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APPROPRIATE ASSESSMENT SCREENING REPORT

EMO OIL LTD,
12 CRAG AVENUE,
CLONDALKIN INDUSTRIAL ESTATE,
DUBLIN 22

2020

REPORT NO:	AA_20_9800_R1	**AUTHOR:**	Ross Donnelly-Swift, PhD
DATE:	22nd September 2020	**REVIEWED:**	Mike Fraher, BSc.

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1.0 INTRODUCTION

This Appropriate Assessment Screening Report has been prepared by Panther Environmental Solutions Ltd. to accompany an retention planning application to South Dublin County Council by the applicant, EMO Oil Ltd., for the retention of change of use from haulage yard to filling station open to the public; additional diesel pumps; palisade fencing; illuminated and non-illuminated signage; all associated site and development works at 12, Crag Avenue, Clondalkin Industrial Estate, Dublin 22.

As per part 4 of the RFI;
The applicant is requested to submit an Appropriate Assessment Screening undertaken by a suitably qualified ecologist. If necessary, a Stage 2 assessment should also be undertaken.

The principal aim of this study is to assess whether significant effects to European sites (the Natura 2000 network) are likely to occur as a result of this project in accordance with Article 6(3) of the Habitats Directive and the Planning and Development (Amendment) Act, 2001, as amended. This report has been prepared with regards to the European Communities (Natural Habitats) Regulations 1997 (S.I. No. 94 of 1997), and the later amendment regulations (S.I. No. 233 of 1998; S.I. No. 237 of 2005).

A study was undertaken by Dr Ross Donnelly-Swift (BSc (Hons) Biology, MSc Environmental Science and PhD Biosystems Engineering) of Panther Environmental Solutions Limited. This comprised a review of the proposed development, a site visit on Wednesday 30th July 2020 to examine the ecological context of the proposed development, a desk study of the information on European sites within the potential zone of influence of the site and an analysis of the information in the context of the guidance to determine if a Natura Impact Statement is required.

2. LEGISLATIVE CONTEXT

The EU Habitats Directive (92/43/EEC) on the conservation of natural habitats and of wild fauna and flora, as amended by council directive 97/62/EC, 2006/105/EC, and Regulation EC1882/2003 of September 2003, as transposed into Irish law by the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. 477/11), provides the framework for legal protection for habitats and species of European importance. The Natura 2000 network provides an ecological infrastructure for the protection of sites that are of particular importance for rare, endangered or vulnerable habitats and species within the EU. The Natura 2000 network in Ireland is made up of European Sites which include:

- Special Areas of Conservation (SACs)
- Special Protection Areas (SPAs)

Article 6(3) of the Habitats Directive establishes the requirement for appropriate assessment when planning new developments that might affect a Natura 2000 site. Article 6(3) of the Habitats Directive states;

"*Any plan or project not directly connected with, or necessary to the management of the site, but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in*

view of the site's conservation objectives. In the light of the conclusions of the assessment of the implications for the site, and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public."

3. SCREENING FOR APPROPRIATE ASSESSMENT

Screening is the first stage in the Appropriate Assessment process, and is carried out to determine whether a Stage 2 Appropriate Assessment and a Natura Impact Statement (NIS) is required. Screening addresses and records the reasoning and conclusions in relation to the first two tests of Article 6(3);

1. Whether a plan or project is directly connected to or necessary for the management of the European (Natura 2000) site; and

2. Whether a plan or project, alone or in combination with other plans or projects, is likely to have significant effects on a European (Natura 2000) site, in view of its conservation objectives.

Screening should be undertaken without the inclusion of mitigation measures. If the effects are deemed to be significant, potentially significant, or uncertain, or if the screening process becomes overly complicated, then the process must proceed to Stage 2 AA and an NIS.

The findings and conclusions of the screening process should be documented, with the necessary supporting evidence and objective criteria. This is of particular importance in the cases where the Appropriate Assessment process ends at the screening stage because the conclusion is that no significant effects are likely.

Screening for Appropriate Assessment involves:

- Description of the project and area characteristics (existing environment);
- Identification and description of Natura 2000 sites that could potentially be affected, and compilation of information on their qualifying interests and conservation objectives;
- Assessment of likely effects – direct, indirect and cumulative, undertaken on the basis of availability of objective information as necessary;
- Screening statement with conclusions.

3.1 Methodology

This Appropriate Assessment has been carried with reference to the following guidelines:

- *Appropriate Assessment of Plans and Projects in Ireland. Guidelines for Planning Authorities*. DoEHLG, 2009.
- Circular NPWS 1/10 & PSSP 2/10 Appropriate Assessment under Article 6 of the Habitats Directive: Guidance for Planning Authorities

- *Managing Natura 2000 sites – The Provisions of Article 6 of The Habitats Directive 92/43/EEC.* European Commission, 2000.
- Circular L8/08 Water Services Investment and Rural Water Programmes – Protection of Natural Heritage and National Monuments 2 September 2008
- *Assessment of Plans and Projects Significantly Affecting Natura 2000 sites. Methodological Guidance on the Provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC.* European Commission, 2002.
- Commission Notice "Managing Natura 200 sites The provisions of Article 6 of the Habitats Directive 92/43/EEC. European Commission, 21.11.2018
- CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine version 1.1. Chartered Institute of Ecology and Environmental Management, Winchester.

3.2 Desktop research

Desktop research was carried out to gather information on the ecology of the site and surrounding areas. The locations of the Natura 2000 sites within 15km of 12 Crag Avenue, Clondalkin Industrial Estate, Dublin 22, were identified from National Parks and Wildlife Service (NPWS) online map viewer. Other Natura sites beyond 15km were also reviewed and considered for the potential for the project to have a negative effect.

Water quality data from the EPA was reviewed for the assessment of biological and environmental data collected on waterbodies in Ireland (Water Quality in Ireland 2013-2018 (2019))

Information on the characteristics of the Natura 2000 sites within the potential zone of influence was reviewed from the conservation objectives documents, site synopses and Standard Natura 2000 data forms available on the NPWS website.

3.3 Field survey

A site characterisation assessment was undertaken on the 30th of July 2020 to examine the ecological context of the development site, by systematically walking the site and boundaries and determining the habitats present. The habitat survey was undertaken in accordance with the standard methodology outlined in Fossitt's "*A Guide to Habitats in Ireland*", a hierarchical classification scheme based upon the characteristics of vegetation present. The Fossitt system also indicates when there are potential links with Annex I habitats of the E.U. Habitats Directive (92/43/EEC). Cognisance was also taken of the Heritage Council guidelines, "*Best Practice Guidance for Habitat Survey and Mapping*", (Smith *et al.,* 2011).

Bird species and signs of fauna activity and dwellings were also noted. Particular attention was given to the possible presence of habitats and/or species, which are legally protected under Irish and European legislation and to assessing any potential ecological connectivity with Natura 2000 sites or supplementary or steppingstone habitats of relevance to Natura 200 sites.

4.0 DESCRIPTION OF PROPOSED DEVELOPMENT AND EXISTING SITE

4.1 PROPOSED DEVELOPMENT

The development to be retained is located within the established Clondalkin Industrial Estate, located to the east of Station Road and north of the Grand Canal map included as Figure 4.1 below. The site measures 0.22 hectares and access is from Crag Avenue off the L1006 road.

Figure 4.1: Location of Proposed Development at Clondalkin Industrial Estate, Dublin 22.

The northern site boundary to Crag Avenue consists of a low concrete wall and open vehicular entrance. To the east, the site is bounded by the existing truck maintenance facility building/parking area and a 2.4m high palisade fence. The remaining boundaries to the south and west comprise a 2.4m high palisade fencing with access gates to the adjoining lands.

To the eastern corner are 3 no. truck fueling bays with an additional diesel pump for small commercial vehicles provided to the north of the truck fueling area. Diesel and gas oil are for sale, no petrol is available on site. An existing steel portal canopy exists over the truck fueling area. See Figure 4.2 for site boundary.

Signage consists of an illuminated Main ID (MID) sign located to the left side of the vehicular entrance and 3 no. wall/fence mounted non-illuminated signs of varying sizes.

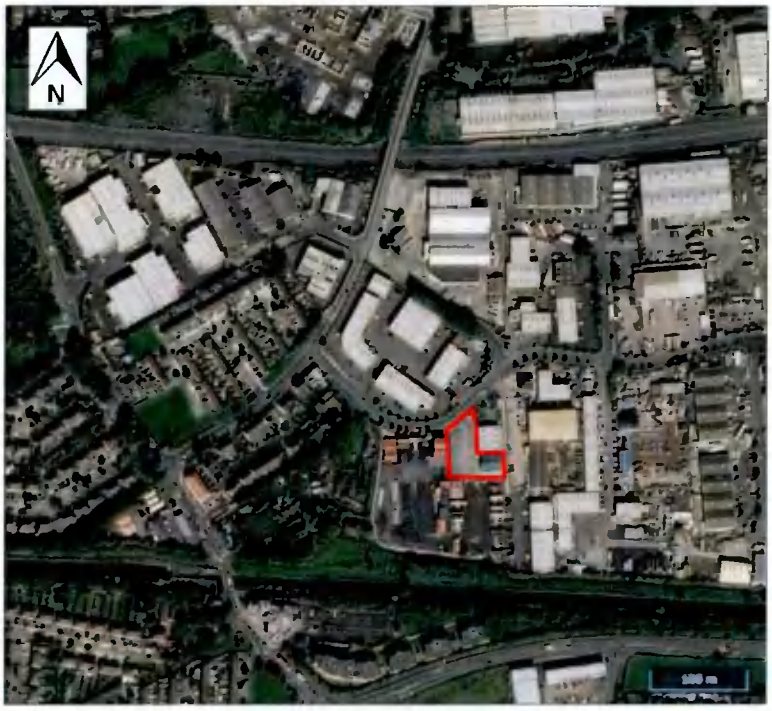

Figure 4.2: Site boundary

Stormwater, comprised of uncontaminated rainwater run-off from roofs and paved areas, is collected via drainage system and directed to a Class 2 Bypass Seperator prior to discharging to the nearby watercourse. Contaminated stormwater is collected via a drainage system and directed to an attenation system with a Class 1 Forecourt Seperator prior to discharging to the nearby watercourse. See Appencix B for site drainage plans. Foul water connects to the main municipal sewer line.

4.2 EXISTING ENVIRONMENT

According to the Preliminary Flood Risk Assessment (PFRA) Mapping prepared by the OPW, the development site is not located within an area of fluvial flooding or pluvial flooding. However, it should be noted that this mapping system is based on broad-scale simple analysis and may not be accurate for a specific location.

A site characterisation assessment was undertaken on the 30th July 2020 to examine the ecological context of the development site, by systematically walking the site and boundaries and determining the habitats present. The habitat survey was undertaken in accordance with the standard methodology outlined in Fossitt's "*A Guide to Habitats in Ireland*", a hierarchical classification scheme based upon the characteristics of vegetation present. The Fossitt system also indicates when there are potential links with Annex I habitats of the E.U. Habitats Directive (92/43/EEC). Cognisance was also taken of the Heritage Council guidelines, "*Best Practice Guidance for Habitat Survey and Mapping*", (Smith *et al.*, 2011).

Bird species and signs of fauna activity and dwellings were also noted. Particular attention was given to the possible presence of habitats and/or species, which are legally protected under Irish and European legislation.

The majority of the site is comprised of buildings and artificial surfaces (BL3) habitat, with little to no vegetation present. This area includes the buildings, fuel station and hardstanding areas.
Scrub (WS1) and earth banks (BL2) habitat was found along the southern/western boundary of the adjacent site. A variety of flora was recorded, including various grasses such as Couch-grass (*Elytrigia repens*), Bramble (*Rubus fruticosus*), Butterfly-bush (*Buddleja davidii*), Dandelion (*Taraxacum* spp.), Dock (*Rumex* spp.), Hedge Mustard (*Sisymbrium officinale*), Spear Thistle (*Cirsium vulgare*), Greater Plantain (*Plantago major*), Groundsel (*Senecio vulgaris*), Nettle (*Urtica dioica*), Cleavers (*Galium aparine*), Bindweed (*Calystegia* spp.), Ragwort (*Senecio jacobaea*), Willowherb (*Epilobium* spp.) and Horsetail (*Equisetum spp.*).

Hedgerows (WL1) habitat is present along the eastern boundary of the adjacent site. This habitat was mainly comprised of Elder (*Sambucus nigra*), Hawthorn (*Crataegus monogyna*) and Leyland Cypress (*Cuprocyparis leylandii*), with other flora present included Bramble (*Rubus fruticosus*) and Ivy (*Hedera helix*).

Treelines (WL2) habitat is present along the Grand Canal boundary with a tree lined avenue along the access road. Tree species included, Ash (*Fraxinus excelsior*), White Popular (*Populus Alba*), Birch (*Betula* spp.) Elm (*Ulmus* sp.) and Weeping Willow (*Salix babylonica*).

Along the southern/western boundary (distance approximately 70m) is drainage ditches (FW4) habitat. No aquatic plant species were noted in the water. The banks had species of grass such as Cock's-foot (*Dactylis glomerata*) and Couch-grass (*Elytrigia repens*). With Nettle (*Urtica dioica*) and Poppy (*Papaver* spp.). Small areas of exposed sand, gravel or till (ED1) habitat were identified at the site along the boundary of the drainage ditch.

The Grand Canal is approximately 109m south of the proposed development and is classified as canals (FW3) habitat.

The majority of habitats identified within the boundary of the site during the assessment were generally considered to be modified and of low conservation value. No plant species of conservation significance or invasive plant species were noted during the site assessment. See Table 4.1 for summary for habitats located at and adjacent the proposed development.

Table 4.1: Habitats found in and adjacent to the development site

HABITAT CLASSIFICATION HIERARCHY		
LEVEL 1	**LEVEL 2**	**LEVEL 3**
B – Cultivated and built land	**BL** – Built Land	**BL3** – Buildings and artificial surfaces
E – Exposed rock and disturbed ground	**ER** – Exposed rock	**ED1** – Exposed sand, gravel or till
F – Freshwater	**FW** – Watercourses	**FW3** – Canals
		FW4 – Drainage Ditches
G – Grassland and marsh	**GA** – Improved grassland	**GA2** – Amenity grassland (improved)

HABITAT CLASSIFICATION HIERARCHY		
LEVEL 1	**LEVEL 2**	**LEVEL 3**
W – Woodland and scrub	**WS** – Scrub/ transitional woodland	**WS1** – Scrub
	WL – Linear woodland / scrub	**WL1** – Hedgerows
		WL2 – Treelines

Bird species noted during the site walkover included Black-headed Gull (*Larus ridibundus*), Jackdaw (*Corvus monedula*), Magpie (*Pica pica*), Starling (*Sturnus vulagaris*), Woodpigeon (*Columba palumbus*), Dunnock (*Prunella modularis*), Swallow (*Hirundo rustica*) Hooded Crow (*Corvus cornix*) and Herring Gull (*Larus argentatus*).

Fox (*Vulpes vulpes*) faeces was found in the adjacent site however no other fauna, or evidence of fauna, were noted during the survey. Fauna typical of that found throughout the rest of Ireland which would be expected to be found in the area and along the Grand Canal would include; Bat species, Badger (*Meles meles*), Common Frog (*Rana temporaria*), Otter (*Lutra lutra*), Pine Marten (*Martes martes*), Stoat (*Mustela erminea hibernica*), American Mink (*Mustela vison*), Irish Hare (*Lepus timidus hibernicus*), Rabbit (*Oryctalagus cuniculus*), Hedgehog (*Erinus europaeus*), Red Squirrel (*Sciurus vulgaris*), Grey Squirrel (*Sciurus carolinensis*), Wood Mouse (*Apodemus sylvaticus*), Pygmy Shrew (*Sorex minutus*) and Brown Rat (*Rattus norvegicus*).

In addition to the site walkover, flora and fauna records were reviewed on the National Biodiversity Data Centre (NBDC) website for the proposed development site and vicinity from the last 30 years. No protected flora species under the Flora Protection Order 2015 (S.I. No. 356 of 2015), were recorded for the 2km square (Tetrad - O03R) in which the development site is located. The protected species Opposite-leaved Pondweed (*Groenlandia densa*) is found within this 2km square, with previous recordings of this species within the Grand Canal. One invasive plant species listed in the Third Schedule of the European Communities Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011) was recorded within the 2km square (Tetrad - O03R); Japanese Knotweed (*Fallopia japonica*).

Fauna records for the previous thirty years were reviewed on the NBDC website for the two 2km square (Tetrad - O03R) in which the proposed development is located. Bird species of note recorded within the 2km square include Kestrel (*Falco tinnunculus*), Starling (*Sturnus vulgaris*), Herring Gull (*Larus argentatus*), House Sparrow (*Passer domesticus*), Mute Swan (*Cygnus olor*) and Tufted Duck (*Aythya fuligula*). Fauna of note include the protected species Daubenton's Bat (*Myotis daubentonii*), Lesser Noctule (*Nyctalus leisleri*), Pipistrelle (*Pipistrellus pipistrellus sensu lato*), Soprano Pipistrelle (*Pipistrellus pygmaeus*) Hedgehog (*Erinaceus europaeus*) and with one medium risk invasive species Rabbit (*Oryctolagus cuniculus*).

Invertebrates of note include the near threatened Moss Carder-bee (*Bombus* (*Thoracombus*) *muscorum*), endangered species Glutinous Snail (*Myxas glutinosa*) and the medium impact invasive species Jenkins' Spire Snail (*Potamopyrgus antipodarum*).

4.2.1 Additional Information on Water Quality

The proposed development is located within the Liffey and Dublin Bay Catchment (ID 09). Watercourses located near the proposed development are the River Comac (EPA code: 09C02 - Order 4) which joins the River Liffey (EPA code: 09L01 - Order 6), approximately 8km east at Sean Heuston Bridge. The River Liffey is tidal at this location. The Grand Canal is located approximately 109m from the southern boundary and is designated as a proposed National Heritage Area (pNHA) (Site Code 002104). The site is hydrologically connected to an unnamed watercourse (approximately 70m) that flows along the adjacent sites west and south boundaries, it also separates the adjacent site from the Grand Canal. This watercourse is channelled via a tunnel from the Industrial Park and is open while along the adjacent site. It is unclear if the un-named watercourse connects to the Grand Canal or the River Comac, however, both watercourses connect to the River Liffey and provide similar length routes to protected sites. See Figure 4.3 for watercourses within the vicinity of the site.

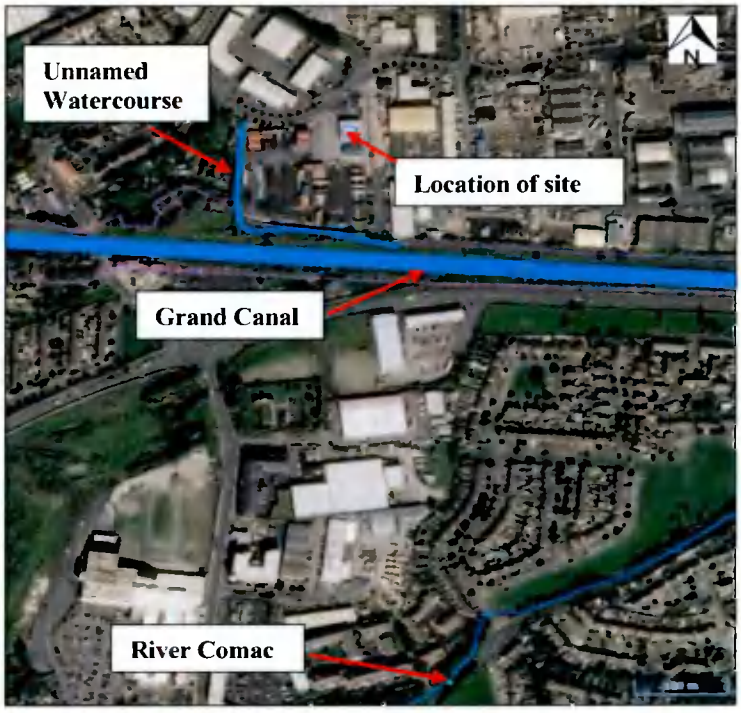

Figure 4.3: Watercourses within the vicinity of the site

The Environmental Protection Agency (EPA) undertake surface water monitoring along the Comac River. The results for the nearest monitoring stations with available information (as per Table 4.2) for the period 1998 – 2019 are summarised in Figure 4.4 below for indicative purposes. As can be seen in Figure 4.4 below, the Comac River is mainly achieving a water quality status of between Q3 (poor) to Q3-4 (moderate) in recent years. Note that station RS09C020500 recorded (2/0) in 2005 and (3/0) in 2010, station RS09C020250 recorded (3/0) in 2007 this indicates a toxic effect is apparent or suspected. EPA comments on the most recent monitoring results for the Camac River are as follows "*The Camac was found to be at unsatisfactory conditions in August 2019. Poor ecological conditions recorded at 0100, 0310 and 0500, with 0100 (Saggart) declining from Good conditions in 2016. Moderate conditions were maintained at 0200 (Brownsbarn).*"

Table 4.2: Monitoring Stations on the River Camac within the vicinity of the development

STATION NO.	STATION LOCATION	EASTING	NORTHING	APPROX. LOCATION RELATIVE TO SITE
RS09C020310	Riversdale Estate Br	307222	231611	715m South
RS09C020500	Camac Close Emmet Rd	311965	233446	5km East (Downstream)
RS09C020250	Br SE of Baldonnell Ho	304913	229242	3.8 km South-West (Upstream)

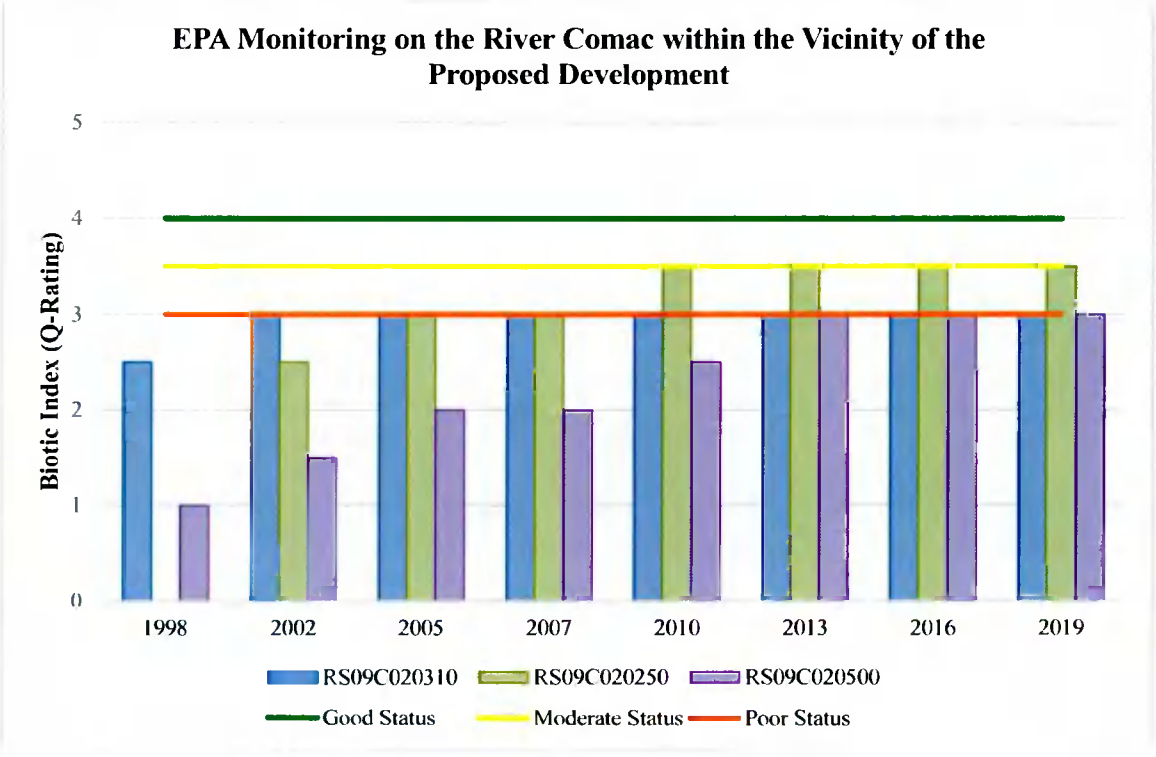

Figure 4.4: EPA Ecological Monitoring of the Comac River from 1998 – 2019

5.0 EUROPEAN SITES (NATURA 2000 SITES) within zone of influence

In assessing the zone of influence of this project upon European sites, the following factors must be considered:

- Potential impacts arising from the project;
- The location and nature of European sites;
- Pathways between the development and European sites.

There is no standard radius that can be used to select which European sites are to be analysed. This can only be determined by looking at the zone of influence of the project at hand. A rule of thumb often used is to include all European sites within a distance of 15km.

Three Special Protection Area (SPA) sites occur within 15km of the proposed development and five Special Area of Conservation (SAC) sites occur within 15km of the proposed development and are shown in the following table:

SITE NAME	DESIGNATION	SITE CODE	DISTANCE
Rye Water Valley/Carton	SAC	001398	7.4km NW
Glenasmole Valley	SAC	001209	8.2km S
Wicklow Mountains	SAC	002122	10.5km S
Wicklow Mountains	SPA	004040	12km SE
South Dublin Bay and River Tolka Estuary	SPA	004024	11.9km E
South Dublin Bay	SAC	000210	12km E
North Dublin Bay	SAC	000206	14.5km NE
North Bull Island	SPA	004006	14.5km NE

Maps detailing European sites within 2km and 15km of the proposed site are included as Appendix A below.

For this assessment, the site considered to be within the zone of influence of the proposed development was the South Dublin Bay SAC (Site code: 000210), South Dublin Bay and River Tolka Estuary SPA (Site code: 004024) and North Dublin Bay SAC (Site code: 000206) and North Bull Island SPA (Site code: 004006), due to hydrological connectivity with the proposed development site.

The proposed development does not have a direct hydrological connection to the Rye Water Valley/Carton SAC (Site Code: 001398), Glenasmole Valley SAC (Site Code: 001209), Wicklow Mountains SAC (Site Code: 002122) and Wicklow Mountains SPA (Site Code: 004040). Each of these protected sites are located upstream from the development site and for Glenasmole Valley SAC, Wicklow Mountains SAC/SPA located at a considerable topographic difference from the development site. Therefore, in the absence of a source-pathway-receptor relationship and given the distances from the development, these sites have been screened out.

5.1 SOUTH DUBLIN BAY SAC (SITE CODE: 000210)

This site lies south of the River Liffey in Co. Dublin and extends from the South Wall to the west pier at Dun Laoghaire. It is an intertidal site with extensive areas of sand and mudflats. The sediments are predominantly sands but grade to sandy muds near the shore at Merrion Gates. The main channel which drains the area is Cockle Lake. The site is a Special Area of Conservation (SAC) selected for the following habitats and/or species listed on Annex I / II of the E.U. Habitats Directive (* = priority; numbers in brackets are Natura 2000 codes):

HABITATS	
CODE	DESCRIPTION
1140	Tidal Mudflats and Sandflats
1210	Annual vegetation of drift lines
1310	*Salicornia* and other annuals colonising mud and sand
2110	Embryonic shifting dunes

** denotes a priority habitat*

The conservation objectives for the SAC site are to maintain or restore the favourable conservation condition of the qualifying interests. An excerpt from the Natura 2000 Data Form for the South Dublin Bay SAC is included below, while further details are available within the site's site synopsis;

"Site possesses a fine and fairly extensive example of intertidal flats. Sediment type is predominantly sand, with muddy sands in the more sheltered areas. A typical macro-invertebrate fauna exists. Has the largest stand of *Zostera* on the east coast. Supports part of the important wintering waterfowl populations of Dublin Bay. Regularly has an internationally population of *Branta bernicila horta*, plus nationally important numbers of at least a further 6 species, including *Limosa lapponica*. Regular autumn roosting ground for significant numbers of *Sterna terns*, including *S. dougallii*. The scientific interests of the site have been well documented. This intertidal site extends from the South Wall at Dublin Port to the West Pier at Dun Laoghaire, a distance of c. 5 km. At their widest, the intertidal flats extend for almost 3 km. The seaward boundary is marked by the low tide mark, while the landward boundary is now almost entirely artificially embanked. Several permanent channels exist, the largest being Cockle Lake. A small sandy beach occurs at Merrion Gates, while some bedrock shore occurs near Dun Laoghaire. A number of small streams and drains flow into the site. The proximity of the site to Dublin City results in it being a very popular recreational area. It is also important for educational and research purposes."

Figure 5.1: South Dublin Bay SAC

South Dublin Bay SAC Conservation Objectives

The Habitats Directive requires the Appropriate Assessment process to assess the potential impacts of the development "in *view of the site's conservation objectives*". Site specific conservation objectives (SSCOs) for the qualifying interests of the South Dublin Bay SAC are provided in the table below, where available from the NPWS document "*Conservation Objectives: South Dublin Bay SAC (Site code: 000210)* (NPWS, 2013).

ATTRIBUTE	MEASURE	TARGET
[1140] Mudflats and sandflats not covered by seawater at low tide		
Habitat area	Hectares	The permanent habitat area is stable or increasing, subject to natural processes
Community extent	Hectares	Maintain the extent of the *Zostera*-dominated community, subject to natural processes
Community structure: *Zostera* density	Shoots/m^2	Conserve the high quality of the *Zostera*-dominated community, subject to natural processes
Community distribution Hectares	Hectares	Conserve the following community type in a natural condition: Fine sands with *Angulus tenuis* community complex
[1210] Annual vegetation of drift lines		
None Specified	-	-
[1310] *Salicornia* and other annuals colonising mud and sand		
None Specified	-	-
[2110] Embryonic shifting dunes		
None Specified	-	-

South Dublin Bay SAC Conservation Status

According to the Habitat's Directive, favourable conservation status of a habitat is achieved when:

- Its natural range and areas it covers within that range are stable or increasing, and
- The specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and
- The conservation status of its typical species is favourable as defined below.

According to the Habitat's Directive, favourable conservation status of a species is achieved when:

- Population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and
- The natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and
- There is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

The conservation statuses for the qualifying interests of South Dublin Bay SAC are outlined below.

CODE	QUALIFYING INTEREST	NATIONAL CONSERVATION STATUS*	SITE LEVEL CONSERVATION STATUS**
1140	Tidal Mudflats and Sandflats	Inadequate	Good
1210	Annual vegetation of drift lines	Inadequate	Good
1310	*Salicornia* and other annuals colonising mud and sand	Inadequate	Good
2110	Embryonic shifting dunes	Inadequate	Good

**Sourced from the Status of EU Protected Habitats and Species in Ireland (NPWS, 2019b and 2019c)*
***Sourced from NPWS (2018)*

5.2 NORTH DUBLIN BAY SAC (SITE CODE: 000206)

This site covers the inner part of north Dublin Bay, the seaward boundary extending from the Bull Wall lighthouse across to the Martello Tower at Howth Head. The North Bull Island is the focal point of this site. The site is a Special Area of Conservation (SAC) selected for the following habitats and/or species listed on Annex I / II of the E.U. Habitats Directive (* = priority; numbers in brackets are Natura 2000 codes):

HABITATS	
CODE	DESCRIPTION
1140	Tidal Mudflats and Sandflats
1210	Annual vegetation of drift lines
1310	*Salicornia* and other annuals colonising mud and sand
1330	Atlantic Salt Meadows
1410	Mediterranean Salt Meadows
2110	Embryonic Shifting Dunes
2120	Marram Dunes (White Dunes)
2130	Fixed Dunes (Grey Dunes) *
2190	Humid Dune Slacks

** denotes a priority habitat*

SPECIES		
CODE	COMMON NAME	SCIENTIFIC NAME
1395	Petalwort	*Petalophyllum ralfsii*

Figure 5.2: North Dublin Bay SAC

North Dublin Bay SAC Conservation Objectives

The Habitats Directive requires the Appropriate Assessment process to assess the potential impacts of the development "in *view of the site's conservation objectives*". Site specific conservation objectives (SSCOs) for the qualifying interests of the North Dublin Bay SAC are provided in the table below, where available from the NPWS document "*Conservation Objectives: North Dublin Bay SAC (Site code: 000206)* (NPWS, 2013).

ATTRIBUTE	MEASURE	TARGET
[1140] Mudflats and sandflats not covered by seawater at low tide		
Habitat area	Hectares	Area stable or increasing, subject to natural processes, including erosion and succession. For sub-site mapped: North Bull Island
Habitat distribution	Occurrence	No decline, or change in habitat distribution, subject to natural processes
Physical structure: sediment supply	Presence/ absence of physical barriers	Maintain, or where necessary restore, natural circulation of sediments and organic matter, without any physical obstructions
Physical structure: creeks and pans	Occurrence	Maintain creek and pan structure, subject to natural processes, including erosion and succession
Physical structure: flooding regime	Hectares flooded; frequency	Maintain natural tidal regime
Vegetation structure: zonation	Occurrence	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession
Vegetation structure: vegetation height	Maintain structural variation within sward	Maintain structural variation within sward
Vegetation structure: vegetation cover	Percentage cover at a representative number of monitoring stops	Maintain more than 90% of area outside creeks vegetated
Vegetation composition: typical species and subcommunities	Percentage cover	Maintain the presence of species-poor communities listed in SMP (McCorry and Ryle, 2009)
Vegetation structure: negative indicator species - *Spartina anglica*	Hectares	No significant expansion of common cordgrass (*Spartina anglica*), with an annual spread of less than 1%
[1330] Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)		
Habitat area	Hectares	Area stable or increasing, subject to natural processes, including erosion and succession. For sub-site mapped: North Bull Island - 81.84ha
Habitat distribution	Occurrence	No decline or change in habitat distribution, subject to natural processes.
Physical structure: sediment supply	Presence/ absence of physical barriers	Maintain, or where necessary restore, natural circulation of sediments and organic matter, without any physical obstructions
Physical structure: creeks and pans	Occurrence	Maintain creek and pan structure, subject to natural processes, including erosion and succession
Physical structure: flooding regime	Hectares flooded; frequency	Maintain natural tidal regime
Vegetation structure: zonation	Occurrence	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession
Vegetation structure: vegetation height	Centimetres	Maintain structural variation within sward

ATTRIBUTE	MEASURE	TARGET
Vegetation structure: negative indicator species - *Spartina anglica*	Hectares	No significant expansion of common cordgrass (*Spartina anglica*), with an annual spread of less than 1%
Vegetation composition: typical species and subcommunities	Percentage cover at a representative sample of monitoring stops	Maintain range of subcommunities with typical species listed in SMP (McCorry and Ryle, 2009)
[1410] Mediterranean salt meadows (*Juncetalia maritimi*)		
Habitat area	Hectares	Area stable or increasing, subject to natural processes, including erosion and succession. For sub-site mapped: North Bull Island - 7.98ha.
Habitat distribution	Occurrence	No decline or change in habitat distribution, subject to natural processes
Physical structure: sediment supply	Presence/absence of physical barriers	Maintain/restore natural circulation of sediments and organic matter, without any physical obstructions
Physical structure: creeks and pans	Occurrence	Maintain creek and pan structure, subject to natural processes, including erosion and succession
Physical structure: flooding regime	Hectares flooded; frequency	Maintain natural tidal regime
Vegetation structure: zonation	Occurrence	Maintain range of coastal habitats including transitional zones, subject to natural processes including erosion and succession
Vegetation structure: vegetation height Centimetres Maintain structural variation in the sward	Centimetres	Maintain structural variation in the sward
Vegetation structure: vegetation cover	Percentage cover at a representative sample of monitoring stops	Maintain more than 90% of area outside creeks vegetated
Vegetation composition: typical species and subcommunities	Percentage cover at a representative number of monitoring stops	Maintain range of subcommunities with characteristic species listed in SMP (McCorry and Ryle, 2009)
Vegetation structure: negative indicator species - *Spartina anglica*	Hectares	No significant expansion of common cordgrass (*Spartina anglica*), with an annual spread of less than 1%
[2110] Embryonic shifting dunes		
Habitat area	Hectares	Area stable or increasing, subject to natural processes, including erosion and succession. For sub-sites mapped: North Bull - 2.64ha; South Bull - 3.43ha
Habitat distribution	Occurrence	No decline or change in habitat distribution, subject to natural processes

ATTRIBUTE	MEASURE	TARGET
Physical structure: sediment supply	Presence/absence of physical barriers	Maintain/restore natural circulation of sediments and organic matter, without any physical obstructions
Vegetation structure: zonation	Occurrence	Maintain range of coastal habitats including transitional zones, subject to natural processes including erosion and succession
Vegetation composition: plant health of foredune grasses	Percentage cover	Percentage cover More than 95% of sand couch (*Elytrigia juncea*) and/or lyme-grass (*Leymus arenarius*) should be healthy (i.e. green plant parts above ground and flowering heads present)
Vegetation composition: typical species and subcommunities	Percentage cover at a representative number of monitoring stops	Maintain the presence of species-poor communities with typical species: sand couch (*Elytrigia juncea*) and/or lyme-grass (*Leymus arenarius*)
Vegetation composition: negative indicator species	Percentage cover	Negative indicator species (including non-native species) to represent less than 5% cover
[2120] Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes)		
Habitat area	Hectares	Area stable or increasing, subject to natural processes including erosion and succession. North Bull - 2.20ha; South Bull - 0.97ha. S
Habitat distribution	Occurrence	No decline or change in habitat distribution, subject to natural processes
Physical structure: functionality and sediment supply	Presence/ absence of physical barriers	Maintain the natural circulation of sediment and organic matter, without any physical obstructions
Vegetation structure: zonation	Occurrence	Vegetation structure: zonation Occurrence Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession
Vegetation composition: plant health of dune grasses heads present)	Percentage cover	95% of marram grass (*Ammophila arenaria*) and/or lyme-grass (*Leymus arenarius*) should be healthy (i.e. green plant parts above ground and flowering heads present)
Vegetation composition: typical species and subcommunities	Percentage cover at a representative number of monitoring stops	Maintain the presence of species-poor communities dominated by marram grass (*Ammophila arenaria*) and/or lymegrass (*Leymus arenarius*)
Vegetation composition: negative indicator species	Percentage cover	Negative indicator species (including non-natives) to represent less than 5% cover
[2130] Fixed coastal dunes with herbaceous vegetation (grey dunes)		
Habitat area	Hectares	Area stable or increasing, subject to natural processes including erosion and succession. For subsites mapped: North Bull - 40.29ha; South Bull - 64.56ha
Habitat distribution	Occurrence	No decline or change in habitat distribution, subject to natural processes

ATTRIBUTE	MEASURE	TARGET
Physical structure: functionality and sediment supply	Presence/ absence of physical barriers	Maintain the natural circulation of sediment and organic matter, without any physical obstructions
Vegetation structure: zonation	Occurrence	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession
Vegetation structure: bare ground	Percentage	Bare ground should not exceed 10% of fixed dune habitat, subject to natural processes
Vegetation structure: sward height	Centimetres	Maintain structural variation within sward
Vegetation composition: typical species and subcommunities	Percentage cover at a representative number of monitoring stops	Maintain range of subcommunities with typical species listed in Delaney et al. (2013)
Vegetation composition: negative indicator species (including *Hippophae rhamnoides*)	Percentage cover	Negative indicator species (including non-natives) to represent less than 5% cover
Vegetation composition: scrub/trees	Percentage cover	No more than 5% cover or under control
[2190] Humid dune slacks		
Habitat area	Hectares	Area increasing, subject to natural processes including erosion and succession. For sub-sites mapped: North Bull - 2.96ha; South Bull - 9.15ha
Habitat distribution	Occurrence	No decline or change in habitat distribution, subject to natural processes
Physical structure: functionality and sediment supply	Presence/ absence of physical barriers	Maintain the natural circulation of sediment and organic matter, without any physical obstructions
Physical structure: hydrological and flooding regime	Water table levels; groundwater fluctuations (metres)	Maintain natural hydrological regime
Vegetation structure: zonation	Occurrence	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession
Vegetation structure: bare ground	Vegetation structure: bare ground Percentage cover	Bare ground should not exceed 5% of dune slack habitat, with the exception of pioneer slacks which can have up to 20% bare ground
Vegetation structure: vegetation height	Centimetres	Maintain structural variation within sward
Vegetation composition: typical species and subcommunities	Percentage cover at a representative number of monitoring stops	Maintain range of subcommunities with typical species listed in Delaney et al. (2013)

ATTRIBUTE	MEASURE	TARGET
Vegetation composition: cover of *Salix repens*	Percentage cover; centimetres	Maintain less than 40% cover of creeping willow (*Salix repens*)
Vegetation composition: negative indicator species	Percentage cover	Negative indicator species (including non-natives) to represent less than 5% cover
Vegetation composition: scrub/trees	Percentage cover	No more than 5% cover or under control
[1395] Petalwort *Petalophyllum ralfsii*		
Distribution of populations	Number and geographical spread of populations	No decline
Population size	Number of individuals	No decline. Population at Bull Island estimated at a maximum of 5,824 thalli. Actual population is more likely to be 5% of this, or c. 300 thalli
Area of suitable habitat	Hectares	No decline. Area of suitable habitat at Bull Island is estimated at c. 0.04ha
Hydrological conditions: soil moisture	Occurrence	Maintain hydrological conditions so that substrate is kept moist and damp throughout the year, but not subject to prolonged inundation by flooding in winter
Vegetation structure: height and cover	Centimetres and percentage	Maintain open, low vegetation with a high percentage of bryophytes (small acrocarps and liverwort turf) and bare ground

North Dublin Bay SAC Conservation Status

According to the Habitat's Directive, favourable conservation status of a habitat is achieved when:

- Its natural range and areas it covers within that range are stable or increasing, and
- The specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and
- The conservation status of its typical species is favourable as defined below.

According to the Habitat's Directive, favourable conservation status of a species is achieved when:

- Population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and
- The natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and
- There is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

The conservation statuses for the qualifying interests of the North Dublin Bay SAC are outlined below.

CODE	QUALIFYING INTEREST	NATIONAL CONSERVATION STATUS*	SITE LEVEL CONSERVATION STATUS**
1140	Tidal Mudflats and Sandflats	Inadequate	Good
1210	Annual vegetation of drift lines	Inadequate	Good
1310	*Salicornia* and other annuals colonising mud and sand	Favourable	Excellent
1330	Atlantic Salt Meadows	Inadequate	Excellent
1410	Mediterranean Salt Meadows	Inadequate	Good
2110	Embryonic Shifting Dunes	Favourable	Excellent
2120	Marram Dunes (White Dunes)	Inadequate	Good
2130	Fixed Dunes (Grey Dunes)	Favourable	Excellent
2190	Humid Dune Slacks	Favourable	Excellent
1395	Petalwort	Inadequate	Excellent

**Sourced from the Status of EU Protected Habitats and Species in Ireland (NPWS, 2019b and 2019c)*
***Sourced from NPWS (2018)*

5.3 SOUTH DUBLIN BAY AND RIVER TOLKA ESTUARY SPA (SITE CODE: 004024)

The South Dublin Bay and River Tolka Estuary SPA comprises a substantial part of Dublin Bay. It includes the intertidal area between the River Liffey and Dun Laoghaire, and the estuary of the River Tolka to the north of the River Liffey, as well as Booterstown Marsh. A portion of the shallow marine waters of the bay is also included. In the south bay, the intertidal flats

extend for almost 3 km at their widest. The sediments are predominantly well-aerated sands. Several permanent channels exist, the largest being Cockle Lake. A small sandy beach occurs at Merrion Gates, while some bedrock shore occurs near Dun Laoghaire. The landward boundary is now almost entirely artificially embanked. There is a bed of Dwarf Eelgrass (*Zostera noltii*) below Merrion Gates which is the largest stand on the east coast. Green algae (*Ulva spp.*) are distributed throughout the area at a low density. The macroinvertebrate fauna is well-developed and is characterised by annelids such as Lugworm (Arenicola marina), *Nephthys spp.* and Sand Mason (*Lanice conchilega*), and bivalves, especially Cockle (*Cerastoderma edule*) and Baltic Tellin (*Macoma balthica*). The small gastropod Spire Shell (*Hydrobia ulvae*) occurs on the muddy sands off Merrion Gates, along with the crustacean *Corophium volutator*. Sediments in the Tolka Estuary vary from soft thixotrophic muds with a high organic content in the inner estuary to exposed, well-aerated sands off the Bull Wall. The site includes Booterstown Marsh, an enclosed area of saltmarsh and muds that is cut off from the sea by the Dublin/Wexford railway line, being linked only by a channel to the east, the Nutley stream. Sea water incursions into the marsh occur along this stream at high tide. An area of grassland at Poolbeg, north of Irishtown Nature Park, is also included in the site. The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Light-bellied Brent Goose, Oystercatcher, Ringed Plover, Grey Plover, Knot, Sanderling, Dunlin, Bar-tailed Godwit, Redshank, Black-headed Gull, Roseate Tern, Common Tern and Arctic Tern. The E.U. Birds Directive pays particular attention to wetlands, and as these form part of the SPA, the site and its associated waterbirds are of special conservation interest for Wetland & Waterbirds. The site is a SAC) selected for the following habitats and species listed on Annex I / II of the E.U. Habitats Directive:

HABITATS	
CODE	DESCRIPTION
A999	Wetlands

SPECIES		
CODE	COMMON NAME	SCIENTIFIC NAME
A046	Light-bellied Brent Goose	*Branta bernicla hrota*
A130	Oystercatcher	*Haematopus ostralegus*
A137	Ringed Plover	*Charadrius hiaticula*
A141	Grey Plover	*Plover Pluvialis squatarola*
A143	Knot	*Calidris canutus*
A144	Sanderling	*Calidris alba*
A149	Dunlin	*Calidris alpina alpina*
A157	Bar-tailed Godwit	*Limosa lapponica*
A162	Redshank	*Tringa totanus*
A179	Black-headed Gull	*Chroicocephalus ridibundus*
A192	Roseate Tern	*Sterna dougallii*
A193	Common Tern	*Sterna hirundo*
A194	Arctic Tern Sterna	*Sterna paradisaea*

Figure 5.3: North Bull Island SPA, South Dublin Bay and River Tolka Estuary SPA

South Dublin Bay SPA Conservation Objectives

The Habitats Directive requires the Appropriate Assessment process to assess the potential impacts of the development "in *view of the site's conservation objectives*". Site specific conservation objectives (SSCOs) for the qualifying interests of the South Dublin Bay and River Tolka Estuary SPA are provided in the table below, where available from the NPWS document "*Conservation Objectives: South Dublin Bay SPA* (Site code: 004024) (NPWS, 2015).

ATTRIBUTE	MEASURE	TARGET
[A046] Light-bellied Brent Goose		
Population trend	Percentage change	Long term population trend stable or increasing
Distribution	Range, timing and intensity of use of areas	No significant decrease in the range, timing or intensity of use of areas by Light-bellied Brent Goose, other than that occurring from natural patterns of variation
[A130] Oystercatcher		
Population trend	Percentage change	Long term population trend stable or increasing
Distribution	Range, timing and intensity of use of areas	No significant decrease in the range, timing or intensity of use of areas by Oystercatcher, other than that occurring from natural patterns of variation
[A137] Ringed Plover		
Population trend	Percentage change	Long term population trend stable or increasing
Distribution	Range, timing and intensity of use of areas	No significant decrease in the range, timing or intensity of use of areas by Ringed Plover, other than that occurring from natural patterns of variation
[A141] Grey Plover		
Population trend	Percentage change	Long term population trend stable or increasing
Distribution	Range, timing and intensity of use of areas	No significant decrease in the range, timing or intensity of use of areas by Grey Plover other than that occurring from natural patterns of variation
[A143] Knot		
Population trend	Percentage change	Long term population trend stable or increasing
Distribution	Range, timing and intensity of use of areas	No significant decrease in the range, timing or intensity of use of areas by Knot other than that occurring from natural patterns of variation
[A144] Sanderling		
Population trend	Percentage change	Long term population trend stable or increasing
Distribution	Range, timing and intensity of use of areas	No significant decrease in the range, timing or intensity of use of areas by Sanderling other than that occurring from natural patterns of variation
[A149] Dunlin		
Population trend	Percentage change	Long term population trend stable or increasing

ATTRIBUTE	MEASURE	TARGET
Distribution	Range, timing and intensity of use of areas	No significant decrease in the range, timing or intensity of use of areas by Dunlin other than that occurring from natural patterns of variation
[A157] Bar-tailed Godwit		
Population trend	Percentage change	Long term population trend stable or increasing
Distribution	Range, timing and intensity of use of areas	No significant decrease in the range, timing or intensity of use of areas by Bar-tailed Godwit other than that occurring from natural patterns of variation
[A162] Redshank		
Population trend	Percentage change	Long term population trend stable or increasing
Distribution	Range, timing and intensity of use of areas	No significant decrease in the range, timing or intensity of use of areas Redshank other than that occurring from natural patterns of variation
[A192] Roseate Tern		
Passage population: individuals	Number	No significant decline
Distribution: roosting areas	Number; location; area(hectares)	No significant decline
Prey biomass available	Kilogrammes	No significant decline
Barriers to connectivity	Number; location; shape; area (hectares)	No significant increase
Disturbance at roosting site	Level of impact	Human activities should occur at levels that do not adversely affect the numbers of roseate tern among the post-breeding aggregation of terns
[A193] Common Tern		
Breeding population abundance: apparently occupied nests (AONs)	Number	No significant decline
Productivity rate: fledged young per breeding pair	Mean number	No significant decline
Passage population: individuals	Number	No significant decline
Distribution: roosting areas	Number; location; area(hectares)	No significant decline
Prey biomass available	Kilogrammes	No significant decline
Barriers to connectivity	Number; location;	No significant increase

ATTRIBUTE	MEASURE	TARGET
	shape; area (hectares)	
Disturbance at breeding site	Level of impact	Human activities should occur at levels that do not adversely affect the breeding common tern population
Disturbance at roosting site	Level of impact	Human activities should occur at levels that do not adversely affect the numbers of roseate tern among the post-breeding aggregation of terns
[A194] Arctic Tern		
Population trend	Number of individuals	No significant decline
Distribution: roosting areas	Number; location; area(hectares)	No significant decline
Prey biomass available	Kilogrammes	No significant decline
Barriers to connectivity	Number; location; shape; area (hectares)	No significant increase
Disturbance at roosting site	Level of impact	Human activities should occur at levels that do not adversely affect the numbers of roseate tern among the post-breeding aggregation of terns
[A999] Wetlands		
Habitat area	Hectares	The permanent area occupied by the wetland habitat should be stable and not significantly less than the area of 2,192 hectares, other than that occurring from natural patterns of variation

South Dublin Bay and River Tolka Estuary SPA Conservation Status

According to the Habitat's Directive, favourable conservation status of a habitat is achieved when:

- Its natural range and areas it covers within that range are stable or increasing, and
- The specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and
- The conservation status of its typical species is favourable as defined below.

According to the Habitat's Directive, favourable conservation status of a species is achieved when:

- Population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and
- The natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and
- There is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

The conservation statuses for the qualifying interests of the South Dublin Bay SPA are outlined below.

CODE	QUALIFYING INTEREST	CONSERVATION STATUS*	SITE LEVEL CONSERVATION STATUS**
A046	Light-bellied Brent Goose	Least Concern	Excellent
A130	Oystercatcher	Near Threatened	Excellent
A137	Ringed Plover	Least Concern	Excellent
A141	Grey Plover	Least Concern	Good
A143	Knot	Near Threatened	Good
A144	Sanderling	Least Concern	Excellent
A149	Dunlin	Least Concern	Good
A157	Bar-tailed Godwit	Near Threatened	Good
A162	Redshank	Least Concern	Good
A179	Black-headed Gull	Least Concern	Good
A192	Roseate Tern	Least Concern	Excellent
A193	Common Tern	Least Concern	Excellent
A194	Arctic Tern Sterna	Least Concern	Excellent

**Sourced from the Status of EU Protected Habitats and Species in Ireland (NPWS, 2018)*
***Sourced from Birds Directive Index (2020)*

5.4 NORTH BULL ISLAND SPA (SITE CODE: 004006)

This site covers all of the inner part of north Dublin Bay, with the seaward boundary extending from the Bull Wall lighthouse across to Drumleck Point at Howth Head. The North Bull Island sand spit is a relatively recent depositional feature, formed as a result of improvements to Dublin Port during the 18th and 19th centuries. It is almost 5 km long and 1 km wide and runs parallel to the coast between Clontarf and Sutton. Part of the interior of the island has been converted to golf courses. The site is a SAC) selected for the following habitats and species listed on Annex I / II of the E.U. Habitats Directive:

HABITATS	
CODE	DESCRIPTION
A999	Wetlands

SPECIES		
CODE	COMMON NAME	SCIENTIFIC NAME
A046	Light-bellied Brent Goose	*Branta bernicla hrota*
A048	Shelduck	*Tadorna tadorna*
A052	Teal	*Anas crecca*
A054	Pintail	*Anas acuta*
A056	Shoveler	*Anas clypeata*
A130	Oystercatcher	*Haematopus ostralegus*
A141	Grey Plover	*Plover Pluvialis squatarola*
A143	Knot	*Calidris canutus*
A144	Sanderling	*Calidris alba*
A149	Dunlin	*Calidris alpina alpina*
A156	Black-tailed Godwit	*Limosa limosa*
A157	Bar-tailed Godwit	*Limosa lapponica*
A160	Curlew	*Numenius arquata*
A162	Redshank	*Tringa totanus*
A169	Turnstone	*Arenaria interpres*
A179	Black-headed Gull	*Chroicocephalus ridibundus*

The conservation objectives for the SAC site are to maintain or restore the favourable conservation condition of the qualifying interests. An excerpt from the Natura 2000 Data Form for the North Bull Island SPA is included below, while further details are available within the site's site synopsis (NPWS, 2014).

"Saltmarsh extends along the length of the landward side of the island and provides the main roost site for wintering birds in Dublin Bay. The island shelters two intertidal lagoons which are divided by a solid causeway. These lagoons provide the main feeding grounds for the wintering waterfowl. The sediments of the lagoons are mainly sands with a small and varying mixture of silt and clay. Green algal mats (*Ulva spp.*) are a feature of the flats during summer. These sediments have a rich macro-invertebrate fauna, with high densities of Lugworm (*Arenicola marina*) and Ragworm (*Hediste diversicolor*). The site is among the top ten sites for wintering waterfowl in the country. It supports internationally important populations of

Branta bernicila hrota and *Limosa lapponica* and is the top site in the country for both of these species. A further 14 species have populations of national importance, with particular notable numbers of *Tadorna tadorna* (8.5% of national total), *Anas acuta* (11.6% of national total), *Pluvialis squatarola* (6.9% of national total), *Calidris canutus* (10.5% of national total). North Bull Island SPA is a regular site for passage waders such as *Philomachus pugnax, Calidris ferruginea* and *Tringa erythropus*. The site supports *Asio flammeus* in winter. Formerly the site had an important colony *of Sterna albifrons* but breeding has not occurred in recent years. The site provides both feeding and roosting areas for the waterfowl species. Habitat quality for most of the estuarine habitats is very good. The site has a population of the rare *Petalophyllum ralfsii* which is the only known station away from the western seaboard as well as five Red Data Book vascular plant species and four bryophyte species. It is nationally important for three insect species. Wintering bird populations have been monitored more or less continuously since the late 1960s."

NORTH BULL ISLAND SPA Conservation Objectives

The Habitats Directive requires the Appropriate Assessment process to assess the potential impacts of the development "in *view of the site's conservation objectives*". Site specific conservation objectives (SSCOs) for the qualifying interests of the North Bull Island SPA are provided in the table below, where available from the NPWS document "*Conservation Objectives:* North Bull Island SPA (Site code: 004006) (NPWS, 2015).

ATTRIBUTE	MEASURE	TARGET
[A046] Light-bellied Brent Goose		
Population trend	Percentage change	Long term population trend stable or increasing
Distribution	Range, timing and intensity of use of areas	No significant decrease in the range, timing or intensity of use of areas by Light-bellied Brent Goose, other than that occurring from natural patterns of variation
[A048] Shelduck		
Population trend	Percentage change	Long term population trend stable or increasing
Distribution	Range, timing and intensity of use of areas	No significant decrease in the range, timing or intensity of use of areas by Shelduck, other than that occurring from natural patterns of variation
[A052] Teal		
Population trend	Percentage change	Long term population trend stable or increasing
Distribution	Range, timing and intensity of use of areas	No significant decrease in the range, timing or intensity of use of areas by Teal, other than that occurring from natural patterns of variation
[A054] Pintail		
Population trend	Percentage change	Long term population trend stable or increasing
Distribution	Range, timing and intensity of use of areas	No significant decrease in the range, timing or intensity of use of areas by Pintail, other than that occurring from natural patterns of variation
[A056] Shoveler		
Population trend	Percentage change	Long term population trend stable or increasing
Distribution	Range, timing and intensity of use of areas	No significant decrease in the range, timing or intensity of use of areas by Shoveler, other than that occurring from natural patterns of variation
[A130] Oystercatcher		
Population trend	Percentage change	Long term population trend stable or increasing
Distribution	Range, timing and intensity of use of areas	No significant decrease in the range, timing or intensity of use of areas by Oystercatcher other than that occurring from natural patterns of variation
[A140] Golden Plover		
Population trend	Percentage change	Long term population trend stable or increasing

ATTRIBUTE	MEASURE	TARGET
Distribution	Range, timing and intensity of use of areas	No significant decrease in the range, timing or intensity of use of areas by Golden Plover other than that occurring from natural patterns of variation
[A141] Grey Plover		
Population trend	Percentage change	Long term population trend stable or increasing
Distribution	Range, timing and intensity of use of areas	No significant decrease in the range, timing or intensity of use of areas by Grey Plover other than that occurring from natural patterns of variation
[A143] Knot		
Population trend	Percentage change	Long term population trend stable or increasing
Distribution	Range, timing and intensity of use of areas	No significant decrease in the range, timing or intensity of use of areas by Knot other than that occurring from natural patterns of variation
[A144] Sanderling		
Population trend	Percentage change	Long term population trend stable or increasing
Distribution	Range, timing and intensity of use of areas	No significant decrease in the range, timing or intensity of use of areas by Sanderling other than that occurring from natural patterns of variation
[A149] Dunlin		
Population trend	Percentage change	Long term population trend stable or increasing
Distribution	Range, timing and intensity of use of areas	No significant decrease in the range, timing or intensity of use of areas by Dunlin other than that occurring from natural patterns of variation
[A156] Black-tailed Godwit		
Population trend	Percentage change	Long term population trend stable or increasing
Distribution	Range, timing and intensity of use of areas	No significant decrease in the range, timing or intensity of use of areas by Black-tailed Godwit other than that occurring from natural patterns of variation
[A157] Bar-tailed Godwit		
Population trend	Percentage change	Long term population trend stable or increasing
Distribution	Range, timing and intensity of use of areas	No significant decrease in the range, timing or intensity of use of areas by Bar-tailed Godwit other than that occurring from natural patterns of variation

ATTRIBUTE	MEASURE	TARGET
[A160] Curlew		
Population trend	Percentage change	Long term population trend stable or increasing
Distribution	Range, timing and intensity of use of areas	No significant decrease in the range, timing or intensity of use of areas by Curlew other than that occurring from natural patterns of variation
[A162] Redshank		
Population trend	Percentage change	Long term population trend stable or increasing
Distribution	Range, timing and intensity of use of areas	No significant decrease in the range, timing or intensity of use of areas Redshank other than that occurring from natural patterns of variation
[A169] Turnstone		
Population trend	Percentage change	Long term population trend stable or increasing
Distribution	Range, timing and intensity of use of areas	No significant decrease in the range, timing or intensity of use of areas by Turnstone other than that occurring from natural patterns of variation
[A179] Black-headed Gull		
Population trend	Percentage change	Long term population trend stable or increasing
Distribution	Range, timing and intensity of use of areas	No significant decrease in the range, timing or intensity of use of areas Black-headed Gull other than that occurring from natural patterns of variation
[A999] Wetlands		
Habitat area	Hectares	The permanent area occupied by the wetland habitat should be stable and not significantly less than the area of 1,713 hectares, other than that occurring from natural patterns of variation

North Bull Island SPA Conservation Status

According to the Habitat's Directive, favourable conservation status of a habitat is achieved when:

- Its natural range and areas it covers within that range are stable or increasing, and
- The specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and
- The conservation status of its typical species is favourable as defined below.

According to the Habitat's Directive, favourable conservation status of a species is achieved when:

- Population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and
- The natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and
- There is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

The conservation statuses for the qualifying interests of the North Bull Island SPA are outlined below.

CODE	QUALIFYING INTEREST	CONSERVATION STATUS*	SITE LEVEL CONSERVATION STATUS**
A046	Light-bellied Brent Goose	Least Concern	Excellent
A048	Shelduck	Least Concern	Excellent
A052	Teal	Least Concern	Excellent
A054	Pintail	Least Concern	Excellent
A056	Shoveler	Least Concern	Excellent
A130	Oystercatcher	Near Threatened	Excellent
A141	Grey Plover	Least Concern	Excellent
A143	Knot	Near Threatened	Excellent
A144	Sanderling	Least Concern	Excellent
A149	Dunlin	Least Concern	Excellent
A156	Black-tailed Godwit	Near Threatened	Excellent
A157	Bar-tailed Godwit	Near Threatened	Excellent
A160	Curlew	Near Threatened	Excellent
A162	Redshank	Least Concern	Excellent
A169	Turnstone	Least Concern	Excellent
A179	Black-headed Gull	Least Concern	Excellent

**Sourced from the Status of EU Protected Habitats and Species in Ireland (NPWS, 2018)*
*** Sourced from Birds Directive Index (2020)*

6.0 ASSESSMENT OF LIKELY IMPACTS

6.1 DISTURBANCE TO PROTECTED HABITATS AND SPECIES

The site does not directly impinge on any part of a European site, and as such would not be expected to have any in-situ effects upon a protected site through loss or destruction of habitat, fragmentation of habitat, disturbance of habitat or direct reduction in species density.

It is not considered that the site would contain the habitats or species for which the South Dublin Bay SAC, South Dublin Bay and River Tolka Estuary SPA, North Dublin Bay SAC and North Bull Island SPA have been designated. No areas of sand dunes, mudflats or tidal estuary exist within the site. The nearest example of these habitats hydrologically is approximately 16km downstream, therefore the site does not contain any habitat which would have potential links to the qualifying interests associated with saltwater and tidal conditions.

The site would not offer suitable breeding grounds for the bird species associated with both the South Dublin Bay and River Tolka Estuary SPA and North Bull Island SPA. Also, the site would not offer suitable foraging habitat for these protected species. The majority of the site is made up of modified habitats (BL3 and ED1) which would be of limited value.

It is not envisaged that protected species would be adversely impacted upon by the site due to noise generated by the facility or by noise generated from the associated site traffic and urban setting of the site. While there would be increased noise emissions during the operational phase of the development, these would not be considered to pose a significant risk owing to the transient nature of the site traffic and the distances between the site and designated sites. Any fauna in the area with be accustomed to noise from human activity during the operational phase of the development.

It is therefore considered that the proposed development would not result in any significant risk to the protected habitats and species of the South Dublin Bay SAC, South Dublin Bay and River Tolka Estuary SPA, North Dublin Bay SAC and North Bull Island SPA due to habitat fragmentation or loss, disturbance or reduction in species density.

6.2 INVASIVE SPECIES

Under Regulation 49(2) of the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011), save in accordance with a licence granted under paragraph (7), any person who plants, disperses, allows or causes to disperse, spreads or otherwise causes to grow in any place specified in relation to any plant which is included in Part 1 of the Third Schedule shall be guilty of an offence.

Materials containing invasive species such as Japanese Knotweed are considered "controlled waste", and, as such, there are legal restrictions on their handling and disposal. Under Regulation 49(7) of the European Communities (Birds and Natural Habitats) Regulations 2011, it is a legal requirement to obtain a license to move "vector materials" listed in the Third Schedule, Part 3.

One invasive flora species has been recorded by the National Biodiversity Data Centre within the 2km (Tetrad – O03R), which are listed in Part 1 of the Third Schedule: Japanese Knotweed

(*Fallopia japonica*). However, no invasive species of concern were noted as present during the site walkover.

The risk of invasive species being introduced onto the site during the operational phase of the project is considered to be low, with no import of materials with the potential to contain invasive flora species. As the site consist of hard surfaces there is no need for the importation of topsoil at this site.

Therefore, it is considered that there would be no significant risk to protected habitats and species as a result of invasive species from the site.

6.3 POTENTIAL IMPACTS ON WATER QUALITY

The proposed site is located within the Liffey and Dublin Bay Catchment (ID 09), thus the site would be hydrologically linked to the South Dublin Bay SAC (Site code: 000210), South Dublin Bay and River Tolka Estuary SPA, North Dublin Bay SAC and North Bull Island SPA. However, the site would not be considered to impact upon the listed habitats and species of the SAC site due to deleterious effects on water quality, owing to the location of the site, the scale of the site and the drainage system put in place. A Class 1 Forecourt Separator is designed as a full retention separator specified to retain on site the maximum spillage that can occur from vehicle refuelling and road tanker deliveries. It is maintained from ground level and inclusive of silt storage. In addition, there is an existing Class 2 Bypass separator stormwater before discharging to the unnamed watercourse. The site would not necessitate any changes to the existing foul water system onsite.

As discussed in Section 4, the site is not located within an area of fluvial flooding nor area of pluvial flooding. Any stormwater would be captured within the drainage network and interceptor. Therefore, the site would not be anticipated to pose a significant risk upon the SAC site as a result of floodwaters.

It is therefore considered that, due to the location of the site, the relative scale and extent of the site, the drainage system and the considerable hydrological distance to the South Dublin Bay SAC, South Dublin Bay and River Tolka Estuary SPA, North Dublin Bay SAC and North Bull Island SPA, the site would not pose a significant risk upon these protected sites due to a deleterious effect on water quality during the operational phase.

6.4 IN COMBINATION EFFECTS

The following plans and projects were reviewed and considered for in-combination effects with the proposed development:

- South County Dublin Development Plan 2016-2022;
- South County Dublin Local Economic and Community Plan 2016-2021;
- Proposed and permitted developments in the area available on South County Dublin planning system.

The site is located within Clondalkin Industrial Estate in South County Dublin. As the development is within an urban area there is a mixture of developments within the vicinity such

as residential properties, amenities, railway lines and the M50 motorway. Within the industrial estate are a mixture of SMEs. Recent planning applications granted within the vicinity of the development include retentions and alterations to buildings for both commercial and local amenities. There are also eighty-two EPA licenced facilities located within approximately 10km of the site, which are included in the table below.

Licence No.	Licence Name	Licence Type (First Schedule of EPA Act, 1992, as amended)	Approximate Distance from Development
P0401	Metal Processors Limited	IEL - 3.4.1 (b)	275m N
W0205	Greyhound Recycling & Recovery	IEL - 11.2 (b)	391m NE
P1113	Crag Digital Limited	IEL – 2.1	607m E
P0807	R & A Bailey & Company	IEL - 7.8 (a) (iii)	1.8km E
W0095	Waste Management Centre	Surrendered	1.8km E
W0055	SRCL Limited	IEL - 11.2 (b)	2.1km SE
P0524	Circle Syntalux Ltd	Surrendered	2.1km E
P0253	Packaging Inks & Coatings	Surrendered	2.4km SE
W0227	Padraig Thornton Waste Disposal Limited	IEL - 11.4 (b)(ii)	2.4km E
W0152	Oxigen Environmental (Robinhood)	IEL _ 11.4 (b)(ii)	2.5km SE
P0058	Kayfoam Woolfson	IEL - 5.12 (h)	2.5km E
W0196	Jfk Environmental Limited	IEL - 11.2 (b)	2.6km E
P0228	BASF Printing Systems Ireland Limited	IEL	2.7km E
W0044	Thorntons Recycling Centre (Ballyfermot)	IEL 11.4 (b)(ii)	2.7km E
P0230	Sun Chemical Inks Ltd	IEL	2.8km E
P0051	BOC Gases Ireland Limited	IEL - 5.13 (a)	2.9km E
P0080	Colas Bitumen Emulsions (East) Limited	IPC - 5.9	2.9km E
P0078	Henkel Ireland Operations and Research Limited (Ballyfermot)	IEL - 5.12 (h)	2.9km E
W0099	Oxigen Environmental (Merrywell)	IEL - 11.6	2.9km SE
W0208	Ballymount MRF (Merrywell)	IEL - 11.4 (b)(ii)	2.9kmSE
P0336	T.J. O'Mahony & Sons Limited	Surrendered	3km SE
P0340	Heiton Buckley Limited (Dublin)	IPPC	3km SE
W0039	Starrus Eco Holdings Limited (Ballymount)	IEL - 11.4 (b)(ii)	3.1km SE
P0094	CVP Limited	IPPC	3.1km E
P0276	Hitech Plating	IEL	3.2km SE
P0253	Packaging Inks & Coatings	Surrendered	3.2km E

Licence No.	Licence Name	Licence Type (First Schedule of EPA Act, 1992, as amended)	Approximate Distance from Development
P0711	Sherwin-Williams (Ireland) Limited	IPC - 5.7	3.2km SE
W0054	SRCL Limited (Kylemore Road) trading as Eco-Safe Systems Ltd, Allied Industrial Estate, Kylemore Road, Dublin 10	IEL – 11.6	3.3km E
P0092	Ultra Packaging Limited	IPPC	3.3km E
W0263	Irish Packaging Recycling	IEL - 11.4 (b)(ii)	3.5km SE
P0796	Jamestown Shot Blasting & Metal Coating Limited	Surrendered	3.5km NE
P0392	Jamestown Metal Resources Limited	IEL - 3.4.1 (b)	3.5km NE
P0217	Irish Printed Circuits Limited	IPPC	3.7km SE
W0003	Ballymount Baling Station	IEL - 11.4 (b)(ii)	3.8km SE
P0241	Sun Chemical Inks Limited	IPC – 5.7	3.8km NE
P0116	Print & Display Limited	IPC - 12.2.2	3.9km S
P0346	CCM Limited T/A Kenn Truss	IPPC - 8.3	3.9km SE
P0245	Circle Paints Manufacturing Ireland Limited	IEL - 5.7	4.1km SE
P0277	Plateco ZN Limited	IPPC	4.3km SE
P0252	INX International Ink Company Limited	IPPC	4.4km S
P0160	The Adelaide & Meath Hospital, Dublin	IEL	4.4km S
P0659	Microprint	IPPC	4.5km SE
P0357	Bimeda Animal Health Limited	IPC - 5.8	4.5km SE
W0099	Safety Kleen Ireland Ltd	IEL – 11.6	4.6km SE
P0063	Our Lady's Hospital for Sick Children	IEL	5km E
P0275	BBALP Limited	IEL - 12.3	5.2km SW
P0079	Henkel Ireland Operations and Research Ireland Limited (Tallaght)	IEL - 5.12 (h)	5.4km S
P0114	C-Fab Ltd	IEL	5.5km S
W0188	Starrus Eco Holdings Limited (Greenogue)	IEL _ 11.4 (b)(ii)	6.4km SW
W0192	Rilta Environmental Limited	IEL – 11.6	6.4km SW
W0185	Rilta Environmental Limited	IEL - 11.2 (d)	6.4km SW
P0205	Manders Coatings & Inks Ireland Limited	IPPC	6.5km NE
P0305	B.G. Flexible Packaging Limited.	IEL	6.7km E

Licence No.	Licence Name	Licence Type (First Schedule of EPA Act, 1992, as amended)	Approximate Distance from Development
P0150	Brittas Plastics Ltd.	IEL	6.7km SW
P0305	B.G. Flexible Packaging Limited.	IEL	6.8km E
P0301	Diageo Ireland (St. James Gate)	IEL - 7.8 (a) (ii)	7.1km E
P0484	Toruro Enterprises Limited	IPPC – 8.3	7.5km NE
P0326	Protim Abrasives Ltd.	Surrendered	7.6km NE
P0496	Colorman	IPPC	7.9km NE
P0195	HP Production Company Limited	Surrendered	8.5km NW
P0117	Ipsen Manufacturing Limited	IEL – 5.16	8.6km N
P0434	Hitech Plating Limited	Surrendered	8.7km N
W0261	Starrus Eco Holdings Limited (Cappagh)	IEL - 11.4 (b)(ii)	8.7km N
P1030	Alexion Pharma International Operations Unlimited Company	IEL – 5.16	8.8km N
P0081	Lagan Materials Limited	IPC - 5.9	8.9km N
P0054	Mater Misericordiae University Hospital	IEL - 11.2 (b)	8.9km NE
P1060	Mallinckrodt Pharmaceuticals Ireland Limited	IEL – 5.16	9km N
P0522	Barclay Chemicals Manufacturing Limited	IEL – 5.15	9km N
P0886	Rottapharm Limited	IEL – 5.16	9.1km N
P0212	Lithographic Web Press Limited (Bray)	IPPC	9.2km NE
P0537	Rentsch Dublin Limited	IPPC	9.2km NE
P0125	Clarochem Ireland Limited	IEL – 5.16	9.2km NW
P0119	Amcor Flexibles	Surrendered	9.3km NE
P0111	Independent Newspapers Ltd.	IEL	9.3km E
W0183	Starrus Eco Holdings Limited (Millenium Business Park)	IEL - 11.4 (b)(ii)	9.3km NE
P0007	Astellas Ireland Company Limited	IEL – 5.16	9.3km NW
P0050	Guerbet Ireland Unlimited Company	IEL – 5.16	9.4km NW
P0207	Intel Ireland Limited	IEL - 12.2.1	9.4km NW
P0167	Kepak Clonee	IEL - 7.4.1	9.4km NW
P0552	Swords Laboratories Trading As Bristol Myers Squibb Cruiserat	IEL – 5.16	9.5km N
P0229	General Paints Limited	IPC - 12.2.2	9.9km W

The majority of the above facilities are more than 1km away. Only three are within 1km; Metal Processors Ltd. is involved in the manufacture of rolled lead sheet. Greyhound Recycling & Recovery is involved in the processing and storage of putrescible waste, dry recyclables, recovery of construction and demolition waste, storage and bulking of waste electrical and electronic equipment and the processing of used cooking oil to produce biodiesel. Crag Digital Ltd. is a computer data centre. Due to the different operational activities at these facilities and the smaller scale of the site it is considered there would be no cumulative air or noise impacts which would pose a significant risk to designated sites or species.

Within the hydrological catchment several fuel garages, vehicle repair/maintenance and haulage companies would be present, which would be engaged in similar activities, and handling similar materials. Continued implementation of the Water Framework Directive would result in achieving, or maintaining, improvements to water quality in the Liffey and Dublin Bay Catchment. Developments such as this proposed development could act in combination with existing environmental pressures on the Liffey and Dublin Bay Catchment, including: agriculture, anthropogenic, domestic and urban waste water, urban run-off, industry (including extractive) and forestry. However, as noted in Section 6.3, it is not considered that the development would pose a significant risk upon any SAC/SPA site due to a deleterious effect on water quality during the operational phase.

As discussed in Sections 6.1 – 6.3 above, it is considered that there would be no significant risk to any European site owing to the development. As there are no anticipated significant risks from the development and proposed works, and given the nature of activities and distances of other facilities in the area, it is considered that there would be no cumulative water, noise or air impacts which would pose a significant risk to designated sites or species.

7.0 SCREENING STATEMENT AND CONCLUSIONS

It is the conclusion of this screening study that there would be no potential for significant effects on European Sites (Natura 2000 network) as a result of the proposed development, by itself or in combination with other developments, and an Appropriate Assessment is not warranted. Screening establishes that there is no potential for significant effects, and the project is recommended to proceed as proposed.

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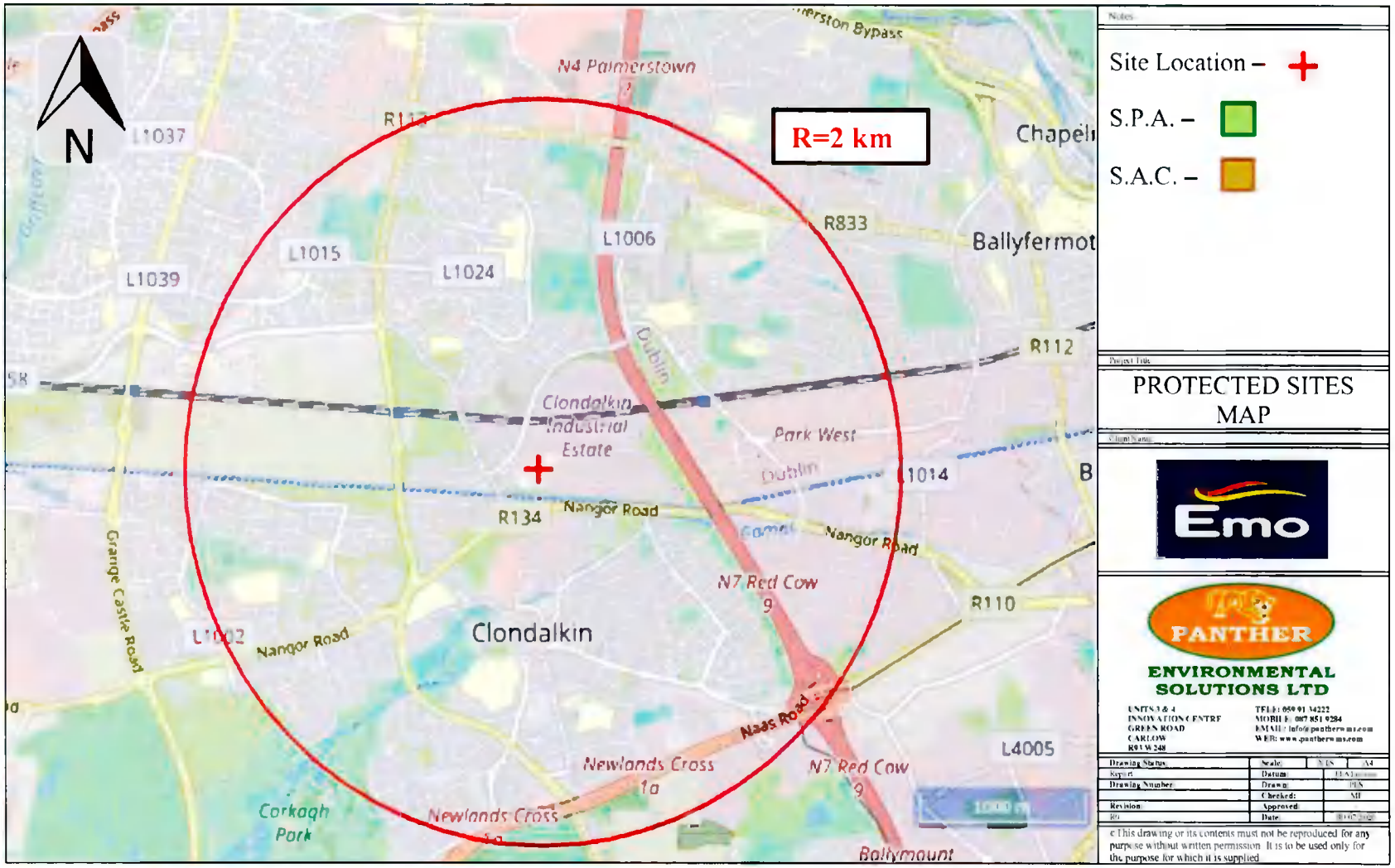
APPENDIX A

- PROTECTED SITES –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Naas Road
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Newlands Cross
Corkagh Park
Ballymount
Site Location –
S.P.A. –
S.A.C. –
PROTECTED SITES MAP
Emo
PANTHER
ENVIRONMENTAL SOLUTIONS LTD
UNITS 3 & 4
INNOVATION CENTRE
GREEN ROAD
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R93 W248
TEL: 059 91 34222
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Drawing Status:
Report:
Drawing Number:
Revision:
Scale: N/S
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Date:
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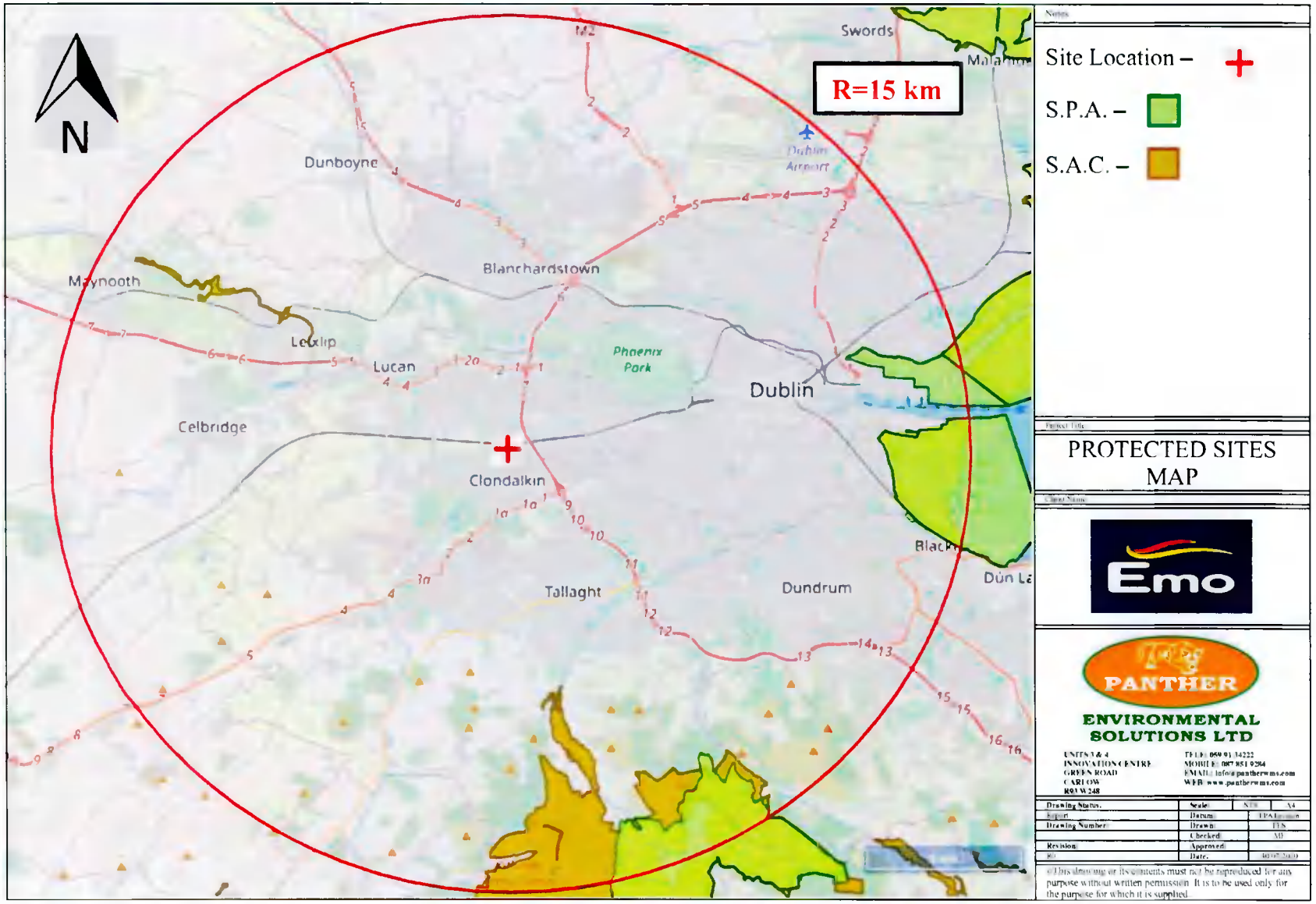
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Dublin Airport
Blanchardstown
Maynooth
Leixlip
Lucan
Phoenix Park
Dublin
Celbridge
Clondalkin
Tallaght
Dundrum
Site Location –
S.P.A. –
S.A.C. –
PROTECTED SITES MAP
Emo
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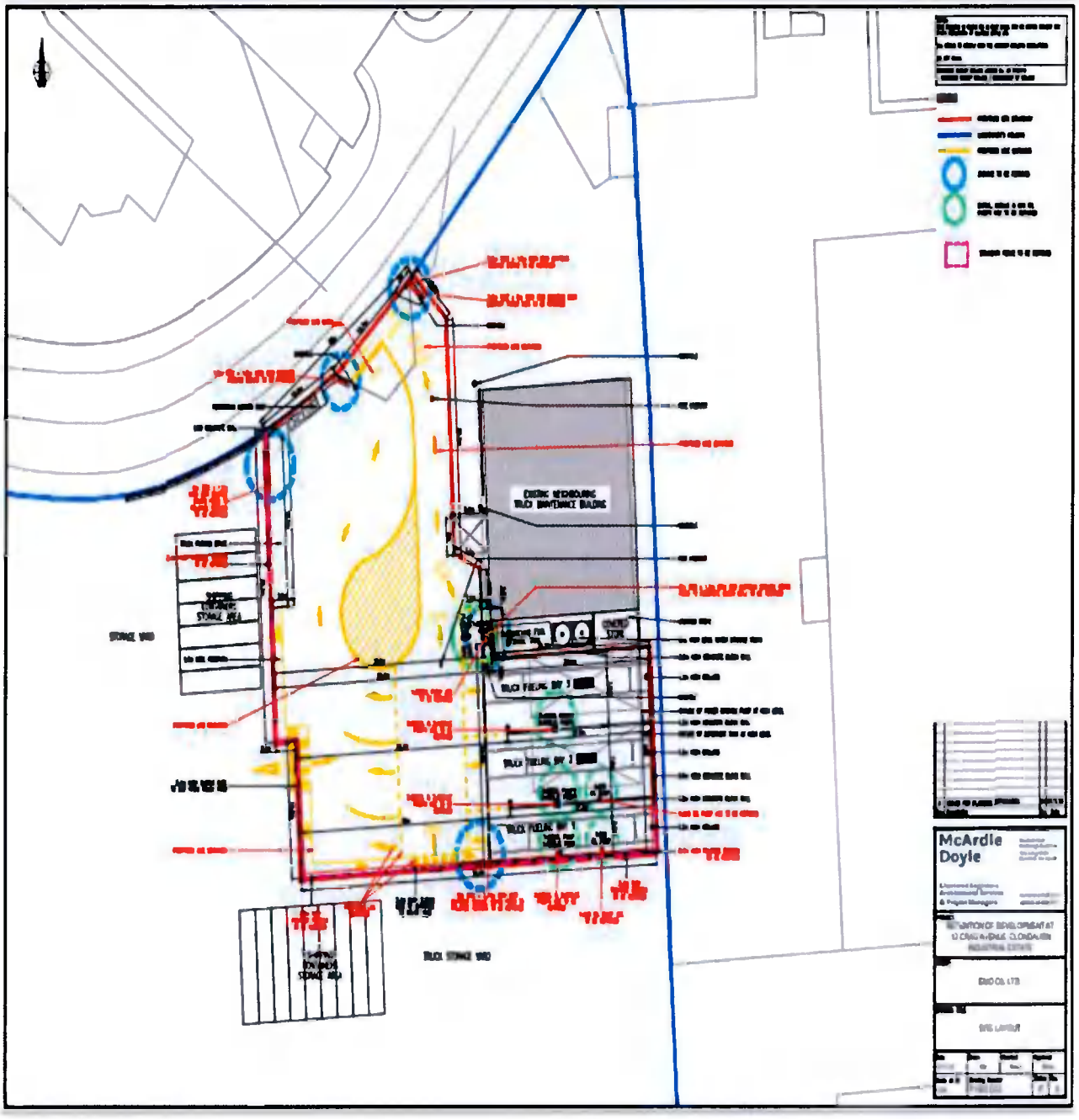
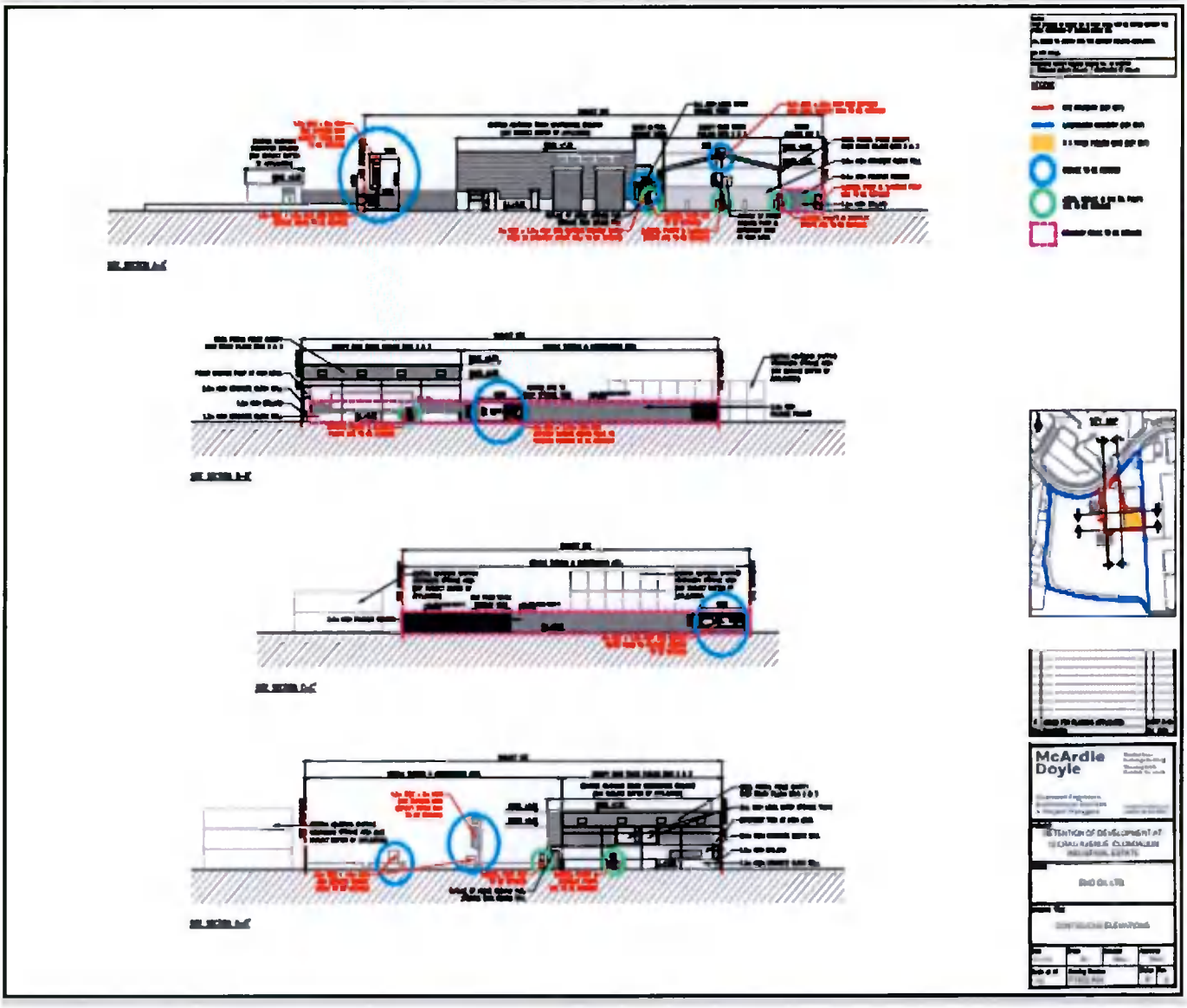
APPENDIX B

- SITE LAYOUT -


McArdle
Doyle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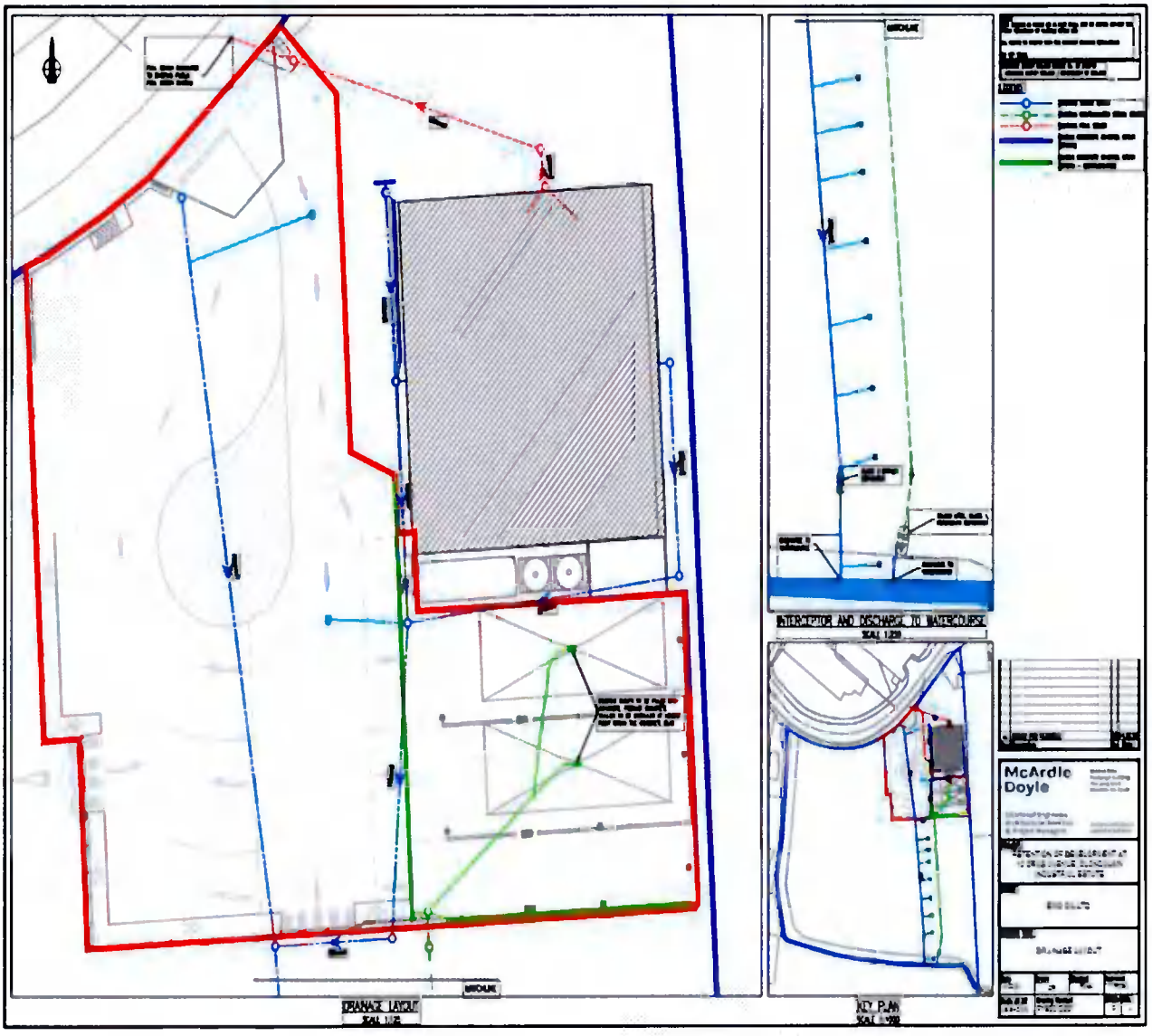
INTERCEPTOR AND DISCHARGE TO WATERCOURSE
McArdle Doyle

APPENDIX C

- PHOTO LOG -

Plate 1: Watercourse outside boundary flowing from Clondalkin Industrial Park

Plate 2: - Earth bank BL2 and WS1 scrub habitat.

Plate 3: Buildings and artificial surfaces BL3 habitat

Plate 4: Buildings and artificial surfaces BL3 habitat

Notes:

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CLONDALKIN INDUSTRIAL
ESTATE,
DUBLIN 22**

**APPENDIX C
PHOTO LOG**

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UNITS 3 & 4 INNOVATION CENTRE GREEN ROAD CARLOW
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MOBILE: 087 851 9284
EMAIL: info@pantherenv.com
WEB: www.pantherenv.com

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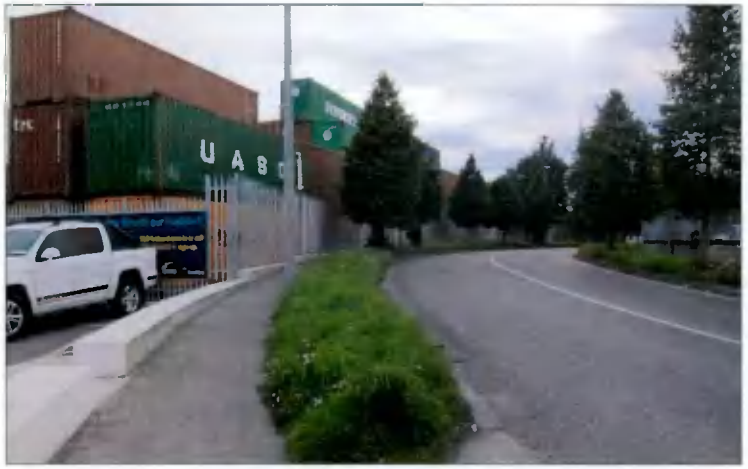

Plate 5: Site entrance buildings and artificial surfaces BL3, with WL2 habitat and areas of GA2 habitat.

Plate 6: Adjacent site south boundary along the watercourse

Notes:

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DUBLIN 22**

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file location		scale: N/A	A4
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