CONDITION 14 INLAND FISHERIES

(b) Prior to the commencement of development, the applicant shall submit a site-specific Construction Environmental Management Plan (CEMP) for the written agreement of the Planning Authority. This should identify potential impacts and mitigating measures on the aquatic environment, it should provide a mechanism for ensuring compliance with environmental legislation and statutory consents. The CEMP should detail and ensure Best Construction Practices including measures to prevent and control the introduction of pollutants and deleterious matter to surface water either directly or indirectly through the storm water drainage network and measures to minimise the generation of sediment and silt.

REASON: In the interests of protecting the natural environment.

Compliance

Please refer to the enclosed Construction Environmental Management Plan (CEMP).

Centrica Business Solutions
Maidenhead Road
Windsor
SL4 5GD
01753 494000

centrica
Business Solutions

CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN

Greener Ideas Limited Profile Park

DOCUMENT NUMBER: OI29074-CBS-SW-XX-SP-HS-XX02

Version	Revision Date	Revision Description	Author	Reviewer(s)	Reviewer(s)	Approver	Approver
0			CP				

AUTHORIZATION PAGE

ORIGINATED BY:	**Print Name:** Colin Phelan	**Signature:**
POSITION:	EHS Manager	
CHECKED BY:	**Print Name:**	**Signature:**
POSITION:		
APPROVED BY ENG:	**Print Name:**	**Signature:**
POSITION:		
APPROVED BY (PROJECT) DIRECTOR:	**Print Name:**	**Signature:**
POSITION:		

Table of Contents

Table of Figures

1.0 INTRODUCTION

Greener Ideas Limited (hereafter referred to as the Developer) has been approved for planning permission to develop a ca. 100 MW dual fuel gas fired power plant at a site located in Profile Park, Dublin 22.

The site of the proposed power plant is located in Profile Park, Dublin 22 which is approximately 3.15km west of Clondalkin town centre. Profile Park is a 100 acre (40.5 Ha) fully enclosed, private business park. The immediate area is predominantly commercial / industrial in nature. Outside of this, Grange Castle Golf Course is located approximately 120m east of the site and Baldonnel Aerodrome 450m south of the site. The nearest residential properties are located some 400m to the south of the site and some 450 m to the northeast.

Immediately adjacent to Profile Park is the Castlebaggot 110 / 220 kV substation which provides electrical transmission connectivity to the national electricity transmission grid system.

The electrical generator associated with the gas engines will connect to the main transformers where the voltage will be increased to 110 kV. Electrical power will then be exported via an underground cable from the plant's main transformers to an off-site electrical substation. The final route of connection is yet to be confirmed. Electrical power will be exported from the power plant's main transformers to the existing Castlebaggot 220 / 110 kV Substation which is operated by EirGrid or to a new proposed 110 kV substation in Profile Park.

It should be noted that planning permission is not sought for these connections as part of the power plant application to South Dublin County Council. Either Greener Ideas Limited or EirGrid will be responsible in the future for securing the necessary planning permission for these electrical connections. Similarly, in the event that Greener Ideas Limited and a data centre operator agree for a private power supply to be provided then this would also be subject to its own separate consenting process.

The planning application for the proposed development has been approved by South Dublin County Council (SDCC) under Section 34 of the Planning and Development Act 2000 (as amended). An Environmental Impact Assessment Report (EIAR) was prepared to accompany the planning application and incorporated all elements of the proposed project works including the main power plant site, the electrical grid connection. Collectively this is referred to as the Profile Park Power Plant.

This Construction Environmental Management Plan (CEMP) has been prepared to outline the proposed management and administration of site activities for the Construction Phase of the proposed development, to ensure that all construction activities are undertaken in an environmentally responsible manner. This CEMP summarises the environmental commitments of the construction project, and the measures to ensure compliance with legislation and the requirements of statutory bodies, all as detailed in the EIAR.

This CEMP will be a live document and will be reviewed and updated, as necessary. Upon appointment, the Main Contractor for construction of the proposed development shall update this document to produce a Final CEMP which will account for any additional requirements set out in Planning Conditions.

The following relevant guidance has been referenced in the preparation of this CEMP:

- Environmental Protection Agency (EPA), Guidelines on the Information to be contained in Environmental Impact Assessment Reports – Draft (August 2017)

1.1 Proposed Development

The proposed development will comprise the construction and installation of the following:

- Site Entrance
- Engine Hall, comprising up to 5 no. gas engines and 1 no. exhaust stack cluster with a flue tip height of 31.8m
- Electrical Annex Building
- Workshop Building
- Security Hut
- Radiator Coolers
- 110 kV Electrical Transformer(s)
- Gas AGI
- Tank Farm comprising:
  - 2 x Fuel Oil Storage Tank; ○ SCR reagent Tank; ○ Lube Oil Storage Tank; ○ Lube Oil Maintenance Tank; ○ Pilot Oil Tank; ○ Fire Water Storage Tank; ○ Cooling Water Run-Down Tank; ○ Surface Water Attenuation Tank ○ Bund wall, approximately 1.8m high
- Perimeter Fencing, approximately 3m high
- Car Park
- Landscape planting around perimeter of site.

The planning permission was approved for 10years, and the power plant is expected to be operational for at least 25 years from the date of commissioning. On cessation of activities, the plant will either be redeveloped as a power related facility, or the site will be redeveloped in an alternative form.

1.2 Scope of this CEMP

This CEMP addresses all relevant environmental aspects of the management of site preparation and construction work within the proposed development works area as set out in Section 1.1. The scope of this CEMP includes:

- All construction elements of the proposed development
- The proposed implementation and management of environmental controls and mitigation measures during each phase of construction works; and
- A documented process to ensure measures identified through the planning phase of the proposed development will be applied in practice.

This CEMP contains:

- A statement of the environmental aims and policy objectives of the proposed development
- Roles and responsibilities of key individuals
- Environmental management and reporting structure
- Site management and construction activity details

- Environmental mitigation measures
- Environmental awareness training programmes
- Environmental monitoring programmes and requirements
- Inspection and auditing programmes; and
- Emergency response plans and procedures for any environmental incidents.

This CEMP should be read in conjunction with the EIAR and supporting documentation. In the unlikely event of any contradiction between this CEMP and the EIAR, the EIAR shall take precedence.

1.3 Implementation of the CEMP

Key to the implementation of this CEMP is the delegation of responsibility for the CEMP to the Construction Environmental Manager/Safety, Health, Environmental and Quality (SHEQ) Officer, or other suitably qualified appointed person on behalf of the Contractor, who will regularly liaise with and update the Client on all environmental issues relating to the project during the construction phase. As part of the appointment of a Contractor and agreement of Contracts, the Developer will determine the lines of communication for environmental compliance with the local authorities and relevant stakeholders.

In terms of overall environmental responsibility, everyone on-site is responsible for ensuring that their actions constitute good environmental practice and will be provided with site specific information to ensure compliance as part of the site induction. All site personnel are charged with following good practice and encouraged to provide feedback and suggestions for improvements. All site personnel are also required to ensure compliance with the requirements of this CEMP and subsequent revisions thereof.

1.4 Aims and Objectives

The key project aims are:

- To ensure the project is undertaken in accordance with best practice guidance for the management of the environment during construction works
- To ensure that mitigation measures to protect all aspects of the environment as set out in the EIAR are put in place
- To ensure that construction activities are carried out in accordance with all planning conditions for the proposed development; and
- To carry out the proposed works with minimal impact on the environment.

The primary objectives to ensure the above aims are achieved during the construction phase are:

- Appointment and delegation of responsibility to an individual for monitoring environmental compliance and adherence to this CEMP
- Updating the Final CEMP on a continuous basis in accordance with regular environmental auditing and site inspections. This will confirm the efficacy and implementation of all relevant mitigation measures and commitments identified in the application documentation
- Providing adequate environmental training and awareness to all project personnel
- Establishing documented schedules and records for monitoring and inspections
- Establishing reporting procedures for any incidents on site with potential to impact on the environment
- Providing opportunities for community feedback and submission of complaints; and
- Adopting a sustainable and socially responsible approach to construction.

1.5 Revisions of the CEMP

All the elements of this CEMP will be included in the final CEMP, which will be produced prior to construction by the contractor. In addition, the final CEMP will implement conditions attached to any planning permission granted. The final CEMP will be subject to ongoing review (throughout the construction phase of the proposed development), through regular environmental auditing and site inspections. This will confirm the efficacy and implementation of all relevant mitigationmeasures and commitments identified in the application documentation.

The appointed Contractor is required to include further details and/or confirmation in the final CEMP which will include:

- Details of emergency plan including personnel and contact numbers
- Details of fuel storage areas (including location and bunding)
- Construction lighting details
- Site and traffic signage and Method statements.

1.6 Environmental Training and Awareness

In order to ensure that environmental awareness and compliance is communicated effectively at the start and throughout the construction works, this CEMP and its contents will be communicated to all site personnel, including management staff, operatives and subcontractors. The key elements of this CEMP will form part of the site induction which will be mandatory for all employees, contractors and visitors attending the site.

Environmental toolbox talks will be provided to all site personnel and sub-consultants on a regular basis. These will be targeted at particularly sensitive environmental issues such as:

- Protection of sensitive ecological habitats and key ecological receptors
- Works close to water bodies
- Water pollution and silt control
- Water pollution in relation to cement and concrete handling
- Spill prevention and control
- Dust management
- Sensitive archaeological sites and Waste management.

2.0 OVERVIEW OF THE EXISTING SITE

2.1 Site Location

The site of the proposed power plant is located in Profile Park, Dublin 22 which is approximately 3.15km west of Clondalkin town centre. Profile Park is a 100 acre (40.5 Ha) fully enclosed, private business park, which has been developed to the highest of standards. It is easily accessible from the major arterial roads in the city including the M50, M7 and M4, and is served by excellent public transport links.

Within Profile Park the proposed power plant will be located on greenfield lands immediately adjacent to the existing Digital Realty data centre. Existing tenants within Profile Park and the surrounding business and enterprise parks include Google, Microsoft, Digital Realty Trust, Telecity and others.

The immediate area is predominantly commercial / industrial in nature. Outside of this, Grange Castle Golf Course is located approximately 120m east of the site and Baldonnel Aerodrome 450m south of the site. The nearest residential properties are located some 400m to the south of the site and some

450 m to the northeast. Grange Castle Golf Course is located approximately 120m east of the site and Baldonnel Aerodrome 450m south of the site.

Immediately adjacent to Profile Park is the Castlebaggot 110 / 220 kV substation which provides electrical transmission connectivity to the national electricity transmission grid system. Electrical power will be exported from the power plant's main transformers to the existing Castlebaggot 220 / 110 kV Substation which is operated by EirGrid or to a new proposed 110 kV substation in Profile Park.

2.2 Existing Land, Soils and Geological Environment

The site of the proposed power plant measures c. 2 ha and is predominantly covered by rough grassland, surrounded by industrial, commercial and transport units. Access is via the existing road network within Profile Park, located off the R134. Agricultural areas exist within 1km to the west and 0.5km south of the proposed site, with artificial surfaces less than 100m to the east defined as artificial non-agricultural vegetated areas, used primarily for the Grange Castle Club. Artificial surfaces associated with Casement Aerodrome, Baldonnel is located approximately 400 south of the proposed site.

The proposed electrical connection considered in this EIAR is an underground 110 kV cable from the plant's main transformers to either a new proposed 110 kV substation on adjacent lands to the immediate west of the power plant or the existing Castlebaggot 220 / 110 kV Substation. Natural gas will be delivered to the power plant via a new below ground pipeline from the existing gas network from an existing AGI compound close to the Nangor Road. In the case of both the electrical and the gas connection, these will both be situated in existing private and public roads.

The topography of the proposed power plant site can be described as mostly flat with elevations from c. 73 mAOD to 76 mAOD. The GSI data does not indicate there are any geomorphology features within the site boundary.

The bedrock geology on the GSI 1:100 000 map indicate that this site is underlain by Lucan Formation limestone. The regional bedrock geology covering the proposed site and grid/ gas connection is shown in Figure 8-4 and a description of the formation is presented in Table 8 1. of Chapter 8 (Land, Soils and Geology) of the EIAR.

The GSI database contain records of verified borehole logs, groundwater wells and springs within and close to the site of the proposed power plant. Bedrock exposures in the local area indicate strong to moderately strong, dark grey, fine grained, argillaceous limestones with minor calcareous shales.

A historical (currently inactive) quarry lies approximately 0.6km to the south of the southern site boundary. No active mineral or aggregate sources have been identified by GSI data within 2km of the site boundary.

The GSI online Aggregate Potential Mapping Database shows that the site is located within an area mapped as being typically Moderate in terms of crushed rock aggregate potential, with some areas of low to high potential. There are no significant mapped areas of granular aggregate potential (i.e., potential for gravel reserves).

According to the Geological Survey of Ireland Spatial Resources, there are no Irish Geological Heritage sites inside the site boundary. No geological heritage sites have been identified within 2km of the site boundary. Belgard Quarry, a large active quarry is located 2.15 km southeast of the proposed development. Belgard is the largest limestone quarry in the country and is excavating the Lucan Formation limestones. It is a designated County Geological Site (Site Code: SD002) of vital economic importance and of geological heritage significance.

The regional soils in this area, including the grid and gas connection, are shown in Figure 8-2. Based on mapping by the EPA this indicates that this site consists of 2 no. types of soil, namely:

BminPD – Basic deep poorly drained mineral
BminDW – Basic deep well drained mineral

The development area within the red line boundary is underlain mostly by basic deep poorly drained material

The dominant subsoil occurring in the region is classified as till. The site is underlain by till derived from limestone (TLS). Figure 8-3 Chapter 8 (Land, Soils and Geology) of the EIAR presents the regional subsoils in this area, including the area within the red line boundary and grid/gas connection.

The till, which is Quaternary in age, formed as an extensive envelope of the landscape in the area since deglaciation approximately 7,000 – 10,000 years ago. Based on the site walkover date the site is underlain by firm, brown and grey slightly gravelly silty clay with occasional cobbles and pieces of broken rock. Gravel is subangular to subrounded, fine to medium. Cobbles are subangular to subrounded.

A review of the EPA website for both existing and historic licensed and illegal waste activities was carried out to identify any potential contamination sources present in the area and to identify any potential contaminating activities near the proposed development. The desk study indicated that no waste facilities, illegal waste activities within a 2km radius of the proposed site. The has is a greenfield site with no previous development. No visual or olfactory evidence of contamination was noted during the site walkover.

A review of the landslide information on the GSI Irish Landslides Database indicate that there are no recorded landslide events within 2km, or within a wider context of 6km of the site. The site walkover conducted in May 2021 confirmed the site is generally very flat comprising topsoil underlain by firm glacial till.

2.3 Existing Hydrological and Hydrogeological Environment

The proposed power plant site is located within the River Liffey and Dublin Bay catchment, located within the National River Basin District and on a regional scale, the proposed development site is located within the Liffey sub catchments.

The River Liffey and Dublin Bay catchment includes the area drained by the River Liffey and by all streams entering tidal water between Sea Mount and Sorrento Point, Co. Dublin, draining a total area of 1,616km^2. The largest urban centre in the catchment is Dublin City. The other main urban centres are Dun Laoghaire, Lucan, Clonee, Dunboyne, Leixlip, Maynooth, Kilcock, Celbridge, Newcastle, Rathcoole, Clane, Kill, Sallins, Johnstown, Naas, Newbridge, Athgarvan, Kilcullen and Blessington. The total population of the catchment is approximately 1,255,000.

The River Liffey rises on the western slopes of Tonduff in the Wicklow Mountains, from where it flows west, before being joined by the Brittas River from the north and then flowing into the northern end of Pollaphuca Reservoir (created by the ESB in the 1930s). The Liffey flows out of the reservoir through the Pollaphuca generating station and into the lower reservoir and generating station at Golden Falls. The Liffey then flows west though Kilcullen before flowing through Newbridge, then past Sallins and Clane, after which it is joined by the Morell from the south.

The Liffey continues through Celbridge to Leixlip, before which it flows into Leixlip reservoir and generating station. The Liffey then enters a steep-sided valley, through which it flows past Islandbridge, where the river becomes tidal, and through the centre of Dublin City.

The main regional surface water features include the Griffeen River (located approximately 1km northwest of the development) and the Liffey River (located approximately 4.5km north of the development). The regional natural surface water drainage pattern, in the environs of the site is presented in Figure 9-1 'Regional Catchment Delineation Overview' of Chapter 9 (Hydrology and Hydrogeology) of the EIAR.

The Baldonnell Stream (IE_EA_09L012100) is located within the site boundary. The EPA maps show the stream to run through the central portion of the proposed development in a north south orientation. The Baldonnell Stream joins the Griffeen River (IE_EA_09L012100) approximately 1.3km downstream from the proposed power plant The Griffeen River then joins the Liffey River (IE_EA_09L012350) at Lucan, located 4.8km north of and downstream from the proposed power plant.

The neighbouring data centre site has diverted the upstream section of Baldonnell Stream where it has been culverted under their site before it enters a 'V-Shaped' channel within the proposed development. The diverted stream enters the proposed development at the south-eastern corner, where it continues to flow northwards along the 'V-shaped' channel which has steep grassy banks up to 3m in height. The Baldonnell Stream follows the development site's eastern boundary before it is culverted beneath the existing road through a concrete circular culvert measuring approximately 1m in diameter. The Baldonnell Stream is 0.3 to 0.6m in width with water depths averaging at 0.2m in the winter period, the flow was mostly gentle, and the substrate varied from clayey cobbles to silt.

Minor surface water ponding occurs on the site. The surface water ponding is considered to be seasonal and mainly associated with periods of heavy, prolonged and intense rainfall. The ponding form as a result of acceptance of drainage from the adjacent site and of natural attenuation of rain. The ponding has minor connectivity with the Baldonnell Stream (EPA name, IE_EA_09L012100) through the small drainage pipe located at the south-eastern corner of the proposed site.

2.4 Existing Ecological Environment

This section presents a high-level summary of the existing ecological environment at the proposed development site. A more detailed description of desktop studies, field studies and species encountered is provided in Chapter 12 (Biodiversity) of the EIAR.

2.4.1 Designated Areas

Nine European sites (six SACs and three SPAs) occur within 15km of the proposed development site and are listed in Chapter 12 (Biodiversity) of the EIAR. The European sites; North Dublin Bay SAC, South Dublin Bay SAC and South Dublin Bay and River Tolka Estuary SPA are hydrologically to the proposed development site via the Baldonnell Stream, Grifeen River and River Liffey (hydrological route ca. 25km). North Bull Island SPA occurs 18km from the proposed power plant but is also hydrologically connected to the proposed development site via the Baldonnell Stream, Grifeen River and River Liffey (hydrological route ca. 25km).

There are no Natural Heritage Areas (NHAs) located within 15km of the proposed power plant. Sixteen proposed NHAs (pNHAs) occur within 15km of the proposed development site and are listed in Table 12-4 of Chapter 12 (Biodiversity) of the EIAR. Three pNHAs; North Dublin Bay pNHA, South Dublin Bay pNHA and Dolphin Docks pNHA are all hydrologically connected to the proposed development site via the Baldonnell Stream, Grifeen River and River Liffey (hydrological route ca. 25km).

Other sites of natura conservation within 15km of the proposed power plant site are a wildfowl Sanctuary; Brittas Bay (WFS-18), which is located ca. 8km to the south.

2.4.2 Habitats

The Baldonnell Stream which occurs along the northern and north-eastern boundary of the site is a depositing/lowland watercourse (FW2). The watercourse flows in a north-westerly direction before discharging into the Grifeen River located approximately 2km downstream of the proposed development site.

The stream has been heavily modified and is culverted to the south of the site for a small section underneath the adjacent development, Digital Realty Profile Park, and is also culverted underneath the road located immediately north of the proposed development site and again underneath Profile Park Road located approximately 165m north of the proposed development site. The stream substrates consist of fine sediment (70%) with some small pebbles (30%) present in areas. The stream is heavily vegetated with mats of watercress (Nasturtium officinale) and brooklime (Veronica beccabunga). The flow of the stream is slow.

The proposed power plant site currently comprises wet grassland (GS4). Species present within the grassland includes abundant soft rush (Juncus effusus), ribwort plantain (Plantago lanceolata), white clover (Trifolium repens), silverweed (Potentilla anserina), meadowsweet (Filipendula ulmaria), with occasional self-heal (prunella vulgaris), cuckoo flower (Cardamine pratensis), horsetail (Equisetum spp.) and immature willow trees (Salix spp.). Carpets of Sphagnum magellanicum are present in areas within the grassland. Despite the number of species recorded, the grassland is considered to have a relatively low species diversity. The wet grassland has an uneven surface which suggests the habitat has previously been disturbed. In lower areas of the habitat, small pools of standing water are present.

Neutral grassland (GS1) occurs to the south-western boundary of the proposed development site. Species recorded included common bent (Argrostis capillaris), Yorkshire fog (Holcus lanatus), ribwort plantain (Plantago lanceolata), white clover, Lady's bedstraw (Galium verum) with occasional selfheal (Prunella vulgaris), bramble (Rubus fructicosus), and gorse (Ulex europaeus). There is evidence that the grassland is grazed lightly by horses.

A hedgerow comprising hawthorn (Crataegus monogyna) occurs along the southern outer boundary of the proposed development site.

A treeline of ornamental copper beech trees (Fagus sylvatica) occurs approximately 20m northeast of the proposed development site. All trees within the treeline were assessed as having 'Negligible' bat roost potential as per Collins (2016) due to the lack of any suitable features present.

A comprehensive description of the existing habitats encountered at the site is provided in Section 12.3.2.1 of Chapter 12 (Biodiversity) of the EIAR.

2.4.3 Flora

No plant species listed under the Flora Protection Order or habitats protected under the Habitat Directive were recorded within the footprint of the proposed development site during the surveys.

In addition, no invasive plant species listed in the Third Schedule of S.I No. 477 of 2011, European Communities (Bird and Natural Habitats) Regulations 2011 were identified within the proposed development site during the surveys.

2.4.4 Bats

No bat roost features were recorded within the proposed development site. There are no trees, hedgerows or structures present within the proposed development site. A number of beech trees were recorded along the outer boundary of the site. All trees were assessed as having 'Negligible' bat roost potential due to the lack of any suitable features.

A manual, dusk, activity survey was undertaken at the proposed development site on the 13th of April 2021. A total of three species of bat were detected during transect surveys – Common pipistrelle, Lesser noctule and Soprano pipistrelle.

Records of bat activity within the proposed development site were considered relatively low. Only seven bat activity events were recorded during the survey. The low levels of activity are likely due to the existing illumination within the site and limited linear features.

Further details of the survey results are provided in the EIAR.

2.4.5 Other Fauna

No evidence of badger, including their setts, were recorded within the proposed development site boundary, or within 150m of the development site. There are no hedgerows, treelines or embankments present within the proposed development site which are the favoured habitat for the establishment of setts by badgers (Smal, 1995 & Byrne et al., 2012).

A small patch of woodland was recorded to the south of the existing AGI Gas Station, approximately 10m south of the proposed gas line route. No evidence of badger activity was recorded within the woodland. Despite the lack of evidence recorded, there is potential that badger may forage within the area due the availability of suitable forage habitat.

An otter survey was undertaken along the Baldonnell Stream, 150m upstream and downstream of the proposed development site. No evidence of otter or their resting or breeding sites were recorded during the survey. Otter are unlikely to commute and forage along the section of the Baldonnell Stream located adjacent to the site due to the highly modified nature of the watercourse and the large sections of culverts present both upstream and downstream of the proposed development site.

There is potential however that otter may occur further downstream. The desktop assessment indicated that historic records of otter have previously been recorded further downstream within the Baldonnell Stream, Grifeen River and in proximity to the Grand Canal. In addition, Scott Cawley in 2020 recorded an otter swimming in the Baldonnell Stream at a location approximately 600m north-west of the proposed development site.

There is potential that the proposed development site may support smaller protected mammal species such as hedgehog, pygmy shrew, Irish stoat and Irish hare. No evidence of the above listed species, or any other protected mammal species were recorded during the field surveys. However, the grassland habitats within the proposed development site provides suitable foraging habitat for these species.

Evidence of fox, which included tracks and scat, were recorded within the proposed development site on a number of occasions. Fox are not currently protected under National law, however there is an obligation to protect biodiversity within Ireland under the Convention on Biological Diversity.

Although no frogs or their spawn were recorded during the surveys, both the Baldonnell Stream and the large pools of standing water present within the wet grassland habitat are likely to provide suitable habitat for the protected amphibian species.

No suitable habitat to support common lizard or smooth newt was recorded within the proposed development site. The small ponds of standing water were deemed too shallow to support smooth newts, as the species generally utilises ponds with a depth of 0.5-1m.

2.4.6 Aquatic Species

The Baldonnell Stream was assessed as having no suitable habitat to support protected fish species, white-clawed crayfish or lamprey species. The stream at this location was assessed as having low fisheries value due to the heavily modified nature of the watercourse, the presence of culverts and the high levels of sedimentation present.

Further downstream however, within the Grifeen River, the fish species; three-spined stickleback, brown trout, roach and eel are known to occur.

A total of four fish species were recorded in the 'Grifeen Avenue' site which included three spined stickleback (Gasterosteus aculeatus), brown trout (Salmo trutta), roach (Rutilus rutilus) and eel (Anguilla Anguilla). Only one fish species, three-spined stickleback, was recorded at the 'Grange Castle' site.

2.4.7 Ornithology

The proposed development site and the surrounding habitat supports a variety of wintering and breeding bird species at a local level.

A single winter bird survey was undertaken on 25th of January 2021 and a breeding bird survey was undertaken on the 13th April 2021. A total of 10 bird species were recorded during the surveys and detailed in Table 12-8 of Chapter 12 (Biodiversity) of the EIAR.

The majority of species recorded during the survey are common species typically found within agricultural grasslands and are listed as having Green Conservation Status (Low Conservation Concern). Snipe and lapwing are currently listed as having Red Conservation Status (High Conservation Concern).

The snipe were recorded foraging in the small standing pools during both the winter and summer survey. It's likely that the snipe are also roosting within the site as the species was heard calling during the dusk bat surveys.

The pair of lapwing were confirmed to be breeding within the site due to the recording of a nest. The nest was located just outside the north-western boundary of the proposed development site.

A wood pigeon's (Columba palumbus) nest was recorded within the hedgerow during the survey.

3.0 DESCRIPTION OF CONSTRUCTION WORKS

3.1 Overview

It is expected that construction will commence in 2022 with design, construction, and commissioning activities lasting for approximately 20 months. The plant is expected to be fully operational in 2024 subject to timely receipt of the necessary statutory consents.

Construction activities will gradually phase out from pre-construction to predominantly civil activities followed by installation, commissioning and testing of the proposed power plant and equipment.

3.2 Pre-Construction

The pre-construction phase of development includes preparatory works (i.e., post planning surveys and reporting) and consultation with statutory bodies and the public.

Prior to the commencement of construction activities, the area for development will be fenced off.

Following this process, site clearance activities will commence. Typical activities will include preparation of the construction working area and topsoil stripping. The footprint of the proposed power plant will require clearing and levelling to 74.8 AOD. Preliminary volume calculations provide an approximate estimation of stone fill required for all of the hardstanding foundations of 8,500m³. All vegetation clearance that is required during construction works will commence outside the breeding birds season, which runs from the 1st of March to the 31st of August. In the event that clearance of vegetation is required within the bird nesting season, vegetation will be first surveyed by an experienced ecologist to identify the presence of active nests. The survey will specifically target ground nesting birds including lapwing and snipe. Only vegetation confirmed to be nest free may be cleared. In the event that a nest is confirmed as present, the nest will either be removed under license obtained from NPWS or the nest will be cordoned off until the chicks have fledged or until nesting has failed.

A method statement for soils and soil stripping will be included in the final CEMP and will set out:

- The intended soil stripping depth.
- Options for separating and keeping different soils apart.
- Methods for handling soil.
- The location and height of soil storage mounds and how long they will be present; and Proposals for reinstating or disposing of soils.

Mobilisation will include the putting in place of staff, temporary facilities, plant and equipment, materials, and systems for construction.

A temporary contractor's compound will be erected on site for the duration of the construction works and will include temporary site offices (portacabins), staff welfare facilities, car parking, and equipment laydown areas.

Training in health and safety will be provided for all staff during the mobilisation period, and all staff will be required to hold SAFEPASS or equivalent certification.

The main tasks to be completed in line with the above phases are:

3.3 Civil and Plant Construction Works:

Concrete pouring and filling will be fully controlled to ensure that cement bound materials do not present any pollution risk. All concrete pouring and filing will be supervised and monitored.

Trucks, mixers, and concrete pumps that have contained concrete will be washed out in a designated impermeable area to prevent pollution. Where possible, washout water will be stored and re-used.

A Construction Traffic Management Plan (CTMP) will be prepared in consultation with South Dublin County Council in advance of the construction phase of development in order to ensure safe movements and interactions between vehicles and pedestrians, both on and adjacent to the site. The CTMP will cover all expected work activities, delivery and storage areas, and shall be expanded and / or amended to cover new or altered activities as they arise. The main components of the CTMP will be:

- Description and scope.
- Staging of the works.
- Traffic control during construction.
- Trucks movements to the site.
- Road signs for full and partial road closure.
- Parking for workers and subcontractors.
- Pedestrian safety.
- Site traffic management supervisor; and
- Abnormal load (i.e., for transformers/engines) and associated permit applications applied for and secured from/by South Dublin County Council in advance of abnormal load delivery to site.

The CTMP will also provide for the requirement that entrances and roads are kept clean and clear of obstructions to prevent the spillage or deposit of clay, rubble, or other debris on the entrance and other roads throughout the contract period.

3.4 Construction Hours

The proposed general construction hours are 07:00 to 18:00hrs, Monday to Friday and 08:00 to 14:00 on Saturday with no heavy construction vehicles/plant in operation as per planning approval requirements. Occasional weekday evening works may also be required; however evening activities will be significantly reduced in order to manage any associated noise impacts in an appropriate manner and more stringent construction noise criteria will be applicable during any evening works that may be required. As a result, noise emissions from evening activities are expected to be significantly lower than for other general daytime activities.

3.5 Employment

It is anticipated that approximately 50 persons will be directly employed during peak construction activities.

3.6 Summary of Key Project Elements

3.6.1 Engine Hall and Electrical Annex Buildings

The primary engine hall building will include up to 5 no. dual fuel gas engines and supporting generating equipment.

The engine is rigidly mounted on a steel frame, acting as the lubricating oil service tank, which is resiliently seated on a simple concrete foundation by spring isolators. The alternator is connected to the engine by a flexible coupling, rigidly mounted and grouted onto a separate and elevated concrete foundation.

The engines will each have an exhaust flue which will connect into a single stack cluster located directly adjacent to the engine hall. The stack will be a steel structure with high quality cladding and will have a height (flue tip height) of 31.8m.

The electrical annex building will be located adjacent to the main powerhouse. the electrical annex will contain the compressor room, cable rooms, switch rooms, station transformers, Control Room and messing facilities.

Figure 3-2

3.6.2 Workshop Building and Security Hut

The Workshop building will include a water treatment room, fire equipment room, and fuel pump and pilot oil treatment room. A security hut will also be provided.

3.6.3 Radiator Coolers

The engines are cooled with a closed-loop, radiator cooling water system. The system consists of a high temperature circuit and a low temperature circuit. Air is drawn through the radiator coolers by fans driven with variable speed electrical motors.

3.6.4 110kV Electrical Transformer(s)

The electrical generator associated with the gas engines will connect to the main transformers where the voltage will be increased to 110 kV. Electrical power will be exported from the power plant's main transformers to the existing Castlebaggot 220 / 110 kV Substation which is operated by EirGrid or to a new proposed 110 kV substation in Profile Park. No confirmed details of this potential new substation were available for consideration as part of this EIAR.

3.6.5 Above Ground Gas Installation

On site there will be a dedicated Above Ground Installation (AGI) gas compound where the incoming gas supply pressure will be reduced prior to its use in the gas engines. Natural gas will be delivered to the power plant via a new below ground pipeline from the existing gas network. It is envisaged following on from consultations with Gas Networks Ireland that this connection will be via a new spur from the existing national gas transmission network which has an existing AGI compound close to the Nangor Road approximately 1km to the north of the proposed power plant.

3.6.6 Tank Farm

In order to comply with CRU requirements, low sulphur diesel oil will be stored as a backup fuel. The tanks will be bunded in accordance with the requirements set out in the EPA publication, 'Storage and Transfer of Materials for Scheduled Activities' (2004), which states bunds are to contain 110% of the volume of the tank in the event of a tank rupture. The height of the bund wall will be 1.8m.

The bulk tank will be fitted with a high-level alarm to prevent overfilling. There will be a dedicated tanker unloading area surrounded by a drainage channel which will drain to a petrol interceptor. This separator will provide for full retention of any material in the event of a rupture and spillage of a tanker compartment. A shut-off device incorporated into the separator will close the outlet in the event of its capacity being exceeded.

A tank will be installed for the purpose of emission control for NOX (NO and NO2). The tank will have a volume of a volume of approximately 26m³.

In addition, a tank of approximately 26m3 is required on site to contain sufficient oil to refill an engine after an oil change.

A lubricating oil run-down tank will be used to hold the engine oil while maintenance work on the engine is being carried out. A tank with a volume of 26m3 will be installed.

A pilot oil tank will be installed 26m³.

3.6.7 Utilities and Services

- Water Usage

Water usage requirements for the proposed power plant will be required for potable water used for domestic purposes (drinking water, toilets etc.) and for fire-fighting purposes. Water supply for the proposed power plant will be taken from the public water mains which is located immediately adjacent to the site. Water for fire-fighting purposes will be stored in a tank with a volume of 1000m³.

(a) All works shall comply with the Irish Water Standard Details and Code of Practice for Water Infrastructure.
(b) All works shall comply with the Irish Water Standard Details and Code of Practice for Waste Water Infrastructure.

Wastewater infrastructure required will involve connection to existing foul wastewater infrastructure adjacent to the site.

- Surface Water Drainage

Surface water runoff will be generated from all surfaces within the facility that are exposed to rainwater or to which water is applied in order to clean. This includes all hardstanding surfaces, roofs, and other impermeable surfaces. All surface water will be discharged to the Baldonnel steam adjacent to the site.

As part of the surface water drainage design strategy, the following items have been included in order to effectively manage surface water at the site:

- Surface Water Pumps in Duty/Standby Arrangement – A standard duty/standby arrangement including high level alarms, float switches, and associated telemetry will be provided.
  Petrol Interceptor – Full retention petrol interceptors have been included in the surface water collection system on a precautionary basis. The full retention petrol interceptors will be fitted with visual and audible alarms to ensure containment facilities are adequately maintained. In addition, this alarm will be linked to telemetry facilities such that relevant staff will be alerted if oil is detected at trigger levels; and
- Down Pipes/Gullies – It is proposed that surface water will be collected from roofed buildings via standard rainwater down pipes while runoff from un-roofed structures will drain to the access roads where it will enter the drainage network via road gullies. It is also proposed that gullies and drain entry points will incorporate silt traps to remove any grit or silt which may be washed into the drainage system.
- Flow Control Device – It is proposed to limit the surface water runoff from the site to be similar to the Greenfield runoff as per the requirements of the Great Dublin Strategic Drainage Study. It is proposed to install a Hydrobrake downstream of an attenuation tank to limit the flow from the site to 4.1l/s.
- Attenuation Tank – it is proposed to attenuate all storm water accumulated on site within an underground attenuation tank, which will be discharged to the Baldonnel stream via a Hydrobrake.
- Swale – it is proposed to install a swale to collect runoff from the adjacent Northeast Road. The water once permeated into the swale will be directed towards the surface water drainage infrastructure via a perforated pipe and above ground falls. The swale will also slow the surface water at source, increase the quality of water which is intercepted by the system through infiltration, biodegradation and pollutant settlement.
- Permeable Paving – It is proposed to install permeable paving within the car parking areas of the site. The water once permeated into the pavement will be directed towards the surface water drainage infrastructure via a perforated pipe and above ground falls. The permeable

paving will also slow the surface water at source, increase the quality of water which is intercepted by the system through infiltration, biodegradation and pollutant settlement.

- Infiltration Basin – It is proposed to install an infiltration basin within the site to allow for surface water collected from the southern end of the site to infiltrate into the ground water. The infiltration basin will also be provided with a perforated overflow pipe to direct the excess surface water to the attenuation tank during heavier rainfall events.

➢ Foul Wastewater Drainage

Domestic type wastewater effluent will be generated on site. It is estimated that at any one time, there will be no more than 12 personnel on site, i.e., the maximum number of people on site at any given time for testing, maintenance, site meetings etc. An approximate volume of 0.1157 l/sec of domestic type wastewater was identified as the maximum domestic wastewater flow which may be generated on site. Wastewater will be pumped to the existing foul sewer in Profile Park which is directly adjacent to the site. Irish Water has confirmed via its 'Pre-connections Enquiry' process that the above water wastewater volume can be facilitated through the existing network (IW reference: CDS21002228).

➢ Process Wastewaters

There will be no process wastewater generated from the power plant.

(a) There shall be complete separation of the foul and surface water drainage systems, both in respect of installation and use.
(b) All new precast surface water manholes shall have a minimum thickness surround of 150mm Concrete Class B.
(c) All works for this development shall comply with the requirements of the Greater Dublin Regional Code of Practice for Drainage Works.

➢ Lighting

Emergency lighting will be provided throughout the building in accordance with BS 5266-1 Emergency lighting. Code of practice for the emergency lighting of premises.

The escape lighting will be sited to provide an appropriate luminance near each door exit door and where it is necessary to emphasise potential danger or safety equipment. The following bullet points indicate:

- At each exit door intended to be used in an emergency.
- Near stairs so that each flight of stairs receives direct light.
- Near any other change in level.
- Mandatory emergency exits and safety signs.
- At each change of direction.
- At each intersection of corridors.
- Outside and near to each final exit.
- Near each first aid post.
- Near each piece of firefighting equipment and call point; and within all stair cores.

It should also be noted that a Lighting Plan will be undertaken during the detailed design of the power plant to ensure there are no vertical spill or glare issues on neighbouring residential or commercial properties. This lighting plan will be designed in accordance with the International Standard IS EN 13201-2:2015 (Road Lighting).

3.6.8 Security Fencing

A 1.8m palisade fence will be constructed along the perimeter of the proposed power plant site.

3.6.9 Internal Underground Cabling & Grid Connection

The electrical generator associated with the gas engines will connect to the main transformers where the voltage will be increased to 110 kV. Electrical power will then be exported via an underground cable from the plant's main transformers to an off-site electrical substation. The final route of connection is yet to be confirmed. Electrical power will be exported from the power plant's main transformers to the existing Castlebaggot 220 / 110 kV Substation which is operated by EirGrid or to a new proposed 110 kV substation in Profile Park.

It should be noted that planning permission is not sought for these connections as part of the power plant application to South Dublin County Council. Either Greener Ideas Limited or EirGrid will be responsible in the future for securing the necessary planning permission for these electrical connections. Similarly, in the event that Greener Ideas Limited and a data centre operator agree for a private power supply to be provided then this would also be subject to its own separate consenting process.

All public services to the proposed development, including electrical, information and communications technology (ICT) telephone and street lighting cables and equipment shall be located underground throughout the entire site.

3.6.10 Decommissioning

The power plant is expected to be operational for at least 25 years. On cessation of activities, the plant will either be redeveloped as a power related facility, or the site will be redeveloped in an alternative form.

In the event that the facility is decommissioned, the following programme will be implemented:

- All plant equipment and machinery will be emptied, dismantled, and stored under appropriate conditions until it can be sold. If a buyer cannot be found, the material will be recycled or disposed of through licensed waste contractors and hauliers.
- If plant and machinery is required to be cleaned on site prior to removal, all necessary measures will be implemented to prevent the release of contaminants.
- All waste will be removed from the facility and the site, and all associated buildings will be secured.
- Waste will be recycled wherever possible.
- All waste movement, recycling, and disposal operations will be controlled by licensed waste contractors.

Details of provisions to decommission and render safe or remove all materials, waste, ground, plant, or equipment contained on or in the site that may result in environmental pollution will be agreed with the Environmental Protection Agency as part of the Industrial Emissions Licensing process.

3.7 Roles and Responsibilities

An indicative organisational chart is provided below which identifies the typical roles and associated responsibilities for the construction of the proposed development. This will be subject to specific contractual agreements upon appointment of a Main Contractor and any additional/further appointments required in compliance with a grant of permission.

The Project Manager will have overall responsibility for environmental management and compliance during the construction works. He/she will be supported in this role by an SHEQ Officer, or Environmental Officer as appropriate, who will liaise directly with the relevant regulatory bodies and stakeholders throughout the construction phase. Additional specialist input will be included from an ecological clerk of works, archaeologist or other disciplines as required.

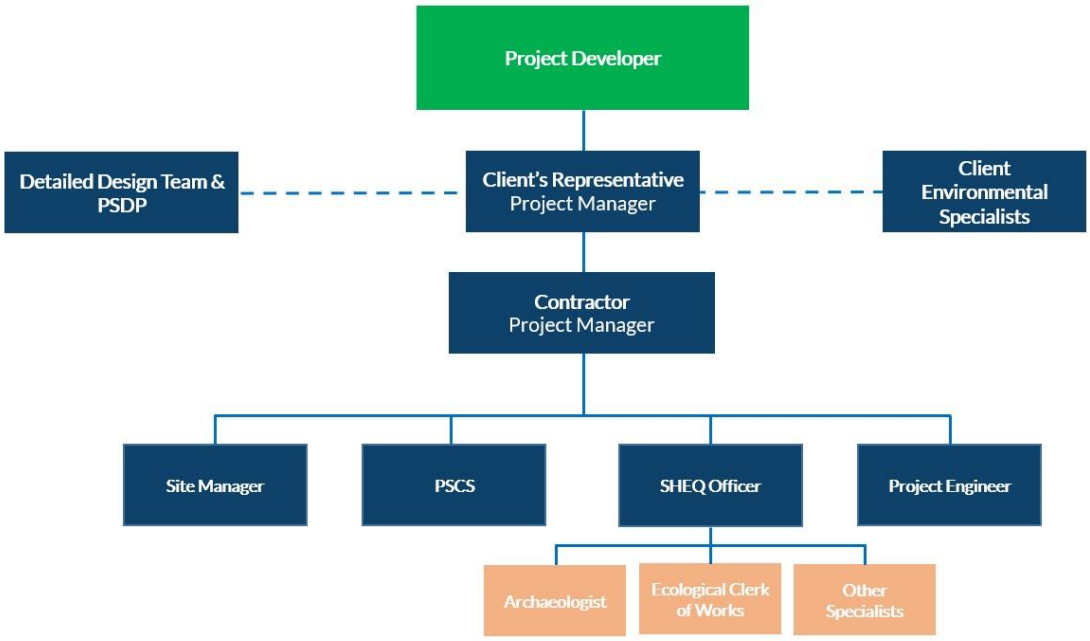

Figure 3-4

3.8 Consents, Licences, Notifications and Permissions

The key consents, licences, notifications and permissions which may be required for the project are summarised as:

- Planning permission and associated planning compliance;
- Commission for Regulation of Utilities (CRU) Authorisation and Licence to Generate.
- A Commencement Notice for Development will be lodged with the Building Control Authority (BCA) via the online Building Control Management System (BCMS) not less than 14 days and not more than 28 days before development works commence on site.
- Road opening licences for underground cable works.
- 30-day prior notification to the Irish Aviation Authority (IAA) and Department of Defence ahead of crane erection works.
- Industrial Emissions Licence from the Environmental Protection Agency (EPA) for the operation of the proposed power plant and a GHG Permit from the EPA will be required

The above list is non-exhaustive but identifies the key consents, licenses, notifications and permissions required for the project. This list will be further populated as required through planning compliance and stakeholder engagement to ensure that any further consents are identified as early as possible and do not impact on the construction programme.

Additional method statement and monitoring programme submissions may be required by the Local Authority as part of the grant of planning.

4.0 CONTRACTOR FACILITIES, SAFETY AND SITE SECURITY

4.1 Construction Compound and Facilities

At the commencement of the construction phase, a temporary compound area will be located within the development site to provide office space, welfare facilities, car parking and material laydown areas. This compound will be relocated within the site over the duration of the construction works, as required. Discussions with neighbouring facilities are ongoing for alternative car parking spaces during the construction works.

The compound will consist of temporary porta-cabins constructed on unbound, levelled hardcore aggregate. Soil covering will be stripped within the compound areas and stockpiled locally for reuse. Broken stone and appropriate capping aggregate will be used to create a base for the welfare facilities as well as a suitable surface for material lay-down areas and car parking.

The construction compound will be secured by means of a chain-link fence on timber posts which will be approximately 3m in height. There will be one access gate which will be secured and controlled by the Contractor. A combination of bottled water, tankered water supply and rainwater harvesting will be used to supply water for the welfare facilities in the compound during the construction works. Rainwater harvesting will be utilised to supplement the water supply for non-potable uses. Wastewater generated at the welfare facilities in the construction compound will be managed by means of a temporary sealed storage tank, with all wastewater being tankered off-site by a permitted waste collector to a wastewater treatment plant. The proposed temporary wastewater storage tanks will be fitted with an automated alarm system that will provide sufficient notice that the tank requires emptying.

Fuels, oils, lubricants and other hazardous liquids required for maintenance of equipment during the construction phase will be stored on a dedicated impermeable storage platform in the compound. This area will be away from drains and open water and will be easily accessible for machinery to refuel and to accommodate fuel deliveries to site. Fuel containers will be stored within additional secondary containment e.g., bund for static tanks or drip trays for smaller mobile containers. A fuel bowser, used for refuelling equipment on-site where off-site refuelling is not possible, will be stored in the compound area on a dedicated storage platform. Whenever possible, this bowser will be refilled off-site and brought to site for on-site refuelling. For certain vehicles which are less mobile, refuelling may need to occur elsewhere on site. A spill kit will be stored with the bowser and the person operating the bowser will be trained in their use. When not in use this will be stored in the designated area of the construction compounds.

A temporary self-contained wheel wash will be installed on the site access road to minimise the transfer of dirt and dust from the site onto the public road and to minimise the potential for transfer of alien invasive species onto the site. A system which utilises recirculated wash water will be used to minimise raw water consumption for washing activities. The wheel wash will be emptied on a regular basis in accordance with supplier recommendations and the nature of soiling on vehicles, with the collected material being removed off-site as waste material.

A road sweeper will be available if any section of the surrounding roads become soiled by vehicles associated with the proposed development.

4.2 Safety and Security

All activities carried out by the appointed Contractor on the proposed development will be in accordance with the requirements of the Safety, Health and Welfare at Work Act 2005 as amended and Regulations made under this Act.

The scale and scope of the proposed development will require the appointment of a Project Supervisor Design Process (PSDP) and Project Supervisor Construction Stage (PSCS) in accordance with the provisions of the Safety, Health and Welfare at Work (Construction) Regulations 2013 (S.I. No. 291 of 2103), as amended. These persons will be appointed by the Developer and notified to the Health and Safety Authority (HSA) prior to commencement of detailed design works (in the case of the PSDP) and prior to commencement of construction (in the case of the PSCS). The PSDP will prepare a Preliminary Health and Safety (H&S) Plan which will identify any particular risks, residual risks and particular sequences of work that are envisaged during the design of the works.

Prior to commencement of construction, this Preliminary H&S Plan will be provided to the Contractor and the PSCS will further develop the document to prepare a Construction Stage H&S Plan addressing all aspects of the construction process and providing relevant contact details and emergency response procedures for the project. This H&S Plan will be developed at the procurement stage and developed further at construction stage to the satisfaction of the Developer. The H&S Plan will identify the potential safety hazards associated with the site and the works and assess the associated risks. Mitigation and control measures will be implemented to minimise the identified risks.

Evidence of completion of construction safety training, typically in the form of a Safe pass Card, will be required for all construction personnel prior to commencing on site. A record of Safe pass Cards and personnel approved for entrance to site will be completed as part of a site induction process. The Contractor's H&S Plan will detail the site induction and access requirements. Where relevant, equipment operators or specialist works will require personnel to hold a valid Construction Skills Scheme Card. All equipment and machinery used on site will be appropriately certified for its intended purposes. The Developer will ensure that only competent contractors are appointed to carry out the construction works on the site.

Public safety will be addressed by restricting site access during construction works and the erection of security fencing as appropriate at construction works areas. Each of the proposed sites within the park has a pre-constructed access with a bellmouth width of approx. 20m to cater for all vehicle types. The entrance to the proposed plant site will be controlled by the Contractor. All traffic to Profile Park originates from the R134 New Nangor Road to the North and construction vehicle access to the site will be via this route. The site entrance gates will be securely locked outside of construction hours to prevent unauthorised entry and will be monitored during construction hours to regulate access to the site for authorised personnel.

4.3 Signage

Warning signs will be erected at the construction works areas clearly stating that construction works are underway. A notice board will be erected at the site entrance and at the construction compound gates with information on the contact details for site management, PPE requirements for the site and any other information deemed necessary in accordance with the H&S Plan.

Advanced warning signs will be required within Profile Park on the approach to the main site access from both directions indicating its use as for Construction traffic. Signage will be erected on both sides of the adjacent roadway both north and south of the site entrance location to warn approaching vehicles of the construction site entrance location and the potential presence of slow-moving vehicles. Prior to exit from the site signage will be erected directing construction traffic to the approved construction route.

Specifically, with regards to cyclists, it is not proposed to divert cyclists from their current routes as a result of the construction phase of the development as the cyclists will be able to maintain the current arrangements within Profile Park. The existing main access to the site has fully developed segregated facilities for cyclists and shall be maintained throughout the duration of construction. Signage will need

to be erected informing all construction traffic of the likelihood of cyclists crossing the access point throughout.

Road signage on the public road will be in accordance with the current Traffic Signs Manual[1] Chapter 8 and associated best practice guidelines. Signage in respect of traffic management is discussed in the TMP in Appendix B and will be in accordance with the Local Authority recommendations and relevant planning conditions. Within the site, maximum speed signage will be erected along the access roads for construction vehicles and health and safety signage will be erected at excavation, or other areas of increased risk, are occurring. Signage will also be erected as a reminder to concrete delivery drivers that concrete truck wash-out is not permitted on-site and identifying the area(s) where concrete chute wash-out is permitted.

No advertising sign(s) or structure(s) (including any signs installed to be visible through windows), banners, canopies, flags, or other projecting elements shall be erected except those, which are exempted development, without the prior approval of the Planning Authority or An Bord Pleanála on appeal.

Figure 4-1 Indicative Safety Signage (Source: safetysigns.ie)

4.4 Emergency Response Plan

The Contractor will be responsible for developing a detailed Emergency Response Plan (ERP) for the proposed works, to cover health and safety emergencies as well as environmental emergencies, as part of the H&S Plan. This ERP shall be activated in the event of an emergency such as an accident, fire, spillage, collapse etc. and will provide details on who is required to be notified, first aid facilities and closest hospitals. The ERP will also include details of all personnel inducted and authorised to work on the site as well as next of kin contact details and relevant medical information.

In the event of an emergency, the SHEQ Officer and Project Manager will be notified immediately and will determine the scale of the emergency and the requirement for the assistance of emergency services. Works will cease in the area of the incident and contact will be maintained with the emergency services to direct them to the scene of the incident as required.

As part of the ERP, an evacuation drill will be carried out on a regular basis to make all personnel aware of the procedure to be followed in the event of an emergency where a full site evacuation is required. Emergency muster point(s) will be identified at suitable locations in the construction compounds and the ERP will outline the persons responsible for checking names at the safety muster points. Records will be maintained of such drills.

The ERP must include contact names and telephone numbers for the relevant local authorities (all sections/departments) including ambulance, fire brigade, An Garda Siochána and the HSA. Reporting

of environmental emergencies to the local authority will be required as well as other relevant stakeholders such as IFI, NPWS or the EPA.
Further information relating to the management of spills or leaks is provided in Section 4.6 and the procedure for responding to a health and safety or environmental incident is outlined in Section 4.7

4.5 Fuels and Oils Management

Construction vehicles will be refuelled off-site, wherever possible. This will primarily be the case for road vehicles such as vans and trucks. However, for construction machinery that will be based on-site continuously, a limited amount of fuel will have to be stored on site. On-site refuelling of machinery will mainly be carried out using a mobile double skinned fuel bowser typical of that shown in Figure 4-2. Refuelling will be carried out at least 50m from any watercourse. The fuel bowser, typically a double axel custom-built refuelling trailer, will be refilled off-site, where possible, or at either of the two construction compounds. For certain vehicles which are less mobile, refuelling may need to occur elsewhere on site. A spill kit will be stored with the bowser and the person operating the bowser will be trained in their use. When not in use this will be stored in the designated area of the construction compounds. The fuel bowser will be parked on a level impermeable area in either of the construction compounds when not in use.

Figure 4-2 Typical mobile fuel bowser (Source: Clarke Machinery Group)

Oils, lubricants and other hazardous liquids required for maintenance of equipment during the construction phase will be stored on the dedicated impermeable storage platform in the construction compounds as described in Section 4.1. Any additional fuel containers, other than the fuel bowser, used for smaller equipment (such as generators, lights etc.) will be stored within additional secondary containment e.g., bund for static tanks or drip trays for smaller mobile containers. Taps/nozzles for fuels and storage containers for oils will be fitted with locks to ensure their use is controlled. Only designated trained and competent operatives will be authorised to refuel plant on site.

New clean ancillary machinery equipment such as hoses, pipes and fittings required on-site will be contained within a bunded area, however any used or damaged parts will not be stored onsite and will be removed immediately. Any repair works required on machinery involving fuel and oil control will be carried out off-site where practical, or in the construction compounds over an impermeable

surface. Unless unavoidable, repair works carried out in the field where machinery is operational will use spill trays and absorbent materials to prevent release of contaminants to the ground. Maintenance and repair works will be carried out at least 50m from any watercourse.

At least daily checks prior to start-up of plant and machinery will minimise the risk of breakdown and associated contamination risks for on-site repairs. Records of daily pre-start checks will be maintained and kept in the site office. A clean site policy and diligent housekeeping will also reduce the potential of hydrocarbon release on-site.

4.6 Spill Control and Response

Emergency spill kits with oil boom and absorbent materials will be kept on-site in the event of an accidental spill. Spill kits will be kept in both construction compounds, the 4x4 vehicle transporting the fuel bowser and smaller spill control kits will be kept in all construction machinery. All construction personnel will be notified of where the spill kits are located as part of the site induction and will be trained on the site procedures for dealing with spills.

In the event of a leak or a spill in the field, the spill kits will be used to contain and absorb the pollutant and prevent any further potential contamination. The absorbed pollutants and contaminated materials will be placed into leak proof containers and transferred to a suitable waste container for hazardous materials in the construction compounds. Where a leak has occurred from machinery, the equipment will not be permitted to be used further until the issue has been resolved.

The SHEQ Officer (or equivalent appointed person) will be notified of any spills on-site and will determine the requirement to notify the authorities as set out in Section 4.7.

4.7 Incidents

All safety or environmental incidents associated with the project will be reported and investigated in line with the ERP. Typically, the following procedures will be followed in the event of an incident:

- Works will stop immediately where safe to do so.
- The SHEQ Officer will be contacted.
- The size of the incident will be assessed and determined if it can be controlled by site staff or if emergency services are required to attend.
- The appropriate enforcing authority will be contacted.
- The SHEQ Officer will investigate after the incident.
- The findings will be sent to the appropriate authority; and
- An action plan will be prepared to set out any modifications to working practices required to prevent a recurrence.

4.8 Complaints

This section sets out a procedure to manage and resolve any complaints received from members of the public during the construction phase of the proposed development. The following measures will be adopted and refined, as necessary, taking account of any relevant planning conditions. The following measures will be implemented to deal with complaints and the Final CEMP will contain more specific details with regard to phone numbers to contact:

- Clearly display a notice board at the site entrance so that the public know whom to contact if they have a complaint or comment.
- Personnel on site, including sub-contractors are required to perform their duties in accordance with this CEMP, and in such a way as to minimise the risk of complaints from third parties.

- All complaints received regarding the construction works will be recorded and categorised (e.g., noise, property damage, traffic, dust etc.) within a central Site Complaints Log. This complaints log will include the following key details:
    - Name, address and contact details of the complainant (with the complainant's permission).
    - Brief outline of the complaint; ○ Date of Complaint
    - Name of person receiving complaint details; and ○ Agreed timeline for response to complaint.
- All complaints will be communicated to the Project Manager and the Developer immediately
- All complaints will be followed up and resolved in so far as is practicable; and
- The complainant, Developer and other stakeholders will be kept informed of the progress in resolving the complaint.

5.0 ENVIRONMENTAL MANAGEMENT

As part of the development of this CEMP, a series of Environmental Management Plans (EMPs) have been prepared to ensure appropriate environmental management of specific aspects of the proposed works. The EMPs have been prepared in accordance with the design and mitigation measures set out in the EIAR. The requirements outlined within the following plans are a summary of key implementation constraints, site specific obligations and best practice requirements with which the Contractor shall comply. The construction methodology for the proposed development is set out in Chapter 3 (Description of the Development) of the EIAR.

Construction of the proposed development will be carried out in line with best practice guidance in all areas of potential environmental impact and these specific guidance documents are identified within the following sections. Across the full project duration, the Contractor will utilise the general guidelines set out in the CIRIA C741 publication Environmental Good Practice on Site (4th Edition) [2].

Following the granting of planning for the proposed development, CBS will continue to develop this CEMP and has incorporated the additional measures specified in planning conditions and associated post-planning statutory body consultation for the management of the environment during the construction works. The final CEMP will include an updated and refined construction phase programme of works and will set out specific timings and requirements for surveys and monitoring prior to and throughout the construction works. The final CEMP will be a dynamic document and will be continuously reviewed and updated throughout the construction works to ensure it takes account of all environmental auditing and site inspections.

5.1 Noise and Vibration

The Contractor will be required to have regard to BS 5228-1:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites, which sets out detailed guidance on the control of noise and vibration from construction activities.
An assessment of construction phase noise emissions has been carried out in Chapter 11 (Noise and Vibration) of the EIAR and outlines the predicted noise levels from construction activities at the closest noise sensitive locations (sensitive receptors). The SHEQ Officer, or equivalent, will supervise the works to ensure compliance with the noise and vibration limits set out in the Standards document referred above and the EIAR.

Noise due to the normal operation of the proposed development, expressed as Laeq over 15 minutes at the façade of a noise sensitive location, shall not exceed the daytime background level by more than 10 dB(A) and shall not exceed the background level for evening and night time. Clearly audible and impulsive tones at noise sensitive locations during evening and night
shall be avoided irrespective of the noise level.

The following general measures for control of noise and vibration from construction works will be implemented:

- Construction working hours are limited to those set out in Section 3.4 to avoid noise generation during unsociable hours.
- Duration of works which create high levels of noise or vibration, such as piling, will be limited and staggered to prevent constant annoyance.
- Communication channels will be established between the Developer/Contractor and residents to inform of upcoming works which may generate higher than normal construction noise or vibration and provide a means for local residents to register complaints with regard to noise and vibration.
- The local authority will also be informed of the communication channels.
- Periodic monitoring of construction noise and vibration during critical periods will be carried out at sensitive receptor locations; and
- Internal access roads will be maintained in good condition to minimise noise and vibration generation from heavy goods vehicles.
- Unnecessary revving of engines will be avoided, and equipment will be switched off when not in use.
- Plant and vehicles will be sequentially started up rather than all together.
- Use of effective exhaust silence systems or acoustic engine covers as appropriate.
- Plant will always be used in accordance with manufacturers' instructions. Care will be taken to site equipment away from noise- sensitive areas. Where possible, loading and unloading will also be carried out away from such areas.
- Regular and effective maintenance by trained personnel will be undertaken to keep plant and equipment working to manufacturers specifications; Screening e.g., noise barriers and bunds, will be used as appropriate.
- Procedures for handling noise and vibration complaints.
- The SHEQ Officer, or equivalent, will address complaints relating to noise and vibration.
- Equipment with a low inherent potential for generation of noise and/or vibration will be chosen in lieu of noisier alternatives and place noisy/high vibration equipment as far away from sensitive receptors as permitted by site constraints

No heavy construction equipment/machinery (to include pneumatic drills, construction vehicles, generators, etc) shall be operated on or adjacent to the construction site before 07:00 hours on weekdays and 09:00 on Saturdays nor after 19:00 hours on weekdays and 1300 hours on Saturdays, nor at any time on Sundays, Bank Holidays or Public Holidays. Any work outside of these hours shall only be permitted following a written request to the Planning Authority and subsequent receipt of the written consent of the Planning Authority, having regard to the reasonable justification and

circumstances and a commitment to minimise as far as practicable any unwanted noise outside the hours stated above.

Where possible, contractors will use noise dampers or other attenuation methods for particularly noisy operations. Compressors will be attenuated models, fitted with properly lined and sealed acoustic covers which will be kept closed whenever the machines are in use and all ancillary pneumatic tools shall be fitted with suitable silencers. Any noisy plant, such as generators or pumps, which is required to operate outside of the typical working hours (for maintaining water levels or safety lighting etc.), will be surrounded by an acoustic enclosure or portable screen. Regular maintenance of plant and equipment will be carried out to ensure that the equipment is operated efficiently and generating minimal noise emissions. Plant or equipment which is not in use will be shut down while not required or throttled back to a minimum.

The development shall be so operated that there will be no emissions of malodours, gas, dust, fumes or other deleterious materials, no noise vibration on site so as would give reasonable cause for annoyance to any person in any adjoining unit or public place in the vicinity

5.2 Air Quality

The Contractor will have due regard to relevant guidance such as The Control of Dust and Emissions during Construction and Demolition published by the Greater London Authority (GLA) in 2104 and Guidelines for the Treatment of Air Quality During the Planning and Construction of National Road Schemes published by the NRA (now TII) in 2011.
During the construction phase, dust or air pollutants generated from the proposed development will typically arise from:

- Movement of construction vehicles.
- Transportation of powerplant equipment and construction materials to and within the site.
- Excavation, movement and placement of soil stockpiles; and
- Wind generated dust from stockpiles, exposed unconsolidated soils and roads.

An assessment of the potential effects of construction traffic movements associated with the proposed development is presented in Chapter 10 (Air Quality and Climate) of the EIAR. Maximum utilisation of on-site excavation will reduce the need to import excavated materials to the site and where excavated material, concrete and building materials are required to be brought to site, local quarries (such as Belgard Quarry, located 2.15 km southeast of the proposed development) and suppliers will be preferred to minimise the carbon footprint of construction material deliveries.

During the construction / demolition phase of the development, Best Practicable Means shall be employed to minimise air blown dust being emitted from the site. This shall include covering skips and slack-heaps, netting of scaffolding, daily washing down of pavements or other public areas, and any other precautions necessary to prevent dust nuisances.

In order to minimise emission of pollutants from plant and equipment, the following measures will be implemented during the construction works:

- Minimize dust generating activities;/ minimize extent of working areas
- Locate activities and rock / earth stockpiles away from sensitive receptors.
- Cover, seed or fence stockpiles to prevent wind whipping.
- Keep stockpiles for the shortest possible time. Designed and laid out to minimise exposure to wind.
- Ensuring all vehicles carrying loose or potentially dusty material to or from the site are fully sheeted.

- Plan site layout – machinery and dust causing activities (e.g. access roads, stockpiles) should be located away from the site boundary and sensitive receptors where practicable;
- No site runoff of water or mud.
- Minimise movement of construction traffic around site.
- Contractor to implement a Construction Traffic Management Plan (CTMP) as part of the CEMP which will be finalised in consultation with Roscommon County Council.
- Stack height of 27m (classified as appropriate) will be utilised in the design in order to promote good dispersion of pollutants and ensure that ground level concentrations are kept to a minimum.
- Locate generators away from sensitive receptors.
- Minimise movement of construction traffic around site.
- Ensuring that the engines of all vehicles and plant on site are not left running unnecessarily.
- Regular maintenance of plant and equipment will be carried out to ensure that the equipment is
- operated efficiently and generating minimal air emissions; and
- Plant or equipment will not be left running unnecessarily and low emission fuels will be used.
- Drop heights of excavated materials into haulage vehicles will be minimised to a practicable level.
- Daily inspections by site personnel to identify potential sources of dust generation along with implementation measures to remove causes where found.

The greatest potential impact on air quality during the construction stage will be from dust emissions associated with the construction works. The proactive control of fugitive dust, rather than an inefficient attempt to control dust once released will ensure the prevention of significant emissions.

The following measures will be implemented to minimise the potential for dust generation:

- Minimisation of extent of working areas.
- Stockpiling of excavated materials will be limited to the volumes required to practically meet the construction schedule.
- Drop heights of excavated materials into haulage vehicles will be minimised to a practicable level; and
- Daily inspections by site personnel to identify potential sources of dust generation along with implementation measures to remove causes where found.

A Dust Management Plan (DMP) has been prepared which sets out the measures that will be implemented by the Contractor to minimise and control dust emissions (see Section 5.2.1) This DMP will be updated by the Contractor in the final CEMP to account for any additional measures identified in Planning Conditions.

5.2.1 Dust Management Plan

The potential for dust to be emitted depends on the type of construction activity being carried out in conjunction with environmental factors including levels of rainfall, wind speeds and wind direction. The potential for impact from dust depends on the distance to potentially sensitive locations and whether the wind can carry the dust to these locations. The majority of any dust produced will be deposited close to the potential source and any impacts from dust deposition will typically be within 200m of the construction area. It is noted that the vast majority of construction works are located at distances greater than 200m from residential properties.

In order to ensure mitigation of the effects of dust nuisance, a series of measures will be implemented. Site access roads shall be regularly cleaned and maintained as appropriate; dry sweeping of large areas shall be avoided. Hard surface access roads shall be swept to remove mud and aggregate materials from their surface while any un-surfaced access roads shall be restricted to essential site traffic only.

Furthermore, any road that has the potential to give rise to fugitive dust must be regularly watered, as appropriate, during dry and/or windy conditions.

Vehicles using site access shall have their speeds restricted where there is a potential for dust generation. Vehicles delivering material with dust potential to an off-site location shall be enclosed or covered with tarpaulin at all times to restrict the escape of dust. Access gates to site are located at least 450m from receptors which will prevent significant dust effects on residents.

Vehicles exiting the site will make use of a wheel wash facility prior to entering onto public roads to ensure mud and other wastes are not tracked onto public roads. Public roads outside the site shall be regularly inspected for cleanliness on a daily basis and cleaned using a street sweeper, as necessary (see Figure 5-1). Before entrance onto public roads, trucks shall be adequately inspected to ensure no potential for dust emissions. On-site haul routes shall be inspected for integrity and necessary repairs to the surface instigated as soon as reasonably practicable. Records shall be kept of all inspections of the haul routes and any subsequent action(s) in a site logbook.

Figure 5-1 Typical Road sweeper (Source: CMP Road Planning)

The following measures will be implemented to prevent significant dust emissions from material stockpiles. Material handling systems and site stockpiling of materials will be designed and laid out to minimise exposure to wind as per Section 3.4.6 and Section 5.5. Sand and other aggregates will be stored in bunded areas and not allowed to dry out unless this is required for a particular process, in which case appropriate additional control measures will be put in place. Water misting or sprays will be used as required if particularly dusty activities are necessary during dry or windy periods. At all times, the procedures put in place shall be strictly monitored and assessed by the SHEQ Officer. In the event of dust nuisance occurring outside the site boundary, appropriate procedures shall be implemented to rectify the problem.

This DMP shall be reviewed at regular intervals during the construction phase to ensure the effectiveness of the procedures in place and to maintain the goal of minimisation of dust through the use of best practices and procedures. As per Section 4.8, the name and contact details of a person to contact regarding air quality and dust issues shall be displayed on a notice board at the site entrance. All dust and air quality complaints shall be recorded, and causes identified, along with the measures taken to reduce emissions. Daily on and off-site inspections shall occur for nuisance dust and compliance with this DMP. This shall include regular dust soiling checks of surfaces within 100m of the construction works. Cleaning shall be provided if necessary.

5.2.2 Climate

There is the potential for a number of embodied greenhouse gases (GHGs) and GHG emissions during the construction phase of the development. Construction vehicles, generators etc., may give rise to CO_2 and N_2O emissions as well as the large quantities of material such as stone, concrete and steel that will be required for the proposed development. The Institute of Air Quality Management (IAQM) document Guidance on the Assessment of Dust from Demolition and Construction (2014) states that site traffic and plant is unlikely to make a significant impact on climate.

To minimise climate impacts associated with delivery of construction materials to the site, the Contractor will source quarry materials as close to the site location as possible and use local builder's providers where possible. Excavation on site will be utilised as much as possible to minimise import of quarried stone material. In some cases, it will not be possible to locally source building materials due to the technical nature of parts and equipment required.

5.3 Surface Water Management

The Contractor will employ the best practice measures outlined in CIRIA C532 publication Control of Water Pollution from Construction Sites: Guidance for Consultants and Contractors.

The surface water drainage design concept is set out in Section 3.5.3 (Utilities and Services) of the EIAR and is designed to capture surface water run-off from the proposed power plant site, infrastructure and other adjacent hardstanding areas. It is proposed to install a swale to collect runoff from the adjacent Northeast Road. The water once permeated into the swale will be directed towards the surface water drainage infrastructure via a perforated pipe and above ground falls. The swale will also slow the surface water at source, increase the quality of water which is intercepted by the system through infiltration, biodegradation and pollutant settlement.

It is proposed to attenuate all storm water accumulated on site within an underground attenuation tank, which will be discharged to the Baldonnel stream via a Hydro brake.

The surface water drainage system will be designed to include Surface Water Pumps in Duty/Standby Arrangement, Petrol Interceptors, Down Pipes/Gullies, a Flow Control Device, Permeable Paving and an Infiltration Basin.

The permanent surface water management infrastructure will be constructed early in the project along with the construction of impermeable surfaces so that surface water run-off during construction works will be controlled and managed to prevent discharge of sediment laden water to the existing surface water network and local streams.

In addition, temporary settlement ponds (or alternatively a tank) will be established during construction works in areas of high construction activity and groundworks. The locations of temporary settlement ponds will be adjacent to significant earthworks, as close as possible to the source of sediment while maintaining a minimum 50m buffer distance from existing watercourses. These additional temporary ponds will be decommissioned and reinstated on completion of the construction works.

The design of surface water for the proposed power plant will provide the necessary attenuation to limit the rate of outflow at or below greenfield run-off rates and are classified as sustainable drainage system (SuDS) measures.

The settlement ponds/tanks will also provide containment capacity in the event of a spill or leak on the installed infrastructure and the outflow can be closed off to contain any potential pollutants within the settlement ponds.

In the event of contaminated run-off being contained in a settlement pond/tank, the incident will be reported as set out in Section 4.7, samples taken of the contaminated liquid for classification, as required, and the liquid pumped out of the pond using a suitable vacuum truck and disposed of at a licensed waste facility off-site.

The surface water management system will be visually inspected on a daily basis during construction works by the SHEQ Officer to ensure that it is working optimally. The frequency of inspection will be increased at settlement ponds adjacent to areas where earthworks are being carried out and during excavation. Where issues arise, construction works will be stopped immediately, and the source of the issue will be investigated. Records of all maintenance and monitoring activities associated with the surface water network will be retained by the Contractor on-site, including results of any discharge testing requirements.

The Contractor will implement control measures such as temporary drains and drainage diversions, from commencement of construction to limit the volume of water that requires treatment. Temporary control measures implemented during construction works may include silt fences, silt bags, temporary settlement tanks and run-off attenuation, as required. Examples of silt fences and temporary settlement tanks are shown in Figures 5-2 and 5-3.

Figure 5-2 Silt fencing measures (Source: SSI Environmental (left) and Thrace Group (right)

Figure 5-3 Temporary site settlement tanks (Source: Siltbuster)

There is potential for earthworks to lead to release of suspended solids to surface water bodies. The main factors influencing the rate of soil erosion and subsequent sediment release includes:

- Climate.
- Length and steepness of slopes.
- Characteristics of the soil/soil erosion potential.
- Soil vegetation/cover.
- Duration and extent of works; and erosion and sediment control measures.

Runoff will be maintained at Greenfield (pre-development) runoff rates. The layout of the development has been designed to collect surface water runoff from hardstanding areas within the development and discharge to associated surface water attenuation adjacent to the proposed infrastructure. It will then be managed by gravity flow at Greenfield runoff rates.

Suspended solid (silt) removal features will be implemented in accordance with CIRIA C697 SuDS Manual, and CIRIA C648 Control of water pollution from linear construction projects.

Pre-Emptive Site Drainage Management

The works programme for the initial construction stage of the proposed development will take account of weather forecasts and predicted rainfall in particular. Large excavations and movements of subsoil or vegetation stripping will be suspended or scaled back if heavy rain is forecast. The extent to which works will be scaled back or suspended will relate directly to the amount of rainfall forecast.

The following forecasting systems are available and will be used on a daily basis at the site to direct proposed construction activities:

- General Forecasts: Available on a national, regional and county level from the Met Eireann website (www.met.ie/forecasts). These provide general information on weather patterns including rainfall, wind speed and direction but do not provide any quantitative rainfall estimates;
- MeteoAlarm: Alerts to the possible occurrence of severe weather for the next two days. Less useful than general forecasts as only available on a provincial scale.
- 3-hour Rainfall Maps: Forecast quantitative rainfall amounts for the next 3 hours but does not account for possible heavy localised events.
- Rainfall Radar Images: Images covering the entire country are freely available from the Met Eireann website (www.met.ie/latest/rainfall_radar.asp). The images are a composite of radar data from Shannon and Dublin airports and give a picture of current rainfall extent and intensity. Images show a quantitative measure of recent rainfall. A 3hour record is given and is updated every 15 minutes. Radar images are not predictive; and
- Consultancy Service: Met Eireann provide a 24-hour telephone consultancy service. The forecaster will provide interpretation of weather data and give the best available forecast for the area of interest. Using the safe threshold rainfall values will allow work to be safely controlled (from a water quality perspective) in the event of forecasting of an impending high rainfall intensity event.

Works will be suspended during the groundworks phase if forecasting suggests any of the following is likely to occur:

- >10 mm/hr (i.e., high intensity local rainfall events).
- >25 mm in a 24-hour period (heavy frontal rainfall lasting most of the day); or >half monthly average rainfall in any 7 days.

Prior to works being suspended the following control measures will be completed:

- Secure all open excavations.

- Provide temporary or emergency drainage to prevent back-up of surface runoff.
- Avoid working during heavy rainfall and for up to 24 hours after heavy events to ensure drainage systems are not overloaded; and
- Provide cover to material storage areas i.e., adequate tarpaulin over stockpile areas if material cannot be reinstated prior to suspension.

No instream works are proposed.

Run-off will be maintained at greenfield (pre-development) run-off rates. The layout of the development has been designed to collect surface water run-off from hardstanding areas within the development and discharge to associated surface water swale and attenuation tank adjacent to the proposed infrastructure. It is proposed to attenuate all storm water accumulated on site within an underground attenuation tank, which will be discharged to the Baldonnel stream via a Hydrobrake at greenfield run-off rates.

During the ground clearance of the proposed development, the Contractor will implement water control measures to limit the impact on water quality using standard measures.

All temporary and permanent drainage from the site shall be designed to have as a minimum three stages of treatment, as defined in the SuDS Manual. Management of run-off will include the following:

Filtration of water through filter media (sand / stone check dam, silt fence);
Detention / settlement in settlement ponds or behind check dam in swales; and
Conveyance of shallow depths of water in vegetated swale.

5.3.1 Concrete Handling

Only ready-mixed concrete will be used during the construction phase, with all concrete being delivered from local batching plants in sealed concrete delivery trucks. The use of ready-mixed concrete deliveries will eliminate any potential environmental risks of on-site batching. When concrete is delivered to site, only the chute of the delivery truck will be cleaned, using the smallest volume of water necessary, before leaving the site. Concrete trucks will be washed out fully at the batching plant, where suitable facilities are already in place.

The small volume of water that will be generated from washing of the concrete trucks chute will be directed into a temporary lined impermeable containment area, or a concrete wash unit. This type of unit catches the solid concrete and filters and holds wash liquid for pH adjustment and further solids separation. The residual liquids and solids can be disposed of off-site as waste material. Where temporary lined impermeable containment areas are used, such containment areas will be excavated and lined with an impermeable membrane (see Figure 5-5).

Figure 5-4 Example of temporary concrete washout area

Measures to prevent surface water contamination from concrete pouring on-site will include:

- Using weather forecasting to assist in planning large concrete pours and avoiding large pours where prolonged periods of heavy rain is forecast.
- Restricting concrete pumps and machine buckets from slewing over watercourses while placing concrete.
- Ensuring that excavations are sufficiently dewatered before concreting begins and that dewatering continues while concrete sets.
- Ensuring that covers/mesh are available for freshly placed concrete to avoid the surface washing away in heavy rain.
- Disposal of surplus concrete after completion of a pour off-site; and
- Discussing arrangements for concrete deliveries with the suppliers before works commence to ensure they are aware of on-site wash-out restrictions.

5.4 Groundwater

It is not anticipated that significant quantities of groundwater will be encountered in excavations. However, groundwater ingress will need to be managed should it occur. Groundwater levels will vary seasonally and with recent weather conditions. The Contractor will give due regard to groundwater levels at the time of construction and optimise excavation works to minimise groundwater ingress.

Where groundwater is encountered in excavations and dewatering is required, the pumped water will be released back into the existing surface water drainage network via the settlement ponds, silt bags or dedicated settlement tank to minimise the level of sediments entering the existing watercourses.

All concrete browsers will be washed down at a dedicated concrete washout onsite located within the construction compound or off site. Concrete washings will not be disposed of onsite to any surface or ground water feature. All washings will be removed offsite and treated at a licensed facility.

5.5 Land, Soils and Geology

The disturbance of soil, subsoil and bedrock is an unavoidable effect in the development of the proposed infrastructure at the site, however excavations for the infrastructure will be kept to a minimum to limit disturbance of the current ground conditions and to minimise costs associated with earthmoving.

Utilising material and soil from on-site excavation will increase the impact on local geology, however there will be less demand for off-site aggregate materials resulting in less traffic movements to and from the site as well as shorter travel distances.

The management of excavated materials is an important component of controlling dust as well as sediment and erosion control. Excavated topsoil, subsoils where encountered, will only be moved short distances from the point of extraction and will be used locally for landscaping and benching/battering, where possible. Excavated material will not be stored in excessive mounds on the site. Excess soils/subsoils will be stockpiled temporarily pending backfill. Placed soils will be sealed and levelled using the back of an excavator bucket to prevent erosion.

Excavation may be susceptible to collapsing depending on material encountered and depth of the excavation. Where battering back of excavations to a safe angle is not feasible, a physical barrier will be applied between the excavations and the potentially unstable material in the form of a granular berm or sheet piles. Excavations for the proposed power plant infrastructure will be backfilled to ground level following foundation installation. Temporary works designs will be carried out by a competent engineer during detailed design to account for the existing ground conditions.

Vehicular movements will be restricted to the footprint of the proposed development site. This means that machinery will not move onto areas that are not permitted for development. This will prevent disturbance of existing soils and vegetation.

As discussed in Section 4.1, temporary wastewater holding tanks will be used to store wastewater generated from the welfare facilities in the two construction compounds. This will eliminate the need for any wastewater treatment and percolation at the site. No concrete truck wash-out will be permitted at the site either so as to protect the existing ground conditions. Only concrete truck chute washing will be permitted on site in accordance with the measures outlined in Section 5.3 above. The management and handling of fuels, oils and lubricants will be in accordance with the measures set out in Section 4.5 so as to reduce the potential for spillage or contamination of soils.

Surface water management measures as set out in Section 5.3 will be put in place from start of construction works and installed to ensure that surface water run-off is controlled and does not cause erosion of exposed surfaces or generate sediment laden discharge.

5.6 Biodiversity

5.6.1 Habitats

a) Centrica Business Solutions shall ensure that best practice should be implemented at all times in relation to any activities that may impact on surface water or riparian habitats. Any discharges to surface streams present on or near the site must not impact negatively on the system. Comprehensive surface water management measures must be implemented at the construction and operational stage to prevent any pollution of local surface waters.
b) The CEMP should detail and ensure Best Construction Practices including measures to prevent and control the introduction of pollutants and deleterious matter to surface water either directly or indirectly through the storm water drainage network and measures to minimise the generation of sediment and silt.
c) CBS shall ensure construction works are planned in a manner which prevents extensive tracts of soils from being exposed at any time and arrangements must be made for the control and management of any contaminated water resulting from construction.
d) CBS shall ensure that that the receiving foul and storm water infrastructure has adequate capacity to accept predicted volumes from this development during construction and post construction phases with no negative repercussions for the quality of any receiving waters.

e) CBS shall ensure compliance with Inland Fisheries guidelines.
f) All discharges must be in compliance with the European Communities (Surface Water) Regulations 2009 and the European Communities (Groundwater) Regulations 2010.

5.6.1.1 Removal of Vegetation

In accordance with Section 40 of the Wildlife Acts, the vegetation (wet grassland) which is proposed to be removed, which may be used as nesting sites by breeding birds, will be cleared outside of the birds nesting season (1st March to 31st August inclusive). This will ensure there is no loss of nests as a result of the proposed construction works.

In the event that clearance of vegetation is required within the bird nesting season, vegetation will be first surveyed by an experienced ecologist to identify the presence of active nests. The survey will specifically target ground nesting birds including lapwing and snipe. Only vegetation confirmed to be nest free may be cleared. In the event that a nest is confirmed as present, the nest will either be removed under license obtained from NPWS or the nest will be cordoned off until the chicks have fledged or until nesting has failed.

The construction work areas will be demarcated prior to the construction works commencing. No clearance of vegetation will be undertaken outside of the demarcated areas. Disturbed areas of ground will be fully reinstated flowing completion of the works.

5.6.1.2 Maintaining Site Hydrology

The implementation of control measures will ensure that there is no potential for impact to ecological receptors in the receiving environment. However, a summary of the sediment and pollution control measures which will be implemented are provided hereunder:

- All works must comply with the guidance set out in the guidance document entitled, “Control of Water Pollution from Construction Sites. Guidance for Consultants and Contractors (C532)” (CIRIA, 2001).
- Silt fences will be installed along the entire inside boundary of the Baldonnell Stream. Silt fences will also be installed around large stockpiles of material. Silt fences will be constructed using a permeable filter fabric (Hy-Tex Terrastop Premium silt fence or similar). Silt fencing will be installed as per the manufacturer’s guidelines and shall be maintained until vegetation on the disturbed ground has been re-established. Once installed, the silt fence shall be inspected regularly during construction and more frequently during heavy rainfall.
- Excavation activities will not be carried out during or following heavy rainfall. All stockpiled material will be stored within the site construction compound a minimum of 50m from the Baldonnell Stream.
- All concrete will be mixed off site and poured in place at site. All concrete bowsers will be washed down at a dedicated concrete washout onsite located within the construction compound or off site. Concrete washings will not be disposed of onsite to any surface or ground water feature. All washings will be removed offsite and treated at a licensed facility. No chemicals that are deleterious to aquatic organisms are to be used in cleaning works. All raw, uncured waste concrete must be cured at a designated location within the construction compound or off site.
- Re-fuelling of construction equipment and the addition of hydraulic oil or lubricants to vehicles / equipment will take place in designated hard surface, bunded areas within this construction compound or off site only. If it is not possible to bring machinery to the refuelling point, fuel will be delivered in a double-skinned mobile fuel bowser. A drip tray will be used beneath the fill point during refuelling operations in order to contain any spillages that may occur. Refuelling will only occur within the construction compound or off site.

Further information on surface water management is provided in Section 5.3.

5.6.1.3 Flora

Wheels of machinery used in construction will be washed and free of soil before they are brought into the proposed power plant site to prevent accidental introduction of invasive plant species propagules.

Biosecurity measures will be employed during the construction works. The biosecurity measures will have regard to IFI Biosecurity Protocols including: 'IFI Biosecurity Protocol for Field Survey Work (December 2010)'.

All machinery and equipment used will be inspected and will be completely dry prior to works commencing to prevent the risk of pathogen translocation. A 'Check, Clean, Dry' protocol will be undertaken with all equipment, machinery and vehicles entering and leaving the proposed development site. All equipment/machinery used within the drainage ditch will checked for living plants and animals. Equipment and machinery used will be washed thoroughly and then allowed to dry for at least 48 hours.

5.6.1.4 Bats

All temporary lighting associated with the construction works will be placed strategically by the Contractor following consultation with a suitably qualified ecologist. This will ensure that illumination beyond the works area is controlled. Lighting will be cowled and directional to reduce significant light splay. No lighting will be directed towards the hedgerows and treelines located around the outer boundary of the proposed development site. Only low-pressure sodium, high pressure sodium or LED luminaires will be used on site to ensure that there are no significant negative impacts on bats. In addition, the column height of the temporary lights will be carefully considered to minimise light spill.

5.6.1.5 Birds

Construction-phase mitigation measures to protect retained habitats and to protect watercourses are described in Section 5.6.5 and Section 5.3.

The following additional specific measures will be implemented to mitigate impacts to bird populations:

- Where possible, scrub clearance will not be carried out during the bird breeding season (1st March - 31st of August).
- Based on the results, of the pre-construction/construction breeding bird surveys, construction work will be timed to avoid work in close proximity to any breeding Snipe locations within the proposed power plant site during the Snipe breeding season.

In the event that any lapwing or snipe nests are identified within the ZoI during the nest survey appropriate mitigation measures in consultation with Bird Watch Ireland will be implemented.

Hoarding will be erected between the nest and the proposed development site to limit both noise and visual disturbance.

5.6.2 Pre-Clearance Surveys and Monitoring

Prior to vegetation clearance, the site will be surveyed by the Ecological Clerk of Works (ECoW) or other qualified ecologist for mammal breeding or resting places, such as badger setts, and also bird nesting sites.

In accordance with Section 40 of the Wildlife Acts, the vegetation (wet grassland) which is proposed to be removed, which may be used as nesting sites by breeding birds, will be cleared outside of the birds nesting season (1st March to 31st August inclusive). This will ensure there is no loss of nests as a result of the proposed construction works. In the event that clearance of vegetation is required within the bird nesting season, vegetation will be first surveyed by an experienced ecologist to identify the presence of active nests. The survey will specifically target ground nesting birds including lapwing and snipe. Only vegetation confirmed to be nest free may be cleared. In the event that a nest is confirmed as present, the nest will either be removed under license obtained from NPWS or the nest will be cordoned off until the chicks have fledged or until nesting has failed.

The construction work areas will be demarcated prior to the construction works commencing. No clearance of vegetation will be undertaken outside of the demarcated areas. Disturbed areas of ground will be fully reinstated flowing completion of the works.

5.6.3 Fauna Protection at Excavations

At any construction site, mammals and other fauna, such as frogs, are at risk of falling into open excavations. Silt ponds pose no risk as their sides are sufficiently sloped to permit escape. During construction, open excavations must incorporate facilities for animals to escape, by means of:

- gently sloping earth or stone inclines to be left at the end of each day's operation – at each end of open trenches.
- for long excavations, timber escape planks to be left at c. 50m intervals along the trench at the end of each day's operations; these will usually be placed at right-angles to the trench.
- for long excavations, occasional earth/stone or wooden plank bridges to allow badgers to cross the trench during construction; and
- works will be limited to daylight hours where feasible to allow fauna to forage at dawn, dusk, and at night.

5.6.4 Aquatic Ecology Mitigation

Proposed drainage measures to reduce and protect the receiving waters from the potential impacts during the construction of the proposed development are set out in Section 5.3. These include measures to prevent run-off erosion from vulnerable areas and consequent sediment release into nearby watercourses to which the proposed development site discharges. Additional mitigation measures specific to aquatic ecological receptors are proposed, where appropriate, below.

Measures to prevent accidental spillage/leakage of chemicals and pollutants and uncontrolled runoff of contaminated surface water and sediment are outlined in Chapter 8 (Land, Soils and Geology) and Chapter 9 (Hydrology and Hydrogeology). The implementation of control measures will ensure that there is no potential for impact to ecological receptors in the receiving environment. However, a summary of the sediment and pollution control measures which will be implemented are provided hereunder.

All works must comply with the guidance set out in the guidance document entitled: "Control of Water Pollution from Construction Sites. Guidance for Consultants and Contractors (C532)" (CIRIA, 2001)[3].

Silt fences will be installed along the entire inside boundary of the Baldonnell Stream. Silt fences will also be installed around large stockpiles of material. Silt fences will be constructed using a permeable filter fabric (Hy-Tex Terrastop Premium silt fence or similar). Silt fencing will be installed as per the manufacturer's guidelines and shall be maintained until vegetation on the disturbed ground has been

re-established. Once installed, the silt fence shall be inspected regularly during construction and more frequently during heavy rainfall.

Excavation activities will not be carried out during or following heavy rainfall. All stockpiled material will be stored within the site construction compound a minimum of 50m from the Baldonnell Stream.

All concrete will be mixed off site and poured in place at site. All concrete browsers will be washed down at a dedicated concrete washout onsite located within the construction compound or off site. Concrete washings will not be disposed of onsite to any surface or ground water feature. All washings will be removed offsite and treated at a licensed facility. No chemicals that are deleterious to aquatic organisms are to be used in cleaning works. All raw, uncured waste concrete must be cured at a designated location within the construction compound or off site.

Re-fuelling of construction equipment and the addition of hydraulic oil or lubricants to vehicles / equipment will take place in designated hard surface, bunded areas within this construction compound or off site only. If it is not possible to bring machinery to the refuelling point, fuel will be delivered in a double-skinned mobile fuel bowser. A drip tray will be used beneath the fill point during refuelling operations in order to contain any spillages that may occur. Refuelling will only occur within the construction compound or off site.

5.7 Waste Management Plan

All waste generated from the proposed development will be managed in accordance with the provisions of the Waste Management Act 1996 as amended and associated Regulations.

All excavated topsoil and subsoils will be reused within the site boundary, insofar as possible, primarily for reinstatement. Any excess material which cannot be reused will be transferred offsite to a licensed waste facility. However, it is not anticipated that any excess material will not be suitable for reuse within the site.

Typical waste streams (including material-related streams such as metals, paper and cardboard, plastics, wood, rubber, textiles, bio-waste and product-related streams such as packaging, electronic waste, batteries, accumulators and construction waste) will be managed, collected, segregated and stored in separate areas at the construction compounds and removed off site by a licensed waste management contractor at regular intervals for the duration of the construction works. Skips and bins of appropriate sizes will be stored in both construction compounds and used to maximise source segregation of waste materials. This will include food and packaging waste from welfare facilities. Appropriate control of food waste in the compound will minimise the potential for pests and rodents to visit the area.
Any contaminated materials used for spills and equipment maintenance works will be separately stored in a suitable container for collection by an authorised hazardous waste contractor.
The Contractor will encourage all project teams to minimise waste generation and to maximise the segregation of waste at source. Material wastage will be avoided by delivering only the required quantities of material to site and utilising off-site manufacturing of steel reinforcement cages and concrete materials as much as possible. The Contractor will establish ‘just-in-time’ deliveries to avoid excess material storage at the site which can lead to waste generation. Delivery drivers will be encouraged to remove any excess packaging from materials delivered to site and remove unused timber pallets where possible.

Reusable formwork for concrete pouring will be used in preference of non-reusable options. Other opportunities for material reuse across the site will be sought by the Contractor.

It is not anticipated that there will be contaminated soils or materials encountered during the excavation works. No contaminated soils were identified during historical site investigation works.

The SHEQ Officer, or other appropriate person, will be appointed as the Waste Manager for the duration of the project in accordance with the general guidance set out in the Best Practice Guidelines on the Preparation of Waste Management Plans for Construction and Demolition Projects (Department of the Environment, Heritage and Local Government (DoEHLG, 2006).

At the pre-construction stage, the construction and demolition (C&D) Waste Manager will be in a position to require fellow designers to take full advantage of all reasonable C&D waste prevention, reuse and recycling opportunities. During construction, the practicalities of waste prevention, salvaging re-useable materials, and the need to synchronise the recycling of waste materials through the timing of their use in the new construction works will be emphasised by the Waste Manager.

The Waste Manager will be responsible for auditing waste handling and storage throughout the project and for advising construction personnel on best practices. All waste collections and records of waste movement off-site will be collated by the Waste Manager and retained in the site office.

5.8 Traffic and Transport

Mitigation measures to reduce or eliminate construction phase impacts will be implemented as part of a Construction Traffic Management Plan (CTMP). An Outline CTMP has been prepared for planning application purposes and the final Site-Specific Construction Traffic Management Plan will be produced by the appointed Contractor and PSCS in conjunction with the PSDP for the project. The final TMP will address the following issues:

- Site Access & Egress.
- Traffic Management Signage.
- Routing of Construction Traffic / Road Closures.
- Timings of Material Deliveries to Site.
- Traffic Management Speed Limits.
- Road Cleaning.
- Road Condition.
- Road Closures.
- Enforcement of Traffic Management Plan
- Details of Working Hours and Days.
- Details of Emergency plan.
- Communication.
- Construction Methodologies; and Particular Construction Impacts.

5.8.1 Site Entrance

5.8.1.1 Junction Visibility

Adequate visibility at the site access will mitigate the potential increased likelihood for collisions between construction generated traffic and existing road network traffic.

Profile Park has been well developed to cater and entice future growth and expansion. Each of the proposed sites within the park has a pre-constructed access with a bellmouth width of approx. 20m to cater for all vehicle types. Internally Profile Park has an internal roundabout to separate traffic flows to the various sections with an approximate ICD of 45m. All traffic to Profile Park originates from the R134 New Nangor Road to the North.

An existing splitter island and central reserve is present on the arm accessing Profile Park providing lanes for East and West turning traffic. Splitter Islands are present on all arms of the internal roundabout also to separate traffic flows. Autotrack assessment have been carried out as part of the overall design for the scheme which demonstrates that large vehicles will be able to access the site comfortably.

Preferred construction phase access would be from the existing access to site off the internal roundabout within Profile Park. The delivery/haulage vehicles will be routed depending on the destination/origin of the materials being delivered.

The use of local roads will be minimised as much as possible, particularly to avoid / minimise the encountering of narrow road widths, poor visibility and unsuitable bearing capacities. As the site is located on the outskirts of Dublin City and is well serviced by major infrastructural routes, it is envisaged that the majority of delivery vehicles shall be able to access site through the M50 motorway, N4 and N7 National roads and the regional road network immediately surrounding the site (R134, R120 and R136) which will keep them away from built-up urban centres.

The roads forming part of the haul routes will be monitored visually throughout the construction period and a truck mounted vacuum mechanical sweeper will be assigned to roads along the haul route as required. In addition, the contractor shall, in conjunction with the local authority:

Throughout the course of the construction of the proposed development, ongoing visual inspections and monitoring of the haul roads will be undertaken to ensure any damage caused by construction traffic is recorded and that the relevant local authority is notified.

5.8.2 Traffic Impact

To mitigate the impact of the construction traffic, the proposed power plant will utilise all available resources within the existing site to reduce the requirement for importation of materials to site.

5.8.3 Trench Reinstatement

To mitigate the impact of the cable laid within the public road, the reinstatement works will be backfilled and reinstated as soon as practicable. The reinstatement works will be undertaken in accordance with the “Purple Book” best guidance and practices as required by South Dublin County Council. The proposed reinstatement and construction details and phasing will be agreed with associated Local Authorities Municipal District Office in advance of the works. The Contractor will be responsible for arranging for the required road opening licenses.

The gas connection will be laid beneath the ground surface and/or public road. The area where excavations are planned will be the subject of a confirmatory survey, prior to the commencement of works. A verification condition survey will be carried out for all parts of the route within the public road. A trench will be opened using an excavator to accommodate the formation. The excavated material will be cast to the side to be reused as backfilling material where appropriate. This material will not be stored in the vicinity of any watercourse and will be smoothed with the back of an excavator bucket to minimise runoff. It will be cast on the upgradient side of the trench, so if any runoff did occur it will run into the downgradient trench. Excess material will be used on the site of the proposed development for local landscaping and reinstatement, further detail is provided in Chapter 3 (Description of Development).

The grid connection will be laid beneath the ground surface and/or private road. The area where excavations are planned will be the subject of a confirmatory survey, prior to the commencement of works. A verification condition survey will be carried out for all parts of the route within the public

road. A trench will be opened using an excavator to accommodate the formation. The excavated material will be cast to the side to be reused as backfilling material where appropriate. This material will not be stored in the vicinity of any watercourse and will be smoothed with the back of an excavator bucket to minimise runoff. It will be cast on the upgradient side of the trench, so if any runoff did occur it will run into the downgradient trench. Excess material will be used on the site of the proposed development for local landscaping, further detail is provided in Chapter 3 (Description of Development).

5.8.4 Project Delays

To avoid delays to the project programme, all required road opening licenses and agreements with the Local Authorities and An Garda Síochána to facilitate movement of abnormal loads shall be sought by the appointed Contractor in a timely manner.

5.9 Cultural Heritage

The National Monuments Act, as amended requires that, in the event of the discovery of archaeological finds or remains that the relevant authorities, the National Monuments Service of the Department of Culture, Heritage and the Gaeltacht (DoCHG) and the National Museum of Ireland, should be notified immediately. Allowance will be made for full archaeological excavation, in consultation with the National Monuments Service of the DoCHG, in the event that archaeological remains are found during the construction phase.

A suitably qualified cultural heritage consultancy/consultant will be appointed to oversee the effective implementation of the archaeological mitigation measures recommended in this chapter for the construction phase of the proposed development. The consultancy/consultant will maintain continuing liaison with the National Monuments Service of the DoCHG and SDCC Executive Archaeologist throughout the construction phase of the development.

5.9.1 Architectural Heritage

There are no architectural heritage sites 'Record of Protected Structures' (RPS) located within the vicinity of the proposed power plant area.

6.0 CONCLUSION

This Construction Environmental Management Plan (CEMP) presents a summary of the overall proposed development works, the management of the site during the construction works and the mitigation measures required to ensure the proposed works do not have a significant effect on the environment. This document is prepared in accordance with Best Practice documents as set out above and in the EIAR.

Prior to commencement of construction, the appointed Contractor will be required to update this document with site specific details including the location of spill kits on the site, the layout of the construction compounds, machinery pre-start checklists and provide details on the persons responsible for environmental management for the duration of the works. The updated CEMP will also be required to include any specific construction phase environmental management procedures identified in the grant of planning for the development or subsequent to the planning submission. The final CEMP document will be agreed with the Developer prior to commencement of works and submitted to the planning authority. It will be a live document and updated accordingly throughout the project.