengland.org.uk/publication/35012> Accessed 15 February 2021.

¹⁷⁶ DEFRA (2009) Construction Code of Practice for the Sustainable Use of Soils on Construction Sites. Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69308/pb13298-code-of-practice-090910.pdf. Accessed 15 February 2021.

will assist in defining the routing and micro-siting of infrastructure; and in describing site specific (bespoke) mitigation, if required.

11.4 Baseline conditions

Study Area

- 11.4.1 The proposed Study Area for the scoping of the Agriculture and Soils assessment is the Scoping red line boundary as defined in **Chapter 2** and shown in **Figure 11.1**. No buffer was applied as impacts to soils and agricultural land only occur on land that would be directly impacted by the Project.
- 11.4.2 It is noted that as the Project design becomes more defined and an alignment for the new overhead lines is developed, the Study Area will become more refined. The Study Area is therefore likely to change and evolve between scoping and final submission of the DOC application.

Data gathering methodology – Scoping

- 11.4.3 In preparation of this section of the Scoping Report, the following sources of published information have been used to establish the baseline conditions:
- The Soil Survey of England and Wales: Northern England (1984)¹⁷⁷;
 - Soils of England and Wales, Sheet 1: Northern England 1:250,000 Map (1984)¹⁷⁷;
 - Provisional ALC 1:250,000 mapping of the Eastern Region (MAFF 1993)¹⁷⁸;
 - Google Maps (©2021)²³;
 - Google Streetview (©2021)¹⁷⁹;
 - MAGIC.gov.uk (Defra)¹⁸⁰;
 - Knox et al. (2015). 'Research to develop the evidence base on soil erosion and water use in agriculture: Final Technical Report'¹⁸¹;
 - MAFF (1998). Agricultural Land Classification detailed Post 1988 ALC survey, Bramham, Land South Of A64 (Selby LP)¹⁸³ ;
 - MAFF (1995). 'Agricultural Land Classification detailed Post 1988 ALC survey, Bramham, Bramham Moor (Leeds UDP)' ¹⁸⁴; and
 - MAFF (1991). 'Agricultural Land Classification detailed Post 1988 ALC survey, Shipton by Beningbrough Bypass'¹⁸⁵.

Data gathering methodology –ES

- 11.4.4 The collection of the baseline Agriculture and Soils data for the ES will be undertaken following a methodology which was previously agreed by Natural England for use on other linear Electricity Infrastructure Projects.

¹⁷⁷ Soil Survey of England and Wales (1984). Soils and their Use in Northern England and accompanying 1:250,000 map Sheet 1.

¹⁷⁸ MAFF (1993). 1:250,000 Provisional Agricultural Land Classification Sheet, Eastern Region.

¹⁷⁹ Google Maps incorporating Google Streetview. <https://www.google.com/maps>. Accessed on 17/02/2021.

¹⁸⁰ HM Government. Multi-Agency Geographical Information for the Countryside (MAGIC) available online @ www.magic.gov.uk Accessed on 15/02/2021.

¹⁸¹ Knox *et al.* (2015). 'Research to develop the evidence base on soil erosion and water use in agriculture: Final Technical Report. pp147'.

- 11.4.5 The 1:250,000 scale Provisional ALC mapping¹⁷⁸ is the most current and detailed published ALC data covering the entire Study Area. However, it is important to note that this data pre-dates the revised ALC methodology issued in 1988¹⁵⁷ and as a result, the data does not provide a distinction between ALC Subgrades 3a (BMV) and 3b (non-BMV). The Provisional ALC mapping therefore provides an indication of the land quality in the Region, but the extent and distribution of BMV agricultural land within the Study Area cannot be defined from the Provisional mapping alone.
- 11.4.6 Therefore, for areas of temporary development and pylon locations, the Provisional ALC Mapping will be used to directly determine the proportions of ALC Grades 1, 2, 4 and 5. For areas Provisionally mapped as Grade 3, the relative proportions of Subgrade 3a and 3b will be calculated.
- 11.4.7 Areas of temporary development are considered to be land where soil profiles will either be left intact or restored; and agricultural land use reinstated in the operational phase. These areas therefore include cable routes, temporary access roads and construction compounds.
- 11.4.8 Pylon locations will also be assessed using this method as the overhead line and pylon locations will be subject to Limits of Deviation (LoD) and would not be confirmed until the detailed design was undertaken by the contractor post-consent (should consent be granted). Furthermore, the direct permanent loss of agricultural land per pylon is restricted to the area of the four foundation plinths (approximately 4 m² per pylon). Where pylons are located within pasture land, the area beneath the pylon can still be grazed and therefore there is no additional (indirect) permanent loss of agricultural land above the direct loss to the foundation plinths. It is acknowledged that where pylons are located within arable rotations or land used for hay and silage cropping, the area beneath the pylon is excluded from agricultural use during the operational phase (indirect loss of agricultural land), as agricultural machinery cannot be used in these areas. Also, the positioning of obstacles within arable fields can be an impediment to the use of largescale and automated machinery, increasing the area of exclusion. However, the Project's iterative design process will seek to place pylons in land of the lowest available agricultural quality, where practicable, therefore preferring placement in pasture as opposed to arable land.
- 11.4.9 The soils mapping provided by the Soil Survey of England and Wales¹⁷⁷ describes soil associations and therefore the soil associations corresponding to the mapped Grade 3 land can be identified. Published Soil Survey of England and Wales data¹⁷⁷ further describes the dominant or key component soil series within each association and their typical limitations to ALC grading, although the geographical distribution of each series within the association is not mapped. Any ancillary soil series which only make up a small proportion of the soils within the association will be discounted and the percentage distribution of the dominant soil series adjusted so that their total equals 100%; this is because inclusion of the lesser ancillary series would unnecessarily complicate the assessment without increasing its accuracy. The area covered by each key soil series within areas identified as ALC Grade 3 land on the Provisional ALC mapping can then be derived.
- 11.4.10 Limitations to ALC grading include typical soil depth, soil texture, soil stone content and soil wetness. These limitations will be used to determine the subdivision of ALC Grade 3 into Subgrade 3a and 3b; using the methodology set out below and described in the ALC guidelines.

- 11.4.11 The soil texture information will be obtained from the published soil profile descriptions. Where a soil texture is identified as heavy or medium (i.e. silty clay loam and clay loam), it will be assumed the distribution is a fifty-fifty split. Additionally, if more than one soil texture is listed in the description of soils series, their proportions will be assumed to be equal. Furthermore, if more than one soil wetness is listed in the description of soils series, the proportions will be assumed to be equal. Where soil wetness can be improved via appropriate land management, it will be assumed that appropriate management practices are in place.
- 11.4.12 The ALC grade is also influenced by the prevailing climatic conditions. The overall climatic limitation is assessed using the average annual rainfall and accumulated temperature. These data will be obtained from the Meteorological Office published agroclimatic data for England and Wales on a five kilometre grid basis¹⁸².
- 11.4.13 From the climatic data, the number of field capacity days can be determined. Field capacity days impacts the Wetness Grade of the soil associations depending on their location within the Study Area.
- 11.4.14 Where the calculation of the ALC grade from the published data results in a Grade other than Subgrade 3a or 3b, the Grade will be corrected. For example, a calculated Grade 1 or 2 will remain BMV agricultural land but be re-assigned to Subgrade 3a; whilst a calculated Grade 4 or 5 will remain non-BMV agricultural land but be re-assigned to Subgrade 3b. Where it is not possible to determine one single grade for a soil series, equal proportions will be assumed.
- 11.4.15 The combination of the soil series areas within agricultural land mapped as ALC Grade 3 on the Provisional mapping; the proportion of Subgrade 3a and 3b of each series; and the Provisionally mapped ALC Grades 1 and 2 land, will therefore provide the total potential area of BMV agricultural land within the Study Area.
- 11.4.16 It is noted that, as the spatial arrangement of the different soil series is not mapped (only the overarching soil associations), the relative proportions of Subgrade 3a and 3b within the Study Area can only be presented in a tabular form and not represented in a mapped format. The lack of spatial information will not affect the reporting or impact assessment as this considers the total permanent loss of BMV agricultural land for the Project as a whole.
- 11.4.17 The methodology set out above has been used in other linear electricity infrastructure projects such as Viking Link and the North Wales Connection Project. It will ensure that the baseline is adequately described to ensure that all potentially significant effects are identified and a thorough and robust impact assessment can be undertaken.
- 11.4.18 It is proposed that, as also agreed for other linear electricity infrastructure projects, soil surveys for the construction soil management planning would be completed post consent (should this be granted) when the precise routing and placement of infrastructure are known, ensuring the surveys are targeted to areas directly impacted by the Project. The surveys would be undertaken following standard sampling procedures as set out in the ALC guidelines¹⁵⁷. Site specific data from these pre-construction surveys will be used to inform soil management planning for the Project.

¹⁸² Met Office (1989). Climatological Data for Agricultural Land Classification: Gridpoint datasets of climatic variables at 5km intervals for England and Wales.

- 11.4.19 For areas of permanent development excluding pylon locations (for example, Substations, Cable Sealing End Compounds (CSEC) and permanent access roads) baseline data will be collated as described for areas of temporary development until such a time as their final locations are agreed (likely between PEIR submission and ES production).
- 11.4.20 Once locations of permanent development (excluding pylon locations) are agreed, standard soil surveys will be undertaken in line with standard guidelines¹⁵⁷. The extent of the surveys is to be confirmed, but for each area of permanent development the survey will cover all land which could potentially be directly (through placement of built infrastructure) or indirectly (through change of land use for example through the formation of landscaping or creation of a buffer or exclusion zone around the infrastructure) be permanently removed from agricultural use.
- 11.4.21 Soils will be sampled using manual tools (soil auger and spade) at an approximate density of 1 inspection per ha, including one soil pit per 10 ha. Any permanent access roads will be inspected at approximate 100 m (linear) intervals. These data will be used to confirm the agricultural land quality at the site (using the ALC guidelines¹⁵⁷).
- 11.4.22 For both temporary and permanent developments, the data on the erodibility of Soil Associations¹⁸¹ will be used to identify potential areas of increased soil sensitivity. This assessment will be used to inform the iterative design process, so that areas of high sensitivity can be avoided where practicable.
- 11.4.23 Further baseline data will be gained through consultation with the Project's Lands Team. This information is likely to include site specific data gained from the Project Lands Team's discussions with farmers and landowners which will assist in defining the routing and micro-siting of infrastructure; and in describing site specific (bespoke) mitigation, if required, to ensure that the impact of construction and operation of the Project on soils and agriculture and agricultural operations are minimised. For example, information on localised areas of peaty or other high sensitivity soils which are too small to be mapped, but which should be avoided if practicable; preferred locations for designated crossing points to minimise disruption to the movement of livestock and machinery; or details of how works could be programmed to avoid specific locations (for example lambing sheds) during sensitive times in the farming calendar (for example during lambing season).

Current baseline

- 11.4.24 The most detailed published data covering the whole of the scoping Study Area are the 1:250,000 scale Provisional ALC mapping. The Provisional ALC mapping is not accurate at the field scale as it does not pick up variations in ALC grade for areas less than approximately 80 ha; additionally, the data does not provide a distinction between Subgrade 3a (good quality, BMV) and Subgrade 3b (moderate quality, non-BMV) agricultural land. Therefore, the Provisional ALC data cannot be used to accurately identify the ALC grading within the Study Area; it does, however, provide a strategic overview of the predominant ALC grading(s) present. This will be revised during the preparation of the ES chapter following the methods described above.
- 11.4.25 The Provisional ALC data identify the land within the Study Area as comprising Grade 2, Grade 3 and Grade 4 agricultural land, as well as non-agricultural and urban land classifications (as shown in **Figure 11.1**). **Table 11.4** identifies the proportion per Provisional ALC Grading within the Study Area.

- 11.4.26 The spatial distribution of the ALC grades, shown in **Figure 11.1**, identifies that Grade 2 agricultural land is located along the majority of the south of the Study Area from Selby to Long Marston; whereas Grade 3 agricultural land is identified in the north of the Study Area from north of Long Marston to Shipton, and to the east of York. A corridor of Grade 3 is also identified to the north of Tadcaster, running north-west to south-east, broadly following the route of the River Wharfe. Small distinct areas of Grade 4 and non-agricultural land are mapped throughout the Study Area.
- 11.4.27 As the subgrades are not defined, Grade 3 land is treated as having the potential to be BMV quality and therefore a 50:50 split between Subgrade 3a and Subgrade 3b is assumed for the purposes of scoping. The basis for this 50:50 split assumption is that the Provisional mapping shows the Grade 3 land to be immediately adjacent both Grade 2 (BMV) and Grade 4 (non-BMV) agricultural land and that division is roughly 50:50. Furthermore, as reported in Table 11.5, where detailed Post-1988 data (see below) are available within the Study Area, the areas mapped as Subgrade 3a and Subgrade 3b are roughly equal (45.6% v 54.4%).
- 11.4.28 As described above, discrete areas of the Study Area covered by detailed survey data known as Post-1988 surveys. Both the Provisional and Post-1988 data are available on DEFRA's geographic information website, Magic.gov.uk²⁴. In total 452 ha of land within the Study Area has been subject to Post-1988 survey (Table 11.5). The surveyed land comprises 269.19 ha of BMV (Grades 1, 2 and Subgrade 3a) and 133.19 ha of non-BMV (Subgrade 3b), with all remaining land in the surveyed areas being classified as 'other' (non-agricultural).
- 11.4.29 The Post-1988 surveys therefore identify approximately 60% of the surveyed land as BMV agricultural land, however these surveys are regularly targeted to areas where BMV land (rather than non-BMV land) is thought to be present in order to identify in the distribution of BNMV land in more detail. The locations of the surveys within the Study Area correspond with higher ALC graded land in the wider area as identified in the Provisional mapping (Figure 11.1). The Post 1988 survey data for the Study Area is described below.
- 11.4.30 The Post-1988 survey data collated by MAFF in 1998¹⁸³ to inform the Selby Local Plan (Land South of A64, Bramham) identify land within the south of the Study Area to be a mix of Grade 2, Subgrade 3a and Subgrade 3b agricultural land.
- 11.4.31 The Post-1988 survey data collated by MAFF in 1995¹⁸⁴ to inform the Leeds Unitary Development Plan (Bramham, Bramham Moor) identify land within the Study Area to be Grade 1, Grade 2, Subgrade 3a and Subgrade 3b agricultural land with areas of Woodland and occasional agricultural buildings.
- 11.4.32 The Post-1988 survey data collated by MAFF in 1991¹⁸⁵ to inform the development of the Shipton by Beningbrough Bypass, identify land within the north of the Study Area to be Grade 2, Subgrade 3a and Subgrade 3b agricultural land.
- 11.4.33 The spatial distribution of the ALC grades, based on the Provisional data supplemented with Post 1988 data, where available, is shown in **Figure 11.1**

¹⁸³ MAFF (1998) 'Agricultural Land Classification detailed Post 1988 ALC survey, Bramham, Land South Of A64 (Selby LP)' (ALCL01398) Available at: <http://publications.naturalengland.org.uk/publication/5388941134397440>

¹⁸⁴ MAFF (1995) 'Agricultural Land Classification detailed Post 1988 ALC survey, Bramham, Bramham Moor (Leeds UDP)' (ALCL09895) Available at: <http://publications.naturalengland.org.uk/publication/5942294218276864>

¹⁸⁵ MAFF (1991) 'Agricultural Land Classification detailed Post 1988 ALC survey, Shipton by Beningbrough Bypass' (ALCL13391) Available at: <http://publications.naturalengland.org.uk/publication/4662146297233408>

- 11.4.34 **Table 11.5** identifies the proportion of BMV land within the Scoping Study Area based on a combination of the Provisional and Post-1988 ALC data.
- 11.4.35 From the data currently available over half of the land within the Study Area is classified as BMV agricultural land (69.35%, **Table 11.4**). Therefore, it is considered that the Project will likely impact on some BMV agricultural land. However, as the route becomes more defined as the design evolves, the total area of BMV agricultural land likely to be affected will become apparent.
- 11.4.36 The agricultural land permanently lost and the disturbance and/or loss of soil resources throughout the Project however is likely to be considerably less than that present in the Study Area.

Table 11.4 Provisional ALC grading within the Study Area

ALC Grade	Area within the Study Area (ha)	Percentage within the Study Area (%)
Grade 2	2429.28	42.717
Grade 3	3107.58	54.645
Grade 4	127.45	2.241
Non-Agricultural	22.42	0.394
Urban	0.15	0.003
Total	5686.88	100
Total BMV*	3983.07	70.040

*Grade 3 is assumed to be 50/50 split of Subgrade 3a/3b prior to further calculations using soil types as described above.

Table 11.5 Provisional ALC grading supplemented with Post-1988 ALC grading within the Study Area

ALC Grade	Area within the Study Area (ha)	Percentage within the Study Area (%)
Grade 1 (Post-1988)	23.45	0.41
Grade 2 (Provisional)	2144.14	37.70
Grade 2 (Post-1988)	134.29	2.36
Grade 3* (Provisional)	2940.43	51.71
Grade 3a (Post-1988)	111.45	1.96
Grade 3b (Post-1988)	133.19	2.34
Grade 4 (Provisional)	127.45	2.24

ALC Grade	Area within the Study Area (ha)	Percentage within the Study Area (%)
Non-Agricultural (Provisional)	22.42	0.39
Urban (Provisional)	0.01	0.00
Other (Post-1988)	50.07	0.88
Total	5686.88	100.00
Total BMV ^{**^}	3883.53	68.29

5234.44 ha of the Study Area is not subject to a Post-1988 survey.

*Grade 3 is assumed to be 50/50 split of Subgrade 3a/3b prior to further calculations using soil types as described above.

^ Includes total BMV within Post-1988 surveyed areas (5234.44 ha of the Study Area not subject to a Post-1988 survey)

11.4.37 The soils identified from the Soils of England and Wales Soils Map of Northern England¹⁷⁷ within the Study Area are listed within **Table 11.6** below and shown in **Figure 11.2**. Erodibility data are taken from Knox et al.¹⁸¹.

Table 11.6 Soils within the Study Area of the Project

Soil Association	General Description	Erodibility ¹⁸¹
<i>East of York (listed north to south)</i>		
Blewbury (551d)	Deep well drained sandy and coarse loamy soils. Some sandy soils affected by groundwater. Risk of wind and water erosion.	Very High Risk
Foggathorpe 2 (712i)	Slowly permeable seasonally waterlogged stoneless clayey and fine loamy over clayey soils. Some similar coarse loamy over clayey soils.	Very Low Risk
<i>Moor Monkton and Shipton to Tadcaster (listed north to south)</i>		
Foggathorpe 2 (712i)	Slowly permeable seasonally waterlogged stoneless clayey and fine loamy over clayey soils. Some similar coarse loamy over clayey soils.	Very Low Risk
Everingham (821a)	Deep stoneless permeable fine sandy soils some with bleached subsurface horizon. Groundwater controlled by ditches. Risk of wind erosion.	High Risk
Blackwood (821b)	Deep permeable sandy and coarse loamy soils. Groundwater controlled by ditches.	Low Risk
Enbourne (811a)	Deep stoneless fine loamy and clayey soils variably affected by groundwater. Flat land. Risk of flooding.	Very Low Risk

Soil Association	General Description	Erodibility ¹⁸¹
Escrick 2 (571q)	Deep well drained often reddish coarse loamy soils. Some fine loamy soils with slowly permeable subsoils and slight seasonal waterlogging.	Moderate Risk
Bishampton (572s)	Deep fine loamy soils with slowly permeable subsoils and slight seasonal waterlogging associated with well drained fine and coarse loamy soils in an undulating landscape.	Moderate Risk
Dunkeswick (711p)	Slowly permeable seasonally waterlogged fine loamy and fine loamy over clayey soils associated with similar clayey soils.	Very Low Risk
Wick (541r)	Deep well drained coarse loamy and sandy soils locally over gravel. Some similar soils affected by groundwater.	Moderate Risk
<i>Tadcaster to Selby to (listed north to south)</i>		
Aberford (511a)	Shallow, well drained calcareous fine loamy soils over limestone. Some deeper calcareous soils in colluvium	Low Risk

11.4.38 Within the Study Area ten distinct soil associations are mapped, with the majority of soil variation along the route identified between Tadcaster and Moor Monkton. One soil association, Aberford (511a) is mapped within the Study Area between Selby and Tadcaster comprising shallow fine loamy soils over limestone with a low risk of erosion from water as informed by Knox et al¹⁸¹.

11.4.39 Eight soil associations are mapped between Tadcaster and Moor Monkton, the Dunkeswick, Foggathorpe 2, Enbourne and Blackwood associations (711p, 712i, 811a and 821b) were identified to have a very low to low risk of erosion from water. The Bishampton (572s) and Escrick 2 (571q) soil associations were identified to have a moderate risk of erosion from water; the Everingham association (821a) a high risk of erosion from wind (821a); and the Wick 3 association a moderate risk of erosion from water, but also being of risk of wind erosion (as informed by Knox et al¹⁸¹).

11.4.40 The discrete section of the Study Area to the east of York includes two soil associations, with the Foggathorpe 2 association (712i) identified to have a very low risk of erosion from water; and the Blewbury association (551d) identified to have a very high risk of erosion from water and wind.

11.4.41 As part of the Scoping stage of the Project, a reconnaissance survey of the Study Area would normally be undertaken in order to provide an overview of the current land-use and characteristics of the agricultural land present. However, due to the current COVID-19 pandemic, this has been deemed to be unnecessary travel at this stage, and information regarding current land-use has been informed by the use of aerial and 'Streetview' imaging provided by Google²³.

11.4.42 The majority of the Study Area has been identified to be in arable production; this finding corroborates the ALC data presented above, as higher quality (BMV) agricultural land is more productive and better suited to arable use than land of lower quality. The

arable land is interspersed with permanent pasture and some small to medium woodlands and plantations. Areas of agriculture throughout the Study Area show zones of bare ground within fields, indicating areas potentially impacted by droughtiness and/or wetness which are impacting on crop growth.

Future baseline

- 11.4.43 At this stage of the Project the information obtained by National Grid is considered to be preliminary; and more detailed and location specific information will be gathered as the Project develops. The high level ALC and soils data provided in published sources will be supplemented by a targeted scheme of field survey at the locations of permanent infrastructure as defined in Section 11.4 during the planning process; and, should consent be granted, through further targeted surveys in areas directly impacted by the Project, where appropriate when the precise routeing and placement of infrastructure are known. Therefore, the baseline will be further defined as the Project progresses and is expected to evolve as data become more specific.
- 11.4.44 The baseline presented in this chapter also has the potential to change due to other new developments within the vicinity of the Project. New developments which are lodged within the planning system (or as otherwise agreed with the Planning Authorities), will be addressed via cumulative assessment within the ES.
- 11.4.45 Changes to the agriculture baseline as a result of natural processes and systems are slow to evolve, taking tens of years or more to develop. Therefore, there is little likelihood of such changes occurring during the construction phase of the Project.
- 11.4.46 However, it is acknowledged that during the predicted operational lifespan of the Project the baseline has the potential to alter due to changes in land use and farming practice. This may include, but is not limited to, the adoption or surrender of Agri-Environmental Schemes (it being noted that under the Agriculture Act 2020 there is an emphasis towards incentivising landowners to better protect and improve soils); shift from pasture to arable agriculture; and implementation of field drainage schemes. Changes to the baseline may therefore be positive or negative.
- 11.4.47 There is the potential for long-term changes to the baseline due to climate change. These could potentially lead to alterations in agricultural land quality (ALC grade), for example through increased levels of soil wetness in the winter and increased droughtiness in the summer. This may in turn influence extent and location of BMV agricultural land. Changes in rainfall may also affect decomposition rates and soil organic matter content.
- 11.4.48 Although there is the potential for the baseline presented in this chapter and the final ES submission to change over time; it is considered that the data presented provides a good representation of land use and agricultural conditions at this stage of the Project; and to be a good platform upon which to base further studies/investigation.

11.5 Embedded Environmental Measures

- 11.5.1 Wherever possible identified significant effects will be avoided, reduced or 'designed out' through the iterative design process (mitigation by design). Where this is not possible additional mitigation measures will be implemented. Possible opportunities for mitigation are as follows.

Loss of agricultural land to development.

- 11.5.2 Some permanent loss of agricultural land will occur due to the Project and this cannot be mitigated. This permanent loss is considered to take place at built infrastructure locations such as the Substations, CSEC and permanent access roads and includes any direct loss of agricultural land through the placement of built infrastructure; and any indirect loss through permanent change to non-agricultural use to facilitate these developments. Direct permanent loss of agricultural land due to pylon placement is restricted to the pylon footings (approximately 4m³ per pylon), but in arable or hay/silage rotations indirect losses can occur through exclusion from agricultural use as described in **Section 11.4**.
- 11.5.3 However, the majority of land take for the Project will be temporary, with land excluded from agricultural use for the duration of construction operations only. For example at temporary access tracks and compound sites; along the overhead line installations corridor outwith the pylon placement locations; and the land beneath new pylons where the land is in use as grazing land. Temporary land-take areas will be reinstated to agricultural use. The temporary loss of agricultural land and the impact of this loss can be reduced through appropriate measures to mitigate effects.
- 11.5.4 Such measures are likely to include, but will not be limited to, the avoidance of development in arable land (including mixed use and silage fields) in preference of permanent pasture (as grazing is unaffected by pylon placement), where practicable and taking into account technical and other environmental considerations; and the informed and sensitive positioning of pylons and access tracks within fields (micro-siting). Where possible pylons / access tracks will be located to the edge of fields, in field margins, or less productive areas of individual fields, ensuring that the maximum area of productive land remains in agricultural use.
- 11.5.5 Where practicable and taking into account technical and other environmental considerations; indirect effects such as field severance and separation of livestock from water supplies will be mitigated by route design.

Damage to and loss of soil resources

- 11.5.6 Soil resources would be protected against damage and loss by the adoption of industry standard methods for the handling and storage of soils. The current guidelines (Defra, 2009¹⁷⁶) standard working methods and techniques used to protect topsoil resources include, but are not limited to, the following:
- the handling of soil resources only when sufficiently dry to prevent compaction and damage to soil structure, generally limiting soil operations to the months April to September (although this period may be extended during dry periods);
 - the stripping, handling, storage and transportation of topsoil separately from subsoil;
 - appropriate seeding of soil storage mounds if required for a period longer than six months, to prevent erosion and to maintain soil structure, nutrient content and biological activity;
 - de-compacting of the subsoil before topsoil re-instatement; and
 - minimising the number of machine movements across topsoil to reduce compaction and retain soil structure.

11.6 Scope of the assessment

Potential receptors

- 11.6.1 The assessment will consider the following receptors within the Study Area:
- agricultural land and land use in terms of the loss of BMV agricultural land, and;
 - soil resources in terms of potential damage and loss.
- 11.6.2 As described in **Section 11.4**, a review of the available published ALC data for the Study Area indicates that BMV agricultural land is likely to be widespread across the Study Area and, therefore, there is the potential for this land to be significantly affected by the Project. In consequence, this receptor is to be taken forward for further consideration.
- 11.6.3 A review of the published soils information within the Study Area (**Section 11.4**) indicates a number of soil associations between Monkton Moor and Tadcaster; and to the east of York, are likely to be sensitive (**Table 11.8**) due to moderate to very high erodibility (**Table 11.6**; Knox *et al.*¹⁸¹). In addition, soils may be damaged or lost during the Project due to cabling, temporary compounds and tracks, and permanent infrastructure. There is potential for soils to be significantly affected through damage or loss and therefore, this receptor is to be taken forward for further consideration.

Likely significant effects

- 11.6.4 The likely significant Agriculture and Soils effects that will be taken forward for assessment in the ES are summarised in **Table 11.7**.

Table 11.7 Likely significant Agriculture and Soils effects

Activity	Effect	Receptor
Construction		
Land preparations (including but not limited to): Stripping and stockpiling of topsoil and subsoil; Ground excavation; Levelling ground;	Loss of agricultural land i.e. change of land-use to non-agricultural through placement of infrastructure but also through indirect losses such as field severance and separation of livestock from water supplies making areas unsuitable for farming.	Agricultural land
Trenching; Haul road construction; and Vehicle movements on-site.	Damage to, or loss of soil resources through incorrect management including: Damage to the structure and compaction; Loss of nutrients (e.g. nitrogen); Loss of soil biota (e.g. bacteria, fungi, earthworms) and reduction of its activity; Mixing of soil horizons (especially topsoil with subsoil) reducing their potential for reuse; and	Soil resources

Activity	Effect	Receptor
	Unauthorised export.	
Reinstatement of agricultural land and soils	Loss of BMV agricultural land following reinstatement (i.e. change of land-use to lower quality; arable to pasture, etc.)	Agricultural land
	Indirect loss of agricultural land, due to limited access or requirement for change to non-agricultural use for land surrounding permanent infrastructure.	Agricultural land
	Damage to, or loss of soil resources through incorrect management (see above)	Soil resources
Operation (small scale, isolated maintenance activities).	Loss of agricultural land during maintenance activities. Considered to be temporary in nature.	Agricultural land
	Damage to, or loss of soil resources through incorrect management during maintenance activities (see above).	Soil resources

Assessment methodology

- 11.6.5 As explained in **Chapter 4**, the early identification of likely significant adverse environmental effects enables appropriate mitigation (e.g. measures to avoid, reduce or offset significant adverse effects) to be identified and incorporated into the design of a project, or commitments to be made to environmentally sensitive construction methods and practices. The potential impacts of the Project will therefore be identified and assessed, appropriate mitigation put forward (where required) and the residual (post-mitigation) effects assessed to ensure that the overall effect of the Project on Agriculture and Soils is reduced as far as is practicable.
- 11.6.6 Further data, which remains to be collected up to submission of the DCO application, in relation to agricultural land and soils, comprises:
- Soil survey data for areas of permanent development except pylon locations (as described in **Section 11.4**) - to be undertaken when the locations of these elements of the Project are confirmed. General details of the planned surveys are described in section 11.4.

Agricultural Land

- 11.6.7 BMV agricultural land (Grade 1, 2, and Subgrade 3a) is considered to be a finite national resource and is given special consideration under the NPPF¹⁵⁸. However, there are no defined criteria for the assessment of effects on agricultural land (understood as a permanent land use change to a built development), and no threshold given for BMV loss (permanent land use change) which should be regarded as significant within an Environmental Impact Assessment (EIA).

- 11.6.8 Statutory Instrument 2015 No. 595, The Town and Country Planning (Development Management Procedure) (England) Order 2015, Schedule 4, Part (y)¹⁵⁹, requires that the local planning authority consults Natural England if the area of a proposed permanent development exceeds 20 ha of BMV agricultural land. Although the guidance does not state that this threshold should be used to determine the significance of loss, for the purpose of EIA, it is a guide to consider significance where 20 ha or more of BMV is affected by a development. To determine the level of significance, other factors are considered, including whether the development is temporary or permanent and the extent of BMV in the locality.
- 11.6.9 Therefore, the loss of agricultural land will be assessed by estimating the amount and quality of land that may be affected by the Project, with a threshold of 20 ha of permanent BMV loss used to determine whether the loss is significant or not. Magnitude of effect and receptor sensitivity classifications are not assigned. Rather, any permanent BMV loss that exceeds 20 ha is assessed as significant, whilst any that is temporary or occupies less than 20 ha is assessed as being not significant.
- 11.6.10 The assessment of the loss of agricultural land therefore does not take into account temporary land use change, as this land would be returned to agricultural use once construction is complete. Within the loss of agricultural land assessment, the areas of temporary land use change will be reported for illustrative purposes only.
- 11.6.11 The majority of the agricultural land within the Study Area is productive arable land, of which the majority is ALC Grade 2 and 3 (see **Figure 11.1**), as typical of the wider area. An overview of the land-use within the Study Area and wider area identifies arable and horticultural land tends to be more prevalent within areas graded as BMV (i.e. Grades 1, 2 and Subgrade 3a), land under mixed rotation tends to be on good to moderate quality (i.e. Subgrades 3a and 3b), and pasture land tends to be located on areas of lower quality (i.e. Subgrade 3b, Grades 4 and 5). Therefore, for the purpose of this assessment, it is assumed that agricultural land use is closely related to agricultural land quality and current land use is therefore reflected in the ALC assessment.
- 11.6.12 The stated criteria have been adopted in previous assessments that have been agreed and accepted as best practice, for instance Viking Link (assessed through the Town and Country Planning Act) and the North Wales Connection (assessed through the DCO process).
- 11.6.13 Where the potential impacts show a requirement for mitigation, appropriate mitigation methods will be put forward. Mitigation is likely to include, but will not be limited to, the use of field-specific data to micro-site temporary and permanent infrastructure toward areas of the lowest agricultural quality, where possible, taking into consideration technical and other environmental considerations.

Soil Resources

- 11.6.14 There are no defined criteria, or policy guidance on the assessment of the effects of development on soil resources. Therefore, the effect of permanent and temporary development as a consequence of the Project will be assessed in terms of the identified soil resources, their sensitivity, and the degree of loss of soil resource. The assessment criteria are based on professional experience and have been adopted in other assessments which have gained approval through the planning process (either DCO or Town and County Planning Act). These assessments were not restricted to electricity infrastructure projects (although the criteria were used on both Viking and the North

Wales Connection); and include all development types where impacts to soils had the potential to occur (for instance, mining and minerals sites, residential and commercial developments and renewable energy schemes).

- 11.6.15 The disturbance of soil resources will be assessed by reporting the workability of topsoils and their suitability for reinstatement, and effects assessed on the assumption that good working practice is followed.
- 11.6.16 Assessing the sensitivity of soil resources to damage (i.e. resistance and resilience of the soil environment, not the importance of the land for agricultural use) is complicated, as soil resources provide a range of functions, such as supporting plant growth (including food and other crops), water filtration and regulation (role in flood control), nutrient transformation (e.g. role in the nitrogen cycle), carbon storage and sequestration, and supporting biodiversity. The sensitivity criteria for soil resources are based on the erodibility of soils or the presence of ecologically important soils, such as peat. The soil resources assessment will consider both temporary and permanent damage. The receptor sensitivity criteria are provided in **Table 11.8**. The magnitude of change from the baseline will be defined in terms of the damage to soil resource and loss of soil resources, as provided in **Table 11.9**.
- 11.6.17 Soil erodibility is a measure of the susceptibility of soils to loss both *in-situ* (i.e. as an undisturbed soil profile) and during soil stockpiling, due to wind or water erosion (natural erosion potential). Soil erodibility is considered in the rating of soil sensitivity, with the sensitivity classification of the different soils encountered based upon data compiled by Knox *et al.*¹⁸¹ Therefore, as a general rule, heavy (clay rich) soils are classified as low sensitivity (low soil erodibility), whilst light sandy soils are classified as high sensitivity (high soil erodibility).
- 11.6.18 However, it is important to note that soils of differing texture and structural development may be subject to a range of potential impacts during and following reinstatement. For example, the incorrect handling/reinstatement of a heavy (clay rich) soil whilst in a plastic state may result in a reinstated soil profile with a reduced natural drainage compared to the natural soil profile and a subsequent increased risk of soil loss (erosion) due to surface water run-off. Whereas, the permeable nature of light sandy soils means that the natural structural recovery and drainage potential of the soils is more easily maintained upon reinstatement. However, as standard good practice measures for soil handling, such as those described in the embedded mitigation section (**paragraph 11.5.6**) will mitigate against any potential adverse impacts during reinstatement regardless of the soil texture or prevailing structure, only soil erodibility (i.e. the sensitivity of the undisturbed soil profile or soil stockpiles) is considered in the sensitivity criteria of the soil assessment.

Table 11.8 Receptor Sensitivity (Soils)

Receptor	Sensitivity	Justification
Soil Resources		
Soils with high risk of erosion and organic soils (peat).	High	Development on these soils should be avoided, however if this is not possible, they require special consideration and careful planning of construction methods, e.g. use of temporary working surfaces,

Receptor	Sensitivity	Justification
		careful storage, protection from drying out, in order to preserve their functions. Soils of high biodiversity value. High importance as a carbon store and active role in carbon sequestration, which have little capacity to tolerate change.
Soils with moderate risk of erosion.	Medium	Standard mitigation measures would provide appropriate protection to these soils; however, damage is likely to occur if worked in less than ideal conditions, e.g. when wet. These soils should be given appropriate consideration because of their importance for agricultural production.
Soils with low risk of erosion.	Low	These soils are generally more resistant to damage (except peat soils) due to permanent grass cover.
Poor quality soils with no risk of erosion.	Negligible	These soils are generally more resistant to damage (except peat soils) due to permanent grass cover.

11.6.19 The magnitude of effect will be assessed in terms of the change from baseline conditions, as defined in **Table 11.9**.

Table 11.9 Criteria to assess the magnitude of impact (Soils)

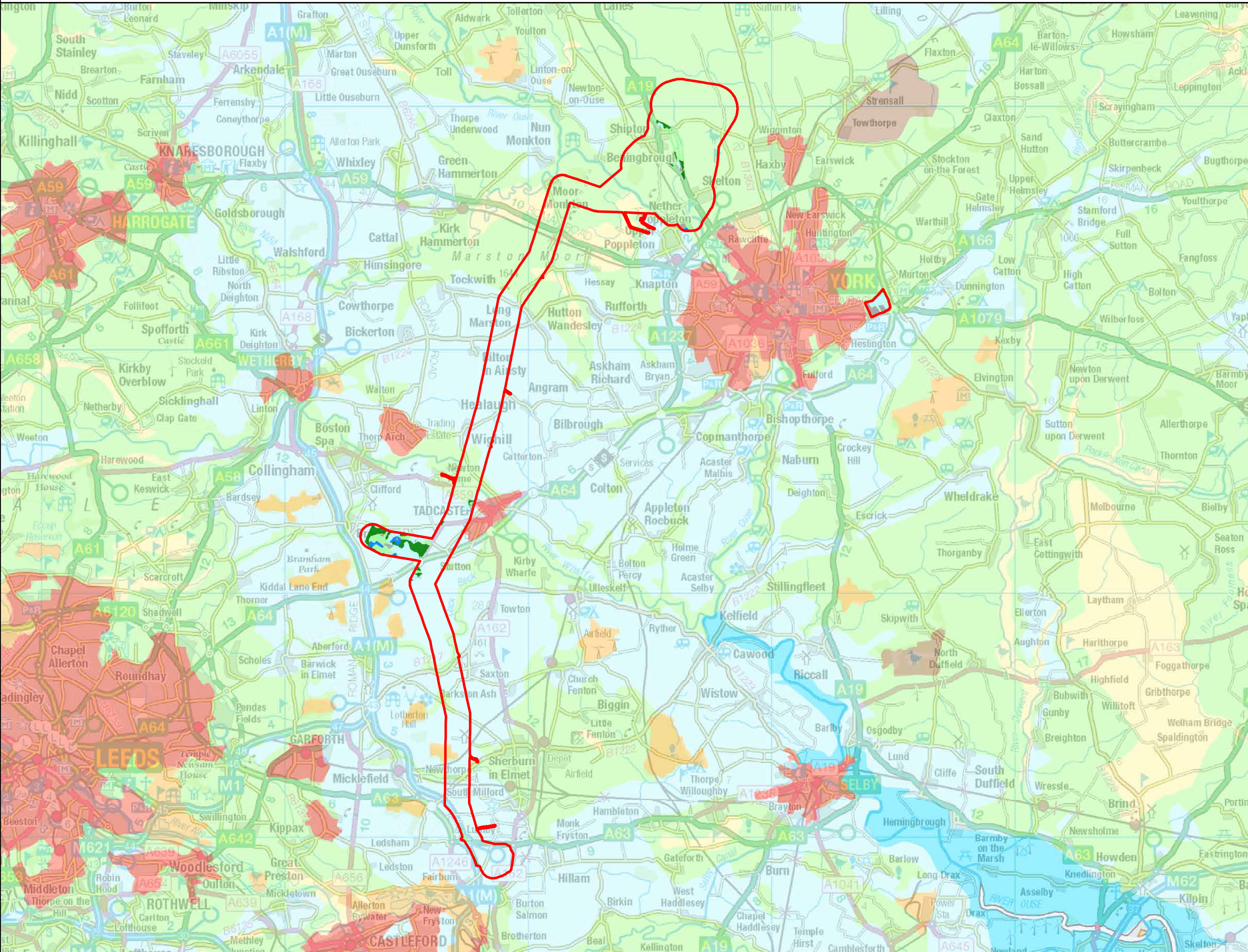
Magnitude	Damage to Soil Resources	Loss of Soil Resources
High	Permanent change to the quality of the soil resource.	<25% of soil resources suitable for reuse and retained on site
Medium	Temporary/reversible change to the soil resource.	25-50% of soil resources suitable for reuse and retained on site
Low	Temporary/reversible change to the soil resource.	51-95% of soil resources suitable for reuse and retained on site
Very Low	No change to soil resource quality.	>95% of soil resources suitable for reuse and retained on site

11.6.20 The classification of effects for loss and damage of soil resources will be assessed using **Table 11.10** below. Where effects are determined as Major Adverse or Moderate Adverse, the effect will be considered Significant. Where effects are determined as Minor Adverse or Negligible, the effect will be considered Not Significant.

Table 11.10 Classification of Effects (Soils)

Sensitivity/value of receptor	Magnitude of Impact			
	High	Medium	Low	Very Low
High	Major (Significant)	Major (Significant)	Moderate (Significant)	Minor (Not Significant)
Medium	Major (Significant)	Moderate (Significant)	Minor (Not Significant)	Negligible (Not Significant)
Low	Moderate (Significant)	Minor (Not Significant)	Negligible (Not Significant)	Negligible (Not Significant)
Very Low	Minor (Not Significant)	Negligible (Not Significant)	Negligible (Not Significant)	Negligible (Not Significant)

FIGURE 11.1 PROVISIONAL AGRICULTURAL LAND CLASSIFICATION



Legend

Scoping Red Line Boundary

Provisional Agricultural Land Classification

- Grade 1
- Grade 2
- Grade 3
- Grade 4
- Grade 5
- Non Agricultural
- Urban

Post 1988 Agricultural Land Classification

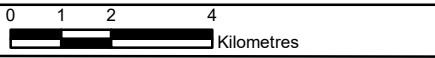
- Grade 1
- Grade 2
- Grade 3a
- Grade 3b
- Other

Notes
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 Sheet X Centroid Coordinate: 454049 Sheet Y Centroid Coordinate: 446014



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Title
 PROVISIONAL AGRICULTURAL LAND CLASSIFICATION



Figure Number
 FIGURE 11.1

Drawing Reference
 GM11455/FIGURE 11.1

Scale	Sheet Size	Sheet	Issue
1:2,500	A3	SHEET 1 OF 1	A



FIGURE 11.1 SOIL ASSOCIATIONS

Legend

Scoping Red Line Boundary

Soil Association

- Aberford (511a)
- Wick 1 (541r)
- Newport 1 (551d)
- Wharfe (561a)
- Escrick 2 (571q)
- Bishampton 1 (572s)
- Duneswick (711p)
- Foggathorpe 2 (712i)
- Enborne (811a)
- Everingham (821a)
- Blackwood (821b)
- Urban (U)

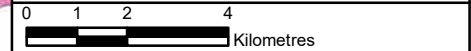
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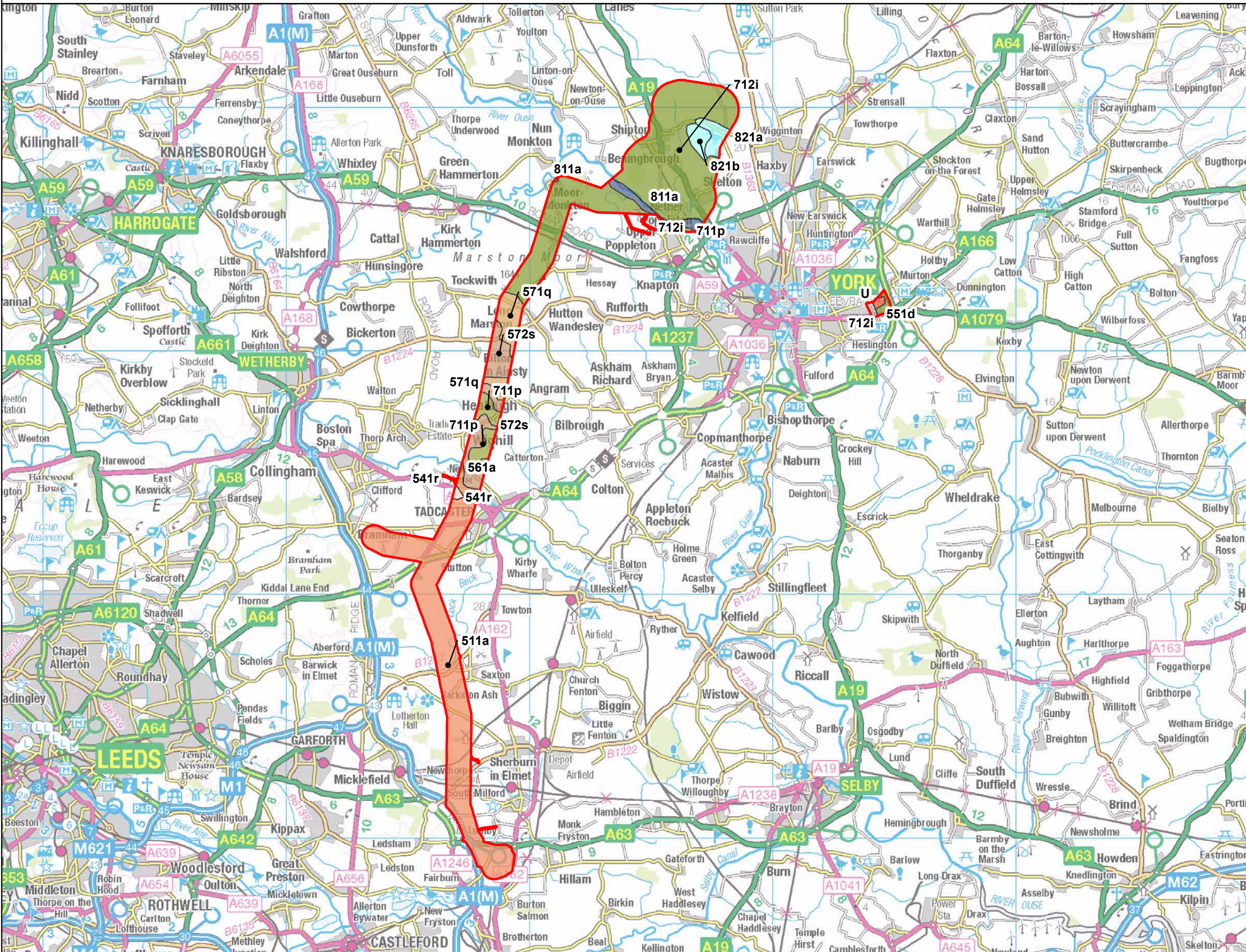
SOIL ASSOCIATIONS



Figure Number: FIGURE 11.2

Drawing Reference: GM11455/FIGURE 11.2

Scale	Sheet Size	Sheet	Issue
1:2,500	A3	SHEET 1 OF 1	A



12. Traffic and Transport

12. Traffic and Transport

12.1 Introduction

12.1.1 The Traffic and Transport assessment will consider the potentially significant effects on the receptors of the local and regional highways network that may arise from the construction and operation (and maintenance) of the Project. This section of the Scoping Report describes the methodology to be used within the assessment, the datasets to be used to inform the assessment, an overview of the baseline conditions within the Scoping red line boundary (**Figure 1.1**), the likely significant effects to be considered within the assessment, and how these likely significant effects will be assessed for the purpose of an EIA.

12.1.2 Traffic and Transport interfaces with other aspects and as such, should be considered alongside the following chapters:

- Chapter 13: Air Quality; and
- Chapter 14: Noise and Vibration.

12.2 Relevant legislation, planning policy and technical guidance

12.2.1 The following section sets out the key planning policy and technical guidance that will inform the Traffic and Transport assessment within the EIA for the Project. There is no legislation specifically relevant to the assessment of Traffic and Transport environmental effects.

Planning Policy

12.2.2 A summary of the relevant planning policies is provided in **Table 12.1**.

Table 12.1 National Planning policy relevant to Traffic and Transport

Policy reference	Policy context	Section considered
Overarching National Policy Statement for Energy (EN-1)		
Paragraph 5.13.2	The consideration and mitigation of transport impacts is an essential part of Government's wider policy objectives for sustainable development as set out in section 2.2 of NPS EN-1	Section 12.6
Paragraph 5.13.3	If significant transport effects are likely the ES should be accompanied by a Transport Assessment, developed in consultation with the Highways Agency and Highways Authorities	Section 12.7 (Undertaking Further Assessments)

Policy reference	Policy context	Section considered
Paragraph 5.13.4	Requirement, where appropriate, to prepare a Travel Plan and provide details of proposed measures to improve access by public transport, walking and cycling to mitigate transport impacts.	Section 12.6
Paragraph 5.13.6	The SoS should ensure the applicant has sought to mitigate substantial impacts on transport infrastructure. Where insufficient the SoS should consider the requirements to mitigate such effects.	Section 12.6
Paragraph 5.13.11	Where substantial HGV traffic is likely occur the SoS may attach requirements to consent to control numbers and routing of HGV movements, make sufficient provision for HGV parking and make arrangement for reasonably foreseeable abnormal disruption.	Section 12.6
National Planning Policy Framework (NPPF)		
Paragraph 109	In terms of transport, a development proposal should only be refused if the proposed development has unacceptable impact on highway safety.	Section 12.6, Section 12.7
Paragraph 111	If significant transport effects are likely then a Travel Plan is required along with a Transport Statement or Transport Assessment.	Section 12.6
Harrogate District Local Plan 2014 – 2035		
Policy T11 (Sustainable Transport)	To deliver sustainable, safe and reliable transport the council welcomes working in partnership with all the relevant stakeholders.	Section 12.3
Policy T12 (Protection of Transport Sites and Routes)	Transport sites and routes will be safeguarded to make sure that any future expansion of these infrastructures is not affected.	Section 12.5, Section 12.6
Policy T13 (Parking Provision)	Promotes sustainable transport modes, sets out parking policy and standards.	Section 12.5, Section 12.6
Hambleton District Council – Local Development Framework – Development Plan Document (DPD) – Development Policies (2008)		
Policy DP2 (Securing Developer Contributions)	To ensure the achievement of sustainable development, contribution from developers will be sought if necessary.	Section 12.5

Policy reference	Policy context	Section considered
Policy DP3 (Site Accessibility)	Development should have provision for sustainable forms of transport. A Travel Plan should be prepared and implemented.	Section 12.7 (Undertaking Further Assessments)
Policy DP4 (Access for All)	Development must ensure safe and easy access for all potential users.	Section 12.5, Section 12.6
City of York Draft Local Plan Incorporating the 4th set of changes – Development Control Local Plan (2005)		
Policy T2a (Existing Pedestrian/Cycle Networks)	Planning permission will not be granted if the proposed development causes any inconvenience for non-motorist unless sustainable alternative routes will be provided.	Section 12.5, Section 12.6
Policy T5 (Traffic and Pedestrian Safety)	Assurance for traffic and pedestrian safety should be provided by implementing appropriate measure suitable for local area and existing road layouts.	Section 12.5
Policy T13a (Travel Plan and Contribution)	Developments which meet the criteria set down in PPG13, or which are likely to employ more than 30 employees, or a residential site with more than 20 units, will be required to submit a travel plan. Any required contribution for transport improvement will be secured through Section 106 agreement.	Section 12.7 (Undertaking Further Assessments)
Policy T18 (Highways)	Increase in traffic on the local road network will only be allowed in some special circumstances such as boosting economy, removing traffic from other sensitive areas, improving road safety, reducing conflict between vehicles and non-motorist.	Section 12.5, Section 12.6
Policy T20 (Planning Agreements)	Where required applicants will be expected to enter into a Section 106 Agreement in order to provide or make an appropriate contribution to such improvements.	Section 12.5
Selby District Local Plan (2005)		
Policy T1	Permission for the new development will be subject to the capacity of the local road network unless appropriate off-site highway improvements are undertaken by the developer.	Section 12.5 to 12.7
Policy T2	Development proposals which would result in the creation of a new access or the intensification of the use of an existing access will be permitted if highway safety will not be compromised and new access proposal will be approved by highway authority.	Section 12.5 to 12.7

Technical Guidance

12.2.3 A summary of the relevant technical guidance is provided in **Table 12.2**.

Table 12.2 Technical guidance relevant to Traffic and Transport

Technical Guidance Document	Context
The Development for Transport (DfT) Circular 02/2013 “The Strategic Road Network and the Delivery of Sustainable Development Guidance”	Sets out the ways in which Highways England will engage with communities and developers to deliver sustainable development and thus economic growth, whilst safeguarding the primary function and purpose of the Strategic Road Network.
The Development for Transport (DfT) Circular 02/2013 “Environmental Impact”	States that “ <i>developers must ensure all environmental implications associated with their proposals, are adequately assessed and reported so as to ensure that the mitigation of any impact is compliant with prevailing policies and standards. This requirement applies in respect of the environmental impacts arising from the temporary construction works and the permanent transport solution associated with the development, as well as the environmental impact of the existing trunk road upon the development itself</i> ”
The Institute of Environmental Assessment (IEA)¹⁸⁶ publication Guidance Notes No. 1: Guidelines for the Environmental Assessment of Road Traffic (GEART)	Current guidance for assessing potentially significant environmental effects. This has been utilised within this assessment.

12.3 Consultation and engagement

12.3.1 Whilst no consultation has taken place to date, engagement with the relevant statutory stakeholders is proposed to be undertaken, including with local highway authorities and Highways England. These discussions will aim to discuss the following key issues:

- proposed traffic growth to future year;
- committed highways schemes that may affect the future baseline;
- committed development that may affect the future baseline;
- scope of the assessment;
- existing traffic data and data collection techniques with consideration of the COVID-19 restrictions;
- Public Rights of Way (PRoW) management; ;

¹⁸⁶ Now the Institute of Environmental Management and Assessment, IEMA

- potential traffic generation;
- HGV Management; and
- identification of additional transport evidence base documents to support the Development Consent Order application, such as a Construction Traffic Management Plan (CTMP), Abnormal Indivisible Load (AIL) access study and PRow Management Plan.

12.3.2 It is proposed to consult with the following stakeholders:

- North-west of York Area: North Yorkshire County Council, York City Council, Hambleton District Council, Harrogate Borough Council;
- Tadcaster Area: North Yorkshire County Council, Leeds City Council, Selby District Council;
- Monk Fryston Substation Area: North Yorkshire County Council, Selby District Council; and
- Osbaldwick Substation Area: North Yorkshire County Council, York City Council.

12.3.3 In addition, discussions will be held with Highways England regarding any potential impacts on the Strategic Road Network (SRN).

12.4 Baseline condition

Study Area

12.4.1 The Study Area for the Traffic and Transport assessment has been informed by:

- Roads providing access for construction and operational traffic generated by the Project and points on the transport network that will be crossed by any element of the Project. Temporary construction working areas and laydown areas will be required throughout the Project and will be located within the Scoping red line boundary.
- The key routes outside of the Scoping red line boundary that construction and operational traffic will take to access the construction areas and permanent infrastructure of the Project.

12.4.2 The proposed transport Study Area is set out in **Figure 12.1**. The transport Study Area will be reviewed and amended, if required, as the Project is developed in response to the identification of any additional impact pathways, estimates of construction traffic levels, identification of working and laydown areas and in response to feedback from consultation.

Scope of Assessment

12.4.3 The Scoping red line boundary (**Figure 1.1**) covers a number of roads, and settlements alongside roads, which will comprise the receptors to be considered in the baseline once more information on traffic numbers and traffic routes is available. The main settlements within the Scoping red line boundary which may be impacted by traffic generated by the Project include Shipton by Beningbrough, Skelton, Moor Monkton, Long Marston, Healaugh, Wighill, Tadcaster, Newthorpe and Lumby. The key roads

within the reconductoring corridor are A59 (northwest of York), A659 (west of Tadcaster), A64 (southeast of Tadcaster), A1(M) and A63 (west of Monk Fryston). Osbaldwick 400kV substation is well connected to the A64(M) ring road.

Road network

12.4.4 There are a number of 'A', 'B', 'C' and unclassified roads within the Study Area which have the potential to be affected directly by the Project, either by a crossing of the proposed infrastructure or as an access route. **Table 12.3** sets out the main 'A' and 'B' roads within the Study Area. This will be refined through the EIA process when more is known about vehicle numbers and routes. The Traffic and Transport PEIR chapter and subsequent ES chapter will include a description of all the routes affected including 'C' and unclassified roads.

Table 12.3 Main 'A' and 'B' Roads within the transport study area

Type of road	Road name
A Roads	A19, A59, A659, A46, A1(M), A63, A1079
B Roads	B1224, B1217, B1222

Data gathering methodology

12.4.5 The data sources to be used to inform this Scoping Report chapter are summarised in **Table 12.4**.

Table 12.4 Key sources of transport data

Source	Date	Summary	Coverage of study area
Ordnance Survey (OS) Mapping	26 Jan 2021	Use of online mapping of 1:50,000 and 1:25,000 Ordnance Survey Mapping	Key traffic routes and routes where Project traffic is estimated to exceed thresholds at which further assessment is required (Section 12.7)
Google Traffic	26 Jan 2021	Use of online congestion data from Google Maps. Traffic data for key local roads was reviewed. (Available online - https://www.google.co.uk/maps)	
Crashmap	27 Jan 2021	Use of Crash map a free online resource for looking at the accident record of road networks. (Available online - https://www.crashmap.co.uk)	
Google Street View	25 Jan – 3 Feb 2021	Use of street view views of local road network from Google Maps. (Available online: https://www.google.co.uk/maps)	

Source	Date	Summary	Coverage of study area
PRoW Information	2 Feb 2021	PRoW information from the definitive online map for North Yorkshire County Council :(Available online - https://maps.northyorks.gov.uk/connect/analyt/mobile/#/main?mapcfg=roads_footpaths)	Within the Scoping red line boundary at crossing points
Traffic Data	26 Jan 2021	Review historic data from 2019 at the DfT permanent count locations ¹⁸⁷ at any locations identified as receptors	Key traffic routes and routes where Project traffic is estimated to exceed thresholds at which further assessment is required (Section 12.7)

12.4.6 Further data will be required to inform the assessment in the PEIR and ES. These data sets will be collated, reviewed and updated as the Project progresses to enable completion of a robust assessment. As outlined in Section 4.10 some EIA surveys, including traffic surveys, rely on the baseline environment to reflect the normal situation. However, due to the COVID-19 pandemic these may be significantly hindered this calendar year because of the restrictions imposed by the pandemic. Therefore these will be planned for a time when survey results will reflect a more normal pattern. Flexibility where needed will be sought from stakeholders regarding the timely completion of surveys and the provision of this information. Should this not be possible, agreement will be sought for the use of historic traffic data as set out in **Table 12.6** to inform assessment.

Current baseline

Traffic data

12.4.7 Traffic data has been obtained from the latest available DfT permanent counts to understand the existing traffic flow on the Strategic Road Network routes within the Study Area. Table 12.5 summarises the two-way traffic data on the 'A' Roads.

Table 12.5 Annual Average Daily Flow - 2019

Road	Count ID	Two-way traffic flow
A19	74,053	9,964
A59	36,605	18,617
A659 (junction with A64)	76,091	5,387

¹⁸⁷ <https://roadtraffic.dft.gov.uk/#13/53.9343/-1.1815/basemap-countpoints>

Road	Count ID	Two-way traffic flow
A64	56,609	58,571
A63	81,558	14,338
A1079	77,722	13,932

High level accident data review

12.4.8 A review of accident data from Crashmap has indicated that there have been hundreds of accidents in the last five years across the Traffic & Transport Study Area, with clusters of accidents noted in certain locations. As construction traffic routes for the Project are not yet fixed it is not possible at this stage to identify all clusters of accidents that need to be considered in detail, however the following have been noted as accident hotspot locations on the local road network:

- A19 (near Skelton);
- A59/Marston Lane/Church Lane;
- Wighill Lane (near Tadcaster);
- Moor Lane (near Tadcaster);
- B1217 (east of A1(M));
- Coldhill Lane (southwest of Saxton);
- B1222 (northeast of A1(M));
- Westfield Lane (east of A1(M)); and
- A1079 (south of Osbaldwick substation).

12.4.9 An assessment of key routes for construction traffic will be undertaken and initially presented in the Traffic & Transport chapter of the Preliminary Environmental Information Report (PEIR) and revised and finalised in the ES.

Public Rights of Way

12.4.10 Numerous Public Rights of Way (PRoWs) cross the Scoping red line boundary, including National Trails. The details of the specific PRoWs that will be impacted by the Project will be outlined in the PEIR and ES with further detail provided in a Public Rights of Way Management Plan provided to support the application. A detail assessment of all the affected PRoWs will be carried out and mitigation schemes will be prepared where appropriate and reported in the PEIR and ES.

Key local cycling routes

12.4.11 A number of cycling routes within the Scoping red line boundary will potentially be affected by the Project. This includes National Cycle Network (NCN) Route 65 (between A19 and A59).

12.4.12 The details of the specific sections of the NCN as well as any other key local routes that could be impacted by the Project will be defined in the Traffic & Transport PEIR and ES Chapters, with environmental measures identified where possible.

Future baseline

12.4.13 In accordance with GEART, the period in which the level of traffic (future baseline plus traffic from the Project) is at its peak will be considered within the assessment. The peak construction period will be based on the indicative construction programme and the anticipated construction traffic movements. The future baseline will take into account traffic growth as a result of new development which will be based on growth factors from the Department for Transport (DfT) National Trip End Model (NTEM) derived from the Trip End Model Presentation Programme (TEMPro). The use of TEMPro will include for cumulative traffic growth within the study area.

12.4.14 Engagement with the highway authorities will identify appropriate growth rates based on the traffic data available, future year of assessment and location of the project. This engagement will also seek to agree any significant development adjacent to proposed study area that may need to be included as a specific committed development on top of the agreed TEMPro growth rate.

12.4.15 The future baseline will also consider the implications of changes to the transport infrastructure, such as changes to roads and or junctions and new infrastructure. This will be established during consultation.

12.5 Embedded Environmental Measures

12.5.1 As part of the project design process, a number of embedded measures will be proposed to reduce the potential for impacts on transport (see **Table 12.7**). These will evolve over the development process as the EIA progresses and in response to consultation and will be fed iteratively into the assessment process. These measures typically include those that have been identified as good or standard practice and include actions that would be undertaken to meet existing legislative requirements.

12.5.2 As there is a commitment to implementing these environmental measures, and also to various standard sectoral practices and procedures, they are considered inherently part of the design of the Project and have, therefore, been considered in the scoping assessment.

Table 12.6 Relevant transport embedded environment measures

Environmental measures proposed
A crossing schedule for the overhead lines and sections of underground cable associated with the CSECs will be prepared setting out crossings methodologies of all road, rail, PRoW and watercourse crossings
Signage and/or temporary PRoW/footpath diversions will be provided during construction where necessary to avoid the construction working areas

Environmental measures proposed

Construction accesses to the public highway will be provided with required visibility splays where permanent accesses are required as well as major construction accesses are proposed (such as substation siting areas, construction compound and CSEC siting areas). All other locations will be managed via traffic management processes (signage, speed limit reductions and banksmen)

A road and PRow condition survey will be undertaken on roads and ProWs affected by construction traffic before, during and after the construction phase of the Project. The results of these surveys will be used to identify the requirement for any repairs needed as a result of project related damage.

All arrangements of scaffolding of road crossings will be agreed with the relevant highway authority. Road closures will be avoided where possible.

Access locations and access routes from the Strategic Road Network will be planned to avoid settlements and villages where possible. The use of haul roads and loop road arrangements will be proposed where appropriate and possible to mitigate proposed environmental effects of traffic and transport.

12.6 Scope of the assessment

Potential receptors

- 12.6.1 The scope of the assessment provides comprehensive coverage of the routes surrounding the Project and it will consider the implications of the construction and operation of the Project. This will be focused on a series of traffic and transport receptors on the local and strategic highways network. These receptor locations will be defined as the Project design develops in line with consultation with the relevant highway authorities. It is these receptors which will be taken forward into the assessment in relation to potential traffic related effects.
- 12.6.2 Receptors are the users or beneficiaries of the highways network assets and facilities such as pedestrians, cyclists, equestrians and drivers who travel within the vicinity of the Project.
- 12.6.3 GEART identifies the following groups and special interest groups that may be affected:
- People at home;
 - People at work;
 - Sensitive groups including children, elderly and disabled;
 - Sensitive locations such as hospitals, churches and historical buildings;
 - Pedestrians;
 - Equestrians;
 - Cyclists;

- Open spaces recreational areas and shopping areas; and
- Sites of ecological and nature conservation value; and
- Site of tourist / visitor attractions.

12.6.4 The assessment of the receptors that will be identified is set out in the assessment methodology section.

Likely significant effects

12.6.5 The likely significant Traffic and Transport effects that will be taken forward for assessment in the PEIR and ES are summarised in **Table 12.7**. The scoping assessment is based on a combination of the definition of the Project at the scoping stage (see **Chapter 2**), embedded environmental measures, understanding of the baseline conditions at this stage, the evidence base for traffic and transport effects and professional judgement. The approach to this assessment is set out in **Chapter 4: The EIA Process**.

Table 12.7 Likely significant Traffic and Transport effects

Activity	Effect	Receptor
Construction		
Construction of Cable sealing end compounds and associated earthworks and underground cabling	Construction traffic at sensitive highway receptors. Impact of construction traffic and proposed route on PRowS.	Transport receptors to be defined based on:
	Effect anticipated to not be significant based on magnitude of change, receptor sensitivity and mitigation to be identified. To be confirmed through assessment.	People at home; People at work; Sensitive groups Sensitive locations;
Installation of underground cables (highways and PRow crossings) and associated earthworks	Construction traffic at sensitive highway receptors.	Pedestrians; Cyclists;
	Effect anticipated to not be significant based on magnitude of change, receptor sensitivity and mitigation to be identified. To be confirmed through assessment.	Open spaces recreational areas and shopping areas;
Construction of new overhead lines and works to existing overhead lines (see Section 1.1).	Impact of construction traffic at sensitive highway receptors resulting in potential impacts on the local and strategic road network.	Sites of ecological and nature conservation value; and
	Effect anticipated to not be significant based on magnitude of change, receptor sensitivity and mitigation to be identified. To be confirmed through assessment.	Tourist / visitor attractions.

Activity	Effect	Receptor
Substation construction and associated earthworks and underground cabling resulting in potential impacts on the local and strategic road network	Impact of construction and operational traffic at sensitive highway receptors. Impact of proposed scheme on PRow. Effect anticipated to not be significant based on magnitude of change, receptor sensitivity and mitigation to be identified. To be confirmed through assessment.	

12.6.6 It is proposed that an assessment of traffic and transport effects will be undertaken for the construction phase only. The assessment will consider the sensitivity of the receptors and the magnitude of change as a result of the traffic generated by the Project. It is anticipated that the likely significance of effects will be not significant based on the evaluation matrix set out in **Table 12.8**, however this will be confirmed through detailed assessment.

Effects scoped out of assessment

12.6.7 A number of potential effects have been scoped out from further assessment, as no significant effects are likely. These conclusions have been made based on the knowledge of the baseline environment, the nature of planned works and the wealth of evidence on the potential for impact and recent experience on overhead line connection projects such as Brechfa Forest Connection and Medwoth EfW and on underground cable projects such as the Rampion 2 Offshore Wind Farm onshore connection. Based on Woods experience the following effects have been scoped out of the assessment.

- Effects on roads, PRow and users of these routes from traffic associated with the Project's operation and maintenance activities: The volume of vehicle movements during operation of the Project are likely to comprise occasional light vehicles to undertake line checks or in a very worst case two to three vehicles to undertake low level maintenance. In addition a limited number of staff (e.g. less than 10) would be based at each of the proposed substations. Therefore the number of daily vehicle movements would be significantly less than the construction phase of the project and would not trigger the need of any assessment within the GEART criteria. Therefore, the magnitude of change and significance of effect will be negligible, and this effect has therefore been scoped out of the assessment.
- Effects on roads, PRow and users of these routes from Hazardous Loads at all phases of the Project. No Hazardous loads are anticipated and effects from these are therefore scoped out of the assessment.

12.7 Assessment methodology

Introduction

12.7.1 The project-wide approach to the assessment methodology is set out in **Chapter 4**: The EIA Process. However, whilst this has informed the approach that has been used in this section, it is necessary to set out how this methodology will be applied, and adapted as

appropriate, to address the specific needs of the transport assessment based on the appropriate guidance.

General approach

12.7.2 The guidance that is followed when assessing the potential significance of road traffic effects is the Guidelines for the Environmental Assessment of Road Traffic (GEART), Institute of Environmental Assessment (IEA), 1993, which states that:

"The detailed assessment of impacts is likely to concentrate on the period during which the absolute level of an impact is at its peak, as well as the hour at which the greatest level of change is likely to occur." (Paragraph 3.10, IEA, 1993).

12.7.3 To assess the impact at its peak, the likely percentage increase in traffic is determined by comparing estimates of traffic generated by the Project with future predicted baseline traffic flows on the road links within the defined Study Area.

12.7.4 GEART sets out that the following transport effects that need to be considered in any assessment:

- Severance: the separation of people from places and other people and places or impede pedestrian access to essential facilities;
- Driver delay: traffic delays to non-development traffic;
- Pedestrian amenity: the effect on the relative pleasantness of a pedestrian journey as a result of changes in traffic flow, traffic composition and pavement width / separation from traffic;
- Pedestrian delay: the ability of people to cross roads as a result of changes in traffic volume, composition and speed, the level of pedestrian activity, visibility and general physical conditions;
- Fear and intimidation: these may be experienced by people as a result of an increase in traffic volume and its proximity or the lack of protection caused by such factors as narrow pavement widths;
- Accidents and safety: the risk of accidents occurring where the Project is expected to produce a change in the character of traffic; and
- Hazardous Loads.

12.7.5 Cumulative effects on traffic and transport resulting from the effects of the Project and other developments will be assessed in accordance with the guidance and methodologies set out in **Chapter 4** and considering the other developments that will be screened in as part of the CEA screening exercise.

12.7.6 The following impacts have the potential to act cumulatively with impacts from other developments to contribute to cumulative effects:

- Permitted/committed developments within and in the vicinity of the transport Study Area that will result in additional traffic on the road network. As set out earlier in this chapter it is considered that permitted / committed developments will be included within the agreed TEMPro traffic growth rate. However, the highway authorities may require that specific developments are included (usually developments outside of local plan allocations) as the development traffic from these will have localised

impacts on specific parts of the road network. This will be identified with the highway authorities through further consultation and the CEA screening process; and

- Committed transport schemes that will affect the transport network, such as junction improvements and new road links. These will be identified with the highway authorities through further consultation and the CEA screening process.

Determination of significance

- 12.7.7 The EIA Regulations recognise that developments will affect different environmental elements to differing degrees, and that not all of these are of sufficient concern to warrant detailed investigation or assessment through the EIA process. The EIA Regulations identify those environmental resources that warrant investigation as those that are likely to be significantly affected by the Project.
- 12.7.8 The EIA Regulations do not define significance and it is necessary to state how this will be defined for the EIA. The significance of an effect resulting from a development during construction or operation is most commonly assessed by reference to the sensitivity (or value) of a receptor and the magnitude of the change. This approach provides a mechanism for identifying areas where mitigation measures may be required and to identify the most appropriate measures to alleviate the risk presented by the Project.
- 12.7.9 GEART provides two rules that are used to establish whether an environmental assessment of traffic effects should be carried out on receptors:
- Rule 1: Include highway links where traffic flows are predicted to increase by more than 30% (or where the number of HGVs is predicted to increase by more than 30%); and
 - Rule 2: Include sensitive areas where traffic flows are predicted to increase by 10% or more. These include locations with vulnerable road users, such as schools, nursing homes, and locations with high pedestrian activity.
- 12.7.10 It should be noted that, according to GEART, predicted traffic flow increases below 10% are generally not considered to be significant as daily variations in background traffic flow may fluctuate by this amount. Changes in traffic flows below this level are, therefore, assumed not to result in significant environmental effects.
- 12.7.11 **Table 12.8.** sets out how significance will be determined based on receptor sensitivity and the magnitude of change.

Table 12.8 Significance evaluation matrix

		Magnitude of change			
		High	Medium	Low	Negligible
Receptor sensitivity	High	Major (Significant)	Major (Significant)	Moderate (Significant)	Negligible (Not significant)
	Medium	Major (Significant)	Moderate (Significant)	Minor (Not significant)	Negligible (Not significant)
	Low	Moderate (Significant)	Minor (Not significant)	Minor (Not significant)	Negligible (Not significant)
	Negligible	Negligible (Not significant)	Negligible (Not significant)	Negligible (Not significant)	Negligible (Not significant)

Receptor sensitivity

^{12.7.12} The sensitivity of each highway link to be included in the assessment will be assigned a sensitivity in accordance with the advice provided in the GEART, as summarised in **Table 12.9** and based on professional judgement.

Table 12.9 Receptor sensitivity

Sensitivity	Description / Reason	Receptor
High	Receptors of high sensitivity to change in traffic flows: schools, colleges, playgrounds, accident blackspots, retirement homes and urban/residential homes without footways that are used by pedestrians and cyclists.	Residents/workers travelling to and from work or home on foot and by bicycle, school children, leisure walkers and equestrians.
Medium	Receptors of medium sensitivity to change in traffic flows including congested junctions, doctors' surgeries, hospitals, shopping areas with roadside frontage, roads with narrow footways, unsegregated cycle ways, community centres, parks and recreation facilities.	Residents / workers travelling to and from work or home on foot and by bicycle, people visiting these land uses.
Low	Receptors with low sensitivity to change in traffic flows: places of worship, public open space, nature conservation areas, listed buildings, tourist/visitor attractions and residential areas with adequate footway provision.	Residents/workers travelling to and from work or home on foot or bicycle and people visiting these land uses.
Negligible	Receptors with negligible sensitivity to change in traffic flows including Motorways and Dual Carriageways and/or land uses sufficiently distant from affected routes and junctions.	Residents / workers travelling by foot or bicycle.

12.7.13 In accordance with GEART, where the sensitivity of a road link is judged as high or medium, Rule 2 will be applied and where traffic flows are predicted to increase by 10% or more, an assessment of environmental effects will be undertaken. Where the sensitivity is judged as low or negligible results, Rule 1 will be applied and where traffic flows are predicted to increase by more than 30%, or where the number of HGVs is predicted to increase by more than 30%, an assessment of environmental effects will be undertaken of the road link.

Magnitude of change

12.7.14 GEART recognises that professional judgement should be used as part of the assessment and states the following:

“For many effects there are no simple rules or formulae which define thresholds of significance and there is, therefore, a need for interpretation and judgement on the part of the assessor, backed-up by data or quantified information wherever possible. Such judgements will include the assessment of the numbers of people experiencing a change in environmental impact as well as the assessment of the damage to various natural resources.” (Paragraph 4.5, IEA, 1993)

12.7.15 Based on the Rule 1 and Rule 2 and the sensitivity of the receptors, **Table 12.10** shows the magnitude of change will be applied to the environmental effects to help identify levels of significance. The indicators to assess the magnitude of change are based on advice included within GEART and professional judgement.

Table 12.10 Magnitude of change

Transport Effect	High	Medium	Low	Negligible
Severance	Change in total traffic or HGV flows over 90%	Change in total traffic or HGV flows of 60%-90%	Change in total traffic or HGV flows of 30-60%	Change in total traffic or HGV flows of less than 30%
Driver Delay	High increase in queuing at junctions and/or congestion on road links	Medium increase in queuing at junctions and/or congestion on roads links	Low increase in queuing at junctions and/or congestion on roads links	Low or no increase in queuing at junctions and/or congestion on roads links
Pedestrian amenity;	Based on general level of pedestrian activity, visibility and physical conditions such as traffic flow, traffic composition, crossing points and pavement width/separation from traffic			
Pedestrian delay;				
Pedestrian fear and intimidation.				

Transport Effect	High	Medium	Low	Negligible
Accident and Safety	Informed by a review of existing collision patterns and trends based upon the existing personal injury accident records and the forecast increase in traffic.			

Desk-based assessment

- 12.7.16 An initial desk-based baseline assessment will be undertaken to gather information on highway infrastructure, construction routes and restrictions. Bing Maps, Google Maps UK and Google Street View will be used to provide an overview of the study area and the highway network and connections. Where appropriate, this will be supplemented with a site visit where current COVID-19 restrictions allow.
- 12.7.17 Traffic generation as a result of the Project will be identified as the project progresses and the transport related environmental effects will be assessed.
- 12.7.18 Baseline traffic and accident data will be sought from existing sources such as:
- Department for Transport (DfT) permanent count locations;
 - Data held by Local Authorities; and
 - Accident Data – personal injury accident (PIA) data will be required to identify road safety issues that may be affected by the traffic generated by the Project. This data will be obtained from relevant authorities.

Site based assessment

- 12.7.19 There will be two elements of site-based work required to inform the baseline:
- Commissioned traffic counts - to supplement the existing traffic data from DfT and Local Authorities; and
 - Site visit assessment - a site visit will be required to inform the assessment and clarify the high-level desktop based assessments. Detailed notes and a photographic record will be undertaken on the site visit and consideration will be given to the identification of receptor locations.
- 12.7.20 The current restrictions imposed during the COVID-19 pandemic have potential implications on the Project, in particular with regard to normal consultation activities and conducting EIA surveys. Measures are being taken by National Grid to achieve as much as possible during the EIA programme whilst working fully within the restrictions and being mindful of and managing any potential implications.
- 12.7.21 Traffic count surveys need to reflect normal traffic conditions and it is unknown at this stage when this is likely to be established. The approach to identifying traffic flows will be discussed with the key stakeholders. This may include use of available traffic count data and agreement on an appropriate growth factor.
- 12.7.22 Recent changes with regards to the COVID-19 lockdown situation in the UK mean that site work can currently be undertaken by the transport team and special health and safety arrangements will be made to ensure that this complies with the social distancing

rules. Should the situation change, the approach will be amended accordingly to reflect the most up-to-date Government guidance.









Undertaking further assessments

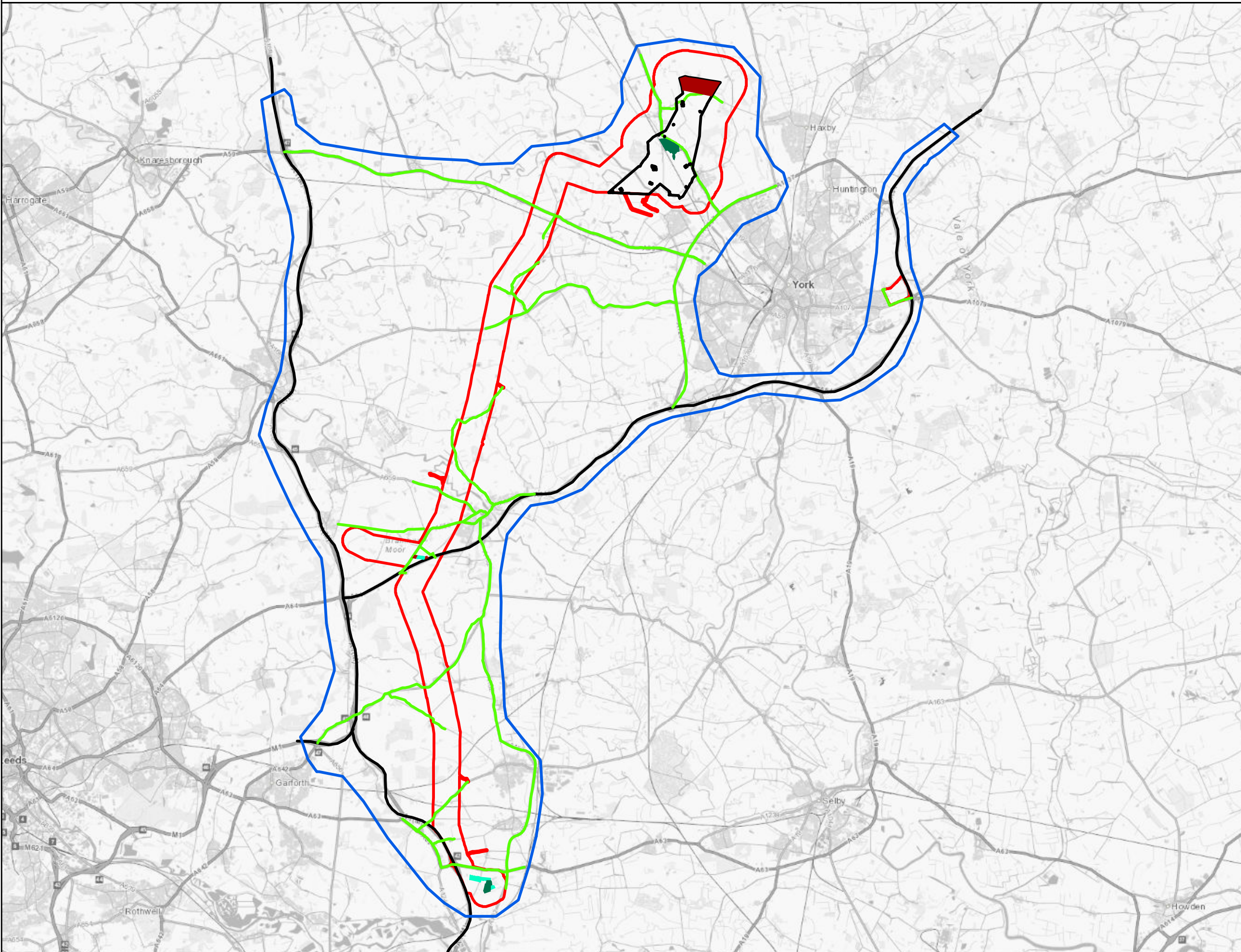
- 12.7.23 As outlined earlier in this Section, further collection of baseline data will be carried out through a desk-based assessment supplemented with site based information (for example traffic count data and site visit data).
- 12.7.24 A baseline assessment and analysis of findings will be refined in line with consultation feedback through to DCO submission.
- 12.7.25 Our approach to the traffic and transport assessment as set out in this section will be in accordance with the GEART. The main transport effects will be associated with the construction phase and the traffic movements of the following to and from the transport study area:
- construction staff vehicles, including cars and light vans;
 - Heavy Goods Vehicles (HGVs) –vehicles 3.5t gross weight (>3.5t) delivering materials and equipment; and
 - Abnormal Loads –vehicles longer than 17m and / or wider than 4m.
- 12.7.26 Additional transport related technical documents will be identified through the EIA process. This will include the need for a Construction Traffic Management Plan (CTMP), an AIL Study and a Public Rights of Way Management Plan (PRoWMP). It is considered that a Transport Assessment will not be required as the peak hour traffic flows associated with the Project operational phase are anticipated to be very low and the impact of the operational phase have been scoped out.
- 12.7.27 Where significant transport effects are identified, mitigation requirements will also be presented in the ES.



ROAD NETWORK IN STUDY AREA

Legend

-  New 400kV and 275kV overhead line corridor
-  Proposed Substation Siting Area
-  Proposed Cable Sealing End Compound Siting Area
-  Proposed Associated Infrastructure
-  A, B and C roads
-  Study area
-  Strategic road network
-  Scoping red line boundary

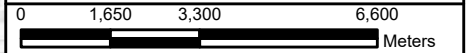


Notes

This drawing is scaled at paper size A3, therefore any prints taken at smaller sizes will affect accuracy of the measurement units and should not be scaled against.



Coordinate System: British National Grid
Sheet X Centroid Coordinate: 453,982.75 Sheet Y Centroid Coordinate: 444,710.92



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Issue	Date	Remarks	Drawn	Checked	Approved

Title

**SCOPING REPORT
CHAPTER 12: TRAFFIC AND
TRANSPORT
ROAD NETWORK IN STUDY AREA**



Figure Number
FIGURE 12.1

Drawing Reference
806503-WOOD-0043

Scale	Sheet Size	Sheet	Issue
1:140,000	A3	SHEET OF	2

13. Air Quality

13. Air Quality

13.1 Introduction

- 13.1.1 The air quality assessment will consider the potentially significant effects on human and ecological receptors that may arise from the construction phase of the Project due to emissions from construction vehicles and machinery, as well as dust emissions from construction activities. There are not expected to be any significant effects to air quality during operation.
- 13.1.2 This chapter of the Scoping Report describes the methodology to be used within the EIA, the datasets to be used to inform the assessment, an overview of the baseline conditions at the site, the likely significant effects to be considered within the assessment, and how these likely significant effects will be assessed for the purpose of an EIA.
- 13.1.3 Air quality interfaces with many other aspects and as such, should be considered alongside:
- Chapter 7: Biodiversity; and
 - Chapter 12: Traffic and Transport.

13.2 Relevant legislation, planning policy and technical guidance

Legislation

- 13.2.1 A summary of the legislation relevant to air quality is provided in **Table 13.1**, whilst relevant planning policies are shown in **Table 13.2**. **Table 13.3** provides the Air Quality Standards (AQS) and Air Quality Objectives (AQO) relevant to this assessment.

Table 13.1 Legislation relevant to Air Quality

Legislation	Legislative context	Section considered
The Environment Act 1995	<p>The Environment Act 1995 relates to a wide range of environmental issues. The Act covers the control of pollution and lays out the responsibility of the governing bodies in the UK responsible for the enforcement of environmental laws.</p> <p>Part IV of the Environment Act 1995 requires that Local Authorities periodically review air quality within their individual areas. This process of Local Air Quality Management (LAQM) is an integral part of delivering the Government's Air Quality Objectives (AQOs).</p>	Section 13.2 (Current Baseline)

Legislation	Legislative context	Section considered
The Air Quality Regulations 2000, United Kingdom	Provides UK Air Quality Objectives (AQOs) for a range of different pollutants, unlike Air Quality Standards, there is no statutory obligation to meet AQOs; AQOs are policy targets often expressed as a maximum ambient concentration not to be exceeded, either without exception or with a permitted number of exceedances, over a specified averaging period.	Section 13.2 (Current Baseline)
The 2007 Air Quality Strategy for England, Scotland, Wales and Northern Ireland ¹⁸⁸	<p>The Environment Act 1995 required the adoption of an Air Quality Strategy containing standards, objectives and measures for improving ambient air quality.</p> <p>The 2007 Air Quality Strategy is designed to meet that requirement and provides a framework for improving air quality at a national and local level and supersedes the previous strategy published in 2000. It imposes a number of obligations on local authorities to manage air quality.</p> <p>Central to the Air Quality Strategy are health-based criteria for certain air pollutants; these criteria are based on medical and scientific reports on how and at what concentration each pollutant affects human health and mirror the Air Quality Objectives (AQOs) set out in the Air Quality (England) Regulations 2000. The AQOs are policy targets often expressed as a maximum ambient concentration not to be exceeded, either without exception or with a permitted number of exceedances, over a specified averaging period.</p>	Section 13.2 (Current Baseline)
The Air Quality Standards (England) Regulations 2010 (Statutory Instrument (SI) 2010/1001), as amended	<p>The Air Quality Standards (AQS) Regulations report limit values at differing averaging periods for certain pollutants. There are limits provided for the protection of human health for SO₂, NO₂, Benzene, CO and Pb. Target values have been set for the concentration of PM_{2.5}.</p> <p>A limit value for the concentration of PM_{2.5} is also provided. All limit values included in these Regulations should not be exceeded.</p> <p>This regulation transposes the European Directive 2008/50/EC into UK law.</p>	Section 13.2 (Current Baseline)

¹⁸⁸ Defra et al, The Air Quality Strategy for England, Scotland Wales and Northern Ireland, 2007

Legislation	Legislative context	Section considered
The Non-Road Mobile Machinery (Type-Approval and Emission of Gaseous and Particulate Pollutants) Regulations 2018 (SI 2018/764)	The Non-Road Mobile Machinery (NRMM) Regulations provide the requirements relating to gaseous and particulate pollutant emission limits and type-approval for internal combustion engines for non-road mobile machinery. This regulation transposes the European Directive 97/68/EC (as amended) into UK law.	Section 13.4 (Likely Significant Effects)

Planning Policy

13.2.2 A summary of the relevant planning policies is given in **Table 13.2**.

Table 13.2 Planning policy relevant to Air Quality

Policy reference	Policy context	Section considered
National Policy		
Overarching National Policy Statement for Energy (EN-1)		
Paragraph 5.2.6, Section 5.2 Air Quality and Emissions	Establishes that where a project is likely to have adverse effects on air quality, an assessment of such impacts must be considered in the Environmental Statement (ES).	Section 13.4
Paragraph 5.2.7, Section 5.2 Air Quality and Emissions	An ES should describe: any significant air emissions, their mitigation and any residual effects distinguishing between the project stages and taking account of any significant emissions from any road traffic generated by the project; the predicted absolute emission levels of the proposed project, after mitigation methods have been applied; existing air quality levels and the relative change in air quality from existing levels; and any potential eutrophication impacts.	Section 13.4
National Policy Statement for Electricity Networks Infrastructure (EN-5)		
N/A	There is no technology specific information relating to Air Quality	N/A
National Planning Policy Framework (NPPF)		
Paragraph 181	“Planning policies and decisions should sustain and contribute towards compliance with relevant limit values or national objectives for pollutants, taking into account	Section 13.4

Policy reference	Policy context	Section considered
	<p>the presence of Air Quality Management Areas (AQMAs) and Clean Air Zones, and the cumulative impacts from individual sites in local areas. Opportunities to improve air quality or mitigate impacts should be identified, such as through traffic and travel management, and green infrastructure provision and enhancement. So far as possible these opportunities should be considered at the plan-making stage, to ensure a strategic approach and limit the need for issues to be reconsidered when determining individual applications. Planning decisions should ensure that any new development in AQMAs and Clean Air Zones is consistent with the local air quality action plan.”</p> <p>There are a number of AQMAs which have been declared by the Local Authorities surrounding the Scoping red line boundary. As such, the assessment will carefully consider the potential impact of the Project and establish whether it might constitute an obstacle to the achievement of strategic objectives that are set out within the air quality action plans of relevant administrative authorities.</p>	

Clean Air Strategy 2019¹⁸⁹

N/A	<p>Defra’s Clean Air Strategy outlines the Government’s proposed ambitions relating to reducing air pollution in order to protect health and nature, whilst boosting the economy. The strategy sits alongside three other UK government strategies: the Industrial Strategy, the Clean Growth Strategy and the 25 Year Environment Plan. The Clean Air Strategy proposes to halve the number of people living in locations where concentrations of particulate matter are above the World Health Organization (WHO) guideline limit of 10 µg/m⁻³ by 2025 and work in close collaboration with industry to explore further opportunities for industrial emissions reductions by developing a series of sector roadmaps to set standards aimed at making UK industry world leaders in clean technology.</p> <p>The Project should not conflict with the Government’s aims of reducing exposure to PM_{2.5} below the WHO guideline as appropriate mitigation will be implemented.</p>	Section 13.4
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Development Plan Policies

Hambleton District Council Local Plan Publication Draft (July 2019)¹⁹⁰:

¹⁸⁹ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/770715/clean-air-strategy-2019.pdf

¹⁹⁰ <https://www.hambleton.gov.uk/downloads/file/1087/lp01-hambleton-local-plan-publication-draft-july-2019>

Policy reference	Policy context	Section considered
Policy RM 4	Air Quality in the emerging Local Plan outlines the Council's commitment to protecting and improving air quality within the District. Proposals will be categorised based on the potential for adverse impact to air quality, with the requirement for mitigation where necessary.	Section 13.3, Section 13.4
York City Council Development Control Plan (April 2005)¹⁹¹		
Policy GP4b	Details circumstances where an air quality assessment is necessary: a) there is a cumulative significant impact of traffic generation (an increase of more than 5% traffic flow), or b) there is a significant number (300 or more spaces) of additional parking to be provided, or c) coach and lorry parking is to be provided, or d) there is already a recognised congestion or air quality problem in the area, or e) there will potentially be significant emissions to the air from sources other than traffic.	Section 13.4
City of York Local Plan Publication Draft (February 2018)¹⁹²		
Policy ENV1	Air Quality requires all major and minor proposed developments to identify sources of emissions to air and submit an emissions statement.	Section 13.4
Selby District Council Local Plan Preferred Options Consultation 2021¹⁹³		
Preferred Approach NE8 – Air Quality	Developments must not: 1. result in further significant air quality deterioration, or the need to declare further Air Quality Management Areas (AQMAs); and 2. result in any increase in the number of people exposed to poor air quality; and 3. conflict with elements of an Authority Air Quality Action Plan (AQAP). Developments will only be permitted where the impact to air quality is acceptable and mechanisms are in place to prevent further exposure.	Section 13.3, Section 13.4
Leeds City Council Core Strategy – Leeds local Plan¹⁹⁴		

¹⁹¹ <https://www.york.gov.uk/downloads/file/2808/the-local-plan-2005-main-document>

¹⁹² <https://www.york.gov.uk/downloads/file/1314/cd001-city-of-york-local-plan-publication-draft-regulation-19-consultation-february-2018->

¹⁹³ https://www.selby.gov.uk/sites/default/files/Local_Plan_PREFERRED_Options_29-01-2021_%28Web%20Version%29.pdf

¹⁹⁴ <https://www.leeds.gov.uk/Local%20Plans/Adopted%20Core%20Strategy/Consolidated%20Core%20Strategy%20with%20CSSR%20Policies%200Sept%202019.pdf>

Policy reference	Policy context	Section considered
EN8 / P10	There are no policies specifically relating to air quality within the Core Strategy, however air quality as used as a rationale for Policy EN8 regarding electric vehicle charging and Policy P10 ensuring that new development does not adversely impact air quality.	Section 13.4

Table 13.3 Relevant Air Quality Standards and Objectives

Pollutant	Averaging period	Value ($\mu\text{g}/\text{m}^3$)
Nitrogen Dioxide (NO ₂)	Annual mean	40
	1-hour mean (not to be exceeded more than 18 times per year)	200
Particulate matter (PM ₁₀)	Annual mean	40
	24-hour mean (not to be exceeded more than 35 times per year)	50
Particulate matter (PM _{2.5})	Annual mean	25

Technical Guidance

13.2.3 A summary of the relevant Technical Guidance is given in **Table 13.4**.

Table 13.4 Technical guidance relevant to Air Quality

Technical Guidance Document	Context
Defra Local Air Quality Management (LAQM) Technical Guidance LAQM.TG16 ¹⁹⁵	Provides guidance for governmental and private sectors to discharge their obligations under the LAQM regime. It contains guidance on numerous areas including, for example, screening tools and methodologies, air quality monitoring, estimating emissions and dispersion modelling.
Institute of Air Quality Management (IAQM) Guidance on the Assessment of Dust from Demolition and Construction (2014) ¹⁹⁶	Provides a four-step process for evaluating the risk associated with dust emissions from construction and demolition sites on different types of receptor with respect to dust soiling, health effects and ecological effects.

¹⁹⁵ Defra. (2018). *Local Air Quality Management Technical Guidance (TG16)*. February 2018. [online]. Available at: <https://laqm.defra.gov.uk/documents/LAQM-TG16-February-18-v1.pdf> [Accessed January 2021].

¹⁹⁶ IAQM. (2016). *Guidance on the assessment of dust from demolition and construction*. Version 1.1. Institute of Air Quality Management, London.

Technical Guidance Document	Context
Environmental Protection UK & IAQM Land-Use Planning and Development Control: Planning for Air Quality (2017) ¹⁹⁷	Provides a procedure for screening potential air quality effects of new development and a procedure for assessing the significance of air quality effects in planning applications.
IAQM Guide to the Assessment of Air Quality Impacts on Designated Nature Conservation Sites (2020) ¹⁹⁸	Provides guidance on the air quality impacts of development on designated nature conservation sites but establishes that the assessment of the effects that air quality impacts may have on habitats and species should be the responsibility of a suitability qualified and experienced ecologist.
National Grid Environmental Action Plan (2019) ¹⁹⁹	This document outlines National Grid's Electricity and Transmission approach and methodology to developing an Environmental Action Plan to reduce the environmental impact of the network. It identifies high opportunity environmental aspects to work towards relating to air quality: <ul style="list-style-type: none"> • reduction in capital carbon from construction design as much as is feasible and offset the remaining to deliver net zero carbon emissions during construction, and • alternative fuel construction vehicles to reduce impact on transport and logistics.
Highways England Design Manual for Roads and Bridges (DMRB) LA 105 ²⁰⁰	Provides a procedure for screening potential air quality effects of new and existing roads and a procedure for assessing the significance of air quality effects associated with traffic emissions.

13.3 Consultation and engagement

13.3.1 In respect of air quality, focussed engagement (through both informal and formal consultation) will be undertaken and recorded throughout the pre-application stages of the project. Engagement will be undertaken with the environmental health teams at the local authorities falling within the Study Area (Hambleton District Council, Harrogate Borough Council, Selby District Council and City of York Council, Wakefield Metropolitan District Council and Ryedale District Council, Leeds City Council).

¹⁹⁷ IAQM (2017). *Land-Use Planning & Development Control: Planning for Air Quality*. Version 1.2. Institute of Air Quality Management, London.

¹⁹⁸ IAQM. (2019). A guide to the assessment of air quality impacts on designated nature conservation sites. Version 1.0. Institute of Air Quality Management, London.

¹⁹⁹ <https://www.nationalgrid.com/uk/electricity-transmission/document/131996/download>

²⁰⁰ Highways England, Transport Scotland, Welsh Government and Department for Infrastructure. Design Manual for Roads and Bridges (DMRB): LA 105 Air quality (2019). [online]. Available from: <https://www.standardsforhighways.co.uk/prod/attachments/10191621-07df-44a3-892e-c1d5c7a28d90> (Accessed January 2021).

13.4 Baseline conditions

Data gathering methodology

Study Area

- 13.4.1 The approach to defining the Scoping red line boundary is set out in **Chapter 2**. This is shown in **Figure 13.1** and has been used to inform the spatial scope of the air quality assessment. The methodological approach to deciding upon the spatial extent of the Study Area for air quality has been informed by the IAQM (2014, 2017 and 2019) guidance documents. The guidance documents will be used to screen for the requirement to undertake a detailed air quality assessment and inform the construction dust assessment.
- 13.4.2 Construction activities associated with the project will include construction of the cable sealing end compounds (CSEC) and substations, overhead line infrastructure, trench works associated with underground cabling (to connect CSECs) and construction access routes or haul roads, as appropriate.
- 13.4.3 The following criteria, included in IAQM construction guidance, has been taken into account to determine the air quality Study Area should a detailed air quality assessment of dust emissions produced by construction activities be required:
- A human receptor within:
 - 350m of the boundary of the construction working area considered; or
 - 50m of the route(s) used by construction vehicles on construction haulage routes, including the public highway, up to 500m from where the public highway meets the entrance(s) to the construction working area(s).
 - An ecological receptor within:
 - 50m of the boundary of the site considered; or
 - 50m of the route(s) used by construction vehicles on construction haulage routes, including the public highway, up to 500m from where the public highway meets the entrance(s) to the construction working area(s).
- 13.4.4 The Scoping red line boundary incorporates buffers and land that may be required to facilitate the works, including construction access routes (see **Section 2.3**) as a final preferred option for the alignment of the new overhead lines, CSEC's and new substations has not yet been confirmed. Therefore for the purposes of this Scoping Report the air quality Study Area comprises the Scoping red line boundary plus a 350m buffer (**Figure 13.1**). Information regarding site access and construction routes is unavailable at this time, however, given the approach to defining the Scoping red line boundary, it is considered that 350m buffer would be sufficient to identify potential receptors affected by dust from construction vehicles accessing the construction working areas.
- 13.4.5 At this time, specific information about construction vehicle movements is not available. However, based on professional judgement of similar electricity infrastructure projects

(such as Viking Link²⁰¹), as well as liaison with the Traffic and Transport Consultants for the Project, it is considered unlikely that a detailed air quality assessment will be required based on the screening criteria provided by IAQM included in Table 13.5.

Table 13.5 Screening criteria for detailed air quality assessment of road traffic emissions

Nature of impact	Screening criteria for Detailed Air Quality Assessment
Cause a significant change in Light Duty Vehicle (LDV) traffic flows on local roads with relevant receptors (LDV = cars and small vans <3.5t gross vehicle weight).	A change of LDV flows of: <ul style="list-style-type: none"> • more than 100 Annual Average Daily Traffic (AADT) within or adjacent to an AQMA; or • more than 500 AADT elsewhere.
Cause a significant change in Heavy Duty Vehicle (HDV) flows on local roads with relevant receptors (HDV = goods vehicles + buses >3.5t gross vehicle weight).	A change of HDV flows of: <ul style="list-style-type: none"> • more than 25 AADT within or adjacent to an AQMA; or • more than 100 AADT elsewhere.
Realign roads, i.e. changing the proximity of receptors to traffic lanes.	Where the change is 5m or more and the road is within an AQMA.
Introduce a new junction or remove an existing junction near to relevant receptors.	The introduction of a new junction or removal of a junction will lead to a detailed air quality assessment when this addition or removal causes traffic to significantly change vehicle acceleration or deceleration, for example, traffic lights, or roundabouts.
Introduce or change a bus station.	Where bus flows will change by: <ul style="list-style-type: none"> • more than 25 AADT within or adjacent to an AQMA; or • more than 100 AADT elsewhere.

Note: Taken from IAQM guidance Land-Use Planning and Development Control: Planning for Air Quality (2017).

13.4.6 Construction vehicle data will be reviewed as it becomes available. If a detailed air quality assessment of road traffic emissions is required, a spatial area of up to 200 m from any road section experiencing the effects described in **Table 13.5** will be included in the assessment in line with DMRB guidance so that effects on receptors from construction vehicle pollutant emissions can be assessed.

13.4.7 With regard to sensitive ecological receptors, screening criteria provided by DMRB of a change in AADT flows of 1000 vehicles or 200 HDV, when considered in-combination with other committed proposed developments in the vicinity, would be used to determine the need for a detailed assessment.

²⁰¹ National Grid (2017) UK Onshore Scheme Environmental Statement. Available online: https://viking-link.com/media/1373/es_a_ch04-eia-methods_revfinal.pdf [Accessed 9/2/21]

13.4.8 As the design and consultation processes progress and the Project is refined, the exact geographical scope of the Study Area may continue to evolve to accommodate any changes. If the preliminary Study Area changes, data collection will also be reviewed and updated accordingly.

Temporal scope

13.4.9 The temporal scope of the assessment will be consistent with the construction phase of the Project which is expected to be approximately four years with construction works anticipated to commence in January 2025. The temporal scope will also take into account the peak period of construction activity to assess likely worst case effects.

Summary of data sources

13.4.10 The EIA scoping exercise has been undertaken with reference to **Chapter 2**: The Project, supported by a number of data sources. The principal data sources used to inform this chapter for potential effects comprise of the following:

- Hambleton District Council 2019 Air Quality Annual Status Report (ASR)²⁰²;
- Harrogate Borough Council 2020 Annual Status Report (ASR)²⁰³;
- Selby District Council 2020 Annual Status Report (ASR)²⁰⁴;
- City of York Council 2020 Air Quality Annual Status Report (ASR)²⁰⁵;
- Wakefield Metropolitan District Council 2020 Air Quality Annual Status Report (ASR)²⁰⁶;
- Ryedale District Council 2019 Air Quality Annual Status Report (ASR)²⁰⁷;
- Leeds City Council 2018 Annual Status Report (ASR)²⁰⁸;
- Mapped estimates of background concentrations provided by Defra's UK Air Information Resource (UK-air)²⁰⁹;
- Air Quality Management Area boundaries provided by Defra's UK Air Information Resource (UK-Air)²¹⁰; and
- Designated ecological sites provided by Defra's MAGIC maps²¹¹.

²⁰² Hambleton District Council (2019) 2019 Air Quality Annual Status Report.

²⁰³ Harrogate Borough Council (2020) 2020 Air Quality Annual Status Report.

²⁰⁴ Selby District Council (2020) 2020 Air Quality Annual Status Report

²⁰⁵ City of York Council (2020) 2020 Air Quality Annual Status Report

²⁰⁶ Wakefield Metropolitan District Council (2020) 2020 Air Quality Annual Status Report

²⁰⁷ Ryedale District Council (2019) 2019 Air Quality Annual Status Report.

²⁰⁸ Leeds City Council (2019) 2018 Air Quality Annual Status Report.

²⁰⁹ Defra. (2021). Background mapping data for local authorities. [online]. Available at: <https://uk-air.defra.gov.uk/data/laqm-background-home> [Accessed 11/2/21].

²¹⁰ Defra (2021) Air Quality Management Areas interactive map. [online]. Available at: <https://uk-air.defra.gov.uk/aqma/maps/?t=635888318453327355> [Accessed 11/2/21].

²¹¹ Defra (2021) MAGIC. [online]. Available at: <https://magic.defra.gov.uk/MagicMap.aspx> [Accessed on 11/2/21].

Current baseline

Dust deposition

13.4.11 Ambient dust deposition rates are not monitored extensively in the UK. Monitoring that is undertaken is usually connected with specific activities such as mining and mineral extraction operations or specific large-scale construction programmes. Dust monitoring may also be undertaken to investigate specific complaints received by local authorities, who are then required to investigate dust nuisance under the Environmental Protection Act 1990.

Pollutant concentrations

13.4.12 The Study Area of the air quality assessment for the Project, which should be regarded as preliminary at this stage and will be informed by further desk and site-based analysis, covers the jurisdictional areas of Hambleton District Council, Harrogate Borough Council, Selby District Council, Leeds City Council and City of York Council, with Wakefield Metropolitan District Council and Ryedale District Council in fairly close proximity. **Table 13.6** details the AQMAs declared by the Local Authorities, shown on **Figure 13.2**.

13.4.13 On reviewing the location of AQMAs in relation to the Study Area, and in consultation with the Traffic and Transport Consultants for the Project, it is considered unlikely that construction traffic would be routed through the majority of the AQMAs as they are predominantly located in urban centres, as detailed in **Table 13.6**. **Figure 13.2** shows those AQMAs within 10km of the Scoping red line boundary. It is possible that some construction traffic would pass through A1 AQMA and Knottingley AQMA, both declared by Wakefield Metropolitan District Council. However, the Wakefield Metropolitan District Council 2020 ASR states that concentrations of annual mean NO₂ have consistently been low in both AQMAs and the boundaries are under review. This will be reviewed when more information is made available regarding construction traffic routes for the Project.

13.4.14 In addition, the entire section of the M62 (**Figure 13.2**) within Wakefield Metropolitan District Council jurisdiction, that was declared as an AQMA in 2006, was revoked in December 2020 due to consistently low annual mean concentrations of NO₂ over the previous 5 years. This section of the M62 will remain a consideration as more information on construction traffic routing becomes available.

Table 13.6 Screening criteria for detailed air quality assessment of road traffic emissions

Local Authority	AQMA	Declaration for	Distance to Scoping red line boundary (km)
Hambleton District Council	None	-	-
Harrogate Borough Council	Knaresborough AQMA 1	NO ₂ annual mean	15.8
	Ripon AQMA No1	NO ₂ annual mean	26.0

Local Authority	AQMA	Declaration for	Distance to Scoping red line boundary (km)
	Knaresborough AQMA No 2	NO ₂ annual mean	15.2
	Harrogate AQMA No 1	NO ₂ annual mean	18.6
Selby District Council	AQMA No 1	NO ₂ annual mean	14.1
City of York Council	AQMA No 5	NO ₂ annual mean	2.0
Wakefield Metropolitan District Council	M1 AQMA	NO ₂ annual mean	18.3
	A1 AQMA	NO ₂ annual mean	5.6
	M62 AQMA (Revoked Dec 20)	NO ₂ annual mean	2.3
	Wakefield City AQMA	NO ₂ annual mean	13.6
	Castleford AQMA	NO ₂ annual mean	5.0
	Featherstone AQMA	NO ₂ annual mean	10.1
	Pontefract AQMA	NO ₂ annual mean	7.1
	Knottingley AQMA	NO ₂ annual mean	4.5
	City of Wakefield Hemsworth AQMA	NO ₂ annual mean	16.1
	Ackworth (Revoked Dec 20)	NO ₂ annual mean	11.1
Ryedale District Council	Malton AQMA	NO ₂ annual mean	23.2
Leeds City Council	Leeds AQMAs	NO ₂ annual mean	15.2

Note: WMDC revoked AQMAs included for reference only.

13.4.15 Under LAQM duties, Local Authorities are required to monitor air quality concentrations. There are no monitoring locations within the Scoping red line boundary as shown in **Figure 13.2**. Pollutant concentrations recorded at monitoring locations within 10 km of the Scoping red line boundary are presented in **Appendix 13.1**. When construction traffic routes are available, relevant monitoring locations will be reviewed.

13.4.16 Generally, annual mean concentrations of NO₂ within 10 km of the Scoping red line boundary were below the 40 µg/m³ AQO between 2016 and 2019. There were some exceedances of the AQO in urban centres of York and Leeds. It is not expected that any construction traffic will be routed through these areas.

13.4.17 In terms of annual mean PM₁₀ concentrations, York City Council operate four continuous monitors within 10 km of the Scoping red line boundary. All monitored annual mean concentrations of PM₁₀ were below the 40 µg/m³ AQO between 2016 and

2019. The greatest concentration recorded was at Fishergate (CM2) at 21.9 µg/m³ in 2019. This location also recorded the highest number (8) of breaches of the daily mean of 50µg/m³, which is still well within the short-term AQO. This continuous monitor is located in the centre of York and, therefore, not considered to be representative of conditions in the proximity of the Study Area at which concentrations would be expected to be lower.

13.4.18 York City Council also monitors annual mean PM_{2.5} concentrations at three locations within the centre of York. In 2019, annual mean concentrations were in the range of 7.6 – 11.1 µg/m³.

13.4.19 The UK-AIR website provides data for background concentrations of NO_x, NO₂, PM₁₀ and PM_{2.5}. These background concentrations represent 1km² grid squares. **Figures 13.3 to 13.5** show the estimated background concentrations for the area in the vicinity of the Scoping red line boundary. As expected for all pollutants, background concentrations in the vicinity of the Scoping red line boundary are low, due to the predominantly rural nature of the area, when compared to the urban centres such as York or Leeds.

Future baseline

13.4.20 In the intervening years up to proposed operation of the Project in 2027, it is expected there would be a gradual decline in pollutant concentrations as a result of expected improvements in air quality resulting from measures such as the implementation of the Government's Clean Air Strategy objectives, improvements in real world emissions performance of road vehicles, and more stringent emission limits for industrial sources as environmental permits for operators covering the various industrial sectors are updated in a phased manner to bring them in line with the requirements of the Industrial Emissions Directive. However, as a conservative approach, it is proposed that such anticipated reductions are not reflected in the future background should a detailed assessment be required.

13.4.21 With regard to the potential effects of climate change on the future air quality baseline, the 2007 report produced by the Air Quality Expert Group (AQEG)²¹² indicated that the winter season may become windier with fewer less stable weather conditions by the end of the century, whilst summer seasons are anticipated to become hotter and sunnier, with an increase in unstable weather conditions by the 2040s. The net effect of these anticipated changes on the baseline air quality is difficult to establish but is unlikely to significantly alter the baseline air quality to an extent that it would affect the outcome of any assessment. Other factors such as changes in technology and the move away from combusting fossil fuels, driven by climate change abatement would potentially lead to decreases in emissions of the key pollutants considered in this assessment and a corresponding decrease in background concentrations of air pollutants into the future.

13.5 Embedded Environmental Measures

13.5.1 Measures to control dust and pollutant emissions during construction activities, and their effects on local residents and the surrounding area, would be included in a Construction

²¹² Air Quality Expert Group (AQEG). (2007). *Air Quality and Climate Change: A UK Perspective*. Defra, London.

Environmental Management Plan (CEMP) to be implemented by National Grid/ contractors during the construction period.

13.5.2 At the scoping stage, there is insufficient information about the construction phase of the Project to undertake a construction dust risk assessment to determine the level of mitigation required. In accordance with National Grid's commitment to reduce the environmental impact of the network, it has been assumed that the highest appropriate level of mitigation will be implemented. This approach assumes that all actions to avoid or reduce the environmental effects are an inherent part of the Project. **Appendix 13.2** outlines the most stringent mitigation measures to reduce impact to the environment as available in IAQM's *Guidance on the Assessment of Dust from Demolition and Construction*.

13.6 Scope of the assessment

Potential receptors

13.6.1 Receptors potentially affected by the Project comprise residents living in close proximity to the Scoping red line boundary and along construction routes, as well as schools and recreational areas. In addition, there are also statutory and non-statutory biodiversity sites in the locality which may be susceptible to direct exposure to air pollutants emitted during the construction of the Project and through indirect effects associated with nitrogen and acid deposition.

Construction dust

13.6.2 IAQM Guidance on 'Assessment of dust from demolition and construction' defines potentially sensitive receptors as:

- Human Receptors within:
 - 350 m of the boundary of the site; or
 - 50 m of the route(s) used by construction vehicles on the public highway, for sections of highway up to 500m from the point where the public highways meets the access point to the construction works.
- Ecological receptor within:
 - 50 m of the boundary of the site; or
 - 50 m of the route(s) used by construction vehicles on the public highway for sections of highway up to 500m from the point where the public highways meets the access point to the construction works.

13.6.3 **Figure 13.1** shows a 350 m buffer from the Scoping Red Line Boundary in which human receptors may be impacted by construction activities. This includes villages on the outskirts of York, such as Skelton, Shipton and North Poppleton; the western edge of Tadcaster; the village of Newthorpe, which is close to Monk Fryston; as well as isolated groups of properties or farms along the route.

13.6.4 There are no internationally or nationally designated ecologically sensitive sites within 50 m of the Scoping red line boundary.

Construction vehicles

13.6.5 It is likely that the threshold for detailed assessment of impacts to air quality (see **Table 13.5**) from construction vehicle emissions (i.e. >100 HDV outside of an AQMA for human receptors, or >200 HDV in combination with other projects at ecological receptors) will not be met. However, if this is not the case, guidance from Defra in LAQM.TG16 establishes that exceedances of the human health-based objectives should only be assessed at outdoor locations where members of the general public are regularly present over the averaging time of the objective. **Table 13.7** provides an indication of those locations that may be relevant for different averaging periods, as extracted from LAQM.TG16.

Table 13.7 Typical examples of locations for different averaging periods

Averaging period	Objectives should apply	Objectives should not apply
Annual mean	<p>All locations where members of the public might be regularly exposed.</p> <p>Building facades of residential properties, schools, hospitals, care homes etc.</p>	<p>Building facades of offices or other places of work where members of the public do not have regular access.</p> <p>Hotels, unless people live there as their permanent residence.</p> <p>Gardens of residential properties.</p> <p>Kerbside sites (as opposed to locations at the building façade), or any other location where public exposure is expected to be short term.</p>
24-hour mean, and 8-hour mean	<p>All locations where the annual mean objectives would apply, together with hotels.</p> <p>Gardens of residential properties</p>	<p>Kerbside sites (as opposed to locations at the building façade), or any other location where public exposure is expected to be short term.</p>
1-hour mean	<p>All locations where the annual mean 24 and 8-hour mean objectives would apply.</p> <p>Kerbside sites (e.g. pavements of busy shopping streets).</p> <p>Those parts of car parks, bus stations and railway stations etc. which are not fully enclosed, where the public might reasonably be</p>	<p>Kerbside sites where the public would not be expected to have regular access.</p>

Averaging period	Objectives should apply	Objectives should not apply
	expected to spend one hour or more.	
	Any outdoor locations at which the public may be expected to spend one hour or longer.	
15-min mean	All locations where members of the public might reasonably be expected to spend a period of 15 minutes or longer.	

13.6.6 Although at this stage of the Project estimates of construction vehicle movements are not available, the volume of traffic flows is expected to be below those set out in the screening criteria (**Table 13.5**). This is in line with the approach taken on similar electricity infrastructure projects (such as Viking Link²¹³). For example on the Richborough Connection Project²¹⁴, all predicted average HDV construction vehicle flows were 26 two way movements per day or less, well below the 100 AADT criterion outlined in **Table 13.5**. In addition as construction vehicle flows move away from the construction working areas along the highway network they would dissipate and therefore it is unlikely that the criteria outlined in **Table 13.5** for AQMAs would be exceeded either. Finally, effects would be temporary for the duration of construction works and the criteria outlined in **Table 13.5** relate to the permanent operation of a development rather than temporary construction traffic. During operation vehicle flows are also likely to be minimal and associated with occasional maintenance works and a limited number of staff (e.g. less than 10) accessing the substations. If after review of construction vehicle numbers and routes a detailed assessment is deemed necessary, sensitive human receptors will be selected in line with **Table 13.7**.

13.6.7 In terms of sensitive ecological sites, should a detailed assessment be required, designated European Sites in line with DMRB guidance, as well as Sites of Special Scientific Interest as detailed in **Chapter 7** Biodiversity, within 200 m of roads that exceed the DMRB threshold (i.e. >200 HDVs in-combination with other developments) will be considered.

Likely significant effects

13.6.8 There are not expected to be any significant Air Quality effects to be taken forward for assessment in the ES.

13.6.9 The effects scoped out from further assessment in the ES are:

- Effect of construction dust on human health and amenity as the mitigation measures detailed in **Section 13.3** and **Appendix 13.2** to be included in a CEMP will minimise

²¹³ National Grid (2017) UK Onshore Scheme Environmental Statement. Available online: https://viking-link.com/media/1373/es_a_ch04-eia-methods_revfinal.pdf [Accessed 9/2/21]

²¹⁴ National Grid (2016), Table 12.6, Document 5.2 (Part 2 of 2) Environmental Statement Chapters 11-16 [https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN020017/EN020017-000216-5.2%20\(Part%20of%20\)%20Environmental%20Statement%20-%20Chapters%2011%20-%2016.pdf](https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN020017/EN020017-000216-5.2%20(Part%20of%20)%20Environmental%20Statement%20-%20Chapters%2011%20-%2016.pdf)

dust emissions from construction activities and there are not expected to be any residual effects.

- Effect of dust from construction activities on high and medium sensitive ecological receptors (internationally and nationally designated nature conservation site) due to distance being greater than 50m distant from the Scoping red line boundary.
- Effect of pollutant emission from Non-Road Mobile Machinery as emissions are controlled by the Non-Road Mobile Machinery (Emission of Gaseous and Particulate Pollutants) Regulations 2018 and the scale, duration and distance of construction activity to relevant receptors is not considered to be of a magnitude that would require detailed assessment.
- Effects of pollutant emissions from construction vehicles on both human and ecological receptors as, based on consultation with the Traffic and Transport Consultants, it is unlikely that the screening criteria in the IAQM's *Land-Use Planning & Development Control: Planning for Air Quality* will be met.
- All effects relating to operation of the Project as minimal traffic flows are likely as detailed in Chapter 12 Traffic and Transport.

13.7 Assessment methodology

13.7.1 The proposed generic project-wide approach to the assessment methodology is set out in **Chapter 4**, and specifically in **Section 4.3**.

13.7.2 It is not expected any further assessment will be required in terms of Air Quality based on the information available at this stage of the Project and professional judgement.

13.7.3 The implementation of dust control measures in a CEMP would mitigate impacts of construction dust at human receptors. There is the potential for ecological surveys to identify dust-sensitive plant species. Should such receptors be identified as part of the ecological surveys then further assessment will be undertaken in accordance with the IAQM Guidance²¹⁵.

13.7.4 In relation to construction traffic emissions, this is subject to confirmation that construction traffic volumes would not exceed the threshold for detailed assessment. Should it be determined that a more detailed assessment of construction traffic emissions is required, incremental changes to concentrations of NO_x, NO₂, PM₁₀ and PM_{2.5} associated with construction phase road traffic movements will be predicted at receptors within 200 m of affected roads using the ADMS Roads dispersion model and the latest emission factors from Defra's Emissions Factor Toolkit (EFT)²¹⁶ that are available at the time of the assessment. The output from the model will be verified using the results from roadside diffusion tube monitoring undertaken by Local Authorities in the vicinity of the Project.

²¹⁵ IAQM. (2016). Guidance on the assessment of dust from demolition and construction. Version 1.1. Institute of Air Quality Management, London.

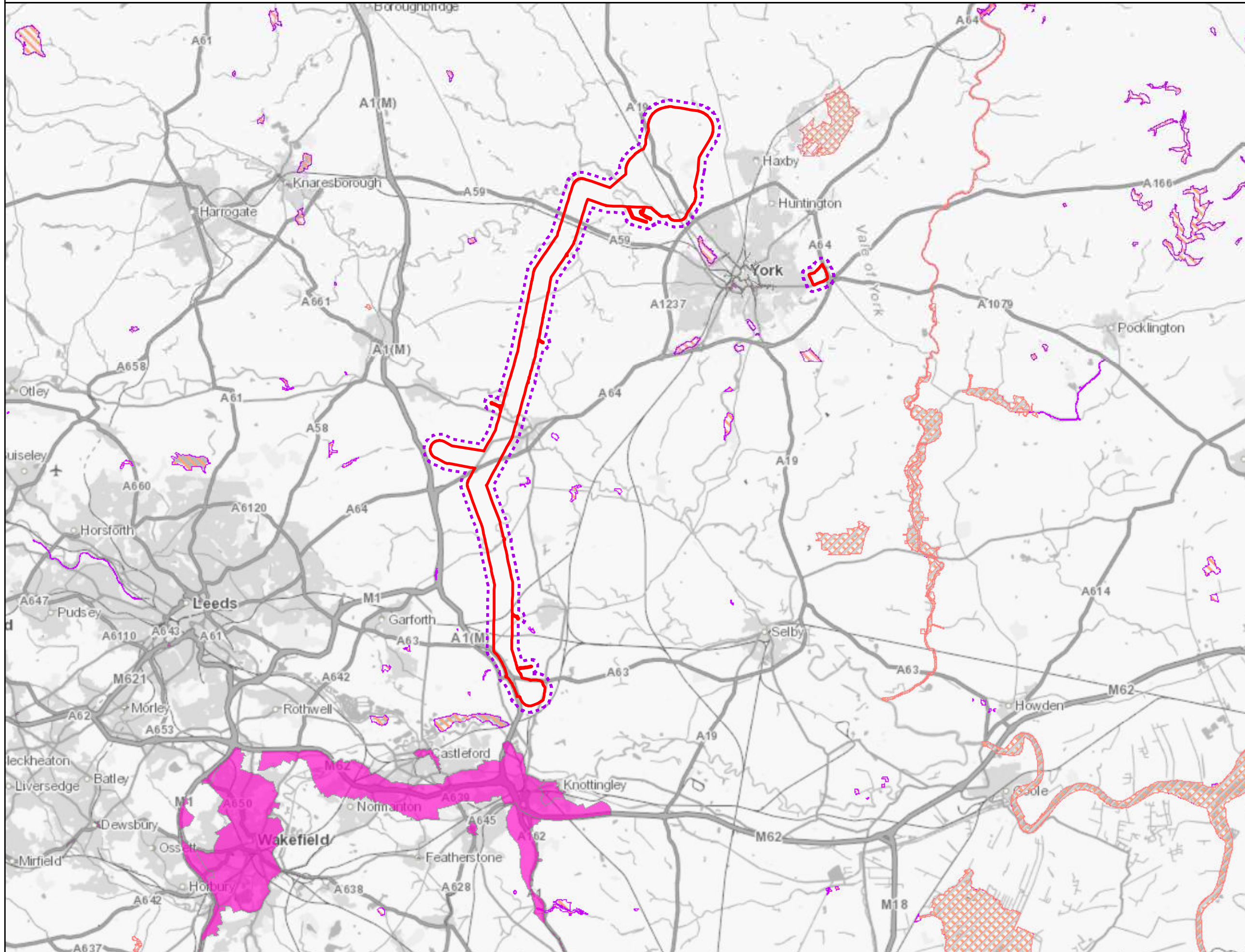
²¹⁶ https://iaqm.defra.gov.uk/documents/Updated_NOx_from_NO2_Calculator_fno2_v8.1.pdf



AIR QUALITY
ASSESSMENT CONSTRAINTS

Legend

- Scoping red line boundary
- 350m buffer
- Air Quality Management Areas (AQMA)
- Special Areas of Conservation
- Sites of Special Scientific Interest

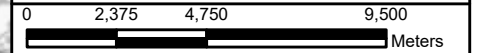


Notes

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1	MAR 21	NIL	PINDS	DIMMR	CHADC
Issue	Date	Remarks	Drawn	Checked	Approved

Title

**SCOPING REPORT
CHAPTER 13: AIR QUALITY**

**AIR QUALITY
ASSESSMENT CONSTRAINTS**



Figure Number: FIGURE 13.1

Drawing Reference: 806503-WOOD-0037

Scale	Sheet Size	Sheet	Issue
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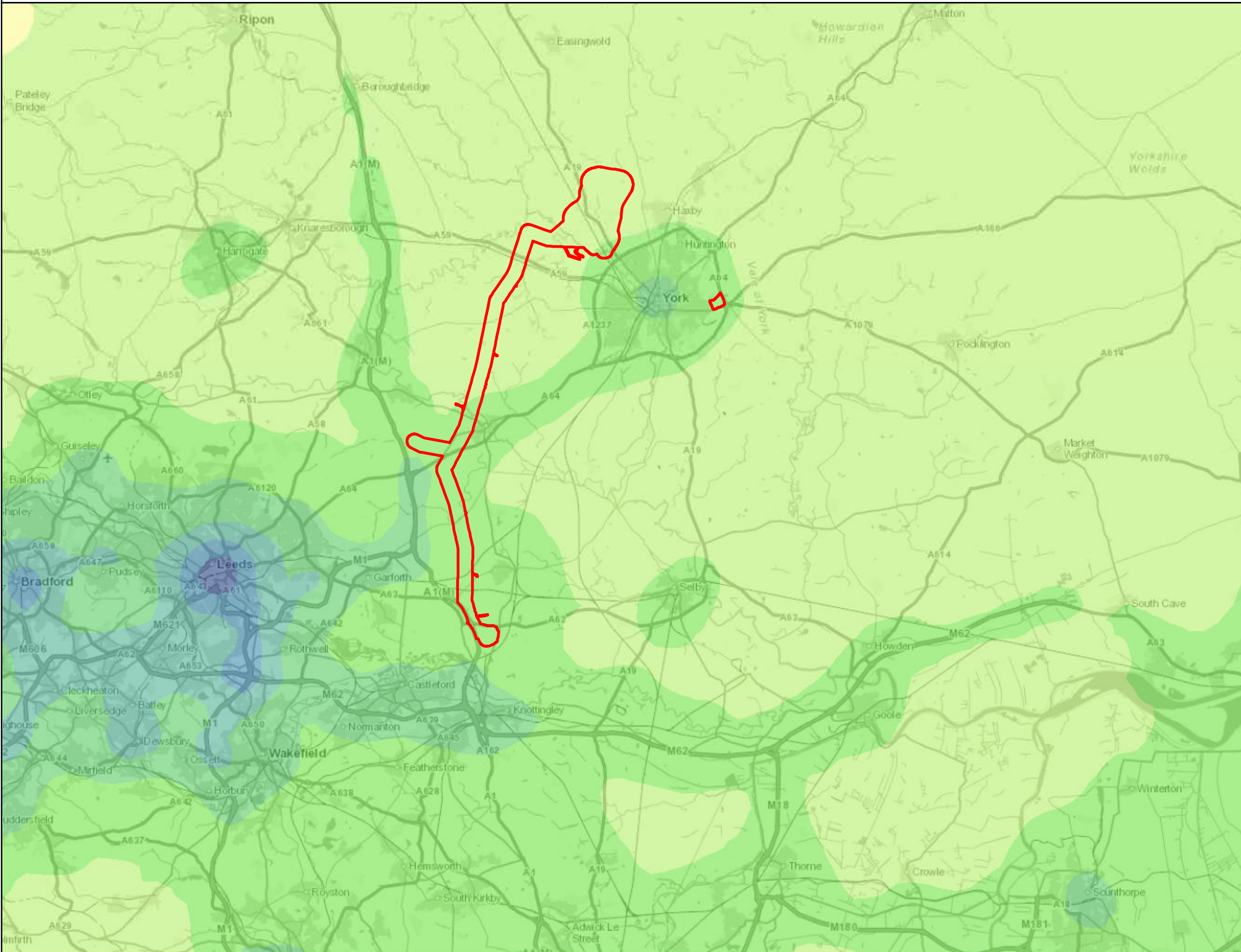
BACKGROUND NITROGEN OXIDES CONCENTRATIONS

Legend

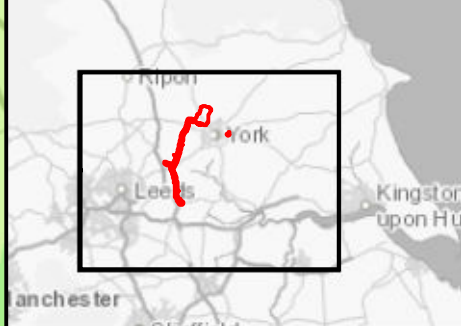
Scoping red line boundary

Predicted 2021 background concentration NOx ($\mu\text{g}/\text{m}^3$)

- <5
- 5 - 10
- 10 - 15
- 15 - 20
- 20 - 25
- 25 - 30
- 30 - 35
- 35 - 40



Notes
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0 2,950 5,900 11,800
Meters

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Issue	Date	Remarks	Drawn	Checked	Approved

Title

SCOPING REPORT
CHAPTER 13: AIR QUALITY

BACKGROUND NITROGEN OXIDES CONCENTRATIONS



Figure Number	FIGURE 13.3		
Drawing Reference	806503-WOOD-0039		
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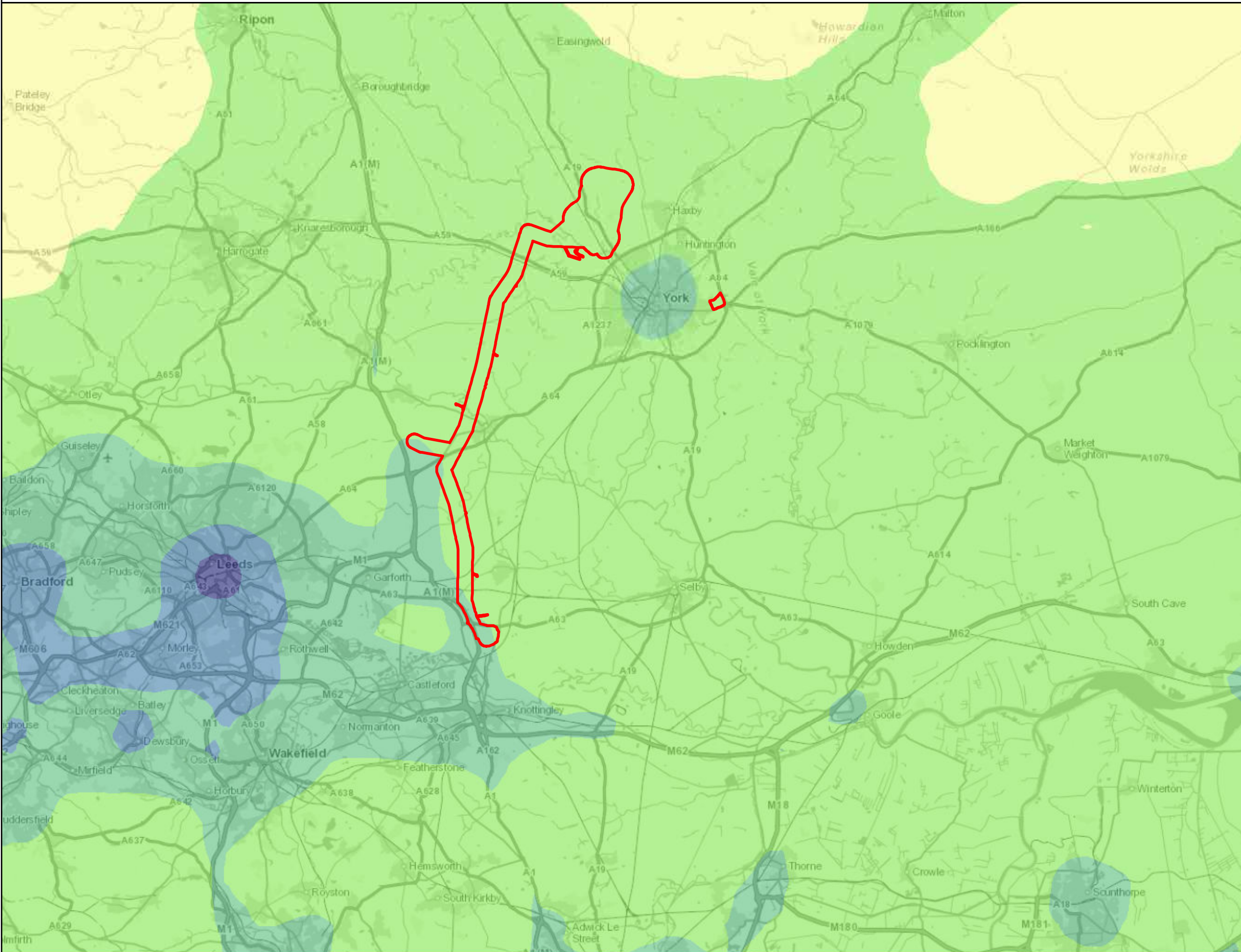
BACKGROUND NITROGEN DIOXIDE CONCENTRATIONS

Legend

Scoping red line boundary

Predicted 2021 background concentration NO₂ (µg/m³)

- <5
- 5 - 10
- 10 - 15
- 15 - 20
- 20 - 25

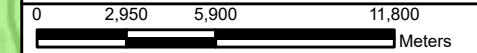


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1	MAR 21	NIL	PINDS	DIMMR	CHADC
Issue	Date	Remarks	Drawn	Checked	Approved

Title

**SCOPING REPORT
CHAPTER 13: AIR QUALITY**

BACKGROUND NITROGEN DIOXIDE CONCENTRATIONS



Figure Number: FIGURE 13.4

Drawing Reference: 806503-WOOD-0040

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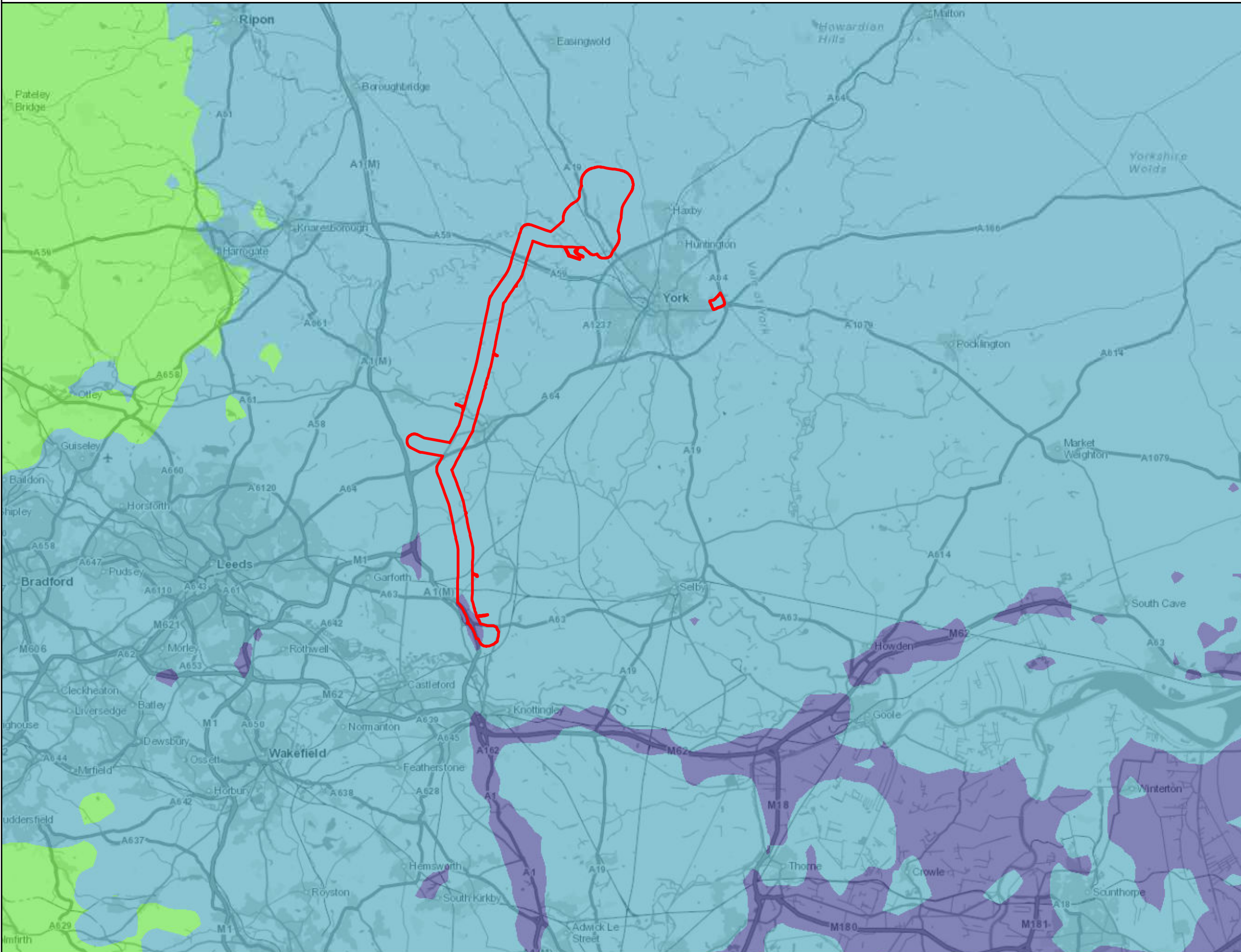
BACKGROUND PM10 CONCENTRATION

Legend

Scoping red line boundary

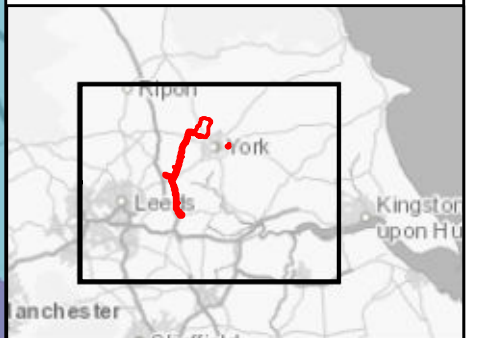
Predicted 2021 background concentration PM10 ($\mu\text{g}/\text{m}^3$)

- <5
- 5 - 10
- 10 - 15
- 15 - 20



Notes

This drawing is scaled at paper size A3, therefore any prints taken at smaller sizes will affect accuracy of the measurement units and should not be scaled against.



Coordinate System: British National Grid
 Sheet X Centroid Coordinate: 498,125.76 Sheet Y Centroid Coordinate: 439,785.66

0 2,950 5,900 11,800
 Meters

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1	MAR 21	NIL	PINDS	DIMMR	CHADC
Issue	Date	Remarks	Drawn	Checked	Approved

Title
**SCOPING REPORT
 CHAPTER 13: AIR QUALITY**
 BACKGROUND PM10 CONCENTRATION

Figure Number	FIGURE 13.5		
Drawing Reference	806503-WOOD-0042		
Scale	Sheet Size	Sheet	Issue
1:250,000	A3	SHEET 1 OF 1	1



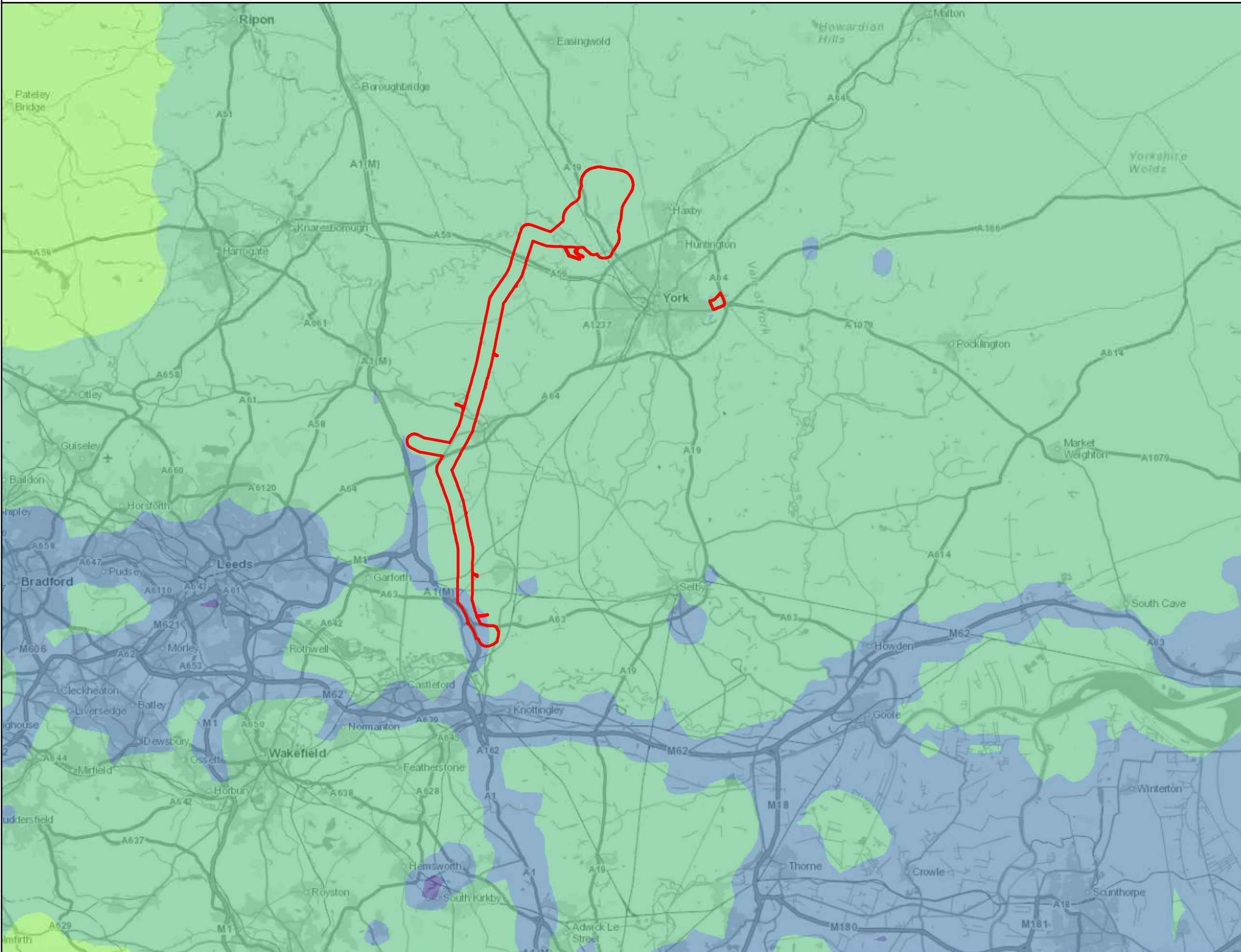
BACKGROUND PM2.5 CONCENTRATION

Legend

Scoping red line boundary

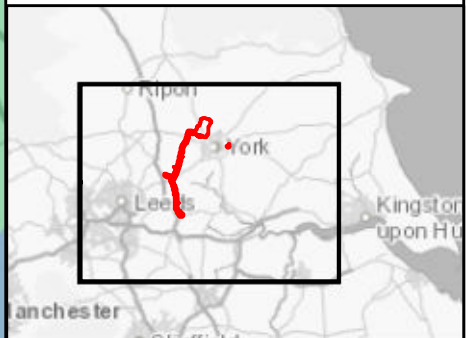
Predicted 2021 background concentration PM2.5 ($\mu\text{g}/\text{m}^3$)

- <4
- 4 - 6
- 6 - 8
- 8 - 10
- 10 - 12



Notes

This drawing is scaled at paper size A3, therefore any prints taken at smaller sizes will affect accuracy of the measurement units and should not be scaled against.



Coordinate System: British National Grid
 Sheet X Centroid Coordinate: 498,125.76 Sheet Y Centroid Coordinate: 439,785.66

0 2,950 5,900 11,800
 Meters

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1	MAR 21	NIL	PINDS	DIMMR	CHADC
Issue	Date	Remarks	Drawn	Checked	Approved

Title

**SCOPING REPORT
CHAPTER 13: AIR QUALITY**

BACKGROUND PM2.5 CONCENTRATION

Figure Number	FIGURE 13.6		
Drawing Reference	806503-WOOD-0041		
Scale	Sheet Size	Sheet	Issue
1:250,000	A3	SHEET 1 OF 1	1

14. Noise and Vibration

14. Noise and Vibration

14.1 Introduction

14.1.1 The noise and vibration assessment will consider the potentially significant effects on noise sensitive receptors that may arise from the construction and operation of the Project. This chapter of the Scoping Report describes the methodology to be used within the noise and vibration assessment within the EIA, an overview of the baseline conditions with the Scoping red line boundary, the likely significant effects to be considered within the assessment, and how these likely significant effects will be assessed for the purpose of an EIA.

14.1.2 Noise and vibration effects interface with other aspects and as such, may need to be considered alongside the following topics:

- Chapter 5: Landscape and visual;
- Chapter 7: Biodiversity; and
- Chapter 12: Traffic and Transport.

14.2 Relevant legislation, planning policy and technical guidance

Legislation

14.2.1 A summary of the relevant legislation is given in **Table 14.1**.

Table 14.1 Legislation relevant to noise and vibration.

Legislation	Legislative context	Section considered
The Environmental Protection Act 1990²¹⁷ (as amended by the Noise and Statutory Nuisance Act 1993²¹⁸) (particularly Section 79) (EPA)	<p>The EPA sets out: the definition of statutory nuisance due to noise; the duty on local authorities to investigate and abate nuisance; and defence against abatement because “best practicable means” has been employed to minimise noise (including vibration) for business premises. The EPA sets out the means for a person affected by noise nuisance to seek abatement through the courts.</p> <p>The Noise and Statutory Nuisance Act sets out an extension of powers to abate noise nuisance to a wider range of sources than the Environmental Protection Act 1990.</p>	Section 14.5 (embedded measures)

²¹⁷ The Environmental Protection Act 1990 [online]. Available at <https://www.legislation.gov.uk/ukpga/1990/43/contents/made> [Accessed 16 February 2021]

²¹⁸ Noise and Statutory Nuisance Act 1993 [online]. Available at <https://www.legislation.gov.uk/ukpga/1993/40/contents/made> [Accessed 16 February 2021]

Legislation	Legislative context	Section considered
The Control of Pollution Act 1974 (particularly Sections 60 and 61) (CoPA)²¹⁹	<p>Sets out the Section 60 notice which a local authority can serve so as to impose requirements upon relevant construction activities with regard to the control of noise.</p> <p>Under section 61 of the CoPA, the party that intends to carry out works to which Section 60 applies may apply to the local authority for consent and “<i>an application under this section shall contain particulars of –</i></p> <p><i>The works, and method by which they are to be carried out; and</i></p> <p><i>The steps proposed to be taken to minimise noise resulting from the works.</i>”</p>	Section 14.5 (embedded measures)
Planning Act 2008²²⁰	In respect of noise nuisance, the Act confers statutory authority unless there is a provision in a granted DCO to the contrary.	

Planning Policy

14.2.2 A summary of the relevant planning policies is given in Table 14.2.

Table 14.2 Planning policy relevant to noise & vibration

Policy reference	Policy context	Section considered
National Policy		
Overarching National Policy Statement for Energy (EN-1)		
Section 5.11, paragraph 5.11.4	Sets out how noise should be assessed where noise impacts are likely to arise from the Project. EN-1 refers to the relevant British Standards for the assessment of operational noise and construction noise (where ‘noise’ is used as an umbrella term for noise and vibration) and refers to further information provided in the technology specific NPSs e.g., EN-5 (see below).	Section 14.6 (assessment methodology)
Paragraph 5.11.8	To demonstrate good design through measures such as selection of the quietest cost-effective plant; containment of noise within buildings; optimisation of plant layout to minimise noise emissions; and the use of landscaping, bunds or noise barriers to reduce noise transmission”.	Section 14.5 (embedded measures)

²¹⁹ The Control of Pollution Act 1974 [online]. Available at <https://www.legislation.gov.uk/ukpga/1974/40/contents/made> [Accessed 16 February 2021].

²²⁰ Planning Act 2008 [online]. Available at <https://www.legislation.gov.uk/ukpga/2008/29/contents/made> [Accessed 16 February 2021].

Policy reference	Policy context	Section considered
Paragraph 5.11.9	To ensure that the SoS should not grant development consent unless it is satisfied that the proposals will meet the three aims of the Noise Policy Statement for England.	Section 14.5 (embedded measures)
Paragraph 5.11.12	Sets out potential mitigation measures	Section 14.5 (embedded measures)
National Policy Statement for Electricity Networks Infrastructure (EN-5)		
Section 2.9	<p>Details specific considerations for the assessment of noise from high voltage transmission lines as they have the potential to generate noise under certain conditions, known as ‘corona discharge’ and caused when the conductor surface electrical stress threshold is exceeded. Generally, transmission line conductors are designed to be operated below this threshold but there are a number of factors which can lead the threshold to be exceeded, such as:</p> <ul style="list-style-type: none"> accidental damage to transmission lines; wet or humid weather conditions; and the accumulations of surface contaminants. <p>EN-5 requires that the noise assessment method addresses these particular issues and in particular considers the effect of rain on operational noise effects.</p>	Section 14.5 (embedded measures), Section 14.6 (assessment methodology)
National Planning Policy Framework (NPPF)²²¹		
Para. 180	<p>Planning decisions should mitigate and reduce to a minimum other adverse impacts and avoid noise giving rise to significant adverse impacts on health and the quality of life from noise from new development;</p> <p>tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value should be identified and protected.</p>	Section 14.5 (embedded measures),
Para. 170	<p>Planning decisions should contribute to and enhance the natural and local environment by preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of noise pollution.</p>	Section 14.5 (embedded measures), Section 14.6 (assessment methodology)
Noise Policy Statement for England (NPSE)²²²		

²²¹ Ministry of Housing, Communities & Local Government (2019). Revised National Planning Policy Framework [online]. Available at: <https://www.gov.uk/government/collections/revised-national-planning-policy-framework> [Accessed 12 February 2021].

²²² Department for Environment, Food & Rural Affairs (2010). Noise Policy Statement for England [online]. Available at: <https://www.gov.uk/government/publications/noise-policy-statement-for-england> [Accessed 12 February 2021].

Policy reference	Policy context	Section considered
Para. 1.6	Sets out the long-term vision of Government noise policy, i.e. to “promote good health and a good quality of life through the effective management of noise within the context of Government policy on sustainable development.”	Section 14.5 (embedded measures),
Para. 1.7	The NPSE vision is supported by aims to effectively manage and control environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development by avoiding significant adverse impacts, mitigating and minimising adverse impacts and contributing to the improvement of health and quality of life.”	Section 14.5 (embedded measures), Section 14.6 (assessment methodology)
Para. 2.20	<p>To identify “significant adverse” and “adverse” impact in line with the three aims of NPSE there are two established concepts from toxicology that are currently being applied to noise impacts, for example, by the World Health Organization:</p> <p>No Observed Effect Level (NOEL): This is the level below which no effect can be detected. In simple terms, below this level, there is no detectable effect on health and quality of life due to the noise</p> <p>Lowest Observed Adverse Effect Level (LOAEL): This is the level above which adverse effects on health and quality of life can be detected. Extending these concepts for the purpose of this NPSE leads to the concept of a significant observed adverse effect level.</p> <p>Significant Observed Adverse Effect Level (SOAEL). This is the level above which significant adverse effects on health and quality of life occur.</p>	Section 14.6 (assessment methodology)
Para 2.24	Where an impact lies somewhere between LOAEL and SOAEL all reasonable steps should be taken to mitigate and minimise adverse effects on health and quality of life while also taking into account the guiding principles of sustainable development (paragraph 1.8). This does not mean that such adverse effects cannot occur.”	Section 14.5 (embedded measures), Section 14.6 (assessment methodology)
Para 2.22	The NPSE notes that “it is not possible to have a single objective noise-based measure that defines SOAEL that is applicable to all sources of noise in all situations. Consequently, the SOAEL is likely to be different for different noise sources, for different receptors and at different times. It is acknowledged that further research is required to increase our understanding of what may constitute a significant adverse impact on health and quality of life from noise. However, not having specific SOAEL values in the NPSE	Section 14.5 (embedded measures), Section 14.6 (assessment methodology)

Policy reference	Policy context	Section considered
	provides the necessary policy flexibility until further evidence and suitable guidance is available.”	
Development Plan Policies		
Selby District Council Local Plan (2005) (saved policies)		
Saved Policy ENV2 A	“Proposals for development which would give rise to, or would be affected by, unacceptable levels of noise, ... will not be permitted unless satisfactory remedial or preventative measures are incorporated as an integral element in the scheme. Such measures should be carried out before the use of the site commences.”	Section 14.5 (embedded measures),
Selby District Council Core Strategy Local Plan (2013)		
Policy SP17	Infrastructure supporting development proposals for new sources of renewable energy and low-carbon energy generation must be designed and located to protect the environment and local amenity or demonstrate that the wider environmental, economic and social benefits outweigh any harm caused to the environment and local amenity, and minimise impacts on local communities.	Section 14.5 (embedded measures), Section 14.6 (assessment methodology)
Policy SP19	Proposals will be expected to have regard to the local character, identity and context of its surroundings and should prevent development from contributing to or being put at unacceptable risk from or being adversely affected by unacceptable levels of noise pollution.	Section 14.5 (embedded measures), Section 9.6 (assessment methodology)
Selby District Council Draft Local Plan		
Preferred Approach SG9	Proposals should protect residential amenity by ensuring proposals do not have adverse impact from disturbance from noise or vibration.	Section 14.5 (embedded measures), Section 14.6 (assessment methodology)
Preferred Approach NE9	Proposals which could give rise to, or would be affected by, noise pollution will not be permitted unless satisfactory remedial or preventative measures are incorporated as an integral element in the scheme before the use of the site commences.	Section 14.5 (embedded measures), Section 14.6 (assessment methodology)
Leeds City Council Saved UDP Review 2006		

Policy reference	Policy context	Section considered
N49	Design of new development, including landscaping, should minimise its potential adverse impact.”	Section 14.5 (embedded measures)
City of York Draft Local Plan Incorporating the 4th Set of Changes (April 2005)		
GP1: Design	Development proposals will be expected to ensure that residents living nearby are not unduly affected by noise or, disturbance.	Section 14.5 (embedded measures), Section 14.6 (assessment methodology)
GP4a: Sustainability	Development should minimise pollution, including that relating to noise.	Section 14.5 (embedded measures), Section 9.6 (assessment methodology)
Policy E7	Development which would give rise to substantially increased levels of noise will normally not be permitted, but the expansion of existing industry or processing or other established industries in north Yorkshire may be allowed.	Section 14.6 (assessment methodology)
City of York – Local Plan – Publication Draft – February 2018		
Policy DP2	Development will help conserve and enhance the environment through limiting environmental nuisance including noise, and vibration emissions.	Section 14.5 (embedded measures),
Policy CC1	Renewable and low carbon energy generation developments will be encouraged and supported and will need to consider the impact the scheme may have on local communities and residential amenity resulting from development, construction and operation such as noise.	Section 14.5 (embedded measures), Section 14.6 (assessment methodology)
Policy ENV2	Development will not be permitted where future occupiers and existing communities would be subject to significant adverse noise, vibration or fumes/emissions impacts without effective mitigation measures. Such proposals must be accompanied by evidence that the impacts have been evaluated and the proposal will not result in loss of amenity or damage to human health, to either existing or new communities.	Section 14.5 (embedded measures), Section 14.6 (assessment methodology)
City of York – Local Plan – Proposed Modifications – June 2019		

Policy reference	Policy context	Section considered
Policy D1	Ensure design considers residential amenity so that residents living nearby are not unduly affected by noise or disturbance.	Section 14.6 (assessment methodology)
Made Upper Poppleton and Nether Poppleton Neighbourhood Plan	Makes reference to Section 109 of the NPPF which requires the planning system to contribute to and enhance the natural and local environment by preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by, unacceptable levels of noise pollution.	Section 14.6 (assessment methodology)
Harrogate Borough Council, Harrogate Local Plan, 2020		
Policy HP4	Proposals should be designed to ensure that they will not result in significant adverse impacts on the amenity of occupiers and neighbours, including from vibration, noise and other disturbance. The individual and cumulative impacts of development proposals on amenity will be considered.	Section 14.5 (embedded measures), Section 14.6 (assessment methodology)
Hambleton Local Development Framework: Core Strategy Development Plan Document 2007 (DPD)		
CP1	Provides support for proposals where they promote and encourage or protect and enhance the health, economic and social well-being, amenity and safety of the population.	Section 14.5 (embedded measures), Section 14.6 (assessment methodology)
CP21	Seeks to ensure that communities and the environment are not adversely affected by the actions of natural or other forces and take account of the need mitigate development from the consequences of noise.	Section 14.5 (embedded measures), Section 14.6 (assessment methodology)
Hambleton Local Development Framework: Development Policies DPD 2008		
DP1	All development proposals must adequately protect amenity, including with regard to noise and disturbance.	Section 14.5 (embedded measures)
DP44	“Noise sensitive development will not be permitted in areas where potential for harmful noise levels is known to exist. Development likely to generate harmful noise levels will be directed to appropriate locations away from known noise sensitive locations.”	Section 14.5 (embedded measures), Section 14.6 (assessment methodology)

Policy reference	Policy context	Section considered
Hambleton Local Plan – Publication Draft 2019		
E 2	<p>“All proposals will be expected to provide and maintain a high standard of amenity for all users and occupiers, including both future occupants and users of the proposed development as well as existing occupants and users of neighbouring land and buildings, in particular those in residential use. A proposal will therefore be required to ensure:</p> <p>...</p> <p>c. there are no adverse impacts in terms of noise (particularly with regards to noise sensitive uses and noise designations), including internal and external levels, timing, duration and character;</p> <p>...</p> <p>Where mitigation is necessary to ensure that the above requirements are met their compatibility with all other relevant policy requirements will be considered when determining the acceptability of the proposal.”</p>	Section 14.5 (embedded measures), Section 14.6 (assessment methodology)

Technical Guidance

14.2.3 A summary of the relevant technical guidance is given in **Table 14.3**.

Table 14.3 Technical guidance relevant to noise and vibration

Technical Guidance Document	Context
Institute of Environmental Management and Assessment (IEMA), Guidelines for Environmental Noise Impact Assessment ²²³	Presents guidelines on how the assessment of noise effects should be presented within the Environmental Impact Assessment (EIA) process. The IEMA guidelines cover aspects such as; scoping, baseline, prediction and example definitions of significance criteria.
BS 5228-1:2009+A1:2014 ‘Code of practice for noise and vibration control on construction and open sites. Noise’ (BS 5228-1) ²²⁴	Provides guidance on the assessment and control of noise from construction sites, along with suggestions for the derivation of guideline levels for impact assessment.
BS 5228-2:2009+A1:2014 ‘Code of practice for noise and vibration control	Provides guidance on the assessment and control of vibration from construction sites, along with

²²³ Institute of Environmental Management and Assessment (2014). Guidelines for Environmental Noise Impact Assessment.

²²⁴ British Standards Institute (2008). BS 5228-1:2009+A1:2014, Code of practice for noise and vibration control on construction and open sites. Noise. ISBN: 978 0 580 77749 3

Technical Guidance Document	Context
on construction and open sites. 'Vibration' (BS 5228-2) ²²⁵	suggestions for the derivation of guideline vibration levels.
BS 7385-2:1993, Evaluation and measurement for vibration in buildings. Guide to damage levels from groundborne vibration' (BS 7385-2) ²²⁶	Guidance on the levels of groundborne vibration which could have the potential to lead to the damage of building structures.
BS 4142:2014+A1:2019, Methods for rating and assessing industrial and commercial sound ²²⁷	The standard is used to rate and assess sound of an industrial nature including, but not limited to, assessing sound from proposed, new, modified or additional sources of industrial sound, and sound at proposed new dwellings. It contains guidance on the monitoring and assessment of industrial and commercial sound sources (including fixed installations comprising mechanical and electrical plant and equipment) affecting sensitive receptors.
ISO 9613:1996 Acoustics – Attenuation of sound during propagation outdoors: Part 2 General Method of Calculation, 1996 (ISO 9613-2) ²²⁸	Defines a method for calculating the attenuation of sound during propagation outdoors in order to predict the levels of environmental noise at distances from a source.
Technical Report TR(T)94. A Method for Assessing the Community Response to Overhead Line Noise ²²⁹ . (Withdrawn)	Now withdrawn, but the general approach is still followed but the specific methods have now been superseded. Describes a methodology for the assessment of operational noise due to overhead lines accounting for the effects of corona discharge which occurs when there is increased electrical surface stress on the conductor such as during wet weather conditions. The approach followed the principles of BS 4142:1990 but took into account the following factors: local ground conditions; the rainfall rate probability; the effect of rate of rainfall on background sound levels; rain-induced operational noise; and low frequency noise.
National Grid Policy Statement PS(T)134 ²³⁰ - Operational Audible Noise Policy for Overhead Lines (Issue 1, February 2021)	Applies to environmental noise due to the operation of new overhead lines, reconductoring, diversion and uprating projects for overhead lines operated at 275kV and 400kV.

²²⁵ British Standards Institute (2008). BS 5228-2:2009+A1:2014, Code of practice for noise and vibration control on construction and open sites. Vibration. ISBN: 978 0 580 77750 9

²²⁶ British Standards Institute (1993). BS 7385-2:1993, Evaluation and measurement for vibration in buildings. Guide to damage levels from groundborne vibration. ISBN: 0 580 22188 1

²²⁷ British Standards Institute (2014). BS 4142:2014+A1:2019, Methods for rating and assessing industrial and commercial sound. ISBN: 978 0 539 02069 4

²²⁸ International Organization for Standardization (1996). Acoustics – Attenuation of sound during propagation outdoors: Part 2 General Method of Calculation (ISO 9613-2).

²²⁹ Technical Report TR(T)94. A Method for Assessing the Community Response to Overhead Line Noise, National Grid

²³⁰ Policy Statement PS(T)134 - Operational Audible Noise Policy for Overhead Lines, National Grid, February 2021

Technical Guidance Document	Context
<p>National Grid Technical Report TR(E)564²³¹ - Development of Method for Assessing the Impact of Noise from Overhead Lines (New Build, Reconductoring, Diversion and Uprating)</p> <p>(Issue 1, February 2021)</p>	<p>The policy describes a three-tier assessment process and sets noise impact criteria taking into account worst-case wet noise (Tier 1), wet noise and dry noise in combination (Tier 2), and dry noise and wet noise separately following the principles of BS4142:2014 (Tier 3).</p> <p>PS(T)134 supersedes TR(T)94 which has been withdrawn as a live National Grid technical report.</p>
<p>National Grid Technical Guidance Note TGN(E)322²³² - Operational Audible Noise Assessment Process for Overhead Lines (New Build, Reconductoring, Diversion and Uprating)</p> <p>(Issue 1, February 2021)</p>	<p>Provides guidance on the practical implementation of PS(T)134.</p> <p>Section 2.5 DCO Application/Environmental Impact Assessments (EIA's) states: "The principles of the Tier 1 to 3 approach... shall be used for these types of applications, however the method of reporting the noise impact requires a different approach."</p> <p>The policy suite therefore allows for noise impact (and therefore significance of effect) to be reported according to the specific requirements of an EIA submitted as part of a DCO application.</p>
<p>Calculation of Road Traffic Noise (CRTN)²³³</p>	<p>Describes procedures for calculating noise from road traffic.</p>
<p>Design Manual for Roads and Bridges, LA111 - Noise and Vibration (DMRB)²³⁴</p>	<p>Guidance document provides methodology for the assessment of noise from road traffic, particularly from new and altered roads. Also provides modifications to CRTN and a methodology for the</p>

²³¹ Technical Report TR(E)564 - Development of Method for Assessing the Impact of Noise from Overhead Lines (New Build, Reconductoring, Diversion and Uprating), National Grid, February 2021

²³² Technical Guidance Note TGN(E)322 - Operational Audible Noise Assessment Process for Overhead Lines (New Build, Reconductoring, Diversion and Uprating) National Grid, February 2021

²³³ Department for Transport (DfT). (1988). Calculation of Road Traffic Noise.

²³⁴ Highways England (2019). Design Manual for Roads and Bridges, LA 111 – Noise and Vibration (Revision 2) [online]. Available at: <https://www.standardsforhighways.co.uk/dmrb/search/cc8cfcf7-c235-4052-8d32-d5398796b364> [Accessed 30 July 2020].

Technical Guidance Document	Context
	assessment of noise and vibration from construction traffic.
Transport and Road Research Laboratory – Converting the UK traffic noise index LA _{10,18hr} to EU noise indices for noise mapping, 2002 (TRL PR/SE/451/02) ²³⁵	A method for converting the road traffic noise indexes described in CRTN to produce outputs in the form of European Union indices, in particular <i>TRL Method 2</i> which outlines the conversion of the LA _{10,18hr} noise indices to the LA _{eq,16hr} and LA _{eq,8hr} indices.
The World Health Organization ‘Guidelines for Community Noise’ ²³⁶	Presents guideline noise levels for community noise in specific residential environments, e.g., outdoor living areas.
The World Health Organization ‘Night Noise Guidelines for Europe’ ²³⁷	Presents guideline noise levels for community noise at night.
The World Health Organization ‘Environmental Noise Guidelines for the European Region’ ²³⁸	Provides recommendations for protecting human health from exposure to environmental noise from various sources.

14.3 Consultation and engagement

14.3.1 Whilst no consultation has been carried out to date regarding noise and vibration, further specific meetings are proposed, and these are likely to comprise a Local Authority (LA) Environmental Health Consultation Group. This group will likely be in conjunction with other related technical disciplines, in particular air quality. Engagement with relevant stakeholders will be carried out prior to the preparation of the PEIR and ES to supplement desk-based analysis and site-based observations as the assessment of potential noise effects progresses.

14.4 Baseline conditions

Study Area

14.4.1 The approach to defining the Scoping red line boundary is set out in Chapter 2. This is shown in **Figure 1.1** and has been used to inform the spatial scope of the noise and vibration assessment.

14.4.2 For the purposes of identifying potential receptors for the noise assessment, a noise Study Area has been defined as a 1 km buffer area around the Scoping red line boundary (**Figures 14.1 to 14.3**). The vibration Study Area has been defined as a 100 m area around from any likely significant vibration source, such as compaction or piling works. Reference may be made to potential receptors outside of the noise Study Area –

²³⁵ TRL and Casella Stanger (2002). Method for Converting the UK Road Traffic Noise Index LA_{10,18h} to the EU Noise Indices for Road Noise Mapping

²³⁶ World Health Organization. (1999). Guidelines for community noise. World Health Organization, Geneva.

²³⁷ World Health Organization. (2009). Night noise guidelines for Europe. World Health Organization, Copenhagen.

²³⁸ World Health Organization. (2018). Environmental Noise Guidelines for the European Region

such as receptors located along potential construction traffic routes or receptors of special interest (such as designated tranquil areas or precision engineering premises). Where this is the case, those potential receptors will also be considered as part of the noise and vibration assessment. The Study Area for the noise and vibration assessment will be refined as the Project progresses and as further details regarding the siting of the Project components is known.

Data gathering methodology

14.4.3 Satellite imagery and electronic mapping services have been used to understand the locality, the potential noise sources; location and scale of existing infrastructure; and potential receptors. Sources used for establishing baseline (accessed February 2021) include:

- Google® Earth;
- National Grid network route map²³⁹ data;
- Defra Magic Map²⁴⁰; and
- Extrium England Noise and Air Quality Viewer²⁴¹.

Current baseline

Overview

14.4.4 The noise Study Area, which also encompasses the vibration Study Area, is predominantly rural in land use. It is anticipated that the baseline ambient noise levels are generally of a low magnitude except where close to major roads. Given the geographical extent of the noise Study Area, the description of the baseline ambient noise conditions has been sub-divided into the following areas to reflect the key Project components as shown in **Figure 1.2**.

- North west of York Area: This comprises the area around the York North substation siting area, the Preferred Route Corridor within which new 275kV and 400kV overhead lines would be located, the connections between the new 400kV overhead line and existing 400kV 2TW/YR overhead line (Norton to Osbaldwick) as well as a section of the existing 275kV XC/XCP (Poppleton to Monk Fryston) overhead line south of the Preferred Route Corridor.
- The existing 275kV XC/XCP (Poppleton to Monk Fryston) overhead line: The area surrounding this existing overhead line has been split into three segments:
 - Poppleton to ‘North west of York Area’ – ‘Segment 1’;
 - ‘North west of York Area’ to Tadcaster (including the Tadcaster Area shown on **Figure 1.2**) – ‘Segment 2’; and
 - Tadcaster to the Monk Fryston Substation Area – ‘Segment 3’;

²³⁹ <https://www.nationalgrid.com/uk/electricity-transmission/network-and-infrastructure/network-route-maps>

²⁴⁰ <https://magic.defra.gov.uk/MagicMap.aspx>

²⁴¹ <http://www.extrium.co.uk/noiseviewer.html>

- Monk Fryston Substation Area comprising the area around the proposed substation siting area and associated infrastructure.

North west of York Area

14.4.5 'This area is sited on the outskirts of York at a location approximately 6 km north-west of the City Centre. The baseline ambient noise conditions in this area will be influenced by road traffic noise from the A19 and the A1237 and train movements on the East Coast mainline with contributions from traffic on local roads and trains on the York – Leeds railway line. Given the area's predominantly agricultural land uses few other sources of ambient noise are likely to be present.

Existing 275kV XC/XCP overhead line and the Tadcaster Area

14.4.6 Segment 1 is located on the outskirts of York City Centre and the baseline noise conditions will be influenced by a combination of road traffic noise sources including: the A59; the A1237; the A19 and rail noise from the East Coast Mainline with contributions from the local road network.

14.4.7 Between Segment 1 and Segment 2, an additional interface between the existing 275 kV XCP and 275 kV XD overhead lines is proposed. In this area it is expected that baseline ambient conditions will be influenced mostly by road traffic noise from the A1(M) and the A64.

14.4.8 In Segment 2, road traffic noise from the A1(M) is likely to be the main contributor to the baseline ambient noise conditions with additional contributions from the A64 and the A59 for the receptors closer to them.

14.4.9 For potential receptors located to the west of Segment 3, road traffic noise from the A1 (M) and M1 motorways is likely to be dominant. For the receptors further east, road traffic noise contributions from the A162 may dominate baseline ambient conditions.

14.4.10 For all of the three segments described above, operational noise from existing overhead lines may also contribute to the baseline ambient noise conditions for the receptors located in close proximity to them, especially during wet or humid weather conditions.

Monk Fryston Substation Area

14.4.11 The background baseline noise environment in the vicinity of the Monk Fryston Substation Area is likely to be influenced by the following noise sources:

- Road traffic noise from the A1(M), A63 and A162;
- Noise related to mineral extraction activities from the quarry on Betteras Hill Road (including heavy vehicles on local roads); and
- Operational noise from the existing Monk Fryston substation.

14.4.12 There is a local railway route located 1km to the east of the proposed substation siting area but a review of online train timetables and Extrium noise viewer suggests that trains along this route run infrequently and therefore railway noise from this line is not considered to significantly contribute to the acoustic environment.

Future baseline

14.4.13 In the absence of the Project, it is expected that road traffic noise will steadily increase due to the natural growth in road traffic flows over time. As outlined in Section 12.4 with regarding the traffic modelling the future baseline will take into account traffic growth as a result of new development based on growth factors from DfT models. Ongoing engagement with local planning authorities will also identify any potential development which could also contribute to increases in future baseline ambient noise levels.

14.5 Embedded Environmental Measures

14.5.1 As part of the project design process, a number of embedded measures will be proposed to reduce the potential for noise effects. These will evolve over the development process as the EIA progresses and in response to consultation and will be fed iteratively into the assessment process. Embedded environmental measures include all mitigation usually assumed to be in place during construction and operation and are generally regarded as industry standard or best practice. This includes production of a Construction Environmental Management Plan (CEMP) that will detail the best practice methods to be adopted during the construction phase, in addition to the environmental management measures.

14.5.2 The assessment of potential effects will assume the effective implementation of 'embedded environmental measures' built into the design of the Project.

14.5.3 Embedded environmental measures incorporated into the operational design and therefore, considered in the scoping assessment comprise:

- Locating the proposed Monk Fryston substation near to the existing substation to minimise the potential for new receptors being exposed to operational noise from transformers and other static plant;
- Sourcing equipment within the proposed substations to National Grid technical specifications which include requirements regarding audible noise including type testing and sample testing; and
- Locating the proposed substations, associated infrastructure, CSECs and Preferred Route Corridor away from centres of population where possible as part of the CPRS Study (**Chapter 2**).

14.5.4 Embedded environmental measures during the construction phase would include:

- Plant complement to consist of modern machinery fitted with efficient silencers designed to minimise noise levels that are generated during operations;
- All compressors and generators to be "sound reduced" models fitted with properly lined and sealed acoustic covers which are to be kept closed whenever the machines are in use. Additionally, ancillary pneumatic percussive tools to be fitted with mufflers or suppressers;
- The plant would be properly maintained in accordance with the manufacturers' instructions to ensure that the occurrence of malfunctions, which can give rise to elevated noise levels, is reduced and any malfunctions that do occur are swiftly repaired;

- Machines in intermittent use shall be shut down in the intervening periods between work or where this is impracticable, throttled down to a minimum;
- Where practicable, plant with directional noise characteristics to be positioned to minimise noise at nearby properties; and
- Static equipment and machinery to be sited as far as is practicable from inhabited buildings.

14.6 Scope of the assessment

Potential receptors

14.6.1 Potential receptors have been selected based on their location relative to the Project components. Generally, the potential receptors are residential dwellings which are considered to have a 'medium' sensitivity to noise and vibration. The notable exception is Tadcaster Grammar School where further consideration of sensitivity to noise and vibration will be required. Potential receptors have been grouped into 'community receptors' at this stage. Consideration of individual dwellings representative of the wider community will take place further into the EIA process (although some have been considered at this stage by exception). The locations of the community receptors and their location relative to the Scoping red line boundary is shown in **Figure 14.1 to 14.3** and these are summarised by Local Authority administrative area in **Table 14.4** below.

Table 14.4 Potential receptors

Local Authority	ID	Community	BNG ref.	
			X	Y
Selby	SEL01	Fairburn	447251	427846
	SEL02	Betteras Hill Road, Hilam	449455	429188
	SEL03	The Bungalow, York Road	448899	429351
	SEL04	Selby Road, South Milford	449303	429701
	SEL05	Lumby	448639	430342
	SEL06	Peckfield Lodge	446393	430918
	SEL07	Micklefield	444502	432764
	SEL08	Saxton	447532	436786
	SEL09	Paradise Lane, Tadcaster	444409	440535
	SEL10	Bramham (Leeds)	442621	442945
	SEL11	Tadcaster	448171	443171
	SEL12	Tadcaster Grammar School	445710	442603
Harrogate	HAR01	Wighill	447486	446897

Local Authority	ID	Community	BNG ref.	
			X	Y
	HAR02	Bilton-in-Ainsty	447676	449965
	HAR03	Tockwith	446610	452263
	HAR04	Long Marston	449949	451506
	HAR05	Hutton Wandesley	450358	450915
	HAR06	Moor Monkton	450859	456862
	HAR07	Red House Estate	452976	457078
	HAR08	Nun Monkton	450812	457795
Hambleton	HAM01	Beningbrough	452919	457755
	HAM02	Shipton by Beningborough	4555188	458692
	HAM03	Linton-on-Ouse	451242	459951
York	YOR01	Upper Poppleton	455469	453936
	YOR02	Nether Poppleton	455925	454581
	YOR03	Skelton	456926	456223
	YOR04	Osbaldwick	463659	451606

Likely significant effects

- 14.6.2 The likely significant Noise and Vibration effects that will be taken forward for assessment in the PEIR and the ES are summarised in **Table 14.5**.
- 14.6.3 The following screening distances have been used to identify receptors which may experience likely significant effects from the various noise and vibration sources associated with the Project:
- Construction traffic noise: Receptors located within 300 m of roads identified as construction traffic routes (not including motorways, A64 or A19, where it is considered that construction traffic will not significantly alter flows);
 - Construction activity noise: Receptors located within 1 km of areas of proposed construction activity (known as likely working areas).
 - Construction vibration: Receptors located within 100m of locations where piling activities are expected to occur; and
 - Operational noise – receptors located up to 1 km from the proposed overhead lines, substation and CSEC sites.
- 14.6.4 The screening distances set out above recognise that the Scoping red line boundary has been defined to represent the likely maximum extent of development and it is,

therefore, possible that some of the Project proposals could occur at the edges of this boundary. This approach has been taken as a precautionary measure until further details regarding the Project are known. These screening distances should be considered as the maximum distances over which potential significant effects on receptors could occur and the receptors identified will be refined in the later stages of the EIA as the Project design develops. Any changes in the proposed receptors to be included in the noise and vibration assessment will be discussed with the local planning authorities as part of the on-going consultation.

14.6.5 **Table 14.5** sets out the likely significant effects and receptors impacted at this stage of the Project.

Table 14.5 Likely significant noise and vibration effects

Activity	Effect	Noise Sensitive Receptors (NSRs)
Construction		
Construction Traffic	Potential for increased road traffic noise on local roads due to construction traffic accessing and leaving site.	NSRs: <ul style="list-style-type: none"> • SEL 01 – 11; and • HAR 01 – 03.
Land preparation	Potential for construction noise effects due to site clearing and land preparation activities at the proposed substation and CSEC sites and new and replacement overhead line pylons	NSRs: <ul style="list-style-type: none"> • SEL 01 – 05; • HAR 06 – 08; • HAM 01 – 03; and • YOR 01 – 04.
Concreting and erection of structures	Potential for construction noise effects due to site concreting and general construction activities at the proposed substation and CSEC sites and new and replacement overhead line pylons.	
Undergrounding	Potential construction noise and vibration effects due to drilling and potential piling requirements for the installation of underground cabling and CSECs.	NSRs: <ul style="list-style-type: none"> • SEL 09, 10 and 12; and • HAM 01.
Piling works	Potential for construction noise and vibration effects due to site piling activities at the proposed substation sites; new and replacement overhead line pylons; and CSECs.	NSRs: <ul style="list-style-type: none"> • SEL 01 – 05; • SEL 09 – 12; • HAR 06 – 08; • HAM 01 – 03; and • YOR 01 – 04.

Activity	Effect	Noise Sensitive Receptors (NSRs)
		Vibration Sensitive Receptors: <ul style="list-style-type: none"> • SEL 03 - 06; • SEL 08, 12; • HAR 01, 04; • HAR 06 – 08; • HAM 01 – 03; and • YOR 01 – 04.
Reconductoring and strengthening	Potential for construction noise effects due to reconductoring and strengthening works along the existing 275 kV overhead line.	NSRs: <ul style="list-style-type: none"> • SEL 06, 08,12; • HAR 01, 04; • HAR 06 – 08; • HAM 01 – 03; and • YOR 01 – 04.
Operational		
Substations	Potential for noise effects from new and upgraded transformers and other noise generating equipment at substation sites.	NSRs: <ul style="list-style-type: none"> • SEL 01 – 05; • HAR 06 – 08; • HAM 01 – 03; and • YOR 01 – 04.
New overhead lines	Potential for noise effects from new overhead lines.	NSRs: <ul style="list-style-type: none"> • SEL 12; • HAR 06 – 08; • HAM 01 - 03; and • YOR 01 – 03.

14.6.6 The effects scoped out from further assessment in the ES are:

- Potential for operational noise effects from reconducted overhead lines: It is anticipated that noise from the reconducted 275kV XC/XCP overhead lines would not require assessment as this is unlikely to result in a significant change in electrical stress and therefore changes in audible noise levels from this existing overhead line. Therefore this effect is scoped out of the assessment. However this will be kept under review as more detailed information about the reconductoring works becomes available.
- Potential for operational vibration effects. It is not expected that the proposed infrastructure would give rise to significant levels of vibration at any receptor.

14.7 Assessment methodology

14.7.1 The proposed generic project-wide approach to the assessment methodology is set out in Chapter 4, and specifically in section 4.3. This approach has been used in the preparation of this noise and vibration chapter. The following section addresses how this methodology will be applied, and where it has been adapted as appropriate, to apply the specific needs of the noise and vibration assessment in the ES.

Establishing baseline conditions

14.7.2 In order to establish baseline conditions, a noise survey will be undertaken. It is proposed that the survey will consist of:

- Background and ambient (as defined by BS 4142:2014+A1:2019) sound measurements at the site of, and at representative sensitive receptors close to the two proposed substation sites, when confirmed (taking account of noise from the existing Monk Fryston substation);
- Background and ambient sound measurements near to the route of the proposed 400kV and 275kV overhead lines;
- Background and ambient sound measurements at the site of, and at representative sensitive receptors close to CSECs and associated infrastructure located within the North-west of York and Tadcaster Areas; and
- Background and ambient sound measurements near to proposed construction compounds - the location of these is not yet known.

14.7.3 As the Study Area is very large and comprises predominantly agricultural land, ambient and background levels are likely to be low at all sensitive receptors except those that front an A-road or are in close proximity to a motorway, the East Coast Main line or near to industrial sites. Therefore, using this assumption, all receptors will be protected by an assessment that considers the worst-case. It is proposed to scope out surveys for the following:

- vibration monitoring, as baseline vibration will be negligible compared to construction levels, and will be assessed as an absolute (not relative) value;
- noise monitoring in the vicinity of the existing 275kV XC/XCP overhead line, as it is proposed to scope out operational noise effects from the re-conducting of this overhead line (although as stated above monitoring would be completed where required for any construction compounds along this line); and
- monitoring of existing road traffic noise as this will be determined through calculation and traffic flow data.

14.7.4 In the absence of comprehensive measurement data around the Study Area the following assumptions are made:

- For the assessment of operational noise from the proposed overhead lines a very low daytime background noise level of 30 dB will be assumed;
- A very low night time background noise level of 25 dB will be assumed;
- For assessment of construction noise along the existing overhead lines, the lowest "Category A" (BS 5228-1) acoustic environment will be assumed; and

- Road traffic noise levels will be determined using CRTN and modelling or calculation of Basic Noise Level (BNL).

Construction Noise

- 14.7.5 The increase in traffic noise due to construction traffic on the local road network will be predicted using methodologies described in CRTN (as advocated by DMRB). Magnitude of impact of noise due to construction traffic on local roads will be assessed with reference to the methodology set out in DMRB. Duration of the proposed works will be considered in the determination of significant effects.
- 14.7.6 Construction noise (including noise due to slow-moving construction traffic noise on haul roads) will be predicted and assessed using the methodologies described in BS 5228-1. Table E.1 in Annex E of BS 5228-1 and Table 3.12 of DMRB will be used to determine the threshold of significance. The determination of magnitude of impact for construction noise will be assessed with reference to the methodology set out in BS 5228-1 and the duration of the proposed works will be considered as a factor in the determination of significant effects.
- 14.7.7 Construction noise impacts at non-residential noise sensitive receptors will be considered on an individual and representative receptor basis and the screening and assessment criteria will be agreed during consultation.
- 14.7.8 Construction vibration effects will be assessed for sensitive receptors within 100m of any vibration causing construction activities (such as piling). Sensitive receptors may include precision engineering premises, healthcare premises, old dwellings with poorly constructed foundations, potentially railways and submerged services such as gas and water mains will also need assessment. Human response to vibration will be informed by BS 5228-2, although away from the substation siting areas and construction compounds, it is anticipated that vibration effects will be limited to 1-2 days for any receptor.

Operational Noise

Existing 275kV XC/XCP Overhead Lines

- 14.7.9 It is proposed to scope out operational noise effects from this existing overhead line as it is likely reconfiguration of these lines would not result in a significant change in electrical stress and therefore audible changes in noise levels from these existing routes. However, as this is subject to confirmation of detailed design more detailed information will be presented in the PEIR when more information is available.
- 14.7.10 Once detail design is confirmed, in the event noise assessment of the reconducted 275kV lines is required, the approach outlined below for the proposed new 275kV and 400kV overhead lines would be followed. As the 275kV XC/XCP overhead lines already exist, the determination of significance of effect would take into account 'noise change', and the likely perception of that change to residents living near the existing line. It is anticipated that the level of noise change would be low, and when low absolute noise levels from 275kV lines is taken into account, it is anticipated that there would not be a significant effect at noise sensitive receptors.

Proposed new 275kV and 400kV Overhead Lines

- 14.7.11 Operational noise from the new 275kV and 400kV overhead lines would be assessed following the principles of BS4142:2014 A1:2019 (BS4142) using the noise prediction method described in National Grid Policy Statement PS(T)134 and its supporting technical guidance.
- 14.7.12 PS(T)134 describes methods for predicting the environmental impact due to audible noise caused by new, reconducted, diverted or uprated overhead transmission lines. The method uses internationally recognised line noise prediction methodology to calculate noise emission levels based on operating voltage, conductor design and pylon geometry. Noise propagation modelling according to ISO 9613-2 1996 would be carried out to predict noise levels at noise sensitive receivers along the route of the proposed new lines.
- 14.7.13 The highest noise levels generated by an overhead line generally occur during rainfall. Noise generated under these circumstances is referred to as 'wet noise' and can be described as a crackle, which is sometimes accompanied by a tonal 'hum'. Noise which occurs during dry weather conditions is referred to as 'dry noise' and can be described as a crackle. The tonal hum which sometimes occurs during wet weather conditions is typically more annoying than crackle alone. Consequently, wet noise is tolerated at lower sound pressure levels than dry noise. It should be noted that neither wet noise nor dry noise would occur all the time.
- 14.7.14 According to the requirements of BS4142, (see explanation in paragraph 14.6.34) PS(T)134 applies a +3dB character correction to dry noise to account for the subjective 'crackle', while a +6dB character correction is applied to predicted wet noise levels to account for the additional 'hum' from the audible noise during worst case wet weather conditions.
- 14.7.15 National Grid Technical Report TR(E)564 explains the reasoning behind the noise criteria set out in PS(T)134. Noise criteria have been set taking account of the UK Policy context and evidence from multiple sources, including the World Health Organisation and BS4142, for noise and associated health impacts. The criteria have been developed based on health impact data associated with the night time period. The night time period is considered more sensitive than the daytime as background sound levels are lower and people are trying to sleep.
- 14.7.16 The overhead line noise assessment process follows a three-tier 'screening' approach based on source to receptor distance. If predicted noise levels fail the Tier 1 test, a Tier 2 assessment would be undertaken and if predicted noise levels fail the Tier 2 test, a Tier 3 assessment would be undertaken. The three-tier approach comprises the following steps designed to screen receptors out of further assessment where there would be no adverse impact:
- **Tier 1:** A primary screening step based on 'worst-case' absolute wet noise effects and the pre-determined assessment criteria set out in PS(T)134
 - **Tier 2:** A further screening step based on combined absolute wet noise and dry noise effects and, if required, recalculated assessment criteria. This step takes account of the fact that wet noise occurs during periods of wet weather and therefore does not occur all the time.

- **Tier 3:** Full assessment following the principles of BS 4142 for both wet noise and dry noise.

14.7.17 For the prediction of wet noise, knowledge of typical rainfall rates based on Meteorological Office data for the Project area is required. Miller curves²⁴² are used to estimate the background noise level due to the effect of rainfall.

Proposed Assessment Criteria

14.7.18 The Tier 1 (wet noise) assessment would be carried out against the criteria presented in PS(T)134. Based on these criteria and for the purpose of this stage of EIA screening, for residential receptors the LOAEL will be 34 dB(A) and the SOAEL will be 44 dB(A).

Table 14.6 Tier 1 Noise Criteria (Wet Noise)

Use	No Adverse Impact	Adverse Impact	Significant Adverse Impact
	Acceptable - No Action Necessary	Mitigate and Minimise ²⁴³	Unacceptable - Avoid
	Screened out	Tier 2 Assessment required	Tier 2 Assessment required
Vulnerable subgroups	< 29dBA	29 to 39dBA	> 39dBA
Residential	< 34dBA	34 to 44dBA	> 44dBA
Schools & Hotels	< 39dBA	39 to 49dBA	> 49dBA

14.7.19 Tier 2 criteria would be developed according to guidelines provided in TGN[E]322 and would be weighted to take into account the typical duration of dry and wet weather in the project area. As the dry noise criteria are higher than the wet noise criteria, this results in higher criteria for the combined noise level criteria than used for wet noise only in Tier 1.

14.7.20 Tier 3 criteria are based on the Assessment of Impacts criteria set out in BS4142:2014. Significance of effect would be determined using the criteria set out in TGN(E)322:

²⁴² Miller L N, 1978, Sound Levels of Rain and of Wind in the Trees, Noise Control & Engineering, vol 11, no 3, pp 101-109
Where practicable, actions to mitigate and minimize are considered during the detailed design phase and include conductor system selection, tower design and routing away from noise sensitive receptors. Once detail design is complete, any mitigation actions taken would become embedded in the design.

Table 14.7 Tier 3 Significance of Effect Criteria

Significance of Effect	Sensitivity of Receptor			
	High	Medium	Low	Negligible
Magnitude				
High	≥+10dB	≥+10dB	≥+10dB	≥+10dB
Medium	+5 to +9dB	+5 to +9dB	+5 to +9dB	+5 to +9dB
Low	+0 to +4dB	+0 to +4dB	+0 to +4dB	+0 to +4dB
Negligible	≤0dB	≤0dB	≤0dB	≤0dB
No Effect	≤0dB	≤0dB	≤0dB	≤0dB

14.7.21 It is recognised that as the Project detail design develops it will be necessary to back check the noise assessment process to ensure all noise sensitive receptors requiring a full BS4142:2014 noise assessment are identified and assessed accordingly. This ensures that receptors that may have been screened out at an earlier stage of design are screened back in in the event of design change or the availability of further information.

Noise from overhead line fixtures and fittings

14.7.22 PS(T)134 only considers noise from discharge activity on conductors. Noise may also arise from discharges on insulators and fittings, but this noise is minimised by the use of preferred, type registered designs.

14.7.23 Under normal operating conditions pylon fittings, such as dampers, spacers, clamps and insulators are designed not to generate audible noise when in operation.

14.7.24 Pylon fittings, such as insulators, dampers, spacers and clamps are designed and procured in accordance with a series of National Grid Technical Specifications. The technical specifications define National Grid functional and performance requirements for new equipment associated with electricity transmission.

14.7.25 To be approved for use on the National Grid high voltage electricity transmission network, each fitting design must be Type Registered. Type registration comprises a series of tests on the fitting in question to ensure compliance with the relevant technical specification. These tests include performance requirements for corona inception and audible noise on all fittings along with wind tunnel testing of insulators for audible tones generated by Aeolian mechanisms.

14.7.26 Once a fitting has been type registered and approved for use, a number of further tests are also carried out post-manufacture in the form of Sample Testing. This ensures the fitting conforms to the specification in the type registration documentation.

14.7.27 The Technical Specification and Type Registration processes reduce the potential for audible noise and tones to occur from all types of fittings, including insulators. Where noise does occur, it is likely to be localised and of short duration. If due to a fault, actions can be taken to rectify it. Where noise from fittings does occur, which results in a complaint, appropriate actions can be taken to seek to remedy the cause of the noise, usually through cleaning or replacement of the relevant fitting.

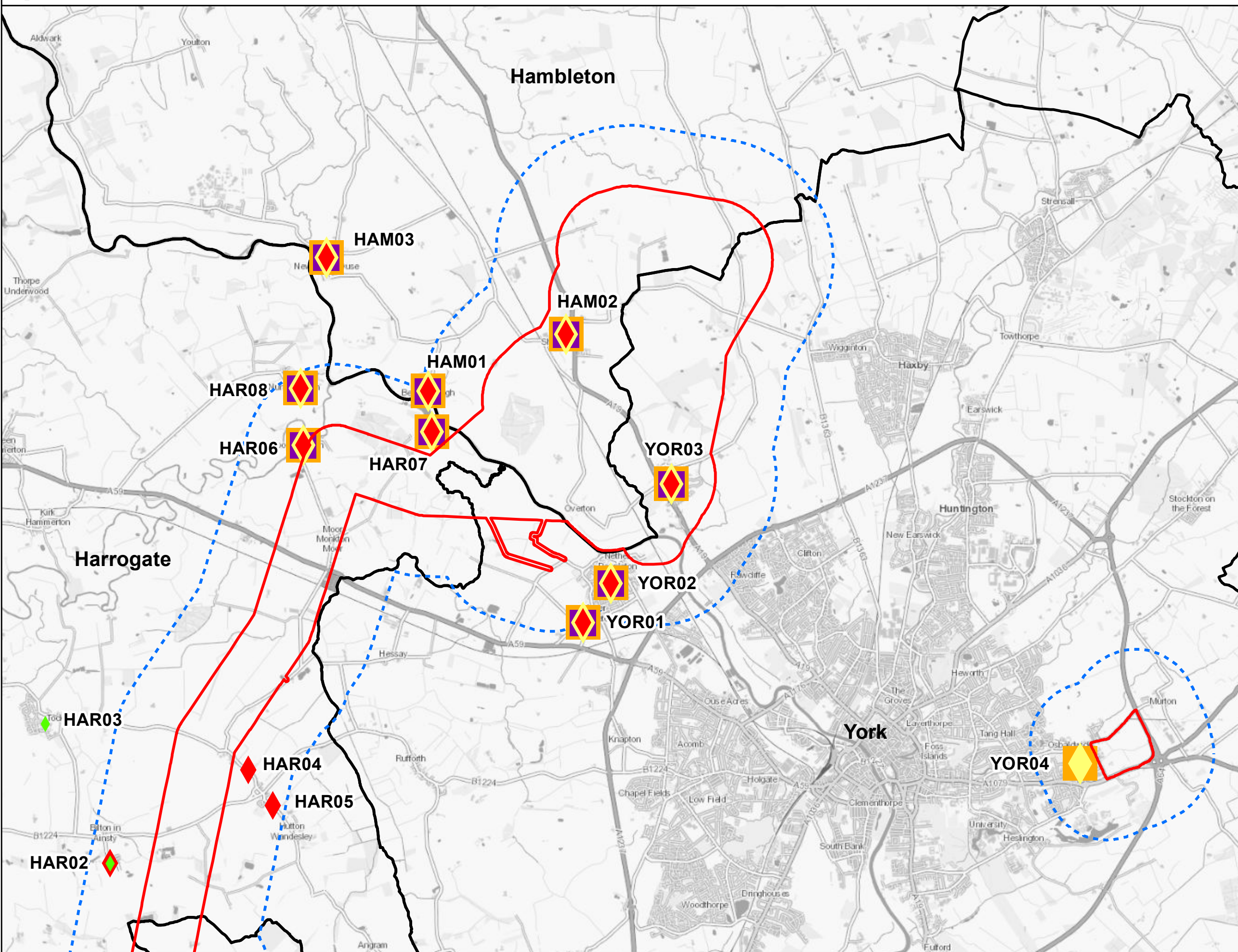
- 14.7.28 Noise from fixtures and fittings is therefore scoped out of further assessment.
- 14.7.29 Noise from substations will be assessed using BS 4142:2014+A1:2019.
- 14.7.30 BS 4142 provides a methodology and criteria for assessing new or existing industrial sound sources by comparing the operational sound (rating level) at the location of a sensitive receptor, with the background sound levels that are currently experienced without the development.
- 14.7.31 The rating level is defined as the specific sound level, with the addition of character corrections to consider certain acoustic features that could potentially increase the significance of impact. A penalty will be applied to the specific sound level if a tone, impulsive or other characteristic occurs or is expected to be present for new or modified sound sources.
- 14.7.32 The assessment methodology outlined in BS 4142:2014+A1:2019 indicates that the greater the difference of the rating level in comparison with the background sound level (L_{A90}) the greater the significance of the impact, thus:
- A difference of +10 dB or more is likely to be an indication of a significant adverse impact, depending on the context;
 - A difference of around + 5 dB is likely to be an indication of an adverse impact, depending on the context; and
 - The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant impact. A low impact is defined when the rating level does not exceed the measured background sound level.
- 14.7.33 BS 4142:2014+A1:2019 emphasises the requirement to fully understand the context in which the sound occurs and therefore context will be considered in the assessment process before determining the potential significant effect resulting from the impacts identified. For this reason, defining a semantic scale for magnitude of change, or values for the purposes of identifying LOAEL and SOAEL are not considered possible at the EIA scoping stage and will be considered in appropriate detail once baseline surveys have been completed.



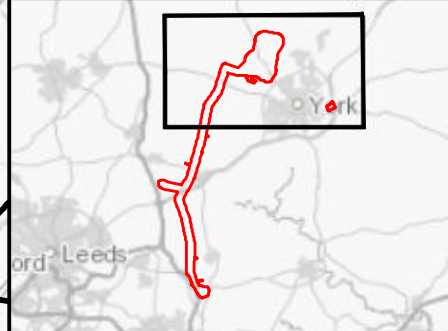
NOISE SENSITIVE RECEPTORS AND EFFECTS

Legend

- Scoping red line boundary
- Study area
- ◆ Construction traffic receptors
- ◆ Overhead construction receptors
- ◆ Substation construction receptors
- ◆ Overhead operation receptors
- ◆ Substation operation receptors



Notes
 This drawing is scaled at paper size A3, therefore any prints taken at smaller sizes will affect accuracy of the measurement units and should not be scaled against.



Coordinate System: British National Grid
 Sheet X Centroid Coordinate: 456,154.90 Sheet Y Centroid Coordinate: 456,284.40
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 Meters

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2	MAR 21		COLLJ	DIMMR	CHADC
Issue	Date	Remarks	Drawn	Checked	Approved






Title
 SCOPING REPORT
 CHAPTER 14: NOISE AND VIBRATION
 NOISE SENSITIVE RECEPTORS AND EFFECTS

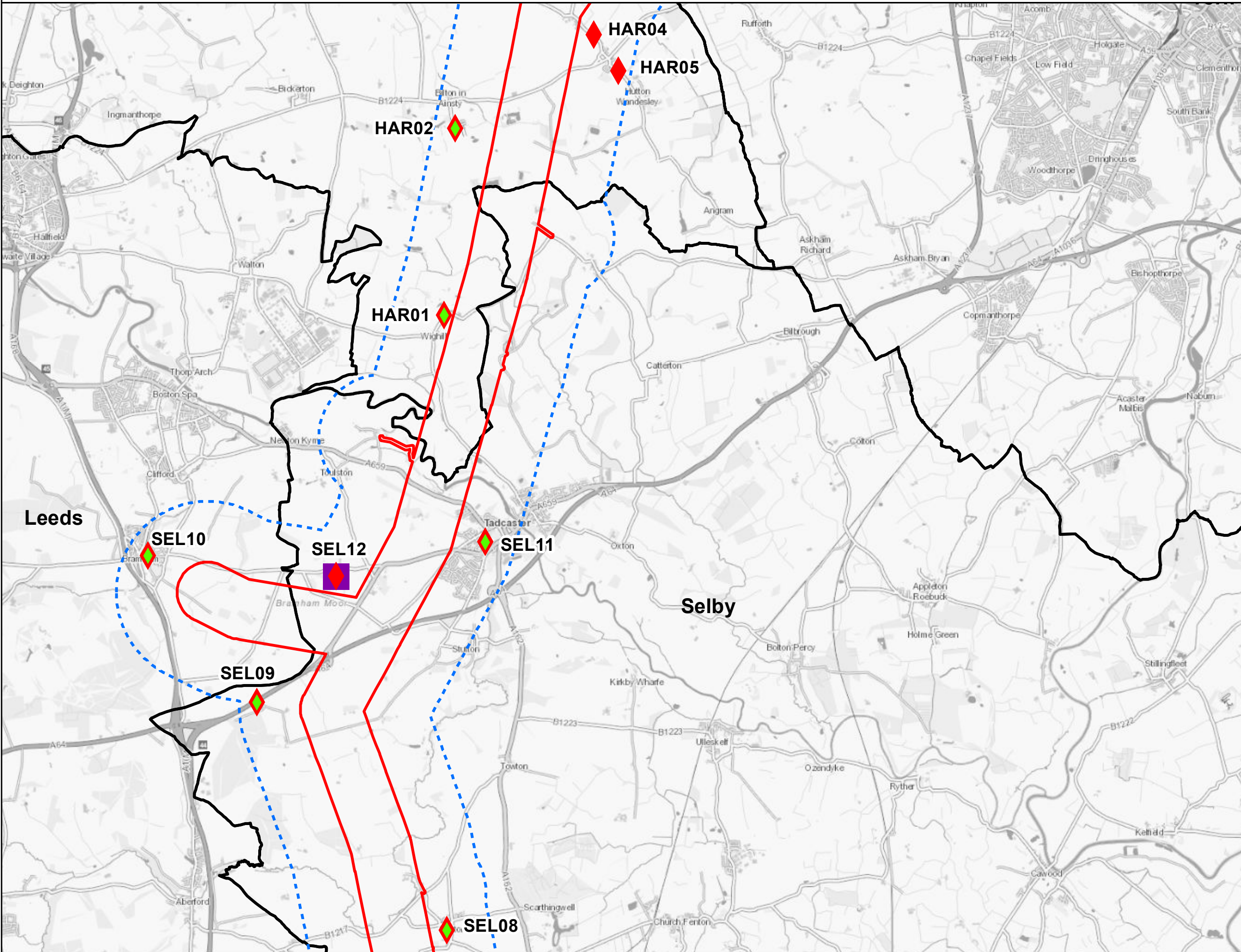
nationalgrid			
Figure Number	FIGURE 14.1		
Drawing Reference	806503-WOOD-0044		
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1:60,000	A3	SHEET 1 OF 3	2



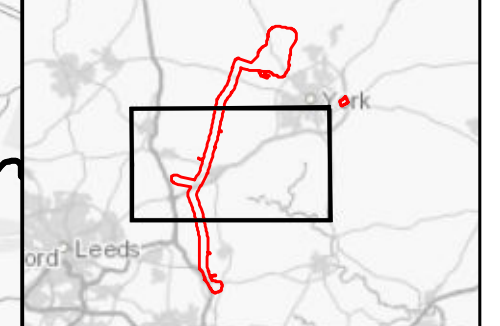
NOISE SENSITIVE RECEPTORS AND EFFECTS

Legend

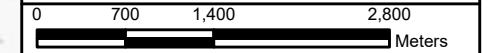
-  Scoping red line boundary
-  Study area
-  Construction traffic receptors
-  Overhead construction receptors
-  Overhead operation receptors



Notes
 This drawing is scaled at paper size A3, therefore any prints taken at smaller sizes will affect accuracy of the measurement units and should not be scaled against.




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2	MAR 21		COLLJ	DIMMR	CHADC
Issue	Date	Remarks	Drawn	Checked	Approved

Title
 SCOPING REPORT
 CHAPTER 14: NOISE AND VIBRATION
 NOISE SENSITIVE RECEPTORS AND EFFECTS

			
Figure Number	FIGURE 14.2		
Drawing Reference	806503-WOOD-0045		
Scale	Sheet Size	Sheet	Issue
1:60,000	A3	SHEET 2 OF 3	2

15. Health and Wellbeing

15. Health and Wellbeing

15.1 Introduction

- 15.1.1 The health and wellbeing assessment will consider the effects on the physical and mental health of local residents, workforce, and visitors that may arise from the construction and operation of the Project. This chapter of the Scoping Report describes the methodology to be used within the EIA, the datasets to be used to inform the EIA, an overview of the baseline conditions at the site, the likely effects to be considered within the EIA, and how these effects will be assessed for the purpose of an EIA.
- 15.1.2 The underlying objective of the health and wellbeing assessment is to facilitate more health-conscious planning and decision making, by investigating how the Project may influence health through a range of key determinants.
- 15.1.3 Due to the multi-disciplinary nature of health and wellbeing, the Environmental Statement (ES) chapter will consider the relevance of assessments made by other technical aspects and determine if the outputs of these chapters identify effects on health and wellbeing, or whether further assessment of effects on health and wellbeing is required. Health and wellbeing should and will be considered alongside the following topics:
- Chapter 5: Landscape and Visual Amenity;
 - Chapter 7: Biodiversity;
 - Chapter 12: Traffic and Transport;
 - Chapter 13: Air Quality;
 - Chapter 14: Noise and Vibration; and
 - Chapter 16: Socio-economics.

15.2 Relevant legislation, planning policy and technical guidance

- 15.2.1 This section identifies the relevant legislation, national and local policy and guidance which has informed the scope of the health and wellbeing assessment. While this includes all relevant details with respect to the scope of the assessment, when undertaking the assessment, a wider range of policies and guidance appropriate to individual impacts and their mitigation will be drawn on.

Legislation

- 15.2.2 There is no applicable legislation specific to the assessment of health and wellbeing.

Planning Policy

- 15.2.3 A summary of the relevant planning policies, their context and the section(s) of the proposed scope they apply to is set out in **Table 15.1**.

Table 15.1 Planning policy relevant to Health and Wellbeing

Policy reference	Policy context	Section considered
National Policy		
Overarching National Policy Statement for Energy (EN-1)²⁴⁴		
Particular reference to: paragraphs 4.13.2; 4.13.3; 4.13.4; 4.13.5; and Part 5.10.	EN-1 sets out requirements for the assessment of health and wellbeing effects of energy projects that fall within the scope of National Policy Statement (NPS).	Section 15.4: Baseline Conditions Section 15.6: Scope of the assessment
National Policy Statement for Electricity Networks Infrastructure (EN-5)²⁴⁵		
Particular reference to: Section 2.10.	EN-5 sets out additional technology-specific considerations for electricity networks beyond those described in NPS EN-1. The NPS identifies that Electric and Magnetic Fields (EMFs) can have both direct and indirect effects on human health.	Section 15.4: Baseline Conditions Section 15.6: Scope of the assessment
National Planning Policy Framework (NPPF)²⁴⁶		
Particular reference to: Chapter 8.	The NPPF sets out various policies with respect to the health objectives of the planning system. It states planning should aim to support healthy and safe communities as part of creating sustainable development (Chapter 8). The key theme relating to health and its wider determinants emphasises the importance of encouraging “ <i>strong, vibrant and healthy communities</i> ” by creating a good quality-built environment with accessible local services that reflect community needs and support wellbeing.	Section 15.4: Baseline Conditions Section 15.6: Scope of the assessment
Development Plan Policies		
Harrogate Local Plan, 2020²⁴⁷		

²⁴⁴ Department of Energy and Climate Change (DECC), (2011). National Policy Statement for Energy (EN-1). [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/47854/1938-overarching-nps-for-energy-en1.pdf [Accessed 04 February 2021].

²⁴⁵ DECC, (2011). Electricity Networks Infrastructure (EN-5). [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/47858/1942-national-policy-statement-electricity-networks.pdf [Accessed 04 February 2021].

²⁴⁶ Ministry of Housing, Communities & Local Government (MHCLG), (2019). National Planning Policy Framework. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/810197/NPPF_Feb_2019_revised.pdf [Accessed 04 February 2021].

²⁴⁷ Harrogate District Council, (2020). Harrogate Local Plan. [online] Available at: <https://www.harrogate.gov.uk/planning-policy-guidance/harrogate-district-local-plan-2014-2035> [Accessed 04 February 2021].

Policy reference	Policy context	Section considered
Particular reference to policies: TI4 Delivery of New Infrastructure HP3 Local Distinctiveness HP4 Protecting Amenity HP5 Public Rights of Way HP6 Protection of Existing Sport, Open Space and Recreation Facilities HP8 Protection and Enhancement of Community Facilities NE4 Landscape Character NE5 Green and Blue Infrastructure	The Harrogate Local Plan sets out the spatial vision and development strategy for the Harrogate district. The Plan aims to help create successful places that provide quality environments and enable an excellent quality of life. Policies to safeguard the existing character and sense of place of settlements, residential amenity and public rights of way are included. There are also policies to protect community facilities, as well as open space, recreation and sports facilities.	Section 15.4: Baseline Conditions Section 15.6: Scope of the assessment

Hambleton Local Development Framework: Core Strategy Development Plan Document 2007 (DPD)²⁴⁸

Particular reference to policies: CP1 Sustainable development CP3 Community assets CP16 Protecting and enhancing natural and man-made assets CP17 Promoting high quality design CP19 Recreational facilities and amenity open space CP20 Design and the reduction of crime	The Hambleton Local Development Framework sets out the vision to make Hambleton's communities sustainable, prosperous, safe, healthy and vibrant. The vision will be achieved by reducing the impact of society on the environment, improving the quality of design of the built environment and protecting and enhancing Hambleton's environmental assets such as its historic heritage.	Section 15.4: Baseline Conditions Section 15.6: Scope of the assessment
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Hambleton Development Policies DPD (2008)²⁴⁹

²⁴⁸ Hambleton District Council, (2007). Hambleton Local Development Framework: Core Strategy Development Plan Document 2007 (DPD). [online] Available at: <https://www.hambleton.gov.uk/planning-policy/adopted-local-development-framework/2> [Accessed 04 February 2021].

²⁴⁹ Hambleton District Council, (2008). Hambleton Development Policies DPD. [online] Available at: <https://www.hambleton.gov.uk/planning-policy/adopted-local-development-framework/3> [Accessed 04 February 2021].

Policy reference	Policy context	Section considered
Particular reference to policies: DP1 Protecting amenity DP5 Community facilities DP6 Utilities and infrastructure DP25 Rural employment DP30 Protecting the character and appearance of the countryside DP33 Landscaping DP34 Sustainable energy DP37 Open space, sport and recreation DP39 Recreational links	The Hambleton Development Policies DPD provides further details to assist the delivery of the Core Strategy in Hambleton. Policies include supporting deprived areas and disadvantaged groups through the regeneration of rural areas and aim to deliver development that is sustainable and does not harm Hambleton's valuable man-made assets and its natural features. In addition, policies incorporate recreational issues and ensuring that future developments and associated landscaping are designed to complement existing landscape and townscape quality. This will support the overall health and amenity of sustainable communities.	Section 15.4: Baseline Conditions Section 15.6: Scope of the assessment
Hambleton Allocations DPD (2010)²⁵⁰		
Particular reference to: Easingwold Sub Area	The Hambleton Allocations DPD concerns the site specific allocations that form one of the "Development Plan Documents" (DPDs). The document includes the core strategy context and development commitments, including strategic infrastructure, in each of the district sub-areas, including the Easingwold Sub Area where the Project is located.	Section 15.4: Baseline Conditions Section 15.6: Scope of the assessment
Hambleton draft Local Plan (2019)²⁵¹		
Particular reference to: Infrastructure and Community Services	The Hambleton draft Local Plan sets out a strategy for development and addresses the need for new homes and jobs alongside the need for associated infrastructure, such as shops, community facilities, transport, open space, sport and recreation, health and education. The draft is currently at the examination stage. The overall objective of the Plan is to promote sustainable development.	Section 15.4: Baseline Conditions Section 15.6: Scope of the assessment

²⁵⁰ Hambleton District Council, (2010). Hambleton Allocations DPD. [online] Available at: <https://www.hambleton.gov.uk/planning-policy/adopted-local-development-framework/4> [Accessed 04 February 2021].

²⁵¹ Hambleton District Council, (2019). Hambleton draft Local Plan (July 2019). [online] Available at: <https://www.hambleton.gov.uk/downloads/file/1087/lp01-hambleton-local-plan-publication-draft-july-2019> [Accessed 04 February 2021].

Policy reference	Policy context	Section considered
Leeds City Council Saved Unitary Development Plan (UDP) Review (2006)²⁵²		
Particular reference to policies: N5 Improving acquisition of greenspace N6 Protection of playing pitches N43 Informal outdoor recreation LT6B Waterways and public rights of way	The Leeds UDP Review (2006) forms the Development Plan for Leeds until it is gradually replaced by the emerging Local Plan. The UDP aims to promote improvements to and provision of community buildings and greenspaces for recreation, social, leisure, health and education purposes through planning agreements.	Section 15.4: Baseline Conditions Section 15.6: Scope of the assessment
Leeds Local Plan: Core Strategy (as amended by the Core Strategy Selective Review 2019)²⁵³		
Particular reference to policies: P9 Community facilities and other services P12 Landscape G1 Enhancing and extending green infrastructure G3 Standards for open space, sport and recreation EN3 Low carbon energy	Leeds City Council is preparing the Local Development Framework (LDF) for Leeds, which include the Core Strategy. The Core Strategy sets out an overall spatial vision, objectives and policy framework to improve quality of life across the District, including the lives of children and young people. It also recognises the need to tackle health issues and disparities across the District as well as to recognise the role of the District's Green Infrastructure and green space and in contributing to public health.	Section 15.4: Baseline Conditions Section 15.6: Scope of the assessment
York Local Plan (2005) (saved policies)²⁵⁴		
Particular reference to policies: GP5 Renewable Energy GP7 Open Space T2a Existing Pedestrian/Cycle Networks T5 Traffic and Pedestrian Safety	The York Local Plan (saved policies) sets out the strategy for the City of York which include: Building confident, creative and inclusive communities; Being a leading environmentally friendly City; Being at the forefront of innovation and change with a prosperous and thriving economy;	Section 15.4: Baseline Conditions Section 15.6: Scope of the assessment

²⁵² Leeds City Council, (2006). Unitary Development Plan Review 2006. [online] Available at:

https://www.leeds.gov.uk/docs/FPI_UDP_001%20Volumen%201%20Written%20Statement.pdf [Accessed 09 March 2021].

²⁵³ Leeds City Council, (2019). Core Strategy (as amended by the Core Strategy Selective Review 2019). [online] Available at:

<https://www.leeds.gov.uk/Local%20Plans/Adopted%20Core%20Strategy/Consolidated%20Core%20Strategy%20with%20CSSR%20Policies%200Sept%202019.pdf> [Accessed 09 March 2021].

²⁵⁴ York City Council, (2005). York Local Plan (saved policies). [online] Available at: <https://www.york.gov.uk/downloads/file/2808/the-local-plan-2005-main-document> [Accessed 04 February 2021].

Policy reference	Policy context	Section considered
L1b Loss of Local Leisure Facilities V2 Infrastructure and Services C1 Community Facilities	Being a world class centre for education and learning for all; and Celebrating our historic past whilst creating a successful and thriving future.	
York draft Local Plan (2018)²⁵⁵		
Particular reference to: Section 6: Health and Wellbeing	The York draft Local Plan is currently at the Examination stage. With regards to health and wellbeing, the draft Local Plan sets out the Council's ambition to help create happy, healthy and resilient communities and for all residents to have the best possible physical and mental health throughout the course of their lives.	Section 15.4: Baseline Conditions Section 15.6: Scope of the assessment
Upper Poppleton and Nether Poppleton Neighbourhood Plan 2016-2036 (2017)²⁵⁶		
Particular reference to policies: PNP 5 Cycle and Pedestrian Access Policy PNP 11 Climate Change and Renewable Energy	The Upper Poppleton and Nether Poppleton Neighbourhood Plan sets out a vision to manage development in the Upper Poppleton and Nether Poppleton villages, ensuring they include the right array of facilities, amenities and transport links and that there are safe cycle/pedestrian shared spaces within the village and connecting to the City of York to promote healthy living for all.	Section 15.4: Baseline Conditions Section 15.6: Scope of the assessment
Selby District Local Plan (2005) (saved policies)²⁵⁷		
Particular reference to policies: T7 Provision for Cyclists T8 Public Rights of Way RT1 Protection of Existing Recreation Open Space and Allotments	The Selby District Local Plan (saved policies) sets out the spatial vision and development strategy for the Selby district. The primary aims and objectives of the Plan are concerned with: the promotion of sustainable development; the protection and enhancement of environmental quality; and	Section 15.4: Baseline Conditions Section 15.6: Scope of the assessment

²⁵⁵ York City Council, (2018). York draft Local Plan. Publication draft (February 2018). [online] Available at: <https://www.york.gov.uk/downloads/file/1314/cd001-city-of-york-local-plan-publication-draft-regulation-19-consultation-february-2018-> [Accessed 04 February 2021].

²⁵⁶ Nether with Upper Poppleton Neighbourhood Plan Committee, (2016). Upper Poppleton and Nether Poppleton Neighbourhood Plan 2016-2036. [online] Available at: <https://www.york.gov.uk/downloads/file/2830/upper-and-nether-poppleton-neighbourhood-plan-adopted-version-october-2017-> [Accessed 04 February 2021].

²⁵⁷ Selby District Council, (2005). Selby District Local Plan (saved policies). [online] Available at: <https://www.selby.gov.uk/selby-district-local-plan-sdlp-2005> [Accessed 04 February 2021].

Policy reference	Policy context	Section considered
RT5 Informal Recreation and Access in the Countryside CS1 Health Care Facilities CS4 Community Centre, Places of Worship and Church Halls CS6 Development Contributions to Infrastructure and Community Facilities	planning for contemporary patterns of development.	
Selby District Core Strategy Local Plan (2013)²⁵⁸		
Particular reference to policies: SP1 Presumption in Favour of Sustainable Development SP12 Access to Services, Community Facilities, and Infrastructure SP15 Sustainable Development and Climate Change	The Core Strategy provides a spatial vision for Selby District and strategic objectives to achieve that vision. The strategy aims to ensure that new development and other actions protects and enhances the built and natural environment, reinforces the distinct identity of towns and villages, and supports community health and wellbeing, including new communities.	Section 15.4: Baseline Conditions Section 15.6: Scope of the assessment
Selby Draft Local Plan - Preferred options January 2021²⁵⁹		
Particular reference to: Section 22: Monk Fryston & Hillam Section 28: Tadcaster	The Selby Draft Local Plan - Preferred Options sets out the Council's preferred approach to development growth in Selby District up to 2040. The Council Plan sets the overarching policy direction for the Council including the long-term vision, priorities and high-level actions to deliver on those priorities. The Council Plan priorities and objectives are: A great place to live - through improved housing supply, better quality homes and improved town centres;	Section 15.4: Baseline Conditions Section 15.6: Scope of the assessment

²⁵⁸ Selby District Council, (2013). Selby District Core Strategy Local Plan. [online] Available at: https://www.selby.gov.uk/sites/default/files/Documents/CS_Adoption_Ver_OCT_2013_REDUCED.pdf [Accessed 04 February 2021].

²⁵⁹ Selby District Council, (2021). Selby Draft Local Plan - Preferred options January 2021. [online] Available at: https://www.selby.gov.uk/sites/default/files/Local_Plan_PREFERRED_Options_29-01-2021_%28Web%20Version%29.pdf [Accessed 04 February 2021].

Policy reference	Policy context	Section considered
	<p>A great place to enjoy - through improved environmental quality, safe neighbourhoods and improved sustainable transport;</p> <p>A great place to grow - through increased investment in the district, more well paid jobs and higher skills levels; and</p> <p>A Council delivering great value - through digital enabled customer service, good quality services and being financially stable.</p>	

North Yorkshire Joint Health and Well-Being Strategy 2015-2020²⁶⁰

-	<p>The Joint Health and Well-Being Strategy is a shared agreement between organisations that are represented on the Health and Well-Being Board. These include local authorities, Clinical Commissioning Groups and National Health Service (NHS) England.</p> <p>It is based on five key themes: Connected Communities; Start Well; Live Well; Age Well; and Dying Well.</p> <p>The overall outcome of the Strategy is for North Yorkshire to be a place where communities flourish, people shape services and have control of their lives.</p>	<p>Section 15.4: Baseline Conditions</p> <p>Section 15.6: Scope of the assessment</p>
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Leeds Joint Health and Wellbeing Strategy 2016-2021²⁶¹

-	<p>The Leeds Joint Health and Wellbeing Strategy sets out a vision for Leeds to be a healthy and caring City for all ages.</p> <p>Key outcomes of this approach are for people who are the poorest, to have improved health the fastest, with an overarching desire to reduce the differences in life expectancy between communities.</p>	<p>Section 15.4: Baseline Conditions</p> <p>Section 15.6: Scope of the assessment</p>
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York's Joint Health and Wellbeing Strategy 2017-2022²⁶²

²⁶⁰ North Yorkshire Health and Wellbeing Board, (2015). North Yorkshire Joint Health and Well-Being Strategy 2015-2020. [online] Available at: <https://www.nypartnerships.org.uk/sites/default/files/Partnership%20files/Health%20and%20wellbeing/jhwbs.pdf> [Accessed 04 February 2021].

²⁶¹ Leeds Health and Wellbeing Board, (2016). Leeds Joint Health and Wellbeing Strategy 2016-2021. [online] Available at: <https://71633548c5390f9d8a76-11ea5efadf29c8f7bdcc6a216b02560a.ssl.cf3.rackcdn.com/content/uploads/2016/07/Health-and-Wellbeing-2016-2021.pdf> [Accessed 04 February 2021].

²⁶² York Health and Wellbeing Board, (2017). York's Joint Health and Wellbeing Strategy 2017-2022. [online] Available at: <https://www.york.gov.uk/downloads/file/1103/joint-health-and-wellbeing-strategy-2017-to-2022> [Accessed 04 February 2021].

Policy reference	Policy context	Section considered
-	<p>The York Joint Health and Wellbeing Strategy is based on five key themes: Mental Health and Wellbeing; Starting and Growing Well; Living and Working Well; and Ageing Well.</p> <p>In order to deliver this Strategy, the Health and Wellbeing Board will need to transform the way in which they work - with individuals, with communities, and within the Board.</p>	<p>Section 15.4: Baseline Conditions</p> <p>Section 15.6: Scope of the assessment</p>

Technical Guidance

- 15.2.4 The EIA Regulations reinforce health within the planning and assessment process, but do not provide definitive guidance on the approach, process or methodology to follow.
- 15.2.5 Taking this into consideration, it is appropriate for the health and wellbeing assessment to apply recognised Health Impact Assessment (HIA) guidance and other relevant guidance and combine this with the requirements defined for EIA to investigate, inform, assess and effectively communicate how and where all health issues and opportunities are addressed.
- 15.2.6 The approach draws on documented guidance and research which is presented in **Table 15.2**.

Table 15.2 Technical guidance relevant to Health and Wellbeing

Technical Guidance Document	Context	Section considered
Planning Practice Guidance (PPG) (2019)²⁶³		
Particular reference to: Healthy and Safe Communities	<p>The PPG provides a web-based resource in support of the NPPF and the section on Healthy and Safe Communities offers guidance on health and wellbeing in planning and planning obligations. It covers both:</p> <ul style="list-style-type: none"> • The role of health and wellbeing in planning; and • The links between health and wellbeing and planning. <p>The PPG suggests that Local Authority planners should consult with the Director of Public Health on mitigation measures for any planning applications that are likely to have a</p>	<p>Section 15.6: Scope of the assessment</p> <p>Section 15.7: Assessment methodology</p>

²⁶³ MHCLG, (2019). Planning Practice Guidance. [online] Available at: <https://www.gov.uk/government/collections/planning-practice-guidance> [Accessed 04 February 2021].

Technical Guidance Document	Context	Section considered
	significant impact on the health and wellbeing of the local population or particular groups. A health impact assessment is a useful tool to use when assessing expected significant effects.	
The Public Health England Strategy 2020 to 2025²⁶⁴		
-	The strategy sets out how Public Health England will work to improve public health and reduce health inequalities.	Section 15.6: Scope of the assessment
	The key objectives for the period to 2025 include improved governance and embedding universal approaches on all programmes across Public Health England to support decision making.	Section 15.7: Assessment methodology
Fair Society, Healthy Lives: The Marmot Review. Strategic review of health inequalities in England post-2010 (2010)²⁶⁵		
-	This Review provides guidance on decision-making to reduce health inequality in the context of health inequality in England.	Section 15.6: Scope of the assessment
	The report argues that serious avoidable health inequalities exist across England and shows these inequalities to be determined by a wide range of socio-economic factors. Health is linked to both individuals and communities.	Section 15.7: Assessment methodology
Health inequality in England: The Marmot Review 10 years on. (2020)²⁶⁶		
-	The Marmot Review 10 Years On report published in February 2020, strengthens the argument provided in the Marmot Review, showing that health inequalities in England are increasing. Social and ethnic inequalities in health should be addressed to ensure better health outcomes for all. The report makes the case for a multi-disciplinary approach to achieve a reduction in health inequalities, which integrates health policies with housing, economic development and transport policies.	Section 15.6: Scope of the assessment Section 15.7: Assessment methodology

²⁶⁴ Public Health England, (2019). PHE Strategy 2020 to 2025. [online] Available at: <https://www.gov.uk/government/publications/phe-strategy-2020-to-2025> [Accessed 04 February 2021].

²⁶⁵ Institute of Health Equity, (2010). Fair Society, Healthy Lives, The Marmot Review. [online] Available at: <http://www.instituteofhealthequity.org/resources-reports/fair-society-healthy-lives-the-marmot-review> [Accessed 04 February 2021].

²⁶⁶ Institute of Health Equity, (2020). Health Equity in England: The Marmot Review 10 Years on. [online] Available at: <http://www.instituteofhealthequity.org/resources-reports/marmot-review-10-years-on> [Accessed 04 February 2021].

Technical Guidance Document	Context	Section considered
Build Back Fairer: The COVID-19 Marmot Review (2020)²⁶⁷		
-	<p>An update to the Marmot Review 10 Years On report, Build Back Fairer: The COVID-19 Marmot Review, was published in December 2020 to investigate how the pandemic has affected health inequalities in England.</p> <p>The COVID-19 pandemic has exposed and amplified the inequalities highlighted in the Marmot Review 10 Years On report. The report points out that the economic harm caused by measures to control the virus also risks causing further damage to health and widening of health inequalities.</p>	<p>Section 15.6: Scope of the assessment</p> <p>Section 15.7: Assessment methodology</p>
Institute for Environmental Management and Assessment's (IEMA's) 'Health in Environmental Impact Assessment: A Primer for a Proportionate Approach' Approach (2017)²⁶⁸		
-	<p>This guidance proposes ways in which health and wellbeing can be assessed as part of an ES.</p>	<p>Section 15.7: Assessment methodology</p>
Design Manual for Roads and Bridges (DMRB) (2019)²⁶⁹		
<p>Particular reference to: Document LA112 – Population and Human Health</p>	<p>Document LA112 – Population and Human Health sets out requirements for assessing and reporting the environmental effects on population and health from construction, operation and maintenance of highways projects.</p> <p>It provides a methodological framework for the assessment of human health effects in respect of linear infrastructure projects that goes beyond other guidance in detail. It is therefore applicable to the Project and elements of it inform the proposed health and wellbeing assessment.</p>	<p>Section 15.7: Assessment methodology</p>

²⁶⁷Institute of Health Equity, (2020). Build Back Fairer: The COVID-19 Marmot Review. The Pandemic, Socioeconomic and Health Inequalities in England. [online] Available at: <http://www.instituteofhealthequity.org/about-our-work/latest-updates-from-the-institute/build-back-fairer> [Accessed 04 February 2021].

²⁶⁸ Cave, B. Fothergill, J., Pyper, R., Gibson, G. and Saunders, P., (2017). Health in Environmental Impact Assessment: A Primer for a Proportionate Approach. Ben Cave Associates Ltd, IEMA and the Faculty of Public Health. [online] Available at: <https://www.iema.net> [Accessed 04 February 2021].

²⁶⁹ Highways England, (2019). Design Manual for Roads and Bridges. [online] Available at: <https://www.standardsforhighways.co.uk/dmrb> [Accessed 04 February 2021].

15.3 Consultation and engagement

- 15.3.1 Consultation and engagement will underpin the health-conscious approach to planning the Project and where relevant aligning with local health priorities.
- 15.3.2 Stakeholder engagement will be carried out during the preparation of the PEIR and ES to supplement desk-based analysis, and to capture any local data or local knowledge that might not be accessible in the public domain. With respect to the health and wellbeing assessment specifically, the approach will inform the scope of the assessment, the baseline context, managing sensitivities and relevant design and mitigation measures.
- 15.3.3 Key stakeholders that will be engaged will include: health officials from relevant local authorities and Public Health England.

15.4 Baseline conditions

- 15.4.1 The potential impacts arising from the Project are assessed relative to the baseline conditions and benchmarked against regional and national standards where appropriate. This section provides an overview of the baseline conditions for the defined Study Area. The information gathered and presented has been identified through a desktop study.

Study Area

- 15.4.2 This section presents the Study Area for health and wellbeing based on current Project information. The Study Area and assessment year for the determinants of health will match those of the individual environmental aspects (for example air quality, noise and transport) set out in **Section 15.1**. They may also be different for the construction and operational phases, and across the main components of the Project.
- 15.4.3 At present, a wide definition of the spatial area for consideration for the health assessment applies that includes the Scoping red line boundary (**Figure 1.1**). It also includes the surrounding areas based on administrative boundaries to align with how the Government publishes official data and with the boundaries of health service planning areas, which are typically at borough-level (**Figure 15.1**). Study areas defined by other topics for each environmental aspect of relevance to health and wellbeing will also be relevant in the assessment where effects are identified that inform the health and wellbeing assessment (for example air quality, noise and transport) and are as set out in the relevant chapters of this Scoping Report.
- 15.4.4 The immediate Zone of Influence (ZOI) of the Project is identified as the wards which fall within the Scoping red line boundary. The wider ZOI is identified as being the districts through which the scheme passes. These are identified in the following section.

Health and wellbeing profile baseline Study Area

- 15.4.5 The Study Area for the health and wellbeing profile baseline is influenced by the availability of relevant publicly available data which is collected at different scales of administrative geography.

- 15.4.6 The baseline Study Areas will include national (England & Wales), regional (Yorkshire & Humber), County (North Yorkshire County Council), and district level (Harrogate Borough Council (Harrogate), Hambleton District Council (Hambleton), Leeds City Council (Leeds), York City Council (York), and Selby District Council (Selby)). In addition, the health and wellbeing baseline will include, where data is available and relevant, profile information from the local wards closest to the Project.
- 15.4.7 The wards which fall within the Scoping red line boundary of the Project are the following²⁷⁰:
- Harrogate Borough Council: Marston Moor; and Ouseburn.
 - Hambleton District Council: Easingwold; and Huby.
 - Leeds City Council: Wetherby.
 - York City Council: Rural West York; Haxby and Wigginton; Osbaldwick & Derwent; and Hull Road.
 - Selby District Council: Tadcaster; Appleton Roebuck & Church Fenton; Sherburn in Elmet; South Milford; Byram & Brotherton; and Monk Fryston.

Health and wellbeing assessment Study Area

- 15.4.8 The Study Areas for aspects of relevance to the health and wellbeing assessment will be influenced by the geographic extent of the relevant technical aspects. For example, potential effects on health and wellbeing related to noise are likely to be experienced close to the source, whereas health and wellbeing effects related to socio-economic factors such as employment opportunities would be expected to be experienced over a larger area. The impact of the Project on existing health services will be assessed in line with the scale at which services are planned. The assessment will refer to the spatial areas identified by the relevant technical aspect assessments. These will be set out in the PEIR and ES.

Data gathering methodology

- 15.4.9 The principal desk-based data sources used to inform the health and wellbeing profile baseline are set out in **Table 15.3**. These are principal sources only and the PEIR and ES will draw on data available at the time of the assessment.

Table 15.3 Principal sources of data – Health and Wellbeing profile baseline

Technical Guidance Document	Context
Office for National Statistics (ONS)	<ul style="list-style-type: none"> ● Mid-year sub-national population estimate data (2019-based) (2020) ● Population Projections (2019-based) (2020) ● 2011 Census Data ● Life Expectancy at birth data (2020)

²⁷⁰ The names and boundaries of the wards considered for the baseline are the latest available. These have changed since the publication of Census 2011 data. Where boundaries of the wards vary across datasets, this will be specified.

Technical Guidance Document	Context
NHS Choices	<ul style="list-style-type: none"> Health services and patient list size data
Sports England	<ul style="list-style-type: none"> Active People Survey
Public Health England	<ul style="list-style-type: none"> Deaths by cause, disease prevalence data Health Profiles (2019)
Ministry of Housing, Communities and Local Government (MHCLG)	<ul style="list-style-type: none"> Index of Multiple Deprivation (2019)
North Yorkshire Joint Strategic Needs Assessment	<ul style="list-style-type: none"> North Yorkshire health profile and priorities, including Hambleton, Harrogate and Selby Districts.
York Joint Strategic Needs Assessment	<ul style="list-style-type: none"> York health profile and health priorities.

Current baseline

- 15.4.10 This section sets out a summary of the key relevant baseline data covering the Study Areas identified above. Information gathered and presented has been identified through a desktop study.
- 15.4.11 The Project is located in the Yorkshire and Humber region, which has an estimated population of 5,502,967²⁷¹. The Study Area and its immediate surrounding are predominantly farmland, with nearby villages including Tadcaster, Monk Fryston, South Milford, Nether Poppleton, Skelton, Shipton and Wigginton. In addition, the Project includes works in the east of the city of York, at Osbaldwick substation. The Study Area is serviced by a comprehensive network of Public Rights of Way (PRoWs) as well as the National Cycle Routes 65 and 66.
- 15.4.12 The Government's Index of Multiple Deprivation (2019)²⁷² measures deprivation in England across seven different domains which combine to create an overall index.
- 15.4.13 According to the English Indices of Deprivation, in 2019, Selby was ranked 252nd most deprived local authority in England (of a total of 317 districts, where 1 is the most deprived). Only 2% of the Lower Layer Super Output Areas (LSOAs) in the district are in the top 10% most deprived in England, which is lower than the proportion for the Yorkshire and Humber region (19.3%). With respect to health and disability deprivation, 6.0% of LSOAs in the district are in the 30% most deprived, which is lower than the proportion for the Yorkshire and Humber region (44.0%).
- 15.4.14 Hambleton was ranked 255th out of 317 local authorities in 2019. Only 3.8% of the LSOAs in the district are in the 30% most deprived, which is lower than the proportion for the Yorkshire and Humber region (40.0%). For deprivation measured by health and

²⁷¹ ONS, (2020). Mid-Year Population Estimates 2019. [online] Available at: <https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/datasets/populationestimatesforukenglandandwalesscotlandandnorthernireland> [Accessed 10 February 2021].

²⁷² DCLG, (2019). English Indices of Deprivation 2019. [online] Available at: <https://www.gov.uk/government/statistics/english-indices-of-deprivation-2019> [Accessed 10 February 2021].

disability, 1.9% of LSOAs in the district are in the 30% most deprived, notably lower than the proportion recorded within the Yorkshire and Humber region (44.0%).

- 15.4.15 Harrogate was ranked 278th out of 317 local authorities in 2019. Only 2% of the LSOAs in the district are in the 30% most deprived, which is lower than the proportion for the Yorkshire and Humber region (40.0%). With respect to the health and disability deprivation, 3% of LSOAs in the district are in the 30% most deprived, which is lower than the proportion for the Yorkshire and Humber region (44.0%).
- 15.4.16 Leeds was ranked 92nd out of 317 local authorities in 2019. 42.3% of the LSOAs in the district are in the 30% most deprived, which is higher than the proportion for the Yorkshire and Humber region (40.0%). With respect to health and disability deprivation, 45.6% of LSOAs in the district are in the 30% most deprived, which is higher than the proportion for the Yorkshire and Humber region (44.0%).
- 15.4.17 York was ranked 275th out of 317 local authorities in 2019. 16% of the LSOAs in the district are in the 30% most deprived, which is lower than the proportion for the Yorkshire and Humber region (40.0%). Regarding health and disability deprivation, 5.8% of LSOAs in the district are in the 30% most deprived, which is again lower than the proportion for the Yorkshire and Humber region (44.0%).
- 15.4.18 **Table 15.5** provides a profile of health and wellbeing in the area surrounding the Project, focusing on key indicators identified by Public Health England²⁷³ and supplemented by ONS data^{274;275} at local authority level including a comparison of these to regional and national averages.

²⁷³ PHE, (2019). Health Profiles (2019). [online] Available at: <https://fingertips.phe.org.uk/profile/health-profiles> [Accessed 10 February 2021].

²⁷⁴ ONS, (2020). Mid-Year Population Estimates 2019. [online] Available at: <https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/datasets/populationestimatesforukenglandandwalesscotlandandnorthernireland> [Accessed 10 February 2021].

²⁷⁵ ONS, (2012). Census 2011. [online] Available at: <https://www.ons.gov.uk/census/2011census> [Accessed 10 February 2021].

Table 15.4 Health and wellbeing profile

Indicator	Selby District Council	Hambleton District Council	Harrogate District Council	Leeds City Council	York City Council	North Yorkshire County	North Yorkshire & Humber	England & Wales
Working age population (16-64) (2019/20) (%)	61.1%	57.5%	58.8%	65.1%	66.0%	58.59%	62.1%	63.4%
Economically active population (2019/20) (%)	77.0%	80.8%	79.3%	77.8%	81.0%	78.1%	77.8%	79.3%
Long term illness or disability (2011) (%)	7.2%	7.1%	6.6%	7.9%	6.6%	7.6%	9.1%	8.5%
Population in bad and very bad health (2011) (%)	4.6%	4.3%	3.8%	5.4%	4.1%	4.6%	6.0%	5.6%
Obese adults (aged 18+) (2018/19) (%)	72.8%	62.2%	56.9%	62.0%	56.9%	62.9%	62.3%	63.3%
Obese children (Year 6) (2019/20) (%)	20.7%	17.6%	17.2%		22.1%	18.5%	21.9%	21.0%
Physically active adults (2018/19) (%)	72.8%	71.1%	72.9%	69.7%	75.2%	70.7%	66.2%	67.2%
Hospital admissions for alcohol related conditions (2018/19)*	629	612	691	649	713	679	729	664
Life expectancy at birth for males (2017/19) (years)	80.5	81.8	81.1	78.2	80.2	80.6	78.8	79.8
Life expectancy at birth for females (2017/19) (years)	83.5	84.8	85.2	82.1	83.7	84.4	82.5	83.4
Under 75 mortality rate from cardiovascular diseases (2017/19)*	58.6	53.0	53.1	82.3	65.9	59.0	80.2	70.4
Under 75 mortality rate from cancer (2017/19)*	117.9	111.1	115.9	146.5	132.2	117.0	137.5	129.2

* Directly standardised rate - per 100,000

Future baseline

- 15.4.19 The socio-economic and health profile in the Study Area can be expected to change during the construction of the Project. The population of Yorkshire and the Humber region is expected to grow 3.6% to mid-2028²⁷⁶. At district level, in the same time frame, the population is expected to grow approximately 9.4% (Selby); 3.2% (Leeds); 1.9% (York); 1.5% (Hambleton); and 0.5% (Harrogate).
- 15.4.20 The expected population growth will increase demand on social infrastructure and recreational routes in the Study Area. However, it is expected that planning policy will continue to ensure that there is sufficient investment into the necessary services and infrastructure to accommodate this population increase. Therefore, it is not expected that there will be any perceptible changes to the local economy and the Project should be assessed against current baseline conditions and policies.
- 15.4.21 It is noted, however, that these forecasts might be subject to change due to the impacts on demographic growth and behavioural shift resulting from the COVID-19 pandemic. At the time of writing, these impacts are still unknown and therefore cannot be quantified.

15.5 Embedded Environmental Measures

- 15.5.1 Health and wellbeing will be taken into consideration as part of the iterative design and development of the Project to ensure negative effects are avoided, potential beneficial effects enhanced and any potential significant adverse effects on health and wellbeing mitigated.
- 15.5.2 Mitigation measures will be identified through the following specific technical aspects that will seek to reduce or avoid potential significant health effects: **Chapter 5: Landscape and Visual Amenity**; **Chapter 7: Biodiversity**; **Chapter 12: Traffic and Transport**; **Chapter 13: Air Quality**; **Chapter 14: Noise and Vibration**; and **Chapter 16: Socio-economics**. Potential embedded mitigation measures which have been identified to date include:
- Design measures (embedded) –including screening and other measures to reduce noise and air quality impacts, and the temporary diversion of recreational routes and amenity areas where these may be disturbed during the construction phase to avoid impacts.
 - Good practice measures (embedded) – including a Construction Environmental Management Plan to include measures to reduce dust, odours and noise during the construction phase (which could have impacts on health and wellbeing), and outreach and employment measures to support local people into work on the Project which could support beneficial mental and physical health effects.
- 15.5.3 Additional mitigation may be defined within the PEIR and ES to mitigate any significant adverse effects, once Project design and best practice measures are taken into account.

²⁷⁶ ONS, (2020). Subnational population projections for England: 2018-based. [online] Available at: <https://www.ons.gov.uk/releases/subnationalpopulationprojectionsforengland2018based> [Accessed 10 February 2021].

15.6 Scope of the assessment

15.6.1 The assessment will consider the impacts of the Project that could have effects on health and wellbeing. Using a source-pathway-receptor approach, impacts will be identified where there is potential for beneficial or adverse effect, and an assessment will be made of the effect on health and wellbeing.

Potential receptors

15.6.2 The receptors relevant to the health and wellbeing assessment are the physical and mental health of local residents, workforce, and visitors. These receptors are summarised in **Table 15.6**.

15.6.3 Where relevant the assessment will consider the effects across the population within the Study Area and will identify any groups that are affected by identified impacts to a proportionately greater extent than others e.g. vulnerable groups. The definition of these groups will be developed as the Project evolves during the preparation of the PEIR and ES.

Table 15.5 Receptors subject to potential effects

Element of the scheme	Phase	Potential Receptor	Reason for consideration
Project-wide (across local economy and local transport network, not spatially associated with elements of the Project)	Construction	The health of local residents, business owners and employees, workers in the local economy, visitors using the local transport network, and the capacity of local health services.	Potential health effects associated with socio-economic.
Construction of overhead lines, substations and cable sealing end compounds, works to existing electricity infrastructure, underground cables	Construction phase	The health of local residents, workers and visitors, and the capacity of local health services.	Potential health effects associated with socio-economic, transport, noise and vibration, landscape and visual, air quality, and recreation effects associated with the construction of the Project.
Operation of overhead lines, substations, cable sealing end compounds and	Operation phase (and maintenance)	The health of local residents, workers and visitors, and the capacity of local health services.	Potential health effects associated with socio-economic, transport, noise and vibration, landscape and visual, air quality and recreation

Element of the scheme	Phase	Potential Receptor	Reason for consideration
underground cables			effects associated with the construction of the Project.

Health Determinants

- 15.6.4 The health and wellbeing ES chapter will consider how the Project will impact on health outcomes and promote healthy lifestyles in order to reduce health inequalities in the Study Area. The scope of the assessment will be established by identifying the likely health determinants and possible pathways between a health influence and a receptor (an affected individual or community).
- 15.6.5 There is no definitive guidance on how to assess human health within an ES. Best practice principles are provided in NHS England's/Healthy Urban Development Unit's (HUDU) Rapid HIA Toolkit (Fourth Edition) 2019²⁷⁷ and will form the basis for the approach to assessing impacts on health and wellbeing.
- 15.6.6 This qualitative assessment of human health effects considers the following health and well-being determinants²⁷⁸ of relevance:
- Access to healthcare services and other social infrastructure;
 - Access to open space and nature;
 - Air quality, noise and neighbourhood amenity;
 - Accessibility and active travel;
 - Crime reduction and community safety;
 - Access to work and training; and
 - Social cohesion and neighbourhoods.
- 15.6.7 These health determinants are considered when assessing the likely impacts of the Project.

Likely effects

- 15.6.8 The likely health and wellbeing effects that will be taken forward for assessment in the ES are summarised in **Table 15.6**.

²⁷⁷ HUDU, (2019). Planning for Health Rapid HIA Tool, Fourth Edition. [online] Available at: <https://www.healthyrbandevelopment.nhs.uk/wp-content/uploads/2019/10/HUDU-Rapid-HIA-Tool-October-2019.pdf> [Accessed 12 February 2021].

²⁷⁸ A comprehensive set of human health and well-being determinants is listed in the London Healthy Urban Development Unit (HUDU) Rapid Health Impact Assessment Tool Fourth Edition 2019 which is generally considered as a best practice tool to use when undertaking health and well-being impact assessments.

Table 15.6 Likely Health and Wellbeing effects

Activity	Health Determinant	Effect	Receptor
Construction			
Generation of employment opportunities associated with construction activities	Access to work and training.	Increased employment and training opportunities	Health of the construction workforce.
Temporary growth in local population and change in demographics associated with the temporary construction workforce during the construction phase	Access to healthcare services and other social infrastructure.	Increase in population including demographic change, potential increase in demand for accommodation and community services including health services.	Health of local residents living in accommodation or accessing existing health services.
Amenity effects associated with construction activities	Air quality, noise and neighbourhood amenity; Social cohesion and neighbourhoods; Crime reduction and community safety.	Potential amenity effects (e.g. noise, construction traffic, air quality and visual intrusion) which could impact on the mental and physical health of people living or working in local communities as well as visitors, including impacts on community cohesion due to severance and/ or impacts to the local communities' quality of life.	Health of local residents and workers in communities close to the construction sites as well as visitors and exposed to amenity effects (e.g. noise, construction traffic, air quality and visual intrusion).
Disturbance to recreational routes and amenity areas associated with construction activities	Access to open space and nature; Air quality, noise and neighbourhood amenity; Accessibility and active travel.	Potential severance impacts (temporary diversion or closures) on walkers and cyclists in accessing recreational routes and amenity areas including open spaces and nature, public rights of way, local community	Health of users of affected recreational routes and amenity areas including open spaces and nature, public rights of way, local community services and social infrastructure.

Activity	Health Determinant	Effect	Receptor
		services and social infrastructure.	
Operation			
Permanent amenity effects associated with the operation of the Project	Access to open space and nature; Air quality, noise and neighbourhood amenity; Accessibility and active travel; Social cohesion and neighbourhoods; Crime reduction and community safety.	Potential amenity effects (e.g. visual, noise or maintenance traffic) which could impact on the mental and physical health of people living or working in local communities, including impacts on community cohesion due to severance and/ or impacts to the local communities' quality of life.	Health of local residents, workers from communities close to the Project as well as visitors and exposed to permanent amenity effects (e.g. visual, noise or maintenance traffic).

15.6.9 As explained above, due to the broad nature of the determinants of health, a comprehensive assessment of the health effects of the Project will consider the environmental effects identified by other environmental aspects that could impact health and wellbeing.

15.6.10 In addition, the following environmental aspect chapters will assess additional effects of the Project that could impact health and wellbeing, where measures are expected to be established to manage risk and ensure there are no likely significant effects on health and wellbeing. Therefore, the effects scoped out from further assessment in the ES are:

- Health and wellbeing effects relating to the water environment. These will be covered within **Chapter 9: Hydrology**, which considers the impacts on water resources supporting human health and economic activity that may arise from the construction and operation of the Project. Chapter 9 will cover the quality standards of the aquatic environment and water resources in the local area and the potential impacts low standards could pose to human health. It is proposed no additional assessment of effects on health and wellbeing will be required and health effects associated with hydrology are scoped out of the health and wellbeing chapter.
- Health and wellbeing effects relating to geology, hydrogeology and soil. These will be covered within **Chapter 10: Geology and Hydrogeology**, which considers the potential impacts on groundwater, land contamination and ground instability receptors (e.g. human health, buildings) that may arise from the construction and operation of the Project. **Chapter 10** will cover the effects of exposure to residual soil contamination and accumulation of ground gas within permanent structures which may impact the health of construction workers, adjacent land users and future site users. It is proposed no additional assessment of effects on health and

wellbeing will be required and health effects associated with geology, hydrogeology and soil are scoped out of the health and wellbeing chapter.

- Health and wellbeing effects relating to the EMF exposure. Changes in EMF exposure generated by the operation of the Project might have an impact on the health and wellbeing of the local population and workforce. However, these effects have been scoped out of the ES as relevant assessments and EMF guidance applied mitigate any potential impacts arising (see **chapter 17**).

15.6.11 These aspects will be monitored during the preparation of the PEIR and ES, and where potential health effects are identified, these will be considered in the health and wellbeing chapter as relevant and appropriate.

15.7 Assessment methodology

15.7.1 Whilst the overall approach to the methodology aligns with the assessment methodology set out in **Chapter 4**, there is no recognised or consolidated methodology or practice for the assessment of effects on health and wellbeing. Best practice principles are provided in NHS England's Healthy Urban Development Unit's Rapid Health Impact Assessment (HIA) Toolkit 2019 and will form the basis of the approach adopted to assess impacts on health and wellbeing in the ES chapter.

15.7.2 Whilst not providing definitive guidance, the Institute for Environmental Management and Assessment's (IEMA's) 'Health in Environmental Impact Assessment: A Primer for a Proportionate Approach' discusses ways in which human health can be assessed as part of an EIA. In addition, Highways England's Document LA112 – Population and Human Health sets out requirements for assessing and reporting the environmental effects on population and health which are applicable to infrastructure and provides guidance which is relevant to the Project.

15.7.3 As such, the impacts of the Project on health and wellbeing are assessed qualitatively using professional judgement and best practice.

Assessing the Outcomes for Public Health and Wellbeing

15.7.4 The World Health Organisation (WHO) defines health as "*a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity*"²⁷⁹. Consequently, public health encompasses general well-being, not just the absence of illness. Some effects are direct and obvious, others are indirect and some may be synergistic, with different types of impact acting in combination.

15.7.5 The assessment will consider the following determinants when assessing the impacts of the Project on health and wellbeing:

- **Social and economic factors** – such as poverty, economic activity and unemployment and deprivation levels which influence and strongly determine health status;
- **Environmental factors** – such as air quality and the quality of the built environment which influence health and provide opportunities for health improvements;

²⁷⁹ World Health Organisation, (2006); Constitution of the World Health Organisation.

- **Lifestyle factors** – such as physical activity levels, smoking, diet, alcohol consumption and sexual behaviour which can significantly influence health outcomes; and
- **Accessibility to services and infrastructure** – such as access to health services, education, social services, transport services and leisure facilities which influence the health of a population.

15.7.6 The health and wellbeing assessment is a qualitative rather than quantitative assessment due to the diverse nature of health determinants and health outcomes which are assessed. Although the ES chapter will describe the likely qualitative health impacts, it is not possible to quantify the severity or extent of the effects. The methodology set out in the HUDU Toolkit does not include a temporal scale of considerations of the effects. It does not provide a methodology for assessing the significance of outcomes or effects and as such none is proposed here. Instead, the potential health effects during construction and operation will be described using the criteria provided in the HUDU Toolkit, which are outlined in **Table 15.7**.

Table 15.7 Health and Wellbeing impact categories

Impact Category	Impact Symbol	Description
Positive	+	A beneficial impact is identified
Neutral	0	No discernible health impact is identified
Negative	-	An adverse impact is identified
Uncertain	?	Where uncertainty exists as to the overall impact

Mitigation and residual effects

- 15.7.7 The health and wellbeing assessment will report on the likely effects of the Project taking into account the implementation of mitigation measures.
- 15.7.8 This chapter sets out a high level summary of proposed measures (see **Section 15.5**), which will evolve through the implementation planning and refinement of the design of the Project.
- 15.7.9 Reflecting the multi-disciplinary nature of health and wellbeing impacts, the Project will take a health-conscious approach considering health and wellbeing issues and opportunities when planning the design and implementation of the Project.
- 15.7.10 Reflecting the dynamic nature of the health and wellbeing profile baseline, and the potential for change given the long-term nature of the Project, a flexible and adaptive approach to mitigation will be developed to respond to potential effects on health receptors that arise due to this dynamism and inherent uncertainty.

Limitations and Assumptions

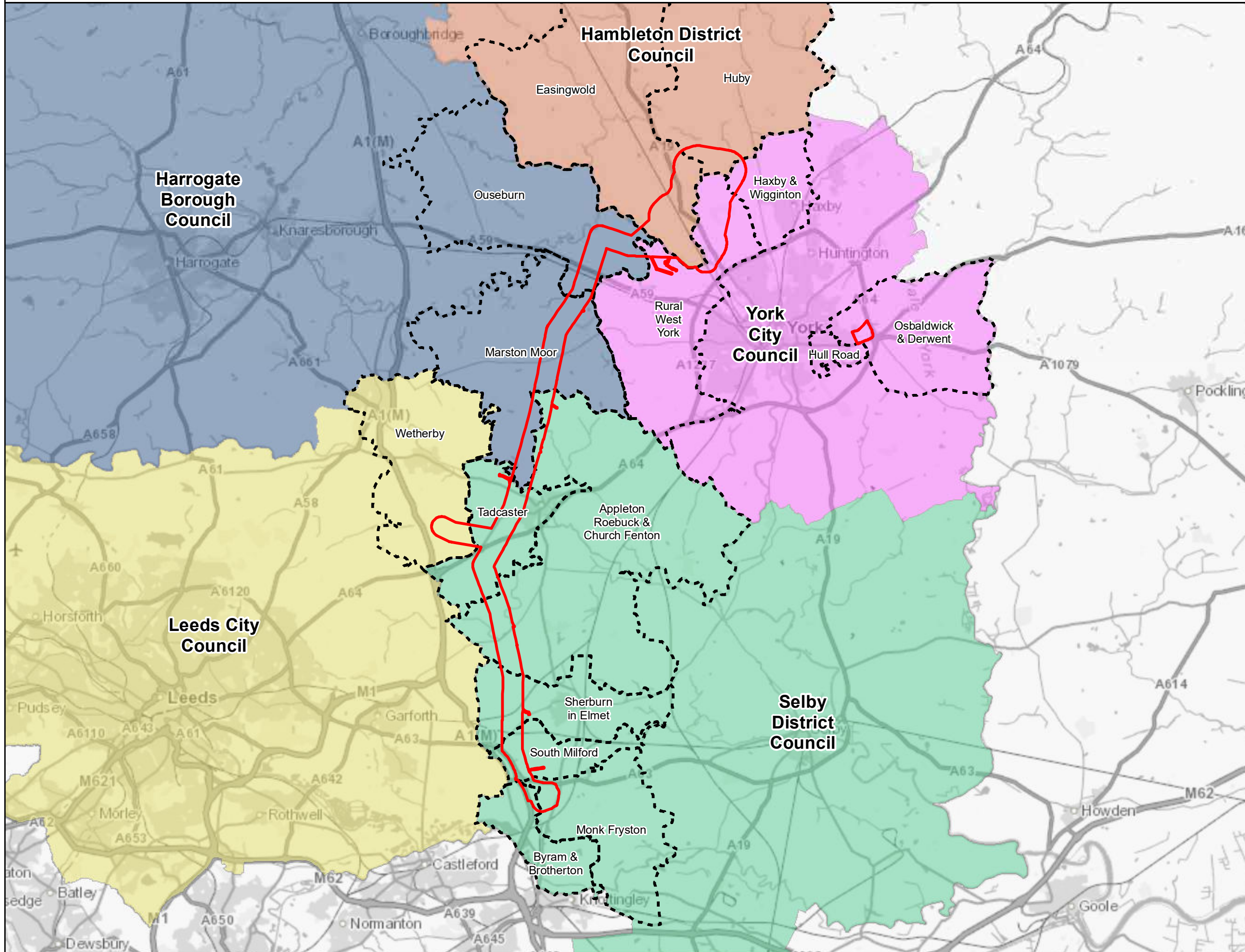
- 15.7.11 The assessment of the health and wellbeing effects will be carried out against a benchmark of current population, health and socio-economic baseline conditions prevailing around the Project, as far as is possible within the limitations of such datasets.
- 15.7.12 Baseline data is subject to a time lag between collection and publication. As with any dataset, these conditions may be subject to change over time which may influence the findings of the assessment. This is particularly significant in the current climate, where the impacts of the COVID-19 have not filtered through public data sources yet. The baseline presented in the ES will therefore represent 'pre-COVID' conditions.
- 15.7.13 Given the lack of clear industry recognised methodology in the assessment of health effects in EIA, particularly in respect of significance, the assessment presented in the Health and Wellbeing ES chapter will be qualitative and will be based on the framework provided by the HUDU/NHS Planning for Health Rapid HIA Toolkit.



HEALTH AND WELLBEING STUDY AREAS

Legend

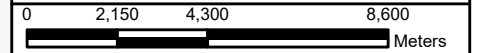
- Scoping boundary
- Ward boundaries
- Local authorities
 - Hambleton District Council
 - Harrogate Borough Council
 - Leeds City Council
 - Selby District Council
 - York City Council



Notes
 This drawing is scaled at paper size A3, therefore any prints taken at smaller sizes will affect accuracy of the measurement units and should not be scaled against.



Coordinate System: British National Grid
 Sheet X Centroid Coordinate: -1.20 Sheet Y Centroid Coordinate: 53.90



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Issue	Date	Remarks	Drawn	Checked	Approved
1	MAR 21	XXXX	COLLJ	DIMMR	CHADC

Title
 SCOPING REPORT
 CHAPTER 15: HEALTH AND WELLBEING
 HEALTH AND WELLBEING
 STUDY AREAS



Figure Number: FIGURE 15.1

Drawing Reference: 806503-WOOD-0048

Scale	Sheet Size	Sheet	Issue
1:180,000	A3	SHEET 1 OF 1	1

16. Socio- economics

16. Socio-economics

16.1 Introduction

16.1.1 The socio-economic assessment will consider the potentially significant effects on socio-economics and recreation that may arise from the construction and operational phases of the Project. This chapter of the Scoping Report describes the methodology to be used within the socio-economic assessment within the EIA, the datasets to be used to inform the assessment, an overview of the baseline conditions at the site, the likely effects to be considered within the assessment, and how these effects will be assessed for the purpose of an EIA.

16.1.2 The overall objectives of the socio-economic assessment are to examine how the Project could affect social receptors (tourism, recreational, residential and community) and economic receptors (existing businesses) as a result of the environmental impacts created, how it could support employment or businesses through Project expenditure and maximise the economic benefits and minimise any adverse effects which could arise.

16.1.3 Due to the multi-disciplinary nature of the topic, the ES chapter will consider the relevance of assessments made by other technical aspects. This will be particularly relevant where amenity topics (such as Traffic and Transport, Air Quality and Noise and Vibration) may all have individual effects on a single receptor and these need to be considered together on that receptor. Socio-economics therefore interfaces with, and should be considered alongside, the following environmental aspects:

- Chapter 5: Landscape and Visual Amenity;
- Chapter 6: Historic Environment;
- Chapter 11: Agriculture and Soils
- Chapter 12: Traffic and Transport;
- Chapter 13: Air Quality;
- Chapter 14: Noise and Vibration; and
- Chapter 15: Health and Wellbeing.

16.2 Relevant legislation, planning policy and technical guidance

16.2.1 This section identifies the relevant legislation, national and local policy and guidance relevant to the scope of potential effects on socio-economic resources which are detailed below.

Legislation

- 16.2.2 There is no dedicated UK legislation that specifies the detailed scope of socio-economic assessment or that provides appropriate standards and thresholds for determining significance of effects.

Planning Policy

- 16.2.3 A summary of the relevant national planning policies to this topic is given in **Table 16.1**.

Table 16.1 National planning policy relevant to Socio-economics

Policy reference	Policy context	Section considered
National Policy		
Overarching National Policy Statement for Energy (EN-1)		
Section 5.12	Sets out an overall approach to energy infrastructure from a socio-economic perspective.	Has influenced this Scoping chapter as a whole.
Section 5.12.3	Details some of the likely economic impacts that should be considered as part of any assessment.	Sections 16.6.
Section 5.12.7	States that it may be concluded <i>“that limited weight is to be given to assertions of socio-economic impacts that are not supported by evidence (particularly in view of the need for energy infrastructure as set out in the NPS”</i> .	Baseline evidence is provided in Section 16.4.
National Policy Statement for Electricity Networks Infrastructure (EN-5)		
	Supports EN-1 by providing guidance on new electricity networks infrastructure to ensure it is well designed. It includes advice on Landscape and Visual and Noise and Vibration matters which may have a bearing on the socio-economic assessment.	Section 16.6, Likely Significant Effects.
National Planning Policy Framework (NPPF)		
	Sets out national planning policies in accordance with the relevant NPS. Section 8 includes policies aimed at promoting healthy and safe communities.	

A summary of the relevant local planning policies to this topic is given in **Table 16.2**.

Table 16.2 Local planning policies relevant to Socio-economics

Policy reference	Policy context	Section considered
Harrogate Borough Council		
Harrogate District Local Plan 2014 – 2035		All local planning policy matters are considered within Section 16.6: Potential Receptors, Likely Significant Effects, Mitigation Effects and Potential Effects Not Requiring Further Assessment.
Policy GS5 Supporting the District's Economy	To encourage sustainable economic growth in the district.	
Policy EC6 Protection of Tourist Facilities	To facilitate and encourage development and improvement in tourism provision, including protecting the continued attractiveness and operation of existing tourist attractions.	
Policy HP5 Public Rights of Way	To protect public rights of way so that the routes and their existing recreational and amenity value is not undermined by new development.	
Policy HP6 Protection of Existing Sport, Open Space and Recreation Facilities	To prevent the loss of existing outdoor public and private sport, open space and recreational facilities, including natural and semi-natural green spaces.	
Policy NE8 Protection of Agricultural Land	Seeks to conserve and protect the BMV (best and most valuable) agricultural land and sets out the circumstances when development of BMV will be permitted.	
Hambleton District Council		
Hambleton Local Development Framework – Core Strategy DPD (2007)		
CP1 Sustainable Development	Seeks to ensure that development is sustainable and that it does not harm the area's natural and man-made features. It seeks to maximise the conservation of land, energy and resources and minimise adverse impacts upon the economy, society and the environment.	
CP3 Community Assets	Support will be given to proposals and activities that protect, retain or enhance existing community assets,	

Policy reference	Policy context	Section considered
	or lead to the provision of additional assets that improve community well-being.	
CP15 Rural Regeneration	Support will be given to the social and economic needs of rural communities	
CP16 Protecting and Enhancing Natural and Man-made Assets	Development or other initiatives will be supported where they preserve and enhance the District's natural and manmade assets, where appropriate defined in the Development Policies Development Plan Document and identified on the Proposals Map. Particular support will be given to initiatives to improve the natural environment where it is poor and lacking in diversity.	
CP19 Recreation Facilities and Amenity Open Spaces	Support will be given to proposals and activities that protect, retain or enhance existing recreational and amenity assets, lead to the provision of additional assets, or improve access to facilities, particularly by non-car modes of transport. This will include support for greater access to and enjoyment of the countryside.	
Hambleton Local Plan – Publication Draft (2019)		
Policy S1 Sustainable Development Principles	<p>The Council will seek to ensure that development makes a positive contribution towards the sustainability of communities, enhances the environment and adapts to and mitigates the impact of climate change. This will be achieved by a range of criteria including:</p> <p>Promoting Hambleton as a recognised location for business by providing a range of employment opportunities that meet local aspirations, including high quality jobs, meeting the needs of new and expanding businesses and recognising the contribution of the rural economy.</p> <p>Protecting and enhancing the high quality natural and historic environment whilst facilitating development in a way that respects and strengthens the distinctive character of the landscape and the form and setting of settlements.</p>	
Policy S5 Development in the Countryside	Protects the BMV agricultural land (classed as grades 1, 2 and 3a) from development that is not associated with agriculture or forestry, that would cause the land to be permanently removed from agricultural use.	

Policy reference	Policy context	Section considered
Policy EG2 Protection and Enhancement of Employment Land	The purpose of this policy is to safeguard and enhance areas of established and identified employment uses across Hambleton to help maintain a thriving economy.	
EG8 The Visitor Economy	The Council will encourage the sustainable development of the visitor economy in Hambleton. The purpose of this policy is to set out the expectations for proposals for visitor attractions and facilities and for visitor accommodation.	
CI3 Open Space, Sport and Recreation	Seeks to protect and enhance open space, outdoor recreation facilities, allotments and areas of garden land that provide amenity value.	
CI4 Community Facilities	Seeks to maintain and improve the provision of local community services and facilities.	
City of York Council		
City of York Draft Local Plan Incorporating the 4th Set of Changes (April 2005)		
GP4a Sustainable Development	Development should: contribute towards meeting the social needs of communities within City of York and to safe and socially inclusive environments, and maintain or increase the economic prosperity and diversity of the City of York and maximise employment opportunities.	
GP7 Open Spaces	Development on open space will only be permitted where: a) there will be no detrimental effect on local amenity or nature conservation; and b) compensatory provision of an equivalent size and standard is provided by the applicant in the immediate vicinity of the site proposed for development.	
GP14 Agricultural Land	Planning permission will only be granted for development that would result in the loss of the best and most versatile agricultural land (defined as grades 1, 2 and 3a) if an applicant can clearly demonstrate that very special circumstances exist which determine that the proposal cannot be located elsewhere.	
V1 Visitor Related Development	Visitor related development will be encouraged. Applications will be determined based on criteria such as: likelihood to improve tourism, adverse effects on the use or enjoyment of adjacent buildings, and adverse impacts on the countryside setting of the city.	

Policy reference	Policy context	Section considered
City of York Local Plan Publication Draft (2018)		
Policy DP2 Sustainable Development	<p>Sustainable Development can be defined as ‘meeting the needs of the present without compromising the ability of future generations to meet their own needs’.</p> <p>As indicated in the National Planning Policy Framework (2012) (NPPF), the purpose of the planning system is to contribute to the achievement of sustainable development.</p> <p>Development should meet a series of sustainable development principles which include ‘creating a prosperous city for all’ which includes supporting strategic employment locations and protecting and enhancing the visitor economy.</p>	
Policy DP3 Sustainable Communities	<p>Development should contribute towards sustainable communities by following principles such as respecting the historic character and appearance of the green spaces landscapes.</p>	
Policy EC4 Tourism	<p>Tourism in York will contribute to a diverse economy. This will be achieved by supporting proposals that relate to some of the following (and more):</p> <ul style="list-style-type: none"> • maintaining and improving the choice and quality of visitor accommodation to encourage overnight stays, particularly by higher spending visitors; and • the retention and growth of existing visitor attractions. 	
Policy EC5 Rural Economy	<p>The land-based sector, and in particular agriculture, has undergone considerable restructuring over the post war period, and is set to continue to restructure as a consequence of both local and global changes. Policy EC5 is intended to support and be flexible to the needs of those who rely on the land-based economy. It also supports new opportunities that may arise from future changes.</p>	
Policy HW1 Protecting Existing Facilities	<p>The Council will work with local communities and voluntary sector organisations to help preserve and re-use existing community assets.</p>	
Selby District Council		
Selby District Local Plan (2005)		
Policy Planning Strategy 2.1	<p>To ensure an adequate supply of suitable land for employment, housing and other purposes whilst</p>	

Policy reference	Policy context	Section considered
Promotion of Sustainable Development	safeguarding environmental and natural resources from inappropriate development. To facilitate economic recovery and diversification in a way which enhances environmental quality.	
Policy EMP12 Agricultural Development	Development proposals which would lead to the irreversible loss of the BMV agricultural land (Grades 1, 2 and 3a) will not be permitted unless there is an exceptional overriding need and there is no suitable alternative site available.	
Selby District Core Strategy Local Plan (2013)		
Policy SP1 Presumption in Favour of Sustainable Development	When considering development proposals, the Council will take a positive approach that reflects the presumption in favour of sustainable development contained in the NPPF. It will always work proactively with applicants jointly to find solutions which mean that proposals can be approved wherever possible, and to secure development that improves the economic, social and environmental conditions in the area.	
Policy SP13 Scale and Distribution of economic Development	Support will be given to developing and revitalising the local economy in all areas.	
Leeds City Council		
Core Strategy (as amended by the Core Strategy Selective Review 2019)		
Policy SP1 Presumption in Favour of Sustainable Development	When considering development proposals, the Council will take a positive approach that reflects the presumption in favour of sustainable development contained in the NPPF. It will always work proactively with applicants jointly to find solutions which mean that proposals can be approved wherever possible, and to secure development that improves the economic, social and environmental conditions in the area.	
Policy SP13 Scale and Distribution of economic Development	Support will be given to developing and revitalising the local economy in all areas.	

Technical Guidance

16.2.5 A summary of the relevant technical guidance is given in **Table 16.3**.

Table 16.3 Technical guidance relevant to Socio-economics

Technical Guidance Document	Context	Section considered
Design Manual for Roads and Bridges		
Volume 11, Section 3, Part 6: Land Use and Part 8: Pedestrians, Cyclists, Equestrians and Community Effects	Whilst not specific to electricity infrastructure, this guidance provides some useful context for assessing land use and community impacts of linear infrastructure.	Has influenced this Scoping chapter as a whole.

16.3 Consultation and engagement

16.3.1 There has been no specific consultation carried out to date in relation to socio-economics. It is anticipated that feedback in relation to this topic will be gained following consultation on this Scoping Report, both for the socio-economic chapter and those related chapters identified in **paragraph 16.1.3**. The methodology adopted for the socio-economic assessment will take into account feedback following scoping and subsequent stakeholder engagement with the local authorities identified in **Table 16.4** as part of the DCO process.

16.4 Baseline conditions

Study Area

- 16.4.1 A two-tier Study Area will be defined for the assessment and is shown on **Figure 16.1**:
- Local Study Area – this will utilise information from within the Study Area identified within the Landscape and Visual Assessment (LVIA) (see **Section 5.4**). The LVIA study area is based on a 3km offset from the Scoping red line boundary at the North-west of York, Tadcaster and Monk Fryston Substation Areas (see **Figure 1.2**). This will identify socio-economic resources and receptors directly affected by the Project as well as those that may experience indirect, amenity effects. This approach recognises that the potential for receptors to experience effects is defined by more than just distance from the Project.
 - Wider Study Area – the wider area will cover the local authority boundaries (see **Table 16.4**) which overlap with the Scoping red line boundary and will seek to address potential socio-economic effects within the broader economy of these local authority areas. The wider study area will largely be defined by the scale at which suitable data are available.

16.4.2

The assessment will be undertaken for the direct and indirect effects occurring within the two tier Study Area, for the project components as indicated in **Figure 1.2**. As outlined in **Section 1.1** this comprises the Preferred Route Corridor within which new 275kV and 400kV overhead lines would be located, North York Substation Siting Area and Cable Sealing End Compounds (CSECs) in the North-west of York Area, two CSECs and associated infrastructure in the Tadcaster Area and reconfiguration of overhead lines entering the existing substation, a new Substation Siting Area and associated infrastructure at the Monk Fryston Substation Area. This also includes installation of a new circuit breaker and isolator proposed at Osbaldwick 400kV substation and reconductoring works to the upgrades to the existing 275kV XC/XCP (Poppleton to Monk Fryston) overhead line (see **Chapter 2: The Project**). The administrative areas within the two-tier Study Area are summarised in **Table 16.4**.

Table 16.4 Administrative areas within Wider Study Area

Section	Administrative Areas
North west of York Area	North Yorkshire County Council Harrogate Borough Council Hambleton District Council York City Council
Tadcaster Area	North Yorkshire County Council Leeds City Council Selby District Council
Monk Fryston Substation Area	North Yorkshire County Council Selby District Council

Data gathering methodology

16.4.3

Baseline data has to date been collected through desk-based research. The desk-based assessment will continue to be updated throughout the EIA process as additional documents and data sources are identified and engagement with the relevant local authorities and other key stakeholders continue.

16.4.4

A desk-based assessment will be carried out which will focus on collating data relating to the relevant resources and receptors within the Study Area and the socio-economic and land use characteristics of the Study Area. Potential resources for baseline data as the project progresses will include:

- Mapping information and postal databases;
- Local, regional and national economic and social indices databases, policy documents and strategies;
- Publicly available information on receptors;
- Ordnance Survey maps;
- Relevant national, regional and local development plan documents;

- Existing planning permissions and planning applications;
- Nomis (<http://www.nomisweb.co.uk>);
- Yorkshire County Council (<http://www.northyorks.gov.uk>);
- Hambleton District Council (<http://www.hambleton.gov.uk>);
- York City Council (<http://www.york.gov.uk>);
- Harrogate Borough Council (<http://www.harrogate.gov.uk>);
- Leeds City Council (<http://www.leeds.gov.uk>); and
- Selby District Council (<http://www.selby.gov.uk>).

16.4.5 For the purposes of this Scoping chapter, a high-level review of socio-economic data relating to the entire Study Area (local and wider) has been undertaken. Unless a reference is provided, data and figures have been sourced from the NOMIS official labour market statistics website, ran by the Office for National Statistics²⁸⁰. Information regarding Indices of Multiple Deprivation (IMD) are all based on the 2019 data set published by the UK Government unless referenced otherwise²⁸¹. The IMD are calculated based on the following factors: income deprivation, employment, health & disability, education, skills & training, barriers to housing & services, crime and living environment. All 317 Local Authorities within England have been assessed and ranked. The lower a Local Authority's rank, the more that area suffers from deprivation.

16.5 Current baseline

Hambleton District Council

- 16.5.1 Hambleton District Council (Hambleton) sits within North Yorkshire County Council. Hambleton District Council was estimated to have a population of 90,700²⁸² in 2017 which rose to 91,600 in 2019²⁸³. In 2019, 57.5% (52,700) of Hambleton's population was aged between 16-64, which is lower than both Yorkshire and Humber (62.1%) and Great Britain (62.5%).
- 16.5.2 Hambleton's population is focussed within the market towns of Northallerton, Thirsk, Easingwold, Bedale and Stokesley, which are major hubs and are also minor tourist attractions.
- 16.5.3 Hambleton has a highly economically active population, with 80.8% (45,700) people being classified as economically active and only 2.5% being classified as unemployed in 2019, in comparison to the Yorkshire and Humber region (77.8% and 4.1%) and Great Britain as a whole (79% and 4.2%) during 2019. However, full-time workers receive a lower gross weekly pay (£485.50) than the Yorkshire and Humber region average of £538.90 and that of Great Britain (£586.70).

²⁸⁰ NOMIS – Available at: <https://www.nomisweb.co.uk/>

²⁸¹ UK Government – Available at: <https://www.gov.uk/government/statistics/english-indices-of-deprivation-2019>

²⁸² Hambleton Local Plan Publication Draft 2019 – Available at: <https://www.hambleton.gov.uk/homepage/4/evidence-base>

²⁸³ NOMIS - Available at: <https://www.nomisweb.co.uk/reports/lmp/la/1946157114/report.aspx?town=Hambleton#tabrespop>

- 16.5.4 In December 2020, the number of claimants of out of work benefits within Hambleton (3.2%) was considerably lower than that for the Yorkshire and Humber region (6.5%) and Great Britain (6.3%).
- 16.5.5 Hambleton has a similar proportion of full-time and part-time jobs to that of the Yorkshire and Humber Region and that of Great Britain. Hambleton's biggest employers are manufacturing (15%), retail trade (17.5%) and public administration and defence/compulsory social security industries (11.2%).
- 16.5.6 43% of Hambleton's workers are educated to a level of NVQ4 or above, which is similar to the equivalent statistics for Great Britain as a whole (40.3%) but higher than the Yorkshire and Humber region (34.2%). This is a common theme, as Hambleton's attainment of education is higher than the wider region and Great Britain consistently across all stages of educational attainment.
- 16.5.7 In terms of the IMD, Hambleton is ranked 255th out of 317 Councils.
- 16.5.8 Hambleton has many different tourist attractions located within it, alongside acting as a base or gateway for visitors seeking to visit the Yorkshire Dales. A number of tourist attractions located within Hambleton are highlighted below:
- Thirsk World of James Herriot museum;
 - Thirsk Racecourse;
 - Bedale Golf Club and Bedale Bowling Club;
 - Bedale Hall;
 - Beningborough Hall; and
 - Thornborough Henges.

Harrogate Borough Council

- 16.5.9 Harrogate Borough Council (Harrogate) sits within North Yorkshire County Council. In 2015, Harrogate Borough Council was estimated to have a population of 157,016, with its population declining year on year since 2011²⁸⁴. However, as of 2016, this population decline has reversed, with it being estimated that Harrogate had a population of 159,800 in 2016²⁸⁵ and 160,800 in 2019²⁸⁶. The percentage of Harrogate's population aged between 16-64 (58.8%) is lower but not too dissimilar from the Yorkshire and Humber region (62.1%) and Great Britain (62.5%).
- 16.5.10 79.3% of Harrogate's working age population is economically active, which is in keeping with the National average of 79% but slightly higher than the Yorkshire and Humber regional average economic activity of 77.8%.
- 16.5.11 Harrogate has very low unemployment, with only 2.2% of its working age population classed as unemployed and only has 3.7% of its working age population on out of work benefits, which is considerably lower than both the Yorkshire and Humber region and Great Britain.

²⁸⁴ DATA North Yorkshire – Available at: <https://www.datanorthyorkshire.org/JSNA/articles/population-in-north-yorkshire/district-population/>

²⁸⁵ DATA North Yorkshire – Available at: <https://hub.datanorthyorkshire.org/dataset/population-estimates/resource/46d7d92b-cd5f-49be-af9d-443134eef104>

²⁸⁶ NOMIS – Available at: <https://www.nomisweb.co.uk/reports/lmp/la/1946157115/report.aspx>

- 16.5.12 62.3% of the population of Harrogate are employed full-time, which is slightly lower than the regional and national averages of 66.4% 67.8% respectively.
- 16.5.13 Harrogate shares a similar gross weekly pay for full-time workers (£536.60) as that of the Yorkshire and Humber region (£538.90), both of which are lower than the national average (£586.70).
- 16.5.14 Educational attainment within Harrogate is high. 44.5% of working age people attained NVQ4 and above qualifications, which whilst being similar to the attainment in Great Britain as a whole, is considerably above the Yorkshire and Humber regions 34.2%. For the other levels of educational attainment, Harrogate scored considerably higher than the Yorkshire and Humber region and Great Britain.
- 16.5.15 Harrogate ranked 278th out of 317 Councils, meaning it is one of the least deprived districts within England. Only four of Harrogate's identified neighbourhoods quantified within the IMD scored below a 5, with the vast majority of the Harrogate's neighbourhoods scoring a seven and above. This means areas of considerable deprivation are localised to very specific areas.
- 16.5.16 The main urban areas of Harrogate, Knaresborough and Ripon support the greatest densities of Harrogate's population. These settlements alongside the market towns of Boroughbridge, Masham and Pateley Bridge are where most new growth has been concentrated in recent years²⁸⁷. These towns are also tourist attractions and Harrogate seeks to grow its domestic and international appeal to tourists.
- 16.5.17 Harrogate was home to the Tour de France Grand Depart in 2014. Harrogate is also home to the Nidderdale Area of Outstanding Natural Beauty (AONB), Studley Royal Park and the ruins of Fountains Abbey (World Heritage Site). Harrogate also benefits from the Great Yorkshire Show, which is an event that celebrates Yorkshire and its many products. The important tourist attractions of the Yorkshire Dales National Park and Nidderdale AONB are located wholly or partially within Harrogate.

Leeds City Council

- 16.5.18 The 2011 census identified that the population of the Leeds City Council area (Leeds) was 751,500 and has risen since then with the population in 2019 estimated to be 793,100.
- 16.5.19 65.1% of the population of Leeds is aged between 16-64 and 83.5% are economically active, which is slightly higher than the Yorkshire and Humber region (77.8%) and Great Britain (79%). However, Leeds does suffer from similar levels of unemployment (4.2%) as the Yorkshire and Humber region (4.1%) and Great Britain (4.2%) and has a slightly higher level of out of work benefit usage.
- 16.5.20 Leeds has 40.1% of its working age population currently possessing an NVQ4 and above qualification, 61% possessing an NVQ3 and above qualification, 75.6% possessing an NVQ2 and above qualification and 86.1% possessing an NVQ1 and above qualification. This is above the Yorkshire and Humber region's qualification attainment levels, which are 34.2%, 54.3%, 72.5% and 84.2% respectively. Attainment is similar to the qualification attainment of Great Britain, which has 40.3%, 58.5%, 75.6% and 85.6% respectively.

²⁸⁷ Harrogate District Local Plan 2014-2035 (Adopted 2020) – Available at: <https://www.harrogate.gov.uk/planning-policy-guidance/harrogate-district-local-plan-2014-2035>

- 16.5.21 Jobs within Leeds are primarily full-time (69.5%) with full-time gross weekly pay averaging £574.90 which is not too dissimilar to the national average (£587.10) although is higher than the Yorkshire and Humber region (£540.40). The main industries within which the Leeds population are employed are retail (12.3%), professional/scientific technical activities (10.6%), administration & support (11.9%) and human health & social work (12.6%).
- 16.5.22 Leeds City Centre comprises a considerably built-up environment with a wide variety of jobs. Jobs outside of the city are more rural in nature. Leeds houses several of the most deprived areas in the UK and these are located within the city itself and adjacent urban areas, whilst the more rural areas of the district have lower levels of deprivation²⁸⁸. Leeds City Council is seeking to address these areas of deprivation and continue the growth of the city through an ambitious Core and Growth Strategy, which will hopefully raise Leeds from being ranked 92nd out of 317 for deprivation.
- 16.5.23 Leeds is a popular tourist attraction, housing many retail and entertainment options and Leeds Bradford International Airport acts as an important gateway to the wider world and for international tourists to visit Leeds and the UK as a whole. The city houses the headquarters of the Northern Ballet and the Leeds Arena. The Leeds City museum and the Royal Armouries are also popular visitor attractions as is Opera North and Henry Moore Institute. Within the Leeds City Council area is also Harewood House, which is a state house owned by the Royal Family and has extensive gardens and an exotic bird sanctuary.

Selby District Council

- 16.5.24 Selby District Council (Selby) sits within North Yorkshire County Council. In 2013, it was estimated that the total population of Selby was 82,200, with 19.5% of its population aged above 65 and 10.3% aged 16-24²⁸⁹. It was estimated that the population would rise to 86,667 in 2016, with population growth centred mainly around the key market towns of Selby, Tadcaster and Sherburn-in-Elmet²⁹⁰. However, by 2019, Selby's population has increased to 90,600²⁹¹.
- 16.5.25 61.1% of Selby's population is aged between 16-64 which is in keeping with the surrounding region and Great Britain. 77% of the population is economically active and there is a slightly lower unemployment rate at 3% and a lower uptake of out of work benefits at 3.8%.
- 16.5.26 Higher educational attainment across Selby is low, with only 30% of the population achieving an NVQ4 and above qualification, which is below the regional (34.2%) and national (40.3%) averages. Selby is also estimated to have an NVQ3 and above qualification attainment of 50.7%, NVQ2 and above qualification attainment of 69.3% and NVQ1 and above qualification attainment of 86.3%. This is slightly lower than the Yorkshire and Humber regions averages at 54.3%, 72.5% and 84.2% respectively and the national averages of 58.5%, 75.6% and 85.6% respectively.
- 16.5.27 Selby benefits from a high proportion of its jobs being full-time positions (71.4%) which is higher than the regional and national average. Similarly, Selby has a higher gross

²⁸⁸ Leeds Core Strategy 2014 (amended 2019) – Available at: <https://www.leeds.gov.uk/planning/planning-policy/adopted-local-plan/core-strategy-introduction>

²⁸⁹ Selby District Core Strategy and Local Plan 2013 – Available at: <https://www.selby.gov.uk/selby-district-core-strategy-local-plan>

²⁹⁰ Selby District Authority Monitoring Report 2017-2018 – Available at: <https://www.selby.gov.uk/authority-monitoring-report-and-infrastructure-funding-statement>

²⁹¹ NOMIS – Available at: <https://www.nomisweb.co.uk/reports/lmp/la/1946157119/report.aspx>

weekly pay for full-time workers (£588.80) than the regional and national average. Jobs within Selby are dominated by the field of manufacturing (20%) which makes up a larger percentage of jobs than manufacturing does in the Yorkshire and Humber region (11.4%) and Great Britain (8%).

- 16.5.28 Selby is identified as the most industrious of the districts within North Yorkshire, supporting a wide range of industries and seeing strong job growth in areas such as power generation, agriculture, glass manufacturing and brewing. Despite this, roughly half of the Selby population commute outside of it for work²⁹².
- 16.5.29 The Selby was ranked 252nd out of 317 for deprivation, with only six of the identified neighbourhoods within the IMD scoring under five. These areas of deprivation and concentrated within the centre and most built-up areas of Selby. Most of the neighbourhoods within Selby scored seven or above on the IMD.
- 16.5.30 Selby is home to several tourist attractions. Selby Abbey has stood for over 950 years and is a building of significant historical and cultural importance alongside being a popular tourist attraction. Similarly, the Holy Trinity Church is another important historical tourist attraction. Barlow Common Nature Reserve and Skylark Centre and Barlow Nature Reserve are important natural tourist attractions. Selby also benefits from the Yorkshire Countryside it is part of. The Trans Pennine Trail cycleway passes through the district and the Selby Town Hall acts as a local hub for shows and events.

City of York

- 16.5.31 The City of York (York) sits within North Yorkshire County Council. The 2011 Census indicated that York had a population of 198,051 people and this was estimated to rise to 208,367 people in 2016²⁹³. The 2011 Census identified that the population within York was becoming more polarised as it was growing to have an aging population and a temporary growing young population due to York's considerable educational opportunities. This means that York has a fluctuating population in reality, as the younger demographic comes in to the district to study at university but, in the vast majority of cases, leaves after completing their education. York is currently trying to attract more young people to the city by retaining graduates and has plans to provide a considerable amount of housing and delivering on the York Central Enterprise Zone & High Speed Hub in the future²⁹⁴.
- 16.5.32 York's population has continued to grow with the population estimated to be 210,600, with 66% of the population aged between 16-64 years old. York benefits from 81% of its working age population being economically active.
- 16.5.33 60.7 % of the population is in full time employment, with gross weekly earnings averaging £572.60, whilst the unemployment is low at 2.7%.
- 16.5.34 49.1% of York's population has a NVQ4 and above qualification, with 69.1% having a NVQ3 and above qualification, 83% having a NVQ2 and above qualification and 93.3% having NVQ1 and above qualification.

²⁹² Selby District Core Strategy and Local Plan 2013 – Available at: <https://www.selby.gov.uk/selby-district-core-strategy-local-plan>

²⁹³ City of York Local Plan Publication Draft 2018 – Available at: <https://www.york.gov.uk/downloads/download/420/local-plan-submission-documents-1>

²⁹⁴ York Economic Strategy 2016-20 – Available at: <https://www.york.gov.uk/downloads/download/598/york-economic-strategy-2016-to-2020>

- 16.5.35 York ranked 275th out of 317 for deprivation, making it one of the least deprived Council areas within Great Britain. Pockets of deprivation do exist around the city centre and built-up areas of the district, but these are small in scale.
- 16.5.36 It is estimated that the city attracts 7 million visitors per year, though due to the ongoing COVID-19 pandemic, the years of 2020 and 2021 are not anticipated to attract as many tourists. York has many important tourist attractions that range from retail attractions to important architectural/historical attractions and many museums.
- 16.5.37 Attractions such as the York Minster Cathedral, Jorvik Viking museum, York Castle museum, Yorkshire Museum, York Art Gallery and Shambles market are but a few of the tourist attractions important to the York's economy. The landscape surrounding York is also important to the attractiveness of the district and there are many important tourist supporting assets within the City of York and the district's rural areas, such as B&Bs and Hotels, that rely on these views. Other important historical attractions exist within York, such as Castle Howard and Clifford's Tower.

North-west of York Area

- 16.5.38 The North-west of York Area largely comprises agricultural land which will support a number of agricultural businesses, with the City of York approximately 2km to the south-east where the North-west of York Area boundary passes close to the settlements of Poppleton and Rawcliffe. Larger settlements are in the eastern extent and include Skelton, Nether Poppleton and Upper Poppleton. The settlements of Moor Monkton and Nun Monkton are in the western extent and the settlement of Shipton-by-Beningbrough is in the northern extent. There are also several hamlets including Overton to the east and Beningbrough to the west.
- 16.5.39 The East Coast Main Line (ECML) (traveling from York to Edinburgh) runs through the North-west of York Area in a south-east to north-west direction. National Cycle Route 65 is also present, running from the north west to the south east. The River Ouse is popular for boating and as a walking route, with the Yorkshire Ouse Walk taking you from its source to the sea. York Footgolf, Forest of Galtres Golf Club and the North of England Clay Target and Activity centre are sporting and recreational attractions located within the area.

Tadcaster Area

- 16.5.40 The existing junction between the XD/XC overhead lines is located approximately 1.3km south west of Tadcaster; it is in a rural setting with the A64 approximately 50m south. The existing Bramham 132kV substation is within the boundary of the Tadcaster Area to the west of the existing XD/XC overhead line junction. There will be a number of agricultural businesses in the Study Area, a residential property is approximately 100m east of the XD/XC junction and a further residential property is approximately 500m to the north. The Ebor Way long distance footpath borders the Project to the west and runs north east from the A64 towards Tadcaster, through Manor Farm and follows the route of an old Roman road. The National Cycle Route 665 is currently under construction and will run from the east of Tadcaster, around the town to the north and off to the west and into the Preferred Route Corridor for the proposed overhead lines.

Monk Fryston Substation Area

- 16.5.41 The existing Monk Fryston substation is situated in a rural setting surrounded by fields. Rawfield Lane forms its western boundary. There will be a number of agricultural businesses in the Monk Fryston Substation Area, and there are two residential properties within close proximity, Pollums House farm (and associated farm buildings) located approximately 500m west and the Grade II listed Monk Fryston Lodge (and associated buildings) approximately 200m to the east.
- 16.5.42 The A1(M) is both visible and audible from the existing substation boundary. The villages of Monk Fryston and Hillam are approximately 2km to the east of the existing substation and the hamlet of Lumby is approximately 1km to the north. Fairburn is approximately 1km south on the opposite side of the A1(M) and Burton Salmon approximately 1.5km south east. The Lumby Garden Centre and Coffee Shop, South Milford Hotel and Atkinsons garden decking and shed business are located around the junction of the A63 with the A1(M).

275kV Overhead Line Reconductoring

- 16.5.43 In addition to the three study areas identified, within the Scoping red line boundary along the 275kV XC/XCP overhead line a number of businesses have been identified, such as Squires caravan and camping site and Café/Bar at Newthorpe, The Crooked Billet Inn near Saxton, Jackdaw Crag Quarry, Maran Lakes fishing centre and Mosaic business services. A number of agricultural businesses will also be present along this part of the Scoping red line boundary.

Future baseline

- 16.5.44 The future completion of National Cycle Route 665, providing a link between existing sections across the Scoping red line boundary near Tadcaster, will be considered as part of the existing baseline as users are already likely to cross the Scoping red line boundary to join up the existing sections. There are no other identified future tourism, recreational or business developments that are likely to be affected by the Project. Population and employment trends have already been considered as part of the national trends influencing the need for electricity around the country and the local trends predicted do not have to be considered again here.

16.6 Embedded Environmental Measures

- 16.6.1 Embedded environmental measures have been incorporated into the design to date, relating to the proposed infrastructure avoiding potential receptors. These have included avoiding routeing and siting the project components close to residential areas, avoiding clusters of more than five residential properties as part of the Corridor and Preliminary Routing and Siting Study (CPRS Study) (see **Section 2.2**). The detailed design, including the selection of the preferred route for the overhead lines, and the precise siting of the infrastructure will also seek to avoid and minimise effects on potential receptors as far as is practicable.

16.7 Scope of the assessment

Potential receptors

16.7.1 Potential receptors could be affected by the Project during the construction and operational phases of the development. These effects will result from the direct interaction with socio-economic and land use receptors, such as land take from existing businesses or the disruption of recreational routes where they cross working areas during construction. Potential receptors located away from the Project may also be affected by indirect effects such as visual or noise effects on properties, tourism resource businesses or recreational users.

Likely significant effects

16.7.2 The likely significant socio-economic effects that will be taken forward for assessment in the ES are summarised in **Table 16.5**.

Table 16.5 Likely significant Socio-economics effects

Activity	Effect	Receptor
Construction		
Establishment of construction routes or working areas	Temporary closure of a recreational resource such as a PRow, promoted walking route or trail, national cycle route or a stretch of a river whilst construction activities occur.	Local communities, anglers and users of the recreational route network
Construction activities	Amenity effects (e.g. noise, construction traffic, air quality, visual intrusion and health) arising from construction activities which are dealt with in other chapters of this report. The socio-economic assessment will consider the combined effects (where applicable) of these effects on receptors.	Local communities, businesses and users of recreation resources
Construction employment and spend on construction materials	Employment opportunities within the construction sector, as well as supply chain opportunities associated with specialist services (e.g. ground works) and / or construction materials	Local businesses and employees
Local spend during construction	Construction activities have the potential to lead to benefits to local businesses through increased local spend associated	Local businesses

Activity	Effect	Receptor
	with construction workers staying within the local area (accommodation costs) and construction worker spend in local facilities (e.g. eateries and convenience stores).	
Operation		
Permanent amenity effects	Permanent amenity effects as a result of other environmental impacts (e.g. visual, noise or maintenance traffic) which are dealt with in other chapters of this report. The socio-economic assessment will consider the combined effects (where applicable) of these effects on receptors.	Local communities, businesses and users of the recreational resource

16.7.3

The effects scoped out from further assessment in the ES are:

- Employment generation and economic activity during operation. The employment generation and economic activity associated with the operational phase of the Project is unlikely to be significant. The maintenance work required will support a limited number of employees who will also work on other schemes and is unlikely to provide additional employment in its own right. Whilst there may be some local spend in terms of supplies and equipment, supply chain spend and indirect economic benefits will also not be of a level significant in EIA terms and are therefore scoped out of the ES. These matters will however be explored further in the Planning Statement accompanying the DCO submission.
- The effect on the successful delivery of future development allocations through direct effects (e.g. temporarily or permanently rendering part of a site undevelopable) or indirect effects (e.g. through impacting on the overall desirability of the site by effecting the amenity value). No such allocations have been identified from the relevant planning policy documents.
- As described in the Agriculture and Soils chapter (**Sections 11.4 and 11.5**) baseline information obtained through consultation between the Project's Lands Team and landowners / farmers will be used in defining the routeing and micro-siting of infrastructure; and, if required, to develop site-specific mitigation, for example the avoidance of high sensitivity soils or minimise disruption to the movement of livestock. However, the majority of land take for the Project will be temporary, with land excluded from agricultural use for the duration of construction operations only. Permanent loss of agricultural land would be limited to built infrastructure locations such as the Substations, CSECs and permanent access roads. Direct permanent loss of agricultural land due to pylon placement is restricted to the pylon footings although in arable or hay/silage rotations indirect losses can occur through exclusion from agricultural use. Given the limited permanent loss of land and measures that

will be taken to minimise effects on agricultural practices as outlined in **Chapter 11** significant effects on the viability of the operation of farms within the Scoping red line boundary are unlikely to occur and this effect is not taken forward for further consideration.

- Effects on property prices. It is a long-standing position that the consideration of a planning application cannot take into account private interests such as the impact on the value of nearby properties. Previous NSIP schemes for similar developments have taken the view that this issue cannot be considered in their EIA (e.g. the Richborough Connection and the Hinkley Point C Connection projects). For both Richborough and Hinkley Point C, this was confirmed by the SoS through the Scoping Opinion. This is therefore not a matter that requires assessment under the EIA Regulations and is not a material consideration in the determination of planning merits of the Project. As such it is proposed to be excluded from the scope of this assessment.

16.8 Assessment methodology

- 16.8.1 The assessment will focus on the socio-economic effects of the Project and will build on the information collected to date through further desk survey as necessary. This is to provide a full appreciation of any likely significant socio-economic impacts of the Project.
- 16.8.2 The methodology adopted for the socio-economic assessment will take into account feedback following scoping, ongoing consultation and stakeholder engagement.
- 16.8.3 No quantitative impact assessment on tourism will be undertaken, with the assessment utilising available tourism data and published studies and applying professional judgement to reach conclusions. The assessment will provide a qualitative assessment of the effects on tourism, focussing on tourism related businesses that could be affected by the Project along with amenity impacts to tourism and recreation resources.

Significance assessment methodology: direct and isolation effects

- 16.8.4 This methodology is relevant for direct effects (where the route directly encroaches on a resource) and isolation effects (where the route prevents access to a resource such that its activity level is impacted). There is no definitive guidance on significance criteria for socio-economic effects; as such the assessment will draw on existing industry accepted practice. The focus of the assessment will be on determining whether impacts will change activity, social or economic patterns.
- 16.8.5 The significance of a socio-economic effect will be determined by assessing the magnitude of the impact and the sensitivity of the receptor.
- 16.8.6 The magnitude of an impact represents its severity. Key factors when assessing magnitude include the extent (number of groups and / or people, households or businesses affected) and the value of the resource. For example, an impact on a heavily trafficked PRow which is part of a National Trail would have a higher magnitude than an impact on a little trafficked local PRow. **Table 16.6** details the guidance criteria for assessing the impact magnitude.

Table 16.6 Magnitude of effects (direct and isolation effects)

Magnitude of effects	Criteria
High	An impact that will be very adverse / beneficial and very likely to affect a large number of businesses and / or people. An economic resource with a total of 50 full time employees. A social resource which is considered nationally significant (e.g. National Trail).
Medium	An impact that will be adverse / beneficial and that is likely to affect a moderate number of businesses and / or people. An economic resource with a total of 25 full time employees. A social resource which is considered regionally significant (e.g. Regional Trail).
Low	An impact that will be adverse / beneficial and that it is likely to affect a small number of businesses and / or people. An economic resource with a total of 5 full time employees. A social resource which is considered to be of local significant (e.g. public footpath or community centre).
Negligible	An impact that is anticipated to have a slight or no effect on the operation of businesses or the social resource.

16.8.7 The sensitivity of a receptor relates to the capacity for the receptor to overcome an effect. For example, an effect on a distribution facility of a firm with multiple premises in the local area and spare capacity would be viewed as less sensitive than an equivalent firm for which the affected distribution facility is their only property. Table 16.7 details the guideline criteria for assessing receptor sensitivity.

Table 16.7 Receptor sensitivity (direct and isolation effects)

Receptor Sensitivity	Criteria
High	Businesses, individuals or groups who are at risk and that have little or no capacity to experience the impact without incurring a material loss (or gain).
Medium	Businesses, individuals or groups who are at risk and that have some capacity to experience the impact without incurring a material loss (or gain).
Low	Businesses, individuals or groups who are at risk and that generally have capacity to experience the impact without incurring a material loss (or gain).

16.8.8 As stated previously, the significance of a socio-economic effect is determined by combining both the magnitude of the impact and the sensitivity of the receptor. The approach to determining significance is summarised in the following table.

Table 16.8 Determining significance (direct and isolation effects)

Receptor Sensitivity	Impact Magnitude			
	High Impact	Medium Impact	Low Impact	Negligible Impact
High	Major adverse – significant	Major adverse – significant	Moderate adverse – significant	Minor adverse – not significant
Medium	Major adverse – significant	Moderate adverse – significant	Minor adverse – not significant	Negligible – not significant
Low	Moderate adverse – significant	Minor adverse – not significant	Negligible – not significant	Negligible – not significant

Significance assessment methodology: amenity effects

16.8.9 An amenity effect relates to the benefits and wellbeing that users gain from using a resource for their intended function. For example, a hotel renowned for its views and gardens would have a positive amenity value. More specifically, the amenity value of a resource may be affected by a combination of factors such as air quality, noise and vibration and traffic. As such, the amenity assessment draws on the conclusions from other assessments which could lead to a socio-economic effect.

16.8.10 The approach to determining the magnitude of an amenity impact is summarised in the **Table 16.9**.

Table 16.9 Impact magnitude (amenity effects)

Impact magnitude (amenity)	Criteria
High	Two or more residual significant effects are identified where both are major in nature.
Medium	Two residual significant effects are identified with one being major in nature.
Low	Two residual significant effects are identified with both being moderate or less in nature.
Negligible	One or no significant residual effects identified.

- 16.8.11 A key consideration of the amenity assessment is sensitivity of receptors. This can be illustrated by considering an adverse visual impact on two different resources. For a tourism business, such as a country park or a National Trust property, the visual impact could have a negative effect by creating providing an off-putting view for visitors. Whereas for a distribution business visual impact such as this would not be expected to affect the activity of the business. As such, the sensitivity for the amenity assessment is essentially a binary choice; either a resource is sensitive to amenity impact or it is not sensitive. Sensitive resources would be expected to largely comprise tourism or recreational resources, outdoor community resources and specialised manufacturing which is sensitive to noise / vibration impacts. A more comprehensive list of amenity sensitivity by sector will be developed at the assessment stage of the PEIR once the final list of receptors scoped into the assessment is confirmed.
- 16.8.12 When a resource is considered to be sensitive to amenity impacts and has a high or medium magnitude then this is considered to be a significant amenity effect.

Limitations and Assumptions

- 16.8.13 Due to the continued effects of the COVID-19 pandemic, some elements of the baseline evidence may not be as up to date as would normally be expected. The most up to date information has therefore been used and evidence will be kept under review throughout the EIA in order to ensure the most recent data is utilised. Similarly, the continued and emerging effects of the exit of the United Kingdom from the European Union will not have been captured within this assessment.



SOCIO-ECONOMIC
STUDY AREAS

Legend

Scoping boundary

Local study area

Wider Study Area

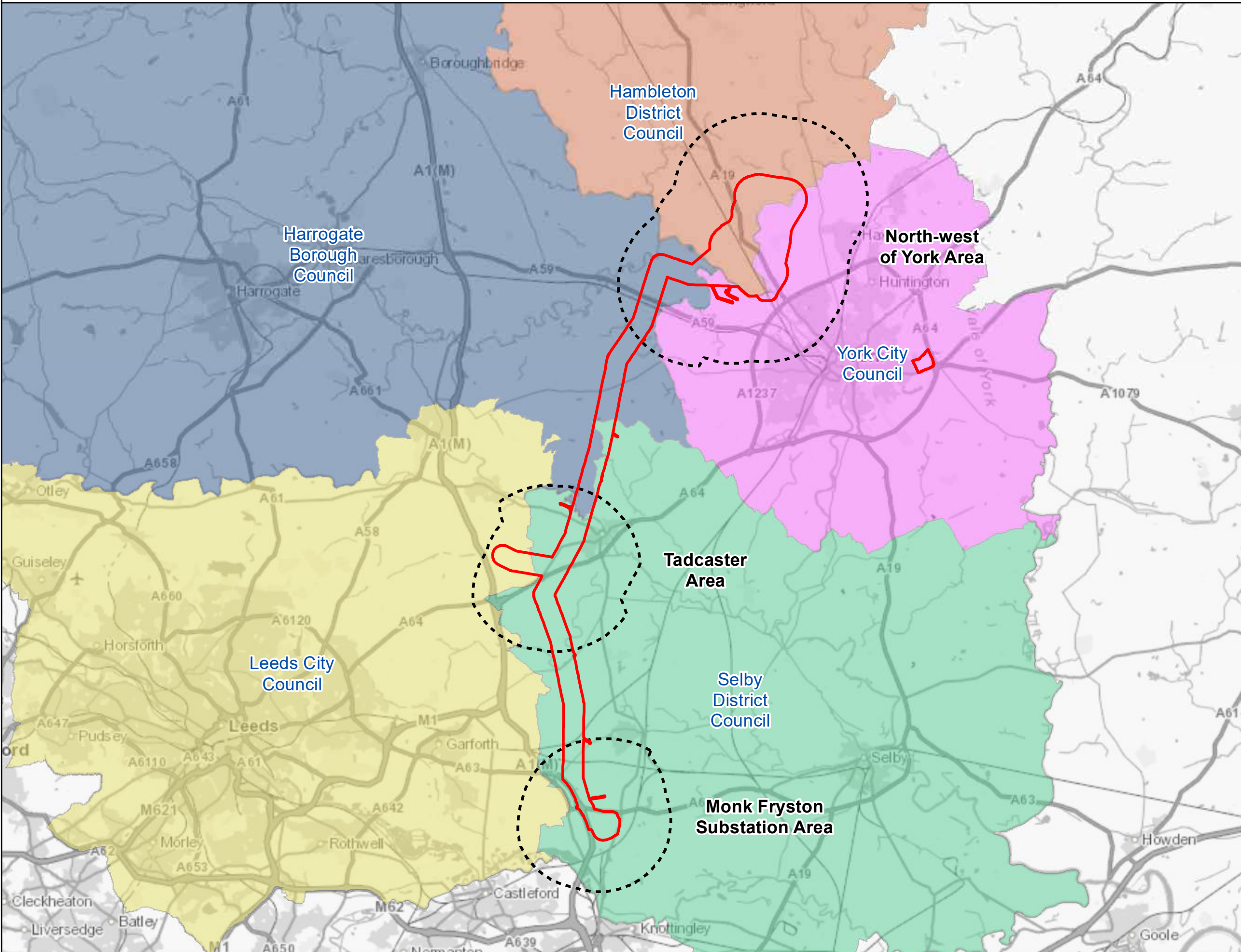
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Harrogate Borough Council

Leeds City Council

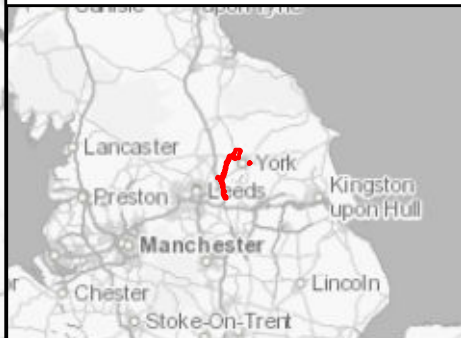
Selby District Council

York City Council

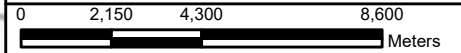


Notes

This drawing is scaled at paper size A3, therefore any prints taken at smaller sizes will affect accuracy of the measurement units and should not be scaled against.



Coordinate System: British National Grid
Sheet X Centroid Coordinate: -1.24 Sheet Y Centroid Coordinate: 53.91



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1	MAR 21	XXXX	PINDS	DIMMR	CHADC
Issue	Date	Remarks	Drawn	Checked	Approved

Title

SCOPING REPORT
CHAPTER 16: SOCIO-ECONOMICS

SOCIO-ECONOMIC
STUDY AREAS



Figure Number: FIGURE 16.1

Drawing Reference: 806503-WOOD-0047

Scale	Sheet Size	Sheet	Issue
1:180,000	A3	SHEET 1 OF 1	1

17. Scoped Out Topics

17. Scoped Out Topics

17.1.1 This chapter of the Scoping Report discusses the environmental topics which it is considered can be scoped out from detailed assessment in the Environmental Statement (ES) as significant effects are not considered likely as a result of the Proposed Scheme.

17.1 Major accidents and disasters

17.1.1 The EIA Regulations require the environmental assessment to identify, describe and assess major accidents and/or disasters. A major accident has been defined for the purposes of this Scoping Report as an occurrence resulting from an uncontrolled event caused by a man-made activity or asset leading to serious damage on receptors. The term 'disaster' is used to describe a natural occurrence leading to serious damage on receptors. In both cases, the effects could be either immediate or delayed.

17.1.2 It is not anticipated that the Project will use hazardous material that could be released in the event of a natural disaster.

17.1.3 The potential major accidents and disasters which could occur as a result of the Project, or arise from the surrounding environment and affect the Project include the following:

- Physical accident: The construction of the Project carries the risk of an accident occurring and leading to a low number of worker fatalities (e.g. due to crane topple). The hazards associated with construction projects, are known and well understood. National Grid has an established process for managing these projects which complies with The Construction (Design and Management) Regulations 2015 (SI 2015 No. 51) and industry good practice. All aspects will be risk assessed, and the ability to safely undertake works will be a material consideration in the design process. There is potential for the above ground structures (e.g. pylons and overhead lines) to collapse during the operation and maintenance phase. The primary mitigation is to ensure that the elements of the Project are designed in accordance with industry good practice and the anticipated environmental conditions.
- Spills: The construction phase will require the use of fuels and some limited inventories of chemicals. There may also be some limited inventories of chemicals associated with the substation during the operational phase. The use and potential spillage of any substances used will be risk assessed by National Grid, with spillage response procedures put in place, ensuring that the Best Available Technique is used to prevent any pollution.
- Electrical accident: There may be electrical hazards associated with the commissioning of the infrastructure, and particular consideration will be given to tie-in to the existing electrical grid. The Project will be designed to allow this to be done in a safe manner utilising industry standard practices including for isolation and testing of high voltage systems. There is a potential major accident involving electrocution during the operation and maintenance phase if there were to be a failure of the transmission infrastructure, or at the substations. Electrocution hazards

are primarily protected by good design of the electrical systems and safe systems of work.

- Fire/explosion: There is the potential for a fire involving diesel fuel or combustible materials during construction. These will be prevented by selecting fuel tanks of a robust design, siting them appropriately within secured compounds and providing suitable containment and ignition control. Other minor fires will be prevented through good site management practices to minimise any material build up. A potential major accident identified during the operation and maintenance phase is a fire or explosion which could occur at one of the substations. Fires and explosions are primarily protected by good design of the electrical systems and fuel storage. Workers will be experienced and competent operators, who understand the risks associated with electrical and vehicle refuelling systems.
- Ground hazards: There is the potential for major accidents associated with the ground on any construction work, these include the potential for unexploded ordnance (UXO), historic ground contamination, landfill gases and/or asbestos. These potential accidents are likely also to be present during construction in some areas on the Project. **Chapter 10: Geology and Hydrogeology** provides further detail on these potential hazards. National Grid will ensure that any issues identified are accounted for in the design.
- External industrial hazards: External industrial hazards are events, such as fires, explosions or releases of hazardous substances which could take place in nearby industrial sites and cause serious harm to the Project. There are no sites falling under *The Control of Major Accident Hazards (COMAH) Regulations 2015 (SI 2015 No. 483)* within the Scoping red line boundary. There is buried gas pipework and the Scoping red line boundary is within the consultation distance (CD) of an above-ground pigging station south-west of Tadcaster. For any works in close proximity to gas pipelines, the appropriate safe methods of work will be agreed with the pipeline operator and suitable risk assessment undertaken. The Health and Safety Executive will also be consulted on any developments within the CD of major hazard sites and/or major accident hazard pipelines.
- Security threat: There is the potential for hostile acts against the Project and the associated workforce, which could occur at any stage of the lifecycle of the Project. National Grid take safety and security very seriously and work closely with the police and security services when designing equipment and the security measures needed to protect them. There is no history of terrorist threat to pylons and overhead lines in the UK. Even so, damage to overhead lines, pylons and substations, however caused, can be repaired more quickly than damage to underground cables and direct current converter stations. This makes overhead lines more resilient and flexible than buried assets.
- External interference: There is a risk that a third party might disturb and damage the infrastructure in error, which may lead to serious harm to third-parties such as electrocution. The infrastructure will have appropriate signage to warn of the presence of high voltage electricity. There is the potential for third party transport (aviation) to impact on the Project. In all cases when planning to build a new overhead line, National Grid consult with the Civil Aviation Authority (CAA), National Air Traffic Service (NATS) and the Ministry of Defence (MOD). Where there are airstrips or MOD sites that might be affected, National Grid liaise with the sites to

enable an understanding of the potential impacts on their operations, should a new overhead line be proposed in their vicinity.

- Adverse weather: The risk of adverse weather conditions affecting the construction of the Project is limited. The design of any temporary works will be designed to account for ground and groundwater conditions. There will be procedures developed for working in areas liable to flooding, and for cessation of activities in extreme adverse conditions. When locating infrastructure, National Grid consider the topography of the land, including likely flood zones and rivers. The design of the Project will account for all foreseeable weather conditions and potential disasters (e.g. overhead lines are designed to withstand extreme weather conditions, such as high winds and ice formation on the wires).

17.1.4 National Grid will apply a comprehensive risk management framework to reduce risks to as low as reasonably practicable and ensure that there are no significant effects throughout the Project lifecycle. The risk of these major accident and disaster events are considered so low, as to not be considered significant. All potential effects have been scoped out from further assessment, as there are no likely significant effects. A standalone major accidents and/or disasters ES chapter is therefore not proposed. Where appropriate, relevant environmental aspects, as part of the EIA, will assess the likely risks to the Project in relation to potential areas of vulnerability. For example, any flood risk concerns are considered within Chapter 9: Hydrology and Flood Risk and will be addressed as part of the Flood Risk Assessment.

17.2 Waste

17.2.1 National Grid will adopt good construction and management practices to ensure waste is minimised as far as possible and that the storage, transport and eventual disposal of waste have no significant environmental effects. The management and collection of waste arisings will be carried out under the requirements of the UK waste regulatory regime. It is therefore proposed that waste will not be the subject of a separate environmental aspect chapter in the EIA, as the effects of any waste related development will be addressed as part of the relevant environmental aspects and associated strategies, for example the transport effects from the management of waste arisings will be considered in Chapter 12: Traffic and Transport where appropriate.

17.3 Climate change

17.3.1 In terms of the susceptibility of the Project to climate change overhead lines are designed to withstand extreme weather conditions, such as high winds and ice formation on the wires. National Grid has previously investigated whether climate change might require overhead lines to be redesigned but found there is more likely to be a reduction in the risk of ice on the wires and intense wind gusts occurring simultaneously.

17.3.2 The likely significant effects associated with climate change will be considered, where necessary, within the aspect specific assessments, for example Chapter 9: Hydrology and Flood Risk.

17.4 Electric and magnetic fields (EMFs)

- 17.4.1 All equipment that generates, distributes or uses electricity produces EMFs. The UK power frequency is 50 Hz which is therefore the principal frequency of the EMFs produced, which are also known as Extremely Low Frequency (ELF) EMFs.
- 17.4.2 Electric fields depend on the operating voltage of the equipment producing them and are measured in V/m (volts per metre). The voltage applied to equipment is a relatively constant value. Magnetic fields depend on the electrical currents flowing, which vary in accordance with the electrical power requirements at any given time and are measured in μT (microteslas). Both fields diminish rapidly with distance from the source and are present in all areas where electricity is in use (e.g. office and homes), arising from electric cabling and equipment in the area.
- 17.4.3 Whilst there are no statutory regulations in the UK that limit the exposure of people to power-frequency electric or magnetic fields, responsibility for implementing appropriate measures for the protection of the public from EMFs lies with the UK Government. In 2004, the Government adopted guidelines published in 1998²⁹⁵ by the International Commission on Non-Ionizing Radiation Protection (ICNIRP) in the terms of the 1999 EU recommendation²⁹⁶ on public exposure to EMFs. This policy of compliance with guidelines was reaffirmed in 2009, when one additional precautionary policy relating to high-voltage power lines, optimum phasing, was introduced. The National Policy Statement EN-535 also repeats these two policies, and the Department of Energy and Climate Change (DECC) has published three Codes of Practice²⁹⁷ which have been agreed between the Energy Network Association and the Government, which specify how compliance with these exposure guidelines and with the policy on optimum phasing will be determined. It is National Grid's policy to comply, as a minimum, with the relevant EMF guidelines in all of its operations.
- 17.4.4 When, as is the case for all National Grid assets and operations, and in particular as is the case for the Project, the EMFs comply with the relevant exposure guidelines as specified by Government and with the additional precautionary policies, there are no likely significant effects from EMFs. Therefore, EMFs are scoped out of the ES, which deals with issues where there are likely to be significant effects on the environment.
- 17.4.5 However, National Grid recognises the extent of public concern regarding EMFs, and therefore wishes to provide all the relevant information on EMFs as part of the application. Further, NPS EN-5 requires the provision of specified information to demonstrate compliance with the exposure guidelines and other policies. Therefore, comprehensive information on EMFs as they relate to this application will be provided in a separate document which will be submitted alongside the ES as part of this application. The information provided will include evaluations of the EMFs that will be produced, performed according to the provisions of the DECC Code of Practice, and

²⁹⁵ International Commission on Non Ionising Radiation Protection (1998) Guidelines for Limiting Exposure to Time-Varying Electric, Magnetic and Electromagnetic Fields, Health Physics

²⁹⁶ 4 EU Council (1999) Recommendation of 12 July 1999 on the limitation of exposure of the general public to electromagnetic fields (0 Hz to 300 GHz) (1999/519/EC)

²⁹⁷ Department of Energy and Climate Change (2011) National Policy Statement for Electricity Network Infrastructure (EN-5), Department of Energy and Climate Change (2012) Power Lines: Demonstrating compliance with EMF public exposure guidelines. A voluntary Code of Practice and Department of Energy and Climate Change (2012) Optimum Phasing of high voltage double-circuit Power Lines. A voluntary Code of Practice

satisfying the requirements of NPS EN-522, as well as background information on EMFs and the scientific evidence relating to them.

18. Summary

18. Summary

18.1.1 The scope of the assessment described within the environmental aspect chapters (Chapters 5 to 16) is summarised in **Table 18.1**.

Table 18.1 Summary scope of the assessment

Environmental topic	Scope of assessment
Chapter 5: Landscape and Visual Amenity	<p>Construction</p> <ul style="list-style-type: none"> • Potential loss of mature trees and hedgerows. • Potential views of temporary construction compounds, cranes, lighting, and associated activity. <p>Operation</p> <ul style="list-style-type: none"> • Introduction of and potential views of steel lattice pylons associated with the new 400Kv and 275Kv overhead lines, cable sealing end compound (CSEC) areas and substation developments, associated infrastructure, and any lighting.
Chapter 6: Historic Environment	<p>Construction</p> <ul style="list-style-type: none"> • Potential direct effects from permanent loss of archaeological remains. • Potential direct effects from loss of historic landscape elements. • Potential for indirect effects from temporary change to setting caused during construction activities. <p>Operation</p> <ul style="list-style-type: none"> • Potential for indirect effects from perceptual change to historic landscape. • Potential for indirect effects from change to setting caused during operation.
Chapter 7: Biodiversity	<p>Construction</p> <ul style="list-style-type: none"> • Noise and physical activities leading to disturbance (Schedule 1 breeding birds) • Disturbance, direct killing or reduced chance of survival of individual animals through aquatic habitat loss/damage • Noise/vibration as a result of construction activities affecting surrounding features. • Habitat fragmentation through working areas creating barriers to species dispersal. • Direct killing or reduced chance of survival of individual animals and local species populations through habitat loss/damage.

Environmental topic	Scope of assessment
	<ul style="list-style-type: none"> • Removal/degradation of irreplaceable habitats e.g. ancient woodland. • Damage or destruction of breeding bird's nests. • Loss of roosting habitat. • Light pollution through security lighting used at working areas spilling onto surrounding habitats. <p>Operation</p> <ul style="list-style-type: none"> • Noise/vibration as a result of operation activities affecting surrounding features. • Light pollution through security lighting used at the development spilling onto surrounding habitats. • Habitat fragmentation through the development creating a barrier to species dispersal.
Chapter 8: Arboriculture	<p>Construction</p> <ul style="list-style-type: none"> • Tree removals, pruning of branches and roots. • Emission of dust causing reduction of tree health/vitality. • Construction vehicles resulting in compaction to soils within Root Protection Area. • Clearance requirements resulting in tree pruning. <p>Operation</p> <ul style="list-style-type: none"> • Height reduction of features under operational lines. • Access clearance requirements resulting in tree pruning.
Chapter 9: Hydrology and Flood Risk	<p>There are not expected to be any significant hydrological effects to be taken forward for assessment.</p>
Chapter 10: Geology and Hydrogeology	<p>Construction</p> <ul style="list-style-type: none"> • Exposure to pre-existing soil contamination (including dust and vapours). • Deterioration in chemical quality of land and/or groundwater, from the mobilisation of pre-existing contamination. • Deterioration in chemical quality of groundwater due to the mobilisation of pre-existing contamination as a result of dewatering. • Deterioration in the chemical quantity of land and groundwater due to the release of contamination by construction activities (e.g. loss of fuels to an aquifer). • Physical effects on groundwater such as depletion of the aquifer and increased solids/ turbidity. • Physical and chemical effects on groundwater as a result of the discharge of groundwater arising from dewatering. • Explosion or asphyxiation as a result of ingress and accumulation of ground gas, including the risk that construction activities cause gas migration to adjacent properties.

Environmental topic	Scope of assessment
	<ul style="list-style-type: none"> • Construction activities exacerbate and/or are affected by naturally occurring geological hazards, such as unstable slopes or ground dissolution (e.g. in limestone, or are similarly affected by unstable areas of artificial ground). <p>Operation</p> <ul style="list-style-type: none"> • Exposure to residual soil contamination, e.g. if soils containing elevated contaminant levels were excavated during construction and then redeposited at shallow depths in areas of temporary land take that were then returned to agriculture. • Exposure to soil contamination, dust or vapours. • Accumulation of ground gas within permanent structures, resulting in asphyxiation of occupants or explosion. • Changes to infiltration and corresponding effects on groundwater levels as a result of the presence of new structures and surfaces.
Chapter 11: Agriculture and Soils	<p>Construction</p> <ul style="list-style-type: none"> • Loss of agricultural land i.e. change of land-use to non-agricultural through placement of infrastructure but also through indirect effects such as field severance and separation of livestock from water supplies. • Damage to, or loss of soil resources through incorrect management. • Loss of best and most versatile land following reinstatement (i.e. change of land-use to lower quality; arable to pasture, etc.). • Indirect loss of agricultural land, due to limited access or requirement for change to non-agricultural use for land surrounding permanent infrastructure. <p>Operation</p> <ul style="list-style-type: none"> • Loss of agricultural land during maintenance activities. • Damage to, or loss of soil resources through incorrect management during maintenance activities.
Chapter 12: Traffic and Transport	<p>Construction</p> <ul style="list-style-type: none"> • Impact of CSEC, underground cable, overhead lines and substation development construction traffic at sensitive highway receptors. • Impact of CSEC and substation development construction traffic and CSEC proposed route on public rights of way (PRoW). <p>Operation</p> <p>There are not expected to be any significant operational traffic and transport effects to be taken forward for assessment.</p>

Environmental topic	Scope of assessment
Chapter 13: Air Quality	There are not expected to be any significant air quality effects to be taken forward for assessment.
Chapter 14: Noise and Vibration	<p>Construction</p> <ul style="list-style-type: none"> • Potential for increased road traffic noise on local roads due to construction traffic accessing and leaving site. • Potential for construction noise effects due site clearing and land preparation activities at the proposed substation sites and new overhead line pylons. • Potential for construction noise effects due site concreting and general construction activities at the proposed substation sites and new overhead line pylons. • Potential construction noise and vibration effects due to the drilling and potential piling requirements for the installation of underground cabling and CSECs. • Potential for construction noise and vibration effects due site piling activities at the proposed substation sites, new overhead line pylons and CSECs. • Potential for construction noise effects due to reconductoring and strengthening works along the existing 275 kV overhead line. <p>Operation</p> <ul style="list-style-type: none"> • Potential for noise effects from new and upgraded transformers and other noise generating equipment at substation sites. • Potential for noise effects from new overhead lines.
Chapter 15: Health and Wellbeing	<p>Construction</p> <ul style="list-style-type: none"> • Increased employment and training opportunities. • Increase in population including demographic change, potential increase in demand for accommodation and community services including health services. • Potential amenity effects (e.g. noise, construction traffic, air quality and visual intrusion) which could impact on the mental and physical health of people living or working in local communities as well as visitors, including impacts on community cohesion due to severance and/ or impacts to the local communities' quality of life. • Potential severance impacts (temporary diversion or closures) on walkers and cyclists in accessing recreational routes and amenity areas including open spaces and nature, public rights of way, local community services and social infrastructure. <p>Operation</p> <ul style="list-style-type: none"> • Potential amenity effects (e.g. visual, noise or maintenance traffic) which could impact on the mental and physical health of people living or working in local communities, including

Environmental topic	Scope of assessment
Chapter 16: Socioeconomic	<p>impacts on community cohesion due to severance and/ or impacts to the local communities' quality of life.</p> <p>Construction</p> <ul style="list-style-type: none"> • Temporary closure of a recreational resource such as a PRow, promoted walking route or trail, national cycle route or a stretch of a river whilst construction activities occur. • Amenity effects (e.g. noise, construction traffic, air quality, visual intrusion and health) arising from construction activities. • Employment opportunities within the construction sector, as well as supply chain opportunities associated with specialist services (e.g. ground works) and/or construction materials. • Construction activities have the potential to lead to benefits to local businesses through increased local spend associated with construction workers staying within the local area (accommodation costs) and construction worker spend in local facilities (e.g. eateries and convenience stores). <p>Operation</p> <ul style="list-style-type: none"> • Permanent amenity effects as a result of other environmental impacts (e.g. visual, noise or maintenance traffic). The socio-economic assessment will consider the combined effects (where applicable) of these effects on receptors.

Appendix 10.1

Coal Authority Correspondence



Our ref: MW/SG/NA/GM11455/0001

Date: 15 March 2021

Your ref:

The Coal Authority
200 Lichfield Lane
Mansfield
NH18 4RG

Sent by e-mail only

Dear Sir/Madam

Yorkshire Green Energy Enablement Project (Yorkshire GREEN): Environmental Impact Assessment in Coal Mining Reporting Area

We are working on behalf of National Grid on the above project, which will involve electricity infrastructure improvements and reinforcements within the Scoping red line boundary shown on the attached drawing (referred to as “the Site” in this letter).

The Site is located to the west and south west of York and measures approximately 35km in length (north to south). The project will be subject to a Development Consent Order (DCO) application by National Grid, which will be supported by an Environmental Statement. Wardell Armstrong will be preparing an Environmental Impact Assessment (EIA) for the topic areas of geology and hydrogeology, which will form part of the Environmental Statement.

A Scoping Report for the EIA is currently in preparation and will be submitted to the Planning Inspectorate. In the course of preparing this report, we have identified that parts of the Site fall within a Coal Mining Reporting Area. However, further research (explained below) indicates that the Site is not at risk of environmental effects from ground instability resulting from shallow coal or historical coal mining.

Information Sources

We have considered the potential for coal mining ground instability risks by using the following published resources:

- 1:50,000 scale geological mapping (superficial and solid).
- Historical borehole records available from the British Geological Survey.
- The Coal Authority’s Interactive Map and downloadable WMS data.



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ENERGY AND CLIMATE CHANGE
ENVIRONMENT AND SUSTAINABILITY
INFRASTRUCTURE AND UTILITIES
LAND AND PROPERTY
MINING AND MINERAL PROCESSING
MINERAL ESTATES
WASTE RESOURCE MANAGEMENT



Assessment

Approximately 640 hectares of land at the southern end of the Site, to the west / south west of Sherburn in Elmet, falls within a Coal Mining Reporting Area, as shown in Figure 1.

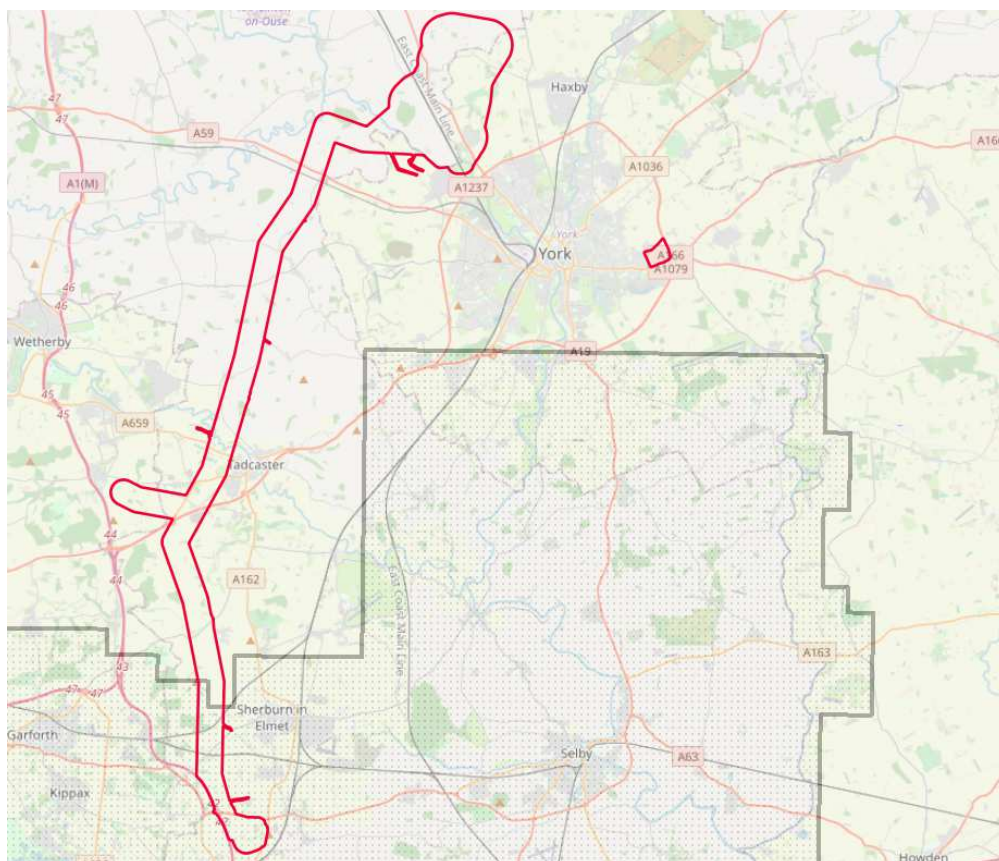


Figure 1. Extent of the Coal Mining Reporting Area (outlined in grey) in relation to the Site (red boundary).

Geological mapping indicates that the part of the Site that is within the Coal Mining Reporting Area is underlain by sporadic superficial deposits (primarily glacial till, and less prevalent alluvium and glaciofluvial sand & gravel). The mapped solid geology immediately beneath the superficial deposits (or at surface where the superficals are absent) is limestone, dolomite and calcareous mudstone of Permian and Triassic age.

The British Geological Survey's database of publicly available borehole records has been reviewed and ten deep boreholes (>30m) were identified to be present within or close to (within 100m of) the 640 ha of the Site that falls inside the Coal Mining Reporting Area. The locations of these boreholes are shown in Figure 2. The geology within all ten boreholes was generally similar, with thick limestone deposits capping the Coal Measures. Coal Measures strata were not encountered in these boreholes until a depth of 55.2m, with the shallowest coal seams being identified at depths of between 60.4m and 139.5m below ground level.

Records from boreholes that were terminated shallower than 30m were not reviewed as part of this assessment, as shallow coal is not anticipated based on the geology and depth to coal recorded within the deeper boreholes.

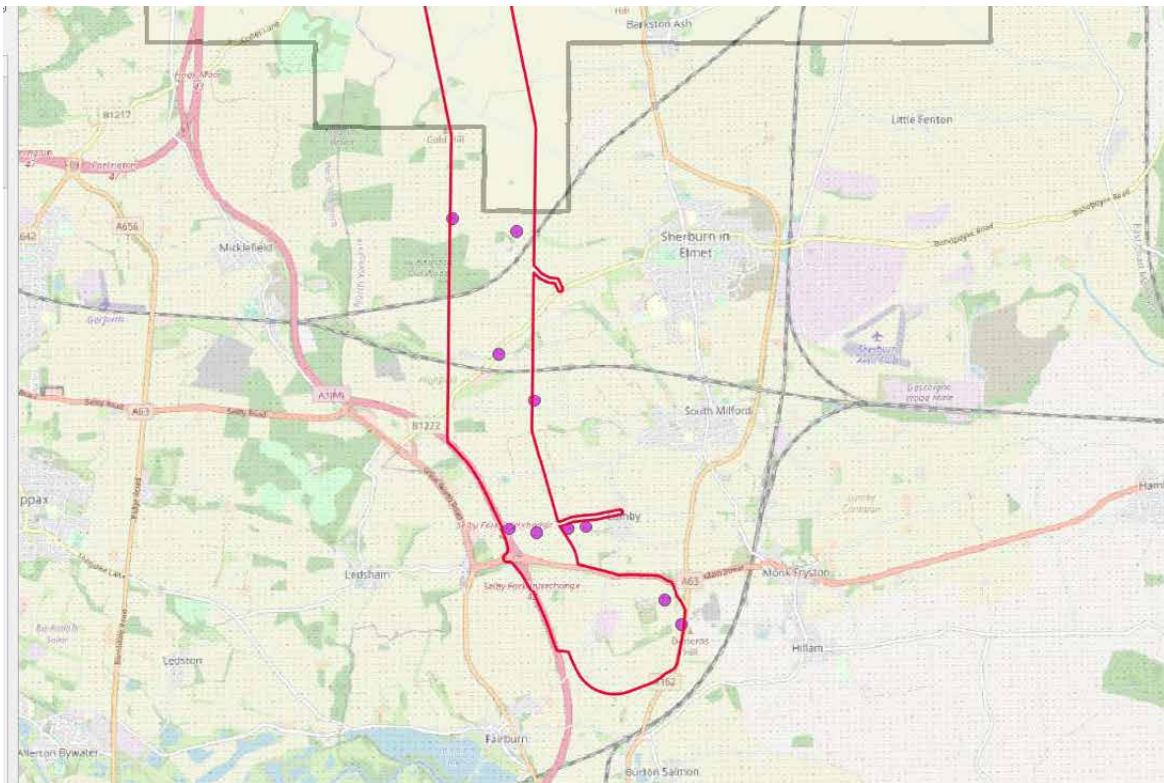


Figure 2. Deep borehole records (>30m) (shown in purple) in relation to the Site (red), in/near the parts of the Site that fall within the Coal Mining Reporting Area.

In addition to the information from the historical boreholes, the following is noted:

- The Site does not fall within a Development High Risk Area (Figure 3).
- There are no recorded mine entries within, or within 20m of, the Site (Figures 4a and 4b). The closest recorded mine entry is 1.5km west of the Site.

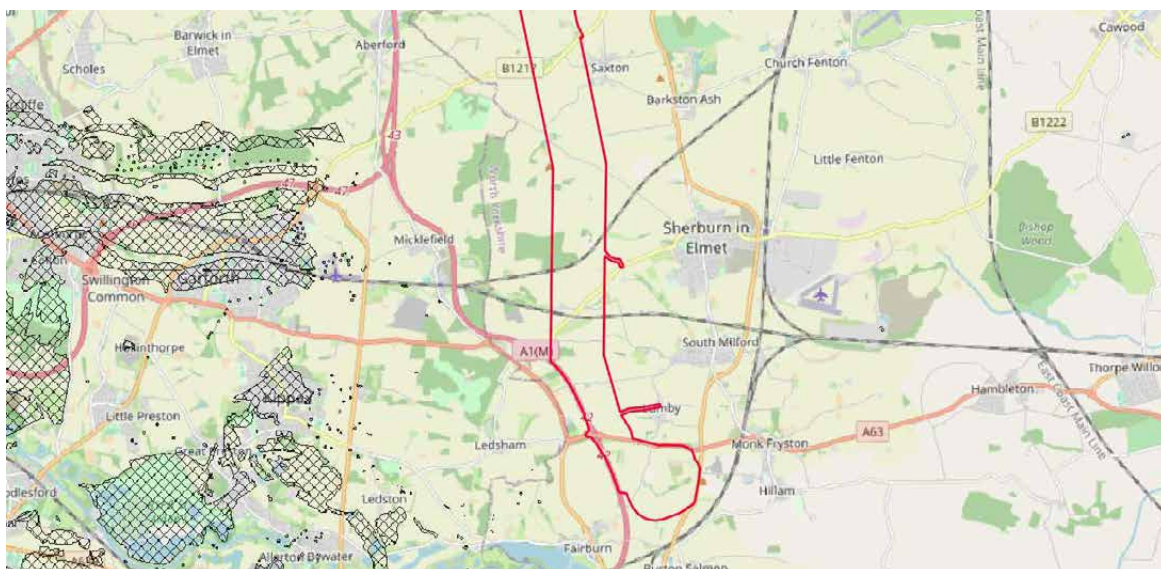


Figure 3: Development High Risk Area (black cross-hatch) and Site boundary (red)

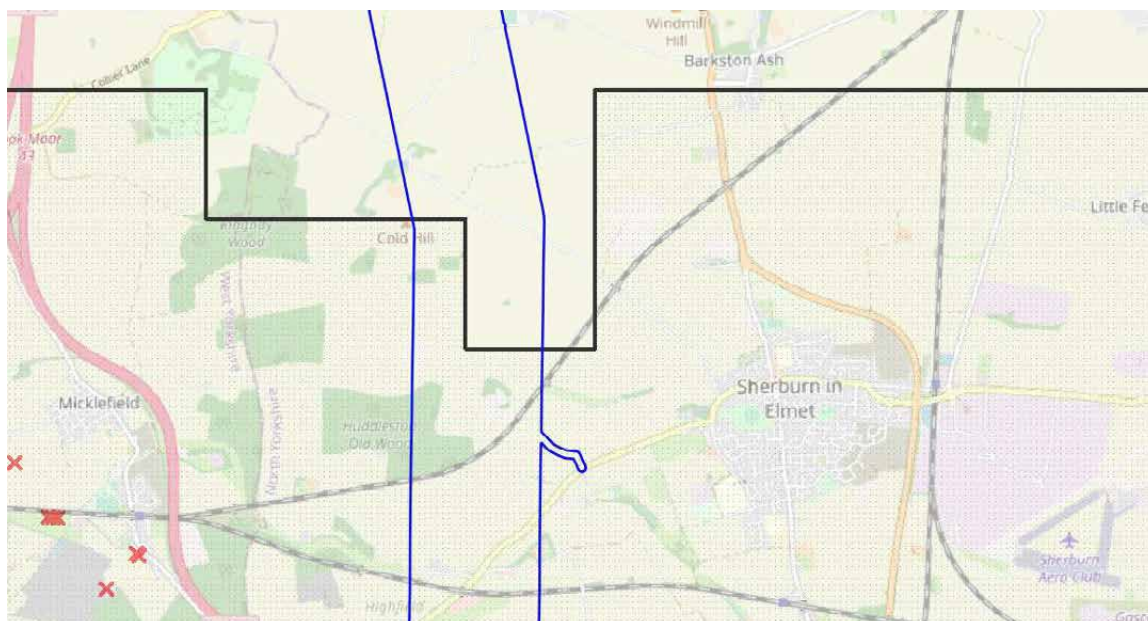


Figure 4a: Recorded mine entries (red crosses) and Site boundary (blue) in the northern part of the area in which the site falls within the Coal Mining Reporting Area (grey hatch).

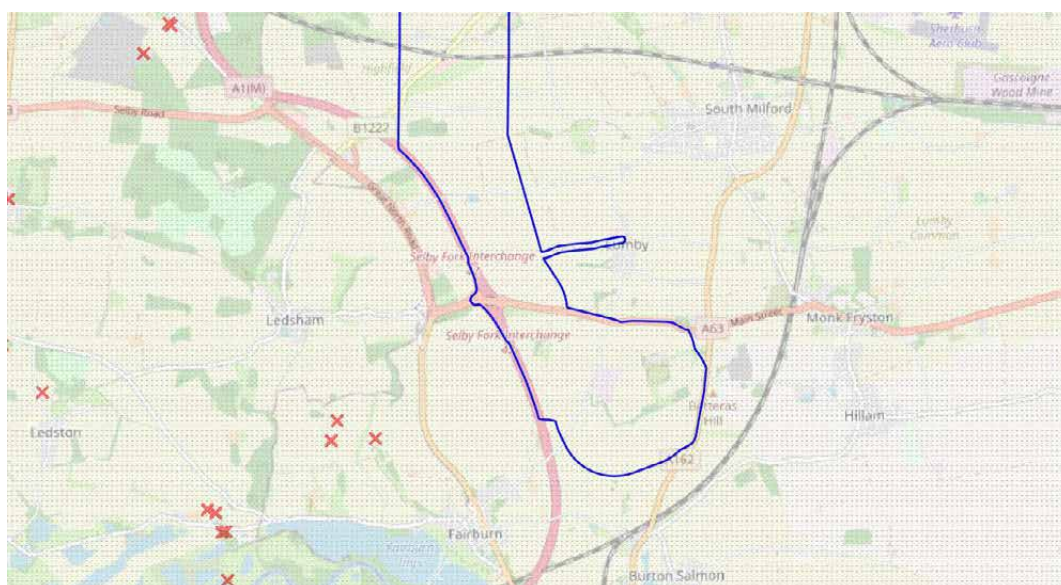


Figure 4b: Recorded mine entries (red crosses) and Site boundary (blue) in the southern part of the area in which the site falls within the Coal Mining Reporting Area (grey hatch; covers full extent of the figure).

Conclusion

Part of the Site is recorded to be in a Coal Mining Reporting Area. However, a review of historical borehole logs indicates that Coal Measures strata in these boreholes are at depths of greater than 55.2m, with the shallowest coal seam being at 60.4m. The Site is not within a Development High Risk Area and is not recorded contain, and is remote from, any recorded historical mine entries.

Due to the apparent absence of shallow coal or historical mine entries, it is not proposed to obtain a Coal











Authority Mining Report during the process of completing the EIA, or to assess coal mining ground instability risks within the EIA. This approach will be documented in the Scoping Report, which will be submitted to the Planning Inspectorate for formal comments (Scoping Opinion). However, in the meantime we would welcome any comments that the Coal Authority may have on this approach.

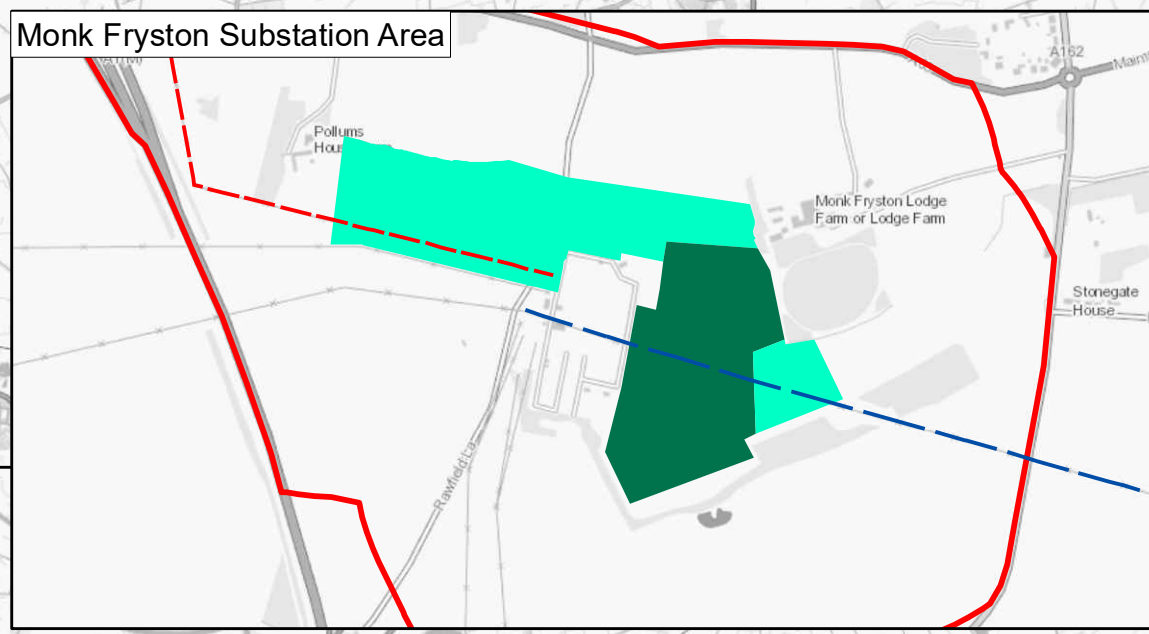
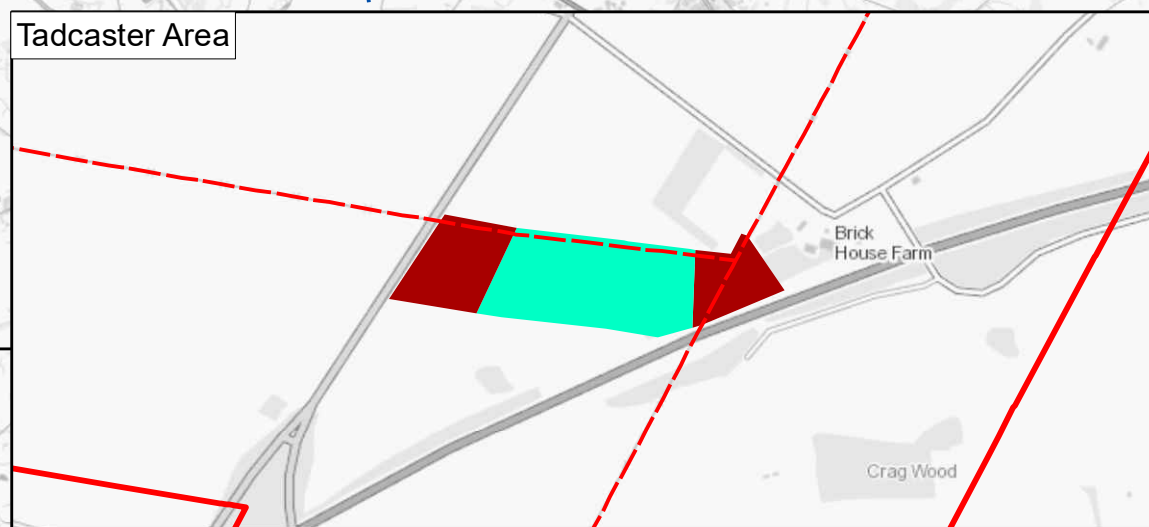
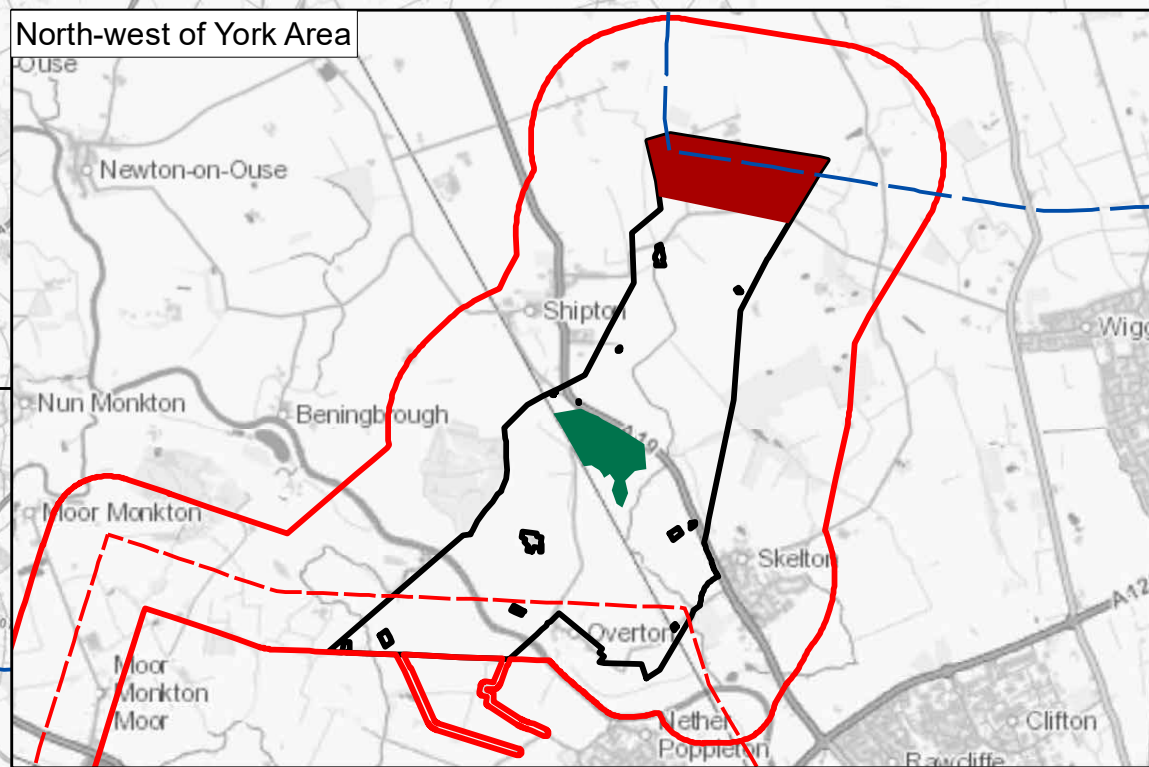
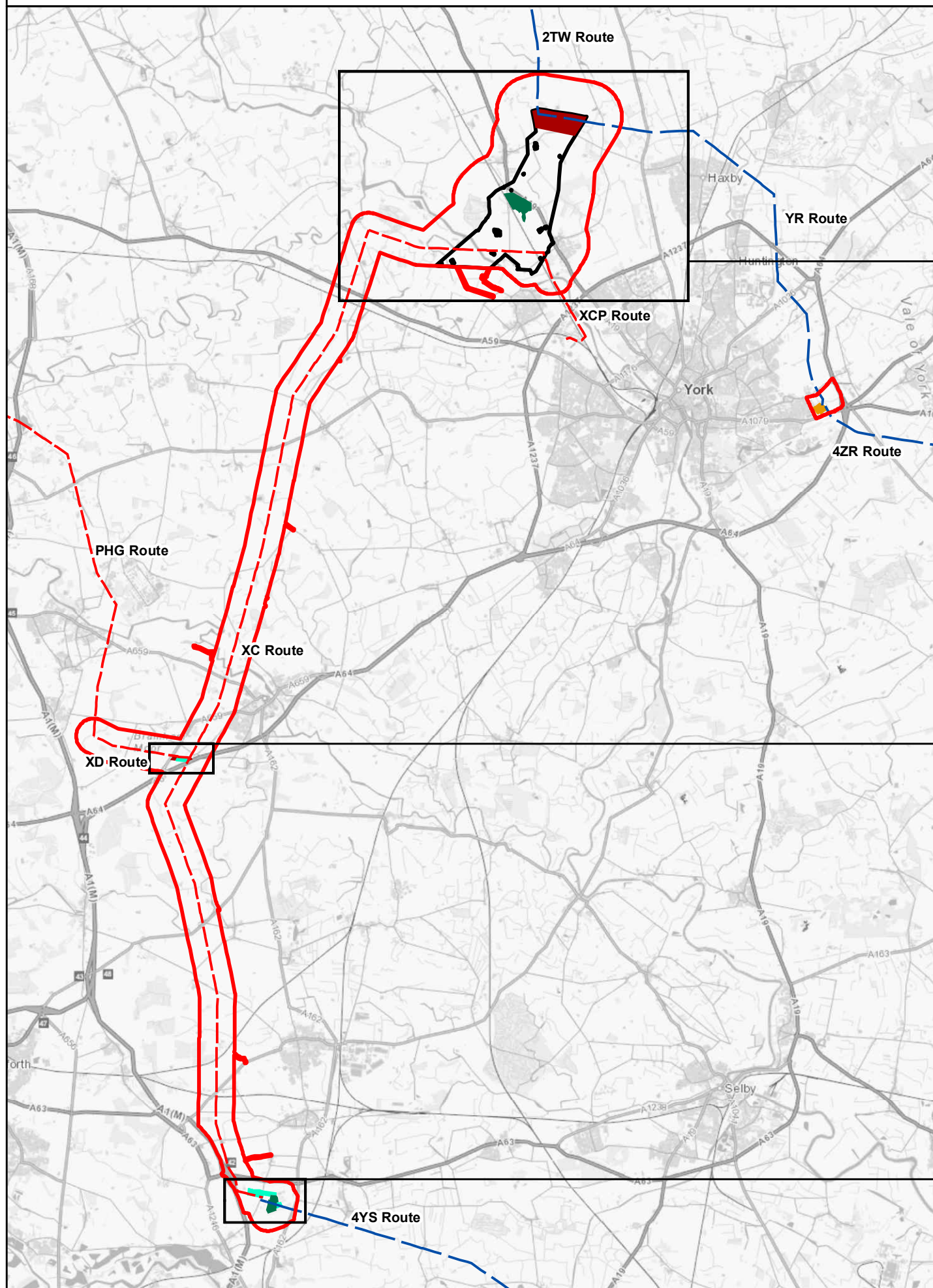
Yours sincerely
for Wardell Armstrong LLP



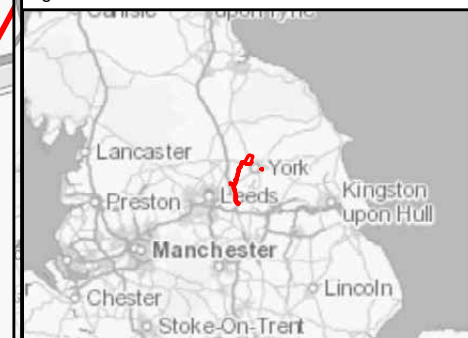
PROJECT COMPONENTS

Legend

-  Scoping red line boundary
-  Existing 275kV overhead line
-  Existing 400kV overhead line
-  Existing Osbaldwick substation
-  New 400kV and 275kV overhead line corridor
-  Proposed Substation Siting Area
-  Proposed Cable Sealing End Compound Siting Area
-  Proposed Associated Infrastructure



Notes
This drawing is scaled at paper size A3, therefore any prints taken at smaller sizes will affect accuracy of the measurement units and should not be scaled against.




Coordinate System: British National Grid
Sheet X Centroid Coordinate: 465,094.71 Sheet Y Centroid Coordinate: 444,795.14

0 1,650 3,300 6,600
Meters

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Issue	Date	Remarks	Drawn	Checked	Approved
1	MAR 21		GREES	DIMMR	CHADC

Title
**SCOPING REPORT
CHAPTER 1: INTRODUCTION
PROJECT COMPONENTS**

			
Figure Number	FIGURE 1.2		
Drawing Reference	806503-WOOD-0021		
Scale	Sheet Size	Sheet	Issue
1:140,000	A3	SHEET OF	1

Appendix 13.1

Air Quality Monitoring

Table 13.1.1 Annual mean concentrations of NO₂ within 10 km of the Study Area

Local Authority	Monitor ID	Type	X	Y	Annual mean concentration of NO ₂ (µg/m ³)			
					2016	2017	2018	2019
HDC	HDC6	DT	453011	469267	10.4	13.2	12.0	-
HBC	H27/44	DT	441851	453686	34.4	29.97	27.76	23.5
CYC	CM1	AUTO	460022	452777	17.8	14.9	15.2	16.3
CYC	CM2	AUTO	460746	451038	27.2	27.7	26.1	26.1
CYC	CM3	AUTO	459512	451282	29.4	24.8	24.8	25.2
CYC	CM4	AUTO	460068	451199	31.4	25.9	23.4	22.9
CYC	CM5	AUTO	460147	452345	27.3	25.2	27.1	27.3
CYC	CM6	AUTO	461256	451340	33	29.3	27.3	26.9
CYC	CM7	AUTO	461126	452602	28.3	26.5	26.2	25.6
CYC	CM9	AUTO	460937	449464	25.2	23.0	22.2	22.3
CYC	5	DT	462040	454883	16.7	16.0	15.2	16.2
CYC	6	DT	459777	451406	40.6	37.3	37.1	37.3
CYC	7	DT	460217	452421	46.6	42.4	45.3	45.4
CYC	8	DT	460163	452468	17.6	15.7	15.5	18.1
CYC	9	DT	460163	452468	18.1	15.7	15.7	17.6
CYC	11	DT	458846	450946	19.3	14.7	15.6	17.9
CYC	13	DT	460176	452377	44.9	42.5	42.6	40.7
CYC	14	DT	460167	452347	47.5	43.6	46.6	44.3
CYC	15	DT	461105	451458	38.1	35.9	36.0	34.7
CYC	16	DT	460160	451152	36.2	36.0	35.6	35.9
CYC	17	DT	459646	451500	33.5	30.9	32.2	31.4
CYC	18	DT	460457	452903	31.7	28.9	29.4	29.9
CYC	25	DT	461721	452709	25.2	20.9	20.0	22.4
CYC	26	DT	460829	453524	25.7	28.3	26.0	26.7
CYC	33	DT	460598	453227	25.8	26.0	23.7	23.5
CYC	35	DT	457603	451492	24.7	24.4	24.3	23.5
CYC	37	DT	459522	451187	31.9	33.3	31.1	29.6
CYC	44	DT	460679	452326	24.3	22.4	22.9	22.3

Local Authority	Monitor ID	Type	X	Y	Annual mean concentration of NO ₂ (µg/m ³)			
					2016	2017	2018	2019
CYC	45	DT	460319	452754	32.0	29.5	31.6	31.4
CYC	47	DT	462009	456996	28.3	28.4	26.9	26.8
CYC	60	DT	461017	451781	21.2	22.5	19.8	22.9
CYC	78	DT	460149	452342	29.2	28.3	30.3	28.6
CYC	79	DT	460149	452342	29.5	28.7	29.6	29.4
CYC	80	DT	460149	452342	30.1	28.2	29.4	29.8
CYC	83	DT	461597	452830	20.9	22.6	20.2	19.9
CYC	88	DT	463354	451972	13.2	13.1	11.9	13.8
CYC	90	DT	459997	450109	17.6	15.6	15.7	15.7
CYC	96	DT	460978	449452	22.8	20.9	20.5	20.9
CYC	100	DT	456228	453312	20.5	18.7	17.7	18.3
CYC	101	DT	459746	455897	32.7	32.2	29.1	31.2
CYC	102	DT	458703	452429	32.1	29.8	31.5	30.8
CYC	103	DT	458703	452429	32.7	30.9	31.8	30.5
CYC	104	DT	458703	452429	32.9	31.7	31.2	31.4
CYC	107	DT	458779	452387	21.0	18.1	18.8	18.7
CYC	108	DT	458814	452373	19.2	22.2	21.6	22.3
CYC	109	DT	459924	451833	45.4	43.3	45.1	46.7
CYC	110	DT	459985	451727	46.4	45.8	43.6	45.3
CYC	111	DT	459917	451728	26.3	25.9	25.6	28.0
CYC	112	DT	459873	451684	22.3	22.6	22.5	23.3
CYC	114	DT	459981	451778	41.7	39.8	38.0	38.5
CYC	116	DT	458212	452037	28.0	27.7	26.1	25.9
CYC	125	DT	463194	451967	14.5	14.7	14.2	14.2
CYC	126	DT	463482	451896	16.5	16.1	16.3	16.0
CYC	127	DT	461108	452313	24.0	22.8	19.3	19.5
CYC	128	DT	458686	452369	19.2	18.6	19.1	19.1
CYC	129	DT	455968	453397	16.9	17.2	15.9	16.7

Local Authority	Monitor ID	Type	X	Y	Annual mean concentration of NO ₂ (µg/m ³)			
					2016	2017	2018	2019
CYC	2a	DT	460746	451034	28.6	25.3	24.5	24.1
CYC	2b	DT	460746	451034	28.4	25.5	25.5	24.8
CYC	2c	DT	460746	451034	27.2	24.8	24.8	23.4
CYC	3a	DT	460024	452767	16.1	14.5	14.8	16.4
CYC	3b	DT	460024	452767	17.1	15.5	15.3	16.8
CYC	3c	DT	460024	452767	19.7	15.6	15.1	16.8
CYC	95a	DT	460938	449465	23.1	22.6	21.5	21.9
CYC	95b	DT	460938	449465	24.0	22.5	21.7	22.4
CYC	95c	DT	460938	449465	24.1	23.3	21.5	22.7
CYC	9a	DT	460163	452468	18.7	16.2	15.0	18.3
CYC	A1	DT	460088	452263	54.3	43.9	43.5	43.0
CYC	A11	DT	459341	453042	30.9	30.0	31.3	29.8
CYC	A12	DT	459251	453008	29.0	27.7	30.3	27.7
CYC	A13	DT	459335	452931	18.7	16.0	16.3	17.3
CYC	A14	DT	459335	452931	19.1	15.1	16.0	17.7
CYC	A14a	DT	459335	452931	18.8	16.3	17.1	17.8
CYC	A17	DT	458578	452472	29.6	27.6	28.7	27.6
CYC	A19	DT	458713	452414	26.8	27.7	26.4	27.2
CYC	A19a	DT	458713	452414	27.3	28.7	26.4	27.4
CYC	A19b	DT	458713	452414	27.9	28.5	27.3	27.2
CYC	A2	DT	459917	452405	30.6	30.3	27.9	30.0
CYC	A20	DT	458760	452404	34.6	29.1	29.3	30.0
CYC	A20a	DT	458760	452404	30.2	27.4	30.0	29.4
CYC	A20b	DT	458760	452404	31.5	29.5	28.8	29.1
CYC	A21	DT	458806	452326	20.0	19.3	17.9	21.5
CYC	A22	DT	458792	452242	21.7	19.1	19.0	21.2
CYC	A25	DT	458706	452225	22.9	21.8	21.6	20.2
CYC	A29	DT	456939	453013	20.0	18.1	17.3	19.3

Local Authority	Monitor ID	Type	X	Y	Annual mean concentration of NO ₂ (µg/m ³)			
					2016	2017	2018	2019
CYC	A3	DT	459822	452492	28.2	26.7	26.7	27.4
CYC	A30	DT	457060	452888	20.7	18.4	17.8	19.7
CYC	A36	DT	457625	452446	22.3	15.8	15.8	18.4
CYC	A38	DT	457857	452334	18.3	14.3	15.1	16.3
CYC	A4	DT	459699	452638	20.5	18.2	18.3	20.0
CYC	A40	DT	458109	452196	22.7	18.0	19.3	21.2
CYC	A41	DT	458172	452108	23.0	19.9	21.2	20.7
CYC	A45	DT	458384	451817	16.1	13.3	14.5	16.3
CYC	A98	DT	458666	451468	24.6	26.1	26.4	26.2
CYC	A50	DT	458732	451393	22.8	20.6	19.5	22.1
CYC	A51	DT	458827	451348	31.9	29.7	31.5	30.7
CYC	A52	DT	458945	451254	30.6	28.8	29.3	30.6
CYC	A53	DT	459066	451239	33.7	33.1	35.2	31.4
CYC	A54	DT	459254	451223	29.5	29.7	29.3	30.1
CYC	A55	DT	459351	451221	30.0	26.4	25.8	28.1
CYC	A56	DT	459470	451268	47.7	43.1	45.3	45.5
CYC	A57	DT	459533	451280	24.4	24.2	23.9	23.5
CYC	A6	DT	459536	452811	14.9	13.2	13.5	14.7
CYC	A60	DT	458906	453276	14.7	13.8	13.0	15.3
CYC	A62	DT	458806	453483	32.4	28.3	30.0	28.6
CYC	A64	DT	460030	452327	16.5	14.7	13.9	16.3
CYC	A66	DT	458672	453685	15.6	12.6	12.8	14.8
CYC	A69	DT	458375	453958	30.0	26.7	23.3	24.3
CYC	A7	DT	459441	452892	18.5	17.0	15.8	17.5
CYC	A70	DT	458299	454070	16.0	13.5	12.6	14.7
CYC	A71	DT	458121	454254	15.8	13.4	12.6	14.4
CYC	A74	DT	458041	454371	18.8	17.5	17.5	20.1
CYC	A77	DT	457929	454537	16.7	14.7	14.2	17.9

Local Authority	Monitor ID	Type	X	Y	Annual mean concentration of NO ₂ (µg/m ³)			
					2016	2017	2018	2019
CYC	A81	DT	457733	454805	21.2	19.2	18.6	21.4
CYC	A85	DT	459364	453009	18.4	15.0	15.4	17.9
CYC	A88	DT	457470	452550	32.3	27.0	30.3	28.8
CYC	A9	DT	459295	453067	34.3	35.9	33.6	32.1
CYC	A90	DT	459238	453157	24.6	22.4	28.7	27.8
CYC	A94	DT	458651	452426	31.7	29.4	28.1	29.9
CYC	A96	DT	459038	452850	21.0	19.3	19.7	18.9
CYC	A97	DT	457431	452616	-	22.8	21.8	22.8
CYC	B1	DT	460848	452582	27.9	28.5	26.6	28.9
CYC	B15	DT	461294	455305	28.4	18.9	18.1	18.5
CYC	B19	DT	461891	455876	21.1	19.9	18.9	19.3
CYC	B2	DT	460924	452697	24.9	24.2	22.8	24.0
CYC	B29	DT	461453	452750	21.7	20.0	19.5	19.3
CYC	B3	DT	460952	452826	22.0	21.5	21.8	21.5
CYC	B36	DT	462565	454194	15.9	13.6	13.2	15.4
CYC	B37	DT	462565	454194	15.9	13.0	13.8	14.5
CYC	B37a	DT	462565	454194	17.2	14.3	12.9	13.9
CYC	B38	DT	463757	455155	20.0	15.9	16.1	17.2
CYC	B41	DT	461326	451330	31.3	28.2	27.4	30.1
CYC	B42	DT	461430	451348	25.8	22.3	20.8	23.3
CYC	B43	DT	461557	451343	22.2	19.8	19.2	20.0
CYC	B44	DT	461643	451343	30.3	29.4	28.1	28.9
CYC	B45	DT	461849	451284	27.8	26.5	27.2	26.2
CYC	B47	DT	462019	451289	16.0	15.0	14.1	15.8
CYC	B48	DT	462122	451289	19.7	19.8	17.5	19.0
CYC	B50	DT	462291	451269	22.0	22.2	21.5	22.7
CYC	B51	DT	462384	451298	17.6	16.2	15.6	18.2
CYC	B56	DT	462888	451289	31.7	30.7	28.3	28.6

Local Authority	Monitor ID	Type	X	Y	Annual mean concentration of NO ₂ (µg/m ³)			
					2016	2017	2018	2019
CYC	B58	DT	462970	451300	19.7	17.6	16.8	19.0
CYC	B60	DT	463234	451339	19.3	18.0	16.7	19.0
CYC	B63	DT	462704	451300	29.1	29.7	27.9	29.2
CYC	B72	DT	461122	451374	42.7	42.8	41.8	38.9
CYC	B74	DT	461371	452708	20.4	17.1	17.8	18.9
CYC	B80	DT	461185	452663	16.7	15.1	15.0	17.3
CYC	B82	DT	460974	452563	22.2	21.7	21.5	24.1
CYC	B83	DT	461285	452695	25.3	25.2	25.3	24.6
CYC	B84	DT	462654	451293	22.2	21.6	19.8	22.3
CYC	B85	DT	461227	451368	31.9	28.4	28.1	28.7
CYC	B86	DT	461116	452602	23.5	23.2	22.5	23.0
CYC	B88	DT	462799	451291	27.8	28.5	25.9	26.8
CYC	B89	DT	461170	451357	34.7	36.8	33.7	32.9
CYC	B90	DT	461133	451394	34.0	34.1	36.8	36.0
CYC	C12	DT	458825	449928	18.3	15.2	15.9	18.6
CYC	C17	DT	459085	450544	18.7	16.1	15.2	16.2
CYC	C18	DT	459204	450772	25.1	22.5	21.8	25.3
CYC	C19	DT	459271	450819	19.2	15.6	15.9	17.5
CYC	C2	DT	458333	448974	31.5	31.5	29.0	29.8
CYC	C20	DT	459280	450923	19.8	16.8	17.2	19.3
CYC	C21	DT	459410	451040	26.7	25.8	23.5	24.9
CYC	C22	DT	459570	451195	24.6	19.6	19.6	21.0
CYC	C23	DT	459553	451252	39.9	37.0	36.2	35.7
CYC	C26	DT	459639	451334	41.2	38.1	41.0	38.3
CYC	C27	DT	459717	451433	45.8	45.9	46.3	44.0
CYC	C28	DT	461201	448386	16.6	14.3	14.4	16.4
CYC	C29	DT	461196	448426	30.0	28.1	26.5	26.8
CYC	C30	DT	461185	448462	30.8	29.0	31.1	30.0

Local Authority	Monitor ID	Type	X	Y	Annual mean concentration of NO ₂ (µg/m ³)			
					2016	2017	2018	2019
CYC	C31	DT	461193	448473	18.8	17.8	16.3	18.0
CYC	C32	DT	461128	448823	24.5	21.6	20.9	22.9
CYC	C33	DT	461085	448933	17.3	15.2	14.9	16.7
CYC	C34	DT	461085	449067	25.2	22.3	22.8	23.5
CYC	C36	DT	461052	449146	28.5	27.3	25.0	25.3
CYC	C37	DT	461045	449223	23.4	18.7	20.6	21.2
CYC	C38	DT	461038	449225	28.1	25.6	24.8	25.2
CYC	C39	DT	460974	449336	32.6	34.9	32.7	33.1
CYC	C4	DT	458470	449126	19.0	15.9	16.3	18.2
CYC	C40	DT	460910	449628	19.0	17.6	17.1	18.7
CYC	C42	DT	460857	449748	22.8	20.0	19.1	21.8
CYC	C43	DT	460869	449730	28.8	28.2	26.7	25.1
CYC	C43a	DT	460869	449730	30.4	28.3	26.5	26.5
CYC	C44	DT	460869	449730	29.0	28.5	26.8	27.0
CYC	C49	DT	460860	450530	21.6	17.6	17.7	20.0
CYC	C51	DT	460871	450727	26.2	24.4	25.0	25.5
CYC	C52	DT	460853	450781	24.1	23.8	23.0	22.6
CYC	C53	DT	460766	450924	22.8	22.1	20.8	22.0
CYC	C54	DT	460762	451069	28.4	22.8	25.7	24.7
CYC	C56	DT	459484	451141	31.4	28.3	30.8	30.5
CYC	C57	DT	458912	450111	22.6	18.8	19.1	20.6
CYC	C58	DT	460926	449429	35.5	35.2	32.5	33.0
CYC	C59	DT	458735	449713	29.6	28.3	27.5	27.1
CYC	C62	DT	459579	451251	26.9	27.2	27.0	26.4
CYC	C63	DT	458790	449740	18.8	17.8	16.9	18.1
CYC	C7	DT	458611	449477	19.8	18.0	17.5	19.2
CYC	D10	DT	460443	451927	18.4	16.5	16.5	19.1
CYC	D12	DT	460567	451740	20.4	19.8	18.5	19.4

Local Authority	Monitor ID	Type	X	Y	Annual mean concentration of NO ₂ (µg/m ³)			
					2016	2017	2018	2019
CYC	D13	DT	460271	451358	27.6	24.9	25.3	24.9
CYC	D14	DT	461077	451354	36.2	32.7	37.6	36.6
CYC	D16	DT	460708	451231	37.5	36.2	36.1	37.8
CYC	D17	DT	460575	451616	29.2	26.7	27.9	29.6
CYC	D18	DT	460395	451502	28.7	27.7	29.1	28.7
CYC	D19	DT	460038	451626	49.9	44.1	45.5	45.9
CYC	D20	DT	460323	451685	39.7	40.6	39.7	38.9
CYC	D22	DT	460035	452010	34.4	31.8	32.5	31.5
CYC	D24	DT	459805	451543	30.6	28.2	28.9	27.5
CYC	D25	DT	459693	451750	37.6	36.7	36.5	37.4
CYC	D26	DT	460671	451400	26.6	24.9	23.9	25.1
CYC	D27	DT	460734	451563	25.8	23.3	23.6	22.8
CYC	D28	DT	460764	451185	33.3	31.4	31.9	32.4
CYC	D30	DT	460834	451252	24.6	24.7	23.7	24.7
CYC	D31	DT	461002	451229	32.6	29.2	29.5	28.0
CYC	D32	DT	460258	451208	35.1	31.7	33.7	34.6
CYC	D33	DT	460075	451174	30.0	27.5	26.6	26.3
CYC	D35	DT	460134	451170	36.9	36.3	35.2	37.4
CYC	D36	DT	460135	450884	35.3	31.7	33.2	31.6
CYC	D37	DT	460157	450988	30.9	27.0	27.1	27.5
CYC	D38	DT	460088	450929	22.0	21.8	20.9	22.1
CYC	D39	DT	460185	451055	31.4	29.2	30.2	29.5
CYC	D4	DT	460560	452300	25.7	25.3	24.4	25.5
CYC	D40	DT	460069	451196	29.2	25.8	25.6	25.5
CYC	D41	DT	460286	452487	32.9	33.4	34.5	32.8
CYC	D43	DT	459920	451834	42.4	41.0	44.4	43.6
CYC	D45	DT	460673	451869	28.3	27.9	26.3	23.9
CYC	D47	DT	460682	452187	27.7	25.9	24.8	25.9

Local Authority	Monitor ID	Type	X	Y	Annual mean concentration of NO ₂ (µg/m ³)			
					2016	2017	2018	2019
CYC	D48	DT	460103	452180	36.1	32.9	34.7	34.3
CYC	D49	DT	460656	451269	36.8	38.0	34.3	35.0
CYC	D50	DT	460371	451682	40.3	37.7	37.9	34.7
CYC	D51	DT	459640	451722	56.5	58.6	57.7	55.5
CYC	D52	DT	460887	451140	25.8	23.6	23.4	23.7
CYC	D53	DT	460115	451146	28.7	24.4	25.1	24.3
CYC	D54	DT	460146	451116	27.3	23.8	24.8	23.9
CYC	D55	DT	460087	452065	48.8	35.1	37.4	38.2
CYC	D6	DT	460570	452177	20.5	17.9	15.8	19.5
CYC	D8	DT	460553	451843	36.9	31.5	34.1	31.7
CYC	D9	DT	460483	452357	34.1	31.7	32.6	33.6
CYC	D56	DT	460400	451685	47.4	42.1	42.3	38.2
CYC	D57	DT	460416	451708	35.7	30.3	33.8	29.4
CYC	D58	DT	460435	451732	38.9	38.7	36.8	34.6
CYC	D59	DT	460087	452156	44.7	41.2	39.2	39.7
CYC	D60	DT	460294	451883	21.7	22.3	20.5	21.4
CYC	130	DT	463663	451054	14.7	13.9	13.5	13.3
CYC	115	DT	459962	451771	-	-	59.7	59.2
WMDC	CM1	AUTO	443360	425271	27.0	22.0	24.0	26.0
WMDC	4	DT	439782	423614	39.0	34.0	34.0	34.0
WMDC	5	DT	440607	424299	35.0	31.0	30.0	32.0
WMDC	42	DT	448608	418886	40.0	37.0	31.0	32.0
WMDC	44	DT	445367	421517	37.0	34.0	33.0	34.0
WMDC	45	DT	442647	425900	39.0	35.0	35.0	35.0
WMDC	94	DT	444160	423977	30.0	28.0	26.0	28.0
WMDC	116	DT	443360	425271	27.0	28.0	24.0	24.0
WMDC	117	DT	443360	425271	28.0	27.0	25.0	25.0
WMDC	118	DT	443360	425271	29.0	27.0	25.0	24.0

Local Authority	Monitor ID	Type	X	Y	Annual mean concentration of NO ₂ (µg/m ³)			
					2016	2017	2018	2019
WMDC	125	DT	443253	425651	33.0	29.0	27.0	32.0
WMDC	160	DT	445395	421513	36.0	33.0	32.0	33.0
WMDC	166	DT	444936	422253	25.0	23.0	23.0	22.0
WMDC	174	DT	445032	424751	32.0	32.0	27.0	29.0
WMDC	176	DT	443104	425847	24.0	27.0	25.0	24.0
WMDC	177	DT	443166	426019	27.0	29.0	26.0	25.0
LCC	D52	DT	440063	432361	41	37	-	-
LCC	D105	DT	440034	432364	43	47	-	-
LCC	D176	DT	439487	446158	44	42	-	-
LCC	D177	DT	438758	445935	30	33	-	-
LCC	D194	DT	439524	446143	27	29	-	-
LCC	D204	DT	435562	438338	0.0	19	-	-
LCC	D279	DT	441000	447967	0.0	21	-	-
LCC	D280	DT	441182	448728	0.0	18	-	-
LCC	D281	DT	440440	447856	0.0	25	-	-
LCC	D282	DT	440435	447734	0.0	32	-	-

Note AUTO = Automatic monitor / DT Diffusion Tube

Table 13.1.2 Annual mean concentrations of PM₁₀ within 10 km of the Study Area

Local Authority	Monitor ID	Type	X	Y	Annual mean concentration of PM ₁₀ (µg/m ³)			
					2016	2017	2018	2019
CYC	CM1	AUTO	460022	452777	14.9	13.4	13.8	14.0*
CYC	CM2	AUTO	460746	451038	16.3	16.3	18.3	21.9*
CYC	CM3	AUTO	459512	451282	12.0	10.5	12.4	13.1*
CYC	CM8	AUTO	457428	452620	15.5	15.6	14.3	16.4
WMDC	CM1	AUTO	443360	425271	16	14	19	17

Note: * Provisional data between October and December

Table 13.1.3 Annual mean concentrations of PM_{2.5} within 10 km of the Study Area

Local Authority	Monitor ID	Type	X	Y	Annual mean concentration of PM _{2.5} (µg/m ³)			
					2016	2017	2018	2019
CYC	CM1	AUTO	460022	452777	9.8	8.7	10.8	11.1
CYC	CM2	AUTO	460746	451038	12.0	11.4	10.5	9.8
CYC	CM3	AUTO	459512	451282	9.0	8.4	8.3	7.6
WMDC	CM1	AUTO	443360	425271	10	9	12	11

Appendix 13.2

Construction Mitigation

Mitigation area	Environmental measures to be incorporated
Communication	<ul style="list-style-type: none"> • Display the name and contact details of person(s) accountable for air quality and dust issues at construction compounds and working areas as appropriate. This may be the environment manager/engineer or the Project Manager. • Display the head or regional office contact information of the construction company. • Develop and implement a stakeholder communications plan that includes community engagement before work commences on-site.
Site management	<ul style="list-style-type: none"> • Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken. • Make the complaints log available to the local authority when asked. • Record any exceptional incidents that cause dust and/or emissions, either on- or off-site and the action taken to resolve the situation in the log book. • Hold regular liaison meetings with other high risk construction sites within 500m of the Site boundary, to ensure plans are coordinated and dust and particulate matter emissions are minimised. It is important to understand the interactions of the off-site transport/ deliveries which might be using the same strategic road network routes.
Monitoring	<ul style="list-style-type: none"> • If Air Quality Standards and Objectives are likely to be exceeded, agree dust deposition, dust flux, or real-time PM₁₀ continuous monitoring locations with the Local Authority. Where possible commence baseline monitoring at least three months before work commences on-site. Further guidance is provided by IAQM on monitoring during demolition, earthworks and construction. • Undertake regular on-site and off-site inspection, where receptors (including roads) are nearby, to monitor dust, record inspection results, and make the log available to the local authority when asked.
Preparing and maintaining site	<ul style="list-style-type: none"> • Plan site layout so that machinery and dust causing activities are located away from receptors, as far as possible. • Erect solid screens or barriers around dusty activities or the construction compounds and main areas of working, where required, that are at least as high as any stockpiles on-site. • Avoid site runoff of water or mud.

Mitigation area	Environmental measures to be incorporated
	<ul style="list-style-type: none"> • Fully construction compounds and main areas of working, where required where there is a high potential for dust production and the Site is active for an extensive period. • Keep site fencing, barriers and scaffolding clean using wet methods. • Remove materials that have a potential to produce dust from Site as soon as possible, unless being re-used on-site. • Cover, seed or fence stockpiles to prevent wind whipping.
Operating vehicle/ machinery	<ul style="list-style-type: none"> • Ensure all vehicles switch off engines when stationary – no idling vehicles. • Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practicable. • Produce a Construction Logistics Plan to manage sustainable delivery of goods and materials. • Impose and signpost a maximum-speed-limit of 15 mph on surfaced and 10 mph on un-surfaced haul roads and work areas. • Implement a Travel Plan that supports and encourages sustainable travel by workers (public transport, cycling, walking and car-sharing).
Operations	<ul style="list-style-type: none"> • Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction e.g. suitable local exhaust ventilation systems. • Ensure an adequate water supply on the Site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate. • Use enclosed chutes and conveyors, and covered skips. • Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate. • Ensure equipment readily available on-site to clean any dry spillages, and clean up spillages as soon as reasonably practicable after the event, using wet cleaning methods.
Waste management	<ul style="list-style-type: none"> • Avoid bonfires and burning of waste materials.
Earthworks	<ul style="list-style-type: none"> • Re-vegetate earthworks and exposed areas/ soil stockpiles to stabilise surfaces as soon as practicable. • Use hessian, mulches or trackifiers where it is not possible to re-vegetate, as soon as practicable. • Only remove the cover in small areas and not all at once.

Mitigation area	Environmental measures to be incorporated
Construction	<ul style="list-style-type: none"> • Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place. • Avoid scabbling if possible. • Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent the escape of material and overfilling during delivery.
Trackout	<ul style="list-style-type: none"> • Access gates to be located at least 10m from receptors where possible. • Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary any material tracked out of the Site. This may require the sweeper being continuously in use. • Avoid dry sweeping of large areas. • Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport. • Record all inspections of haul routes and any subsequent action in a site log book. • Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the Site where reasonably practicable). • Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable. • If required, install hard surfaced haul routes, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned. • Ensure there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever site size and layout permits.

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