Proposed Derrygreenagh Power Project
Environmental Impact Assessment Report

Chapter 4: Existing Site and Conditions

Prepared for:
Bord na Móna Powergen Limited
Main Street,
Newbridge,
Co. Kildare
W12 XR59
Ireland

Prepared by:
AECOM
4th Floor, Adelphi Plaza
Georges Street Upper
Dun Laoghaire
Co. Dublin
A96 T927

T: +353 (0) 1 238 3100
aecom.com

4.0 EXISTING SITE AND CONDITIONS

4.1 Introduction

4.1.1 This chapter of the Environmental Impact Assessment Report (EIAR) describes the Proposed Development and Overall Project location and setting, details of the surrounding area, history and environmental receptors for the purpose of complying with Article 5 of, and Annex IV to, the EIA Directive.

4.1.2 For the purposes of the EIAR, the following terms are used to describe the Proposed Development and its wider project context (including the Overall Project):

- **'Proposed Development'** – relates to the components for which planning permission is being sought (i.e., the 'red line boundary') – this includes the Power Plant Area and Electricity Grid Connection as defined below;
- **'Power Plant Area'** – relates to the main thermal power plant area east of the R400 road, which includes Combined Cycle Gas Turbine (CCGT) and Open Cycle Gas Turbine (OCGT) plant; a gas Above Ground Installation (AGI) ('Derrygreenagh AGI'); water abstraction and water treatment infrastructure; respective surface and process water discharge connection routes; and a permanent peat and spoil deposition area for overburden material excavated from the Power Plant Area. The process water discharge pipe will extend west of the R400 road before ultimate discharge south into the Yellow River;
- **'Industrial Emissions Licence Area'** – relates to a sub boundary within the Power Plant Area required for the operational phase under Class activity 2.1 of the First Schedule of the EPA Act as amended and excludes components such as the Derrygreenagh AGI and requirements limited to the construction phase, namely upgrades to the public road network and peat deposition area. While the Industrial Emissions Licence Area will likely comprise a smaller area within the footprint of the Power Plant Area once operational, for the purposes of this EIAR, the entirety of the wider Power Plant Area has been considered in respect of the overall assessments of the construction, operational and decommissioning phases, for completeness.
- **'Electricity Grid Connection'** – this is part of the Proposed Development and will consist of the 220 kV substation west of the R400 road, pylon towers, overhead lines, Line-Cable Interface Compound, underground cabling, associated cabling and connections to a new loop-in 400kV substation site and compound;
- **'Gas Connection Corridor'** – this is part of the Overall Project, as defined below, and will enable the Proposed Development to connect to the existing high pressure Gas Pipeline to the West (BGE/77), c.9.7km north of the Power Plant Area via AGI at tie-in location and underground routing of pipeline. The underground gas connection is not being applied for in the planning application for the Proposed Development (as it will be applied for by Gas Networks Ireland (GNI) under separate consenting processes). However, the Gas Connection Corridor, identified by GNI during the preliminary design stage, is assessed in this EIAR as part of the Overall Project for completeness, as it will be integral to the operation of the Proposed Development. The route of the Gas Connection Corridor is the preferred route, as indicated by GNI, at the time of writing but may be subject to change as part of the detailed design process to be carried out;
- **'the Overall Project'** – relates to the Proposed Development (*i.e.* the components for which planning permission is being sought), and to ensure a robust environmental assessment, includes the Gas Connection Corridor as described above;

4.2 Proposed Development and Overall Project Location

4.2.1 The Proposed Development and Overall Project is situated in Derrygreenagh and adjacent townlands (Derryarkin, Derryiron, Ballybeg, Barrysbrook, Togher and Coole) in Co. Offaly, Ireland (Irish Grid Reference N49525 38259) and comprises three main elements as defined above, those being:

- The Power Plant Area;
- The Electricity Grid Connection; and
- The Gas Connection Corridor.

4.2.2 The majority of the Proposed Development is located within a subset of the Bord na Móna Derrygreenagh Bog Group. From north to south the subset of the bog group in which the Proposed Development is located includes:

- **Drumman Bog** is located immediately south of the M6 motorway, approximately 2.5km southeast of Rochfortbridge. The Mongagh River divides the bog into north and south areas and also delineates the Westmeath and Offaly County boundary. Bord na Móna's existing Derrygreenagh Works is located to the west of Drumman Bog. The main Power Plant Area is largely located within Drumman Bog.
- **Derryarkin Bog** is situated approximately 4km northwest of Rhode, County Offaly and 2km south of Rochfortbridge. The R400 public road forms the eastern boundary while a local access road runs along part of the southern section of the bog. The proposed 220kV substation (Electricity Grid Connection) and process water discharge pipeline (Power Plant Area) is located within Derryarkin Bog.
- **Ballybeg Bog** is located approximately 1.6km to the west of Rhode in County Offaly, to the east of Croghan Hill and to the north of the Grand Canal. The majority of the Electricity Grid Connection (Overhead Line, Underground Cable and Line-Cable Interface Compound) is located within Ballybeg Bog. The Proposed Development is accessible from three locations along the northern, eastern and southern boundaries with road access back to the R400 regional road. The Rhode to Croghan road (L1010) divides the larger northern section and the smaller southern section of Ballybeg Bog. The southern section comprises an area of remnant high bog. A railway line crosses the bog, from Derryarkin, in a north south direction which provides connectivity to other Bord na Móna lands south of the Grand Canal including the Edenderry Power Station which is located approximately 11km south as the crow flies. An existing wind monitoring mast is also located within the bog.

4.2.3 The Power Plant Area is located on a brownfield site known locally as Derrygreenagh Works. There are currently a number of buildings associated with Bord na Móna Derrygreenagh Works, such as workshops, stores, and offices; paved and concreted areas, outhouses, car-parking facilities, and machinery yards. The Proposed Development site also contains mature trees, hedges, and grassland; and a narrow railway, part of a network of railways connecting the site to the surrounding bog complex. The area was formerly used for servicing and repairing peat harvesting and transport equipment, it is currently servicing equipment required for post peat extraction activities required for site management and environmental monitoring. The existing operations at the Derrygreenagh Works site will be decommissioned and demolished prior to the construction of the Power Plant Area. The proposals for discharge pipelines from the Power Plant Area are for the treated process water to discharge to the Yellow River to the southwest of the Power Plant Area, and clean surface water to discharge to the Mongagh River northeast of the Power Plant Area; both are to have respective underground routing along existing railway lines and machine pass corridors.

4.2.4 The proposed Electricity Grid Connection 220kV substation is located west of the R400 road within a brownfield site in Derryarkin Bog with limited mature trees and grassland, and cutover bogs with varying degrees of vegetation. There is a narrow railway crossing from west to east towards the Power Plant Area (Drumman Bog) via an underpass below the R400 road. It is proposed that a 220kV overhead line from the 220kV substation (in Derryarkin Bog) will run for approximately 5km to the proposed Line-Cable Interface Compound in Ballybeg Bog, via a series of double circuit pylon tower sets with three conductors hanging either side, through bogs associated with historic peatland harvesting. The proposed overhead line crosses the haul road leading into Kilmurray S&G (active quarry) and the Yellow River (between Derryarkin bog and Ballybeg bog). The route design of the proposed overhead line is angled at the passage from Derryarkin bog to Ballybeg bog so as to comply with EirGrid's policy on wind turbine clearance to overhead lines in respect of consented wind turbine locations under development (i.e. Yellow River Wind Farm). The overhead lines traverses through Ballybeg bog before linking into a proposed underground cabling connection via the proposed Line-Cable Interface Compound in the southern section of Ballybeg bog. The underground grid connection cable is approximately 3.2km in total and initially follows an existing railway line and machine pass corridor on Bord na Móna lands for c. 2.8km (south of Line-Cable Interface Compound), including a crossing of Coolcor stream, crossing the L1010 Togher road from an existing underpass, before routing through c. 550m of third-party agricultural land until it links into the loop in 400-220kV substation (hereafter called the 400kV substation) on agricultural land adjacent to the west-southwest of Ballybeg Bog and south of the L1010 road.

4.2.5 The Gas Connection Corridor, which extends for c. 9.6km to the northwest of the Power Plant Area, is part of the Overall Project and will enable the Proposed Development to connect to the existing high pressure gas pipeline to the north via an AGI at an underground tie-in location. The Gas Connection Corridor is not being applied for as part of the planning application for the Proposed Development as the connection will be subject to a separate future consenting process to be carried out by Gas Networks Ireland. However, the preferred Gas Connection Corridor at the time of writing, as indicated by GNI, is assessed throughout this EIAR as part of the Overall Project, due to the integral nature of this connection to facilitate the operation of the Proposed Development. The preferred Gas Connection Corridor is 1km wide and traverses through public road network (c. 1.4km to be routed within the R400 road) and agricultural land (c. 9.6km total in length) to the west of Rochfortbridge. The Gas Connection Corridor will require crossing of 2 no. local roads, 1 no. regional road, the M6 motorway, and will cross 2 no. streams. The route of the Gas Connection Corridor considered within this assessment has been determined by GNI following the identification of technical and environmental constraints. The Gas Connection Corridor is expected tie-in with the Power Plant Area at the proposed Derrygreenagh AGI.

4.2.6 The characteristics of the surroundings of the Proposed Development and Overall Project vary, but it is mostly low density agricultural and residential development with either scattered houses and farm buildings, or dwellings clustered along busier roads. The closest town to the Power Plant Area is Rochfortbridge, Co. Westmeath, c. 4km north-west of the Proposed Development. The closest settlements to the 400kV substation site south of the Proposed Development are Croghan, c. 2.6km to the west and Rhode, c. 3.5km to the east. There are three active quarries in the area; two of them are operated in a joint venture by Bord na Móna while the third, towards the south-west of the Power Plant Area, is privately owned. A significant extent of lands in close proximity to the Proposed Development boundary are Bord na Móna cutaway bogs which have been historically harvested. Peat extraction activities across all of the Bord na Móna landbank formally ceased in January 2021. Current activities on Proposed Development

site post peat extraction includes site management and environmental monitoring, regulated under Integrated Pollution Control (IPC) Licence Reg No. P0501-01 per activity class 1.4 of First Schedule of the EPA Act as amended.

4.2.7 The Proposed Development (comprising the Power Plant Area and the Electricity Grid Connection) is located within the administrative area of Offaly County Council. The Gas Connection Corridor is located within the administrative area of Offaly County Council and Westmeath County Council.

4.2.8 This Chapter is supported by **Figures 4.1** to **4.2** presented at the end of this chapter.

4.3 The Proposed Development Site – Site Description

4.3.1 The Proposed Development site comprises two main elements, those being:

- The Power Plant Area; and
- The Electricity Grid Connection, including the following elements (from north to south):
  - 220kV Substation
  - Overhead Electricity Grid Connection Underground Electricity Grid Connection
  - 400kV Substation

Power Plant Area – Proposed Development Site Description

4.3.2 The Power Plant Area has an approximate area of 49ha and is located directly adjacent to and east of the R400 road, with the exception of the process water discharge pipe that extends west of the R400 road before discharging to the Yellow River to the South of the Power Plant Area. The main access point to the Power Plant Area is off the R400 road, though the process water pipeline takes advantage of an underpass from power plant west of the R400 road that also links the Power Plant Area to the proposed 220kV substation site within the proposed Electricity Grid Connection.

4.3.3 The area within the Power Plant Area mostly comprises brownfield site with hardstanding surfaces, buildings, structures, and a narrow-gauge railway associated with the former use of the site, where peat-harvesting and transport equipment is serviced and repaired. The layouts of these structures are detailed in **Figure 4.2** (refer to end of chapter).

4.3.4 Towards the west and alongside the southern boundary of the Power Plant Area, there are mature trees and hedges screening the existing Derrygreenagh Works from the road. There is also mixed grassland surrounding the boundary and a single area of bare peat in the north-east corner.

4.3.5 The topography of the site for the most part is flat, but elevation increases by c. 5m towards the railway embankment (made ground).

Electricity Grid Connection – Proposed Development Site Description

4.3.6 The route of the proposed Electricity Grid Connection route starts to the west of the Power Plant Area, on the western side of the R400 road. The proposed overhead line and pylon towers will traverse from the 220kV substation south for c. 5km over Bord na Móna cutaway bogs, crossing the Yellow River and a haul road associated with Kilmurray S&G, before being undergrounded at the proposed Line-Cable Interface Compound c. 1km north of the L1010 Togher road. An underground cable route will then continue south, beneath the L1010 Togher road via existing railway underpass, following the route of the existing narrow railway which crosses Coolcor Stream before connection to a proposed 400kV substation located on agricultural land in close proximity to the existing electricity 400kV overhead route transmission network.

220kV Substation – Site Description

4.3.7 The site of the proposed 220kV substation is located west of the R400 road in close proximity to the Power Plant Area. The area is located on a brownfield site on the existing narrow gauge railway route on a mixture of made ground and bare peat on relatively flat ground c. 81mOD. There is an existing refuelling station to the northeast (still west of the R400 road, but outside the red line planning boundary) serving vehicles for operations required per activities of Licence Reg No. P0501-01. The site of the proposed contractor compound will be located north of the proposed substation site.

Overhead Electricity Grid Connection – Proposed Development Site Description

4.3.8 The overhead Electricity Grid Connection route will be located within Derryarkin and Ballybeg Bogs in the Bord na Móna Derrygreenagh Bog Group. These bogs are served by installation of surface water drainage (incorporating a pump station east of Ballybeg Bog), silt ponds and drain channels as well as rail network (including rail lines, underpasses / bridges and ancillary infrastructure) and machine passes. Drainage is typically by gravity flow in Drumman and Derryarkin Bogs. However, in Ballybeg Bog, there is a pumped system used to drain the bog. The existing pump station is located in a basin within Ballybeg Bog and is used to direct surface water to the outfall locations via silt ponds in accordance with the Licence Reg No. P0501-01 requirements.

4.3.9 The route of the 220kV double circuit overhead line will extend from the 220kV substation across Derryarkin bog taking an angled route south into Ballybeg bog, utilising as straight a line as possible before connecting in with the Line-Cable Interface Compound.

4.3.10 Derryarkin bog has regenerated in recent years to form a scrub and immature woodland mosaic in between patches of bare peat. The lower end of Derryarkin Bog (near Yellow River) contains land that can be prone to flooding. The top half of Ballybeg bog is a patchwork of bare peat and areas that have begun to regenerate into bog woodland, scrub, immature woodland of mixture or broadleaf and conifer type; the lower end of Ballybeg bog is bare peatland.

Underground Electricity Grid Connection – Proposed Development Site Description

4.3.11 The 220kV overhead line will transition to a 220kV underground cable via a double circuit Line-Cable Interface Compound. The cable compound location has been proposed in proximity to the existing railway line and machine pass access track and there is proximity to an existing tree line to the south reducing its visibility from surrounding dwellings. Peat depths at this location are typically less than 0.5m in depth.

4.3.12 The underground cable will be routed within an existing railway line and machine pass corridor on Bord na Móna over Bord na Móna cutaway bog lands for c. 2.8km before routing through c. 550m of third-party agricultural land before linking into the 400kV substation site area. There are a number of houses adjacent to the cable route where it dissects the L1010 road (1 no. house to east within 500m) and in proximity at Taylors Cross (14 no. houses west within 500m) in the townland of Togher.

400kV Substation – Proposed Development Site Description

4.3.13 The site of the proposed 400kV substation is located on agricultural land to the west of the Ballybeg Remnant bog and south of the L1010 road and c. 450m north of the Grand Canal. The existing site is predominantly improved grassland on a topography of c. 81mOD with perimeter mature trees and hedgerow. Access to the 400kV substation site is currently via agricultural land units to the west however the proposed construction and operational access route will be from the historic railway line to the east. The site of the proposed contractor compound will be located north of the proposed 400kV substation site, immediately west of Bord na Móna lands. There are 9 no. houses within 750m of the proposed substation site. There is a permanent soil deposition area proposed to the northwest of the substation for storage of excess soils from the substation site during the construction phase.

4.4 The Overall Project Site – Site Description

4.4.1 Components of the Overall Project (which do not form part of the Proposed Development for which planning permission is being sought), comprise:

- Gas Connection Corridor (tie in connection via AGI at the main high pressure Gas Line to the West and underground routing to onsite Derrygreenagh AGI at the Power Plant Area)

4.1.1 The Gas Connection Corridor, which runs from the Dublin-Galway high pressure gas network (BGE/77) to the Power Plant Area, is not included as part of this planning application but is integral to the Overall Project and so is considered throughout the EIAR in so far as reasonably practicable. The Gas Connection Corridor may be subject to change during the detailed design and consenting process to be carried out by Gas Networks Ireland (GNI), but the preferred route, at the time of writing, has been considered (please refer to Chapter 3: Need and Alternatives for more detail on site selection process and identification of this preferred route by GNI). The Gas Connection Corridor is located in the counties of Westmeath and Offaly.

Gas Connection Corridor – Overall Project Site Description

4.4.2 The underground Gas Connection Corridor route is c. 9.6km in length and is primarily located in agricultural land of improved grassland, with c. 1.4km proposed to be routed within the R400 road before connecting into the Power Plant Area and the proposed Derrygreenagh AGI. The route of the Gas Connection Corridor will cross under the M6 motorway as well as crossing under the R446 regional road and 2 no. local roads.

4.5 The Surrounding Area

4.5.1 The location of the Proposed Development and Overall Projects shown in **Figure 4.1**. The wider area is characterised by the following features (measured from the closest element of the Proposed Development and Overall Project):

Power Plant Area

- North of Power Plant Area – Rochfortbridge Co. Westmeath (c. 4km), M6 Motorway (c. 2km);
- East of Power Plant Area – Kilmurray S&G (c. 300m), Rhode Co. Offaly (c. 1km), Black Castle Bog NHA (c. 7.5km);
- South of Power Plant Area – residential properties (c. 1km). Raheenmore Bog SAC (also designated as a nature reserve) (c. 7.1km east), Daingean Bog NHA (c. 11.3km southeast); and
- West of Power Plant Area – R400 road (directly adjacent the Power Plant Area to the west or adjacent to the 220kV substation to the east, otherwise is east of the Proposed Development), Cloncrow Bog (New Forest) (c. 8.1km west).

Electricity Grid Connection

- North of Electricity Grid Connection – Rochfortbridge, Co. Westmeath (c. 4.5km), M6 Motorway (c. 2.5km);
- South of Electricity Grid Connection - Grand Canal pNHA (002104) (65m south from 400kV substation)
- East of Electricity Grid Connection - Rhode Co. Offaly (c. 1km);
- West of Electricity Grid Connection - Lough Ennell pNHA (c. 10.8km west)

Gas Connection Corridor

- North of Gas Connection Corridor – Rochfortbridge Co. Westmeath (c. 0.5km)
- South of Gas Connection Corridor – Kilmurray S&G (c. 0.5km),
- East of Gas Connection Corridor – Dalystown, Co. Westmeath (c. 0.5km)
- West of Gas Connection Corridor – N52 National Road and M6 Motorway.

4.6 Project Site History

4.6.1 Beginning in 1946, Bord na Móna PLC, a publicly owned company, acquired extensive peatlands and associated areas principally for the industrial harvesting of peat for energy (electricity production and briquettes) and as horticultural growing media. These lands extend in total to approximately 80,000 hectares (ha) and are located mainly in the Irish midlands. In January 2021 Bord na Móna formally took the decision to cease all peat extraction on its land bank.

4.6.2 The majority of the Proposed Development is located within Bord na Móna lands. Included within the Proposed Development (i.e. planning boundary) are also the agricultural lands adjacent to Ballybeg Bog required for the proposed 400kV substation.

4.6.3 A number of activities have been developed post peat extraction within the Bord na Móna Derrygreenagh Bog Group. There are sand and gravel quarrying activities ongoing across a large section of Derryarkin Bog including a large quarry pond on former gravel pit to the west of the R400 road and quarrying activity including a number of ponds in sections to the west and north of the Drumman Bog, east of R400 road (planning file reference for the quarries 01/365 and 19/25 in Co. Offaly and 01/444 in Co. Westmeath). The storage, seasoning and chipping of biomass logs is another activity in Drumman Bog, south of the Mongagh River on 29.17ha of land (planning file reference 20/329).

4.6.4 Other lands within the Bord na Móna Derrygreenagh Bog Group were developed into commercial forestry north of Derryarkin Bog and to the northwest of Drumman Bog and northeast of Drumman Bog, north of the Mongagh River in Co. Westmeath. There is a telecommunications mast fenced off to the east of R400 road, east of the existing Derrygreenagh Works currently leased out by Bord na Móna to a third-party operator (planning file reference number 15/330). There is a Motocross amenity facility located to the north of Derryarkin Bog (file reference 10/391 in Co. Offaly and 10/4018 in Co. Westmeath). There are two guyed wind monitoring masts, one located to the south of the Derryarkin Bog close to the proposed 220kV substation and overhead line (planning file reference 19/176) and the other east on Ballybeg bog (planning file reference 22/446).

4.6.5 In 2010, planning consent (Ref: 19.PA0011) was granted (following submission of an Environmental Impact Statement – 27 February 2009 for a 430MW CCGT unit and a 170MW OCGT unit, in addition to ancillary works, to be located on the site of the existing Derrygreenagh Works (also the proposed site of the Power Plant Area). Consent is valid until 11 April 2025 per extension of duration granted for the development. This current application for Proposed Development, if granted, will generate a new planning consent under which Derrygreenagh Power will be developed out, but the proposal is consistent with the principle set by this extant consent.

4.6.6 Bord na Móna currently manages and operates a portfolio of thermal and renewable assets, namely Edenderry Power Plant a peat/biomass co-fired electricity generating unit, Cushaling peaking plant, Cloncreen Bellacorick, Mountlucas, Bruckana and Oweninny wind farms, Derrinlough windfarm (under construction), Timahoe North solar farm and the Drehid landfill gas facility. The Applicant, Bord na Móna Powergen Limited, and the owner of lands under Licence (Reg No. P0501-01) Bord na Móna Energy Limited and Bord na Móna Biomass Limited; are all subsidiaries of Bord na Móna PLC.

4.6.7 The EU's Recovery and Resilience Facility, through the National Recovery and Resilience Programme, is investing up to €108 million in the Enhanced Decommissioning, Rehabilitation and Restoration Scheme (EDRRS) to rehabilitate 33,000 ha of peatlands over 82 Bord na Móna bogs. However, the Drumman, Derryarkin and Ballybeg Bogs within the Derrygreenagh bog group are not currently included in the

lands for enhanced rehabilitation. The decommissioning and rehabilitation work required for the bogs included in the Proposed Development boundary is in accordance with Condition 10 of the Licence.

4.6.8 The potential to develop and deliver renewable energy infrastructure on cutover peatlands presents a unique opportunity to utilise land to meet Ireland's climate change and biodiversity enhancement commitments. The Derrygreenagh bog group is well connected to national infrastructure including major road, fibre, gas and grid networks. The landbank presents unique benefits including its scale (present in large blocks), the history of industrial development on now brown-field sites, suitable for redevelopment in open, unenclosed landscapes with good linkage within it by a network of rail or road passageways.

Electricity Grid Connection

4.6.9 The majority of the Electricity Grid Connection and the surrounding area have historically been used in peat extraction and for ancillary services and infrastructure to facilitate this activity, with the exception of the agricultural land for part of the underground cable route and location of the 400kV substation to the existing Oldstreet-Woodland overhead line.

Gas Connection Corridor

4.6.10 The majority of the Gas Connection Corridor and the surrounding area have historically been used for agricultural farming practices, with the exception of c.1.4km which is to be routed within the R400 road. The route of the Gas Connection Corridor will cross under the M6 motorway as well as crossing under the R446 regional road and 2 no. local roads.

4.7 Project Site Relevant Planning History

4.7.1 A full review of planning applications within 5km of the Proposed Development and Overall Project was completed using the Offaly County Council online planning system, Westmeath County Council online planning system, and An Bord Pleanála online records, for applications submitted within the last five years, ten years in the case of SID applications.

4.7.2 The 5km search area from the Proposed Development and Overall Project was used due to the rural nature of the area and the sparse development. A copy of the Planning Applications in surrounding environment is presented in **Appendix 4A**, Volume II of the EIAR.

4.7.3 Bord na Móna Powergen Ltd. have made an application for leave to apply for substitute consent (LS19.315436) without prejudice, for the lands upon which the proposed Derrygreenagh Power development is located (Drumman, Derryarkin and Ballybeg Bogs, as well as the adjacent Derryhinch Bog) to regularise the planning status of the historic peat extraction activity on those lands.

4.8 Potential Environmental Sensitivities / Receptors

4.8.1 A number of environmental receptors relevant to the assessment have been identified within and outside the Proposed Development and Overall Project, as described below. All distances given are the shortest distance between the receptor and the Proposed Development and Overall Project site for the (1) Power Plant Area, (2) the Electricity Grid Connection and (3) Gas Connection Corridor.

4.8.2 Key receptors for each topic area have been identified as part of the assessment process and details are included in the relevant technical chapters (Chapters 7 – 18 of this EIAR). A summary is also provided below.

Residential and Human Health Receptors

4.8.3 Potential effects on residential receptors are considered in **Chapter 7** (Air and Climate), **Chapter 10** (Landscape and Visual), **Chapter 11** (Noise and Vibration) and **Chapter 15** (Population and Human Health) of this EIAR.

Power Plant Area

4.8.4 There are no residential properties located within 500m of the Power Plant Area. The closest are two sets of three properties approximately 1.1km south (one set over R400 road and the other on L1009 road at Knockdrin) and the closest town is Rochfortbridge, Co. Westmeath, c. 4km north-west of the Proposed Development. In total there are 27 residential houses within 2km of the Power Plant Area.

Electricity Grid Connection

4.8.5 There are a number of residential properties located within 500m or less of the Electricity Grid Connection (some along L1010 Togher road and others on a minor road, the intersection of these roads known as Taylors Cross) as well as 400kV substation site (11 residential properties with 500m of this site).

Gas Connection Corridor

4.8.6 There are a number of residential properties located within 500m or less of the Gas Connection Corridor Electricity mostly clustered around the Rochfortbridge.

Biodiversity - Designated Nature Conservation Sites

Power Plant Area

4.8.7 There are no sites designated under the EU Habitats Directive and EU Birds Directive, *i.e*., Special Area of Conservation (SAC) or Special Protection Area (SPA), located within the footprint of the Power Plant Area.

4.8.8 There are no national parks within 15km of the Power Plant Area.

4.8.9 Potential effects on biodiversity are considered in **Chapter 9:** Biodiversity of this EIAR and potential effects on European sites are presented in NIS of EIAR Volume II.

4.8.10 There are eight European sites, comprising six SAC and two SPA, and ten nationally designated sites (i.e., NHA and pNHA) within the zone of influence (ZoI) of the Power Plant Area. Two of these sites (Raheenmore Bog and Lough Ennell) are also Ramsar sites. There are no other Ramsar sites within the ZoI of the Power Plant Area. The River Boyne and River Blackwater SAC and SPA are hydrologically connected over 25km downstream of the site, via the Mongagh River.

Electricity Grid Connection

4.8.11 There are three European sites, comprising two SPA and one SAC, and two sites with a national nature conservation designation within the ZoI of the Electricity Grid Connection.

One of these sites (i.e., Lough Ennell SPA) is also a Ramsar site. The River Boyne and River Blackwater SAC and SPA are hydrologically connected c. 25.5km downstream of the site, via the Yellow River. The Rochfortbridge Stream and a tributary of the Derry River are both within the Site, and join the Mongagh River, which flows into the Yellow River and finally into the River Boyne before entering the European sites. The Grand Canal pNHA is located c. 65m south of the Electricity Grid Connection and is hydrologically linked.

Gas Connection Corridor

4.8.12 There are nine European sites, comprising four SPA and five SAC, and one site with a national nature conservation designation (i.e., Lough Ennell pNHA) within the ZoI of the Gas Connection Corridor. One of these sites (Lough Ennell SPA) is also a Ramsar site. The River Boyne and River Blackwater SAC and SPA are within the same water catchment as part of the Gas Connection Corridor, and are hydrologically connected 29km downstream of the site, via the Yellow River. The Gas Connection Corridor is also hydrologically connected by drain to Lough Ennell SPA and SAC and the River Shannon through two tributaries of the River Brosna (i.e., the BROSNA_040 river segment ID: IE_SH_25B090200, and the BROSNA_050 river segment ID: IE_SH_25B090250).

Transport Receptors

Power Plant Area

4.8.13 The main roads that are surrounding the Power Plant Area are as follows:

- R400 road immediately adjacent to the Power Plant Area to the west. The R400 road runs from north-west to the south-east where it is adjacent to the Power Plant Area (which is accessed east off this road, access west off the R400 road to the Electricity Grid Connection and site of the proposed 220kV substation and Line-Cable Interface Compound), then changes direction towards the south where it meets a minor road c. 5km south.
- Junction 3 on the M6 motorway for Rhode and Rochfortbridge, c. 2.2km north from the Proposed Development entrances on the R400 road. M6 motorway connects Galway and Dublin cities and runs from the south-west to the north-east above Bord na Móna Derrygreenagh Bog Group where it meets M4 motorway c. 12km northwest from the Power Plant Area.
- Two minor roads c. 650 m south of the Power Plant Area (L1009 and L10091 roads), branching out from R400 road towards the east. These then meet and merge into a single L1009 road which links into the R400 c. 5km south of the Power Plant Area at the Coolcor roundabout. These roads are single-carriage local roads.

Electricity Grid Connection

4.8.14 The main roads that are surrounding the Electricity Grid Connection are as follows:

- R400 road immediately adjacent to the Power Plant Area. The R400 road runs from north-west.

Gas Connection Corridor

4.8.15 The Gas Connection Corridor uses the same local road network as the Power Plant Area and Electricity Connection Corridor, but its study area extends further than the one assessed in in Chapter 14: Traffic of this EIAR. Therefore, there are additional junctions and roads (i.e., the R446, Castlelost Road, L1127 and N52) that are likely to be impacted by the Gas Connection Corridor. These are beyond the Proposed Development's study area and will be assessed in detail in the separate planning application for the Gas

Connection Corridor. Notwithstanding this, the Gas Connection Corridor trips have been assessed for Junctions 1-5 listed in Section 14.4 of Chapter 14: Traffic of this EIAR.

4.8.16 Potential effects on transport receptors are considered in Chapter 14: Traffic of this EIAR.

Air Quality Receptors

4.8.17 The study area for the assessment of construction dust has been applied within the Air Quality chapter of this EIAR. The IAQM guidance extends:

- Up to 250m beyond the Proposed Development boundary and 50m from the construction traffic route (up to 250m along a hard surfaced road from the Proposed Development entrances), for human health receptors; and
- Up to 50m from the Proposed Development boundary and/ or construction traffic route (up to 250m from the Proposed Development entrance) for ecological receptors.

4.8.18 Potential effects on air quality receptors are considered in Chapter 7: Air Quality of this EIAR.

Power Plant Area

4.8.19 There are no human health and amenity receptors falling into the aforementioned screening distances of the Power Plant or the access point.

4.8.20 During the operational phase, potential impacts are associated with emissions from the Power Plant Area arising from the power plant. A number of human receptors in the greater area are considered as well as ecological receptors identified within a 15km radius.

Electricity Grid Connection

4.8.21 At the southern end of the Electricity Grid Connection underground cable route, there are some residential properties within 50m of the Proposed Development boundary.

Gas Connection Corridor

4.8.22 Along the length of the Gas Connection Corridor, there are residential properties within 250 m of the centre line of the Corridor, although the construction activities nearby will largely be limited to the installation of the buried pipeline.

Soils and Geology Receptors

4.8.23 Works in the surrounding environs of the Overall Project include historic peat harvesting, active quarries, forestry, and agriculture. The Gas Connection Corridor will cross mainly agricultural areas with the exception of c. 1.4km to be routed in the R400 road. Potential effects on geology and hydrogeology receptors are considered in Chapter 13 of this EIAR.

Power Plant Area

4.8.24 The wider area surrounding the Power Plant Area is characterised by a generally low relief and relatively level, featureless peatland terrain. The natural topography of the area has been extensively modified by the historic extraction of peat, resulting in a difference in level of cut-over peatland areas relative to other aspects of the landscape.

4.8.25 The Power Plant Area is largely underlain by Made Ground (*i.e.*, the existing Derrygreenagh Works which comprises a workshop, stores and office complex that supports Bord na Móna's peat harvesting activities, including workshops for mobile plant overhaul and for wagon and locomotive maintenance), with adjoining areas underlain by

blanket peat (largely cutaway), made ground and deep well drained mineral (mainly basic) soils (to the south and west).

4.8.26 The entire Power Plant Area is underlain by Carboniferous limestone and shale of the Lucan Formation (commonly known as Calp).

4.8.27 The Power Plant area itself is described as having 'Low' groundwater vulnerability, with some areas mapped as 'Moderate' or 'High' groundwater vulnerability between 1 and 2km of the Power Plant Area (GSI and EPA Maps) corresponding to areas mapped as having till or gravel subsoils.

Electricity Grid Connection

4.8.28 The Electricity Grid Connection route runs southward from the 220kV Substation Site and the overhead portion traverses relatively level Cutover Peatland, with pylon bases at elevations between 74 and 80 metres OD (Ordnance Datum Malin Head), to the line-cable interface compound (at close to 79 m OD), where the cables run underground to the 400kV Substation Site (at 78-79 m OD).

4.8.29 The overhead line (OHL) portion of the Electricity Grid Connection route is almost totally underlain by 'Cut Peat' and the UGC section crosses some minor areas mapped as various types of 'Till derived chiefly from limestone', consisting of either poorly drained peaty gley soils or deep well drained mineral soil, depending on grain size.

4.8.30 The majority of the Electricity Grid Connection route is underlain by Carboniferous limestone and shale of the Lucan Formation (commonly known as Calp).

Gas Connection Corridor

4.8.31 The Gas Connection Corridor runs northwest from the Power Plant Area and is characterised by a generally low relief and relatively level agricultural terrain.

4.8.32 The southernmost 2km end of the Gas Connection Corridor covers blanket peat (largely cutaway) and the remainder largely traverses grey-brown podzolic till soils derived from limestones, with short sections of undifferentiated alluvium and/or peaty gley soils in river valleys close to the R446 and Castlelost West.

4.8.33 The Gas Connection Corridor is largely underlain by Carboniferous limestone and shale of the Lucan Formation (dark grey to black, fine-grained, occasionally cherty, micritic limestones with rarer interbedded calcarenitic limestones and calcareous mudstones).

4.8.34 The southern end of the Gas Connection Corridor, which overlies peatland, is described as having 'Low' groundwater vulnerability. The remainder which traverses tills and alluvium is generally assigned 'Moderate' to 'High' groundwater vulnerability.

Water Environment Receptors

4.8.35 Potential effects on water environment are considered in Chapter 12: Water Environment of this EIAR.

Power Plant Area

4.8.36 The Power Plant Area falls within the Boyne WFD surface water catchment (CATCH_ID 07) and the Athboy WFD Groundwater body (European Code IE_EA_G_001).

4.8.37 The nearest river to the Power Plant Area is the Castlejordan_020 (EPA Code 07C04) river waterbody (also referred to as the Mongagh River), located immediately adjacent to the northernmost boundary of the Power Plant Area. The Castlejordan_020 is a WFD designated river waterbody (IE_EA_07C040100).

4.8.38 The Mongagh River is a tributary of the Yellow River and flows into the Yellow River approximately 15km downstream of the Power Plant Area. Subsequently, the Yellow

River flows into the River Boyne a further 2km downstream. Both of the Mongagh and Yellow Rivers are tributaries of the River Boyne.

4.8.39 The are no mapped surface water features within the Power Plant Area boundary. However, there are a number of small man-made ditches cut into the peat surrounding the Proposed Development.

4.8.40 The Power Plant Area is mapped by being within the Athboy groundwater body (GWB) (IE_EA_G_001). This groundwater body have a flow regime characterised as 'poorly productive'.

Electricity Grid Connection

4.8.41 The Electricity Grid Connection falls within the Boyne WFD catchment and, to the south of the L1010 road, within the Barrow WFD catchment. The 200kV substation falls within the Castlejordan_020 WFD river sub basin and the OHL and UGC routes and 400kV substation site falling within the Yellow (Castlejordan)_020, Castletown Tara Stream_010 and Esker Stream_010 WFD river sub basins.

4.8.42 The Electricity Grid Connection Area crosses two (no. 2) WFD designated river waterbodies – the Yellow (Castlejordan)_010 and 020 (EPA Code 07Y02) (IE_EA_07Y020070 and IE_EA_07Y020100 respectively) and the Castletown Tara Stream_010 (EPA Code 07C08) (IE_EA_07C080190), also known as the Coolcor Stream.

4.8.43 There are two (no. 2) surface water bodies near the 400kV substation site both designated as Esker Stream_010 (EPA Code 14E01) and WFD river waterbody (IE_SE_14E010100) located approximately 950m and 1.3km to the east and west respectively. These Esker Streams are tributaries of the Figile_040 (EPA Code 14F01) and WFD river waterbody (IE_SE_14F010300) at approximately 5km to the south of the Electricity Grid Connection, which in turn is a tributary of the Barrow_110 (EPA Code 14B01).

4.8.44 The Grand Canal waterbody (IE_14_AWB_GCMLW), a designated WFD canal waterbody, is located within 450m to the south of the 400kV substation.

4.8.45 The Electricity Grid Connection is mapped by being within the Athboy groundwater body (GWB) (IE_EA_G_001)). This groundwater body have a flow regime characterised as 'poorly productive'.

Gas Connection Corridor

4.8.46 The Gas Connection Corridor area incorporates stretches of four (4 No.) WFD designated river waterbodies, i.e., the Mongagh River, the Yellow River, the Rochfortbridge Stream and the River Brosna.

<u>Cultural Heritage</u>

4.8.47 The Proposed Development and Overall Project is located in an area of moderate to high archaeological potential where a significant number of archaeological sites and artefacts from the bogs in the surrounding environs have been identified.

4.8.48 Potential effects on cultural heritage and archaeology receptors are considered in Chapter 8 of this EIAR.

Power Plant Area

4.8.49 The majority of the Power Plant Area is located on a 'dry bog island' (Derrygreenagh Hill), within the existing Derrygreenagh Works located to the west of Drumman Bog.

4.8.50 While there are no recorded archaeological assets within the boundaries of the Power Plant Area, 19 are recorded within the 1km study area. These are all located within the surrounding commercially cut peat bogs and were uncovered during field surveys conducted by the Irish Archaeological Wetland Unit in 2001 and 2002. Although there may have been other heritage assets present in the form of previously unrecorded sub-surface archaeological deposits and features, these will have been destroyed by ground disturbance associated with the construction of the existing buildings and infrastructure.

4.8.51 There are no Protected Structures within the 1km study area.

4.8.52 There are no assets recorded on the National Inventory of Architectural Heritage (NIAH) within the 1km study area.

Electricity Grid Connection

4.8.53 The majority of the Electricity Grid Connection is located within Derryarkin Bog and Ballybeg Bog comprising Basin Peats and some Blanket Peats which have been cutover/cutaway.

4.8.54 There are no recorded archaeological assets within the footprint of the Electricity Grid Connection, with 108 assets recorded within the 1km study area.

4.8.55 No. 16 of these assets are located c. 680m from the 220kV substation which will be located at the northern end of the Electricity Grid Connection (west of the R400 road). These assets are located within Drumman Bog.

4.8.56 There are no Protected Structures within the 1km study area.

4.8.57 There are no assets recorded on the NIAH within the 1km study area.

Gas Connection Corridor

4.8.58 There are 16 recorded archaeological sites within the 1km wide Gas Connection Corridor ranging in date from the prehistoric to the medieval period. The prehistoric sites comprise of a barrow (WM033-032) and a standing stone (WM033-023001). The barrow (WM033-032) is located on a low rise of dry ground on marshy land, with restricted views of the surrounding countryside at Castlelost West, on the northern boundary of the Gas Connection Corridor, 500m from the centre line.

4.8.59 There are also three undated assets within the Gas Connection Corridor which could date to the prehistoric period. These are two enclosures (WM033-075 and 064) and a cropmark (WM033-076). Enclosure (WM033-075) is located in Castlelost West 100m to the south of the centre line of the Gas Connection Corridor.

4.8.60 There are 10 Recorded Protected Structures recorded within the 1km Gas Connection Corridor comprising 14 assets.

4.8.61 The majority of the Protected Structures noted within the Gas Connection Corridor are also recorded on the NIAH with corresponding identification numbers.

Landscape Receptors

4.8.62 Potential effects on landscape receptors are considered in Chapter 10: Landscape and Visual of this EIAR.

4.8.63 For there to be a visual impact, there is the need for a viewer. Views experienced from locations such as settlements, recognised routes and popular vantage points used by the public have been included in the assessment. Receptors are the viewers at these locations. The degree to which receptors, i.e., people, will be affected by changes as a result of a proposed development depends on a number of factors, including:

- Receptor activities, such as taking part in leisure, recreational and sporting activities, travelling or working;
- Whether receptors are likely to be stationary or moving and how long they will be exposed to the change at any one time;
- The importance of the location, as reflected by designations, inclusion in guidebooks or other travel literature, or the facilities provided for visitors;
- The extent of the route or area over which the changes will be visible;
- Whether receptors will be exposed to the change daily, frequently, occasionally or rarely;
- The orientation of receptors in relation to the Proposed Development and Overall Project and whether views are open or intermittent;
- Proportion of the developments that will be visible (full, sections or none);
- Viewing direction, distance (i.e., short-, medium- and long-distance views) and elevation;
- Nature of the viewing experience (for example, static views, views from settlements and views from sequential points along routes);
- Accessibility of viewpoint (public or private, ease of access);
- Nature of changes (for example, changes in the existing skyline profile, creation of a new visual focus in the view, introduction of new man-made objects, changes in visual simplicity or complexity, alteration of visual scale, landform and change to the degree of visual enclosure); and
- Nature of visual receptors (type, potential number and sensitivity of viewers who may be affected).

Noise and Vibration Receptors

4.8.64 Potential effects on noise receptors, as well as cumulative impacts, are considered in Chapter 11: Noise and Vibration.The NSR Noise Sensitive Receptors (NSRs) likely to be most exposed to the noise emissions from the Proposed Development and Overall Project have been identified and are shown on Figure 11.1 in Chapter 11.

- NSR1 (53.325176, -7.243542) Coole
- NSR2 (53.328533, -7.250672) Coole
- NSR3 (53.334351, -7.247513) Togher
- NSR4 (53.34256, -7.24835) Barrysbrook
- NSR5 (53.383595, -7.242782) Knockdrin
- NSR6 (53.38702, -7.237075) Knockdrin
- NSR7 (53.404312, -7.280541) Farthingstown

4.8.65 The seven receptors are all residential and represent the relevant closest receptor positions to the Proposed Development and Overall Project identified from satellite imagery. It is assumed that if compliant levels are achieved at these locations, compliant levels will be achieved at all other receptor positions. This is a reasonable assumption as observed sound pressures level reduce as the distance from the sound source increases in open outdoor conditions like those surrounding the Proposed Development and Overall Project.

Power Plant Area

4.8.66 The closest receptors to the Power Plant Area are NSR5, NSR6 and NSR7, located ~1.2km, ~1.1km and ~1.6km from the Proposed Development.

Electricity Grid Connection

4.8.67 The closest receptor to the Electricity Grid Connection are:

- NSR1, NSR2, and NSR3 are closest to the 400kV substation;
- NSR4 is closest to the overhead line cable interface compound; and
- NSR5, NSR6 and NSR7 are closest to the 220kV substation.

Gas Connection Corridor

4.8.68 The closest receptor to the Gas Connection Corridor is NSR7, which represents the properties closest to the various components of the Gas Connection Corridor and therefore will be exposed to the highest noise levels.

4.9 References

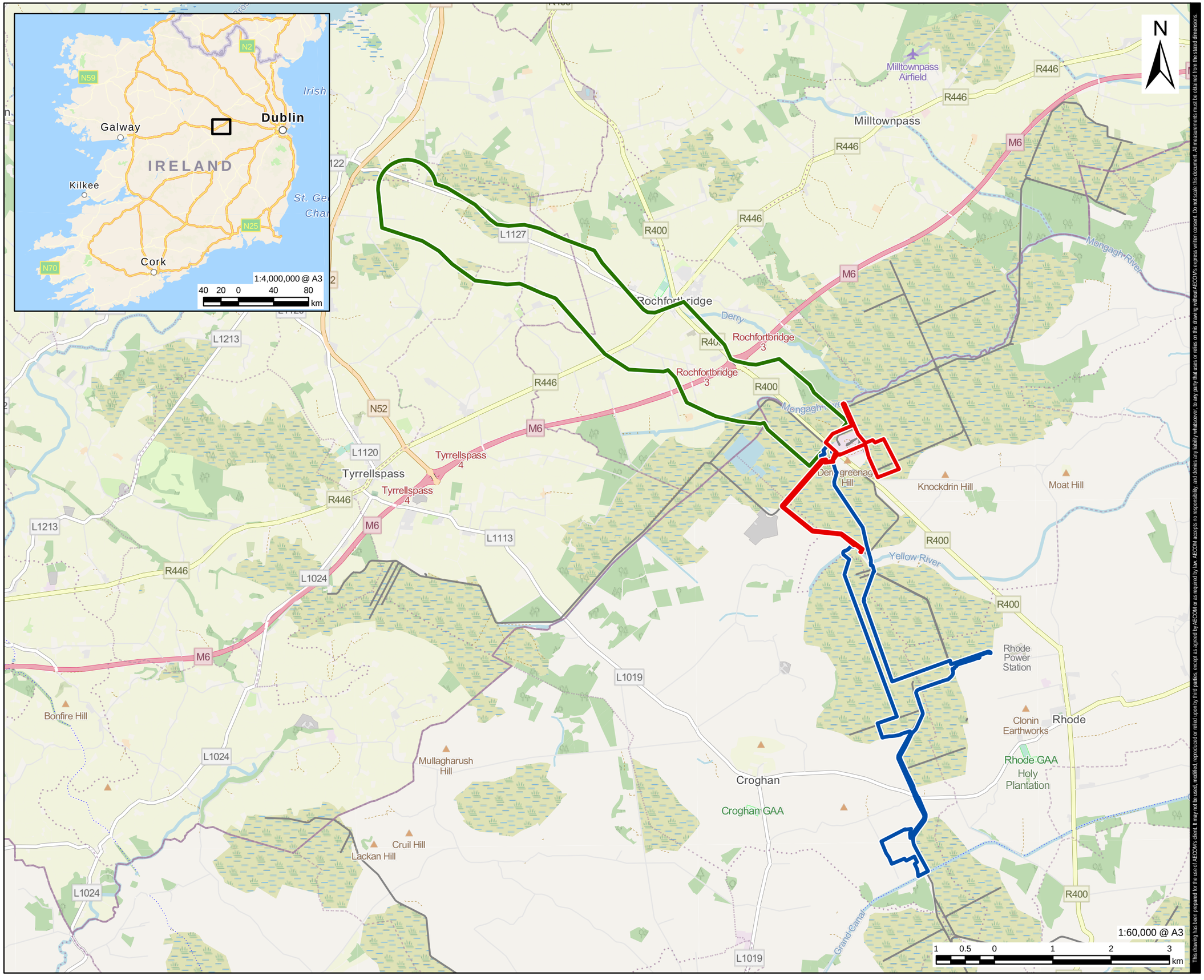
Offaly County Development Plan 2021- 2027 (https://www.offaly.ie/c/county-development-plan/)

Offaly County Council (2023) Map Viewer.

Westmeath County Development Plan (https://consult.westmeathcoco.ie/en/consultation/draft-westmeath-county-development-plan-2021-2027)

Westmeath County Council (2023) Map Viewer.

Revision: P01 Drawn: JB Checked: AB Approved: POC Date: 2024-01-16



AECOM

PROJECT

Proposed Derrygreenagh Power Project

CLIENT

Bord na Móna

CONSULTANT

AECOM Limited
10th Floor The Clarence West Building
2 Clarence St W, Belfast
BT2 7GP
Tel: +44 (0)28 9060 7200
www.aecom.com

LEGEND

- Power Plant Area Boundary
- Electricity Grid Connection Boundary
- Gas Connection Corridor Boundary

NOTES

ISSUE PURPOSE

FOR ISSUE

PROJECT NUMBER

60699676

FIGURE TITLE

Site Setting

FIGURE NUMBER

Figure 4.1

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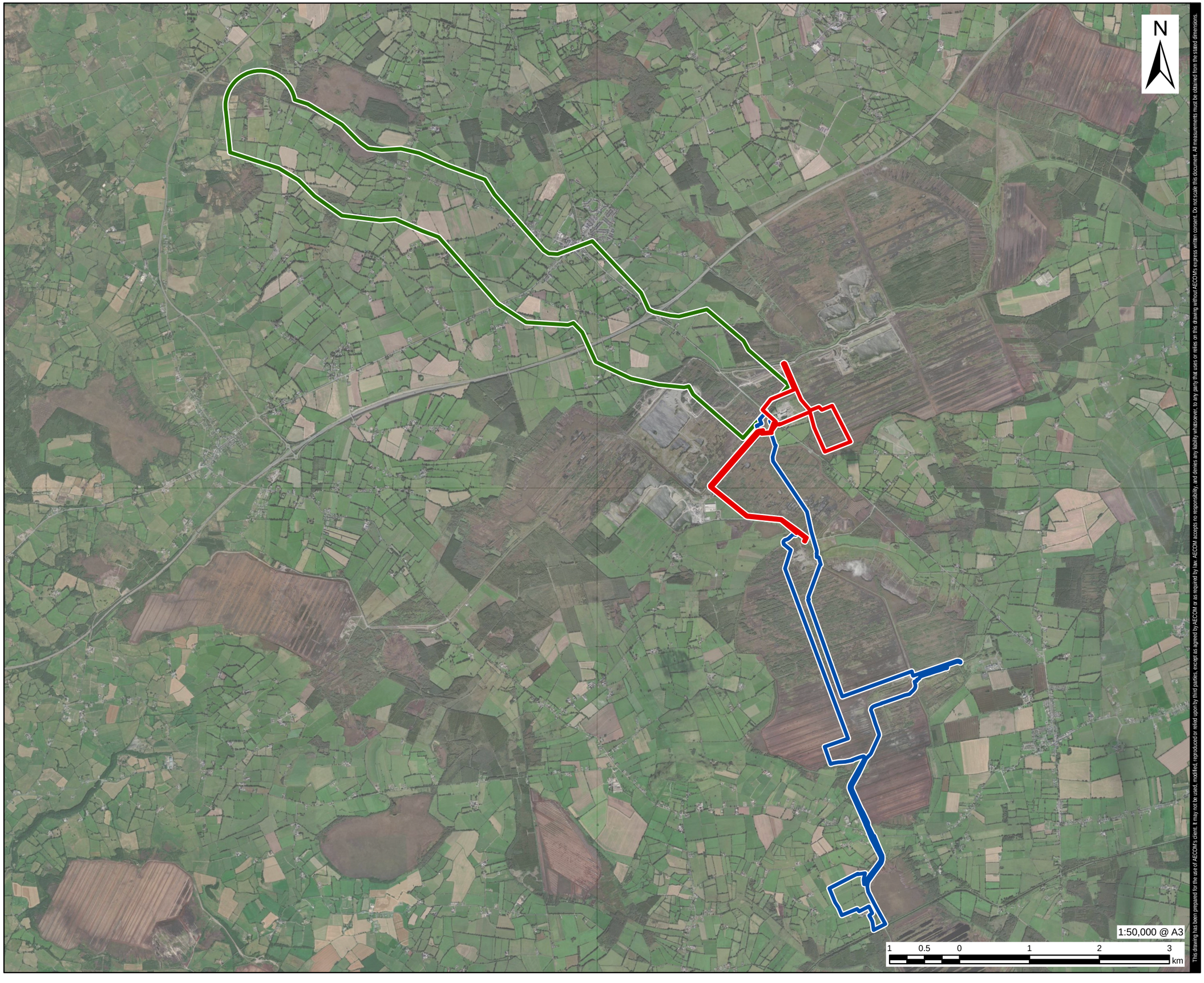
Revision: P01 Drawn: JB Checked: AB Approved: POC Date: 2024-01-16



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PROJECT

Proposed Derrygreenagh Power Project

CLIENT

Bord na Móna

CONSULTANT

AECOM Limited
10th Floor The Clarence West Building
2 Clarence St W, Belfast
BT2 7GP
Tel: +44 (0)28 9060 7200
www.aecom.com

LEGEND

- Power Plant Area Boundary
- Electricity Grid Connection Boundary
- Gas Connection Corridor Boundary

NOTES

ISSUE PURPOSE

FOR ISSUE

PROJECT NUMBER

60699676

FIGURE TITLE

Site Aerial

FIGURE NUMBER

Figure 4.2

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