Millbrook Power Limited

MILLBROOK POWER PROJECT

Environmental Impact Assessment Scoping Report

June 2014

Millbrook Power

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Glossary

Above Ground Installation (AGI)	The Above Ground Installation incorporates the minimum offtake connection (MOC) facility, which would be owned by National Grid, and a Pipeline Inspection Gauge (PIG) Trap Facility (PTF), owned by Millbrook Power Limited. It forms part of the Gas Connection and is located within the Gas Connection Opportunity Area.
Above Ordnance Datum (AOD)	Ordnance Datum is the vertical datum used by Ordnance Survey as the basis for deriving height of ground level on maps. Topography may be described using the level in comparison to 'above' ordnance datum.
Access Road	The proposed purpose built access road from Green Lane to the Generating Equipment Site. It is located within the Power Generation Plant Site.
agriculture	Section 336(1) of the Town and Country Planning Act 1990 defines agriculture as including: • Horticulture, fruit growing, seed growing, dairy farming; • The breeding and keeping of livestock (including any creature kept for the production of food, wool, skins or fur, or for the purpose of its use in the farming of land); • The use of land as grazing land, meadow land, osier land, market gardens and nursery grounds; and • The use of land for woodlands where that use is ancillary to the farming of land for other agricultural purposes.
Agricultural Land Classification (ALC)	The ALC provides a method for assessing the quality of farmland to enable informed choices to be made about its future use within the planning system.
air pollutants	Amounts of foreign and/or natural substances occurring in the atmosphere that may result in adverse effects on humans, animals, vegetation and/or materials.
Air Quality Management Area (AQMA)	A defined area by virtue of Section 82(3) of the Environment Act 1995, where it appears that the air quality objectives prescribed under the UK Air Quality Strategy will not be achieved. In these areas, a Local Authority must designate Air Quality Management Areas, within which an Action Plan can be proposed to secure

	improvements in air quality so that prescribed air quality objectives can be achieved.
Air Quality Sensitive Receptors	People, property or designated sites for nature conservation that may be at risk from exposure to air pollutants that could potentially arise as a result of the Project.
amenity	The preferable features of a location which contribute to its overall character and the enjoyment of residents or visitors.
Applicant	Millbrook Power Limited.
aquiclude	An impermeable body of rock or stratum of sediment that acts as a barrier to the flow of groundwater.
Area of Outstanding Natural Beauty (AONB)	An area designated by Natural England as such under the National Parks and Access to the Countryside Act 1949 by virtue of being a precious landscape whose distinctive character and natural beauty are so outstanding that it is in the nation's interest to safeguard them.
Archaeological Desk Based Assessment	An assessment of the known or potential archaeological resource within a specified area or site on land, inter-tidal zone or underwater. It consists of a collation of existing written, graphic, photographic and electronic information in order to identify the likely character, extent, quality and worth of the known or potential archaeological resource in a local, regional, national or international context as appropriate.
archaeological interest	Heritage assets with archaeological interest are the primary source of evidence about the substance and evolution of places, and of the people and cultures that made them.
Balance of Plant	All infrastructure required to support the Gas Turbine Generators within the Generating Equipment Site and includes: stacks, electrical banking compound, water tanks; administration/workshop/control building and gas receiving station.
baseline	Environmental conditions at specific periods of time, present on, or near a site, against which future changes may be measured or predicted.
biodiversity	Abbreviated form of 'biological diversity' referring to variability among living organisms from all sources including, terrestrial, marine and other aquatic ecosystems and the ecological

	complexes of which they are part.
Biodiversity Action Plan (BAP)	Plans which set specific, measurable, achievable, realistic and time bound conservation targets for species and habitats. The UK BAP is the UK Government's response to the Convention on Biological Diversity (CBD) signed in 1992. More information is available at www.ukbap.org.uk.
British Standards (BS)	The display of a British Standard number shows that the manufacturer claims to have made the produce in accordance with British Standard. A standard is a published document that contains a technical specification or other precise criteria designed to be used consistently as a rule or definition. Standards are designed for voluntary use and do not impose any regulations. However, laws and regulations may refer to certain standards and make compliance with them compulsory. Sometimes BS will be accompanied by the letters EN and/or ISO. These mean that the standard was developed as a European (EN) or International (ISO) standard and then adopted by the UK as a British Standard.
Carbon Monoxide (CO)	A colourless, odourless and tasteless gas that is produced from the partial oxidation of carbon containing compounds.
Combined Cycle Gas Turbine (CCGT)	Gas plant technology system comprising Gas Turbine(s) fuelled by natural gas, a Heat Recovery Steam Generator(s) utilising heat from the Gas Turbine exhaust gases, and a steam turbine plant with associated condensing system.
Combined Heat and Power (CHP)	A cogeneration power station capable of supplying power to the National Grid and also heat to local heat users (such as industry or leisure) through a direct connection to waste heat/steam produced as part of the combustion process.
Conceptual Site Model (CSM)	The objective of constructing a Conceptual Site Model is to record all the potential pollutant linkages between the source of contamination and the receptors, i.e. the reasonably possible ways in which the receptors may experience exposure and consequent adverse effects.
Conservation Area	An area of special environmental or historical importance that is protected from changes by law by statutory designation.
Construction Environmental	Strategic document setting out best practice

Management Plan (CEMP)	methods to minimise environmental impacts (including dust) during construction.
consultation	Procedures for assessing public, landowner and statutory consultee opinion about a plan or major development proposal including seeking the views of affected neighbours or others with an interest in the Project or affected land.
contamination	Where land has been affected by contamination, it may present a risk to humans, ecosystems, water quality and property.
County Wildlife Site (CWS)	County Wildlife Sites known nationally as Local Sites, are considered to be of value for wildlife in a county context. While they do not receive statutory protection, they are given some protection through the planning system.
cropmarks	A mark that is produced by the effect of underlying archaeological or geological features influencing the growth of a particular crop.
Cultural Heritage	The legacy of physical artefacts and intangible attributes of a group or society inherited from past generations, maintained in the present and bestowed for the benefit of future generations. Cultural heritage includes both physical culture (such as buildings, monuments, landscapes, books, works of art and artefacts) as well as intangible culture (such as folklore, traditions, language and knowledge).
Cumulative effects	The summation of effects that result from changes caused by a development in conjunction with other reasonably foreseeable development that is either consented but not yet constructed or is in the process of seeking consent.
Desk Based Assessment (DBA)	Research based primarily on database, report and internet data gathering methods.
Development Consent Order (DCO)	A Development Consent Order (DCO) is made by the Secretary of State (SoS) pursuant to the Planning Act 2008 (PA 2008) to authorise a Nationally Significant Infrastructure Project (NSIP).
Development Consent Order Application (DCO Application)	The Application for a DCO made to the SoS under section 37 of the PA 2008 in respect of the Project, required pursuant to section 31 of the PA 2008 because the Project constitutes an NSIP under section 14(1)(a) and section 15 PA 2008 by virtue of being an onshore generating station in England or Wales of 50 MW capacity or more.

Development Plan Documents (DPD)	Development plan documents (DPD) include the core strategy, allocations, proposals map and action area plans for an area.
dust	Fine particles of solid materials capable of being re-suspended in air and settling only slowly under the influence of gravity where it may cause nuisance.
Electrical Connection	The new electrical connection to export power from the Generating Equipment to the National Grid Electricity Transmission System (NETS) for distribution to homes and businesses. It includes a new substation, two new electrical circuits (either in the form of an underground cable or overhead line) and up to two sealing end compounds (SECs) to connect the substation to the Generating Equipment and the existing 400 kV network. The Electrical Connection is located within the Electrical Connection Opportunity Area.
Electrical Connection Opportunity Area	The area being investigated for the location of the Electrical Connection.
emission	A material that is expelled or released to the environment. Usually applied to gaseous or odorous discharges to the atmosphere.
Environmental Impact Assessment (EIA)	A systematic means of assessing a development project's likely significant environmental effects undertaken in accordance with the Infrastructure Planning (Environmental Impact Assessment) Regulations 2009.
Environmental Statement (ES)	Statutory report summarising the findings of an environmental impact assessment.
features (landscape feature or element)	A component part of the landscape (e.g. hedgerow, wood, stream)
findspot	Location of individual or groups of archaeological artefacts.
Flood Risk Assessment (FRA)	A desk based study which considers the contributing factors and predicts / quantifies the risk of flooding to and from a proposed development and also identifies a water level in the event of flooding.
Flood Zone	An area identified, through modelling, that is at risk of flooding from rivers or the sea, to varying levels of magnitude and frequency. There are four classifications for flood zones as defined in the National Planning Policy Framework (NPPF):

	• Zone 1: Low probability (less than 1 in 1000 annual probability of river or sea flooding in any year); • Zone 2: Medium probability (between 1 in 100 and 1 in 1000 annual probability of river flooding or between 1 in 200 and 1 in 1000 annual probability of sea flooding in any year); • Zone 3a: High probability (1 in 100 or greater annual probability of river flooding in any year or 1 in 200 or greater annual probability of sea flooding in any given year); and • Zone 3b: High probability (functional flood plain. Essentially the 1 in 20 or greater annual probability of flooding in any given year).
Gas Connection	A new underground gas Pipeline connection and Above Ground Installation (AGI) to bring natural gas to the Generating Equipment from the Gas National Transmission System (NTS). The Gas Connection is located within the Gas Connection Opportunity Area.
Gas Connection Opportunity Area	The area being investigated for specific route corridor options for the Gas Connection.
Gas Turbine Generators	Between one and five Simple Cycle Gas Turbine (SCGT) generators (as proposed in the Power Generation Plant) which utilise the combustion of gas and air to generate hot gases that are routed across turbine blades, which generate rotational forces that turn an electrical generator. The exhaust gases are discharged directly to the stack without providing heat for a secondary steam cycle. Each Gas Turbine Generator may constitute one or two gas turbines venting to a single stack. The Gas Turbine Generators form part of the Generating Equipment and are located within the Generating Equipment Site.
Generating Equipment	Gas Turbine Generators and balance of plant which are located on the Generating Equipment Site.
Generating Equipment Site	The site where the Generating Equipment is located.
groundwater	Water occurring in the ground which can be reasonably attributed to relatively geologically recent recharge and which can be reasonably considered to be wholesome (potable) unless it has been contaminated (altered) by anthropogenic activity.

habitat	The environment in which populations or individual species live or grow.
Heavy Goods Vehicle (HGV)	A mechanically propelled road vehicle that is of a construction primarily suited for the carriage of goods or burden of any kind and designed or adapted to have a maximum weight exceeding 3,500 kilograms when in normal use and travelling on a road laden.
Hectare (ha)	A unit of area (10,000 m^2 / 2.471 acres).
heritage asset	A building, monument, site, place, area or landscape identified as having a degree of significance meriting consideration in planning decisions, because of its heritage interest. Heritage assets include designated heritage assets identified by the local planning authority (including local listing).
historic environment	All aspects of the environment resulting from the interaction between people and places through time including all surviving physical remains of past human activity, whether visible, buried or submerged, and landscaped and planted or managed flora. Those elements of the historic environment that hold significance are called heritage assets.
Historic Environment Record (HER)	The repository for all archaeological and historical information relating to a county or district.
hydrology	The movement, and distribution of water throughout the earth.
impact	A physical or measurable change to the environment attributable to the Project.
kilometre (km)	Measurement of distance (1000 metres).
kilovolt (kV)	Measurement of the amount of electric potential energy.
landscape assessment	An umbrella term for description, classification and analysis of the landscape.
landscape character	The distinct and recognisable pattern of elements that occurs consistently in a particular type of landscape, and how this is perceived by people. It reflects particular combinations of geology, landform, soils, vegetation, land use and human settlement.
landscape effects	Change in the elements, characteristics, character and qualities of the landscape as a result of development. These effects can be

	positive or negative.
Laydown Area	The area required during construction for storing materials and equipment. It is located within the Power Generation Plant Site.
Listed Building	The Secretary of State compiles a list of buildings of special architectural or historic interest for the guidance of local planning authorities in the exercise of their planning functions under the Planning (Listed Buildings and Conservation Areas) Act 1990 and the Town and Country Planning Act 1990. Buildings are graded as follows: • Grade I – Buildings of exceptional interest; • Grade II* - Particularly important buildings of more than special interest; and • Grade II – Buildings of special interest.
Low Level Restoration Scheme (LLRS)	The LLRS for Rookery South Pit (assuming no additional proposed developments prior to its completion) aims to restore the pit base to low intensity agricultural land, with a ditch system draining water to a large attenuation pond and pit stabilisation works.
Local Nature Reserve (LNR)	A site of importance for wildlife, geology, education or public enjoyment. Some are also nationally important Sites of Special Scientific Interest. Local Nature Reserves must be controlled by the local authority through ownership, lease or agreement with the owner.
Local Plan	A detailed district or borough-wide land-use plan, prepared and adopted by a local planning authority, which is part of the statutory development plan. Consists of a written statement which sets out the local planning authority's development control policies and proposals for land use and transport over a period of about 10 years and an Ordnance Survey-based proposals map. This document may be relevant and important in the Secretary of State's decision making process as to whether or not to make a Development Consent Order for a project.
magnitude	A combination of the scale, extent and duration of an effect.
metre (m)	Measurement of length.
Millbrook Power Limited (MPL)	A special purpose vehicle which has been established by Watt Power Limited (WPL) to develop the Project.

mitigation measures	Actions proposed to prevent, reduce and where possible offset significant adverse effects arising from the whole or specific elements of a development.
millimetre (mm)	Measurement of size.
Minimum Offtake Connection (MOC)	A connection that offtakes gas directly from the National Transmission System. The MOC forms part of the AGI and therefore the Gas Connection. It is located within the Gas Connection Opportunity Area.
National Grid Electricity Transmission System (NETS)	A high-voltage electric power transmission network connecting power stations and major substations and ensuring that electricity generated anywhere in England, Scotland and Wales can be used to satisfy demand elsewhere.
National Park	A national park is an area statutorily designated for its special landscape rich in character and distinctiveness, wildlife history and heritage.
National Policy Statement (NPS)	Overarching policy designated under the PA 2008 concerning the planning and consenting of NSIPs in the UK.
National Transmission System (NTS)	A network of gas pipelines throughout the United Kingdom that supply gas to large industrial customers from natural gas terminals situated on the coast, and also gas distribution companies which lead indirectly to homes.
Nationally Significant Infrastructure Project (NSIP)	The Project constitutes a Nationally Significant Infrastructure Project (NSIP) by virtue of s.14(1)(a) and s.15 of the PA 2008 which include within the definition of a NSIP any onshore generating station in England or Wales of 50 MW capacity or more.
Nitrous Oxides (NO_x)	Gases produced during combustion, including nitric oxide (NO) and nitrogen dioxide (NO_2).
noise	Noise defined as unwanted sound, is measured in units of decibels, dB. The range of audible sounds is from 0 dB to 140 dB. Two equal sources of sound, if added together will result in an increase in level of 3 dB i.e 50 dB + 50 dB = 53 dB. Increases in continuous sound are perceived in the following manner: • 1 dB increase – barely perceptible • 3 dB increase – just noticeable • 10 dB increase – perceived as twice as loud

Noise Sensitive Receptor (NSR)	Principally houses (existing or for which planning consent is being sought / has been given) and any building used for long-term residential purposes (such as a nursing home).
Non-Technical Summary (NTS)	A report which briefly describes the main points discussed in the Environmental Statement in a clear manner, without the use of technical jargon and phraseology.
particulate matter	Solid particles or liquid droplets suspended or carried in the air.
peaking plant	Peaking plants are operated when there is a Stress Event.
Phase 1 Habitat Survey	An ecological survey technique that provides a standardised system to record vegetation and wildlife habitats. It enables a basic assessment of habitat type and its potential importance for nature conservation.
photomontage	A type of visualisation or illustration that is based on photographs and that simulates the likely appearance of a proposed development in the photographic view. Photomontages are used as illustrations of the professional judgement of a landscape professional as to the significance of the effect of a project on landscape and visual receptors.
PIG Trap Facility (PFT)	PIG traps allow PIGs to be inserted into and removed from a pipeline which is to undergo a "pigging" programme and which is likely to be under pressure. The PFT forms part of the AGI and therefore the Gas Connection. It is located within the Gas Connection Opportunity Area.
Pipeline Inspection Gauge (PIG)	Means a device to perform various maintenance operations on a pipeline.
Pipeline	The new underground gas pipeline connection proposed as part of the Gas Connection which is located within the Gas Connection Opportunity Area.
Planning Act 2008 (PA 2008)	UK legislation which passes responsibility for examining development consent order applications for NSIPs to the Planning Inspectorate, who will examine applications and make recommendations for a decision by the relevant Secretary of State (the Secretary of State for Energy and Climate Change in the case of energy NSIP applications).

Preliminary Environmental Information Report (PEIR)	The report that provides information referred to in Part 1 of Schedule 4 of the EIA Regulations (information for inclusion in Environmental Statements) which has been compiled by the Applicant; and is reasonably required to assess the environmental effects of the development (and of any associated development).
Power Generation Plant	A SCGT gas fired 'peaking' power generating plant capable of providing up to 299 MW comprising: the Generating Equipment; Access Road; and temporary Laydown Area. It will be located within the Power Generation Plant Site.
Power Generation Plant Site	The site in which the Power Generation Plant will be located.
Project	The Power Generation Plant, Electrical Connection and Gas Connection located on the Project Site.
Project Site	The entire area covered by or required in order to deliver the Project.
Public Right of Way (PROW)	A right of passage by the public over the surface of the land without impediment. Public Rights of Way include public footpaths, bridleways and byways open to all traffic as well as Restricted Byways.
receptor	A component of the natural, created or built environment such as a human being, water, air, a building, or a plant that has the potential to be affected by the Project.
Reciprocating Gas Engine (RGE)	An engine that employs the expansion of hot gases to push a piston within a cylinder, converting the linear movement of the piston into the rotating movement of a crankshaft to generate power.
Registered Historic Parks and Gardens	A register of historic parks and gardens held by English Heritage for parks and gardens of particular historic importance.
residual effects	Those effects of a development that remain following the implementation of mitigation measures.
Restricted Byways	Rights of way along which it is legal to travel by any mode (including on foot, bicycle, horse-drawn carriage etc.) but excluding 'mechanically propelled vehicles'.
Rochdale Envelope	The Rochdale Envelope allows for a project to

	evolve over a number of years, within clearly defined parameters. The EIA takes account of the need for such evolution within those parameters, and reflects the likely significant effects of such a flexible project in the ES.
Scheduled Monument	A building included in the Schedule of Monuments compiled under Section 1 of the Ancient Monuments, and Archaeological Area Act 1979. Scheduled Monuments have statutory protection under this Act (Section 2) and an application for Scheduled Monument Consent must be made to the Secretary of State for Culture, Media and Sport if work to a Scheduled Monument is proposed.
scoping	An exercise undertaken pursuant to regulation 8 of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2009 to determine the topics to be addressed within the Environmental Statement.
screening	Consideration as to whether an environmental impact assessment is required for a project.
Secretary of State (SoS)	The decision maker for a NSIP application and head of a government department.
Simple Cycle Gas Turbine (SCGT)	Gas plant technology system comprising Gas Turbine(s) fuelled by natural gas. The hot exhaust gases are routed directly to the stack without passing through a secondary steam turbine. The generating technology used for the Power Generation Plant.
Site of Special Scientific Interest (SSSI)	A site statutorily notified under the Wildlife and Countryside Act 1981 (as amended) as being of special nature conservation or geological interest. SSSIs include wildlife habitats, geological features and landforms.
Special Area of Conservation (SAC)	Areas of protected habitats and species as defined in the European Union's Habitats Directive (92/43/EEC).
Special Protection Area (SPA)	Sites classified in accordance with Article 4 of the EC Birds Directive (79/409/EEC) which came into force in April 1979. They are classified for rare and vulnerable birds (as listed on Annex 1 of the Directive), and for regularly occurring migratory species.
Special Purpose Vehicle (SPV)	A legal entity created to fulfil the specific purpose of developing projects.

species	A group of interbreeding organisms that seldom or never interbreed with individuals in other such groups, under natural conditions; most species are made up of subspecies or populations.
stress event	A surge in demand for electricity associated with a particular event (e.g. where may people across the country boil kettles following the end of a popular television programme) or where there is a sudden drop in power being generated from plants which are constantly operational (e.g. a sudden outage).
Sustainable Drainage System (SuDS)	Sustainable management practices designed to control the rate and quality of surface water runoff into receiving waters, e.g. the use of swales and wetlands as buffers, as opposed to conventional drainage practices.
topography	The natural or artificial features, level and surface form of the ground surface.
Transport Assessment (TA)	A quantitative assessment of the transport effects of construction and operational phases of the Project.
United Kingdom (UK)	The territory of the United Kingdom.
visual amenity	The value of a particular area or view in terms of what is seen.
visual effect	Change in the appearance of the landscape from available viewpoints as a result of development.
Watt Power Limited (WPL)	Watt Power Limited was established to develop flexible gas fired generation assets to support the UK Government's drive to a low carbon economy. WPL has set up Millbrook Power Limited, a Special Purpose Vehicle to develop the Project.
Zone of Theoretical Visibility (ZTV)	Areas from which a specified element of a development may be visible.

1 Introduction

1.1 Overview

1.1.1 This document is the Environmental Impact Assessment (EIA) Scoping Report for the Millbrook Power Project (hereafter referred to as the 'Project') which sets out the proposed scope and content of the EIA to support the Development Consent Order (DCO) Application and the method by which it is intended to be carried out. The report has been prepared by Orbis Energy Limited on behalf of Millbrook Power Limited (MPL).

1.1.2 The Project as shown on Figure 1 would comprise:

- A new **Power Generation Plant** in the form of a Simple Cycle Gas Turbine (SCGT) gas fired peaking power generating station fuelled by natural gas and capable of providing an electrical capacity of up to 299 Megawatts (MW) comprising.
    - The **Generating Equipment** including the Gas Turbine Generators and balance of plant, which are located within the **Generating Equipment Site;**
    - A new purpose built **Access Road** from Green Lane to the Generating Equipment Site; and
    - During construction a temporary construction compound (the **Laydown Area**).
- A new **Gas Connection** to bring natural gas to the Generating Equipment from the National Transmission System (NTS) which is located within the **Gas Connection Opportunity Area**; and
- A new **Electrical Connection** to export power from the Generating Equipment to the National Grid Electricity Transmission System (NETS) for distribution to homes and businesses which is located within the **Gas Connection Opportunity Area**.

1.1.3 The Generating Equipment, Access Road and Laydown Area are together known as the **Power Generation Plant**, and are located within the **Power Generation Plant Site**.

1.1.4 The Power Generation Plant, Gas Connection, and Electrical Connection, are all integral to the generation of electricity and together are referred to as the '**Project**'. The land upon which the Project would be developed, or which would be required in order to facilitate the development of the Project, is referred to as the '**Project Site'**. The Project is described in more detail in Section 3, including the options currently under consideration for the Gas Connection and Electrical Connection.

1.1.5 The Project would be situated between Bedford and Milton Keynes in Central Bedfordshire and Bedford Borough Council. The approximately centre of the Project Site lies at grid reference 501373, 240734.

1.1.6 The Power Generation Plant Site is located primarily on land within former clay pits known as 'The Rookery', with the Gas and Electrical Connections extending from The Rookery into the surrounding agricultural land.

1.1.7 The Rookery, which is comprised of the Rookery North and Rookery South Pits, is currently the subject of an ongoing Low Level Restoration Scheme (LLRS) by the landowner. The Generating Equipment Site and part of the Gas and Electrical Connections would be located within Rookery South Pit. The LLRS aims to restore the currently disused Rookery South Pit and provide a more formal surface water management plan for both Rookery North and Rookery South Pits. Once restored, Rookery South Pit will be approximately 15 m below the surrounding ground level in the vicinity of the Generating Equipment Site.

1.1.8 The LLRS for Rookery South Pit (assuming no additional proposed developments prior to its completion) will comprise:

- The re-profiling of the base of the pit involving the extraction of soils and clays from the permitted extraction area on the southern side of Rookery South with regrading of the base of the pit;
- Implementation of surface water drainage measures and construction of an attenuation pond in order to facilitate a managed surface water drainage strategy;
- A landscape strategy to include planting on the site boundary and the margins of the attenuation pond; and
- Provision of buttresses to the southern, eastern and northern slopes to ensure the long-term stability of those slopes, and regrading through excavation.

1.1.9 To facilitate the proposed LLRS works, extraction of clay from a currently un-worked area situated directly to the south of Rookery South Pit, will be undertaken. This area covers approximately 25 ha and forms part of the existing minerals extraction consent boundary, but has not historically been subject to excavation works. Deposits won from this area will provide material for use in the restoration, re-profiling and buttressing work to Rookery South Pit together with the implementation of a landscape and ecology strategy, which will integrate with ecological mitigation works and strategic landscape planting in Rookery North Pit[1].

1.2 Need for and Benefits of the Project

1.2.1 There is considerable national need for this type of development, acknowledged at all levels of Government policy. National planning policy supports the need for new electricity infrastructure due to the current ageing and inevitable closure of older coal fired power plants and the likely increase in demand for electricity over the coming decades.

[1] Peter Brett Associates LLP (March 2011) Rookery Pit – Low Level Restoration Scheme Detailed Phasing Strategy. Discharge of Condition 3 of Planning Permission BC/CM/2000/8 Scheme for phasing and timescale at Rookery Pit, Stewartby, Bedfordshire

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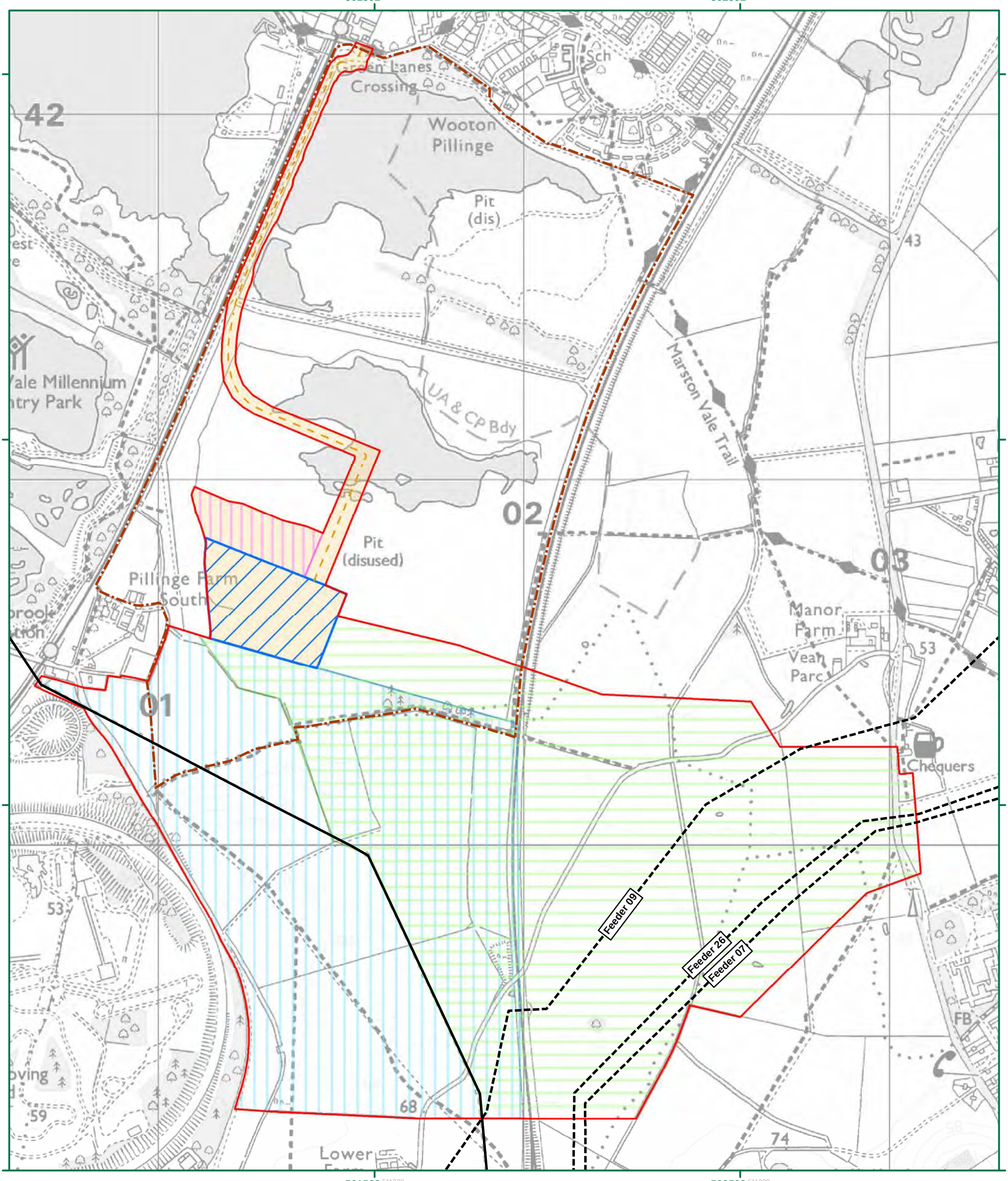

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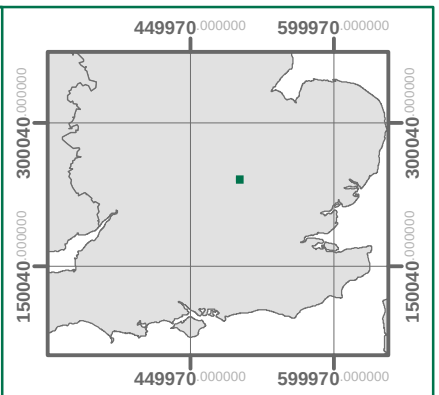
- Proposed Draft DCO Site Boundary
- Access Road
- Generating Equipment Site
- Laydown Area (temporary)
- Power Generation Plant Site
- Electrical Connection Opportunity Area
- Gas Connection Opportunity Area
- Existing 400kV Overhead Line
- Existing NTS Pipeline
- The Extent of the Rookery LLRS

Data Sources

Millbrook Power

Figure 1: Project Site Plan



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1.2.2 The overarching National Policy Statement for Energy (NPS EN-1)[2] states that 'gas will continue to play an important role in the electricity sector – providing vital flexibility to support an increasing amount of low-carbon generation and to maintain security of supply' (paragraph 3.6.2).

1.2.3 Gas is a reliable fuel source. It is acknowledged by Government as being essential to a low-carbon economy and to underpin the country's energy security. In addition, gas peaking plants such as the Project provide back-up to power generation from renewable sources, particularly wind power, which is an increasingly prevalent but intermittent energy source. Modern gas fired power plants are among the most efficient and cleanest forms of electricity power generation.

1.2.4 At present, thermal peaking capacity in the UK is relatively small due to the nature of the electricity generation mix on the NETS. There is therefore a clear and significant requirement for further capacity to meet the projected need for reactive/flexible generation. A dedicated gas fired peaking plant such as the Project could allow for the rapid provision of reserve capacity to the NETS, thus playing a role in meeting the energy requirements of the UK going forward.

1.3 The Applicant

1.3.1 The Project Applicant is Millbrook Power Limited (MPL). MPL is an energy development company established for the Project by Watt Power Limited (WPL).

1.3.2 WPL has been established to develop flexible gas fired generation assets to support the UK Government's drive to a low carbon economy. Stag Energy provides the resources through a management services agreement with WPL. Stag Energy was founded in 2002 and the company draws on a depth of experience within a team that has created and delivered over 10,000 MW of power generation and related infrastructure projects across the globe, of which 2,500 MW was delivered in the UK.

1.3.3 WPL currently has two other 299 MW projects being brought forward through the planning process. They are Progress Power Ltd at Eye Airfield in Suffolk (www.progresspower.co.uk) and Hirwaun Power Ltd at Hirwaun in South Wales (www.hirwaunpower.co.uk). Both projects are now in the pre-examination phase following acceptance of the DCO Applications by the Planning Inspectorate.

1.3.4 Similarly, Stag Energy provides resources to the Gateway Storage Company Ltd, which is developing an offshore salt cavern gas storage facility in the East Irish Sea. The project has been consented by the UK Government, the Marine Management Organisation and the local planning authority (Barrow-in-Furness Borough Council, Cumbria). Further information on the project is available at www.gatewaystorage.co.uk.

[2] Department of Energy and Climate Change (July 2011) Overarching National Policy Statement for Energy (EN-1)

1.3.5 WPL is committed to the development of assets to support the UK Government's drive to a low carbon economy. MPL recognises the need to balance commercial issues with the environmental benefits and concerns of energy projects and believes this can be responsibly delivered at a local level. The Project and supporting infrastructure will be designed and developed to high quality, safety and environmental standards.

1.3.6 Further information on the companies referred to above is provided at http://www.millbrookpower.co.uk or http://www.wattpowerltd.co.uk.

1.4 The Consenting Regime and EIA Process

The Planning Act 2008

1.4.1 In England and Wales, an onshore electricity generating station is considered to be a Nationally Significant Infrastructure Project (NSIP) under the Planning Act 2008 (PA 2008) if its generating capacity is more than 50 MW. As the proposed Power Generation Plant would have a generating capacity of at least 50 MW, and up to 299 MW, it would be classified as an NSIP under Section 14(1)(a) and Section 15(2) of the PA 2008. Under Section 31 of the PA 2008, development consent is required for development that is or forms part of a NSIP and therefore a DCO Application will be made to the Secretary of State (SoS).

Requirement for an EIA and Notification under Regulation 6(1)(b)

1.4.2 The Infrastructure Planning (Environmental Impact Assessment) Regulations 2009 (the EIA Regulations)[3] and regulation 5(2)(a) of The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 impose procedural requirements, in particular, on the carrying out of EIA in relation to certain DCO Applications. All development in Schedule 1 (Schedule 1 development) requires an EIA to be carried out. Development in Schedule 2 (Schedule 2 development) requires an EIA to be carried out if the project is likely to have significant effects on the environment.

1.4.3 The Project has been identified as a Schedule 1 Development and therefore the Applicant intends to carry out an EIA for the Project in accordance with the EIA Regulations. The findings of the EIA will be summarised in an Environmental Statement (ES) which along with the Scoping Opinion will be submitted alongside the DCO Application.

Consultation Strategy

1.4.4 A consultation strategy will be implemented in accordance with Sections 42, 47 and 48 of PA 2008[4] and its associated secondary legislation which will allow the local community, statutory consultees and interested parties, including persons with an interest in any land that is affected by the DCO Application, to comment on and input into the planning and development process. All representations made during the consultation process will be considered carefully and MPL will have regard to all relevant responses prior

[3] The Infrastructure Planning (Environmental Impact Assessment) Regulations 2009 No. 2263
[4] The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

to submission of the DCO Application. The outputs generated from the formal statutory consultation will be summarised in a consultation report, submitted alongside the DCO Application.

1.4.5 A Statement of Community Consultation (SoCC) will be agreed with Central Bedfordshire and Bedford Borough Councils before being published. The SoCC will set out how MPL intends to consult with the local community in accordance with Section 47 of the PA 2008 throughout the preparation of the DCO Application.

1.4.6 MPL has already commenced some preliminary discussions with various departments of Central Bedfordshire Council and Bedford Borough Council, and, where relevant, the outcome of these consultations has informed this report.

1.5 Purpose of the Scoping Report

1.5.1 This Scoping Report represents MPL's formal notification to the SoS under regulation 6(1)(b) of the EIA Regulations. The report sets out the proposed scope and content of the EIA to support the DCO Application and the method by which it is intended to be carried out.

1.5.2 On behalf of the SoS, the Planning Inspectorate (PINS) is requested to acknowledge the regulation 6 notification and confirm that the Project is an EIA development in accordance with regulation 4(2)(a) of the EIA Regulations. In addition, PINS is requested to provide a Scoping Opinion on the possible significant environmental effects of all elements of the Project, the proposed methodologies to assess the impacts, and the proposed structure of the Environmental Statement (ES) (as presented in Sections 4 and 5 of this report).

1.5.3 PINS and other consultees are also invited to highlight any additional issues that they believe should be addressed within the EIA, and to identify any sources of information that may be of interest to MPL and the EIA team.

1.6 Content of the Scoping Report

1.6.1 The Scoping Report is set out as follows:

- Chapter 1 introduces the Project and the Applicant and outlines the consenting regime, the need for and benefits of the Project and the consultation strategy;
- Chapter 2 provides a brief description of the planning policy background and regulatory framework in which the Scoping Report has been prepared;
- Chapter 3 provides a more detailed description of the Project and the Project Site and surrounding area;
- Chapter 4 provides a high level overview of the proposed scope of the EIA; and

- Chapter 5 describes the content and assessment methodology of each of the impact sections in detail; and
- Chapter 6 provides a summary and conclusion of the report.

2 Regulatory and Policy Background

2.1 Introduction

2.1.1 This chapter summarises the main regulatory and policy framework that is relevant to the Project at international, national and local levels.

2.1.2 A comprehensive review of potentially relevant policy and evidence will be undertaken during the pre-application process. A detailed description of the planning policy background and its relevance to the Project will be provided in the Planning Statement, which will be produced as a separate document to support the DCO Application. A summary of the impacts of the Project on relevant and important planning policy will be discussed more fully within the Preliminary Environmental Information Report (PEIR), ES and other documents submitted for examination in support of the DCO Application.

2.2 European Union (EU)

2.2.1 The EU Directives of particular relevance to the Project with respect to environmental requirements are listed below:

- Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment (the EIA Directive)[5];
- Directive 2003/35/EC of 26 May 2003 providing for public participation in respect of the drawing up of certain plans and programmes relating to the environment and amending with regard to public participation and access to justice Council Directives 85/337/EEC and 96/61/EC (the Public Participation Directive)[6];
- Directive 2010/75/EU of 24 November 2010 on industrial emissions (integrated pollution prevention and control) (the Industrial Emissions Directive (IED))[7];
- Directive 1992/43/EEC of 21 May 1992 on the Conservation of natural habitats and of wild fauna and flora (the Habitats Directive)[8];
- Directive 2009/147/EC of 30 November 2009 on the conservation of wild birds (the Birds Directive)[9]; and
- Directive 2008/50/EC of 21 May 2008 on ambient air quality and cleaner air for Europe (the Ambient Air Quality Directive)[10].

[5] European Council Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment (the EIA Directive)
[6] European Council Directive 2003/35/EC of 26 May 2003 providing for public participation in respect of the drawing up of certain plans and programmes relating to the environment and amending with regard to public participation and access to justice Council Directives 85/337/EEC and 96/61/EC (the Public Participation Directive)
[7] European Council Directive 2010/75/EU of 24 November 2010 on industrial emissions (integrated pollution prevention and control) (the Industrial Emissions Directive (IED))
[8] Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora (Habitats Directive)
[9] Council Directive 79/409/EEC on the Conservation of Wild Birds (Birds Directive)
[10] Council Directive 2008/50/EC on the ambient air quality and cleaner air for Europe (the Ambient Air Quality Directive)

2.3 Overview of Decision Making under the Planning Act 2008 and Policy Context

2.3.1 The Project is categorised as a NSIP and will be examined by PINS with the decision on the DCO Application made by the SoS under the regime established by the PA 2008 as described in Chapter 1.

2.3.2 As set out in NPS EN-1 (Overarching National Policy Statement for Energy), 'this NPS, when combined with the relevant technology-specific energy NPS, provides the primary basis for decisions' (Paragraph 1.1.1). The decision-maker 'should start with a presumption in favour of granting consent to applications for energy NSIPs' (paragraph 4.1.2) and on the basis that the urgent national need for such projects is settled.

2.3.3 Decisions must also be taken by the SoS having regard to the local impact reports and any other matters which the SoS 'thinks are both important and relevant to its decision' (Section 104 of the PA 2008), which may include the National Planning Policy Framework (NPPF), Development Plan Documents (DPD) or other documents in the Local Development Framework (LDF).

2.4 National Policy Statements

2.4.1 PA 2008 required new policy to inform decisions on NSIPs in England and Wales. Policy for such infrastructure is set out in National Policy Statements (NPS). Those that are potentially relevant to the consideration of the DCO Application are:

- The Overarching National Policy Statement for Energy (NPS EN-1);
- The National Policy Statement for Fossil Fuel Electricity Generating Infrastructure (NPS EN-2)[11];
- NPS EN-4 National Policy Statement for Gas Supply Infrastructure and Gas and Oil Pipelines[12]; and
- NPS EN-5 National Policy Statement for Electricity Networks Infrastructure[13].

2.5 National Planning Practice Guidance (NPPG)[14]

2.5.1 In September 2013 the government launched the National Planning Practice Guidance (NPPG) website which brings together all planning guidance for England in one place. It has been designed to support the NPPF. It is therefore considered that the NPPG may be a matter of importance and relevance, which the SoS may take into account under Section 104(2)(d) PA 2008.

[11] Department of Energy and Climate Change (July 2011) National Policy Statement for Fossil Fuel Electricity Generating Infrastructure (EN-2)
[12] Department of Energy and Climate Change (July 2011) National Policy Statement for Gas Supply Infrastructure and Gas and Oil Pipeline (EN4)
[13] Department of Energy and Climate Change (July 2011) National Policy Statement for Electricity Networks Infrastructure
[14] http://planningguidance.planningportal.gov.uk

2.6 National Planning Policy Framework for England (NPPF) – 2012[15]

2.6.1 The NPPF sets out the Government's planning policies for England and how these are expected to be applied. In the context of an NSIP, the NPPF notes at paragraph 3 that the NPPF may be considered as being important and relevant in the context of decision making for an NSIP.

2.6.2 The NPPF sets sustainable development at the core of its guidelines. Policies set in paragraphs 18-219, taken as a whole constitute the Government's view of what sustainable development in England means in practice for the planning system. The NPPF focuses its interpretation of sustainable development into three dimensions: economic, social and environmental.

2.6.3 A set of 12 'core planning principles' are also set out in the NPPF. Paragraph 17 states that planning should 'support the transition to a low carbon future in a changing climate, taking full account of flood risk and coastal change, and encourage the reuse of existing resources, including conversion of existing buildings, and encourage the use of renewable resources (for example, by the development of renewable energy).'

2.7 Local Planning Policy

Central Bedfordshire Core Strategy and Development Management Policies (Adopted November 2009)[16]

2.7.1 The Central Bedfordshire Core Strategy and Development Management Policies was adopted in November 2009. The document is the key DPD and provides the 'long term vision and the direction for future development in the district over the period 2001 – 2026'.

2.7.2 The Project Site is located within the Northern Marston Vale Strategic Area, which is allocated for significant housing, employment and regeneration uses. Policy CS1 Development Strategy is considered relevant to this report.

Central Bedfordshire Development Strategy[17]

2.7.3 The Development Strategy for Central Bedfordshire is currently being developed and will become, once adopted potentially in 2015, the planning policy document for the whole of Central Bedfordshire. It will set out the overarching spatial strategy and development principles for the area together with more detailed policies to help determine planning applications. The strategy will address similar issues to those in the Core Strategy and Development Management Policies, but will also consider the allocation of strategic development sites.

Local Development Documents of Bedford Borough

2.7.4 The Local Development Documents of Bedford, adopted in April 2008, sets out the spatial strategy for the Borough. The adopted policies form the basis

[15] Department of Communities and Local Government (March 2012) National Planning Policy Framework
[16] Central Bedfordshire Council (November 2009) Core Strategy and Development Management Policies
[17] www.centralbedfordshire.gov.uk

for decision making when planning applications are submitted to the council. The Core Strategy and Rural Issues Plan Development Plan Document[18] sets out the long term spatial vision for Bedford Borough to 2021.

2.7.5 The following key policies are relevant to the Project:

- Policy CP2 – Sustainable Development Principles;
- Policy CP21 – Designing in Quality;
- Policy CP23 – Heritage;
- Policy CP25 – Landscape Protection and Enhancement; and
- Policy CP25 – Biodiversity.

2.8 Other Relevant Policy and Guidance

2.8.1 The following are considered to be potentially relevant policy and guidance in considering the potential impacts and effects of the Project:

- The Electricity Market Reform (2012)[19];
- The Energy Act (2013)[20];
- Natural Environment White Paper (2012)[21];
- Biodiversity 2020: A strategy for England's wildlife and ecosystem services (2011)[22];
- The UK Climate Change Risk Assessment (CCRA) (2012)[23];
- Gas Generation Strategy (2012)[24];
- National Infrastructure Plan (2013)[25]; and
- Annual Energy Statement (2013)[26].

[18] Bedford Borough Council (April 2008) The Core Strategy and Rural Issues Plan Development Plan Document
[19] Department of Energy and Climate Change (May 2012) Electricity Market Reform: Policy Overview
[20] Energy Act (December 2013)
[21] Department for Environment, Food and Rural Affairs (2012) Natural Environment White Paper
[22] Department for Environment, Food and Rural Affairs (2011) Biodiversity 2020: A strategy for England's wildlife and ecosystem services
[23] Department for Environment, Food and Rural Affairs (January 2012) UK Climate Change Risk Assessment: Government Report
[24] Department of Energy and Climate Change (December 2012) Gas Generation Strategy
[25] HM Treasury (December 2013) National Infrastructure Plan 2013
[26] Department of Energy and Climate Change (October 2013) Annual Energy Statement 2013

3 Project Description

3.1 Project Site

3.1.1 The Power Generation Plant Site and part of the Gas and Electrical Connections would be situated on land within former clay pits known as 'The Rookery' and designated as Rookery Clay Pits County Wildlife Site (CWS). The Rookery is situated in the Marston Vale between Milton Keynes and Bedford, approximately 3 km north of Ampthill, a local market town, and 7 km south west of Bedford in Central Bedfordshire and Bedford Borough. The Gas and Electrical Connections would be located within the Opportunity Areas identified on Figure 1 and would extend out from The Rookery into farmland to the south and/or east of The Rookery.

3.1.2 The Rookery comprises two large former clay pits, Rookery North and Rookery South Pits, separated by an east-west spine of unexcavated clay. The Generating Equipment Site, Laydown Area and parts of the Access Road and Gas and Electrical Connections would be located within Rookery South Pit which is approximately 95 ha and is bound by steep clay banks that are varied in nature and substrate. The pit base currently includes a range of wetland habitats, including open water, reed beds, pools and bare inundated clay with ephemeral water bodies. The land that remains at the original ground level, approximately 42 m above ordnance datum (AOD) around the periphery of The Rookery South Pit is predominantly bare ground that has been cleared of vegetation.

3.1.3 The Rookery is currently the subject of an ongoing LLRS by the landowner as described in Chapter 1. Once restored, Rookery South Pit will be approximately 15 m below the surrounding ground level in the vicinity of the Generating Equipment Site and Laydown Area.

3.1.4 A five year option agreement, which is extendable to seven under certain conditions, has been signed between MPL and the landowner of Rookery Pit. Included in the agreement is the option to purchase between 4 and 8 ha of land for the Generating Equipment Site, lease 4 ha of land for use as a temporary Laydown Area during construction, and install any necessary connection infrastructure as far as their land ownership extends.

3.1.5 Road access to the Power Generation Plant Site is currently from the north near Stewartby via the A421, Bedford Road and Green Lane, as shown on Figure 2. There is a junction on Green Lane leading to an access track on the previously unexcavated land on the western side of Rookery North Pit which extends southwards into Rookery South Pit and the Generating Equipment Site. The Gas and Electrical Connections would either be primarily accessed from Junction 13 of the M1 via the A507, Sandhill Close, Houghton Lane, Millbrook Road and the B530 Ampthill Road or from Bedford Road, via Woburn Road, Manor Road, B530 Ampthill Road and Millbrook Road depending on their locations.

3.1.6 There are overhead power lines that run west to east south of Rookery South Pit. Furthermore, a number of existing public footpaths are located in

and around the Project Site, linking it to the wider Marston Vale. However, there is limited public access to Rookery South Pit itself.

3.1.7 The Mill Brook watercourse flows in a northerly direction along the western flank of Rookery South Pit whilst a tributary watercourse, passing to the south of Rookery South Pit within the Project Site, joins Mill Brook in the vicinity of South Pillinge Farm as shown on Figure 3.

Surrounding Area

3.1.8 The Rookery, and therefore the Power Generation Plant Site and part of the Gas and Electrical Connections, are located within part of a wider dynamic landscape that has experienced significant change and will continue to do so for the foreseeable future. Substantial areas of land around Stewartby, including The Rookery, have been previously worked for clay that was used in Stewartby Brickworks until it closed in 2008. To the north of The Rookery there remains some buildings associated with the former Stewartby Brickworks, including the chimneys. Following clay extraction, the sites have been restored (to varying levels of completion) by different means (including the disposal of waste) and to different uses, including water based recreation and commercial uses.

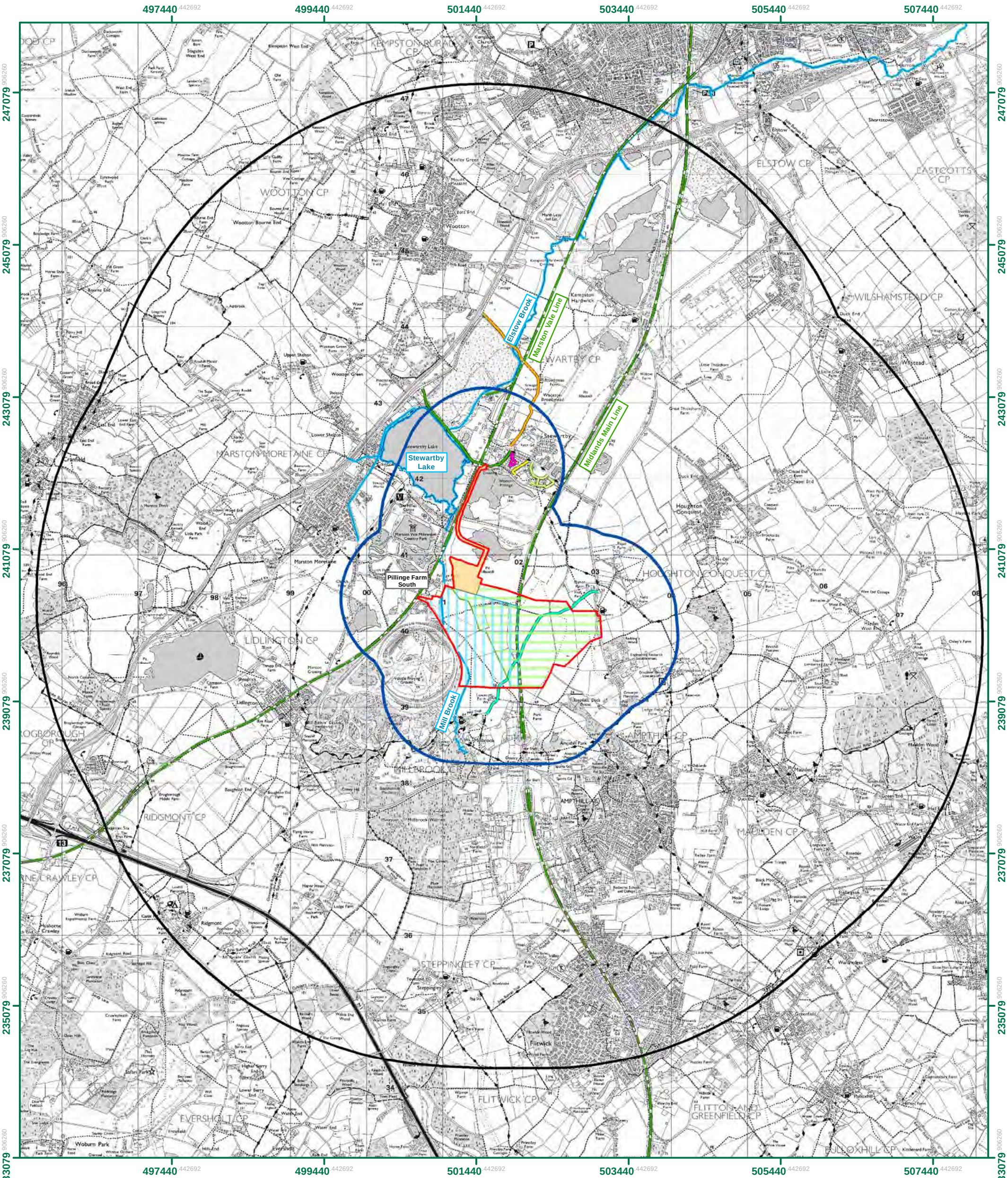
3.1.9 Furthermore, significant regeneration and development is allocated for the Northern Marston Vale Growth Area, in which the Project Site is located, as referred to in Paragraph 2.7.2. This will result in further change within the landscape, not least represented by substantial residential and employment development such as in the nearby settlements of Marston Moretaine and Stewartby.

3.1.10 The Gas and Electrical Connection Opportunity Areas, outside of Rookery South Pit, are located in a less dynamic landscape set within a mostly undeveloped agricultural landscape which includes areas of woodland, native hedgerows and a number of water-bodies such as ditches.

3.1.11 Nearby roads include the A421 which is approximately 2 km to the west and the B530 which lies to the east of the Project Site, as shown on Figure 3. The A421 connects directly to Junction 13 of the M1 Motorway which is approximately 5.6 km to the south east of the Project Site. Furthermore the Midland Mainline Railway and Marston Vale Line border the Power Generation Plant Site to the east and west respectively.

3.1.12 The closest residential dwelling to the Project Site is South Pillinge Farm, located approximately 90 m to the west. South Pillinge Farm is separated from the Project Site by a small deciduous woodland. To the north of Green Lane and The Rookery, lies Stewartby. Other neighbouring residential areas include: Houghton Conquest approximately 1.5 km to the east; Marston Moretaine approximately 1.2 km to the west; and Millbrook approximately 400 m to the south as shown on Figures 2 and 3.

3.1.13 To the west of the Project Site is Marston Vale Millennium Country Park, as shown on Figure 3, which provides habitat conservation opportunities, indoor and outdoor community amenities and a wind turbine. There is also a Forest Centre within the Marston Vale Millennium Country Park located just to the



Project Site

Power Generation Plant Site

Electrical Connection Opportunity Area

Gas Connection Opportunity Area

5km Study Area Around the Project Site

1km Study Area Around the Project Site

Features Of Interest

Railway

Water Resource

Roads

Broadmead Road

Churchill Close

Green Lane

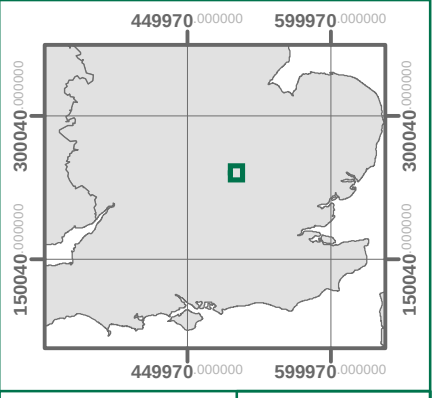
Millbrook Road

School Lane

The Cresent

Millbrook Power

Figure 2: Features of Interest



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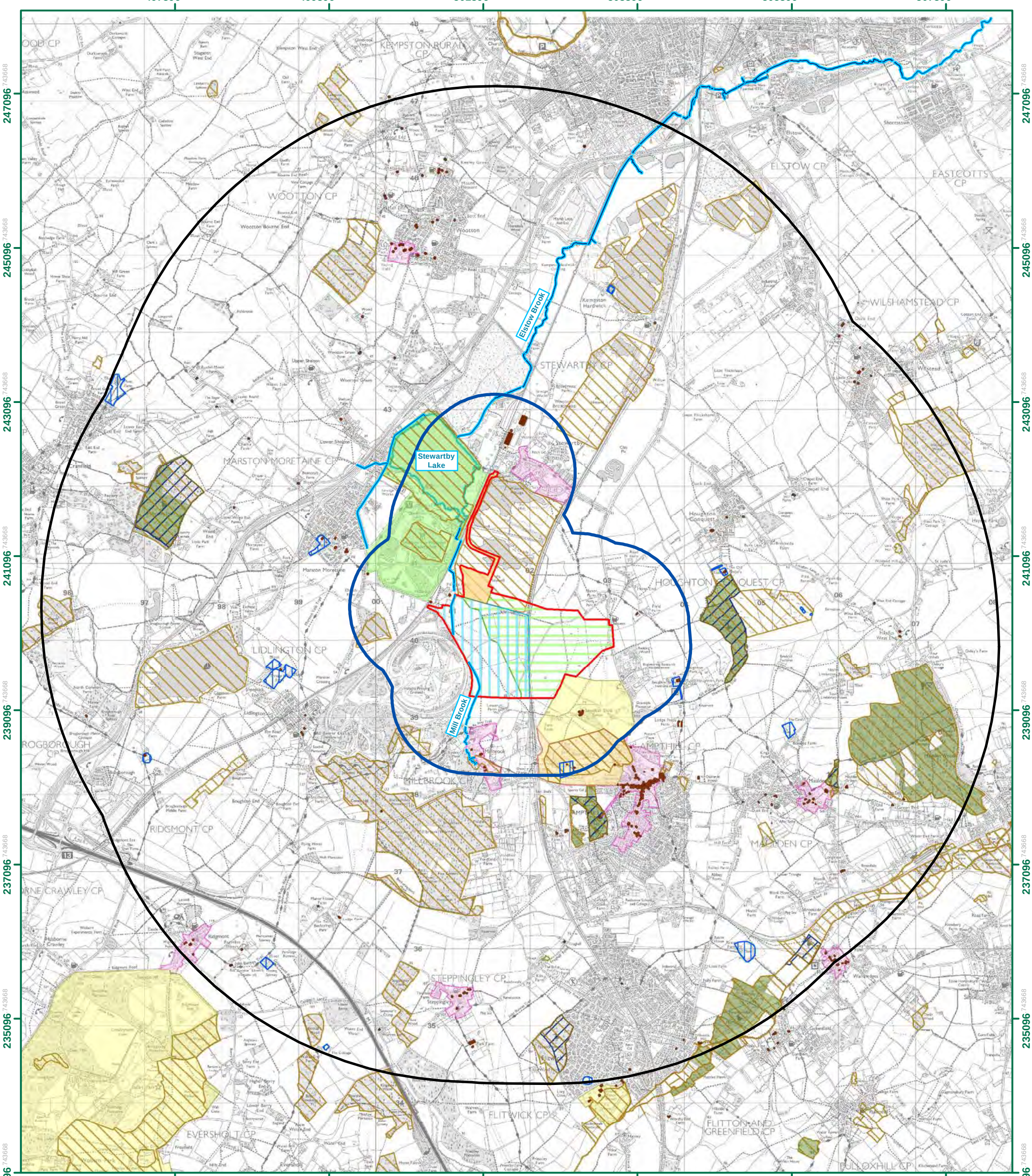
Data Sources



Project Site

Power Generation Plant Site

Electrical Connection Opportunity Area

Gas Connection Opportunity Area

5km Study Area Around the Project Site

1km Study Area Around the Project Site

Water Resources

Waterbodies

Ecology

Local Nature Reserve

County Wildlife Site

Site of Special Scientific Interest

Cultural Heritage

Listed Building

Scheduled Monument

Conservation Area

Registered Park or Garden

Landscape

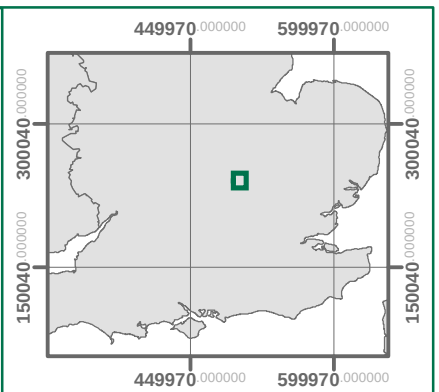
Country Park

Data Sources

Bedford County Council copyright Historic Envrionmental Record Data [2014]; Central Bedfordshire Council copyright Historic Environment Record [2014]: © Natural England copyright[2014]. Contains Ordnance Survey data © Crown copyright and database right [2014]; © Crown copyright and database right [2014] Ordnance Survey 0100031673; Contains Ordnance Survey data © Crown copyright and database right [2013].

Millbrook Power

Figure 3: Indicative Environmentally Sensitive Receptors



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south of Stewartby Lake which provides the focal point for the indoor and outdoor community amenities[27]. Millbrook Proving Ground, a vehicle testing ground, is located to the west of the Gas and Electrical Connection Opportunity Areas.

3.2 Description of the Project

3.2.1 The elements of the Project are described below. The description is based on a 'Rochdale Envelope' approach (i.e. a single project with a range of parameters). The scope of the topic assessments has been described in Chapter 5 based on the parameters provided below. Assessing a worst case realistic configuration from within the parameters enables an assessment of the 'worst case' likely significant environmental effects within each topic assessment. Each technical chapter within the PEIR and ES will identify which parameters represent the 'worst case' for that topic. It is acknowledged that the parameters may be refined during the design process for the Project and following consultation. If this occurs the modified parameters will be described and taken into account within the PEIR and ES as appropriate.

3.3 Power Generation Plant

3.3.1 The Power Generation Plant would be designed as a peaking plant fired by natural gas supplied by a new underground gas pipeline connecting the Power Generation Plant to the existing National Transmission System (NTS). It would have a capacity of up to 299 MW (enough to power the equivalent of 400,000 homes).

3.3.2 As a peaking plant, the Generating Equipment would operate for up to 1,500 hours per year. Peaking plants are required to operate when there is a 'stress event'. This occurs when there is a surge in demand for electricity associated with a particular event (e.g. where many people across the country boil kettles following the end of a popular television programme) or where there is a sudden drop in power being generated from plants which are constantly operational (e.g. a sudden outage). Peaking plants also help to 'balance out' the grid at other times of peak electricity demand and help to support the grid at times when other technologies (e.g. renewable energy sources, such as wind and solar farms) cannot generate electricity due to their intermittent operation and reliance on weather conditions.

3.3.3 Given these parameters, it has been determined that a Simple Cycle Gas Turbine (SCGT) plant is the preferred and most appropriate technology choice for the Project.

SCGT Plant

3.3.4 There are several options of SCGT plant available to generate up to 299 MW. SCGT plants often use aero-derivative gas turbines (i.e. turbines derived from aeronautical applications), primarily because of their suitability for frequent start-ups, flexibility, high efficiency and high-availability

[27] Marstonvale.org/millennium-country-park/

maintenance techniques. For the aero-derivative case, MPL envisages using three, four or five individual aero-derivative gas turbine generators to achieve 299 MW.

3.3.5 However, 'industrial' type gas turbines can also be used which are typically larger and often more suited to longer operational hours. They offer similar efficiency but less fast loading flexibility. Industrial gas turbines differ from aeronautical designs in that the casings, rotors and blading are of heavier construction. For the industrial gas turbine case, it is anticipated that one or two individual industrial gas turbine generators will be used to achieve 299 MW.

3.3.6 The main equipment in a SCGT is a Gas Turbine Generator, comprising the following components:

- Inlet air filter;
- Air compressor;
- Combustion chamber;
- Power turbine(s); and
- Exhaust silencer.

3.3.7 Air, on entering the gas turbines, would be compressed and natural gas injected into the air. The natural gas would then burn in the combustion chamber producing hot, high pressure gases. The gas would then expand across the blades of the gas turbine driving the electrical generators to produce electricity.

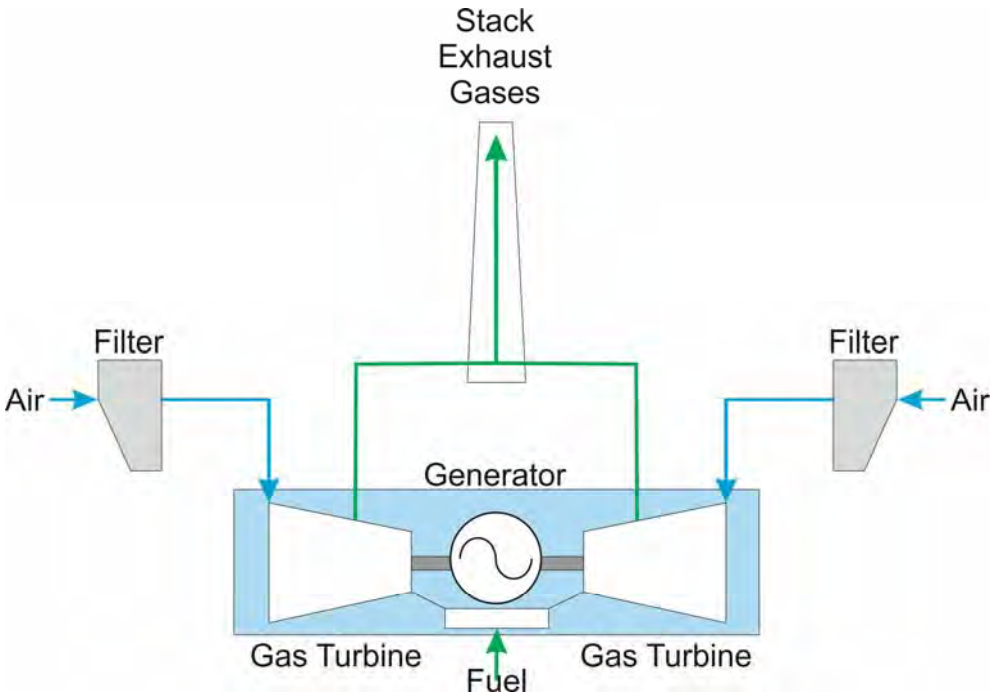
3.3.8 The waste gases and heat produced from this process would then be released to the atmosphere via between one and five stacks (chimneys). The stack(s) will contain equipment which will reduce emissions released to the atmosphere.

3.3.9 A stack height sensitivity study will be undertaken for the Project to determine the minimum stack height for the Gas Turbine Generators, required for adequate dispersion of emissions and to meet legislative air quality targets. This height would apply to all technology choices, as discussed above, and would not be dependent on the number of units present at the Generating Equipment Site.

3.3.10 The DCO Application will therefore be flexible enough using the Rochdale Envelope approach to allow MPL to achieve a 299 MW project by building between one to five Gas Turbine Generators, with up to five exhaust gas flue stacks.

3.3.11 Figure 4 shows a simple schematic of SCGT operation.

Figure 4: Schematic of SCGT Operation



Laydown Area

3.3.12 A temporary Laydown Area for the storage of plant and equipment during construction would be provided adjacent to the Generating Equipment Site. It is not proposed that land would be required for a permanent maintenance/separate laydown area during operation.

Access Road

3.3.13 A new purpose built Access Road would be constructed within the Power Generation Plant Site from Green Lane to the Generating Equipment Site. The 1.7 km long Access Road would be constructed from tarmac bordered by concrete curb. It is anticipated to be single lane with passing places at regular intervals to allow vehicles to pass each other.

3.3.14 The route of the Access Road from Green Lane would follow the existing track which borders the lake within Rookery North Pit. On reaching Rookery South Pit, the Access Road would use the access ramp (built as part of the LLRS as described below) to enter into the pit and cross through the base of the pit until it reaches the Generating Equipment Site along the alignment shown on Figure 1.

Dimensions

3.3.15 The maximum area for the Generating Equipment Site would be in the order of 8 ha. The Generating Equipment may be sited in a number of locations within the wider Generating Equipment Site depending on its final design. The Generating Equipment Site may also be reduced in size during the design process with any changes acknowledged in the PEIR and/or ES.

3.3.16 Table 3.1 provides indicative dimensions for the main plant items which would be present within the Generating Equipment Site.

Table 3.1: Indicative Details of Main Plant Items

Plant Item	Indicative Dimensions (m)
Stack (dimensions)	Up to 60 m (height) from the base of Rookery South Pit and up to 45 m (height) from the ground level surrounding Rookery South Pit and up to 10 m (diameter).
Stack (number)	Up to 5 stacks
Gas turbine (plant dimensions)	Up to 90 m (length) x up to 150 m (width) x up to 20 m (height).
Electrical banking compound	Up to 60 m (width) x up to 60 m (width) x up to 10 m (height)
Water tanks	Up to 24 m (diameter) x up to 15 m (height) for each tank. Maximum of 2 tanks.
Administration/ workshop/ control building	Up to 50 m (length) x up to 20 m (width) x up to 6 m (height)
Gas receiving station	Up to 50 m (width) x up to 50 m (length) x up to 3 m (height)

Construction, Operational and Decommissioning Timescales

3.3.17 Construction and commissioning of the Project would take approximately 22 months. The main works associated with the construction phase would be excavation and site levelling for new foundations, potential piling (if required) and the laying of the Gas and Electrical Connections. No requirements for demolition or remediation have been identified at this stage.

3.3.18 It is assumed that as a minimum, the following components of the LLRS will be complete prior to construction of the Project commencing:

- Topsoil stripping and stockpiling of material from the remaining southern permitted extraction area on the southern side of Rookery South Pit to enable the extraction of clay for use in the proposed restoration works;
- Formation of a noise screening bund from stripped topsoil and subsoil along the western edge of the works adjacent to Pillinge Farm;

- Redirection of existing surface water ditches and provision of an upper carrier ditch around the southern perimeter of the southern permitted excavation area;
- Excavation of clay from the southern permitted extraction area to provide material for the proposed restoration works and buttressing works, including provision of a new access ramp from the extraction area into the base of the pit;
- Construction of a new access ramp in the north west corner of Rookery South Pit;
- Construction of a landscaped platform graded so drainage falls across the entire base of Rookery South Pit, utilising material won from either regarding of the base of the pit or from the southern permitted extraction area, to enable gravity drainage to occur in the base of the pit;
- Construction of surface water interceptor channels collecting to a single attenuation pond located at the north western corner of Rookery South Pit. The surface water interceptor channels and attenuation pond will include habitat mitigation and ecological enhancement measures;
- Provision of a pumping station to enable external discharge of collected waters from the attenuation pond to an existing ditch/culvert discharge to Stewartby Lake;
- Buttressing of the pit edge slopes to the south (part), east and north (part) to provide a slope stabilisation solution for the existing slopes; and
- Redirection of existing surface water ditches and provision of an upper carrier ditch around the southern perimeter of the southern excavation area.[28]

3.3.19 The Power Generation Plant would be designed to have an operational life of 25 years, after which time it would be decommissioned or re-powered depending on the nature of the electricity market and energy mix at the time. For the purposes of the EIA, it would be assumed that the Power Generation Plant would be decommissioned following the end of its operational life.

3.3.20 Decommissioning would comprise the removal of all Power Generation Plant items and restoration of the Project Site to a similar condition compared to before the construction of the Project. This process would also take approximately 22 months. It is likely that some underground structures, including the Gas and Electrical Connections (if an underground Electrical Connection is implemented) may be capped and left in situ to avoid any adverse environmental impacts associated with their removal. Due regard would be paid to all best practice guidelines and legislation on

[28] Peter Brett Associates (April 2009) Rookery Pit – Low Level Restoration Scheme Engineering Statement.

decommissioning of projects, which are relevant at the time of the decommissioning activities. Where possible, items of plant would be recycled or reused.

Carbon Capture Readiness (CCR) and Carbon Capture and Storage (CCS)

3.3.21 At up to 299 MW, the Project would be below the threshold set out in Directive 2009/31/EC[29] and National Policy Statement EN-1 and EN-2 for when operators of combustion plants are required to have assessed the feasibility of: a storage site, transport facilities and economic considerations of the capture of carbon dioxide (CO_2) produced as a result of the combustion process. Therefore it is not considered necessary to assess the viability of CO_2 capture or include it further in this report.

3.4 Gas Connection

3.4.1 The Gas Connection would be in the form of a new underground gas pipeline connection (the Pipeline) and above ground installation (AGI) and is required to connect the Generating Equipment to the existing high pressure NTS in order to provide a reliable supply of fuel.

Gas Connection Opportunity Area

3.4.2 A Gas Connection Feasibility Study was undertaken in March 2014 in order to define and evaluate the options available for connecting the Generating Equipment to a suitable source of fuel gas. This identified NTS Feeders 7, 9 and 26 as possible connection points. The location of these Feeders in relation to Project Site is shown on Figure 1.

3.4.3 At present, investigations to identify specific route corridor options to the Feeders are still ongoing. It is anticipated that the Gas Connection would be situated within the Gas Connection Opportunity Area to the south and east of the Generating Equipment Site, as shown on Figure 1. The Gas Connection Opportunity Area outside of Rookery South Pit comprises large flat to gently rolling arable fields bounded by hedgerows and drainage ditches. It extends south to just beyond Millbrook Road and to the east beyond the Midland Mainline Railway to the B530 Ampthill Road between Chequers Public House and the Engineering Research Establishment close to Reddings Wood.

3.4.4 All potential routes for the Gas Connection will be selected with due regard to relevant factors including environmental, planning, safety, engineering and constructability. Further details of the specific routes being considered will be provided to consultees when they are available and the route selected will be assessed in the PEIR and ES submitted for the DCO Application.

[29] Directive 2009/31/EC of the European Parliament and of the Council of 23 April 2009 on the geological storage of carbon dioxide and amending Council Directive 85/337/EEC, European Parliament and Council Directives 2000/60/EC, 2001/80/EC, 2004/35/EC, 2006/12/EC, 2008/1/EC and Regulation (EC) No 1013/2006

Connection to the NTS

3.4.5 Connection of the Pipeline to an NTS feeder would require two Above Ground Installations (AGIs) to be installed which will include: a Minimum Offtake Connection (MOC) facility, which would be owned by National Grid Company (NGC), and a PIG Trap Facility (PTF) which will be owned by MPL (together, referred to as the 'Above Ground Installation' or 'AGI').

3.4.6 The MOC (approximately 40 x 30 m) would contain:

- Remotely operable valve (ROV);
- Control and instrumentation kiosk; and
- Electrical supply kiosk.

3.4.7 The PTF (approximately 40 x 30 m) would contain:

- PIG launching facility;
- Emergency control valve;
- Isolation valve;
- Control and instrumentation kiosk; and
- Electrical supply kiosk.

3.4.8 Termination of the Gas Connection would be at a PTF on the Generating Equipment Site. This facility would be situated within the Gas Receiving Station and would contain the following equipment:

- PIG receiving facility;
- Isolation valves, metering, heating, filtering, compression and pressure regulation equipment;
- Electricity supply kiosk; and
- Control and instrumentation kiosks.

3.5 Electrical Connection

3.5.1 The Electrical Connection will comprise all the necessary elements to enable power to be exported from the Generating Equipment to the NETS, such as a new substation and two new electrical circuits (either in the form of an underground cable or overhead line).

3.5.2 A grid connection assessment was undertaken in March 2014 in order to define and evaluate the options available for connecting the Generating Equipment to the NETS. The most suitable point of connection would be a new substation to be located either on the Generating Equipment Site or adjacent to the line of the existing National Grid double circuit 400 kV line (forming part of the NETS) which runs from Sundun to Grendon. The 400kV

line is located approximately 320 m southwest of the Generating Equipment Site as shown on Figure 1.

3.5.3 Should an underground export cable option be progressed between the substation and NETS, then up to two new sealing end compounds (SECs) would also be required. These would be constructed at the point where the underground cable emerges to facilitate its connection into the NETS. It is possible that one, both or neither of the SEC(s) or substation will be required depending on the configuration of the Electrical Connection.

Electrical Connection Opportunity Area (Underground or Overhead)

3.5.4 Specific route corridor options for the Electrical Connection have not been identified at present, and options are being investigated within an area referred to as the Electrical Connection Opportunity Area to the south of the Generating Equipment Site as shown on Figure 1.

3.5.5 This area outside of Rookery South Pit comprises gently rolling arable farm land, with a number of hedgerows and drainage ditches defining the field boundaries. The nearest residential dwelling is South Pillinge Farm, 90 m to the north-west of the Electrical Connection Opportunity Area. Millbrook Road passes through the south-eastern corner of the Electrical Connection Opportunity Area. There are also two public rights of way passing through the area.

3.5.6 Specific connection options will be explored and further refined to a single Electrical Connection option prior to submission of the DCO Application. Due regard will be paid to relevant factors including environmental, planning and feasibility. Further details of the options being considered will be provided to consultees when they are available and the selected option will be assessed in the PEIR and ES that will be submitted in support of the DCO Application.

3.6 Project Site Selection/Design Evolution

3.6.1 The choice of site for the development of the Power Generation Plant has been carefully considered with various sites and a number of relevant factors looked at during this process in accordance with paragraph 4.4.1 of NPS EN-1 and NPS EN-2. Key factors included in the selection of the Power Generation Plant Site are:

- It is within an area identified as being potentially suitable for energy infrastructure;
- It is in close proximity to a suitable Electrical Connection point;
- It is in close proximity to a suitable Gas Connection point;
- It is in an industrial setting away from population centres;
- It has a well-developed road network and access to the Project Site; and

- There is more than adequate space to develop the Power Generation Plant.

3.6.2 The final choice of Gas and Electrical Connection options would be selected following further consultation and a more thorough assessment of constraints and environmental impacts.

3.6.3 In terms of design evolution of the Project, the following technology options were originally considered for the 299 MW Power Generation Plant: SCGT plant: Combined Cycle Gas Turbine (CCGT) plant; and Reciprocating Gas Engines (RGE) plant.

3.6.4 SCGT is considered to be the most suitable technology choice for generating up to 299 MW as a peaking plant at the Project Site based on the following environmental, technical and feasibility considerations:

- Visual impact: SCGT plants require shorter stack(s) compared to CCGT plant and therefore are less visually intrusive in views from the surrounding environment;
- Water resources: the water requirement of a SCGT plant is significantly lower than for CCGT plants;
- Noise and available space: noise levels from a SCGT plant would typically be lower than for an RGE plant. A larger number of RGE units would be required at the Generating Equipment Site to generate up to 299 MW. Spatially this may not be possible;
- Financial: based on the anticipated electricity market, it is essential that the Power Generation Plant of the size proposed will be particularly cost effective, as it will be called upon to operate flexibly to balance out the National Grid and meet changing demands of customers. SCGT plants are better suited to this type of operational regime; and
- Start up times: SCGT plants are able to start up and shut down much quicker than similar sized CCGT plants and are, therefore, better suited to meeting variable demands.

3.6.5 The potential for using Combined Heat and Power (CHP) opportunities with these technologies was also considered. However it is not considered to be technically or economically feasible with a SCGT peaking power station because the profile for the generation of electrical energy from the station cannot be guaranteed to coincide with the required heat demand profile of any potential consumer.

3.6.6 A more detailed appraisal of the Project Site selection process and design evolution will be set out in the PEIR and ES.

4 Scope and Structure of the EIA

4.1 Introduction

4.1.1 This Chapter describes the proposed scope and structure for the EIA that will be undertaken to support the DCO Application in accordance with the EIA Regulations. The key output of the EIA process is ultimately the ES, which sets out the likely significant environmental effects of the Project. The ES will enable PINS, consultees and the SoS to understand the anticipated environmental impacts and effects of the Project.

4.1.2 To allow for a precautionary approach, the assessments in the ES will be based on a realistic worst case scenario specific to each topic area based on the Rochdale Envelope parameters as described in Chapter 3.

4.2 Overall ES Structure

4.2.1 Table 4.1 sets out the proposed structure of the ES. A number of supporting documents will also be submitted to the SoS as part of the DCO Application. These are summarised in Table 4.2.

Table 4.1: Proposed ES Structure

Chapter	Description
Introduction	Providing: • A brief introduction to the Applicant; • A high level description of the Project; • A description of the consenting regime; and • A description of the purpose and structure of the ES.
Project Description	Detailed description of the Project and how the different elements (i.e. Power Generation Plant, Gas and Electrical Connections) are interconnected/interrelated. Outline of the proposed construction methods and indicative programme, including working hours etc.
Site Description	Description of the current and future site settings and surroundings of the Project Site. This section will also provide details on the LLRS elements and their phasing in relation to the baseline scenario.

Chapter	Description
Project Development and Alternatives	To include an account of: • Project Site Selection; • Alternative technology options for the Power Generation Plant; • Alternative layout/design options for the Power Generation Plant; and • Assessment of alternatives for the Gas and Electrical Connection route corridors.
EIA Assessment Methodology	Detailing the assessment methodology that the EIA has followed.
ES – Main Impact Sections	The following chapters will present the results of the EIA that has been undertaken: • Air Quality; • Noise and Vibration; • Ecology; • Water Quality and Resources; • Geology, Ground Conditions and Agriculture; • Landscape and Visual; • Traffic, Transport and Access; • Cultural Heritage and Archaeology; and • Socio-Economics. The planning policy context and results of the indirect, secondaryand cumulative impact assessment of the Project will be provided within each chapter listed above.
Conclusion	This chapter will present the conclusions of the residual effects of the Project as well as indirect, secondary and cumulative impact assessment of the Project.
ES Volume 2	Containing technical appendices.
ES Volume 3	Containing all figures associated with the ES.
Non-Technical Summary	Providing a summary of the main findings of the ES in easy to understand, non-technical language.

Table 4.2: Anticipated Supporting Environmental Documents to the DCO Application

Document Name	Description
Design and Access Statement	Provides details on the main access and egress routes to the Project Site and the design process and philosophy that have been followed in developing the Project.
Flood Risk Assessment	Providing details on the risk to the Project Site from flooding and risks elsewhere that could be caused by the Project.
Planning Statement	Describing the planning policy background and demonstrating that the Project is in compliance with the relevant NPSs and other relevant and important considerations.
Consultation Report	Consolidating and reporting on all consultations that have taken place throughout the Project, and how issues raised have been addressed.
No Significant Effects Report or Habitat Regulations Assessment Report	Depending on the potential for impacts on designated European sites, a Habitat Regulations Assessment or a No Significant Effects Report may be required, subject to consultation with Central Bedfordshire and Bedford Borough Councils, Natural England and PINS. This will draw on the Ecology chapter of the ES (described in Section 5.5 below).

4.3 Cumulative Assessment

4.3.1 In accordance with the EIA Regulations, the EIA will take into account other developments in the vicinity of the Project Site and will consider the cumulative impacts associated with these developments in-conjunction with the Project. Developments considered within the cumulative assessment include those that are:

- In the process of being built;
- Permitted application(s) but not yet implemented;
- Submitted application(s) not yet determined;
- Projects on the National Infrastructure's programme of projects;
- Projects identified in the relevant development plan (and emerging development plans – with appropriate weight being given as they move closer to adoption) recognising that information on the relevant proposals will be limited; and

- Projects identified in other plans and programmes (as appropriate) which set the framework for future development consents/approvals, where such development is reasonably likely to come forward.

4.3.2 At present, it is anticipated that the following developments will be considered as part of the cumulative assessment:

- The Proposed Rookery South (Resource Recovery Facility) to be developed to the north of the Generating Equipment Site;
- The Rookery Low Level Restoration Scheme within Rookery South and Rookery North Pits excluding works that are necessary to the Project (see paragraph 3.3.18);
- Integrated Waste Management Operations at Rookery South, Bedfordshire ;
- Brogborough Wind Energy Project at Brogborough Landfill Site ;
- Land at Moreteyne Farm at Wood End in Marston Moretaine;
- Land at Warrant Farm on Flitwick Road in Ampthill;
- Land East and West of Broadmead Road, Stewartby under construction; and
- The new settlement at Wixams .

4.3.3 Furthermore consideration will also be given to the following allocated land areas designated by Bedford Borough Council[30] due to their proximity to the Project Site:

- Policy AD3 Land at Hall End Road in Wootton;
- Policy AD13 Marston Vale Innovation Park Phase 2 in Wootton;
- Policy H13 Land at Rousbury Road in Stewartby;
- Policy H11 Land South of Field Road in Wootton; and
- Policy H12 Land North of Fields Road in Wootton adjacent to Policy H11.

4.3.4 In addition during the EIA other developments may be identified if more information becomes publically available, such as the East West Rail Project and the Bedford and Milton Keynes Waterway in the vicinity of the Generating Equipment Site.

4.3.5 Any views on the inclusion of any particular cumulative schemes will be welcome as part of the Scoping Opinion.

[30] www.bedford.gov.uk

5 Detailed Description of ES Impact Sections

5.1 Introduction

5.1.1 This chapter provides a description of the proposed EIA. It addresses each proposed ES technical chapter and describes the current understanding of the baseline conditions and assessment methodology for each discipline that will determine the likely significant environmental effects of the Project. Potential mitigation measures have also been identified where appropriate, although these will be set out in detail in the ES. Consultees are invited to comment on the methodologies within their scoping responses.

5.1.2 Although the sections below deal with the Project as a whole, it is anticipated that the ES technical chapters will be sub-divided allowing the assessment of effects during the construction, operation and decommissioning phases, description of mitigation measures and residual effects to be addressed separately for the Power Generation Plant, Gas Connection and Electrical Connections as well as together for the overall Project. Cumulative effects will be assessed for the Project as a whole.

5.1.3 The sections described are set out in the following list:

- Air Quality (5.3);
- Noise and Vibration (5.4);
- Ecology (5.5);
- Water Quality and Resources (5.6);
- Geology, Ground Conditions and Agriculture (5.7);
- Landscape and Visual (5.8);
- Traffic, Transport and Access (5.9);
- Cultural Heritage and Archaeology (5.10); and
- Socio-Economics (5.11).

5.2 Significance Criteria

5.2.1 The significance of environmental effects resulting from the construction, operation and decommissioning of the Project will generally be categorised using a series of matrices. These will be developed to describe the sensitivity of receptors and resources which have the potential to be impacted by the Project and the magnitude of any impacts that are likely to arise. The sensitivity of receptors and resources and magnitude of impact will be cross-referenced to give an overall significance of effect for any potential impact. Where it is not possible to quantify impacts, qualitative assessments will be carried out, based on available knowledge and professional judgement.

5.2.2 In order to provide a consistent approach and enable comparison of impacts upon different environmental receptors, the assessments will generally follow the structure and use the terminology outlined below in Tables 5.1 to 5.3. However for some sections, significance criteria may need to differ depending on the assessment methodology used. Each technical chapter of the ES will clearly identify and explain any specific criteria used as well as defining what constitutes a significant impact and/or effect.

5.2.3 Potential mitigation measures described in the ES will include embedded mitigation through design/standard control measures (which will be used to produce an initial assessment of impact) and any further specific mitigation required (which will be taken into account to produce an assessment of residual impacts).

Table 5.1: Determining Receptor Sensitivity

Sensitivity	Example
Very High	Internationally or European designated site (e.g. Ramsar, Special Area of Conservation (SAC), Special Protection Area (SPA), World Heritage Site)
High	Nationally designated site (e.g. Site of Special Scientific Interest (SSSI), designated landscape, National Parks, Principal Aquifers)
Medium	Regionally designated ecology, heritage sites, secondary aquifers, minor watercourses
Low (or lower)	Locally designated ecology, heritage sites, areas of hardstanding, brownfield land, industrial site
Negligible	No sensitivity to change

Table 5.2: Determining Magnitude of Impact

Magnitude		Example
Major	Adverse	A permanent or long term adverse impact on the integrity and value of an environmental attribute or receptor
	Beneficial	Large scale or major improvement of resource quality; extensive restoration or enhancement; major improvement of attribute quality
Moderate	Adverse	An adverse impact on the integrity and/or value of an environmental attribute or receptor, but recovery is possible in the medium term and no permanent impacts are predicted
	Beneficial	Benefit to, or addition of, key characteristics,

Magnitude		Example
		features, or elements or improvement of attribute quality
Minor	Adverse	An adverse impact on the value of an environmental attribute or receptor, but recovery is expected in the short term and there would be no impact on its integrity
	Beneficial	Minor benefit to, or addition of key characteristics, features or elements; some beneficial impact on attribute or a reduction in the risk of a negative impact occurring
Negligible	Adverse	Very minor loss
	Beneficial	Very minor benefit
No change		No change would be perceptible, either positive or negative

Table 5.3: Determining Significance of Effect

		Magnitude of Impact				
		No Change	Negligible	Minor	Moderate	Major
Receptor Sensitivity	Very High	Neutral	Slight	Moderate	Large	Very Large
	High	Neutral	Slight	Moderate	Large	Large
	Medium	Neutral	Slight	Slight	Moderate	Large
	Low	Neutral	Slight	Slight	Slight	Moderate
	Negligible	Neutral	Neutral	Neutral	Neutral	Neutral

5.3 Air Quality

Introduction

5.3.1 The air quality assessment will consider potentially significant air quality impacts and effects caused by the construction, operation and decommissioning of the Project on sensitive human and ecological receptors in and around the vicinity of the Project Site. Potential effects could include those that result from dust during construction and decommissioning and stack emissions during operation of the Gas Turbine Generators.

Baseline

5.3.2 Existing ambient air quality and baseline conditions will be reviewed using available air quality data and the most recent local authority publications

published in accordance with their duties under the Environment Act 1995[31]. The assessment will include particular consideration of: designated Air Quality Management Areas (AQMAs); any relevant previous studies undertaken in the area; the location of sensitive receptors (including designated ecological sites); and other significant sources of emissions.

5.3.3 The nearest AQMA is within Bedford approximately 10 km northeast of the Project Site[32]. The AQMA, declared primarily on the basis of traffic related NO_2, covers an area of the town centre including High Street and Prebend Street.

5.3.4 Brogborough land fill gas fired power station is located approximately 3.7 km west of the Project Site and is potentially considered a source of emissions. Further consultation will be sought with Central Bedfordshire and Bedford Borough Councils and the Environment Agency to determine a definitive list of significant emission sources in the area to consider as part of the air quality assessment.

5.3.5 The existing air quality concentrations at sensitive ecologically designated sites will be obtained from DEFRA[33]. The existing acid and nutrient nitrogen deposition rates will be obtained from the UK Air Pollution Information System (UK APIS).[34]

5.3.6 Statutory ecologically designated sites within 10 km of the Project Site include:

- Kings Wood and Glebe Meadows, Houghton Conquest Site of Special Scientific Interest (SSSI) and Local Nature Reserve (LNR);
- Smithcombe, Sharpenhoe and Sundon Hills SSSI;
- Coopers Hill, Bedfordshire SSSI and LNR;
- Marston Thrift SSSI and LNR;
- Maulden Wood and Pennyfather's Hill SSSI;
- Maulden Church Meadow SSSI and LNR;
- Maulden Heath SSSI;
- Flitwick Moor SSSI;
- Pulloxhill Marsh SSSI; and
- Biddenham Pit SSSI.

5.3.7 Non-statutory ecological sites within 2 km of the Project Site include:

- Rookery Clay Pit County Wildlife Site (CWS);

[31] Environment Act 1995
[32] UK Air Quality Information Archive (2010) www.airquality.co.uk
[33] http://uk-air.defra.gov.uk/
[34] http://www.apis.ac.uk/

- Millbrook Pillinge Pit CWS;
- Millbrook Warren CWS;
- Brogborough Lake CWS;
- Coronation Pit CWS;
- King's Wood, Houghton Conquest CWS;
- Stewartby Lake CWS;
- Lidlington Pit CWS;
- Heydon Hill CWS;
- Ampthill Park CWS;
- Millbrook CWS;
- Ampthill Tunnel CWS; and
- Cooper's Hill CWS.

5.3.8 Residential receptors within 1 km of the Project Site include those within the nearby settlements of Stewartby, Millbrook, Marston Moretaine, Ampthill and How End. In addition there are also farmsteads outside of the settlements including but not exclusive to:

- South Pillinge Farm;
- Church Farm and Church Farm Cottages;
- Lower Farm;
- Ossory Farm;
- Park Farm;
- Manor Farm;
- Manor Farm Cottages;
- Road Farm;
- How End Farm;
- Ampthill Park House;
- Field Farm; and
- Houghton Park Residential care home.

Assessment

5.3.9 The assessment methodology will be agreed in consultation with the Environmental Health Officer (EHO) at Central Bedfordshire and Bedford Borough Councils and the Environment Agency.

5.3.10 The emissions of dust during the construction and decommissioning phases of the Project will be assessed in accordance with 'Guidance on the Assessment of the Impacts of Construction on Air Quality and the Determination of their Significance' (IAQM, 2012)[35] and the Department for Transport 'Design Manual for Roads and Bridges (DMRB) Volume 11 Section 3, Part 1: Air Quality' and the associated DMRB Screening Method, developed by the Highways Agency[36]. The significance of the potential impacts identified will be determined based on the sensitivity of the receptors within the potential zones of influence outlined in the IAQM Guidance.

5.3.11 The air quality assessment for the operational phase of the Power Generation Plant will follow the Environment Agency documents 'Horizontal Guidance Note H1 – Annex (f): Air Emissions'[37] and the Environment Agency Air Quality Modelling and Assessment Unit (AQMAU) 'Air dispersion modelling report requirements (for detailed air dispersion modelling)'[38]. The conversion of NO_x to NO_2, as applicable for the protection of human health under the UK Air Quality Standards Regulations 2010[39], will adopt the approach outlined in the AQMAU Guidance Note 'Conversion Ratios for NO_x and NO_2' (2006)[40].

5.3.12 As a peaking plant, the operation of the Generating Equipment will be limited through the permitting regime to 1500 hours per annum. The assessment will, therefore, be based on the operation of the Generating Equipment, at full load, for 1500 hours per annum.

5.3.13 The atmospheric emissions from the operation of the Generating Equipment will be quantified by obtaining information from relevant plant suppliers. Where two or more suppliers are being considered, a realistic worst case scenario will be used to ensure flexibility. However, only plant that meet national emissions limits will be considered.

5.3.14 The atmospheric dispersion modelling will be performed using the Cambridge Environmental Research Consultants (CERC) Air Dispersion Modelling Software (ADMS 5.0). An air dispersion model will be set up that considers the effects of terrain and buildings (as appropriate to the location of the Generating Equipment), together with the most recent available meteorological data covering a consecutive five year period (e.g. 2009 to 2014, inclusive) in accordance with current guidance.

[35] IAQM (2012)Guidance on the Assessment of the Impacts of Construction on Air Quality and the Determination of their Significance
[36] Highways Agency (various dates) Design Manual for Roads and Bridges (DMRB) Volume 11.
[37] Environment Agency (December 2011) Horizontal Guidance Note H1 – Annex (f): Air Emissions
[38] Environment Agency Air Quality Modelling and Assessment Unit (undated) Air dispersion modelling report requirements (for detailed air dispersion modelling)
[39] The Air Quality Standards Regulations 2010
[40] Environment Agency Air Quality Modelling and Assessment Unit (2006) Guidance Note 'Conversion Ratios for NO_x and NO_2'

5.3.15 The modelling assessment will estimate the mass concentration of NO_x and CO at sensitive receptors using the emission limits as specified in Part 2 of Annex V to the IED. Initial screening runs will be undertaken to determine an acceptable stack height for the stack(s) suitable for adequate dispersion based on predicted maximum short term and long term ground level concentrations. Detailed atmospheric dispersion modelling will then be undertaken on the basis of the selected stack height.

5.3.16 The results of the detailed dispersion modelling will be presented as isopleths, and compared with background levels and relevant standards and guidelines (i.e. Air Quality Standards Regulations 2010). Direct comparison will be made between the long-term and short-term process contribution from the Generating Equipment, the predicted environmental concentrations of relevant substances (i.e. process contribution plus background levels) and the limits and objectives within the relevant Air Quality Standards Regulations 2010. Where appropriate, the significance of the potential impact will be determined using the criteria set out in the 'Development Control: Planning for Air Quality' (EPUK, 2010) in conjunction with the Environment Agency Horizontal Guidance Note H1 – Annex (f).

5.3.17 The abatement of emissions will be discussed in relation to the application of Best Available Techniques (BAT), in accordance with the Environment Agency Sector Guidance Note for Combustion Activities (EPR 1.01)[41] and the UK's position with regards to the on-going review of the EU IPPC Reference Document on BAT for Large Combustion Plants[42]. Should additional mitigation prove to be necessary, the severity of impact, frequency of emission and the resultant environmental risk associated with any residual impact will be examined.

5.3.18 Changes in air quality levels for NO_x will also be assessed with respect to ecology for the European and nationally designated sites within 10 km of the Project Site (including, but not necessarily limited to, those identified above). The non-statutory habitat sites within 2 km of the Project Site will also be considered. An assessment of the increased deposition of both nutrient nitrogen and acid due to nitrogen will also be carried out at the statutory (both EU and UK) designated ecological sites in accordance with the methodologies described in the Environment Agency AQMAU 'AQTAG06 Technical Guidance on detailed modelling approach for an appropriate assessment for emissions to air'[43].

5.3.19 It is considered that there would not be any noticeable odours associated with the operation of the Generating Equipment at or beyond the boundary of the Generating Equipment Site and therefore it is not considered necessary to undertake a detailed assessment of odour.

[41] Environment Agency (March 2009) How to comply with your environment permit. Additional guidance for Combustion Activities (EPR 1.01)
[42] European Commission (July 2006) Integrated Pollution Prevention and Control, Reference Document on Best Available Techniques for Large Combustion Plants
[43] Environment Agency AQMAU (October 2011) AQTAG06 Technical guidance on detailed modelling approach for an appropriate assessment for emissions to air

5.3.20 The operation of the Gas and Electrical Connections would not produce any significant emissions and therefore these elements of the assessment during operation have been scoped out.

Mitigation Measures

5.3.21 An outline Construction Environmental Management Plan (CEMP) will be drafted and appended to the ES which will set out best practice methods of limiting dust on site during construction and decommissioning.

5.3.22 During operation, the Generating Equipment would operate as a peaking plant, with operations limited to 1,500 hours per year. This operating limit will be set out in the site permit and will not be exceeded. In addition, embedded mitigation measures will include: incorporating stack(s) of sufficient height to achieve adequate dispersal of pollutants; and using flue gas cleaning equipment if required to ensure that all emissions are within concentrations permitted by legislation and guidance.

5.3.23 The need or otherwise for further, project specific mitigation measures will be addressed within the ES chapter.

5.4 Noise and Vibration

Introduction

5.4.1 In accordance with Section 5.11 of NPS EN-1, a noise and vibration assessment for the Project will consider potentially significant noise and vibration impacts and effects caused by the construction, operation and decommissioning of the Project on Noise Sensitive Receptors (NSRs) in and around the vicinity of the Project Site.

Baseline

5.4.2 The greatest sources of noise at present in the vicinity of the Project Site are the trains travelling along the Midland Mainline Railway and Marston Vale Line and occasional noise associated with vehicles using the Millbrook Proving Ground. Other noise sources in the area are associated with agricultural practices and vehicles on the surrounding roads especially in and surrounding the Gas and Electrical Connection Opportunity Areas.

5.4.3 The closest NSRs within 1 km of the Project Site include those within the nearby settlements of Stewartby, Millbrook, Marston Moretaine, and Ampthill, How End. In addition there are also farmsteads outside of the settlements including but not exclusive to:

- South Pillinge Farm;
- Church Farm and Church Farm Cottages;
- Lower Farm;
- Ossory Farm;
- Park Farm;

- Manor Farm;
- Manor Farm Cottages;
- Road Farm;
- How End Farm;
- Ampthill Park House;
- Field Farm; and
- Houghton Park Residential care home.

Assessment

5.4.4 The assessment methodology will be agreed with the EHOs at Central Bedfordshire and Bedford Borough Councils.

5.4.5 Construction and decommissioning noise and vibration assessments of the Project will be undertaken following guidance in British Standard (BS) 5228[44]. The assessment will be undertaken as a desk study and will involve:

- Identification of construction and decommissioning activities that produce significant noise and vibration;
- Identification of NSRs within 100 m of construction and decommissioning activities; and
- Prediction of noise and vibration using the methodology contained within BS5228.

5.4.6 The exact construction and decommissioning methodologies are unlikely to be defined until the construction contractor is appointed, which is likely to be after the submission of the DCO Application. However, in the absence of this data, an outline construction programme will be developed based on knowledge and experience of other similar developments. Additionally, the typical make up of construction equipment at each stage of the Project programme will be ascertained in the same way. For ground improvement works (e.g. piling) the noise and vibration assessment will pay due regard to the ground conditions at the Generating Equipment Site. Where uncertainties exist, realistic worst case assumptions will be used.

5.4.7 The quantification of impacts shall be undertaken by comparison with agreed project criteria or limits either from previous schemes and relevant guidance and standards such as BS5228, BS6472[45] and BS7385[46], or local legislative requirements. The desk study shall outline suitable measures for the mitigation of construction and decommissioning impacts, and an assessment of residual impacts and effects.

[44] British Standards Institute (2009) BS 5228-1: Code of practice for noise and vibration control on construction and open sites
[45] British Standards Institute (2008) BS 6472: Part 1 Guide to human exposure to vibration in buildings
[46] British Standards Institute (1993) BS 7385: Part 2 Evaluation and measurement for vibration in buildings. Guide to damage levels from groundborne vibration

5.4.8 Operational noise for the Power Generation Plant will be assessed using the methodology from a combination of: BS4142[47]; BS8233[48]; and WHO Guidelines for Community Noise[49]. The likelihood of complaints about noise from industrial developments will be predicted using the following criteria from BS4142:

- When subtracting the background level from the rating level, the greater the difference, the greater the likelihood of complaints;
- A difference of around +10 dB or more indicates that complaints are likely;
- A difference of around +5 dB is of marginal significance; and
- If the rating level is more than 10 dB below the measured background noise level then this is a positive indication that complaints are unlikely.

5.4.9 The guidance contained in BS8233 will also be used to assess the effects on indoor ambient noise levels in living rooms and bedrooms of NSRs when they are unoccupied.

5.4.10 The WHO Guidelines for Community Noise provides health-based guidance on suitable noise levels intended to avoid or minimise community annoyance by noise. The guidance provides guideline noise levels for both indoor and outdoor areas.

5.4.11 It is proposed that the study area for the noise assessment of operational effects shall be defined as the region within 1 km of the Project Site. All sensitive receptors, such as residential properties, hospitals, schools, etc. within the study area shall be identified in the assessment.

5.4.12 A Baseline Noise Survey will then be undertaken in the vicinity of the Project Site to establish the current baseline noise levels. The locations for the Baseline Noise Survey (i.e. locations of the nearest NSRs) will be agreed in advance with the EHOs.

5.4.13 Following baseline noise measurements, a noise model will be produced using Cadna software (3-dimensional noise propagation software) which will model the measured baseline levels at NSRs, together with sound power levels of proposed plant (obtained from relevant suppliers). Where sound power levels for proposed plant are not available, suitable data will be substituted, although a realistic worst case scenario would always be considered. The noise model will highlight the main noise sources and the associated noise levels at the NSR locations. Contour plots will also be produced clearly showing noise levels at the Power Generation Plant Site, NSRs and surrounding areas.

[47] British Standards Institute (1997) BS 4142: 1997 Method of Rating Industrial Noise Affecting Mixed Residential and Industrial Areas
[48] British Standards Institute (2014) BS 8233:2014 Guidance on Sound Insulation and Noise Reduction for Buildings
[49] World Health Organisation (1999) Guidelines for Community Noise

5.4.14 If the model shows that there is potential for a significant effect to be experienced at any of the NSRs, the level of required noise mitigation would be specified, and measures that could be used to achieve this level of mitigation will be incorporated into the model, to provide a 'with mitigation' scenario.

5.4.15 The ES section will be compiled using the Institute of Acoustics (IoA) / Institute for Environmental Management (IEMA) draft document 'Guidelines for Noise Impact Assessment'[50].

5.4.16 The operation of the Gas Connection is not anticipated to cause any increase in background noise and therefore this element has been scoped out of the assessment.

5.4.17 Operational noise from the Electrical Connection has been scoped out as there would be no significant effects associated with the potential for a low level electrical hum emanating from an overhead line, if one is required. If a substation and up to two SECs are required, any low level electrical hum associated with the infrastructure will not be perceptible at the NSRs and therefore this has also been scoped out of the assessment.

Potential Mitigation Measures

5.4.18 An outline CEMP will be drafted and appended to the ES which will set out best practice methods of limiting noise and vibration on site during construction and decommissioning.

5.4.19 During operation, mitigation measures could include the use of silencers on the loudest plant items within the Generating Equipment.

5.5 Ecology

Introduction

5.5.1 An ecology assessment will consider potentially significant impacts and effects caused by the construction, operation and decommissioning of the Project on ecological resources and receptors in and around the vicinity of the Project Site.

Baseline

5.5.2 The Power Generation Plant Site and parts of the Gas and Electrical Connection Opportunity Areas within The Rookery, comprises bare earth and a mixture of improved grassland with areas of dense continuous scrub, tall ruderal vegetation and running water (ditches). The habitats have the potential to support bats, badgers, water voles, brown hare, harvest mice, nesting birds, reptiles, amphibians (including great crested newts) and a range of invertebrates.

5.5.3 Outside of Rookery South Pit, the Gas and Electrical Connection Opportunity Areas cross through a mixture of intensively managed arable land and improved grassland. Other habitats present in both areas include: semi-

[50] IEMA/IOA Working Party (2002) Consultation Draft Guidelines for Noise Impact Assessment

natural broadleaved woodland, plantation broadleaved and mixed woodland, standing water, running water (ditches), dense continuous scrub, tall ruderal vegetation, semi-improved grassland and species poor hedgerows. The habitats have the potential to support roosting, foraging and commuting bats, badgers, water voles, otter, brown hare, harvest mice, nesting birds, reptiles, amphibians (including great crested newts) and invertebrates.

5.5.4 A desk based assessment (DBA) and Extended Phase 1 Habitat Survey was undertaken at the Project Site in February 2014 (see Appendix A). The purpose of the assessment and survey were to:

- Identify the main habitats present at the Project Site;
- Identify the sensitive ecological receptors (e.g. statutory designated sites) in the vicinity of the Project Site;
- Assess the potential of the Project Site to support protected species; and
- Provide recommendations for further assessment works (e.g. Phase 2 Protected Species Surveys).

5.5.5 The following statutory protected SSSIs (for nature conservation) and LNRs are located within a 5 km radius of the Project Site as shown on Figure 3:

- Kings Wood and Glebe Meadows, Houghton Conquest SSSI and LNR;
- Coopers Hill SSSI, LNR and CWS;
- Marston Thrift LNR;
- Maulden Church Meadow SSSI and LNR;
- Maulden Heath SSSI;
- Maulden Wood and Pennyfather's Hills SSSI;
- Flitwick Moor SSSI;
- Flitwick Wood LNR; and
- Flitton Moor LNR.

5.5.6 The following CWSs are located within 2 km radius of the Project Site as shown on Figure 3:

- Rookery Clay Pit County Wildlife Site (CWS);
- Millbrook Pillinge Pit CWS;
- Millbrook Warren CWS;
- Brogborough Lake CWS;

- Coronation Pit CWS;
- King's Wood, Houghton Conquest CWS;
- Stewartby Lake CWS;
- Lidlington Pit CWS;
- Heydon Hill CWS;
- Ampthill Park CWS;
- Millbrook CWS;
- Ampthill Tunnel CWS; and
- Cooper's Hill CWS.

Assessment

5.5.7 In accordance with NPS EN-1 (paragraph 5.3.3) the Ecological Impact Assessment (EcIA) will provide an assessment of any potentially significant effects on internationally, nationally and locally designated sites of ecological or geological conservation importance, on protected species and on habitats and other species identified as being of principal importance for the conservation of biodiversity. Furthermore opportunities will be taken, where practicable, to conserve and enhance biodiversity and geological conservation interests. NPS EN-1 also requires that lighting effects will be considered on sensitive ecological receptors.

5.5.8 Based on the results of the extended Phase 1 Habitat Survey, the following Phase 2 protected species surveys are currently being carried out on and surrounding the Project Site.

Bats

5.5.9 A ground level tree assessment is being carried out on trees and parcels of woodland that would be potentially directly affected. In addition external and internal building inspection surveys are being carried out on buildings to be affected.

5.5.10 If signs of roosting bats or features with the potential to be used by roosting bats are identified during the inspection surveys, dusk emergence/dawn re-entry surveys will be carried out. These further surveys (if required) will be undertaken in accordance with current best practice guidance (Hundt, 2012[51]) when bats are most active (i.e. between mid-May and August inclusive). The surveys will determine the bat species present on the Project Site as well as the spatial distribution and relative activity levels of the species. Line transects will be conducted in spring, summer and autumn with a static bat detector also placed on each transect.

[51] Hundt, L (2012) Bat Surveys: Good Practice Guidelines, 2nd Edition. Bat Conservation Trust

Badger

5.5.11 All potential habitats within the Project Site are being surveyed to search for and record characteristic signs of badger activity, including: setts, latrine pits, foraging holes, badger hair and paw prints following best practice guidance (Neal and Cheesman, 1996[52]). Potential habitat includes areas of woodland, scrub and hedgerows.

Water vole

5.5.12 Water voles are being surveyed using standard methodologies for water vole (Strachan et al, 2011[53]). Signs that water voles may be present will be indicated by the presence of feeding remains, characteristic grass lawns, burrows, runs, footprints, latrines and droppings.

Breeding birds

5.5.13 The breeding bird survey has been designed to follow standard guidance as set out by Bibby et al (2000)[54] and Gilbert et al (1998)[55]. The survey comprises three visits, between March to July (with April, May and June being the key months for survey). One dusk survey visit to cover crepuscular species such as barn owl is also being undertaken.

5.5.14 Furthermore where access allows, the farm buildings at Lower Farm and South Pillinge Farm, and mature trees on site are being surveyed for the presence of roosting/nesting barn owls following standard guidance (Barn Owl Conservation Trust, 2012[56]).

Great Crested Newts

5.5.15 Preliminary pond surveys (Habitat Suitability Assessment) indicated that there are a number of ponds within 250 m of the Project Site which are potentially suitable for great crested newts. An additional four to six surveys are being undertaken between mid-March to mid-June to establish presence/absence and to estimate population size if great crested newts are found during the surveys. More detail on the methodology is provided in Appendix 1.

5.5.16 The LLRS includes a translocation programme currently being undertaken within The Rookery. Therefore it is assumed that all Great Crested Newts from the Project Site within The Rookery will have been cleared of great crested newts prior to construction and are not being surveyed further.

Reptiles

5.5.17 A reptile survey is being carried out on the Project Site to establish the presence/absence of reptiles, the species present and the approximate

[52] Neal, E and Cheeseman, C (1996) Badgers. T & AD Poyser Natural History Ltd. London.
[53] Strachan, R, Moorhouse, T and Gelling. M (2011) Watervole Conservation Handbook. Third Edition. Wildlife Conservation Unit
[54] Bibby C, J et al (2000) Bird Census Techniques. Ecoscope, BTO RSPB and Birdlife International
[55] Gilbert et al (2012) Bird Monitoring Methods. RSPB
[56] Barn Owl Conservation Trust (2012) Barn Owl Conservation Handbook: A Comprehensive Guide for Ecologists, Surveyors, Land Managers and Ornithologists. Pelagic Publishing.

population size. The survey uses artificial refuges (e.g. roofing felt and tin) to aid in the detection of reptiles and assessment of their distribution and abundance, following good practice guidance set out in the Herpetofauna Worker's Manual (Gent & Gibson, 2003[57]) and Reptile Survey Guidance (Froglife, 1999[58]).

Invertebrates

5.5.18 In order to determine the assemblage of aquatic invertebrates present on site, the flowing ditches and ponds will be surveyed if a Water Framework Directive Report is required.

5.5.19 Kick-sampling for aquatic invertebrates will be undertaken at selected locations along ditches or streams. Furthermore the water chemistry status will be determined for watercourses by extracting a single water sample at three locations within as well as upstream and downstream of the Project Site. Samples will be dispatched to a UKAS accredited laboratory for subsequent analysis.

5.5.20 The national pond monitoring survey protocol will be adhered for surveying ponds which involves timed netting and searches for invertebrates in summer (but may also cover spring and autumn).

5.5.21 Terrestrial invertebrate surveys will target Lepidoptera (moths and butterflies) in accordance with standard guidance developed by the UK Butterfly Monitoring Scheme and Coleoptera (beetles) in accordance with Natural England (ISIS) protocol (Drake et al, 2007[59]).

Assessment

5.5.22 Following the completion of the surveys, reports will be produced, detailing the extent to which the species are present, the likely impacts that the elements of the Project would have on the species and habitats and the potential mitigation measures that could be employed to reduce impacts to an acceptable level.

5.5.23 The EcIA will be undertaken in accordance with relevant guidance including the Guidelines for Ecological Impact Assessment (Institute of Ecology and Environmental Management (IEEM), 2006)[60]. The potential effects will also be assessed against and informed by national and local planning guidance including NPPF and National and Local Biodiversity Action Plans. Consultation will be undertaken with Natural England, Environment Agency, Central Bedfordshire Council, Bedford Borough Council to identify any particular issues of concern.

[57] Gent, A.H. & Gibson, S.D. (2003). Herpetofauna Workers' Manual. JNCC, Peterborough.
[58] Froglife (1999). Reptile survey: an introduction to planning, conducting and interpreting surveys for snake and lizard conservation. Froglife Advice Sheet 10. Froglife, Halesowen.

[59] Drake, C. M., Lott, D. A., Alexander, K. N. A. & Webb, J. (2007). Surveying terrestrial and freshwater invertebrates for conservation evaluation. Natural England Research Report NERR005. Natural England, Peterborough
[60] Institute of Ecology and Environmental Management (IEEM) (June 2006) Guidelines for Ecological Impact Assessment in the United Kingdom

Habitats Regulation Assessment

5.5.24 The Conservation of Habitats and Species Regulations 2010 (as amended)[61] require an assessment to be made as to whether the Project, either alone or in combination with other plans or projects could have a likely significant effect on European sites including SPAs, SACs and Ramsar Sites.

5.5.25 Consultation with Natural England, PINS and Central Bedfordshire and Bedford Borough Councils will determine the requirement for a screening exercise, in accordance with the Conservation of Habitats and Species Regulations 2010 (as amended)[62]. The screening exercise will identify any likely impacts of the Project upon a European Site, either alone or in combination with other plans and projects, and consider whether the impacts are likely to be significant.

5.5.26 If screening concludes there may be likely significant effects on the special features for which the European site(s) are classified or designated then a report will be provided with the DCO Application showing the European site(s) that may be affected together with sufficient information to enable the decision maker to make an appropriate assessment, if required. If screening concludes there is no likely significant effect on a European Site sufficient information will be provided with the DCO Application in the form of a "No Significant Effects Report" to allow the Competent Authority to assess and review the information and make its own determination that there are no likely effects and be satisfied there is no residual effect.

Potential Mitigation Measures

5.5.27 An outline CEMP will be drafted and appended to the ES which will set out best practice methods of limiting effects on ecology and biodiversity during construction and decommissioning. If necessary, further, specific mitigation measures will include the consideration of new habitat provision to suitably replace any habitat areas which would be permanently lost through development of the Project.

5.6 Water Quality and Resources

Introduction

5.6.1 An assessment on the effects on water quality and resources will consider all of the potentially significant impacts and effects caused by the construction, operation and decommissioning of the Project.

5.6.2 The chapter will also provide a summary of the main issues and risks posed to and from flooding identified during the Flood Risk Assessment which will be submitted as a separate document as part of the DCO Application. The FRA will take the form of a qualitative assessment based on existing Environment Agency data and consultation with the Environment Agency and Lead Local Flood Authority (LLFA). Additionally, potential impacts on hydrogeology will be assessed as part of the chapter describing geology,

[61] Conservation of Habitats and Species Regulations 2010 (as amended)
[62] Conservation of Habitats and Species Regulations 2010 (as amended)

ground conditions and agriculture (outlined in Section 5.7 of this Scoping Report).

5.6.3 At present, it is assumed that during operation the Power Generation Plant will utilise air cooling, substantially reducing water intake.

Baseline

5.6.4 The ordinary water courses within and surrounding the Project Site are shown on Figure 2. Elstow Brook flows in a north-easterly direction to the west of the Project Site, into Stewartby Lake. It then exits Stewartby Lake on its northern shoreline and flows to the north of Stewartby. There are also smaller streams, brooks, ditches and field drains that are within or close to the perimeter of the Rookery South Pit. These include Mill Brook which flows westwards along the southern side of Rookery South Pit, before turning northwards to follow along the western side of the pit. Mill Brook then passes westwards beneath the Marston Vale Line on the western side of the Power Generation Plant Site before ultimately flowing into Stewartby Lake. There are also ponds and lakes present in both Rookery North Pit and Rookery South Pit close to the Access Road. The Project Site is all within Flood Zone 1.

5.6.5 The streams, ponds and ditches within the Gas and Electrical Connection Opportunity Areas will be carefully considered during the process of identifying the Gas and Electrical Connection Route Corridors. The design process will aim to minimise crossings or interactions with water bodies where practical.

5.6.6 Historical and current maps will be studied to identify abstraction points and licences in the area as well as the course of any former watercourses which may have been underground or culverted in the past.

Assessment

5.6.7 In accordance with NPS EN-1 the assessment will account for the existing status of, and impacts of the Project on water quality, water resources and physical characteristics of the water environment including any potential eutrophication impacts. The assessment will be undertaken using a risk based approach to determine the level of potential impacts by using a Source-Pathway-Receptor model to identify which receptors could realistically be impacted by a given action. This will include any sources of pollution that have the potential to impact on surface water bodies.

5.6.8 All aspects of supply, demand and disposal of water and process effluents will be addressed for the construction, operational and decommissioning phases. Furthermore the disposal of surface water drainage and the process effluents will be discussed with a view to maximising the opportunities for water recovery and re-use as far as is practicable.

5.6.9 Potential discharge locations for site surface waters and process waste waters will be identified and a site drainage plan, which may incorporate a sustainable drainage system (SuDS), will be discussed at a high level.

5.6.10 There are not anticipated to be any significant impacts on key water bodies resulting from the Project. The majority of watercourses are a significant distance from the Project Site and therefore will not be directly impacted during construction or decommissioning. It is also not anticipated that water will be directly abstracted or discharged to or from any of these sources during construction, operation or decommissioning of the Power Generation Plant.

5.6.11 Where projects are away from, or unlikely to interact with any water courses, it is likely that a Water Framework Directive (WFD) Report will be scoped out. However, if the Environment Agency does require the inclusion of a WFD Report, it would form an Appendix to the ES.

5.6.12 During construction of the Gas Connection and the Electrical Connection (in the form of an underground cable), best practice working methods will be utilised at all water crossings to ensure that there are no adverse impacts on flow or drainage and that no contamination is allowed to enter the water bodies. Effects during operation and decommissioning are unlikely to occur and therefore have been scoped out.

5.6.13 If an overhead line is used for the Electrical Connection, there will be no need for any permanent water crossings or interaction with water bodies of any kind. However any temporary water crossings required during construction will be assessed.

Potential Mitigation Measures

5.6.14 Mitigation measures will be designed in accordance with BS6031[63], BS8004[64], as CIRIA C649[65] and C648[66]. An outline CEMP will be drafted and appended to the ES which will set out best practice methods of limiting impacts on water quality and resources during construction and decommissioning. Measures would include: siting stockpiles a minimum distance from watercourses to avoid pollution runoff; and adhering to best practice working guidelines to avoid spillages near watercourses.

5.6.15 Where the Gas Connection and Electrical Connection (in the form of an underground cable or construction vehicles during installation of overhead lines) would cross a water body, various crossing techniques would be considered. These may include trenchless techniques such as horizontal directional drilling, particularly for larger water bodies, or temporary bunding and over-pumping where flows are lower.

5.6.16 Additionally, during construction, operation and decommissioning, silt traps and oil interceptors would be placed in drains on site. No untreated surface or waste waters would be allowed to drain into water bodies during construction, operation or decommissioning. SuDS would be used if found to be required.

[63] British Standard Institute (2009) BS 6031:2009 Code of Practice for Earthworks
[64] British Standard Institute (1986) BS 8004: 1986 Code of Practice for Foundations
[65] CIRIA (2006) C649 Control of water pollution from linear construction projects Site Guide
[66] CIRIA (2006) C648 Control of water pollution from linear construction projects Technical Guidance

5.6.17 During all phases of the Project all aqueous process effluents would be discharged via the plant drainage systems in accordance with Environment Agency limits. The use of biocides would be optimised to ensure that the least amount possible is required.

5.6.18 All oil and chemical storage tanks and areas where drums are stored would be surrounded by an impermeable bund sized to contain 110% of capacity. In addition multiple tanks or drums would be within bunds sized to contain the greater of 110% of the capacity of the largest tank or 25% of the total tank's contents.

5.6.19 During operation, the Environment Agency would set limits on the quality of water that is discharged from the Power Generation Plant under an Environmental Permit. The need, or otherwise for further, specific mitigation measures will be determined through the EIA process.

5.7 Geology, Ground Conditions and Agriculture

Introduction

5.7.1 An assessment on the effects on geology, ground conditions and agriculture will consider potentially significant impacts and effects caused by the construction, operation and decommissioning of the Project. It will also detail the baseline conditions in terms of ground and groundwater contamination and the risks posed to human health particularly in relation to future site users.

Baseline

5.7.2 The Power Generation Plant Site and part of the Gas and Electrical Connection Opportunity Areas are located on the site of a former clay extraction pit where the remains of the former conveyor line still exist in part on site, mainly evidenced by concrete plinths along the former route, but also as a conveyor bridge crossing over the railway line to the west of the Power Generation Plant Site, close to Green Lane.

5.7.3 Partial backfilling of Rookery South Pit has been recorded including deposition of non-hazardous liquid organic wastes from a variety of industrial sources. The waste was reportedly mixed with the Callow deposits and pumped, as sludge, into the south eastern quarter of the Rookery North Pit and the north eastern quarter of Rookery South Pit.

5.7.4 Additional fill to the base of Rookery South Pit has also been historically undertaken by placement of variable thicknesses (generally from 1 m to 4 m) of Callow Clay Fill across the base of the pit. These naturally occurring deposits were unsuitable for the brick making process and were cast back into the pit along with brick fragments and other overburden deposits.

5.7.5 Further filling to the base and sides of the Rookery South Pit is also occurring as part of the LLRS. Fill deposits are being sourced from the Oxford Clay Formation to the south of the existing pit and are being placed in the base of the pit in order to achieve falls across the base and facilitate a surface water attenuation scheme. Engineered fill is also being placed

against the northern, eastern and southern sides of the pit, in areas where the current slope gradients require additional buttressing works in order to ensure that long-term stability can be maintained.

5.7.6 The geology underlying the Project Site is composed of valley gravel overlying Oxford Clay Formation, Kellaways Formation and Great Oolite Group. This has led to water bearing strata present below the Project Site within the Blisworth Limestone formation and to a lesser extent the Kellaways Sand and Cornbrash Formation. However the permeability of the overlying Oxford Clay Formation is very low and these deposits therefore effectively act as an impermeable aquiclude, confining the groundwater bodies within the underlying strata.

5.7.7 Outside of Rookery South Pit, the Gas and Electrical Connection Opportunity Areas are located within agricultural fields classified as Grade 3 (good to moderate quality agricultural land)[67], where there is unlikely to be any significant contamination.

Assessment

5.7.8 The assessment will be underpinned by the DEFRA/EA publication Contaminated Land Report 11, 2004, 'Model Procedures for the Management of Land Contamination'[68] and associated subsequent guidance.

5.7.9 The assessment approach will be undertaken with a clear understanding of the following:

- Previous land uses through a review of historical maps;
- Underlying ground conditions through a review of BGS maps, and a review of previous site investigations (where available); and
- Existing physical baseline conditions through a site walkover survey and review of a Landmark Envirocheck Report or equivalent.

5.7.10 The Landmark Envirocheck Report (or equivalent) will identify groundwater vulnerability, sites designated for geological importance, details of any previous pollution events, details of landfills, waste management sites and Control of Major Accident Hazards (COMAH) sites within the Project Site and surrounding area.

5.7.11 A conceptual site model approach will be used to assess the risks posed by contaminants to sensitive receptors using a source, pathway receptor model, based on the following:

- Source – potential source of contamination;

[67] Department for Environment Food and Rural Affairs (1988) Agricultural Land Classification of England. Archive.defra.gov.uk
[68] Department for Environment Food and Rural Affairs and Environment Agency (2004) Contaminated Land Report 11, 2004, "Model Procedures for the Management of Land Contamination

- Pathway – means by which contamination can reach and impact upon a receptor; and
- Receptor – that which may be adversely affected by the presence of contamination.

5.7.12 Desk studies will identify potential environmental and geotechnical liabilities associated with the Project, including an assessment of potential impacts of previous uses of the Project Site and surrounding area. This will enable the identification of any potential environmental and geotechnical risks, and the design of a focussed and cost efficient intrusive investigation (if required).

5.7.13 In undertaking the desk study, all available information on the Project Site and surrounding area will be reviewed to establish local ground conditions and environmental settings. Furthermore, consultation will be held with Central Bedfordshire and Bedford Borough Councils and the Environment Agency to obtain any other environmental records available for the Project Site and to further refine the assessment methodology.

5.7.14 A site walkover will be undertaken of the Project Site and immediate surrounding areas. This will help ensure all potential source, pathway and receptor linkages for potential contamination issues have been identified.

5.7.15 Based on the findings of the desk studies, site walkovers and preliminary risk assessment, recommendations will be provided for any further intrusive investigation work required to satisfy current standards and guidance and fill any data gaps identified to fully inform the assessments of environmental and geotechnical risks or liabilities.

5.7.16 Using the information obtained, suitable remediation strategies will be developed to render the Project Site ready for development. These will include estimates of the types and volumes of waste material that will need to be removed from the Project Site prior to development.

5.7.17 Additionally, an assessment will be made of the amount of agricultural land, if any, that may become sterilised by the Gas and Electrical Connections. Should an overhead Electrical Connection be considered, the same methodology will be used, although it is considered likely that the potential impact on geology, ground conditions and agriculture would be significantly less than for a buried connection.

Potential Mitigation Measures

5.7.18 An outline CEMP will be drafted and appended to the ES which will set out best practice methods of limiting impacts during construction and decommissioning. Embedded mitigation measures would include adherence to good practice guidelines and could potentially involve the following:

- Any additional soil materials that are to be imported to the Project Site would be required to have certification of their chemical concentrations to ensure that contaminative materials are not being introduced to the area;

- In order to further limit disturbance, the site access tracks would be constructed first to allow movement of vehicles around the Project Site on areas of soft-standing;
- Any vegetation, topsoil and subsoil would be removed to expose a suitable sub-grade. Any soils, sub-soils or aggregate suitable for reuse would be stockpiled on impermeable liners;
- Soils which are to be reused onsite would be tested for contamination and geotechnical suitability. This would form part of a site waste management strategy which would be drafted prior to construction and would focus on the re-use, recycling and reduction of waste spoil;
- Surface water, perched waters or groundwater from dewatering operations would not be discharged to surface water bodies, foul or surface water drains without the appropriate consents from the local water or sewage company and/or the Environment Agency. The disposal of this effluent would be the responsibility of the contractor. If necessary, this water would be tanked off-site for disposal at a suitable facility;
- All foundations would be appropriately specified to resist chemical attack from soils or groundwater; and
- Foundations and underground pipelines would also be designed so as not to present a preferential pathway for contaminant migration, if present at the Project Site.

5.7.19 Further, specific mitigation measures could include, for example, remediation of the Power Generation Plant Site, removal of contamination hotspots or further site characterisation and will be determined during the EIA.

5.8 Landscape and Visual Impact

Introduction

5.8.1 A landscape and visual impact assessment will consider potentially significant impacts and effects caused by construction, operation and decommissioning of the Project. The assessment will establish:

- A clear understanding of the Project Site and its wider landscape setting, identifying the landscape character, resources, value and sensitivity to development;
- An assessment of the composition, character and aesthetic value of views from visual receptors including occupiers of residential properties and people using amenity landscapes, and the sensitivity of views;
- The nature of the different development scenarios and mitigation measures; and

- The likely significant direct and indirect effects of the Project on the landscape resource (i.e. landscape elements and character) and on visual receptors.

Baseline

5.8.2 The Power Generation Plant Site and part of the Gas and Electrical Connection Opportunity Areas are located within The Rookery as described in Chapter 3. Rookery North Pit is dominated by a lake. Rookery South Pit is currently a landscape in a state of transition due to the ongoing LLRS. The wetland areas within the base of the pit are currently being drained and the pit is being extended, with the soil won used to stabilise and re-profile the existing pit sides.

5.8.3 The legacy of clay extraction and brick making is reinforced by the former Stewartby brickworks including the cluster of four approximately 50 to 70 m tall chimneys adjoining the pit to the north of Green Lane, remnants of the original conveyor system and discarded brick piles. In addition to the north of The Rookery lies the model village of Stewartby which was built in the 1920s for the workers of The London Brick Company who worked at the nearby brickworks.

5.8.4 To the south and east, the Gas and Electrical Connection Opportunity Areas extend into an area characterised by gently rolling large, open fields, with hedgerow boundaries interspersed with tree groups, and crossed by existing electricity pylons. The Midland Mainline and Marston Vale Line form strong linear boundaries to the eastern and western edges of The Rookery. There is also a newly erected wind turbine to the west within the Marston Vale Millennium Country Park, which is 85 m in height to the hub and 125 m to the blade tip.

5.8.5 Residential receptors within 1 km of the Project Site include those within the nearby settlements of Stewartby, Millbrook, Marston Moretaine, and Ampthill, How End. In addition there are also isolated properties and farmsteads outside of the settlements including but not exclusive to:

- South Pillinge Farm;
- Church Farm and Church Farm Cottages;
- Lower Farm;
- Ossory Farm;
- Park Farm;
- Manor Farm;
- Manor Farm Cottages;
- Road Farm;
- How End Farm;

- Ampthill Park House;
- Field Farm; and
- Houghton Park Residential care home.

Assessment

5.8.6 The assessment will be carried out in accordance to NPS EN-1 using methodology set out in the Guidelines for Landscape and Visual Impact Assessment (Landscape Institute and Institute of Environmental Management and Assessment, 3rd Edition, 2013)[69]. It will include:

- A desk review of all relevant documents and landscape planning policy and guidance;
- A field survey to assess baseline landscape character and visual amenity;
- A description of the key features associated with the Project that have the potential to alter the characteristics of the landscape and visual baseline;
- Appropriate generic and site specific mitigation that is reasonable and possible;
- Assessment of the predicted significance of residual effects on the landscape resource / character and visual amenity and compliance with landscape policy; and
- An assessment of cumulative impacts arising from the Project, in combination with other proposed large scale industrial developments in the locality.

5.8.7 Initially, a Zone of Theoretical Visibility (ZTV) plan will be generated for the Power Generation Plant using specialist software. The ZTV will show a maximum theoretical visibility of the Power Generational Plant and any overhead line towers, should an overhead Electrical Connection be pursued across the surrounding area. The ZTV will be based solely on topography and the proposed height of the plant envelope, and any overhead line towers. No allowance will be made for intervening screening vegetation or buildings, although in practice this tends to have a substantial mitigating effect.

5.8.8 A review of all relevant landscape planning policy will be undertaken. Particular attention will be paid to popular tourist spots and viewpoints, and Public Rights of Way. The nearest Area of Outstanding Natural Beauty is the Chilterns, which is remote from the Project Site and visually separated from the Project Site by an intervening Greensand Ridge and therefore has been scoped out of the assessment.

[69] Landscape Institute and Institute of Environmental Management and Assessment, (2013) Guidelines for Landscape and Visual Impact Assessment, 3rd Edition

5.8.9 The Project will be discussed in detail including dimensions of the larger buildings, the stack heights, and any other ancillary infrastructure that may have an impact on the landscape.

5.8.10 To assist in the impact assessment, a site visit will be made by a qualified Chartered Landscape Architect, who will assess the study area in detail. Additionally, and following consultation with relevant stakeholders, a selection of photomontages will be taken from key sensitive viewpoints (e.g. residential receptors, designated ecological sites, cultural heritage assets and key rights of way). Suggested viewpoint locations for photomontages for consultation are:

- View south west from Stewartby Way, Stewartby;
- View south east from Marston Vale Forest Centre;
- View north from Sandhill Close, Millbrook;
- View north west from Katherine's Cross, Ampthill Park;
- View north west from steps to rear elevation, Houghton House;
- View north west from track in front of cottages, Houghton House;
- View north from track in front of Ampthill Park House;
- View north west from Marston Vale Trail where it crosses B530 Bedford Street by Laurel Wood north of Ampthill;
- View west from footpath in front of Chequers Public House;
- View south west from the rear of the Common Room, Stewartby;
- View south from the rear of the Village Hall, Stewartby;
- View east from the rear of St Mary's Church, Marston Moretaine; and
- View south from the village green, Stewartby.

5.8.11 Photomontages will be produced with reference to 'Photography and photomontage in landscape and visual impact assessment Landscape Institute Advice Note 01/11'[70]. The photomontages will show a representation of how the Project would be viewed within the landscape and will be used to illustrate the potential impact of the Project.

5.8.12 Given that the majority of the Gas Connection would be underground, the landscape and visual impact assessment for this element of the work will focus solely on the impact of the AGI and the impacts and effects that will result from the construction phase.

[70] Landscape Institute (2011) Photography and photomontage in landscape and visual impact assessment Landscape Institute Advice Note 01/11

5.8.13 As for the Gas Connection, if the underground Electrical Connection is carried forward, then the LVIA for this element of the work will focus solely on the impacts resulting from the presence of the substation and SEC(s) if required and the impacts and effects that would result from the construction phase.

5.8.14 If an overhead line is taken forward, the assessment will follow the standard LVIA methodology as described above, but will make reference to the Holford and Horlock Rules where appropriate.

Potential Mitigation Measures

5.8.15 An outline CEMP will be drafted and appended to the ES which will set out best practice methods of limiting impacts during construction and decommissioning. Embedded mitigation measures would include the careful consideration of siting stockpiles and cranes to avoid detrimental impacts on the visual amenity of closest receptors.

5.8.16 During operation, the main embedded mitigation measures would be the careful siting and arrangement of the: Power Generation Plant; AGI for the Gas Connection; and an overhead line, substation and SEC(s) for the Electrical Connection, if required. The final architectural design of the buildings and upstanding structures would be carefully considered to provide a high standard of visual amenity, given practical and economic constraints.

5.8.17 Further, detailed mitigation measures could include the consideration for onsite or off-site planting to screen views of the Power Generation Plant.

5.8.18 Due regard will be paid to NPS EN-1, EN-2, and EN-5 and the guidance they provide on 'good design' in relation to the Gas and Electrical Connections and include (to the extent relevant in the case of an underground connection for the Gas and Electrical Connection):

- Avoid altogether, if possible, the major areas of highest amenity value, by planning the general route of the line in the first place, even if total mileage is somewhat increased in consequence;
- Avoid smaller areas of high amenity value or scientific interest by deviation, provided this can be done without using too many angle towers, i.e. the bigger structures which are used when lines change direction;
- Other things being equal, choose the most direct line, with no sharp changes of direction and thus with fewer angle towers;
- Choose tree and hill backgrounds in preference to sky backgrounds wherever possible. Where a line has to cross a ridge, secure this opaque background as long as possible, cross obliquely when a dip in the ridge provides an opportunity. Where it does not, cross directly, preferably between belts of trees;

- Prefer moderately open valleys with woods where the apparent height of towers will be reduced, and views of the line will be broken by trees;
- Where country is flat and sparsely planted, keep the high voltage lines as far as possible independent of smaller lines, converging routes, distribution poles and other masts, wires and cables, so as to avoid a concentration of lines or 'wirescape'; and
- Approach urban areas through industrial zones, where they exist; and when pleasant residential and recreational land intervenes between the approach line and the substation, carefully assess the comparative costs of going underground.

5.9 Traffic, Transport and Access

Introduction

5.9.1 An assessment on the effects on traffic, transport and access will consider potentially significant impacts and effects caused by the construction, operation and decommissioning of the Project.

5.9.2 The main impacts of the Project on traffic, transport and access would occur during construction and decommissioning resulting from the movement of vehicles for the transport of personnel, equipment and materials to and from the Project Site. The transport of abnormal loads, which may lead to delays and cause inconvenience to other road users, would be timed following consultation with the relevant authorities to minimise disruption to the other road users.

5.9.3 Normal activities during operation would result in fewer traffic movements and would be associated with personnel required for operation and maintenance of the Project. As such, during operation no significant increase in traffic in the area of the Project Site is expected, and no effect on local traffic patterns and infrastructure would therefore be anticipated.

Baseline

5.9.4 It is likely that access to the Power Generation Plant Site would be from Junction 13 of the M1 via the A421, Bedford Road, Green Lane. The location of the roads are shown on Figures 1 and 2.

5.9.5 Two options are being considered in regards to accessing the Gas and Electrical Connection Opportunity Areas. The first option is from Junction 13 of the M1 via the A507, Sandhill Close, Houghton Lane, Millbrook Road and the B530 Ampthill Road. The second option is from Bedford Road, via Woburn Road, Manor Road, B530 Ampthill Road and Millbrook Road. The chosen route will be confirmed and described in the detail in the ES.

Assessment

5.9.6 The assessment will be undertaken in accordance with the 'Guidance on Transport Assessment' published by the Department for Transport[71] and will assess the likely significant impacts of the Project on the local road network.

5.9.7 Comparisons between existing traffic flows and estimates of likely traffic flows on potentially affected roads will be made to help establish whether significant effects are likely. This will take into account: the sensitivity of receptors and resources likely to be affected; any potential for disruption to local routes; and any changes in the composition of traffic. If considered necessary, traffic surveys will be undertaken which will further quantify the number of vehicle movements on the existing road network in the vicinity of the Project Site.

5.9.8 The majority of the proposed access routes are 'main roads' that do not have pavements for pedestrian use. Nonetheless, the traffic assessment will also take full account of the potential impact on pedestrians, and will ensure that pedestrians and other road users (cyclists) are not cut off from amenity areas as a result of the works.

5.9.9 The assessment will consider the following: access and construction routes and the types of vehicles used; local highway and rail networks; existing traffic flows; current traffic generation; road traffic accident information; predicted traffic trends; local highway improvements and planned works; and, potential receptors. The full appraisal will be presented (if appropriate) in a Transport Assessment which will be accompanied by a draft Construction Traffic Management Plan.

5.9.10 Discussions will be held with the Highways Agency, Bedford Council and Central Bedfordshire Council to identify any existing issues relating to traffic in the area. Information will also be sought on future development projects in the area that could give rise to a significant cumulative impact when considered in conjunction with the Project.

Potential Mitigation Measures

5.9.11 An outline CEMP will be drafted and appended to the ES which will set out best practice methods of limiting impacts during construction and decommissioning. Opportunities for reducing traffic movements will be explored, such as car share schemes or shift working (i.e. not all construction traffic arriving at site at once).

5.9.12 Details of the proposed measures to improve access by public transport, walking and cycling will be provided for the operational phase.

[71] Department for Transport (March 2007) Guidance on Transport Assessment

5.10 Cultural Heritage and Archaeology

Introduction

5.10.1 An assessment on the effects on cultural heritage and archaeological assets will consider potentially significant impacts and effects caused by the construction, operation and decommissioning of the Project.

Baseline

5.10.2 The Power Generation Plant Site and part of the Gas and Electrical Connection Opportunity Areas are located within The Rookery. Within Rookery South Pit, as a result of the former excavation of the pits associated with the Brickworks and the subsequent LLRS earth moving activities there is likely to be limited potential for archaeology within the Power Generation Plant Site or Gas and Electrical Connection Opportunity Areas where they lie within The Rookery.

5.10.3 In contrast the Gas and Electrical Connection Opportunity Areas beyond Rookery South Pit are located primarily within agricultural land where there remains the potential for impacts on the buried archaeological resource, as it is likely that these parts of the Gas and Electrical Connections would be constructed in previously un-developed agricultural land.

5.10.4 The following cultural heritage assets are located within 5 km of the Project Site:

- Houghton House: a 17th century mansion and associated courtyard and formal garden remains Scheduled Monument;
- Ampthill Castle: a medieval magnate's residence Scheduled Monument;
- Pump and sign post in Market Place, Ampthill Scheduled Monument;
- Moated site, three fishponds, two trackways and field system at Moat Farm, Cranfield Scheduled Monument;
- Moated site at Wakes End Scheduled Monument;
- Moated site at Ruxox Farm, north east of Flitwick Scheduled Monument;
- Moated site and two fishponds at the Rectory, Houghton Conquest Scheduled Monument;
- Moat Farm moated enclosure and associated settlement earthworks, Marston Moretaine Scheduled Monument;
- Long Barrow 350m south east of Bury Farm Scheduled Monument;
- Bowl Barrow 500m southeast of Bury Farm Scheduled Monument;
- Kempston Hardwick moated site Scheduled Monument;

- Medieval village and moated sites at Thrupp End Scheduled Monument;
- Bolebec Farm moated enclosure, associated platforms and enclosures, Maulden Scheduled Monument;
- All Saint's Church, Segenhoe Scheduled Monument;
- Ringwork at The Round House, Brogborough Park Farm Scheduled Monument;
- Malting Spinney medieval moat, associated outer enclosure and cultivation earthworks, Ridgmont Scheduled Monument;
- The Mount: a motte and bailey castle Scheduled Monument;
- The De Grey Mausoleum Scheduled Monument;
- The De Grey Mausoleum adjoining Church of Saint John The Baptist Grade I Listed Building;
- Church of Saint John The Baptist Grade I Listed Building;
- 101 Dunstable Street, Ampthill Grade I Listed Building;
- Church of All Saints, Houghton Conquest Grade I listed Building;
- Church and Church Tower of St Mary the Virgin, Marston Moretaine Grade I Listed Buildings;
- Parish Church of St Andrew, Ampthill Grade I Listed Building;
- Ruins of Houghton House, Houghton Park Grade I Listed Building;
- Segenhoe Manor, Ridgmont Grade II* Listed Building;
- Old Church of All Saints, Ridgmont Grade II* Listed Building;
- Parish Church of All Saints, Wilstead Grade II* Listed Building;
- Avenue House, 20 Church Street, Ampthill Grade II* Listed Building;
- 34 Church Street (Dynevor House), Ampthill Grade II* Listed Building;
- 37 Church Street, Ampthill Grade II* Listed Building;
- Park House, Ampthill Park Grade II* Listed Building;
- Moat Farmhouse, Marston Moretaine Grade II* Listed Building;
- Church of St Michael, Millbrook Grade II* Listed Building;
- Ampthill Park Grade II Registered Park and Garden;
- Ampthill Conservation Area;

- Millbrook Conservation Area;
- Steppingley Conservation Area;
- Maulden Conservation Area;
- Wootton Conservation Area;
- Ridgemont Conservation Area;
- Flitton Conservation Area; and
- Stewartby Conservation Area.

5.10.5 In addition there are 219 Grade II Listed Buildings within 5 km of the Project Site. They include South Pillinge Farmhouse, which is located approximately 90 m to the west of the Project Site. There are also 49 records for undesignated cultural heritage assets within 5 km. These include standing buildings, earthworks, parks and areas of ancient woodland, sites of structures known only from documentary sources, sub-surface archaeological remains, sites recorded only as cropmarks and isolated findspots.

Assessment

5.10.6 In accordance with NPS EN-1, the objectives of this assessment are to:

- Describe the survival and extent of any archaeological features that may be disturbed by the construction, operation and decommissioning of the Project;
- Provide an assessment of the importance of these assets;
- Assess the likely scale of any impacts on the cultural heritage and archaeological resource posed by the construction, operation and decommissioning of the Project;
- Outline suitable mitigation measures to prevent, reduce and where possible offset any significant adverse effects; and
- Provide an assessment of any residual effects remaining after mitigation.

5.10.7 Initially, a Desk Based Assessment (DBA) will be undertaken, and will include the following detailed searches:

- The National Heritage List for England contains an archive for the historic environment of England and hosts an online search facility;
- Historic Mapping;
- Conservation Areas and Historic Landscape Characterisation; and
- Historic Environment Records (HER).

5.10.8 The DBA will be undertaken in accordance with 'Standard and Guidance for Archaeological Assessments' (Institute for Archaeologists, 2011)[72].

5.10.9 It is proposed that initially, searches are limited to 1 km from the Project Site for HER entries for archaeology as the Project will potentially impact archaeology within the development footprint and the immediate surroundings. The 1 km Study Area provides the opportunity to better understand the context of any archaeology present within the development footprint.

5.10.10 As part of the DBA, a site inspection will be undertaken of the Project Site to identify any previously unknown archaeological features and their condition. During the site inspection a detailed photographic record will be maintained and an assessment of the setting of the cultural heritage assets will be undertaken.

5.10.11 In order to gather baseline cultural heritage setting data for inclusion in the DBA, and to undertake an assessment of the potential impacts that the Project may have on the setting of any above ground remains, selected cultural heritage assets will be visited. This will follow an initial study making reference to the results of desk-based research, and the ZTV - including searches of the records listed above. Assets will be visited where this initial study indicates potential for significant impacts. Both the asset and its surrounding area will be visited to identify locations that might be relevant to the asset's setting.

5.10.12 For the purposes of the setting study, the following cultural heritage assets will be considered:

- Scheduled Ancient Monuments;
- Listed Buildings;
- Registered Parks and Gardens;
- Registered Battlefields;
- World Heritage Sites; and
- Any other non-scheduled building which is considered to be important in terms of cultural heritage and archaeological significance.

5.10.13 It is proposed that the search area for these cultural heritage assets will be limited to 5 km from the Project Site, as significant impacts on setting are unlikely to occur beyond 5 km. However, should significant impacts be identified at 5 km, then the search area will be expanded accordingly.

5.10.14 The following factors are also considered to be relevant when assessing impacts upon setting:

- Visual dominance;

[72] Institute for Archaeologists (2011) Standard and Guidance for Archaeological Assessments

- Scale;
- Intervisibility;
- Vistas and sight lines;
- Movement and light; and
- Unaltered settings.

5.10.15 The DBA will form the baseline data for the Cultural Heritage and Archaeology chapter of the ES. The ES will discuss the nature and location of all cultural heritage and archaeological sites within the study area. Further to this, the ES will provide an assessment of the significance of any impacts to the cultural heritage and archaeology sites.

5.10.16 At this stage, no intrusive investigations are proposed for cultural heritage or archaeological purposes, although this will be confirmed (or otherwise) based on the findings of the DBA, and in consultation with the English Heritage, Central Bedfordshire Council and Bedford Borough Council. Should intrusive investigations be necessary, their scope will be agreed with the Planning Archaeologist through a Written Scheme of Investigation (WSI).

Potential Mitigation Measures

5.10.17 Prior to construction, the nature and extent of archaeology present at the Project Site and surrounding areas will be established. However, should any archaeological remains be found during construction, work will be halted and advice sought from the Planning Archaeologist. Where necessary, recommendations will be made for a mitigation strategy to preserve in-situ or if not practicable to preserve by record any significant archaeological assets. The ES will also include a mitigation strategy for any significant impacts to listed buildings and other above – ground assets.

5.10.18 During operation, there may be an opportunity to provide screen planting, should the Project give rise to any adverse impacts on above ground heritage assets.

5.11 Socio-Economics

Introduction

5.11.1 An assessment on the effects on socio-economics resulting from the Project will be undertaken and reported in the ES. This will consider potentially significant impacts and effects caused by the construction, operation and decommissioning of the Project on socio-economic resources and receptors in and around the vicinity of the Project Site.

5.11.2 At its peak, the construction and decommissioning phases are expected to employ between 150 and 250 personnel. Subject to procurement rules, it is anticipated that as much as possible of these workforces would be recruited locally.

5.11.3 Operation of the Generating Equipment would require up to 15 full time staff over the lifetime of the Project working in shifts, which means that less than 15 people will be on site at any one time during normal operations. In addition there would be further indirect jobs for contracted engineering staff during regular maintenance shutdowns and maintenance of the Gas and Electrical Connections.

5.11.4 The total capital cost of the Project is anticipated to be in the order of £200 million. Up to approximately 35% of this will be construction, civil and fabrication work which would be open to tender from companies in the area.

5.11.5 During construction and decommissioning, workers from outside of the local area would require places to stay, and regular sustenance, delivering benefits to local businesses and services. In addition the Project would also represent an additional income source to the local economy during the operational phase in terms of local employment and the use of local services and suppliers.

Baseline

5.11.6 The Rookery and surrounding area has a long history in industry relating to the extraction of clay and the production of bricks while to the south of The Rookery the area has a long history of agriculture.

5.11.7 The unitary authority of Central Bedfordshire was formed on 1st April 2009. It was created from the merger of Bedfordshire County Council and Mid Bedfordshire and South Bedfordshire District Councils. The population in 2011 was 254,381[73]. The population in the unitary authority of Bedford Borough in 2011 was 157,479[74]

5.11.8 In 2011 55% of the total population of Central Bedfordshire and 52% in Bedford Borough were in employment compared to 51% for the rest of Great Britain[75]. The key sources of employment in 2011 were[76]:

- Wholesale and retail trade; repair of motor vehicles and motor cycles -17% in Central Bedfordshire and Bedford Borough;
- Education - 11% in Central Bedfordshire and Bedford Borough;
- Manufacturing - 10% in Central Bedfordshire and 8% in Bedford Borough;
- Construction - 10% in Central Bedfordshire and 8% in Bedford Borough; and
- Human health - 10% in Central Bedfordshire and 12% in Bedford Borough.

[73] http://www.neighbourhood.statistics.gov.uk Key figures for 2011 Census: Key Statistics.
[74] http://www.neighbourhood.statistics.gov.uk Population Density, 2011 (QS102EW)
[75] http://www.neighbourhood.statistics.gov.uk Economic Activity, 2011 (KS601EW)
[76] http://www.neighbourhood.statistics.gov.uk Industry, 2001 (KS605EW)

5.11.9 There are several visitor or tourist attractions within Central Bedfordshire and Bedford Borough including: Center Parcs – Woburn Forest; Dunstable Downs; Wardown Park Museum; Woburn Abbey; Woburn Safari Park and Whipsnade Zoo. The nearest attraction is Marston Vale Millennium Country Park approximately 50 m to the west of the Project Site.

Assessment Methodology

5.11.10 In accordance with NPS EN-1 paragraph 5.12.3 the assessment will consider all relevant socio-economic impacts such as tourism, influxes of workers, and cumulative impacts.

5.11.11 There is currently no established EIA methodology for the assessment of socio-economic impacts. To assess the socio-economic impacts the 'Guidelines and Principles for Social Impact Assessment' (May 1994) produced by the Interorganizational Committee on Guidelines and Principles for Social Impact Assessment[77] will be used.

5.11.12 The study area will extend to cover the immediate area of Central Bedfordshire and Bedford Borough and the wider area of eastern England, in order to assess the likely effects that may be experienced within the local community.

5.11.13 The methodology for the socio-economic impact assessment will be based on the collection of a wide range of data and information from published materials, plus consultation with the local authority and key stakeholders. Key information to be consulted will include:

- Population characteristics (population dynamics);
- Community and institutional structures (employment, training, skills and qualifications, economic investment, business development and equal opportunities);
- Individual and family changes (perceptions of risk, attitudes towards the Project, social well-being); and
- Community resources (security, access to local amenities and Public Rights of Way (PRoWs)).

Potential Project Enhancements

5.11.14 During construction, operation and decommissioning an effort will be made to use local goods and services wherever possible.

[77] Interorganizational Committee on Guidelines and Principles for Social Impact Assessment (May 1994) Guidelines and Principles for Social Impact Assessment

6 Summary and Conclusions

6.1.1 This report sets out the proposed scope and content of the EIA to support the DCO Application for the development of a Power Generation Plant with a capacity of up to 299 MW with its associated Gas and Electrical Connections in Central Bedfordshire and Bedford Borough. It has been prepared in order to support a request for a Scoping Opinion from the SoS under regulation 8 of the EIA Regulations.

6.1.2 The following topics have been scoped into the assessment:

- Air Quality;
- Noise and Vibration;
- Ecology;
- Water Quality and Resources;
- Geology, Ground Conditions and Agriculture;
- Landscape and Visual;
- Traffic, Transport and Access;
- Cultural Heritage and Archaeology; and
- Socio-Economics.

6.1.3 In view of the above, and on behalf of the SoS, PINS is requested to provide a Scoping Opinion on the possible significant environmental effects of all elements of the Project, the proposed methodologies to assess the impacts, and the proposed structure of the ES.

6.1.4 PINS and other consultees are also invited to highlight any additional issues that they believe should be addressed within the EIA, and to identify any sources of information that may be of interest to MPL and the EIA team.

Appendix 1: Ecological Appraisal

BSG | ecology

Millbrook Power Project, Bedfordshire

Ecological Appraisal

BSG | ecology

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Client	Stag Energy
Job	Millbrook Power Project, Bedfordshire
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	Name	**Position**	**Date**
Originated	Stephen Foot	Senior Ecologist	06 March 2014
Reviewed	Jim Fairclough	Principal Ecologist	06 June 2013
Approved for issue to client	Jim Fairclough	Principal Ecologist	07 June 2013
Issued to client	Stephen Foot	Senior Ecologist	07 March 2014
Revised report issues to client	Jim Fairclough	Principal Ecologist	17 April 2014

Contents

1 Summary

1.1 Millbrook Power Limited (MPL) is promoting a new thermal generating station (hereafter referred to as the 'Power Generation Plant') on land within the Rookery Clay Pit County Wildlife Site (CWS) between Bedford and Ampthill in Central Bedfordshire, England (approximately grid reference 501373, 240734).

1.2 The Power Generation Plant would operate as a Simple Cycle Gas Turbine (SCGT) peaking plant and would be designed to provide an electrical output of up to 299 Megawatts (MW). It would be fuelled by natural gas, supplied by a new underground gas pipeline connecting the thermal generating station to the existing National Transmission System (NTS).

1.3 The Survey Site (Figures 1a, 1b) for the Project covers an area of approximately 162ha of farmland and the southern extent of the Rookery Clay Pit CWS, a disused clay extraction pit (Rookery Clay Pit) within the Marston Vale in Bedfordshire. The closest settlements to the Survey Site are Stewartby to the north, Marston Moretaine to the west and Millbrook to the south. The Survey Site predominantly comprises farmland (arable and improved grassland) but also includes woodland parcels, native hedgerows and a number of water-bodies. The north of the Survey Site encroaches into the Rookery Clay Pit CWS.

1.4 BSG Ecology has been appointed to undertake preliminary ecology survey work for the Survey Site, which includes a desk study and Extended Phase 1 Habitat survey. This preliminary ecological assessment will inform the subsequent need for further, targeted surveys of protected and otherwise notable species and habitats.

1.5 The desk study undertaken in support of this assessment identified the presence of seven nationally designated Sites of Special Scientific Interest (SSSI) within a 5km radius of the Survey Site. The closest of these is Cooper's Hill SSSI located approximately 550m to the south-east of the south-eastern corner of the Survey Site. This site is designated for its extensive heathland situated on acidic soil. In addition to this there are two Local Nature Reserves (LNRs) within a 5km radius of the Survey Site. The closest of these is Flitwick Wood LNR located approximately 3.3km to the south of the Survey Site. This site comprises an area of ancient woodland supporting a diverse botanical assemblage.

1.6 A total of 12 non-statutory designated CWSs are present within a 2km radius of the Survey Site. The closest of these is Rookery Clay Pit CWS, which covers a proportion of the northern extremity of the Survey Site. The pit consists of three large pools with sparse ephemeral/short perennial vegetation and rank neutral grassland in the north-western corner.

1.7 The desk study also highlighted the presence of a number of protected species and species of conservation importance within a 2km radius of the Survey Site. These included invertebrates, amphibians, reptiles, nesting birds, bats, badgers, water voles, hedgehogs, brown hare and harvest mice. All of these species groups may be associated with the habitats found on site.

1.8 The extended Phase 1 habitat survey found the Survey Site to predominantly comprise intensively managed arable land and improved grassland. Other habitats present included semi-natural broadleaved woodland, plantation broadleaved and mixed woodland, standing water, running water (ditches), dense continuous scrub, tall ruderal vegetation, semi-improved grassland and species-poor hedgerows. The habitats present on site have the potential to support roosting, foraging and commuting bats, foraging and sheltering badgers, water voles, brown hare, harvest mice, nesting birds, foraging and sheltering reptiles, breeding amphibians (including great crested newts) and amphibians in their terrestrial phase, and (especially to the periphery) a diverse range of invertebrates.

1.9 Further consultation is required with the local Statutory Consultees in order to assess the possible impacts that the Project could have upon statutory and non-statutory designated sites present in the local area, and to agree the exact scope of further survey work. Notwithstanding this, a series of recommendations are made, based on likely requirement for surveys of protected and otherwise notable species that may be affected by the Project.

1.10 It is recommended that target notes and the Phase 1 Habitat map are updated in the summer of 2014 (June - July) in order to gain a comprehensive botanical species list and allow accurate characterisation of the habitats present.

1.11 Further survey for the following species - species groups has been recommended in order to obtain a robust ecological baseline for the Project Site upon which the impacts of the Project can be assessed:

- Bats – Ground level tree assessment and external building inspections (of buildings that could be affected directly or indirectly by the Project) to search for the potential for and evidence of roosting bats. Subsequent dusk emergence / dawn return to roost surveys should roosting potential or evidence be found. Bat activity transect surveys should also be undertaken to establish the usage of the Survey Site by bats and the relative levels of activity throughout the Survey Site.
- Badgers – Further detailed investigation of woodlands and hedgerows to search for signs of badger activity and active badger setts.
- Water voles – A search for signs of water vole activity including burrows, latrines and feeding remains within the ditch network and water-bodies present on site;
- Birds – A breeding bird survey to determine the assemblage of birds nesting on site in order to establish which areas are of most importance to nesting birds. An inspection of the buildings (with the potential to be impacted by the Project) present to search for signs of nesting and roosting barn owls.
- Great crested newts – A survey of all water-bodies on site and within a 250m radius of the Survey Site to determine the presence/absence of this species and the population size present.
- Reptiles – A survey of all suitable habitat (unmanaged field margins, dense scrub and tall ruderal vegetation) to determine the species present and population size.
- Invertebrates – Aquatic and terrestrial invertebrate surveys to determine the assemblage of scarce and notable species present and to determine which areas of the Survey Site are of most importance to these species. If any watercourses are to be lost or should a Water Framework Directive compliance assessment be required, aquatic invertebrate surveys may also be necessary to determine ecological quality.

2 Introduction

Site Description

2.1 The Phase 1 Habitat Survey Site (hereafter referred to as the 'Survey Site'), in which the Project would be located, comprises approximately 162 ha of farmland and the southern extent of the Rookery Clay Pit County Wildlife Site (CWS) within the Marston Vale in Bedfordshire. The Survey Site is centred at National Grid Reference 501373, 240734. The nearest towns/villages are Stewartby to the north, Marston Moretaine to the west and Millbrook to the south.

2.2 The Survey Site is dominated by arable land and improved grassland for the majority of its extent and encroaches into Rookery Pit which is part of the Rookery Clay Pit CWS in the north of the Survey Site. Some ecologically valuable habitats are present including parcels of semi-natural broadleaved woodland, native hedgerows and a number of water-bodies. The Survey Site is bordered by railway lines on its eastern and western boundaries with arable land present to the east. The Survey Site boundary is shown on Figure 1. Photographs of the Survey Site are found in Appendix 1.

Description of Project

2.3 MPL is promoting a new thermal generating station (hereafter referred to as the Power Generation Plant) within the southern half of the Rookery Clay Pit CWS. The Power Generation Plant would operate as a Simple Cycle Gas Turbine (SCGT) peaking plant and would be designed to provide an electrical output of up to 299 Megawatts (MW). It would be fuelled by natural gas, supplied by a new underground gas pipeline connecting the thermal generating station to the existing National Transmission System (NTS). The Electrical and Gas Connection routes will extend south from the base of the pit, from the Power Generation Plant, into the adjacent arable farmland area close to the north of the village of Millbrook.

2.4 BSG Ecology has been appointed as the ecological consultant to undertake a preliminary ecology survey, which includes a desk study and Extended Phase 1 Habitat Survey. This preliminary ecological survey will inform the subsequent need for further, targeted surveys of protected and otherwise notable species and habitats. These baseline surveys will be included in an appendix to an ecology chapter of an Environmental Statement, which is presently intended for submission, as an integral part of the Development Consent Order (DCO) application.

Aims of Study

2.5 BSG Ecology was commissioned to undertake an ecological appraisal of the Survey Site within which the Project would be located, comprising a desk study, an extended Phase 1 habitat survey and a Habitat Suitability Index (HSI) assessment of nearby water-bodies (within a 250m radius of the Survey Site where access allows). The main aims of this report is to:

a. Present the findings of the desk study and site surveys;

b. Assess the potential for the Survey Site to support protected or otherwise notable species;

c. Set out the legislative and/or policy protection afforded to any habitats present or any species potentially associated with the Survey Site; and

d. Provide recommendations for any further surveys to inform a subsequent ecology baseline chapter.

3 Methods

Desk Study

3.1 Existing ecological information for the Survey Site and its surrounding area was requested from the Bedfordshire and Luton Biodiversity Recording and Monitoring Centre (BRMC). Information on statutory designated sites were requested covering the Survey Site and land up to 5km from the Survey Site boundary, and information regarding non-statutory designated sites, protected species and species of conservation importance were requested covering the Survey Site and land up to 2km from the Survey Site boundary. In this case, species of conservation importance were defined as species listed in accordance with Section 41 of the Natural Environment and Rural Communities (NERC) Act. In addition, on-line resources including the Multi Agency Geographic Information for the Countryside (MAGIC, www.magic.gov.uk) website and aerial photography of the area were also reviewed.

3.2 This information was supplemented by previous survey and mitigation work undertaken by BSG Ecology on The Rookery Clay Pit CWS including land within and immediately north of the Survey Site (PBA, 2009; BSG Ecology, 2013).

Field Survey

3.3 The field survey was undertaken by Stephen Foot MCIEEM and Dr Jessica Frame MCIEEM on 25th February 2014. Habitats within the Survey Site were identified and described following standard Joint Nature Conservation Committee (JNCC) Phase 1 habitat survey methodology as detailed in the Phase 1 Habitat Survey Handbook (JNCC, 2010). This uses a system of codes to describe different habitat types based on the dominant vegetation present, which are recorded through the preparation of habitat maps and target notes. All plant names in this report follow *The New Flora of British Isles* (Stace, 2010).

3.4 The survey was extended to give particular consideration to the potential of the habitats present to support protected species or species of conservation importance which were recorded as incidental information as part of the target notes.

3.5 It should be noted that species lists derived from the target notes are not necessarily an exhaustive inventory of all species occurring at a site. They are intended to illustrate the character of habitats present, general species richness of a particular area, and draw attention to any species that may be considered uncommon or unusual.

3.6 Weather conditions on the day were overcast and showery. This did not impede the survey.

Habitat Suitability Index (HSI) Assessment for Great Crested Newts

3.7 During the field survey a HSI assessment of all ponds / water-bodies within a 250m radius of the Survey Site (where access was possible) was undertaken. A 250m search radius was favoured over 500m based on a number of factors. Firstly, there are many suitable water-bodies in the surrounding landscape (up to 250m from the Survey Site) yet very few beyond this, therefore suggesting a lack of connectivity between such ponds (clustering) and limited associated dispersal of great crested newts into the wider landscape. Secondly, ponds between 250m to 500m from the site are primarily located at the Vehicle Proving Ground, which are surrounded by good terrestrial habitat and therefore it is unlikely that great crested newts would be drawn onto the Survey Site to use terrestrial features. Thirdly, there is a wealth of extensive existing knowledge of great crested newt populations in the local area (to the north of the Survey Site in particular) so there is no contextual requirement to gather more detail than necessary concerning likely population status of great crested newts in the vicinity of the Survey Site.

3.8 Information on the physical features and characteristics of each pond were collected in order to allow a great crested newt HSI score to be derived for each pond by applying the scoring system developed by Oldham *et al.* in 2000 and updated by the Herpetological Conservation Trust in 2008 (HCT, 2008). The Suitability Index is calculated by allocating scores to features associated with each pond; these include size, quality of surrounding habitat and presence of fish. These scores are then used to calculate the overall HSI for each pond as a number between 0 and 1, with 0

being the least suitable and 1 being the most suitable. The HSI score allows each pond to be placed in one of five pre-defined categories defining its suitability for great crested newts as follows:

- <0.5 = poor
- 0.5 – 0.59 = below average
- 0.6 – 0.69 = average
- 0.7 – 0.79 = good
- >0.8 = excellent

Limitations to Methods

3.9 Although records secured through the desk study and supplied by third parties provide useful background information for initial ecological assessment, they often comprise individual records supplied by members of the public or are the result of *ad hoc* surveys. The data trawl information can therefore help to inform the likelihood of a particular species being present in the area, but should not be relied upon to definitively determine presence or absence of individual species.

3.10 The site visit was undertaken at a sub-optimal time of year for a survey of this type (February, 2014). However, given the location and overall land use across and adjacent to the Survey Site, there is no concern with regard to rare habitats or species. Sufficient vegetation, basal rosettes, dead flowering parts and leaves were present to identify most of the species present with some confidence. In addition, a robust assessment of the Survey Site's potential to support protected species could also be made. Therefore, it is considered that the timing of this survey in this instance is not a significant constraint with regard to the findings of this assessment. It will also be possible to update the target notes for Extended Phase 1 Habitat survey, as appropriate, as other surveys are conducted during more seasonal times of the year.

4 Results and Interpretation

4.1 In this section the results of the desk study and fieldwork are brought together. The implications of these results are then considered.

Designated Sites

Statutory Designated Sites

4.2 There are seven nationally designated Site of Special Scientific Interest (SSSI) located within 5km of the Survey Site boundary. The closest of these is Cooper's Hill SSSI, (grid reference: TL028376) which covers an area of 18.06ha and is located approximately 550m to the south-east of the Survey Site. This site is designated for its extensive heathland situated on acidic soil. The site also contains springs that form wet flushes supporting rich marsh plant communities. A small acidic mire (a rare habitat in Bedfordshire) is also present. The site supports a diverse invertebrate fauna.

4.3 In addition to this there are also two Local Nature Reserves (LNRs) within a 5km radius of the Survey Site. The closest of these is Flitwick Wood LNR located approximately 3.3km to the south of the Survey Site. This site comprises an area of ancient woodland supporting a diverse botanical assemblage. The remaining statutory designated sites present within a 5km radius of the Survey Site are outlined in Table 1 in Appendix 2. The locations of these statutory designated sites are shown on Figure 1a and 1b (produced and provided by the BRMC).

Non-statutory Designated Sites

4.4 A total of 12 non-statutory designated County Wildlife Sites (CWSs) are present within a 2km radius of the Survey Site. The closest of these is Rookery Clay Pit CWS, which covers a proportion of the northern extremity of the Survey Site. The pit consists of three large pools with sparse ephemeral/short perennial vegetation and rank neutral grassland in the north-western corner. Small patches of marsh vegetation are also present throughout the site. A broadleaved plantation is present in the centre of the Rookery Clay Pit CWS.

4.5 A single Roadside Nature Reserve (RNR) is also present. Marston Bypass RNR is located approximately 2km to the west of the Survey Site and consists of a road verge sown with wildflower seeds. The remaining sites are described in Table 2 in Appendix 2 with their locations shown in Figure 1b (produced and provided by the BRMC).

Habitats

4.6 The following Phase 1 habitat types were recorded within the Survey Site during the survey:

- Semi-natural broadleaved woodland;
- Plantation broadleaved woodland;
- Plantation mixed woodland;
- Scattered broadleaved trees;
- Dense continuous scrub;
- Tall ruderal vegetation;
- Tall ruderal vegetation, semi-improved grassland and scattered scrub mosaic;
- Standing water;
- Running water;
- Arable;
- Semi-improved neutral grassland;
- Improved grassland;

- Amenity grassland;
- Species-poor hedgerow;
- Species-poor hedgerow with trees;
- Species-poor defunct hedgerow;
- Buildings; and
- Hard-standing.

4.7 The distribution of these habitats is shown on Figure 1 with summary descriptions given below. Dominant or characteristic flora is described together with notes on the relative abundance of floral species within the context of each habitat parcel. Target notes (TNs) referred to in the text below and on Figures 2a and 2b are provided in Appendix 3 with photographs provided in Appendix 6.

Semi-natural broadleaved woodland

4.8 Three parcels of semi-natural broadleaved woodland were identified during the field survey. The first of these borders the rail corridor adjacent to the southern boundary of the Survey Site (see TN1 on Figure 2b). The canopy layer of this woodland parcel is dominated by pedunculate oak *Quercus robur* and poplar *Populus* sp. The shrub layer is relatively dense and supports abundant elder *Sambucus nigra* and hawthorn *Crataegus monogyna* with the ground flora supporting frequent ivy *Hedera helix* and lords and ladies *Arum maculatum* with occasional common nettle *Urtica dioica*.

4.9 The second parcel lies to the east of South Pillinge Farm on the western boundary of the Survey Site and extends south adjacent to the main road leading into Millbrook (see TN5 and TN6 on Figure 2a). This woodland is young / semi-mature in age and the canopy layer of this woodland consists of abundant poplar with occasional Lombardy poplar *Populus nigra "italica*" on the western edge. Ash *Fraxinus excelsior*, Norway maple *Acer platanoides*, silver birch *Betula pendula* and rare young pedunculate oak are also present within the canopy layer with occasional crack willow *Salix fragilis* adjacent to the ditch on the eastern boundary of this woodland parcel. The shrub layer is dense and includes frequent hawthorn with occasional field maple *Acer campestre*. The ground flora of this woodland parcel contains occasional cow parsley *Anthriscus sylvestris*, common nettle, lords and ladies and cleavers *Galium aparine*.

4.10 A third parcel lies in the west of the Survey Site and consists of young and semi-mature pedunculate oak with frequent ash. Elder and hawthorn dominate the shrub layer with occasional lords and ladies and common nettle present in the ground flora. These areas of woodland do display some characteristics of the Habitat of Principal Importance "*Lowland mixed deciduous woodland*"; however, given their age and general structure (e.g. the presence of planted poplar), it is unlikely that these woodlands can be classified as this priority habitat type. Despite this, these woodland parcels do have intrinsic value and provide habitat for a range of species.

Plantation Broadleaved Woodland

4.11 There are three parcels of plantation broadleaved woodland on site. The first of these is located in the north-western corner of the Survey Site adjacent to the Rookery Clay Pit CWS (see TN18 on Figure 2a). This semi-mature plantation woodland supports frequent alder *Alnus glutinosa* and silver birch with occasional pedunculate oak in the canopy layer with occasional hazel and hawthorn present in the shrub layer. The ground flora within this parcel is sparse (owing to the dense canopy layer) and is limited to occasional common nettle and lords and ladies.

4.12 The second parcel lies on the western boundary in the southern half of the Survey Site. This young woodland parcel contains ash and pedunculate oak in the canopy layer with elder and hawthorn scrub present in the shrub layer. Common nettle and lords and ladies are present within the ground layer of this parcel.

4.13 A third smaller parcel of young woodland lies in the southern half of the Survey Site adjacent to the improved grassland fields (see TN4 on Figure 2b). This small wooded copse supports occasional poplar, hazel and hawthorn. The ground layer is limited to occasional lords and ladies.

Plantation mixed woodland

4.14 A young mixed plantation is present in the centre of the Survey Site (bisecting half of the Survey Site from east to west) (see TN8 on Figure 2b and Photograph 8 in Appendix 6). The canopy layer of this plantation supports frequent Scot's pine *Pinus sylvestris* with pedunculate oak, hazel and field maple and occasional beech, silver birch, hawthorn and guelder rose *Viburnum opulus*. The young age of this woodland means that the canopy layer is not too dense, letting in abundant light allowing semi-improved grassland to dominate the ground layer. Species present include tall fescue *Festuca arundinacea*, false oat-grass *Arrhenatherum elatius* and red fescue *Festuca rubra*. Small patches of bramble *Rubus fruticosus* agg. are also present amongst the sward.

4.15 A second, more sparsely planted and younger mixed woodland parcel is present on the western Survey Site boundary (see TN10 on Figure 2b). This woodland parcel has a similar vegetative composition to the woodland parcel described above.

Scattered broadleaved trees

4.16 A small area in the south-east of the Survey Site to the south-east of Lower Farm comprises mature, or potentially veteran, pedunculate oak trees. This area could not be accessed at the time of survey; however, it was possible to see from adjacent areas that these mature trees had dead wood in the canopy and splits and cracks in the trunk/branches.

4.17 A line of scattered planted trees also borders the eastern boundary of South Pillinge Farm in the west of the Survey Site. Planted trees present include Lombardy poplar *Populus nigra italica,* crack willow *Salix fragilis* and pedunculate oak (see TN20 on Figure 2a).

Dense continuous scrub

4.18 Dense bramble scrub lines the north-western boundary of the Survey Site adjacent to the ditch and the semi-natural broadleaved woodland. In addition to bramble, occasional cow parsley, willowherb (likely *Epilobium hirsutum*) and hogweed *Heracleum sphondylium* is also present.

4.19 An established/mature area of hawthorn and elder scrub is present on the eastern boundary of the Survey Site adjacent to the rail corridor (see TN14 on Figure 2b). This parcel of scrub is very dense; however, despite this the ground flora is relatively well established and includes frequent ground ivy *Glechoma hederacea*, cow parsley, common nettle and lords and ladies. This parcel thins at its western extent and gives way to sparsely planted ash with a semi-improved grassland ground layer (see TN16 on Figure 1 and Photograph 5 in Appendix 6).

Tall ruderal vegetation

4.20 An area of tall ruderal vegetation is present on the western boundary of the Survey Site and extends east along a species-poor hedgerow and woodland parcel (see TN12 on Figure 2b and Photograph 11 in Appendix 6). This area supports occasional willowherb, hogweed *Heracleum sphondylium* and common nettle, with bramble and common nettle also present. Young ash saplings are also interspersed within this area. This area gives way to a crop plant (likely millet) used for bird/pheasant cover (see TN13 on Figure 2b). Native species amongst this millet include red dead nettle *Lamium purpureum* and common field speedwell *Veronica persica*.

4.21 Tall ruderal vegetation is also present in the south of the Survey Site, adjacent to a public footpath and the rail corridor (see TN2 on Figure 2b). This habitat parcel was dominated by common nettle with occasional lords and ladies, bramble and grasses, including common bent *Agrostis capillaris* and tall fescue.

Tall ruderal vegetation, semi-improved grassland and scattered scrub mosaic

4.22 The proposed access track in the north-west of the Survey Site follows an existing bare soil track (see TN21 on Figure 1). The edges of this soil track support a mosaic of rabbit grazed semi-improved grassland, tall ruderal vegetation and scattered hawthorn and bramble scrub. Young silver birch trees are present along the lake in the north of the Survey Site. Identification of forbs and herbs in the south of this proposed track was difficult at the time of this survey as it is understood from the landowner that this area is regularly sprayed with herbicide in order to keep vegetation under control in areas previously cleared of great crested newts.

Standing water

4.23 Seven water-bodies are present on site (Ponds D, E, G, H, I and J). Water-body J was inaccessible at the time of survey. Each of these water-bodies is described in Appendix 5 along with other water-bodies present within a 250m radius of the Survey Site.

Running water

4.24 A network of wet and dry ditches is present in the northern half of the Survey Site. At the time of survey these ranged between 20cm to 50cm in depth, and had a fast flow, potentially due to recent heavy rainfall (see TN19 on Figure 2a and Photograph 4 in Appendix 6). Aquatic and marginal macrophytes were relatively limited with the majority of these ditches likely to become dry in summer / early autumn. The watercourse on the eastern Survey Site boundary supported some patches of fool's watercress *Apium nodiflorum*. Marginal vegetation was restricted to small patches of pond sedge *Carex riparia* adjacent to hawthorn and elder scrub on the eastern site boundary (see TN15 on Figure 2b). Slower sections of this ditch network had become dominated by common duckweed *Lemna minor*. The ditch on the western boundary also supported small patches of fool's watercress (see TN9 on Figure 1).

Arable

4.25 The majority of the Survey Site consists of arable land. At the time of survey only one of the fields was planted with a crop, this being a species of cabbage *Brassica* sp. The remaining arable fields were ploughed in preparation for sowing later in the year.

Improved grassland

4.26 Several fields in the north of the Survey Site comprised a grass ley dominated by perennial rye-grass *Lolium perenne*; rare instances of read dead nettle and bristly ox-tongue *Helminthotheca echioides* were present amongst the sward (see Photograph 3 in Appendix 6).

4.27 The fields in the south of the Survey Site were also improved grassland and were intensively grazed by sheep, horses and alpaca (see TN3 on Figure 2b and Photograph 1 in Appendix 6). These fields were dominated by perennial rye-grass with occasional common bent and Yorkshire fog *Holcus lanatus*. Forbs and herbs are limited within the sward with only creeping buttercup *Ranunculus repens* present.

Semi-improved neutral grassland

4.28 Small pockets of semi-improved grassland were identified in the south of the Survey Site and along the field margins/hedgerow bases across the Survey Site. Strips of semi-improved grassland are also present along the rail corridor. These unmanaged margins range between 0.5m and 1m in width. False-oat grass, perennial rye-grass and common bent dominate the sward with occasional creeping buttercup, bramble and common nettle.

Amenity grassland

4.29 Small amenity grassland lawns are present within the gardens of Lower Farm. These lawns are also dominated by perennial rye-grass with occasional creeping buttercup, daisy *Bellis perennis* and white clover *Trifolium repens*.

Species-poor hedgerow

4.30 The majority of hedgerows on site are intensively managed (approximately 2m in height and 1m in width) and dominated by hawthorn with occasional dog rose *Rosa canina*, bramble and ivy (see Photograph 7 on Figure 1). Ground flora associated with these hedgerows is limited to common nettle, ivy and lords and ladies.

4.31 A small number of hedgerows are unmanaged and are up to 3m in height (see TN7 on Figure 2b). These have a similar vegetative composition though wild privet and field maple were recorded in hedgerows in the south and east of the Survey Site. All native hedgerows on site are classified as Habitats of Principal Importance.

Buildings

4.32 There are a number of farm buildings associated with Lower House Farm and Ossory Farm within the boundary of the Survey Site. It was not possible to gain access to these buildings at the time of survey.

Other habitats

4.33 Other habitats of limited ecological significance within the Survey Site included hard-standing (roads, pedestrian access and car-parking areas) associated with Lower Farm and fences present throughout the Survey Site.

4.34 The south-western corner of the Rookery Clay Pit CWS (in the northern extremity of the Survey Site) has been recently cleared of vegetation and re-graded. It now consists of bare clay soil (see Photograph 2 in Appendix 6).

4.35 No invasive, non-native species listed on Schedule 9, Part II of the Wildlife and Countryside Act 1981 (as amended) were recorded during the survey.

Protected Species and Species of Conservation Importance

4.36 Records of 213 protected species and species of conservation importance (species of principal importance) from within a 2km search area were supplied by BRMC. The results of the desk study are summarised in Table 3 in Appendix 2. Please note that records dated pre-2003 have been excluded as over 10 years has now passed, making this data less relevant. In addition to this, where a species has been recorded multiple times, only the most recent and closest record to the Survey Site has been included.

4.37 This section presents evidence of protected species or species of conservation importance identified during the survey. Where relevant, it also evaluates the potential for the Survey Site to support species of principal importance identified within the desk study area (see Table 3 Appendix 2) and summarises previous survey work undertaken at The Rookery Clay Pit CWS by BSG Ecology in 2008 and 2009. As appropriate, the relevant legislation and policy for each species or species group is also briefly summarised below with detailed legislation and policy information presented in Appendix 4.

Bats

4.38 In 2008, BSG Ecology undertook activity surveys, building and tree inspections surveys and dusk emergence/dawn return to roost surveys for bats at The Rookery Clay Pit CWS and the surrounding area (PBA, 2009). The activity surveys recorded an assemblage of eight species of bat foraging and/or commuting within and around the northern half of the Rookery Clay Pit CWS. These species included common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *Pipistrellus pygmaeus* and Nathusius' pipistrelle *Pipistrellus nathusii*; noctule *Nyctalus noctula*; serotine *Eptesicus serotinus*; barbastelle *Barbastella barbastellus*; Leisler's bats *Nyctalus leisleri* and a *Myotis* spp. Buildings at South Pillinge Farm were also assessed to determine the presence/absence of roosting bats.

4.39 Of the 20 buildings that were surveyed, five were found to contain evidence of the presence of bats. The farmhouse was found to support a brown long eared *Plecotus auritus* roost in the loft. A small number of bats were seen during the survey, and droppings were found that were thought to be from this species only (PBA, 2008).

4.40 The desk study also provided records of nine species of bats from within a 2km radius of the Survey Site. The closest of these were a noctule bat found on a tree 150m to the west of the Survey Site in 2012 and a Daubenton's bat *Myotis daubentonii* from 300m to the west in 2009.

4.41 A number of mature trees are present within hedgerows on the periphery of the Survey Site with a number of mature oaks also present in the south of the Survey Site. Some of these trees had features (cracks in the bark, splits in the trunk/branches and rot holes and woodpecker holes) that have the potential to provide roosting opportunities for bats. In addition to this, the buildings at Lower Farm are also likely to provide roosting opportunities for bats.

4.42 The arable and improved grassland habitats covering the majority of the Survey Site are considered to provide limited foraging opportunities for bats; however, the hedgerows, woodland and ditches are likely to provide a suitable commuting and foraging resource for bats in the wider landscape.

4.43 The presence of bats on site is a material consideration in the planning process, as both bats and their roosts are afforded protection under the Conservation of Species and Habitats Regulations 2010 (as amended) and the Wildlife and Countryside Act 1981 (as amended). In broad terms these pieces of legislation jointly mean that the animals themselves are protected against killing, injury, taking (capture) and disturbance. In addition, their places of shelter are protected against damage, destruction and obstruction. Several species of bat (including the brown long-eared bat) are also classified as Species of Principal Importance (SPIs) in England, drawn up on a list in response to the requirements of Section 41 of the Natural Environment and Rural Communities Act, 2006 (see Appendix 4).

Badger

4.44 BSG Ecology undertook dedicated badger surveys in September 2008 (PBA, 2009). These surveys identified the presence of badger latrines within The Rookery Clay Pit CWS; however, no signs of badger setts were identified.

4.45 A foraging badger was also note within scrub between the northern and southern halves of the Rookery Clay Pit CWS approximately 500m to the east of the proposed access track, during great crested newt surveys of Rookery North Pit in 2013 (BSG Ecology, 2013). Woodland copses, scrub and hedgerows are preferred locations for setts as they allow badgers to emerge from the setts inconspicuously and young cubs to play near the sett entrances without being visible to potential predators and people (Neal & Cheeseman, 1996). The badger's preferred food source is the earthworm *Lumbricus terrestris* and therefore they predominantly forage on areas of grassland and pasture. Badgers are omnivorous and they supplement their diet with carrion and fruits from hedgerows, trees and shrubs (Neal & Cheeseman, 1995; Roper, 2010). A badger sett comprising 5-6 well-used entrances was identified during this survey within a small woodland copse approximately 190m to the east of the Survey Site boundary (grid reference: TL022395). The semi-natural broadleaved woodland, plantation broadleaved woodland, plantation mixed woodland, dense scrub, tall ruderal vegetation and established/unmanaged hedgerows have the potential to provide suitable sett building habitat and optimal foraging habitat for badgers. The improved grassland, grass ley and arable habitats are likely to provide moderate quality foraging habitat for this species.

4.46 The possible presence of badgers on site is a material consideration as both badgers and their setts are protected under the Protection of Badgers Act 1992 making the intentional or reckless destruction, damage or obstruction of a badger sett an offence (see Appendix 4).

Brown hare

4.47 Three brown hare *Lepus europaeus* were recorded on site during the field survey. This species is common and widespread in the UK where they are most common in arable areas where cereal growing predominates. Survival of leverets (their young) is higher in mixed agricultural areas than in cereal monocultures. In mixed farming, brown hares prefer cattle-grazed pasture and fallow for both feeding and resting. The species typically avoids sheep pasture, except in winter, and they prefer fields supporting strips of uncultivated land (Harris & Yalden, 2008). Hares typically select lying-up sites in habitats where there is minimal disturbance from livestock. Given the lack of livestock in the northern half of the Survey Site, it is considered that these arable areas are of higher value to this species.

4.48 The brown hare is classified as an SPI and therefore the potential presence of this species on site is a material consideration in the planning process (see Appendix 4).

Hedgehog

4.49 The closest record of a hedgehog *Erinaceus europaeus* provided in the results of the desk study was approximately 190m to the west of the Survey Site. Hedgehogs are found in most lowland habitats but have a preference for grassland in close proximity to woodland, scrub or hedgerows (Harris & Yalden, 2008). This species predates upon slugs, snails, insects and amphibians. The

woodland, hedgerows, dense scrub and tall ruderal vegetation on site have the potential to provide foraging and sheltering habitat for this species.

4.50 The hedgehog is classified as an SPI and therefore the potential presence of this species on site is a material consideration in the planning process (see Appendix 4).

Harvest mouse

4.51 The harvest mouse *Micromys minutus* favours areas of tall, dense grassy vegetation with breeding nests often constructed in cereal crops, long grass, reed beds, rushes and bramble patches (Harris & Yalden, 2008). Some of the denser marginal vegetation adjacent to the proposed access track, the field margins and within the understorey of the plantation mixed woodland in the centre of the Survey Site has the potential to support this species. This species was identified in the north of the Survey Site during clearance of the arable/ruderal habitats in autumn 2012 as part of the great crested newt licence works.

4.52 This species is classified as an SPI in England and as such its presence on site would be a material consideration in making a planning determination (see Appendix 4).

Otter

4.53 During surveys undertaken in 2008 a single otter *Lutra lutra* print was recorded on a clay bank in the south-east of the Rookery Clay Pit CWS (PBA, 2009). No other evidence of otter activity was recorded during the survey. The large water-body in the north of the Rookery Clay Pit CWS (adjacent to the proposed access) supports a healthy fish population and it is likely that otters regularly use this water-body and the adjacent Stewartby Lake CWS as a foraging resource. However, it is considered that there is limited connectivity with the habitat in the south of the Survey Site. There are also few foraging opportunities to the south and the Survey Site supports generally intensively managed habitats with few places that otters could use as resting sites. For these reasons it is considered that this species is unlikely to be present on site and so will not be considered further in this assessment.

Water vole

4.54 The survey carried out by BSG Ecology in October 2008 identified the presence of a water vole *Arvicola amphibius* latrine, a large feeding cache and several runs (PBA, 2009). These signs were found on the northern fringe of the largest waterbody in the Rookery Clay Pit CWS and provide direct evidence of water voles using the Survey Site. No signs of water vole activity were found during a subsequent survey carried out in May 2009 (PBA, 2009). During this survey, areas of vegetation were located that had been disturbed by wildfowl, in particular geese, and deer. There were also frequent signs of fox activity and possible signs of mink presence. The closest most recent record of this species in the desk study was from 1.5km to the north of the site in 2012.

4.55 This species is usually found within 2m of the water's edge, along the densely vegetated banks of ditches, river, streams and marshes where it feeds on grasses, reeds and sedges (Harris & Yalden, 2008; Strachan *et al.*, 2011). The ditch network in the northern and western part of the Survey Site has some potential to be used by water voles.

4.56 Water voles and their breeding and resting habitats receive protection under the Wildlife and Countryside Act, 1981 (as amended). Water voles are also classified as a Species of Principal Importance in England (see Appendix 4 for further information).

Breeding birds

4.57 A total of 26 species of bird were incidentally recorded on site during the extended Phase 1 habitat survey (see Table 1 for a list of these species).

Table 1: Birds recorded on site during extended Phase 1 Habitat Survey

Common name	Scientific Name	Status
Blackbird	*Turdus merula*	Green
Blue tit	*Cyanistes caeruleus*	Green

Common name	Scientific Name	Status
Brambling	*Fringilla montifringilla*	Sch 1, Green
Bullfinch	*Pyrrhula pyrrhula*	SPI, Amber
Buzzard	*Buteo buteo*	Green
Carrion crow	*Corvus corone*	Green
Chaffinch	*Fringilla coelebs*	Green
Collared dove	*Streptpelia decaoto*	Green
Common gull	*Larus canus*	Green
Great tit	*Parus major*	Green
Great spotted woodpecker	*Dendrocopus major*	Green
Kestrel	*Falco tinnunculus*	Amber
Lapwing	*Vanellus vanellus*	Red
Magpie	*Pica pica*	Green
Mallard	*Anas platyrhynchos*	Green
Meadow pipit	*Anthus pratensis*	Amber
Mistle thrush	*Turdus viscivorus*	Amber
Moorhen	*Gallinula chloropus*	Green
Pied wagtail	*Motacilla alba*	Green
Red kite	*Milvus milvus*	Sch 1, Amber
Redwing	*Turdus iliacus*	Sch 1, Red
Robin	*Erithacus rubecula*	Green
Skylark	*Alauda arvensis*	SPI, Red
Song thrush	*Turdus philomelos*	SPI, Red
Starling	*Sturnus vulgaris*	SPI, Red
Wood pigeon	*Columba palumbus*	Green

*= Sch1 – Birds receiving protection under Schedule 1 of the Wildlife and Countryside Act, 1981 (as amended), SPI – Species of Principal Importance and BoCC - Bird of Conservation Concern (Red, Amber and Green - Red is the highest conservation priority, with species needing urgent action. Amber is the next most critical group, followed by green [RSPB, 2013]).

4.58 The woodland parcels, species-poor hedgerows and associated trees and improved grassland/arable land are likely to provide good quality nesting habitat for these and other common species of breeding birds.

4.59 The potential for the Survey Site to support birds is a material consideration, as all wild birds, their nests and eggs receive protection under the Wildlife and Countryside Act 1981 (as amended) in respect of intentional killing and injury or damage and destruction of active nests (see Appendix 4).

Schedule 1 Bird Species

4.60 Records of 31 species of Schedule 1 birds have been recorded from within a 2km radius of the Survey Site (see italicised birds in Table 3 in Appendix 2). These species receive additional protection under Schedule 1 of the Wildlife and Countryside Act, 1981 (as amended) which prohibits disturbance of individuals or their dependent young at or near an active nest site (see Appendix 4). Of these 31 species the following 11 species have potential to be associated with the Survey Site as suitable nesting habitat is present:

- Barn owl *Tyto alba* – This species tends to forage upon tussocky grassland with a good litter layer providing habitat for their preferred prey species (field voles) (Barn Owl Trust, 2012). The

semi-improved grassland and tall ruderal vegetation mosaic on the periphery of the Survey Site is therefore considered to provide some foraging habitat for barn owls. In addition, it is possible that some of the outbuildings associated with Lower Farm could support this species.

- Bittern *Botaurus stellari* – Bitterns have been recorded within the reedbed in the lake in the north of the Rookery Clay Pit CWS (adjacent to the proposed access track). The dense reedbed on the periphery of the lake in the north of the Rookery Clay Pit CWS (adjacent to the proposed access track) continues to provide suitable nesting and foraging habitat for this species.
- Bearded tit *Panurus biarmicus* – The bearded tit is found almost exclusively within dense reedbeds (Holden & Cleeves, 2002). The dense reedbed on the periphery of the lake in north of the Rookery Clay Pit CWS (adjacent to the proposed access track) provides suitable nesting and foraging habitat for this species.
- Cetti's warbler *Cettia cetti* – This species nests in dense scrub and reedbed habitats (Holden & Cleeves, 2002). This species was recorded within reed habitat adjacent to the proposed access track in January 2014.
- Firecrest *Regulus ignicapillus* – This species breeds in very small numbers in the south-east of England (80-250 breeding males) (RSPB, 2013). Despite being a rare British breeding species, the conifers and semi-natural broadleaved woodland on site is considered to offer limited potential nesting and foraging habitat for firecrest.
- Garganey *Anas querquedula* – This species of duck nests in dense vegetation including reedbed. Suitable nesting habitat for this species is therefore also present within the dense reedbed on the periphery of the lake in north of the Rookery Clay Pit CWS.
- Hobby *Falco subbuteo* – This species has been observed foraging over the water-bodies within the Rookery Clay Pit CWS during great crested newt translocation works in 2011 and 2013. The mature trees in the semi-natural broadleaved and plantation woodland present on site have some potential to be used as nesting habitat for this spring/summer migrant.
- Little-ringed plover *Charadrius dubius* – This species breeds on man-made habitats close to fresh water. Sand and gravel quarries are regularly used as breeding sites (Holden & Cleeves, 2002). This species was recorded nesting on site in 2011 and 2013 upon clay habitats adjacent to the water-bodies in the Rookery Clay Pit CWS. Accordingly, there remains suitable habitat for this species to the north of the Survey Site.
- Mediterranean gull *Larus melanocephalus* – This species is known to breed near inland lakes and wetlands (Holden & Cleeves, 2002). The waterbodies in the Rookery Clay Pit CWS provide suitable nesting habitat for this species.
- Marsh harrier *Circus aeruginosus* – This species nests in dense reedbed and has been recorded foraging over the reedbed present in the northern and south-eastern areas of the Rookery Clay Pit CWS in 2011 and 2013.
- Red kite *Milvus milvus* – This species was recorded circling above the Survey Site during the field survey. The mature trees in the semi-natural broadleaved woodland and plantation woodland present on site have potential to be used as nesting habitat for this species.

Birds of Conservation Importance

4.61 A number of bird Species of Principal Importance (SPI's) were shown to be present within 2km of the site in the results of the desk study (see Table 2 in Appendix 2). Of the species recorded in the desk study and on site during the field survey dunnock *Prunella modularis*, house sparrow *Passer domesticus*, starling *Sturnus vulgaris,* reed bunting *Emberiza schoeniculus,* skylark *Alauda arvensis*, song thrush *Turdus philomelos,* bullfinch *Pyrrhula pyrrhula*, yellowhammer *Emberiza citronella*, cuckoo *Cuculus canorus* and yellow wagtail *Motacilla flava flavissima* could potentially nest on site as suitable habitat is present for these species. The presence of these species is a

material consideration in the planning process; however, these species receive no specific legal protection over and above the general protection given to all birds by the Wildlife and Countryside Act, 1981 (as amended).

Great crested newt

4.62 Surveys for great crested newt *Triturus cristatus* were undertaken in and around the Rookery Clay Pit CWS in 2008 (PBA, 2009). The presence of a large population of great crested newts was subsequently confirmed during these surveys. Trapping and translocation of newts has since taken place under a mitigation licence issued by Natural England in 2011. This has affected the southern half of the Rookery Clay Pit CWS incorporating the southern portion of the proposed access track and a proportion of the arable land in the north of the Survey Site, and has yielded a total of 5,513 great crested newts to date, which were subsequently moved to receptor areas in the north of the Rookery Clay Pit CWS (400m east of the proposed access track) and a receptor area named Stewartby Way 2 (SW2) to the east of the rail corridor. At the present time, the translocation programme is continuing in the south of the Rookery Clay Pit CWS and is expected to be completed in the summer of 2014.

4.63 An examination of on-line aerial photography prior to the site visit identified a total of 14 ponds within 250m of the boundary of the Survey Site. The results of the HSI assessment for these 14 ponds (including their overall great crested newt suitability class) are given in full within Table 1 in Appendix 5. Of the ponds surveyed, one (Pond M) was classified as having excellent suitability, three (Ponds A, I and K) were classified as having good suitability, one pond was classified as having average suitability (Pond H), three ponds were assigned below average suitability (Pond C, Pond E and Pond L) and two ponds were assigned poor suitability (Ponds G and N) to support great crested newts. Three ponds (Ponds B, D and F) were dry or not present at the time of survey and are therefore considered unsuitable to support breeding great crested newts. It was not possible to access Pond J at the time of the survey. The locations and HSI scores attributed to these ponds are shown on Figure 3. A full description of each of the ponds is also included in Appendix 5.

4.64 Great crested newts spend a proportion of the year in aquatic habitats where they breed. The remainder of the year is spent foraging and sheltering in terrestrial habitats including woodland, scrub and rough grassland (Inns, 2009). The Survey Site supports at least four water-bodies that could be used by great crested newts as breeding habitat (Ponds E, H, I and L). The majority of the Survey Site does not support suitable terrestrial habitat for this species, being intensively managed/grazed grassland and arable land offering limited sheltering opportunities. However, it is likely that the hedgerows on the field boundaries, patches of tall ruderal vegetation and scrub and woodland would be used as a sheltering, foraging and dispersal resource for great crested newts if present. The rail ballast and rubble habitats in the north of the Survey Site adjacent to the rail corridor and the proposed access track are also considered to provide suitable sheltering and over-wintering habitat for this species.

4.65 Great crested newt is listed as European Protected Species (EPS) under Schedule 2 of The Conservation of Habitats and Species Regulations 2010 (as amended). It is also protected under the Wildlife and Countryside Act 1981 (as amended). In summary, these pieces of legislation combined make it an offence to disturb, capture, injure or kill a great crested newt or damage or destroy its habitat. The great crested newt is also identified as an SPI (see Appendix 4).

Common toad

4.66 Common toads *Bufo bufo* spend a larger portion of their time in terrestrial habitats (dense vegetation and beneath rocks and logs) than common frogs *Rana temporaria* (Inns, 2009). Common toads shelter during the day within dense scrub or beneath stones and fallen logs, and emerge at night to forage on slugs and other invertebrates. The closest record of a common toad in the desk study was 1.9km to the west of the Survey Site. However, large numbers of toads were recorded within The Rookery Clay Pit CWS during the translocation of great crested newts to the northern half of the Rookery Clay Pit CWS and SW2 (BSG Ecology, 2013). The hedgerows, ruderal vegetation, scrub and woodlands are likely to provide foraging and sheltering habitat for this species, particularly given the presence of suitable water-bodies on site and in the surrounding landscape. Common toads are classified as an SPI (see Appendix 4).

Reptiles

4.67 A low population of grass snakes *Natrix natrix* and a medium population of common lizards *Zootoca vivipara* were translocated during the clearance works associated with the southern half of the Rookery Clay Pit CWS. These were subsequently moved to suitable habitats within the north of the Rookery Clay Pit CWS.

4.68 Reptiles prefer a mosaic of habitats with a varied vegetation structure providing conditions suitable for both sheltering and foraging (Edgar *et al.*, 2010). The Survey Site predominantly consists of intensively grazed/managed improved grassland and arable land offering limited sheltering or foraging habitat for reptiles. However, the field margins (particularly in the north of the Survey Site), semi-improved grassland within the plantation mixed woodland and peripheral scrub and ruderal habitats are likely to provide suitable habitat for these species.

4.69 All species of common reptile are protected from killing and injury under the Wildlife and Countryside Act, 1981 (as amended). Reptiles are also classified as SPIs (see Appendix 4).

Invertebrates

4.70 An invertebrate scoping survey followed by nine site visits to collect invertebrates was undertaken by BSG Ecology during the summer of 2008 (PBA, 2009). This suite of surveys identified 483 species of invertebrates within Rookery Clay Pit CWS, some of which were of conservation importance. Three species were classified as SPIs; the small heath *Coenonympha pamphilus*, shaded broad-bar moth *Scotopteryx chenopodiata* and cinnabar moth *Tyria jacobaeae*. A total of 44 of the species recorded were classified as Red Data book or nationally scarce species.

Aquatic Invertebrates

4.71 No aquatic invertebrates were provided in the results of the desk study. However, it is possible that scarce or notable species are present in the ditch network in the north of the site or within water-bodies present on site.

Terrestrial Invertebrates

4.72 The desk study results provided records of four species of butterfly. These included the small heath, dingy skipper *Erynnis tages*, the wall *Lasiommata megera* and the grizzled skipper *Pyrgus malvae.* All four of these species were recorded within The Rookery Clay Pit CWS, principally on the bank tops were forb and herb species are more prevalent.

4.73 In addition, records of 34 species of moth were provided in the results of the desk study. The majority of these species were either recorded on site or within a 200m radius of the Survey Site. These species are generally common and widespread in the south and east of England and feed on a range of shrubs, trees and herbaceous plants. It is possible that these species are present on or utilise certain parts of the Survey Site (especially the more naturally vegetated peripheral areas) given the vegetation present (UK Moth website, 2013). These species of butterfly and moth are all classified as SPI's[1]. The presence of these species on a site may be a material consideration in the planning process (see Appendix 4).

[1] Please note that the cinnabar moth is not listed as an SPI for its conservation importance.

5 Recommendations

5.1 It is assumed that direct impacts will potentially occur across the Survey Site during construction, operation and decommissioning of the Power Generation Plant in the Rookery Clay Pit CWS and associated electrical and gas infrastructure to the south. Indirect impacts will need to be considered beyond this, within the 'zone of influence' that will vary dependent on the receptor (e.g. habitat, protected species, designated site) concerned. The recommendations presented below are based on this understanding of potential impacts and the corresponding requirement to confirm presence / absence, and where present, the distribution and abundance of protected and otherwise notable species, or coverage of habitats that may occur within the Project Site and a zone of influence surrounding it.

Statutory Designated Sites

5.2 There are no statutory designated sites of international ecological importance (SPA or SAC) within 5km of the Project Site.

5.3 Consultation with the Statutory Consulteesand Natural England will determine the requirement for a screening exercise (under the Habitat Regulations) that considers the proximity of potentially sensitive ecological receptors (notably Natura 2000 sites, but potentially extended to SSSIs) within a search area that may extend to or beyond a 5km radius of the Project Site, and whether these could be affected by NOx, NO_2 and CO emissions as well as nitrogen and acid deposition.

5.4 The requirement for further surveys or desk based investigation will be determined following review of the scoping opinion (and consultation) with the Statutory Consultees on this matter.

Non-statutory Designated Sites

5.5 The proposed access track runs inside the western boundary of the Rookery Pit CWS. The interest features of this site include the water-bodies and mosaic of ephemeral/short perennial vegetation, rank neutral grassland and marsh vegetation. The access track currently comprises bare ground (used as a temporary access track), scattered scrub and ephemeral vegetation. Direct effects on the interest features of this CWS are therefore predicted to be limited. However, this will need to be fully discussed with the Statutory Consultees, including consideration of potential indirect effects.

Habitats

5.6 The habitats present within the Survey Site but outside of the Rookery Clay Pit CWS are generally common and widespread and intensively managed (improved grassland and arable land). The native hedgerows present throughout the Survey Site are Habitats of Principal Importance (HPIs). The extended Phase 1 habitat survey was undertaken at a sub-optimal time of year, and so did not allow a robust assessment of the botanical species present to be conducted. It is therefore recommended that target notes and the Phase 1 Habitat map are updated in the summer (June - July) in order to gain a comprehensive species list and allow accurate characterisation of the habitats present. This will allow a more robust assessment of possible impacts on habitats and botanical species to be completed.

Protected Species and Species of Conservation Importance

Bats

5.7 It is important that the use of the Survey Site by bats is fully understood in order to accurately determine any possible adverse impact that the Project may have on this species group. The following surveys are recommended in order to ascertain this:

Ground Level Tree Assessment and External and Internal Building Inspection Surveys

5.8 The Survey Site contains a number of trees and some parcels of woodland. It is recommended that trees within the Survey Site (that are to be affected by the Project) are inspected for signs/features with the potential to support roosting bats. In line with the Bat Conservation Trust guidance (Hundt,

2012) this survey should be conducted between February and April, when trees are not in leaf, although, in practice, this survey can be undertaken year round.

5.9 All buildings to be directly or indirectly affected by the Project (if any) should be inspected for signs of roosting bats and features with the potential to support roosting bats.

5.10 If signs of roosting bats or features with the potential to be used by roosting bats are identified during these inspection surveys, further surveys in the form of dusk emergence/ dawn re-entry surveys may be required. The level of survey effort required will depend on the potential that the building or tree has been assigned in these initial inspection surveys. These further surveys (if required) should be undertaken in accordance with current best practice guidance (Hundt, 2012) when bats are most active (i.e. between mid-May and August inclusive).

Bat Activity Surveys and Automated Static Detector Surveys

5.11 It is advised that activity surveys are undertaken in order to determine the species of bats present on the Survey Site as well as the spatial distribution and relative activity levels of these species. This will include assessment of seasonal and nocturnal patterns of behaviour, and the extent to which activity changes over time. In accordance with Hundt (2012) for a large site of low to moderate suitability, two line transects should be conducted in spring, summer and autumn. These transects should commence a quarter of an hour before sunset and continue for 2 to 3 hours after sunset. Automated surveys using static bat detectors should also be undertaken at two locations (one location per transect route). In line with the current best practice guidance these detectors should be left *in-situ* for three consecutive nights per season i.e. spring, summer and autumn.

Badger

5.12 The Survey Site has the potential to provide foraging and sheltering habitat for badgers (a legally protected species). Badgers are also known to be present in the wider landscape following an appraisal of the desk study results and the field survey. It is therefore recommended that all potential habitats within the Survey Site are surveyed to search for and record characteristic signs of badger activity, including: setts, latrine pits, foraging holes, badger hair and paw prints following best practice guidance (Neal and Cheesman, 1996). Potential habitat includes areas of woodland, scrub and hedgerows. It is recommended that these surveys are undertaken between February and May or October to November, when badger activity is high and vegetation cover is low. However, in practice, this survey can be undertaken all year round.

Water vole

5.13 Water voles have been recorded in the Marston Vale. Approximately 3,000m of ditch exists across the Survey Site along with a number of smaller water-bodies/ponds, which should be surveyed for field signs indicating the presence water voles (a legally protected species, see Appendix 4). These surveys will conform to standard methodologies for water vole (Strachan *et al.*, 2011) and will be carried out when this species is likely to be active. Signs of water vole presence are indicated by the presence of feeding remains, characteristic grass lawns, burrows, runs, footprints, latrines and droppings. This survey can be undertaken all year round but March to early May and September to October is optimal, when bankside vegetation is at its least dense and these animals are highly active.

Other mammals

5.14 The desk study and previous survey work has highlighted the presence of a number of mammals classified as SPIs (brown hare, hedgehog and harvest mouse). Additional incidental evidence of these species will be recorded during targeted survey effort for other species to be undertaken on site.

Breeding birds

5.15 Much of the land within and adjoining the Survey Site is managed as arable farmland, with pasture further south. As such, farmland birds (occurring both within the Survey Site and a buffer of up to 50m) would be the main target of the survey. The other main area of bird interest is the large water-body present in the northern half of the Rookery Clay Pit CWS adjacent to the proposed access track. This lake is known to support a number of Schedule 1 bird species and species of

conservation importance (SPIs). The breeding bird survey will follow standard guidance as set out by Bibby *et al*. (2000) and Gilbert *et al*. (1998). This type of survey would likely comprise three visits to the Survey Site, spread over the period March to July (with April, May and June being the key months for survey). One dusk survey visit to cover crepuscular species such as barn owl should also be undertaken.

Barn owls

5.16 It is recommended that where access allows, the farm buildings at Lower Farm and South Pillinge Farm, and mature trees on site are surveyed for the presence of roosting/nesting barn owls. Signs to be searched for include: nest debris, barn owl pellets, white splashes from barn owl droppings and live or dead barn owls themselves (Barn Owl Trust, 2012). Barn owl roost inspections can be conducted all year round.

Great crested newt

5.17 A large size-class population of great crested newts exist within The Rookery Clay Pit CWS (BSG Ecology, 2013). The newts within the southern half of the Rookery Clay Pit CWS are presently being translocated to a receptor area in the northern half of the CWS and to the east of this in SW2.

5.18 Given that sufficient information exists on the great crested newts population of The Rookery Clay Pits CWS, no further survey of this population is likely to be required (this will need to be verified in consultation with the LPA ecologist). However, following the results of the HSI survey 10 suitable ponds exist outside of The Rookery Clay Pit CWS, and a baseline survey of these will be required. It is recommended that all ponds assessed as being below average or above in the HSI assessment (i.e. Ponds A, C, E, H, I, K, L and M– see Table 1 in Appendix 5) and Pond J where access was not secured for this survey, are re-surveyed in order to determine the current status of great crested newts within the Survey Site. All ponds identified are within 250m of the Survey Site. It is appropriate to justify selecting ponds at this distance (rather than up to 500m), which is as follows:

5.19 Section 5.4 of the Great Crested Newt Mitigation Guidelines (English Nature, 2001) recommends that:

"*For a common situation, where a plot of land containing a pond is proposed for development, the pond itself should be surveyed, and other ponds up to 500m away should also be checked, if it is thought likely that great crested newt populations centred on these ponds would be affected by changes to the plot*."

5.20 English Nature guidance (2001) is further developed in the great crested newt Method Statement which states that:

'*The decision on whether to survey depends primarily on how likely it is that the development would affect newts using those ponds. For developments resulting in permanent or temporary habitat loss at distances over 250m from the nearest pond, carefully consider whether a survey is appropriate… normally appropriate only when all of the following conditions are met*:

1. *maps, aerial photos, walk-over surveys or other data indicate that the pond(s) has potential to support a large great crested newt population,*

2. *the footprint contains particularly favourable habitat, especially if it constitutes the majority available locally,*

3. *the development would have a substantial negative effect on that habitat, and*

4. *there is an absence of dispersal barriers.'*

5.21 This second piece of guidance, which supersedes the first, specifies that all four conditions should be met for surveys to be required of ponds beyond 250m of the Survey Site boundary. In this case, condition 1 is met as a large population of great crested newts exists to the north of the Survey Site (The Rookery Clay Pit CWS). However, the Survey Site comprises mostly arable and improved grassland that is of low value for great crested newts, so condition 2 cannot be met. Conditions 3

and 4 are consequently irrelevant, and it is possible to prescribe surveys of ponds within 250m (not 250m – 500m).

5.22 Following the Great Crested Newt Mitigation Guidelines (English Nature, 2001), four survey visits should be undertaken at each pond (where access allows) to determine presence or absence. Two further visits (i.e. six in total) are then to be completed at ponds found to contain great crested newts, to enable a population size class to be estimated. The surveys normally consist of bottle trapping, torch searches, egg searches and netting. These surveys should be carried out from mid-March to mid-June, with at least half of the visits between mid-April and mid-May.

Reptiles

5.23 Grass snakes and common (viviparous) lizards have been recorded adjacent to the Survey Site within The Rookery Clay Pit CWS, and are likely to be present within the Survey Site (PBA, 2009; BSG Ecology, 2013). Where field boundary margins, grassland and scrub within the Survey Site have the potential to support reptiles, a survey will be conducted in order to determine their presence/likely absence.

5.24 This further survey will entail installing a number of artificial refugia (squares of roofing felt or tin) in areas of suitable habitat, including scattered scrub, tall ruderal vegetation and coarse grassland, at a minimum density of 5-10 per hectare. These refugia will then be checked on a minimum of seven occasions during the optimal period, which is between April and September, during suitable weather conditions to allow an estimate of population size to be made. The refugia will be left in-situ for a minimum of two weeks prior to the first survey visit to allow the refugia to "bed down" in accordance with the Herpetofauna Worker's Manual (JNCC, 2003) and Reptile Survey Guidance (Froglife, 1999).

Invertebrates

Aquatic Invertebrates

5.25 In order to determine the assemblage of aquatic invertebrates present on site, it is recommended that the following protocol be followed:

Survey of watercourses (flowing ditches)

5.26 On the assumption that watercourses will be affected by the Project, it may be appropriate to undertake an assessment of water quality, compliant with the Water Framework Directive (WFD). One of the main aims of the WFD is to prevent deterioration in the status of aquatic ecosystems, protect them and improve the ecological condition of waters. The requirement for such an assessment would be driven in consultation with the Environment Agency. Should such an assessment be required, it may be appropriate to assess the ecological quality and surface water chemistry of watercourses to be affected.

5.27 To determine ecological quality, kick-sampling for aquatic invertebrates should be undertaken at selected locations along the ditch / stream, and the Biological Monitoring Working Party (BMWP) score applied to inform an assessment of water quality and species present. This survey is best undertaken in spring and in the autumn in swift flowing waters, or in summer in stationary ditches or those with a slow flow. All macro-invertebrates should be identified to species level in order to determine the presence of any scarce or nationally notable species.

5.28 To determine water chemistry status a single water sample should be extracted at three locations; within the Survey Site and upstream and downstream of this. Samples should be dispatched to a UKAS accredited laboratory for subsequent analysis, to cover a standard range of parameters including: Biological Dissolved Oxygen, total suspended solids, nutrient composition (e.g. nitrite as nitrogen, total oxidised nitrogen, total ammoniacal nitrogen, total phosphorus), hardness, calcium, alkalinity, conductivity and pH.

5.29 The condition of the watercourse can subsequently be analysed by recording and comparing the aggregated number of taxa, and average score per taxon from the sampling points along the watercourse within, upstream and downstream from the site. The statistical model (River Invertebrate Classification Tool - RICT) developed for WFD classification would be used to calculate the Ecological Quality Ratio (EQR) that compares observed with expected results for a

watercourse of the same type. The EQR is then used to identify the Biological Status of the watercourse which is separated into five bands (Bad to High) required by the WFD.

Survey of waterbodies (ponds)

5.30 The National Pond Monitoring Survey protocol should be adhered to which follows the standard method for the survey of ponds for aquatic invertebrates (and flora), developed by the Freshwater Habitats Trust (formerly Pond Conservation/Pond Action), which can be adapted for determination of Priority Ponds. This survey involves timed netting and searches for invertebrates in summer (but may also cover spring and autumn). All macro-invertebrates are identified to species level in order to determine the presence of any scarce or nationally notable species. Predictive System for Multimetrics (PSYM) application developed by the Freshwater Habitats Trust is used to assess the overall condition of the pond in terms of its ecological quality. This survey protocol is a standard requirement to inform whether a pond meets the criteria as being a habitat of principal importance, based on its aquatic invertebrate assemblage. It can also be used to establish whether any species of principal importance, nationally scarce, Red Data Book or WCA Schedule 5 species are present.

Terrestrial Invertebrates

5.31 The desk study and previous survey work have revealed a large number of moth and butterfly (Lepidoptera) records, of SPIs. Suitable habitats for these species exist within the Survey Site and adjacent to it, with woodland and woodland edge being a prominent feature that may be used by a range of Lepidoptera. Terrestrial invertebrate survey is therefore proposed that targets Lepidoptera.

5.32 A further survey is also appropriate that targets another important group of invertebrates; beetles (Coleoptera). Whilst not featuring in the desk study, the phase 1 habitat survey uncovered a suitable range of habitats (woodland, mature / veteran trees, hedgerows and ditch banks) in which this group of invertebrates may be strongly represented, especially in the wooded habitats, both within and adjoining the Survey Site.

5.33 Survey of Lepidoptera should involve two night-time moth surveys to be undertaken in late spring and mid-summer. Trapping using Skinner moth traps fitted with mercury vapour bulbs is most suitable in terms of attracting an extensive and variable moth fauna. Lights should be switched on at dusk and remain lit until dawn the following day. The traps should be checked periodically throughout the night to log any new arrivals. Any species hard to identify from external markings alone, and those requiring further confirmation, should be retained and dissected if necessary to ascertain their identity with the use of a stereoscopic microscope.

5.34 Allied with this, a butterfly transect walk of the Survey Site should be conducted. As with the moths, two of these should be undertaken, in late spring and mid-summer. This transect will be undertaken in accordance with standard guidance developed by the UK Butterfly Monitoring Scheme.

5.35 For beetles, a method should be developed that follows Natural England (ISIS) protocol (Drake *et al.,* 2007) to sample beetle assemblages directed at woodland habitats, via hand searches, sweep netting and pitfall trapping. To align with the Lepidoptera surveys, this can be undertaken in late spring and mid-summer. Subsequent laboratory identification will be required for many of the specimens collected.

5.36 Analysis of the results should use the ISIS protocol to determine whether any broad or specialist assemblage types present of Lepidoptera and / or Coleoptera. Consideration should also be given to any rare, scarce or nationally threatened species present, including SPIs.

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7 Appendix 1: Figures

(overleaf)

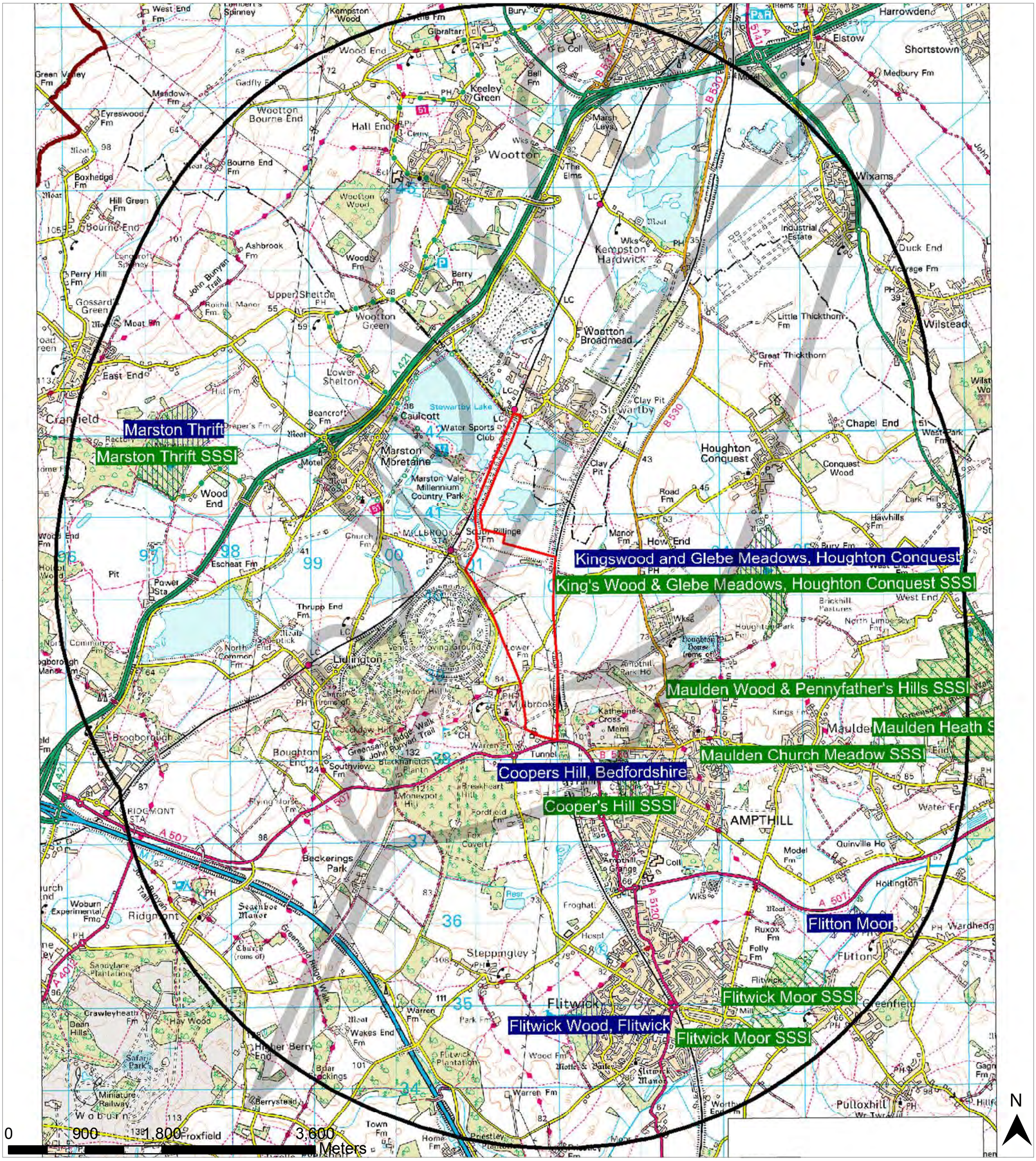
Figure 1a: Statutory Designated Sites within a 5km radius of the Site.

Figure 1b: Statutory and Non-statutory Designated Sites within a 2km radius of the Site

Figure 2a: Extended Phase 1 Habitat Survey Results (North)

Figure 2b: Extended Phase 1 Habitat Survey Results (South)

Figure 3: Habitat Suitability Index (HSI) Assessment Results



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BSG ecology

JOB REF: 7393.00

PROJECT TITLE
MILLBROOK POWER PROJECT

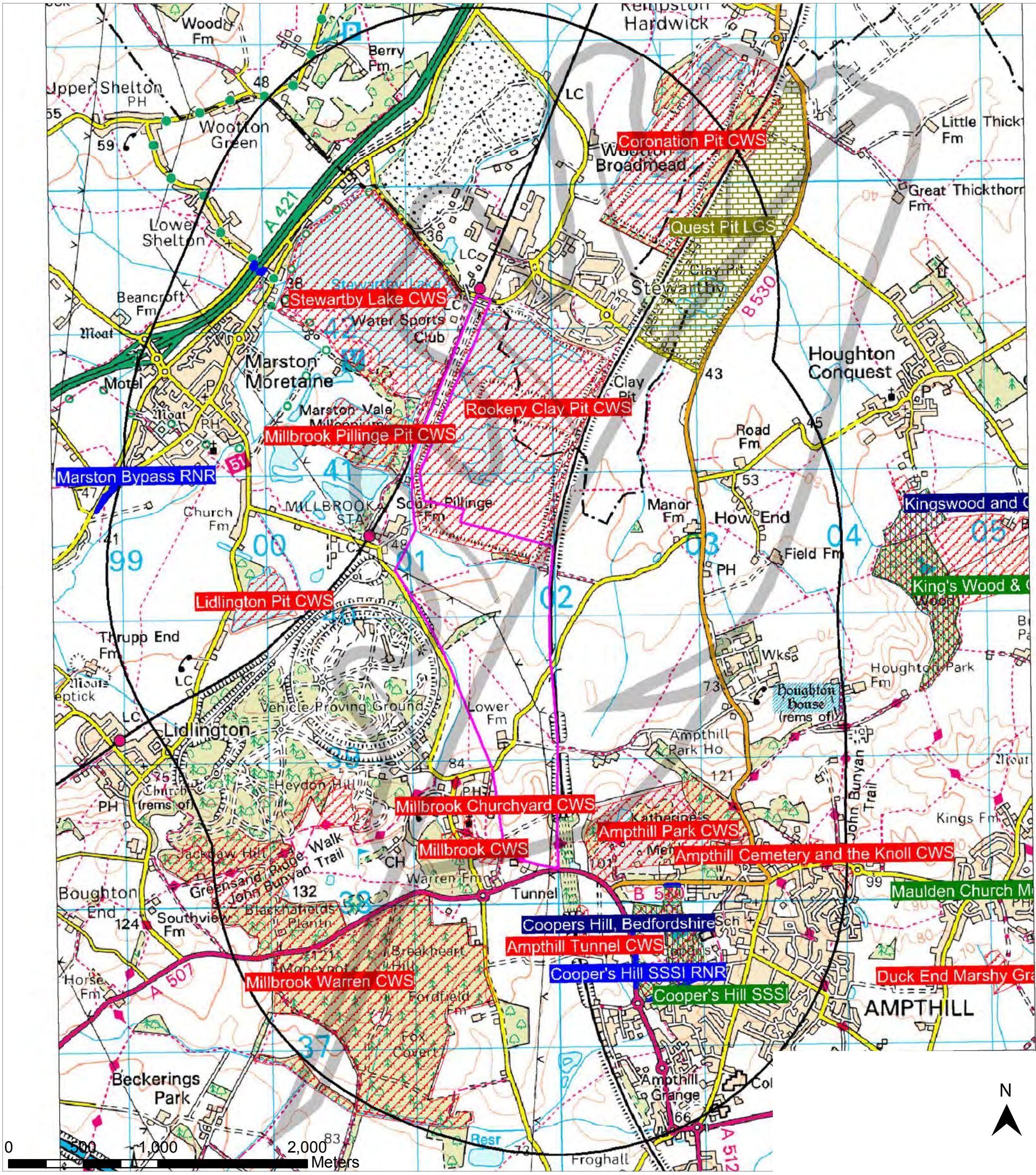
DRAWING TITLE
Figure 1a: Statutory designated sites within 5km of site

DATE: 06.03.14 CHECKED: SF SCALE: 1:43,725
DRAWN: COH APPROVED: JF STATUS: FINAL

LEGEND

- Survey boundary
- 5km search area
- Site of special scientific interest
- Local nature reserve
- County boundary

Map produced by Bedfordshire and Luton Biodiversity Recording and Monitoring Centre



BSG ecology

JOB REF: 7393.00

PROJECT TITLE
MILLBROOK POWER PROJECT

DRAWING TITLE
Figure 1b: Statutory and non-statutory designated sites within 2km of site

DATE: 06.03.14	CHECKED: SF	SCALE: 1:25,256
DRAWN: COH	APPROVED: JF	STATUS: FINAL

LEGEND

- Survey boundary
- 5km search area
- Site of special scientific interest
- Local nature reserve
- County wildlife site
- Roadside nature reserve
- Local geological site
- County boundary

Map produced by Bedfordshire and Luton Biodiversity Recording and Monitoring Centre

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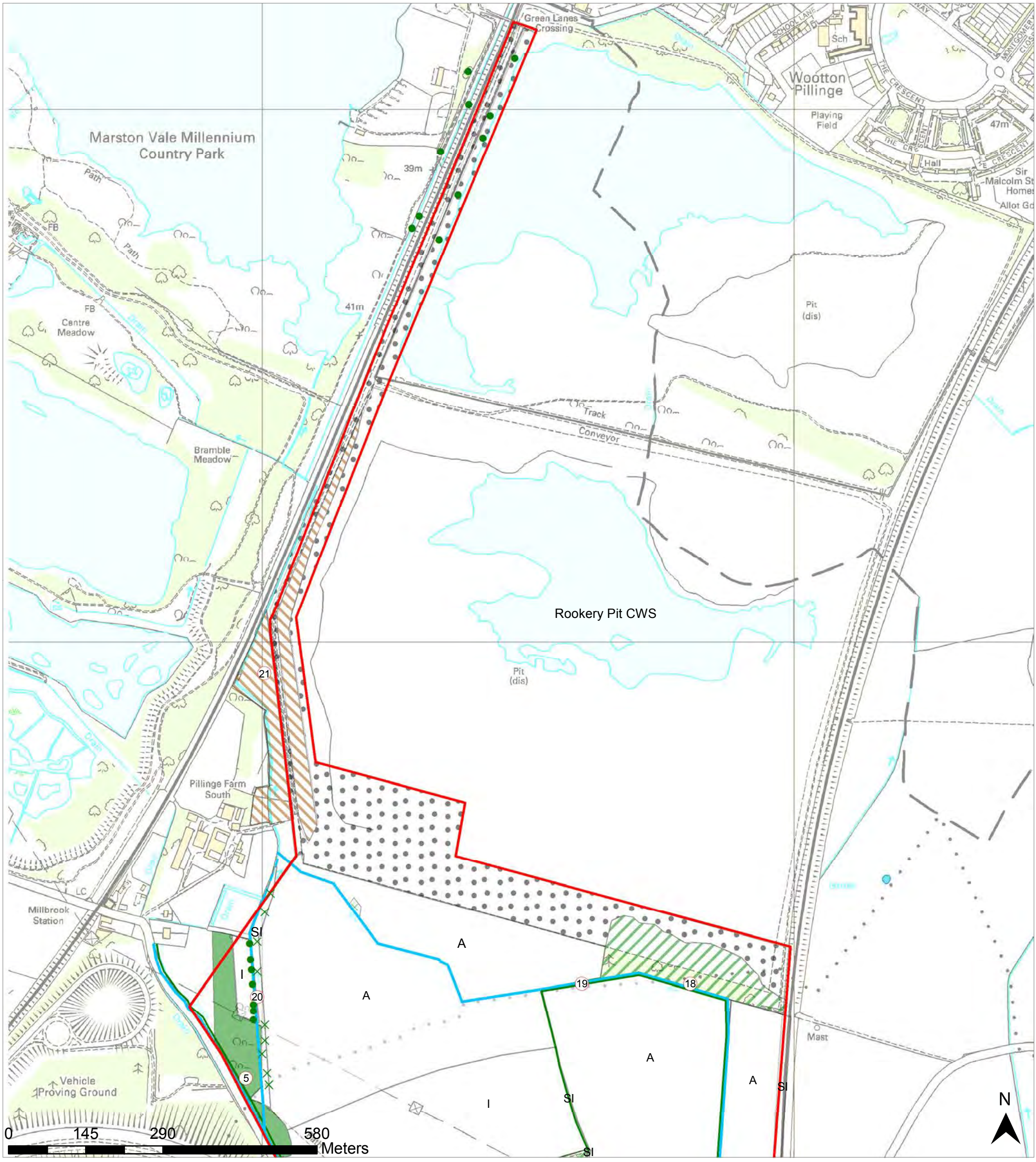

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BSG ecology

JOB REF: 7393.00

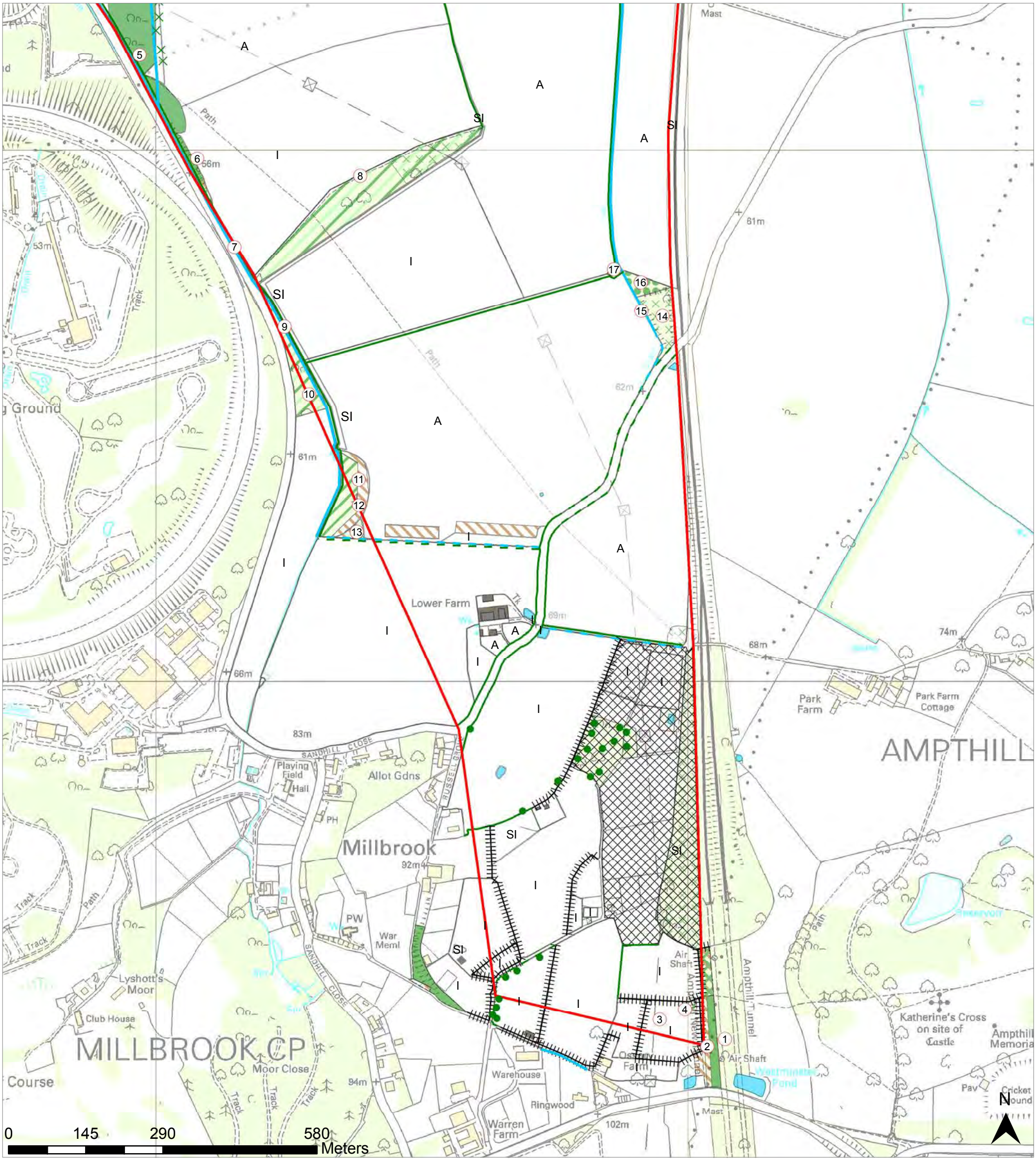
PROJECT TITLE
MILLBROOK POWER PROJECT

DRAWING TITLE
Figure 2a: Extended Phase 1 Survey (North)

DATE: 05.03.14 CHECKED: SF SCALE: 1:7,000
DRAWN: COH APPROVED: JF STATUS: FINAL

LEGEND

- Survey boundary
- No access or view
- Target note
- Broadleaved tree
- Scattered scrub
- Running Water
- Intact hedgerow
- Defunct hedgerow
- Fence
- Dry ditch
- Broadleaved semi-natural woodlamd
- Broadleaved plantation woodland
- Coniferous plantation woodland
- Scattered scrub
- Dense/continuous scrub
- Scattered broadleaved trees
- I — Improved grassland
- SI — Semi-improved grassland
- Tall ruderals
- Open water
- A — Arable
- Building
- Bare ground



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BSG ecology

JOB REF: 7393.00

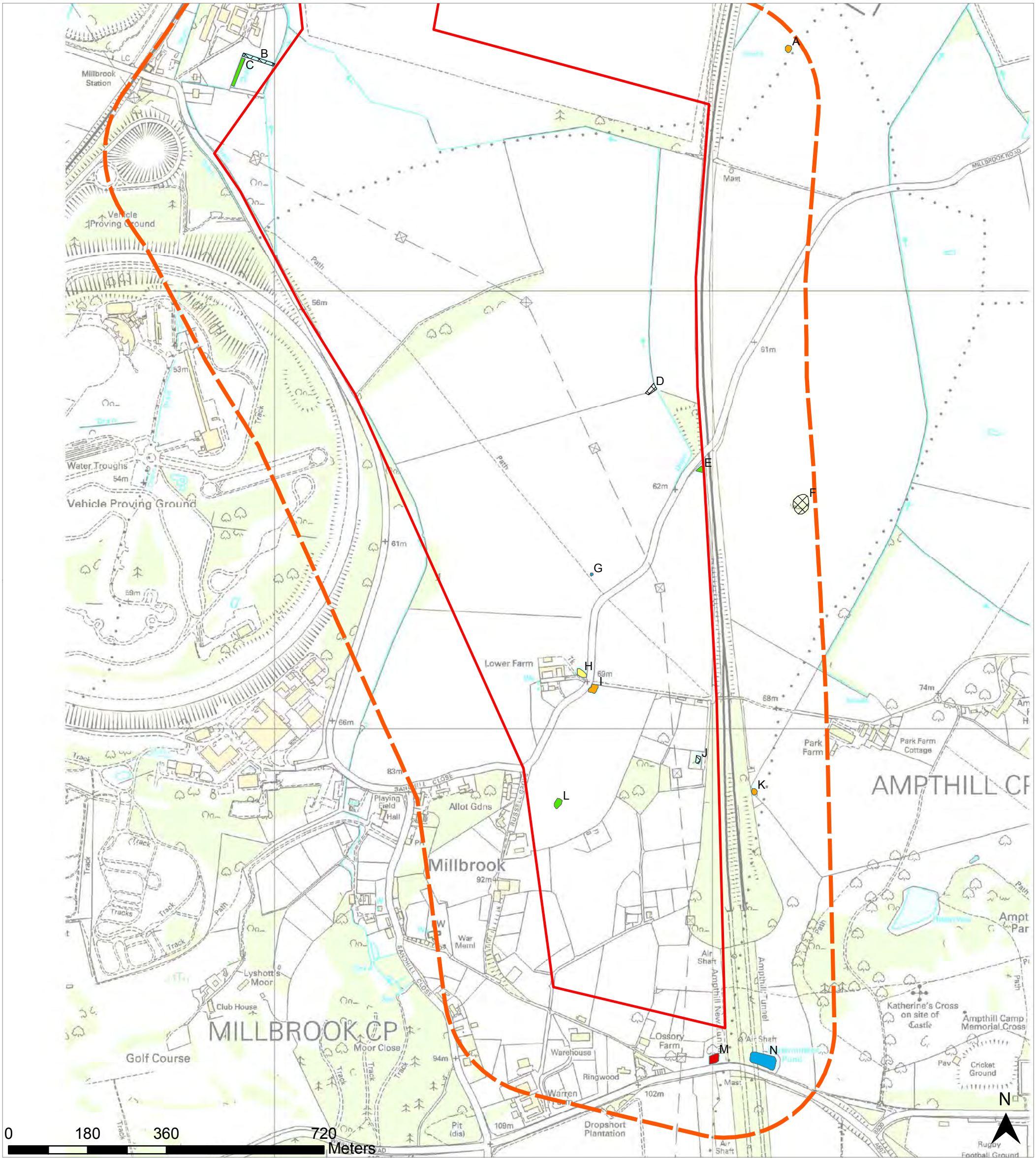
PROJECT TITLE
MILLBROOK POWER PROJECT

DRAWING TITLE
Figure 2b: Extended Phase 1 Survey (South)

DATE: 05.03.14 CHECKED: SF SCALE: 1:7,000
DRAWN: COH APPROVED: JF STATUS: FINAL

LEGEND

- Survey boundary
- No access or view
- Target note
- Broadleaved tree
- Running Water
- Intact hedgerow
- Defunct hedgerow
- Fence
- Dry ditch
- Broadleaved semi-natural woodlamd
- Broadleaved plantation woodland
- Coniferous plantation woodland
- Mixed plantation woodland
- Dense/continuous scrub
- Scattered scrub
- Scattered broadleaved trees
- I — Improved grassland
- SI — Semi-improved grassland
- Tall ruderals
- Open water
- A — Arable
- Building



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BSG ecology

JOB REF: 7393.00

PROJECT TITLE
MILLBROOK POWER PROJECT

DRAWING TITLE
Figure 3:
Great crested newt HSI assessment results

DATE: 05.03.14 CHECKED: SF SCALE: 1:8,500
DRAWN: COH APPROVED: JF STATUS: FINAL

LEGEND

- Survey boundary
- 250m buffer of survey boundary

Suitability to support great crested newts

- Excellent
- Good
- Average
- Below average
- Poor
- No access or not present

8 Appendix 2: Relevant Desk Study Results

Table 1: Statutory Designated Sites within 5km of Site Boundary

Site Name	Area (ha)	Grid ref.	Description
Cooper's Hill SSSI, LNR, CWS, RNR	18.06	TL028376	This site lies approximately 550m to the south east of the Survey Site. Cooper's Hill consists of extensive heathland situated on acidic soil. Springs are present and form wet flushes supporting rich marsh plant communities. A small acidic mire (a rare habitat type in Bedfordshire is also present). Two areas of woodland have developed on the marshy areas adding to the biodiversity value of the site. The site supports a diverse invertebrate fauna.
Kingswood & Glebe Meadows, Houghton Conquest SSSI, LNR	36.10	TL045403	This site is located approximately 2.3km to the east of the Survey Site. Kingswood consists of comprises an ash/maple woodland, and represents a habitat which has become increasingly scarce in Bedfordshire. The wood is characteristic of ancient semi-natural woodland supporting a rich flora. Glebe Meadows border the woodland to the north and consist of species-rich unimproved grassland managed for hay and grazing. Small ponds supporting amphibians are also present on the site.
Marston Thrift SSSI, LNR, CWS	37.41	SP973417	This site is located 3.7km to the west of the Survey Site. Marston Thrift comprises ash/maple ancient, semi-natural woodland formerly managed as coppice-with standards. The ground flora is diverse and varied with damp woodland rides also present. The site is important for butterflies with purple hairstreak present. The western meadow consists of short acidic grassland.
Maulden Wood and Pennyfather's Hills SSSI	148.77	TL170390	This site lies approximately 4.1km to the east and consists of a large block of mixed deciduous and coniferous woodland supporting a very rich invertebrate fauna. Maulden Wood is an ancient woodland site with Pennyfather's Hills consisting of former heathland habitat within plantations of Scot's pine. The wood has a diverse breeding bird and fungi population. Several ponds are also present on site.
Maulden Heath SSSI	7.56	TL070386 TL068384	Maulden Heath SSSI is located 4.4km to the east. The site consists of lowland acidic grassland supporting a rich herb community. Areas of scrub and bracken are also present throughout the site.
Maulden Church Meadow SSSI	4.14	TL059382	This site is located approximately 4.4km to the east and comprises unimproved pasture supporting neutral grassland communities. Acid grassland communities are also present in the south of the site. Three ponds are also present on this site and the site is known to support a rich invertebrate fauna.

Site Name	Area (ha)	Grid ref.	Description
Flitwick Moor SSSI, CWS	59.78	TL045350	Flitwick Moor is located approximately 3.6km to the south-east of the Survey Site and is a remnant of eutrophic mire renowned for its flora and invertebrate fauna. A number of draining channels bisect the moor where two woodland types have also developed. Flitwick Moor is also important for mosses and liverworts, fungi, invertebrates and breeding birds.
Flitwick Wood LNR, CWS	14.4	TL023348	Flitwick Wood LNR is located approximately 3.3km to the south of the Survey Site. This site consists of an area of ancient woodland supporting a diverse botanical assemblage.
Flitton Moor LNR	6.7	TL056360	This site is located 4.2km to the south east of the Survey Site and consists of fen, moor, grassland and woodland habitats.

SSSI = Site of Special Scientific Interest, LNR = Local Nature Reserve, CWS = County Wildlife Site, RNR = Roadside Nature Reserve

Table 2: Non-statutory Designated Sites within 2km of Site Boundary

Site Name	Area (ha)	Grid ref.	Description
Rookery Clay Pit CWS	153.1	TL017413	This CWS covers the northern portion of land within the Survey Site. The pit consists of three large pools with sparse ephemeral/short perennial vegetation and rank neutral grassland in the north-western corner. Small patches of marsh vegetation are also present throughout the site. A broadleaved plantation is present in the centre of the site.
Stewartby Lake CWS	111.1	TL005425	This CWS lies adjacent to the north-west of the Survey Site. This site includes a large steep-sided lake supporting typical marshland communities on its periphery. The clay areas in the south-west of the support an MG1 grassland community that includes species associated with calcareous soils. A survey in 2004 found the grassland to most closely resemble a CG7d community (Fragaria-Erigeron sub-community) with affinities to MG5 grassland. There are marshy areas interspersed within the grassland along with small ponds and ditches. The northeast side of the lake mostly consists of dense hawthorn scrub with a regularly mown path through it. The site supports a diverse assemblage of breeding and overwintering birds.
Millbrook Pillinge Pit CWS	19.5	TL006412	This CWS is also located adjacent to the north-west of the Survey Site and comprises a water-filled Oxford Clay pit bordered by a margin of neutral grassland (MG1) and scattered scrub. An area of dense scrub is present on the eastern side of the site. A number of small, scrub-covered islands are present in the lake and there are also stands of S13 lesser reedmace swamp habitat of CWS status present on site.

Site Name	Area (ha)	Grid ref.	Description
Millbrook Churchyard CWS	0.57	TL013385	This churchyard lies adjacent to the south-west of the Survey Site and consists of semi-improved acid grassland (U1 and MG5 communities). The site supports three acid grassland indicators, eight neutral and neutral/calcareous indicators (meeting the CWS threshold of eight), two strong neutral and neutral/calcareous indicators and one strong calcareous grassland indicator. The site therefore meets CWS criteria for both neutral and acid grassland recognition.
Millbrook CWS	4.9	TL013384	This CWS is also located adjacent to the south-west of the Survey Site and south of Millbrook Churchyard CWS and consists of acidic and marshy grassland habitats. Broadleaved woodland is also present on site.
Ampthill Park CWS	50.5	TL027385	This site is located approximately 160m to the east of the Survey Site. This site consists of a large area of unimproved acidic grassland, semi-improved acidic grassland and marshy grassland with scattered trees and scrub, dense scrub and some open water (three fish-stocked ponds); and Laurel Wood (mature semi-natural broadleaved woodland).
Ampthill Tunnel CWS	2.2	TL021377	This CWS is located approximately 540m to the south-east of the Survey Site and contains unimproved neutral and acid grassland. The northern end of the site contains scrub with mature oaks present on the eastern site boundary. It contains good examples of neutral grassland and greensand grassland. Common lizards are present on this site.
Millbrook Warren CWS	202.2	TL001375	This site lies approximately 580m to the south-west of the Survey Site and consists of ancient woodland and mature plantation woodland.
Heydon Hill CWS	11.8	TL004387	This site is located approximately 980m to the west of the Survey Site and comprises a single block of semi-natural broadleaved (ancient) woodland and two fields of acidic grassland adjacent to east.
Lidlington Pit CWS	10.5	TL001401	This site lies approximately 820m from the west of the Survey Site and comprises a large flooded clay pit with peripheral neutral grassland and swamp habitats.
Coronation Pit CWS	95.4	TL030433	Coronation Pit CWS is located approximately 1.1km to the north-east of the Survey Site. The site is a large disused brick pit with a large lake over 33ha in area located in the south of the site. Areas of broadleaved woodland, dense scrub and rank neutral grassland are also present on this site.
Ampthill Cemetery and the Knoll CWS	2.4	TL037383, TL040381	This site lies approximately 1.1km to the east of the Survey Site and comprises semi-improved neutral and acid grassland with scattered trees and shrubs.

Site Name	Area (ha)	Grid ref.	Description
Marston Bypass RNR	0.7	SP989410	This site is located approximately 2km to the west of the Survey Site and consists of a road verge sowed with wildflower seeds.

Table 3: Summary of Records of Protected Species and Species of Conservation Importance. Provided by BLBRMC and based on BSG Ecology's knowledge and previous work on the Rookery Pit CWS

Common Name	Scientific Name	Date	Grid Ref.	Location and Distance from Site
Small heath	*Coenonympha pamphilus*	2012	TL015407	On site (within Rookery Clay Pit CWS).
Dingy skipper	*Erynnis tages*	2011	TL020408	On site (within Rookery Clay Pit CWS).
Wall	*Lasiommata megera*	2010	TL020408	On site (within Rookery Clay Pit CWS).
Grizzled skipper	*Pyrgus malvae*	2012	TL015407	On site (within Rookery Clay Pit CWS).
Knotgrass	*Acronicta rumicis*	2009	TL0238	In Ampthill Park CWS approximately 160m to the east of the Survey Site.
Grey dagger	*Acronicta psi*	2010	TL0238	In Ampthill Park CWS approximately 160m to the east of the Survey Site.
Beaded chestnut	*Acronicta rumicis*	2009	TL0238	In Ampthill Park CWS approximately 160m to the east of the Survey Site.
Mouse moth	*Amphipyra tragopoginis*	2010	TL035370	Approximately 1.9km to the south-east of the Survey Site.
Large nutmeg	*Apamea anceps*	2010	TL032379	Approximately 1.2km to the south-east of the Survey Site.
Dusky brocade	*Apamea remissa*	2009	TL0238	In Ampthill Park CWS approximately 160m to the east of the Survey Site.
Garden tiger	*Arctia caja*	2007	TL0142	In Stewartby Lake CWS adjacent to the north-west of the Survey Site.
Centre-barred sallow	*Atethmia centrago*	2004	TL038380	Approximately 1.7km to the east of the Survey Site.
Dark brocade	*Blepharita adusta*	2009	TL0238	In Ampthill Park CWS approximately 160m to the east of the Survey Site.
Mottled rustic	*Caradrina morpheus*	2010	TL0238	In Ampthill Park CWS approximately 160m to the east of the Survey Site.
Small square-spot	*Diarsia rubi*	2009	TL0238	In Ampthill Park CWS approximately 160m to the east of the Survey Site.
Small phoenix	*Ecliptopera silaceata*	2012	TL0040	Adjacent to the west of the Survey Site.

Common Name	Scientific Name	Date	Grid Ref.	Location and Distance from Site
September thorn	*Ennomos erosaria*	2005	TL038380	Approximately 1.7km to the east of the Survey Site.
Spinach	*Eulithis mellinata*	2005	TL038380	Approximately 1.7km to the east of the Survey Site.
White-line dart	*Euxoa tritici*	2010	TL0238	In Ampthill Park CWS approximately 160m to the east of the Survey Site.
Small emerald	*Hemistola chrysoprasaria*	2006	TL038380	Approximately 1.7km to the east of the Survey Site.
Ghost moth	*Hepialus humuli*	2009	TL0041	Adjacent to the west of the Survey Site.
Rustic	*Hoplodrina blanda*	2010	TL035370	Approximately 1.9km to the south-east of the Survey Site.
Rosy rustic	*Hydraecia micacea*	2010	TL032379	Approximately 1.2km to the south-east of the Survey Site.
Brindled beauty	*Lycia hirtaria*	2010	TL032379	Approximately 1.2km to the south-east of the Survey Site.
Lackey	*Malacosoma neustria*	2010	TL0140	On site (Rookery Clay Pit CWS)
Dot moth	*Melanchra persicariae*	2010	TL0238	In Ampthill Park CWS approximately 160m to the east of the Survey Site.
Broom moth	*Melanchra pisi*	2009	TL0041	Adjacent to the west of the Survey Site.
Shoulder-striped wainscot	*Mythimna comma*	2011	TL0238	In Ampthill Park CWS approximately 160m to the east of the Survey Site.
Hore-hound long-horn	*Nemophora fasciella*	2009	TL0238	In Ampthill Park CWS approximately 160m to the east of the Survey Site.
Shaded broad-bar	*Scotopteryx chenopodiata*	2009	TL0240	On site (Rookery Clay Pit CWS)
White ermine	*Spilosoma lubricipeda*	2009	TL0041	Adjacent to the west of the Survey Site.
Buff Ermine	*Spilosoma luteum*	2011	TL0238	In Ampthill Park CWS approximately 160m to the east of the Survey Site.
Hedge rustic	*Tholera cespitis*	2006	TL0238	In Ampthill Park CWS approximately 160m to the east of the Survey Site.
Feathered gothic	*Tholera decimalis*	2006	TL0238	In Ampthill Park CWS approximately 160m to the east of the Survey Site.
Blood-vein	*Timandra comae*	2008	TL0140	On site (Rookery Clay Pit CWS)
Cinnabar	*Tyria jacobaeae*	2009	TL0140	On site (Rookery Clay Pit CWS)
Oak hook-tip	*Watsonalla binaria*	2010	TL0238	In Ampthill Park CWS approximately 160m to the east of the Survey Site.

Common Name	Scientific Name	Date	Grid Ref.	Location and Distance from Site
Sallow	*Xanthia icteritia*	2006	TL0238	In Ampthill Park CWS approximately 160m to the east of the Survey Site.
Common toad	*Bufo bufo*	2013	TL0140	On site (Rookery Clay Pit CWS)*
Great crested newt	*Triturus cristatus*	2013	TL0140	On site (Rookery Clay Pit CWS)*
Grass snake	*Natrix natrix*	2013	TL0140	On site (Rookery Clay Pit CWS)*
Common lizard	*Zootoca vivipara*	2013	TL0140	On site (Rookery Clay Pit CWS)*
Sparrowhawk	*Accipiter nisus*	2013	TL0140	On site (Rookery Clay Pit CWS)*
Common sandpiper	*Actitis hypoleucos*	2006	TL015407	On site (Rookery Clay Pit CWS)
Skylark	*Alauda arvensis*	2013	TL0140	On site (Rookery Clay Pit CWS)*
Kingfisher	*Alcedo atthis*	2013	TL0140	On site (Rookery Clay Pit CWS)*
Pintail	*Anas acuta*	2013	TL0140	On site (Rookery Clay Pit CWS)*
Shoveller	*Anas clypeata*	2013	TL0140	On site (Rookery Clay Pit CWS)*
Teal	*Anas cracca*	2013	TL0140	On site (Rookery Clay Pit CWS)*
Wigeon	*Anas penelope*	2013	TL0140	On site (Rookery Clay Pit CWS)*
Mallard	*Anas platyrhynchos*	2013	TL0140	On site (Rookery Clay Pit CWS)*
Garganey	*Anas querquedula*	2008	TL0141	On site (Rookery Clay Pit CWS)
Gadwall	*Anas strepera*	2013	TL0140	On site (Rookery Clay Pit CWS)*
Greylag goose	*Anser anser*	2008	TL0141	On site (Rookery Clay Pit CWS)
Meadow pipit	*Anthus pratensis*	2013	TL0140	On site (Rookery Clay Pit CWS)*
Tree pipit	*Anthus trivialis*	2006	TL0140	On site (Rookery Clay Pit CWS)
Swift	*Apus apus*	2013	TL0140	On site (Rookery Clay Pit CWS)*
Grey heron	*Ardea cinerea*	2013	TL0140	On site (Rookery Clay Pit CWS)*
Turnstone	*Arenaria interpres*	2008	TL0142	On site (Rookery Clay Pit CWS)
Short-eared owl	*Asio flammeus*	2008	TL0041	Adjacent to the west of the Survey Site.
Long-eared owl	*Asio otus*	2008	TL0041	Adjacent to the west of the Survey Site.

Common Name	Scientific Name	Date	Grid Ref.	Location and Distance from Site
Little owl	*Athene noctua*	2004	TL008425	Stewartby Lake CWS adjacent to the west of the Survey Site.
Pochard	*Aythya ferina*	2013	TL0140	On site (Rookery Clay Pit CWS)*
Tufted duck	*Aythya fuligula*	2013	TL0140	On site (Rookery Clay Pit CWS)*
Greater scaup	*Aythya marila*	2007	TL0042	Stewartby Lake CWS adjacent to the west of the Survey Site.
Ferruginous duck	*Aythya nyroca*	2003	TL0042	Stewartby Lake CWS adjacent to the west of the Survey Site.
Waxwing	*Bombycilla garrulus*	2005	TL008425	Stewartby Lake CWS adjacent to the west of the Survey Site.
Bittern	*Botaurus stellaris*	2013	TL0140	On site (Rookery Clay Pit CWS)*
Barnacle goose	*Branta leucopsis*	2007	TL0042	Stewartby Lake CWS adjacent to the west of the Survey Site.
Goldeneye	*Bucephala clangula*	2008	TL0042	Stewartby Lake CWS adjacent to the west of the Survey Site.
Buzzard	*Buteo buteo*	2013	TL0140	On site (Rookery Clay Pit CWS)*
Sanderling	*Calidris alba*	2005	TL0140	On site (Rookery Clay Pit CWS)
Dunlin	*Calidris alpina*	2006	TL0140	On site (Rookery Clay Pit CWS)
Knot	*Calidris canutus*	2006	TL0140	On site (Rookery Clay Pit CWS)
Curlew sandpiper	*Calidris ferruginea*	2003	TL0041	Adjacent to the west of the Survey Site.
Little stint	*Calidris minuta*	2006	TL027430	Coronation Pit CWS, 1.1km to the north-east of the Survey Site.
Lesser redpoll	*Carduelis cabaret*	2005	TL0042	Stewartby Lake CWS adjacent to the west of the Survey Site.
Linnet	*Carduelis cannabina*	2005	TL0041	Adjacent to the west of the Survey Site.
Goldfinch	*Carduelis carduelis*	2014	TL0140	On site (Rookery Clay Pit CWS)*
Greenfinch	*Carduelis chloris*	2008	TL0141	On site (Rookery Clay Pit CWS)
Common redpoll	*Carduelis flammea*	2005	TL026385	In Ampthill Park CWS approximately 160m to the east of the Survey Site.
Siskin	*Carduelis spinus*	2013	TL0140	On site (Rookery Clay Pit CWS)*
Tree creeper	*Certhia familiaris*	2007	SP9938	Approximately 580m to the south-west of the Survey Site.
Cetti's warbler	*Cettia cetti*	2014	TL0140	On site (Rookery Clay Pit CWS)*
Little ringed plover	*Charadrius dubius*	2013	TL0140	On site (Rookery Clay Pit CWS)*

Common Name	Scientific Name	Date	Grid Ref.	Location and Distance from Site
Ringed plover	*Charadrius hiaticula*	2008	TL0141	On site (Rookery Clay Pit CWS)
Black tern	*Chlidonias niger*	2008	TL0141	On site (Rookery Clay Pit CWS)
Black-headed gull	*Chroicocephalus ridibundus*	2013	TL0140	On site (Rookery Clay Pit CWS)*
Marsh harrier	*Circus aeruginosus*	2014	TL0141	On site (Rookery Clay Pit CWS)*
Hen harrier	*Circus cyaneus*	2008	TL0142	On site (Rookery Clay Pit CWS)
Hawfinch	*Coccothraustes coccothraustes*	2005	TL0042	Stewartby Lake CWS adjacent to the west of the Survey Site.
Stock dove	*Columba oenas*	2008	TL0141	On site (Rookery Clay Pit CWS)
Raven	*Corvus corax*	2008	TL015407	On site (within Rookery Clay Pit).
Quail	*Coturnix coturnix*	2006	TL0041	Adjacent to the west of the Survey Site.
Cuckoo	*Cuculus canorus*	2013	TL0140	On site (Rookery Clay Pit CWS)*
Whooper swan	*Cygnus columbianus*	2005	TL015407	On site (within Rookery Clay Pit).
Mute swan	*Cygnus olor*	2014	TL0140	On site (Rookery Clay Pit CWS)
House martin	*Delchion urbicum*	2013	TL0140	On site (Rookery Clay Pit CWS)*
Great spotter woodpecker	*Dendrocopus major*	2013	TL0140	On site (Rookery Clay Pit CWS)*
Lesser spotted woodpecker	*Dendrocopus minor*	2007	TL029381	In Ampthill Park CWS approximately 160m to the east of the Survey Site.
Little egret	*Egretta garzetta*	2013	TL0140	On site (Rookery Clay Pit CWS)*
Corn bunting	*Emberiza calandra*	2004	TL0042	Stewartby Lake CWS adjacent to the west of the Survey Site.
Yellowhammer	*Emberiza citronella*	2008	TL015407	On site (within Rookery Clay Pit).
Reed bunting	*Emberiza schoeniclus*	2013	TL0140	On site (Rookery Clay Pit CWS)*
Merlin	*Falco columbarius*	2014	TL0140	On site (Rookery Clay Pit CWS)*
Hobby	*Falco subbuteo*	2013	TL0140	On site (Rookery Clay Pit CWS)*
Kestrel	*Falco tinnunculus*	2014	TL0140	On site (Rookery Clay Pit CWS)*
Red-footed falcon	*Falco vespertinus*	2012	TL0140	On site (Rookery Clay Pit CWS)
Pied flycatcher	*Motacilla alba*	2003	TL0041	Adjacent to the west of the Survey Site.

Common Name	Scientific Name	Date	Grid Ref.	Location and Distance from Site
Brambling	*Fringilla montifringilla*	2006	TL0042	Stewartby Lake CWS adjacent to the west of the Survey Site.
Fulmar	*Fulmarus glacialis*	2008	TL0042	Stewartby Lake CWS adjacent to the west of the Survey Site.
Snipe	*Gallinago gallinago*	2014	TL0140	On site (Rookery Clay Pit CWS)*
Moorhen	*Gallinula chloropus*	2014	TL0140	On site (Rookery Clay Pit CWS)*
Black-throated diver	*Gavia arctica*	2007	TL0042	Stewartby Lake CWS adjacent to the west of the Survey Site.
Great northern diver	*Gavia immer*	2006	TL004417	Adjacent to the west of the Survey Site.
Oystercatcher	*Haemotopus ostralegus*	2013	TL0140	On site (Rookery Clay Pit CWS)*
Swallow	*Hirundo rustica*	2013	TL0140	On site (Rookery Clay Pit CWS)*
Little gull	*Hydrocoloeus minutus*	2008	TL0041	Adjacent to the west of the Survey Site.
Caspian tern	*Hydroprogne caspia*	2007	TL0041	Adjacent to the west of the Survey Site.
Great grey shrike	*Lanius excubitor*	2003	TL008425	Stewartby Lake CWS adjacent to the west of the Survey Site.
Herring gull	*Larus argentatus*	2013	TL0140	On site (Rookery Clay Pit CWS)*
Common gull	*Larus canus*	2013	TL0140	On site (Rookery Clay Pit CWS)*
Lesser black-backed gull	*Larus fuscus*	2013	TL0140	On site (Rookery Clay Pit CWS)*
Iceland gull	*Larus glaucoides*	2007	TL0042	Stewartby Lake CWS adjacent to the west of the Survey Site.
Glaucous gull	*Larus hyperboreus*	2007	TL0042	Stewartby Lake CWS adjacent to the west of the Survey Site.
Great black-backed gull	*Larus marinus*	2004	TL015407	On site (within Rookery Clay Pit).
Mediterranean gull	*Larus melanocephalus*	2007	TL015407	On site (within Rookery Clay Pit).
Yellow-legged gull	*Larus michahellis*	2007	TL0042	Stewartby Lake CWS adjacent to the west of the Survey Site.
Bar-tailed godwit	*Limosa lapponica*	2004	TL008425	Stewartby Lake CWS adjacent to the west of the Survey Site.
Black-tailed godwit	*Limosa limosa*	2006	TL015407	On site (within Rookery Clay Pit).
Grasshopper warbler	*Locustella naevia*	2013	TL0140	On site (Rookery Clay Pit CWS)*
Nightingale	*Luscinia megarhynchos*	2005	TL008425	Stewartby Lake CWS adjacent to the west of the Survey Site.

Common Name	Scientific Name	Date	Grid Ref.	Location and Distance from Site
Common scoter	*Melanitta nigra*	2004	TL008425	Stewartby Lake CWS adjacent to the west of the Survey Site.
Smew	*Mergellus albellus*	2005	TL004417	Adjacent to the west of the Survey Site.
Goodsander	*Mergus merganser*	2003	TL004417	Adjacent to the west of the Survey Site.
Red kite	*Milvus milvus*	2014	TL0140	On site (Rookery Clay Pit CWS)*
Gannet	*Morus bassanus*	2004	TL008425	Stewartby Lake CWS adjacent to the west of the Survey Site.
Pied wagtail	*Motacilla alba*	2013	TL0140	On site (Rookery Clay Pit CWS)*
Grey wagtail	*Motacilla cinerea*	2013	TL0140	On site (Rookery Clay Pit CWS)*
Yellow wagtail	*Motacilla flava flavissima*	2013	TL0140	On site (Rookery Clay Pit CWS)*
Spotted flycatcher	*Muscicapa striata*	2006	TL004417	Adjacent to the west of the Survey Site
Red crested pochard	*Netta rufina*	2006	TL004417	Adjacent to the west of the Survey Site
Curlew	*Numenius arquata*	2005	TL015407	On site (within Rookery Clay Pit).
Whimbrel	*Numenius phaeopus*	2008	TL0141	On site (Rookery Clay Pit CWS)
Wheatear	*Oenanthe oenanthe*	2013	TL0140	On site (Rookery Clay Pit CWS)*
Osprey	*Pandion haliaetus*	2006	TL015407	On site (within Rookery Clay Pit).
Bearded tit	*Panurus biarmicus*	2004	TL004417	Adjacent to the west of the Survey Site.
Tree sparrow	*Passer montanus*	2003	TL004417	Adjacent to the west of the Survey Site.
House sparrow	*Passer domesticus*	2008	TL0141	On site (Rookery Clay Pit CWS)
Grey partridge	*Perdix perdix*	2007	TL0141	On site (Rookery Clay Pit CWS)
Coal tit	*Periparus ater*	2013	TL0140	On site (Rookery Clay Pit CWS)*
Shag	*Phalacrocorax aristotelis*	2005	TL008425	Stewartby Lake CWS adjacent to the west of the Survey Site.
Cormorant	*Phalacrocorax carbo*	2014	TL0140	On site (Rookery Clay Pit CWS)*
Grey phalrope	*Phalaropus fulicarius*	2007	TL0042	Stewartby Lake CWS adjacent to the west of the Survey Site.
Ruff	*Philomachus pugnax*	2005	TL015407	On site (within Rookery Clay Pit).

Common Name	Scientific Name	Date	Grid Ref.	Location and Distance from Site
Black redstart	*Phoenicurus ochruros*	2003	TL03	Within 2km of the Survey Site.
Redstart	*Phoenicurus phoenicurus*	2006	TL015407	On site (within Rookery Clay Pit).
Willow warbler	*Phylloscopus trochilus*	2013	TL0140	On site (Rookery Clay Pit CWS)*
Green woodpecker	*Picus viridis*	2013	TL0140	On site (Rookery Clay Pit CWS)*
Snow bunting	*Plectrophenax nivalis*	2007	TL0142	On site (Rookery Clay Pit CWS)
Golden plover	*Pluvialis apricaria*	2005	TL015407	On site (within Rookery Clay Pit).
Grey plover	*Pluvialis squatarola*	2007	TL0042	Stewartby Lake CWS adjacent to the west of the Survey Site.
Slavonian grebe	*Podiceps auritus*	2004	TL008425	Stewartby Lake CWS adjacent to the west of the Survey Site.
Great crested grebe	*Podiceps cristatus*	2013	TL0140	On site (Rookery Clay Pit CWS)*
Black-necked grebe	*Podiceps nigricollis*	2006	TL008425	Stewartby Lake CWS adjacent to the west of the Survey Site.
Marsh tit	*Poecile palustris*	2006	TL008425	Stewartby Lake CWS adjacent to the west of the Survey Site.
Dunnock	*Prunella modularis*	2013	TL0140	On site (Rookery Clay Pit CWS)*
Bullfinch	*Pyrrhula pyrrhula*	2013	TL0140	On site (Rookery Clay Pit CWS)*
Water rail	*Rallus aquaticus*	2005	TL008425	Stewartby Lake CWS adjacent to the west of the Survey Site.
Avocet	*Recurvirostra avosetta*	2004	TL015407	On site (within Rookery Clay Pit).
Firecrest	*Regulus ignicapilla*	2004	TL008425	Stewartby Lake CWS adjacent to the west of the Survey Site.
Goldcrest	*Regulus regulus*	2006	TL008425	Stewartby Lake CWS adjacent to the west of the Survey Site.
Sand martin	*Riparia riparia*	2013	TL0140	On site (Rookery Clay Pit CWS)*
Kittiwake	*Rissa tridactyla*	2004	TL008425	Stewartby Lake CWS adjacent to the west of the Survey Site.
Whinchat	*Saxicola rubetra*	2006	TL015407	On site (within Rookery Clay Pit).
Stonechat	*Saxicola torquata*	2005	TL026385	In Ampthill Park CWS approximately 160m to the east of the Survey Site.

Common Name	Scientific Name	Date	Grid Ref.	Location and Distance from Site
Woodcock	*Scolopax rusticola*	2014	TL0140	On site (Rookery Clay Pit CWS)*
Nuthatch	*Sitta europaea*	2007	SP9938	Approximately 580m to the south-west of the Survey Site
Common tern	*Sterna hirundo*	2014	TL0140	On site (Rookery Clay Pit CWS)*
Arctic tern	*Sterna paradisaea*	2006	TL008425	Stewartby Lake CWS adjacent to the west of the Survey Site.
Sandwich tern	*Sterna sandvicensis*	2008	TL0042	Stewartby Lake CWS adjacent to the west of the Survey Site.
Little tern	*Sternula albifrons*	2005	TL015407	On site (within Rookery Clay Pit).
Turtle dove	*Streptopelia turtur*	2012	TL0140	On site (Rookery Clay Pit CWS)*
Tawny owl	*Strix aluco*	2005	TL008425	Stewartby Lake CWS adjacent to the west of the Survey Site.
Starling	*Sturnus vulgaris*	2013	TL0140	On site (Rookery Clay Pit CWS)*
Whitethroat	*Sylvia communis*	2013	TL0140	On site (Rookery Clay Pit CWS)*
Little grebe	*Tachybaptus ruficollis*	2013	TL0140	On site (Rookery Clay Pit CWS)*
Shelduck	*Tadorna tadorna*	2006	TL015407	On site (within Rookery Clay Pit CWS).
Spotted redshank	*Tringa erythropus*	2005	TL015407	On site (within Rookery Clay Pit CWS).
Wood sandpiper	*Tringa glareola*	2004	TL015407	On site (within Rookery Clay Pit CWS).
Greenshank	*Tringa nebularia*	2005	TL015407	On site (within Rookery Clay Pit CWS).
Green sandpiper	*Tringa ochropus*	2005	TL015407	On site (within Rookery Clay Pit CWS).
Redshank	*Tringa totanus*	2005	TL015407	On site (within Rookery Clay Pit CWS).
Redwing	*Turdus iliacus*	2014	TL0140	On site (Rookery Clay Pit CWS)*
Song thrush	*Turdus philomelos*	2008	TL0141	On site (Rookery Clay Pit CWS)
Fieldfare	*Turdus pilaris*	2014	TL0140	On site (Rookery Clay Pit CWS)*
Ring ouzel	*Turdus torquatus*	2008	TL0042	Stewartby Lake CWS adjacent to the west of the Survey Site.
Mistle thrush	*Turdus viscivorus*	2013	TL0140	On site (Rookery Clay Pit CWS)*

Common Name	Scientific Name	Date	Grid Ref.	Location and Distance from Site
Barn owl	*Tyto alba*	2006	TL004417	Adjacent to the west of the Survey Site
Lapwing	*Vanellus vanellus*	2014	TL0140	On site (Rookery Clay Pit CWS)*
Water vole	*Arvicola amphibius*	2012	TL019437	Approximately 1.5km to the north of the Survey Site.
Otter	*Lutra lutra*	2010	TL011415	Approximately 80m to the west of the Survey Site.
Badger	*Meles meles*	2013	TL0140	On site (Rookery Clay Pit CWS)*
Barbastelle bat	*Barbastella barbastellus*	2013	TL031384	Approximately 1km to the east of the Survey Site.
Natterer's bat	*Myotis nattereri*	2013	TL031384	Approximately 1km to the east of the Survey Site.
Noctule bat (Tree roost)	*Nyctalus noctula*	2012	TL015384	Approximately 150m to the west of the Survey Site.
Bat from the genus *Myotis*	*Myotis sp.*	2008	TL031386	Approximately 1km to the east of the Survey Site.
Daubenton's bat	*Myotis daubentonii*	2009	TL006407	Approximately 300m to the west of the Survey Site.
Common pipistrelle	*Pipistrellus Pipistrellus*	2009	TL020426	Approximately 600m to the north of the Survey Site.
Soprano pipistrelle	*Pipistrellus pygmaeus*	2009	TL031383	Approximately 1km to the east of the Survey Site.
Brown long-eared bat	*Plecotus auritus*	2013	TL031384	Approximately 1km to the east of the Survey Site.
Serotine bat	*Eptesicus serotinus*	2008	TL024381	Approximately 400m to the south-east of the Survey Site.
Harvest mouse	*Microtus minutus*	2012	TL0140	On site (Rookery Clay Pit CWS)*
Brown hare	*Lepus europaeus*	2014	TL0140	On site (Rookery Clay Pit CWS)*
Hedgehog	*Erinaceus europaeus*	2005	TL017382	Approximately 190m to the west of the Survey Site

* = Species incidentally recorded during great crested newt survey and translocation works undertaken at the Rookery Pit between 2011 and 2014.

9 Appendix 3: Target Notes

Target Note 1

The rail embankment on the southern boundary of the Survey Site supports a parcel of mature-semi-mature semi-natural broadleaved woodland. This area has the potential to be used by badgers for sett building, as possible terrestrial habitat for great crested newts as possible roosting, foraging and commuting habitat for bats and as nesting habitat for birds.

Scientific Name	Common Name	DAFOR (Frequency)
Trees/shrubs		
Poplar sp.	*Populus* sp.	A
Hawthorn	*Crataegus monogyna*	A
Elder	*Sambucus nigra*	A
Pedunculate oak	*Quercus robur*	O
Herbs		
Lords and Ladies	*Arum maculatum*	F
Ivy	*Hedera helix*	F
Common nettle	*Urtica dioica*	F

Target Note 2

A mosaic of tall ruderal vegetation and poor semi-improved grassland borders the footpath in the south-eastern corner of the Survey Site. This habitat has the potential to provide foraging and sheltering habitat for reptiles.

Scientific Name	Common Name	DAFOR (Frequency)
Grasses/Sedges/Rushes		
Tall fescue	*Festuca arundinacea*	O
False oat-grass	*Arrhenatherum elatius*	O
Common bent	*Agrostis capillaris*	O
Herbs		
Common nettle	*Urtica dioica*	D
Lords and ladies	*Arum maculatum*	O
Cleavers	*Galium aparine*	O
Bramble	*Rubus fruticosus* agg.	O

Target Note 3

The majority of the south of the Survey Site consists of intensively managed/grazed improved grassland pasture. This pasture has limited species diversity being dominated by perennial rye-grass *Lolium perenne* with frequent Yorkshire fog *Holcus lanatus* and occasional common bent. Forbs and herbs are sparse amongst the sward with only creeping buttercup *Ranunculus repens* present.

Target Note 4

A small parcel of young, plantation broadleaved woodland located in the south-eastern corner of the Survey Site. This area is likely to provide nesting habitat for birds and has the potential to provide foraging and sheltering habitat for badgers and foraging and commuting habitat for bats.

Scientific Name	Common Name	DAFOR (Frequency)
Trees/shrubs		
Poplar sp.	*Populus* sp.	A
Hawthorn	*Crataegus monogyna*	A
Hazel	*Corylus avellana*	O
Herbs		
Lords and Ladies	*Arum maculatum*	F

Target Note 5

A semi-mature copse of semi-natural broadleaved woodland is located on the western boundary of the Survey Site to the south of South Pillinge Farm. This area of woodland has the potential to be used as sheltering habitat by badgers, foraging, commuting and roosting habitat for bats and as nesting habitat by birds.

Scientific Name	Common Name	DAFOR (Frequency)
Trees/shrubs		
Ash	*Fraxinus excelsior*	F
Poplar sp.	*Populus* sp.	F
Norway maple	*Acer platanoides*	O
Field maple	*Acer campestre*	O
Beech	*Fagus sylvatica*	O
Scot's pine	*Pinus sylvestris*	O
Silver birch	*Betula pendula*	O
Hawthorn	*Crataegus monogyna*	O
Pedunculate oak	*Quercus robur*	O
Herbs		
Lords and Ladies	*Arum maculatum*	F
Common nettle	*Urtica dioica*	O

Target Note 6

This woodland parcel continues south along the western boundary of the Survey Site where it borders the road. This area is likely to be used as a foraging and commuting resource by bats present in the wider landscape.

Target Note 7

This woodland eventually narrows to form a species-poor hedgerow approximately 3m in height. This hedgerow is dominated by hawthorn with occasional dog rose *Rosa canina*. Lords and ladies and common nettle are present in the ground flora associated with this feature.

Target Note 8

An area of young plantation mixed woodland is present in the centre of the Survey Site and bisects the Survey Site from east to west. This area is likely to provide nesting habitat for birds and the dense grassland ground layer has the potential to provide sheltering and foraging habitat for reptiles. The trees are young.

Scientific Name	Common Name	DAFOR (Frequency)
Trees/shrubs		
Pedunculate oak	*Quercus robur*	F
Scot's pine	*Pinus sylvestris*	F
Hazel	*Corylus avellana*	F
Field maple	*Acer campestre*	O
Beech	*Fagus sylvatica*	O
Guelder rose	*Viburnum opulus*	O
Silver birch	*Betula pendula*	O
Hawthorn	*Crataegus monogyna*	O
Grasses/Sedges/Rushes		
Tall fescue	*Festuca arundinacea*	O
False oat-grass	*Arrhenatherum elatius*	O
Red fescue	*Festuca rubra*	O
Herbs		
Bramble	*Rubus fruticosus* agg.	O
Common nettle	*Urtica dioica*	O

Note 9

A wet ditch comprising open areas with limited macrophyte cover, including fool's water cress *Apium nodiflorum*. This ditch has some potential to support water voles.

Target Note 10

A sparsely planted area of mixed plantation woodland. The low intensity planting has allowed areas of semi-improved grassland to mature providing possible habitat for reptiles. The vegetative composition of this area is similar to that described in Target Note 8 above.

Target Note 11

A parcel of semi-natural broadleaved woodland. This woodland parcel has the potential to provide foraging habitat for badgers and nesting habitat for birds.

Scientific Name	Common Name	DAFOR (Frequency)
Trees/shrubs		
Pedunculate oak	*Quercus robur*	F
Ash	*Fraxinus excelsior*	F
Elder	*Sambucus nigra*	F
Hawthorn	*Crataegus monogyna*	O
Herbs		
Lords and ladies	*Arum maculatum*	O
Common nettle	*Urtica dioica*	O

Target Note 12

An area of tall ruderal vegetation, approximately 5m in width, forms a buffer between this woodland parcel and the adjacent arable field. This area supports frequent common nettle *Urtica dioica*, willowherb (likely *Epilobium hirsutum*), hogweed *Heracleum sphondylium* and cow parsley *Anthriscus sylvestris.* This area becomes increasingly dominated by bramble *Rubus fruticosus* agg. and a number of very young ash *Fraxinus excelsior* tree saplings further to the south. This habitat mosaic is considered to have good potential to support reptiles (common lizard in particular).

Target Note 13

An arable crop (likely millet) that has been left uncut in order to provide cover for game birds (e.g. pheasants and partridges). A small number of herbs and forbs associated with arable habitat are present within this area including red dead nettle *Lamium purpureum* and common field speedwell *Veronica persica*.

Target Note 14

An area of mature, dense scrub dominated by elder *Sambucus nigra* and hawthorn *Crataegus monogyna*. Ground flora associated with this parcel included lords and ladies *Arum maculatum*, common nettle *Urtica dioica* and occasional ground ivy *Glechoma herderacea* and cleavers *Galium aparine*. This area is likely to be used by badgers as sheltering/sett building habitat.

Target Note 15

A shallow wet ditch. It is likely that this ditch is only holding water at present as a result of the recent heavy rain. There is very limited vegetation growth within the ditch and as a result it is considered to have limited potential to support water voles.

Target Note 16

The scrub described in TN14 above thins at its western extent to become dominated by semi-mature ash trees. The ground flora is dominated by semi-improved grassland considered to provide some limited habitat for reptiles.

Target Note 17

Pond D. This pond was dry at the time of survey and is dominated by ruderal vegetation including willowherb *Epilobium sp.* and common nettle *Urtica dioica*.

Target Note 18

A parcel of plantation broadleaved woodland located on the south-eastern corner of he Rookery Clay Pit CWS. This habitat parcel provide high quality nesting habitat for birds.

Scientific Name	**Common Name**	**DAFOR (Frequency)**
Trees/shrubs		
Alder	*Alnus glutinosa*	A
Silver birch	*Betula pendula*	F
Pedunculate oak	*Quercus robur*	F
Ash	*Fraxinus excelsior*	O
Hazel	*Corylus avellana*	O
Hawthorn	*Crataegus monogyna*	O
Herbs		
Lords and ladies	*Arum maculatum*	O
Common nettle	*Urtica dioica*	O

Target Note 19

A wet ditch supporting high water levels, potentially due to recent heavy rainfall. This ditch supports a number of ruderal species including creeping thistle *Cirsium arvense* and willowherb *Epilobium sp*. This ditch is likely to dry out annually.

Target Note 20

The ditch adjacent to South Pillinge Farm is lined with a number of planted trees that may be used as a commuting feature by bats. These include Lombardy poplar *Populus nigra italica,* crack willow *Salix fragilis* and hawthorn *Crataegus monogyna*.

Target Note 21

The access track in the north of the Survey Site consists of a mosaic of bare ground (soil), rubble (rail ballast) tall ruderal vegetation, rabbit grazed grassland and scattered hawthorn *Crataegus monogyna* and bramble *Rubus fructicosus* agg. scrub. This area has the potential to provide foraging and sheltering habitats for great crested newts and reptiles.

10 Appendix 4: Summaries of Relevant Legislation, Policy and Other Instruments

10.1 This section briefly summarises the relevant legislation, policy and related issues that are mentioned in the main text of the report. The following text does not constitute legal advice.

National Planning Policy Framework

10.2 The government published the National Planning Policy Framework (NPPF) on 27th March 2012. The NPPF states that, "*the planning system should contribute to and enhance the natural and local environment by*:

e. Protecting and enhancing valued landscapes, geological conservation interests and soils;

f. Recognising the wider benefits of ecosystem services;

g. Minimising impacts on biodiversity and providing net gains in biodiversity, where possible contributing to the Government's commitment to halt the overall decline in biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;

h. Preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution or land instability; and

i. Remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate."

Planning – land allocation and policies

10.3 The NPPF indicates that '*in preparing plans to meet development needs, the aim should be to minimise pollution and other adverse effects on the local and natural environment. Plans should allocate land with the least environmental or amenity value, where consistent with other policies in this Framework.*'

10.4 In paragraph 111, the NPPF refers to brownfield land as follows: '*planning policies and decisions should encourage the effective use of land by re-using land that has been previously developed (brownfield land), provided that it is not of high environmental value.*'

10.5 Local planning authorities are advised in paragraph 113 to '*set criteria-based policies against which proposals for any development on or affecting protected wildlife or geodiversity sites or landscape areas will be judged. Distinctions should be made between the hierarchy of international, national and locally designated sites so that protection is commensurate with their status and gives appropriate weight to their importance and the contribution that they make to wider ecological networks*.'

10.6 Local planning authorities are advised further to '*set out a strategic approach in their Local Plans, planning positively for the creation, protection, enhancement and management of networks of biodiversity and green infrastructure*…'

10.7 The NPPF also states that, "*to minimise impacts on biodiversity and geodiversity, planning policies should*:

a. Plan for biodiversity at a landscape-scale across local authority boundaries;

b. Identify and map components of the local ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity, wildlife corridors and stepping stones that connect them and areas identified by local partnerships for habitat restoration or creation;

c. Promote the preservation, restoration and re-creation of priority habitats, ecological networks and the protection and recovery of priority species populations, linked to national and local targets; and identify suitable indicators for monitoring biodiversity in the plan;

d. Aim to prevent harm to geological conservation interests; and

e. *Where Nature Improvement Areas are identified in Local Plans, consider specifying the types of development that may be appropriate in these Areas."*

Planning applications and biodiversity

10.8 "*When determining planning applications, local planning authorities should aim to conserve and enhance biodiversity by applying the following principles*:

a. *If significant harm resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;*

b. *Proposed development on land within or outside a Site of Special Scientific Interest likely to have an adverse effect on a Site of Special Scientific Interest (either individually or in combination with other developments) should not normally be permitted. Where an adverse effect on the site's notified special interest features is likely, an exception should only be made where the benefits of the development, at this site clearly outweigh both the impacts that it is likely to have on the features of the site that make it of special scientific interest and any broader impacts on the national network of Sites of Special Scientific Interest;*

c. *Development proposals where the primary objective is to conserve or enhance biodiversity should be permitted;*

d. *Opportunities to incorporate biodiversity in and around developments should be encouraged;*

10.9 In paragraph 125 the NPPF stipulates that '*by encouraging good design, planning policies and decisions should limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation*.'

10.10 The Government Circular 06/2005 remains valid and Paragraph 99 provides guidance stating "*It is essential that the presence or otherwise of protected species, and the extent that they may be affected by the proposed development, is established before the planning permission is granted, otherwise all relevant material considerations may not have been addressed in making the decision*".

Species and Habitats of Principal Importance

10.11 The NPPF (paragraph 117) indicates that local authorities should take measures to "*promote the preservation, restoration and re-creation of priority habitats, ecological networks and the protection and recovery of priority species*" linking to national and local targets through local planning policies. Priority species are those species shown on the England Biodiversity List published by the Secretary of State in accordance with Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006. Planning authorities have a duty under Section 40 of the NERC Act to have regard to priority species and habitats in exercising their functions including development control and planning.

The Central Bedfordshire Borough Council Core Strategy

10.12 The Core Strategy was adopted in 2009 and supersedes the mid Bedfordshire Local Plan. The relevant planning policy in relation to ecology and biodiversity within this document is Policy CS18.

Policy CS16 – Landscape and Woodland

10.13 This policy states that, *"The Council will:*

- *Protect, conserve and enhance the Chilterns Area of Outstanding Natural Beauty;*
- *Conserve and enhance the varied countryside character and local distinctiveness in accordance with the findings of the Mid Bedfordshire Landscape Character Assessment;*
- *Resist development where it will have an adverse effect on important landscape features or highly sensitive landscapes;*
- *Require development to enhance landscapes of lesser quality in accordance with the Landscape Character Assessment;*

- *Continue to support the creation of the Forest of Marston Vale recognising the need to regenerate the environmentally damaged landscape through woodland creation to achieve the target of 30% woodland cover in the Forest area by 2030;*
- *Conserve woodlands including ancient and semi-natural woodland, hedgerows and veteran trees; and*
- *Promote an increase in tree cover outside of the Forest of Marston Vale, where it would not threaten other valuable habitats".*

Policy CS18: Biodiversity and Geological Conservation

10.14 This policy states that, *"The Council will:*

- *Support the designation, management, and protection of biodiversity and geology including national designations (SSSI's), locally important County Wildlife Sites (CWS's) and Regionally Important Geological and Geomorphological Sites (RIGGS); as well as those local priority habitats and species identified in the Local Biodiversity Action Plan.*
- *Support the maintenance and enhancement of habitats, identify opportunities to create buffer zones and restore and repair fragmented and isolated habitats to form biodiversity networks.*

10.15 *Development that would fragment or prejudice the biodiversity network will not be permitted.*

European Legislation and National Legislation

European protected species –Great crested newts, Bats and Otters

10.16 The Conservation of Habitats and Species Regulations 2010 (as amended) consolidates the various amendments that have been made to the Regulations. The original (1994) Regulations transposed the EC Habitats Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora (Council Directive 92/43/EEC) into national law.

10.17 "*European protected species*" (EPS) are those which are present on Schedule 2 of the Conservation of Habitats and Species Regulations 2010. They are subject to the provisions of Regulation 41 of those Regulations. All EPS are also protected under the Wildlife and Countryside Act 1981 (as amended). Taken together, these pieces of legislation make it an offence to:

a. Intentionally or deliberately capture, injure or kill any wild animal included amongst these species
b. Possess or control any live or dead specimens or any part of, or anything derived from a these species
c. deliberately disturb wild animals of any such species
d. deliberately take or destroy the eggs of such an animal, or
e. intentionally, deliberately or recklessly damage or destroy a breeding site or resting place of such an animal, or obstruct access to such a place

10.18 For the purposes of paragraph (c), disturbance of animals includes in particular any disturbance which is likely—

a. to impair their ability—
    i. to survive, to breed or reproduce, or to rear or nurture their young, or
    ii. in the case of animals of a hibernating or migratory species, to hibernate or migrate; or
b. to affect significantly the local distribution or abundance of the species to which they belong.

10.19 Although the law provides strict protection to these species, it also allows this protection to be set aside (derogation) through the issuing of licences. The licences in England are currently

determined by Natural England (NE) for development works. In accordance with the requirements of the Regulations (2010), a licence can only be issued where the following requirements are satisfied:

c. The proposal is necessary '*to preserve public health or public safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment'*

d. '*There is no satisfactory alternative'*

e. The proposals *'will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range'*.

Breeding birds

10.20 All nesting birds are protected under the Wildlife and Countryside Act 1981 (as amended) which makes it an offence to intentionally kill, injure or take any wild bird or take, damage or destroy its nest whilst in use or being built, or take or destroy its eggs.

Schedule 1 Bird Species

10.21 Bird species listed on Schedule 1 of the WCA (e.g. barn owl and black redstart) receive additional protection from disturbance at or near an occupied nest site. Schedule 1 of the Act makes it an offence to intentionally or recklessly disturb this species while it is building a nest or is in, on or near a nest containing eggs or young. It also makes it an offence to intentionally or recklessly disturb dependent young of this species.

Common Reptiles

10.22 The common, widespread species of reptile (slow worm, grass snake, adder and common lizard) are protected through Sections 9(1) and 9(5) of the Wildlife and Countryside Act 1981 as amended by the Countryside and Rights of Way Act 2000, making it an offence to:

- Intentionally or recklessly kill or injure any reptile; or
- Sell, offer for sale, possess or transport for the purchase of sale or publish advertisements to buy or sell any reptile.

10.23 Reptiles across the UK have undergone significant declines in recent years and all species of reptile within the UK are now included on the list of species of principal importance prepared in response to Section 41 of the Natural Environment and Rural Communities (NERC) Act, 2006. This legislation placed a duty on the Secretary of State to publish, review and revise lists of living organisms in England that are of principal importance for the purpose of conserving biodiversity. The NERC Act also required the Secretary of State to take, and promote the taking of, steps to further the conservation of the listed organism.

Badgers

10.24 Badgers are protected under the Protection of Badgers Act 1992. This makes it an offence to wilfully kill, injure, take, possess or cruelly ill-treat a badger, or to attempt to do so; or to intentionally or recklessly interfere with a sett. Sett interference includes disturbing badgers whilst they are occupying a sett, as well as damaging or destroying a sett or obstructing access to it. A licence can be granted by Natural England to permit works that would otherwise result in an offence (e.g. to allow sett closure where activities close by may otherwise result in disturbance or damage to the sett).

Water Voles

10.25 The water vole and its habitats are protected by the Wildlife and Countryside Act 1981 (as amended). This makes it an offence to intentionally or recklessly:

- Kill, injure or take water voles;
- Possess or control live or dead water voles;

- Damage, destroy or obstruct access to any shelter or place which water voles uses for shelter or protection; or
- Disturb water voles while they are using such a place.

11 Appendix 5: Habitat Suitability Index (HSI) Assessment Results

Table 1: Results of Great Crested Newt HSI Assessment

ID	SI Scores (Oldham *et al*, 2000)											Suitability Class	Grid Ref
	Location	Area	Permanence	Water Quality	Shading	Water fowl	Fish	Density	Terrestrial Habitat	Macrophyte Cover	HSI Score		
A	1	0.6	0.5	0.67	1	1	1	0.84	0.33	0.6	0.71	Good	TL021405
	This water-body covers an area of approximately 310 m^2 and ranged between 50cm and 1m in depth. Vegetation in this pond consisted of bulrush *Typha latifolia* with occasional common reed *Phragmites australis*. This pond is located 208m to the north-east of the Survey Site within an arable field offering limited sheltering opportunities for newts in its immediate surrounding area apart from a narrow margin of unmanaged semi-improved grassland.												
B	-	-	-	-	-	-	-	-	-	-	-	-	TL009405
	Pond not present (dry) at the time of survey												
C	1	0.4	0.5	0.67	0.3	0.67	0.67	1	0.67	0.3	0.57	Below average	TL009405
	This pond lies approximately 50m outside of the western boundary of the Survey Site within the grounds of South Pillinge Farm. This pond ranges from 30-50cm in depth and is heavily shaded hazel, alder and willow trees. It is possible that great crested newts could use the fallen leaves from these trees as egg laying material. This waterbody is surrounded by grazed improved grassland.												
D	-	-	-	-	-	-	-	-	-	-	-	-	TL018397
	Pond not present (dry) at the time of survey (see Photograph 10 in Appendix 6).												
E	1	0.1	0.1	0.33	1	1	1	0.84	0.67	0.85	0.52	Below average	TL019395
	This water-body is located on the western boundary of the Survey Site adjacent to the road and rail line. This pond is fed by two outflows from nearby drainage ditches and was shallow at the time of survey. It is likely that this pond dries on an annual basis however, it did support dense mats of fool's watercress *Apium nodiflorum* that could be used as egg-laying material. The pond is surrounded by dense scrub considered to provide a suitable terrestrial habitat for newts.												
F	-	-	-	-	-	-	-	-	-	-	-	-	TL022395
	Pond not present (dry) at the time of survey												
G	1	0.05	0.1	0.33	1	1	1	0.95	0.33	0.3	0.42	Poor	TL017393

ID	SI Scores (Oldham *et al*, 2000)											Suitability Class	Grid Ref
	Location	**Area**	**Permanence**	**Water Quality**	**Shading**	**Water fowl**	**Fish**	**Density**	**Terrestrial Habitat**	**Macrophyte Cover**	**HSI Score**		
	This water-body lies within an arable field in the east of the Survey Site. This shallow pond is a small depression in the soil that supports a few grasses and some algae. It is likely that this pond dried annually.												
H	1	0.5	0.9	0.33	0.3	1	0.67	0.95	0.67	0.4	0.61	Average	TL017391
	A waterbody adjacent to Lower Farm in the south of the Survey Site. This water-body covers an area of approximately 250m^2 and is between 50cm and 1m in depth and supports small stands of bulrush. This pond is surrounded by scrub and scattered planted trees offering some potential sheltering habitat for newts. An inflow brings water into this waterbody from the adjacent road.												
I	1	0.8	1	0.67	0.8	1	0.67	1	0.67	0.3	0.75	Good	TL017393
	This water-body lies on the opposite side of the road to Pond H described above. This waterbody covers an area of approximately 400m^2 and is also between 50cm and 1m in depth. Patches of duckweed *Lemna minor* are present on this waterbody with no other aquatic macrophytes present. This waterbody is bordered by a ditch, and access track and a road.												
J	-	-	-	-	-	-	-	-	-	-	-	-	TL019389
	No access at the time of survey												
K	1	0.3	0.5	0.67	0.4	1	1	0.95	1	0.9	0.71	Good	TL020388
	This water-body lies approximately 72m to the east of the Survey Site with the rail corridor separating this pond from the Survey Site. This pond was relatively shallow and is likely to periodically dry. However, it supported dense mats of fool's watercress and was surrounded by a small woodland copse likely to provide high quality terrestrial habitat for great crested newts (see Photograph 9 in Appendix 6).												
L	1	0.1	1	0.33	0.4	1	1	1	1	0.4	0.59	Below average	TL016388
	This water-body lies in an improved grassland field in the centre of the Survey Site and covers an area of approximately 150-200m^2 and is approximately 50 cm to 1 m in depth (see Photograph 6, Appendix 6). Ruderal vegetation and scrub (3 m in width) surrounds this pond offering some potential sheltering habitat to newts. Common duckweed was present on the pond and it is likely that run off from the surrounding field feeds into the pond possibly adversely affecting water quality.												
M	1	0.8	1	0.67	1	0.67	0.67	1	1	0.5	0.81	Excellent	TL020382
	A water-body covering an area of approximately 300m^2 which is located approximately 56m to the south of the Survey Site. This pond supported pond sedge *Carex riparia* and hard rush *Juncus inflexus* and is surrounded by improved grassland, scrub and woodland.												
N	1	0.85	0.9	0.67	1	0.01	0.01	1	1	0.4	0.34	Poor	TL021382

ID	SI Scores (Oldham *et al*, 2000)											Suitability Class	Grid Ref
	Location	**Area**	**Permanence**	**Water Quality**	**Shading**	**Water fowl**	**Fish**	**Density**	**Terrestrial Habitat**	**Macrophyte Cover**	**HSI Score**		
	This pond lies approximately 80m to the south-east of the Survey Site and comprises a stocked fishing lake over 1m in depth supporting few aquatic macrophytes (see Photograph 12 in Appendix 6).												

12 Appendix 6: Photographs

12.1 This section includes a selection of photographs taken during the extended Phase habitat survey.

Table 1: Photographs of the Site

	
Photograph 1: The majority of the south of the Survey Site consists of intensively managed improved grassland.	**Photograph 2:** The southern half of Rookery Clay Pit CWS has been re-graded and now supports limited habitats of ecological value.
	
Photograph 3: Improved grass ley in the north of the Survey Site. The tree shelter belt has potential to be used by nesting birds and commuting bats with the peripheral grassland, scrub and ruderal habitats to be used by reptiles.	**Photograph 4:** The ditch network in the north of the Survey Site has the potential to support water voles and a number of aquatic invertebrates.
	
Photograph 5: The western extent of the dense	**Photograph 6:** Pond L within an improved

scrub in the north-east of the Survey Site.	grassland field in the centre of the Survey Site.
	
Photograph 7: The majority of hedgerows on site are species-poor and heavily managed. The margins have some potential to be used by reptiles.	**Photograph 8:** The plantation mixed woodland in the north/centre of the Survey Site. The grassland understorey has some potential to provide foraging and sheltering habitat for reptiles.
	
Photograph 9: Pond K outside of the Survey Site boundary to the east. This pond has good suitability to support great crested newts.	**Photograph 10:** Pond D in the north-east of the Survey Site. This pond was dry at the time of survey.
	
Photograph 11: A mosaic of scrub and ruderal vegetation in the north of the Survey Site considered to provide foraging and sheltering habitat for reptiles.	**Photograph 12:** Pond N outside of the Survey Site boundary to the south is heavily stocked with fish including a Wel's catfish *Silurus glanis* and is therefore classified as having poor suitability to support great crested newts.

Addendum – Ecological Walkover Report

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Addendum to Millbrook Power Project Ecological Appraisal; Ecological Walkover Report

Introduction

This addendum report supplements the Millbrook Power Project Ecological Appraisal Report. An Ecological Walkover Survey has been undertaken following adjustments to the extent of the Survey Site for the Project. This has now been extended to include a large, triangular-shaped parcel of land to the east of the original Survey Site (east of the Marston Vale railway line), that accommodates two Gas Connection Route Corridor options. This 'Eastern Area' is located largely between Millbrook Road the B530 and the railway corridor (Marston Vale Line). The habitats across this area will be accurately mapped during the Phase 2 (targeted) ecological surveys that are programmed to commence in April 2014. However, the Ecological Walkover Report was conducted to inform the potential requirement for targeted ecological surveys across this area, and also to inform the scoping report.

Methods

An ecological walkover survey of the Eastern Area, comprising the two Gas Connection Route Corridor options, was carried out on 27 March 2014 by John Baker MCIEEM. Although a complete extended Phase 1 habitat survey was not carried out in this instance, notes were made on the habitats present across this area and their suitability to support protected species to obtain a baseline of the conditions at this time and to ascertain what further surveys, if any, would be necessary. In order to assess the area's potential to support great crested newts, six ponds were identified prior to the site visit. These were then subject to survey on the day, to gather the necessary information to carry out a Habitat Suitability Index (HSI) assessment. This is a measure of a given water-bodies suitability to support great crested newt, although local information and professional judgement would ultimately be used to scope a pond in or out from further surveys.

Site Description and Habitats

The area surveyed is dominated by intensively managed arable land, separated by hedgerows under regular maintenance and in the main, associated with a ditch or drain. The field margins, which abut hedgerow bases and ditch banks, vary in width, from narrow (1 m wide), through to fairly wide (6 m) in some parts of the Eastern Area. The margins are generally composed of rough grassland with a mix of tall ruderal species.

The hedgerows primarily comprise hawthorn, although field maple, willow, ash, blackthorn, dog rose and bramble are also present in some sections. The hedgerow ground flora is generally species poor with no evidence (at this time of the year) of any woodland plants.

A main ditch running north through the centre of the Eastern Area held a small amount of water with a steady flow at the time of the survey, with minor ditches feeding into this, most of which were dry. A ditch to the east of the area surveyed (parallel to the B530) has recently been re-profiled and dredged mechanically and essentially consists of bare soil on the banks.

To the south of the Eastern Area is a linear plantation belt, that borders the main ditch running north through the survey area. This plantation belt is well-established but recent, comprising species such as oak, ash, sycamore, hazel and pine. Some of the hazel along the eastern side of the plantation has been recently coppiced, although overall the woodland supports little understorey (other than limited bramble scrub along part of its western boundary) and a sparse ground flora.

Six ponds of varying size and nature are present within or close to the Eastern Area. These have been assigned a reference number (see Addendum Figure 1). Ponds 3, 5 and 6 were medium-sized water-bodies within an arable field, surrounded by some retained, uncultivated rough grassland margins, although poorly connected to suitable habitat further afield. Pond 2 is a recently dug water-body within a rough grassland and young plantation woodland area. Pond 1 is a small but deep pond which is

heavily shaded with some rough grassland and ruderal margins on its banks. Pond 4 is the largest water-body examined, with a narrow band of established woodland on its southern and eastern sides.

Potential for protected species and species of conservation importance

Bats. Very few established trees are present within hedgerows within the Eastern Area, and those that are present are fairly young and therefore of limited value to roosting bats. Roosting bats are therefore unlikely to be a consideration in any development affecting the Eastern Area. The hedgerows and ditches that are present may be of value to foraging and commuting bats. However, since the majority of work likely to take place in the Eastern Area will be temporary and along a relatively narrow corridor, it is unlikely to be detrimental to bats and is therefore unlikely to trigger the need for any bat activity surveys.

Badger. The Eastern Area has a similar range of habitats to those identified in the Ecology Appraisal Report. This includes hedgerow and ditch banks that may provide foraging and sheltering habitat for badgers as well as opportunities for sett building. It is therefore advised that the badger survey recommended in the Ecology Appraisal Report is extended to include the Eastern Area.

Water Vole. No signs of water vole were noted during this initial visit, although a formal survey was not carried out. Approximately 1,200 m of ditch exists across the Eastern Area together with a number of smaller water-bodies/ponds. The ditches that hold water and support good vegetation along their banks have the potential to support water vole. In common with the recommendations of the Ecology Appraisal Report, these should be surveyed for field signs indicating the presence water voles.

Otters. Otters may opportunistically use the ditches for commuting and dispersal to and from other habitats in the wider area and for occasional foraging. Occasional use by this species of the ponds connected to ditch systems may also occur. Accordingly, whilst survey for water vole is undertaken, this should also be mindful of the potential presence of otter and therefore look for evidence of this species as well.

Breeding Birds. Much of the land within and adjoining the Eastern Area is managed as arable farmland, but with boundary features (and other features) of interest to birds, such as ponds, ditches, hedgerows and plantation woodland. These habitats are likely to support a range of typical farmland birds, and as such, farmland birds (occurring both within the Eastern Area and a buffer of up to 50 m) would be the main target of a breeding bird survey. The survey should also include a dusk visit to cover crepuscular species such as barn owl.

Great Crested Newt. All ponds were subject to a HSI assessment. The results of the HSI assessment are presented in Table 1 below, which should be viewed alongside Addendum Figure 1 (Pond Locations).

Table 1 HSI Assessment Results

Pond Ref.	Geog Location	Pond Area (m2)	Pond permanence	Water Quality	Pond Shading	No. of waterfowl	Occurrence of fish	Pond density	Proportion of newt friendly habitat around pond within 250m – Any Barriers?	Macrophyte content (est % total of emergent and submerged macrphytes)	HSI score	**Score**
1	1	0.4	0.9	0.33	0.3	1	1	0.8	0.67	0.33	0.67	**Average**
2	1	0.05	0.5	0.33	0.8	1	1	0.8	0.33	0.9	0.56	**Below average**
3	1	0.2	1	0.67	1	0.67	1	0.8	0.33	0.8	0.77	**Good**
4	1	0.9	0.9	0.33	0.8	0.67	0.67	0.8	0.33	0.3	0.8	**Excellent**
5	1	0.2	1	0.67	0.6	1	1	0.8	0.33	0.55	0.8	**Excellent**
6	1	0.4	1	0.67	1	1	1	0.9	0.33	0.5	0.93	**Excellent**

As can be seen from Table 1 above, and given the local context, none of these ponds can realistically be scoped out from further survey for great crested newts since all ponds (with the exception of Pond 2) had an 'Average' score or better, and all are within 250 m of the Eastern Area. Consistent with the recommendations of the Ecology Appraisal Report, these ponds should be surveyed during the current survey season (mid-March to mid-June) to determine presence/absence in these ponds and to assess the size of the population.

Three further pools in the form of short, shallow sections of ditch with stationary water were present along the Millbrook Road. These held small amounts of water (maximum depth of 1") and are likely to dry regularly so do not need to be considered further.

Reptiles. Field margins, including hedge and ditch banks are generally vegetated with rough grassland and tall ruderal vegetation. Patchy scrub is also present, especially close to the plantation belt. These habitats may support reptiles. Accordingly, the reptile survey recommended in the Ecology Appraisal Report should be extended to include the Eastern Area, in order to determine their presence/likely absence of reptiles.

Other Species. In terms of Species of Principal Importance discussed in the Ecology Appraisal Report, the following bullet points consider these further:

- two brown hare were noted in fields in the Eastern Area;
- hedgehogs may be present along field margins, in hedgerows and denser areas of the plantation woodland; and
- harvest mice may also potentially use the field margins and the areas of winter cereals in the arable fields, once the crop has become more established.

Additional incidental evidence of these species will be recorded during targeted survey effort for other species to be undertaken in the Eastern Area.

With the exception of a narrow plantation belt, woodland and woodland edge habitats are virtually absent in the Eastern Area. As such it is not appropriate to survey the site for the range of invertebrates identified during the desk study in the Ecology Appraisal Report. The ponds within the Eastern Area may support important assemblages of aquatic invertebrates. However the requirement to undertake detailed survey of these (as described for ponds west of the railway line in the Ecology Appraisal Report) would be dictated by the proximity of impacts affecting these ponds either directly or indirectly.

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BSG ecology

JOB REF: 7393.00

PROJECT TITLE
MILLBROOK POWER PROJECT

DRAWING TITLE
Addendum figure 1: Pond locations
(gas connection route corridor, east of site)

DATE: 03.04.14 CHECKED: SF SCALE: 1:5,000
DRAWN: COH APPROVED: JF STATUS: FINAL

LEGEND

Pond

Further water bodies