3. Description of the Site and its Surroundings 1

3.1 Introduction 1

3.2 The Existing West Burton Power Station Site 1

3.3 The Proposed Development Site 2

3.4 Site Topography 7

3.5 Site History 7

3.6 Potential Environmental Receptors within the Surrounding Area 10

3.7 References 15

Tables

Table 3-1 - Review of historical maps relating to the Site within the West Burton Power Station Site 7

3. Description of the Site and its Surroundings

3.1 Introduction

3.1.1 The Proposed Development site (the 'Site') comprises land within the boundary of the existing West Burton Power Station site near Gainsborough, Nottinghamshire. The land is within the ownership of the Applicant. The location of the Site is shown in **Figure 1.1** (Environmental Statement (ES) Volume III).

3.1.2 The Site is centred on national grid reference 480275, 386241 - the middle of the area where the main components of the Proposed Development would be sited (referred to herein as 'the Proposed Power Plant Site' – see **Section 3.3**).

3.1.3 This chapter is supported by **Figures 3.1 - 3.5** (ES Volume III), which identify the Site boundary and areas within the Site and study area described in this chapter and referred to throughout this ES.

3.2 The Existing West Burton Power Station Site

3.2.1 The part of the West Burton Power Station site where the Proposed Development would be sited (refer to **Figures 3.1-3.3** (ES Volume III)) is located approximately 3.5km to the south-west of Gainsborough and 1km to the north-east of Sturton-le-Steeple (refer to **Figure 1.1** (ES Volume III)). The nearest settlement is the village of Bole, located approximately 1km to the north-west of the Proposed Power Plant Site.

3.2.2 The West Burton Power Station site lies close to the junction of the A631/A620 and is accessed by a C-class road (the C2), which joins the A620 at Bole Corner. A plan showing the highway network in the vicinity of the Site is presented in the Transport Assessment (**Appendix 7A** (ES Volume II)).

3.2.3 The West Burton Power Station site is located in Nottinghamshire, close to the border with Lincolnshire (defined by the River Trent, which forms part of the eastern boundary of the West Burton Power Station site), and falls within the administrative area of Bassetlaw District Council (BDC), close to the border with West Lindsey District Council (WLDC), Lincolnshire (defined by the River Trent to the east of the West Burton Power Station site). The West Burton Power Station site currently encompasses two power stations, owned and operated by the Applicant, known as West Burton A (WBA) and West Burton B (WBB) Power Stations.

3.2.4 The West Burton Power Station site covers in excess of 200ha. WBA Power Station is a coal fired power station, which was commissioned in 1968. It comprises four coal fired units with two chimney stacks (each 198m high) and eight natural draught cooling towers (each 112m high), with cooling water sourced from the River Trent. It supplies up to 2,000MW of electricity to the National Grid. Flue gas desulphurisation (FGD) equipment was installed between 2000 and 2003

and separate over-fire air burners were installed in 2007, in order to meet Emission Limit Values (ELV) specified in the EU Large Combustion Plant Directive (2001/80/EC) (Ref 3-1).

3.2.5 Pulverised Fuel Ash (PFA) is produced as a by-product of electricity generation at WBA Power Station. The Bole Ings Ash Disposal Site, to the north of the West Burton Power Station site, is used for the disposal of PFA produced from WBA Power Station. It forms an extensive area of approximately 83ha and has been operational since 1993.

3.2.6 Materials including coal and limestone are currently delivered by rail to WBA Power Station from a variety of UK and international sources. The West Burton Power Station site includes extensive areas for the storage of coal and its conveyance to the boilers, and also for storage and handling of other materials.

3.2.7 Adjacent to the east of WBA Power Station is the WBB Power Station, a combined cycle gas turbine (CCGT) power station, which was commissioned in 2013. It comprises three units, each having a gas turbine, a heat recovery steam generator (HRSG) and an associated steam turbine, with a combined output capacity of 1,332MW. The WBB Power Station connects to the National Grid electricity transmission System approximately 0.7km to the south of the WBB Power Station site via the existing WBA 400 kilovolt (kV) substation, located within the confines of the overall West Burton Power Station site. The WBB Power Station is also served by a gas pipeline connection entering the WBB Power Station site at its north-eastern boundary.

3.2.8 Together, WBA and WBB Power Stations provide approximately 270 jobs and support a number of additional contractor jobs on a full-time and part-time basis.

3.3 The Proposed Development Site

3.3.1 The Site is located within the wider West Burton Power Station site, to the north of WBB Power Station. The Site encompasses an area of approximately 32.8ha of which approximately 16.3ha comprises the built development and construction laydown area, with a further approximately 16.5ha of land proposed for landscaping and biodiversity management and enhancement works. The proposed generating station itself would occupy an area of approximately 3.4ha (refer to **Figure 3.3** (ES Volume III)).

3.3.2 Multiple components together make up the Site, with the different areas of the Site described in turn. These terms have been used throughout the ES to describe land use zones within the Site. Distances to environmental receptors reported within the ES are measured relative to the areas illustrated on **Figure 3.3** (ES Volume III):

- Proposed Power Plant Site, including ancillary/auxiliary buildings, equipment and structures;

- construction laydown area;
- gas receiving area with connection to the existing WBB gas receiving facility;
- electricity connection route and tie-in to existing WBB switchyard (400kV);
- new surface water drainage system including connection into the existing drainage systems on the West Burton Power Station site via either:
  - a northern drainage connection corridor, or
  - a southern drainage connection corridor, or
  - a connection into the existing WBB drainage system;
- low voltage electrical and utility connections (including water supply) to connect into WBB Power Station;
- rail offloading laydown area; and
- landscaping and biodiversity management and enhancement area.

3.3.3 Access to the Site would be via the main entrance to the West Burton Power Station site, off Gainsborough Road to the south-west. Bus stops for routes 595 and 95A (Retford – Gainsborough) are located adjacent to the Gainsborough Road/Station Road junction, to the south of the West Burton Power Station site.

Proposed Power Plant Site

3.3.4 The Proposed Power Plant Site was formerly used to deposit PFA from WBA Power Station and more recently as a construction laydown area for WBB Power Station. The area currently comprises areas of recently seeded and planted grassland, scrub and immature trees, created following the construction of WBB Power Station. The Proposed Power Plant Site is bounded:

- to the north by an access road serving Bole Ings Ash Disposal Site and beyond this, by the proposed construction laydown area;
- to the north-east by the proposed northern drainage connection corridor into the existing West Burton Power Station drainage system;
- to the east by an area of dense woodland and ponds, which forms part of the West Burton Power Station Local Wildlife Site (LWS 5/2217), comprising an area of mature gravel pits of biodiversity interest, located within the West Burton Power Station site;
- to the south by WBB Power Station; and
- to the west by an area used for the storage of furnace bottom ash (FBA) and ash processing (authorised by Nottinghamshire County Council (NCC) Application Reference 1/16/01441/CDM).

3.3.5 Vegetation within the footprint of the Proposed Power Plant Site would be removed prior to construction. An alternative landscaping and biodiversity

management and enhancement area would be created on suitable land within the Site boundary (refer to **Figure 3.3** (ES Volume III).

Construction Laydown Area

3.3.6 The construction laydown area, including contractors' compounds, would be located to the north of the Proposed Power Plant Site. This is in addition to the siting of compounds and related equipment during construction within the Proposed Power Plant Site, where necessary. This land currently comprises areas of grassland and scrub, formerly used to deposit PFA from WBA Power Station. The area also includes an approximately square area that is currently used as a compound for co-ordinating ash disposal activities by WBA Power Station and for overnight parking of an excavator that is used by the Applicant at Bole Ings Ash Disposal Site. A sewage treatment plant owned and operated by Severn Trent Water lies approximately 60m to the east of the proposed construction laydown area.

Gas Connection

3.3.7 A connection will be made to the existing gas receiving facility used by and located within WBB Power Station, which lies to the south of the Proposed Power Plant Site. This area currently comprises hardstanding and gravelled areas.

Electricity Connection

3.3.8 A new electrical connection route is proposed, linking the Proposed Development with the existing WBB 400kV switchyard. The proposed route runs from the Proposed Development, along the eastern side of the WBB Power Station site and into the existing WBB Power Station switchyard which is primarily covered in loose stones but includes roads and concrete pads. The WBB Power Station switchyard connects to an existing National Grid 400kV substation located on the WBA Power Station site.

Surface Water Drainage System and Tie-in to Existing Surface Water Systems on the West Burton Power Station site

3.3.9 The proposed surface water drainage system would require a surface water drainage pipeline connecting the Proposed Power Plant Site into the existing West Burton Power Station site purge line that runs approximately parallel with River Road from the WBA Power Station cooling towers to the River Trent and forms part of the drainage system.

3.3.10 One option is to connect to the purge line outfall prior to the sluice gate to the River Trent, near the existing sewage treatment works. This pipeline route (approximately 250m in length and referred to as the northern drainage connection corridor) would largely follow an existing access road that is used for access to the Severn Trent Water sewage treatment plant. The corridor encompasses habitats on the edge of the track within the LWS, including dense scrub and wet woodland.

The route would terminate prior to the designated Public Right of Way (PRoW) (West Burton FP4), which follows the western flood embankment of the River Trent.

3.3.11 An alternative southern drainage connection corridor has also been identified. This pipeline route (approximately 350m in length) would connect into the Site, to the south-east of the gas receiving facility for WBB Power Station, and pass through an area of semi-improved grassland, scrub, wet ditch and broad-leaved semi-natural woodland which forms part of the LWS. From here, the proposed southern drainage connection corridor would terminate in proximity to River Road, north of the abstraction pumping station and infrastructure associated with WBA Power Station. Like the northern drainage connection corridor, the route would stop short of West Burton FP4 PRoW.

3.3.12 A further alternative to either of the above is to connect into the existing WBB Power Station drainage system, at a point within the existing WBB Power Station site and south of the Proposed Development. The availability of this option is dependent on the final plant design and associated volumes of surface water drainage. This option may include the installation of an additional oily water separator to the south-east corner of the WBB Power Station site. Each of these options is assessed in this Environmental Impact Assessment (EIA).

Low Voltage and Electrical and Utility Connections to Tie-in to WBB Power Station

3.3.13 Works are proposed across the Proposed Power Plant Site and within the existing WBB Power Station in order to connect low voltage electrical equipment, control equipment and other cables and associated switchgear and ancillary equipment and cabinets required to the Proposed Development. Land affected mainly comprises the existing WBB Power Station buildings and infrastructure.

Rail Offloading Laydown Area

3.3.14 The rail offloading laydown area is located to the west of the Site, forming part of the rail loop for WBA Power Station. The land is currently unused but could have a concrete pad installed on it to facilitate construction material deliveries, if rail deliveries are a feasible option for the construction contractors to use.

Landscaping and Biodiversity Management and Enhancement Area

3.3.15 As part of the development of WBB Power Station, an area (referred to as ‘Area 2’ within the WBB Section 36 Consent under the Electricity Act 1989) was allocated for landscaping and creative conservation post-construction of WBB Power Station (Ref 3-2). This now comprises the footprint for the Proposed Power Plant Site. Commitments in the WBB Section 36 Consent included restoration of the site to grassland and woodland habitats and planting of a species-rich hedgerow, in order to provide restored habitats that would contain a greater variety of species than the original habitats.

3.3.16 Given that the Proposed Development would result in the permanent loss of the newly created habitats, and in order to provide for biodiversity offsetting, enhancement and mitigation for both the permanent and temporary loss of habitat used by protected species, an area for landscaping and biodiversity management and enhancement is proposed (refer to **Figure 9.1** (ES Volume III)). This includes the following types of provision:

- Area 1: Management of existing habitats to maintain and enhance mosaics of scrub and reedbed plus creation of habitat piles/hibernacula;
- Area 2: Construction Laydown Area – re-instatement following construction with mosaics of species-rich grassland and scrub of higher ecological value than existing, plus creation of habitat piles/hibernacula;
- Area 3: Management and diversification of existing mosaics of scrub and grassland, plus creation of habitat piles/hibernacula;
- Area 4: Management and diversification of existing scrub habitats and tree planting, plus creation of habitat piles/hibernacula; and
- Area 5: Botanical enhancement and management of existing seeded grassland areas.

3.3.17 The proposed landscape and biodiversity management and enhancement area is shown on **Figure 3.3** (ES Volume III) and has been included in the Site boundary as an integral part of the Proposed Development. However, distances to/from the Site as described throughout this ES, are quoted as the closest distance to the Site areas as shown on **Figure 3.3**, excluding the landscaping and biodiversity management and enhancement area. This is because of the relatively minor works required in such areas are unlikely to materially affect receptors other than ecological receptors themselves. Further information is provided in **Chapter 9:** Ecology.

3.3.18 In order to compensate for the loss of small numbers of immature and non-native trees that would be directly affected by the Proposed Development, a landscaping and biodiversity management and enhancement plan, incorporating new planting of native species of tree and shrub within the fringing areas of the landscaping and biodiversity areas is proposed.

3.3.19 Existing vegetation along the Site's eastern boundary is incorporated, as far as practicable, into the landscaping and biodiversity management and enhancement plan for the Site. A Landscaping and Biodiversity Management and Enhancement Plan is included as part of the documents accompanying the Application (**Application Document Ref. 7.5)**. Implementation of landscaping and biodiversity protection, management and enhancement measures is proposed to be secured by a Requirement of the draft DCO (**Application Document Ref 2.1**).

3.4 Site Topography

3.4.1 According to a recent topographical survey of the Site (Ref 3-3), the ground level varies from a low point of 2.6m Above Ordinance Datum (AOD) within the southern drainage connection corridor, to a high point of 16.2m AOD on a raised mound at the northern end of the Proposed Power Plant Site. The majority of the Site lies between 10 and 14m AOD, including the Proposed Power Plant Site, the electricity connection route and the western two-thirds of the construction laydown area.

3.4.2 A notable steep ridge is present immediately to the east of the Proposed Power Plant Site and adjacent to the proposed electricity connection route, where ground descends from a plateau at approximately 12m AOD to approximately 3m AOD, over a short distance.

3.4.3 Levels across the landscaping and biodiversity management and enhancement area range from approximately 8m AOD at the base of the mound to 13m AOD on the plateau.

3.5 Site History

3.5.1 Available historic Ordnance Survey (OS) maps (Ref 3-4) have been studied to determine the previous land uses within the existing West Burton Power Station site and surrounding land, as detailed in **Table 3.1**.

Table 3-1 - Review of historical maps relating to the Site within the West Burton Power Station Site

Date	On-site Land Use	Off-site Land Use
1885 - 1886	• Agricultural land (fields); • two former river channel features (oxbow lakes, approx. 50 - 80m channel width) are denoted. One passes through the north of the Site beneath the centre of the Proposed Power Plant Site and the proposed northern drainage connection corridor. The second passes beneath the eastern extent of the proposed southern drainage connection corridor; • building of unknown purpose and small watercourse shown to pass through Site proposed and southern drainage connection	• Agricultural land (fields), field drains and minor watercourses.

Date	On-site Land Use	Off-site Land Use
	corridor; • the River Trent follows its present course, adjoining the Site to the east.	
1899-1900	• Building of unknown use inferred as 'Cheese House'.	• Pumping House shown 150m north-west of Site boundary.
1904	• No significant change.	• No significant change.
1916 - 1921	• Two footpaths cross the north of the Site.	• No significant change.
1947-1948	• No significant change.	• No significant change.
1951	• Pumping House no longer inferred.	• No significant change.
1969-1974	• Rail infrastructure is present in the north-west of the Site, adjacent to the coal stockyard. Site drainage is denoted around the stockyard; • field drains shown across the Site; • pumping Station shown in proposed southern drainage connection corridor; • inferred landfill in the north of the Site, assumed to be PFA disposal.	• WBA Power Station and supporting infrastructure shown immediately west and south-west of Site; • area approx. 150m north-west of Site inferred as 'Emergency dust disposal area' (assumed to be purposed for PFA disposal); • Wheatley Beck and the Catchwater Drain are named on mapping; • sewage works shown immediately north-east of Site; • ground workings shown immediately north-west of Site.
1977-1980	• The former river channels are no longer denoted.	• Surface water ponds shown immediately east of Site; • former site of medieval village and church shown 100m south of Site; • 'Emergency dust disposal area' still inferred north-east of Site.

Date	On-site Land Use	Off-site Land Use
1989-1994	• No significant change.	• No significant change.
2002	• Works compound shown in the north of the Site; • track shown through south of Site.	• No significant change.
2010	• North of Site shown as 'Emergency Dust Disposal Area'.	• Expansion of WBA supporting operations west of Site (possible flue-gas desulphurisation plant); • excavations of unknown purpose north-east of the Site are shown to be flooded.
2014	• Construction of WBB Power Station. Supporting infrastructure is shown to extend around the Site and along the proposed northern drainage connection corridor.	• No significant change.

3.5.2 As can be seen from **Table 3-1**, there is a history of power generation at the Site that extends back approximately 50 years. Electricity generation at the WBA coal fired power station to the west of the Site commenced in 1966 and was officially opened on 25 April 1969.

3.5.3 Deemed planning permission was granted for a CCGT generating station at WBB Power Station in October 2007, under the provisions of Section 36 of the Electricity Act 1989. Construction of WBB Power Station commenced on 2 September 2008, immediately to the east of WBA Power Station. Electricity generation from WBB Power Station began in 2013.

3.5.4 Planning permission for a 49MW battery storage facility within WBB Power Station was granted to the Applicant by BDC (BDC Application Number: 16/00954/FUL) in September 2016. The development is now operational.

3.5.5 Planning permission was granted to the Applicant for use of ash processing plant equipment (up to 175,000 tonnes per annum) (NCC Application Number: F/3581) in 2017. The development commenced on 14 July 2017 in accordance with a notification that was sent to NCC.

3.5.6 Planning permission was granted to the Applicant by NCC in June 2018 (NCC Application Number: 1/18/000234) to vary conditions of the existing Planning

Permission 1/14/00038/CDM (issued 1 August 2014) in order to maximise ash recovery at the Bole Ings Ash Disposal site.

3.5.7 A local planning application for a gas fired generating station of up to 49MW in capacity was in preparation and was to be submitted to BDC (being subject to an EIA Scoping Opinion in September 2017) (Ref 3-5). However, the Applicant has decided not to proceed with this application at the present time.

3.5.8 The approach taken to the consideration of current planning applications and planning permissions both within the West Burton Power Station site and the local area is considered in **Chapter 16:** Cumulative and Combined Effects.

3.6 Potential Environmental Receptors within the Surrounding Area

3.6.1 When undertaking an EIA, it is important to understand which receptors should be considered as part of the assessment. A number of environmental receptors have been identified within the vicinity of the Site, as shown on **Figure 3.4** (ES Volume III). Each of these is detailed in the relevant topic chapter of this ES, and as such, this list is not exhaustive. Where distances are quoted in this ES, the distance is defined (unless otherwise stated) as the shortest distance between the Proposed Power Plant Site and the receptor.

Residential Receptors

3.6.2 West of the River Trent, within the administrative area of Bassetlaw District, are the villages of Bole (approximately 1km north-west), Sturton-le-Steeple (approximately 1km south-west), Saundby (approximately 2.3km north-west), South Wheatley (approximately 3.5km west), North Leverton with Habblesthorpe (approximately 3.9km south-west) and South Leverton (approximately 5km south-west). The town of Retford is located approximately 9.5km south-west.

3.6.3 In addition, there are a small number of individual residential properties in close proximity to the Site, including:

- Mill House, approximately 1km west of the rail offloading area; and
- Middle Farm, approximately 1.2km west of the rail offloading area.

3.6.4 East of the River Trent, within the administrative area of West Lindsey District, the nearest villages are Lea (approximately 2.5km to the east), Knaith (approximately 2.8km to the south-east), Knaith Park (approximately 3.5km to the east) and hamlets of Gate Burton and Marton (approximately 4.1km and 5.1km south-east respectively). The larger town of Gainsborough is approximately 3.5km to the north-east.

Transport Network

3.6.5 The Site lies close to the junction of the A631/A620. The A631 runs east-west from the Sheffield/ Rotherham area, crossing the A1(M) at Tickhill and providing

one of the few crossings of the River Trent at Gainsborough. The A620 follows a more south-west/north-east orientation between Ranby and its junction with the A631 at Beckingham, en-route passing through the market town of Retford and the villages of Clarborough and Welham. These two routes provide direct links to the A1 and the areas to the west of the A1. The A631 Gainsborough river crossing provides a link with areas to the east of the River Trent.

3.6.6 The Lincoln to Sheffield Railway Line runs north-east/south-west along the western boundary of the West Burton Power Station site. This line also provides the route for the delivery of coal to WBA Power Station.

3.6.7 There are a number of PRoW including footpaths and bridleways, in the vicinity of the Site on both sides of the River Trent. The West Burton FP4 public footpath traverses the western bank of the River Trent close to River Road and the northern and southern drainage connection corridor options. This PRoW connects with a second PRoW (Bole FP9#1), which branches off the River Trent immediately north of the sewage works and leads in a north-westerly direction, passing around Bole Ings. Available data (Ref 3-6) indicates that there are several other PRoW within the surrounding area (refer to **Figure 3.4** (ES Volume III)) along with **Figure 10.1** (ES Volume III) which identifies the footpaths in the wider area.

Hydrological Receptors

3.6.8 As shown on **Figure 3.3** (ES Volume III) the West Burton Power Station site is located on the western bank of the River Trent, which flows from its source in Staffordshire, through most of the metropolitan central and northern Midlands area, before joining the River Ouse at Trent Falls to form the Humber Estuary. Thereafter, the river discharges into the North Sea between Hull in Yorkshire and Immingham in Lincolnshire.

3.6.9 Whilst flowing north, in the vicinity of the Site, the stretch of the River Trent is tidally influenced and navigable (under the jurisdiction of the Canal and River Trust who, as Navigation Authority, manage the River Trent from Shardlow, where it becomes navigable, to Gainsborough Bridge). According to the Canal and Rivers Trust (Ref 3-7), freight traffic regularly uses the section of the River Trent, continuing past Gainsborough, where the Trent is managed by Associated British Ports. The nearest identified local boating club to the Site is Torksey Yacht Club, located at the junction of the Fossdyke Navigation and the River Trent, south-east of Cottam Power Station, which arranges cruises in the summer. According to the Canal and Rivers Trust information, there is a fishery located to the north-east of Cottam Power Station, upstream of the Site on the River Trent, on the right bank, at Marton (approximately 365m upstream of the pumping station).

3.6.10 The stretch of the River Trent nearest to the Site (defined in the Water Framework Directive (WFD) as River Trent from Carlton on Trent to Laughton Drain) is classified as an artificial waterbody, due to land drainage and navigation modifications (Ref 3-8). Water quality within this stretch of the river has been

generally improving, reaching '*moderate*' overall status and moderate ecological potential and '*good*' chemical status in the 2015 cycle of the Humber River Basin Management Plan (RBMP) process. '*Good*' ecological potential is expected to be met in 2027 and is based on the following quality elements: biological quality, general chemical and physio-chemical quality, water quality with respect to specific pollutants (synthetic and non-synthetic) and hydromorphological quality.

3.6.11 The River Trent, where it is adjacent to the Site, is flanked on either side by networks of land drainage ditches and dykes to enable arable agriculture. A number of these are maintained by Trent Valley Internal Drainage Board (IDB), including the Catchwater Drain and pumping station, located approximately 100m to the south of the southern drainage connection corridor (Ref 3-9). This discharges into the River Trent, immediately upstream of the Site. Wheatley Beck, a primary watercourse, passes 150m north of the Site, flowing to the east and discharging into the River Trent (defined in the WFD as River Trent from Carlton on Trent to Laughton Drain). This is classified as an artificial waterbody due to land drainage and navigation modifications (Ref 3-9).

3.6.12 There are tidal flood defences in place adjacent to the West Burton Power Station site, comprising raised earth embankments along the west bank of the River Trent. However, the Site is not located in an area shown on Environment Agency's flood maps to benefit from flood defences (Ref 3-10).

3.6.13 The Environment Agency's flood maps identify that the Proposed Development lies almost entirely within Flood Zone 1. There are small areas of the Site along the eastern boundary that lie within Flood Zone 2, and the two drainage connection corridor route options where they tie into the existing West Burton Power Station surface water drainage system lie within Flood Zone 3 (refer to **Figure 3.5** (ES Volume III)). The definitions for Flood Zones are provided in **Chapter 12**: Flood Risk, Hydrology and Water Resources.

Hydrogeological Receptors

3.6.14 According to the Phase 1 Geo-Environmental Site Assessment (**Appendix 11A** (ES Volume II)) and the results of a site investigation in 2017/2018, made ground/PFA deposits are present across much of the Site as this location is indicated to lie within the footprint of an Environment Agency recorded historic landfill. It is considered that this is associated with the historic disposal of PFA generated by WBA Power Station.

3.6.15 The Groundsure Enviro Insight Report (Ref 3-4) (refer to **Appendix 11A** (ES Volume II)) indicates that the superficial deposits within the Site are classified as Secondary A Aquifers, defined by the Environment Agency as '*permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers*'.

3.6.16 The underlying bedrock is Mercia Mudstone deposits (Secondary B Aquifer), defined by the Environment Agency as '*predominantly lower permeability layers which may store and yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons and weathering. These are generally the water-bearing parts of the former non-aquifers'.*

3.6.17 A review of a groundwater monitoring programme undertaken by the Applicant (Ref 3-11) indicates that groundwater levels vary from 12m AOD to a more typical 2–7m AOD across the majority of the West Burton Power Station site. Most of the Site lies at an elevation of between 10-14m AOD, and is therefore approximately 4–8m above typical groundwater levels. This corresponds broadly with groundwater levels measured during the 2017/2018 ground investigation (Ref 3-12), with levels ranging from approximately 4-9m below ground level.

3.6.18 Soils at the site are generally classified as being of a high leaching potential, meaning that they readily transmit liquid discharges and pollutants. Exception is given to soils within an area to the north of the Site and those associated with glacial till superficial deposits to the south-east, which have no designation.

3.6.19 The Groundsure Enviro Insight Report (Ref 3-4) revealed no groundwater abstraction licenses within 2km of the Site and that the Site is not located within a groundwater Source Protection Zone (SPZ) defined by the Environment Agency.

Ecological Receptors

3.6.20 Published data on nature conservation designations (Ref 3-13) indicates that the nearest international ecological designation is Hatfield Moor Special Area of Conservation (SAC), approximately 19.5km to the north-west of the Site, designated as a result of its lowland raised peat bog habitat. Beyond this, a number of internationally designated sites are present including: the Special Protection Area (SPA) of Thorne Moor (approximately 25km); Birklands and Bilhaugh SAC (approximately 25km); and the Humber Estuary SAC (approximately 30–40km).

3.6.21 Lea Marsh Site of Special Scientific Interest (SSSI) is located approximately 1km north-east of the Site, designated for its lowland grassland habitat. Clarborough Tunnel SSSI lies approximately 6km south-west of the Site, designated due to its calcareous grassland and mix of grassland and scrub habitat providing suitable conditions for breeding birds and insect fauna. Treswell Wood SSSI and Castle Hill Wood SSSI are approximately 8km south-west of the Site. Two former Gravel Pits (Sutton and Lound Gravel Pits) are located approximately 9km west of the Site. They are designated for their habitat of standing open water, which supports an exceptionally rich assemblage of breeding wetland birds. Chesterfield Canal SSSI is also located within 10km of the Site and comprises a 20km stretch of canal designated because it supports a nationally scarce aquatic plant community.

3.6.22 A number of named ancient woodland sites are located within 2–5km of the Site. The Preliminary Ecological Appraisal (PEA) Report (refer to **Appendix 9C** (ES

Volume II)) describes ten LWS, including West Burton LWS, West Burton Reedbed LWS and Burton Round Ditch LWS, located within or adjacent to the Site. Bole Ings LWS and Bole Ings Drains LWS are also in close vicinity to the northern boundary of the Site at Bole. Non-statutory sites include Royal Society for the Protection of Birds (RSPB) Beckingham Marshes reserve, located approximately 4km north of the Site, which comprises a local wetland habitat managed for birds and other wildlife.

Landscape and Visual Receptors

3.6.23 The Site lies within National Landscape Character Area (NCA) 48: Trent and Belvoir Vales (Ref 3-14), which is characterised by undulating, strongly rural and predominantly arable farmland centred on the River Trent. At a regional level the Site lies within the Trent Washlands Regional Character Area (RCA), as defined by the Bassetlaw Landscape Character Assessment (LCA) (Ref 3-15). The landscape surrounding the Site is relatively flat and largely used for arable agriculture, interspersed with areas of woodland.

3.6.24 The West Burton and Cottam power stations and their associated power lines are considered by the LCA to be the most dominant and visually intrusive landscape features within this area. The Site also lies within the Mid Nottinghamshire Farmlands RCA which is considered to be an undulating landscape of predominantly rural, agricultural character.

3.6.25 The Lincolnshire Wolds Area of Outstanding Natural Beauty (AONB) lies approximately 35km east of the Site.

3.6.26 Sensitive visual receptors, including residents, road users and users of PRoW, are located around the Site, as described above.

Cultural Heritage Receptors

3.6.27 The Site is located on the floodplain of the Trent, which previous archaeological evidence suggests formed an important cultural boundary. The floodplain may contain palaeo-environmental resources (both organic and mineral deposits), which may provide a valuable record of past climate and land-use.

3.6.28 According to a search of National Heritage List for England (Ref 3-16) archaeological remains within 2km of Site are sparse. However, the List does include remains associated with the West Burton scheduled Deserted Medieval Village (DMV) (SM 1017741), a scheduled monument, located approximately 75m south of the Site. It is listed by Historic England as a 13.4ha *'Medieval settlement and open field system immediately south east of Low Farm'* and comprises the earthwork and buried remains of the former medieval settlement of West Burton.

3.6.29 It is also noted that a Roman road may run from North Wheatley to the west of the Site in a south-east direction to the River Trent and that a second Roman road is identified between the villages of North Wheatley, Sturton-le-Steeple and Marton,

south of the Site, running in a south-east direction to the River Trent and further on to Sturton by Stow and beyond. This runs adjacent to Segelocum Roman town (SM 1003669), located approximately 3.1km south-east of the Site.

3.6.30 There are notable clusters of listed buildings (Grade I and Grade II* Listed) in the nearby villages of Bole, Saundby, North Wheatley, Sturton-le-Steeple, Littleborough, Knaith and Lea. The nearest are in Bole, where the Grade II listed Church of St Martin and the Grade II Bole Manor House and attached outbuilding are located (approximately 1km north-west of the proposed construction laydown area).

3.6.31 Three conservation areas are identified within the following settlements within 5km of the Site: Saundby village (approximately 2km north-west); Wheatley (approximately 3.5km west); and Gainsborough (approximately 4.2km north-east).

3.6.32 No sites listed on the English Heritage Register of Parks and Gardens of Special Historic Interest (Ref 3-16) are within 5km of the Site, nor any statutory or non-statutory battlefield sites.

3.7 References

Ref 3-1 European Commission (2001) *Directive 2001/80/EC of the European Parliament and the Council of 23 October 2001 on the limitation of emissions of certain pollutants into the air from large combustion plants*. Official Journal of the European Communities, L309/1.

Ref 3-2 West Burton CCGT Power Station licence application EPSM2009-5-6.

Ref 3-3 Site Surveying Services Ltd drawing No. sss-7478-West Burton Power Station, dated 6th June 2017.

Ref 3-4 Groundsure® Reports; EnviroInsight (ref. GS-3864429), GeoInsight (ref. GS-3864430) and MapInsight (ref. GS-3864431), dated 9th May 2017 and EnviroInsight (ref. GS-5785102) dated 29 January 2019.

Ref 3-5 Bassetlaw District Council (2017) *Scoping Opinion Proposed West Burton D Power Station,* November 2017.

Ref 3-6 https://www.rowmaps.com/ [accessed 03.02.19] and http://row.lincolnshire.gov.uk/map.aspx?act=Riding&_sm_au_=iVVLfQFMb6Wn4JZt [accessed 03.02.19]

Ref 3-7 https://canalrivertrust.org.uk/ [accessed 03.02.19]

Ref 3-8 http://environment.data.gov.uk/catchment-planning/WaterBody/GB104028058480 [accessed 03.02.19]

Ref 3-9 http://www.wmc-idbs.org.uk/Library/TVIDB/about/TVIDB_Area_Map.jpg [accessed 03.02.19]

Ref 3-10 http://maps.environment-agency.gov.uk/ [accessed 03.02.19]

Ref 3-11 EDF Energy Ltd (2017) *West Burton Power Station, Annual Groundwater Report* 2017.

Ref 3-12 AECOM (2018) *West Burton C Ground Investigation Support and Sampling,* March 2018

Ref 3-13 http://www.magic.gov.uk/ [accessed 03.02.19]

Ref 3-14 Natural England (2013) *National Character Area profile 48: Trent and Belvoir Vales.*

Ref 3-15 Bassetlaw District Council (2009) *Landscape Character Assessment, Bassetlaw, Nottinghamshire.*

Ref 3-16 https://www.historicengland.org.uk/listing/the-list/ [accessed 03.02.19]