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Appropriate Assessment Screening Report and Natura Impact Statement - Information for a Stage 1 (AA Screening) and Stage 2 (Natura Impact Statement) AA for a Strategic Housing Development (SHD) at Hacketstown, Skerries, Co. Dublin.

7th April 2022

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On behalf of: Land Development Agency

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Project	Appropriate Assessment Screening Report and Natura Impact Statement - Information for a Stage 1 (AA Screening) and Stage 2 (Natura Impact Statement) AA for a Strategic Housing Development at Hacketstown, Skerries, Co. Dublin.		
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Introduction

This Appropriate Assessment Screening Report (AASR) and Natura Impact Statement has been prepared by **Altemar Ltd.** at the request of the Land Development Agency (LDA) to enable the Board, as competent authority to carry out a Stage One Screening for Appropriate Assessment and a Stage Two Appropriate Assessment in respect of a proposed Strategic Housing Development (SHD) at Hacketstown, Skerries, Co. Dublin. The proposed development entails a Strategic Housing Development comprising 345 no. residential units, childcare facility, vehicular access, pedestrian and cycle infrastructure, and all associated site development and infrastructural works, on a site of 6.7ha. An Appropriate Assessment is required pursuant to Article 6(3) of Directive 92/43/EEC ("the Habitats Directive"). Screening to determine whether or not an Appropriate Assessment is required is required under Part XAB of the Planning and Development Act 2000, as amended ("the 2000 Act"). Where it cannot be excluded that a project, either alone or in combination with other plans or projects, would have a significant effect on a European Site (without the application of mitigation measures) it shall be subject to an Appropriate Assessment of its implications for the site in view of the site's conservation objectives.

An Appropriate Assessment is an assessment by the competent authority of the potential likely significant effects of a proposed project, on its own, or in combination with other plans or projects, on one or more European sites to determine whether the proposed project or plan or plan, on its own, or in combination with other plans or projects, would adversely affect the integrity of a European site, in light of its conservation objectives and best scientific knowledge.

Part XAB of the 2000 Act provides that European sites are Special Areas of Conservation (SAC), candidate Special Areas of Conservation (including candidate sites of Community importance and sites of Community importance) (cSAC), Special Protection Areas (SPA) and candidate Special Protection Areas (cSPA).

The AA (screening stage) examines the likely significant effects of a plan or project, either on its own, or in combination with other plans and projects, upon a Natura 2000 site and considers whether, on the basis of objective scientific evidence, it can be concluded that there are not likely to be significant effects on any European site, in view of best scientific knowledge and the conservation objectives of the relevant European sites.

This Natura Impact Statement examines whether the plan or project, either alone, or in combination with other plans and projects, in the view of best scientific knowledge and in view of the sites' conservation objectives, will adversely affect the integrity of the European sites.

Altemar Ltd.

Since its inception in 2001, Altemar has been delivering ecological and environmental services to a broad range of clients. Operational areas include: residential; infrastructural; renewable; oil & gas; private industry; Local Authorities; EC projects; and, State/semi-State Departments. Bryan Deegan, the managing director of Altemar, is an Environmental Scientist and Marine Biologist with 27 years' experience working in Irish terrestrial and aquatic environments, providing services to the State, Semi-State and industry. He is currently contracted to Inland Fisheries Ireland as the sole "External Expert" to environmentally assess internal and external projects. He is also chair of an internal IFI working group on environmental assessment. Bryan Deegan (MCIEEM) holds a MSc in Environmental Science, BSc (Hons.) in Applied Marine Biology, NCEA National Diploma in Applied Aquatic Science and a NCEA National Certificate in Science (Aquaculture). Bryan Deegan carried out all elements involved in the preparation of this Appropriate Assessment Screening Report and Natura Impact Statement.

Background to the Appropriate Assessment

The Habitats Directive (92/43/EEC), together with the Birds Directive (2009/1477/EC), forms the cornerstone of European nature conservation policy. The Directive protects over 1000 animals and plant species and over 200 *"habitat types"* which are of European importance. In the Directive, Articles 3 to 9 provide the legislative means to protect habitats and species of European Community interest through the establishment and conservation of an EU-wide network of conservation sites (European sites).

These are Special Areas of Conservation (SACs) designated under the Habitats Directive and Special Protection Areas (SPAs) designated under the Birds Directive. Article 6(3) and 6(4) of the Habitats Directive set out the decision-making tests for plans and projects likely to have a significant effect on European sites (Annex 1.1). Article 6(3) establishes the requirement for Appropriate Assessment:

"Any plan or project not directly connected with or necessary to the management of the [EUROPEAN] site but likely to have a significant effect thereon, either individually or in combination with other plans and projects, shall be subjected to appropriate assessment of its implications for the site in view of the site's conservation objectives. In light of the conclusions of the assessment of the implication for the site and subject to the provisions of paragraph 4, the component 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."

Furthermore, as outlined in the EC guidance document on Article 6(4) (January 2007)[1]:

"Appropriate assessments of the implications of the plan or project for the site concerned must precede its approval and take into account the cumulative effects which result from the combination of that plan or project with other plans or projects in view of the site's conservation objectives. This implies that all aspects of the plan or project which can, either individually or in combination with other plans or projects, affect those objectives must be identified in the light of the best scientific knowledge in the field.

Assessment procedures of plans or projects likely to affect EUROPEAN sites should guarantee full consideration of all elements contributing to the site integrity and to the overall coherence of the network, both in the definition of the baseline conditions and in the stages leading to identification of potential impacts, mitigation measures and residual impacts. These determine what has to be compensated, both in quality and quantity. Regardless of whether the provisions of Article 6(3) are delivered following existing environmental impact assessment procedures or other specific methods, it must be ensured that:

- *Article 6(3) assessment results allow full traceability of the decisions eventually made, including the selection of alternatives and any imperative reasons of overriding public interest.*
- *The assessment should include all elements contributing to the site's integrity and to the overall coherence of the network as defined in the site's conservation objectives and Standard Data Form, and be based on best available scientific knowledge in the field. The information required should be updated and could include the following issues:*
    - *Structure and function, and the respective role of the site's ecological assets;*
    - *Area, representativity and conservation status of the priority and nonpriority habitats in the site;*
    - *Population size, degree of isolation, ecotype, genetic pool, age class structure, and conservation status of species under Annex II of the Habitats Directive or Annex I of the Birds Directive present in the site;*

[1] European Commission. (2007).Guidance document on Article 6(4) of the 'Habitats Directive' 92/43/EEC – Clarification of the concepts of: alternative solutions, imperative reasons of overriding public interest, compensatory measures, overall coherence, opinion of the commission.

- *Role of the site within the biographical region and in the coherence of the European network; and,*
- *Any other ecological assets and functions identified in the site.*

- *It should include a comprehensive identification of all the potential impacts of the plan or project likely to be significant on the site, taking into account cumulative impacts and other impacts likely to arise as a result of the combined action of the plan or project under assessment and other plans or projects.*
- *The assessment under Article 6(3) applies the best available techniques and methods, to estimate the extent of the effects of the plan or project on the biological integrity of the site(s) likely to be damaged.*
- *The assessment provides for the incorporation of the most effective mitigation measures into the plan or project concerned, in order to avoid, reduce or even cancel the negative impacts on the site.*
- *The characterisation of the biological integrity and the impact assessment should be based on the best possible indicators specific to the European assets which must also be useful to monitor the plan or project implementation."*

At a national level, section 177R of the 2000 Act defines European Sites as including candidate Special Areas of Conservation (including candidate sites of Community importance and sites of Community importance) and candidate Special Protection Areas. Accordingly, SACs, SPAs and candidate SACs (including candidate sites of Community importance and sites of Community importance) and SPAs are considered in this Appropriate Assessment Screening Report and Natura Impact Statement.

Methodology

This Appropriate Assessment Screening Report and NIS were prepared in accordance with Article 6(3) and 6(4) of the Habitats Directive, Part XAB of the Planning and Development Act 2000, as amended, in addition to the December 2009 publication from the Department of Environment, Heritage and Local Government; 'Appropriate Assessment of Plans and Projects in Ireland: Guidance for Planning Authorities', and Assessment of plans and projects in relation to Natura 2000 sites – Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC (EC, 2021).

In order to comply with the above Guidelines and legislation, this Appropriate Assessment Screening Report and Natura Impact Statement are structured as follows:

- Appropriate Assessment Screening Report Description of the proposed project;
- Identification of European sites potentially affected;
- Identification and description of individual and in combination effects likely to result from the proposed project;
- Assessment of the likely significance of the effects identified above. Exclusion of sites where it can be objectively concluded that there will be no likely significant effects (without the application of mitigation measures); and,
- Conclusions.

1) Natura Impact Statement

• Description of the European sites that were not excluded in the AASR

• Identification and description of potential effects on the conservation objectives of these sites likely to occur from the project;
• Identification and description of potential in combination effects from the project in combination with other plans and projects;
• Mitigation Measures that will be implemented to avoid, reduce or remedy any potential adverse effects;
• Assessment as to whether, following the implementation of the proposed mitigation measures, it can be concluded, beyond all reasonable scientific doubt, that there will be no adverse effects on the integrity of the relevant European Site in light of its conservation objectives; and,
• Conclusions.

Stage 1 Screening Stage

Management of the Site

The project is not directly connected with, or necessary to the management of European sites.

Site context

The subject site is located south of Ballygossan Park, a new residential estate on the edge of the existing settlement area, west of Golf Links Road and east of the Dublin to Belfast railway line in Skerries, Co. Dublin. The subject site is located south of Skerries town centre area and south of Skerries train station. The area in the immediate vicinity of the site is characterised by one off housing on Golf Links Road with a rural nature to the south and east of the sit. A more suburban character is apparent to the new residential estate to the north of the site in Ballygossan Park, with 2 storey self-contained housing forming the dominant character to the estate. The site has two sections of frontage onto the Golf Links Road, which currently lacks pedestrian footpaths or cycleway infrastructure. A pedestrian link to the train station exists to the north of the site. To the west the site bounds railway lines. The site is currently formed of agricultural fields.

Description of the Proposed Project

Land Development Agency, intend to apply to an Bord Pleanála for permission for a strategic housing development at this site located at Hacketstown in the townland of Milverton, Townparks and Hacketstown, Skerries, Co. Dublin. The subject lands are accessed via Golf Links Road to the south and Ballygossan Park Phase 1 to the north. The site is bound by the Dublin-Belfast trainline to the west, the Golf Links Road to the east and south, and by individual houses to the east and south. The application site is c. 6.7 hectares.

The development entails 345 no. residential units comprising of 84 no. 1-bed units, 104 no. 2-bed units (68 no. 2-bed apartments and 36 no. 2-bed duplexes), 157 no. 3-bed units (118 no. 3-bed duplexes and 39 no. 3 - bed houses) ranging in height from 2 no. – 4 no. storeys on a site of 6.7 ha. located at Hacketstown in the townlands of Milverton, Townparks and Hacketstown, Skerries, Co. Dublin. The subject lands are accessed via Golf Links Road to the south and Ballygossan Park Phase 1 to the north.

The proposed development is set out in 8 blocks which comprise the flowing:

- Block A1 comprises 39 No. units at 4 storeys in height (Comprising a mix of 26 No. apartments & 13 No. Duplexes)
- Block A2 comprises 33 No. units at 4 storeys in height (Comprising a mix of 22 No. apartments & 11 No. Duplexes)
- Block B1 comprises 16 No. units at 3 storeys in height (Comprising all 3 bed Duplexes)
- Block B2 comprises 16 No. units at 3 storeys in height (Comprising all 3 bed Duplexes)
- Block C comprises 42 No. units at 2-3 storeys in height (Comprising 15 No. apartments & 27 No. Duplexes)
- Block D comprises 32 No. units at 2-3 storeys in height (Comprising 12 No. apartments and 20 No. houses)

- Block E comprises 62 No. units at 2-3 storeys in height (Comprising 38 No. apartments & 24 No. Duplexes)
- Block F comprises 66 No. units at 2-3 storeys in height (Comprising 39 No. apartments & 27 No. Duplexes)
- Block G comprises 25 No units at 2-3 storeys in height. (Comprising 20 No. Duplexes and 5 No. houses)
- Block H comprises 14 No units at 2-3 storeys in height. (Comprising 14 No. houses)
- Public Open Space of c.16,670 sqm (25% of net developable area) is proposed including the parkland and main public square, in addition to the linear park of c.2,427 sqm;
- c.2,272 sqm communal open space is proposed to serve the apartments;
- 414 car parking spaces in total are proposed including 40 visitor spaces, 3 for creche set down and 2 for creche staff parking within undercroft and at surface level.
- 746 No. bicycle parking spaces comprising including 128 No. visitor spaces and 10 No. to serve the creche;
- Childcare and community facility of c.377 sqm. located in Block C;
- Upgrades to the Golf Links Road including new pedestrian and cycle infrastructure with frontage on Golf Links Road;
- Vehicular access off the Golf Links Road is to be provided to the south east of the subject site;
- In addition the proposal will provide a new internal link road which will connect to the adjacent lands to the north, for which a separate planning application has been made to Fingal County Council under Reg. Ref. F21A/0287 (ABP Reg. Ref. 312189-21);

The proposed apartments include the provision of private open space in the form of balconies and winter gardens to all elevations of the proposed buildings. The development also includes vehicular, pedestrian, and cycle accesses, bicycle stores, lighting, landscaping, amenity spaces, drop off areas, boundary treatments, refuse facilities, services, utilities, substation, internal roads, footpaths and shared surfaces and all associated ancillary and site development works.

The potential ZOI of the project was deemed to be the area within a radius of 2km from the proposed Project. Where there was a potential for the ZOI to be influenced by natural biodiversity corridors e.g. rivers or woodland these were also take into account and the assessment was extended. There is potential for downstream impacts on the existing drainage ditch and watercourse and the Skerries Islands SPA in the absence of mitigation measures.

Landscape

Bernard Seymour Landscape Architects composed a Landscape Report in relation to the proposed project. The report states the following:

'*The railway bounds the site to the west and forms a continuous wildlife corridor with its heavily vegetated banks. We are proposing to widen the corridor further and permit both walking and cycling along stretches of it. Importantly to the north it continues through the Noonan Construction Scheme and beyond through Hillside Gardens to Millers Lane, offering a tranquil route towards Skerries railway station, albeit the last portion on public road.*

This scheme is actively enhancing and retaining hedgerows both for their shelter and food source values, for birds and invertebrates. Where possible we intend to thicken out these edges with berrying and native planting along a pedestrian pathway that will run alongside, adding additional nesting sites through the woody mixes, with new bat boxes and taking care of the lighting and the need to minimize its spill beyond where strictly needed. We will use species like holly, dog rose and honeysuckle in these mixes. The continuous corridor along the railway will also connect to an array of connected green spaces throughout the site forming a linked habitat network.

The adjoining developer to the north has agreed a joint approach with the LDA, whereby a joint approach to landscape and attenuation infrastructure is a considerable benefit over tackling each site individually. That means more generous public open space, with scope for gently sloped meadows crisscrossed by mown paths and flanked with mature trees. The attenuation areas are graded beyond where they are strictly required for the engineering calculations of capacity but offer contours that are pleasing and expansive rather than steeply dipping. The positioning of key landscape elements such as pathways, feature areas, playgrounds and Muga's are divided between the two based on topography and a site constraint and so cannot be artificially located in one or the other. Landscape, by its nature does not stop and start at a planning boundary so the consideration of "wholeness" here is stressed.

We have already adopted the approach of co-ordinated water management through a series of swales, planted on the sides and all discharging to a re-graded depression that runs like a vein through between this site and the neighbours.'

Furthermore, the Landscape Report states the following:

'*The landscape design aims to utilise the existing contours in order to cater for a natural water run-off that supply the main water attenuation areas and enhance the vibe of the landscape by their presence.*

These areas can be attractively planted and presented as areas that will attract insects. Gradual and attractive slopes designed to provide a usuable space can be used for both habitats and as informal amenity. Wetland and meadow typologies surrounding the mown grass zones will enhance biodiversity and allows closer interaction between humans and the natural world.

In formulating a thorough approach to Biodiversity, one has to look at what site attributes may be kept intact, already with their ecological associations and what might be wrested from the development of the housing scheme and the construction disturbance that might actually enhance certain habitats and provide niche area of particular habitat type.

The current coordinated approach with the adjacent Noonan Construction site encourages clear landscape connections and mutual visual links as it ensures that a functioning and offering rich in amenity can be maximised to benefit both sides.'

The Landscape masterplan for the proposed development is seen in Figure 4.

Figure 1. Site outline and location

Figure 2. Proposed site outline

Figure 3. Site layout plan

Figure 4. Landscape masterplan

Drainage

An Engineering Services Report was composed by DBFL Consulting Engineers. The report outlines the existing and proposed drainage network for the proposed development.

Foul Water Drainage

In relation to the existing foul sewer network, the report states that: '*There is an existing 225mm diameter foul line located within the recently constructed Ballygossan Park development, to the north of the subject site. This existing foul line was constructed as part of the Ballygossan Park development to service the lands comprising the Hackettstown Local Area Plan (LAP). The existing foul line connects to a 375mm dia foul sewer located approximately 265m to the east of the site in the Downside Park neighbourhood, before discharging to a 450mm diameter foul sewer in Holmpatrick. These sewers drain southwards along Holmpatrick/Rush Road, increasing to a 600mm diameter before discharging to the municipal pumping station. The foul sewage is then pumped to the Barnageeragh Wastewater Treatment Works.*

O'Connor Sutton Cronin Multidisciplinary Consulting Engineers (OCSC) was previously involved with the planning application (ref. F11A/0309) for the adjacent Ballygossan Park development. In pre-planning consultation, Fingal County Council requested that OCSC conduct an assessment of the receiving sewer to Holmpatrick. OCSC assessed the foul contribution from the catchment in accordance with the Environmental Protection Agency's Wastewater Treatment Manuals and with the recommendations of the Greater Dublin Strategic Drainage Study Regional Drainage Policy Volume 2 – New Development (GDSDS-RDP Volume 2).

The results of the assessment concluded that the receiving sewer has sufficient capacity for the existing catchment and for the proposed Hackettstown Lands development.

In relation to the proposed foul sewer drainage the Engineering Services Report states that: '

A pre-application has been made to Irish water to confirm whether there is adequate capacity in the public network to accommodate the proposed development (Ref no. CDS 20001995). Irish Water has confirmed that the proposed wastewater connection is feasible without upgrade. The number of residential units proposed within the development has since been reduced, from the 380 units applied for, to 344.

Irish water has noted that the existing foul sewer infrastructure to which the proposed foul infrastructure is proposed to connect to has not been taken in charge by Irish Water (Third Party Infrastructure). At connection application stage and prior to the commencement of self-lay works the applicant will ensure and demonstrate;

• that the wastewater infrastructure within the Third Party Infrastructure are identified and transferred to Irish Water,

• that the arterial infrastructure is in compliance with requirements of Irish water Code of Practice and Standard Details and in adequate condition and capacity to cater for additional load from the Development.

The applicant can confirm that the Third Party Infrastructure, as noted by Irish Water, are in the process of being transferred to Irish Water. '

Surface Water

In relation to the existing surface water drainage network the Engineering Services Report states that: '*The Hackettstown Lands (undeveloped portions) shed surface water run off to an existing small watercourse on the northern boundary of the subject lands. The watercourse comprises an open agricultural ditch that varies in depth to a maximum of approximately 1.8m.*

The watercourse drains eastwards to an existing stream that drains northwards to the Downside Park neighbourhood. The stream is in culvert (1050mm diameter) through Downside and the adjacent public open space. From Rush Road (R128), the stream passes through a 1500mm diameter culvert before discharging to the Irish Sea approximately 700m to the east of the subject lands.

The northern boundary of the subject lands forms the northern catchment boundary of the minor watercourse. The railway embankment fence line forms the western catchment boundary. A topographical survey identified an existing culvert passing underneath the railway. The survey confirmed the railway culvert as being flat with a 2m drop westward to the Brook Stream. The function of this culvert, as confirmed by the topographical survey, is to drain the railway embankment only. This survey confirms that there is no upstream catchment to the minor watercourse.

In relation to the proposed surface water drainage, the report states that: '*In order to facilitate the surface water run off generated by the future development of the Hackettstown Lands (LAP), as well suitably intercept, treat and attenuate surface water in accordance with the relevant guidelines and legislation, partial provision of surface water networks and connections to facilitate this development, an Advanced Infrastructure Application (AIA) was recently submitted under planning reference number F21A/0287.*

Surface water management for the proposed development is designed to comply with the 'Greater Dublin Strategic Drainage Study (GDSDS) Regional Drainage Policies Technical Document – Volume 2, New Developments, 2005' and the 'Greater Dublin Regional Code of Practice for Drainage Works, V6.0 2005'. CIRIA Design Manuals C753, C697 and C609 have also been used to design the surface water drainage system within the site.

The GDSDS guidelines require the following 4 main criteria to be provided by the development's surface water design;

- *Criterion 1: River Water Quality Protection - satisfied by providing interception storage and treatment of run-off within the SuDS features e.g. permeable paving, tree pits, green roofs, swales and detention basins.*
- *Criterion 2: River Regime Protection – satisfied by attenuating run-off with flow control device prior to discharge to the outfall.*
- *Criterion 3: Level of Service (flooding) for the site – satisfied by the site being outside the 1000 year coastal and fluvial flood levels. Pluvial flood risk addressed by development designed to accommodate a 100-year storm as per GDSDS. Planned flood routing for storms greater than 100-year level considered in design and development run-off contained within site.*
- *Criterion 4: River flood protection – attenuation provided within the SuDS features e.g. permeable paving construction, swales, tree pits and detention basin.'*

Sustainable Drainage Systems (SuDS)

In relation to the Sustainable Drainage Systems the Engineering Services Report states the following: '*The recently approved AIA (under planning reference F21A/0287) included for the provision of the complete construction of the Regional Drainage Facility (RDF), previously discussed and further described and elaborated on below, as well as all surface water infrastructure required to facilitate this proposed development and its connection to the existing surface water infrastructure. As per the OCSC Surface Water Management Report submitted as part of the previous planning application (ref. F11A/0309) for Ballygossan Park Phase 1, the proposal to extend the RDF to follow the minor watercourse, up to the western boundary of the lands, in order to service all of the Hackettstown lands was included as part of the AIA submission.*

This RDF comprising swale, interception storage and detention basin is currently servicing the surface water run off from the existing Ballygossan Park Phase 1 development.

In addition to the RDF, it is proposed to use a sustainable urban drainage systems (SuDS) approach to stormwater management throughout the site, the overall strategy aims to provide an effective system to mitigate the adverse effects of urban stormwater runoff on the environment by reducing runoff rates, volumes and frequency, reducing pollutant concentrations in stormwater, contributing to amenity, aesthetics and biodiversity enhancement and allow for the maximum collection of rainwater for re-use where possible. In addition, SuDS features aim to replicate the natural characteristics of rainfall runoff for any site by providing control of run-off at source and this has been achieved by the current proposals.

SuDS are a requirement of 'The Greater Dublin Strategic Drainage Study' and are recommended under the 2009 guidelines, 'The Planning System and Flood Risk Management'.

There are a number of SuDS features proposed which have been designed in accordance with CIRIA documents C753, C697 and C609 as follows:

- *Filter Strips: Wide, gently sloping areas of grass which treat runoff from adjacent impermeable areas and roofs, at source, running over its surface. Filter strips also have an attenuating effect on runoff and can allow some infiltration to the ground where the subgrade is suitable. These are located adjacent to hard-standing areas and swales.*
- *Swales (wet): Broad, shallow drainage channels covered in grass which can treat, convey and attenuate runoff, at source, and can infiltrate to the ground where the subgrade is suitable. Swales also can promote biodiversity. These are located adjacent to roads and shared surfaces*
- *Filter Drains: Trenches filled with permeable stone material and a perforated collection pipe at the invert with an optional permeable 'sandy' topsoil at surface. These can treat, convey and attenuate runoff, at source, and can infiltrate to the ground where the subgrade is suitable. These systems will allow some form of storage for small rainfall events and can result in water evaporation and adsorption in small quantities, therefore there will be less runoff from these areas in small rainfall events thus mimicking the natural response for this catchment. These will be located in the rear gardens of each unit and will result in an improvement in the quality of surface water draining from roofs of houses and paved areas in rear gardens and will also allow groundwater to recharge to its natural state.*
- *Tree Pits: Trees can be planted within a range of infiltration SuDS components to improve their performance, as root growth and decomposition increase soil infiltration capacity. Alternatively, they can be used as standalone within soil-filled tree pits, tree planters or structural soils, collecting and storing runoff and providing treatment via filtration and phytoremediation. Tree pits and planters will be designed to collect and attenuate runoff by providing additional storage within the underlying structure. The soils around trees can also be used to filter out pollutants from runoff directly. Tree pits are proposed to be included adjacent to car parks in required green space provision to treat and control runoff, while at the same time providing amenity value to car park users and adjacent pedestrian, commercial and residential zones.*
- *Petrol Interceptor: A proprietary oil/water separator which prevents hazardous chemical and petroleum products from entering watercourses and public sewers. This is proposed at the outfall from the site, and has been included as part of the previously submitted AIA (under planning reference F21A/0287).*
- *Permeable Pavers: Porous surfacing (paving block or open graded material) which can treat rainwater, at source, and allow infiltration through to an underlying porous subbase where water can be stored within the voids of the subbase before being slowly released to the drainage collection system through natural flow via the porous medium. Partial infiltration systems are proposed to be used as existing subgrade (ground) is not capable of absorbing all the water through infiltration. This type of permeable paving system includes a permeable geotextile at its base as well as an outlet to the surface water system. These systems will allow some form of storage for small rainfall events and will result in infiltration, water evaporation and adsorption in small quantities, therefor there will be less runoff from these areas in small rainfall event thus mimicking the natural response for this catchment. As well as reducing the amount of runoff from the surface, permeable paving will slow down the rate of runoff from the pavement in extreme rainfall events contributing to attenuation flows. In addition, permeable paving will increase the quality of water which is intercepted by the system through filtration, biodegradation, pollutant adsorption and settlement and retention of solids, also the reduction in peak flows to the outfall will enhance settlement and biodegradation of pollutants. It is proposed to use these systems in private driveways and surface water storage within these systems will be further mobilised by providing a 100mm diameter pipe at outlet to the site drainage system. This pipe outlet will restrict flow to its capacity of 7.1 l/s (Ks=0.15 and gradient at 1 in 100) thereby reducing the runoff rate from the permeable paving even further.'*

The proposed drainage layout system is seen in Figures 5-6.

Flood Risk Assessment

A Site-Specific Flood Risk Assessment was composed by DBFL Consulting Engineers. In conclusion the report states that:

'Following the assessment of the flood risks to the site and the available information it is considered that the proposed site is located within Flood Zone Category C as defined by the Guidelines and as indicated by the ECFRAMS maps and FDP SFRA mapping.'

'This Site Specific Flood Risk Assessment for the proposed residential development was undertaken in accordance with the requirements of the "Planning System and Flood Risk Management Guidelines for Planning Authorities", November 2009. Following the flood risk assessment stages, it was determined that the site is within Flood Zone C as defined by the Guidelines and based on FDP SFRA mapping and the ECFRAMS mapping. Therefore, the development of housing on the subject site is appropriate for the site's flood zone category and a justification test as outlined in the Guidelines is not required. The Guidelines' sequential approach is met with the 'Justify' & 'Mitigate' principles being achieved.

The proposed flood mitigation measure(s) outlined in Section 5.5 will be implemented as part of the proposed development as illustrated in the DBFL suite of civil engineering drawings. It is considered that the flood risk mitigation measures once fully implemented are sufficient to provide a suitable level of protection to the proposed development and will not cause an increased risk of flooding to external properties or to the downstream watercourse.

Regular maintenance of the drainage system will ensure that the network remains effective and in good working order should a large pluvial storm occur. In the event of extreme pluvial flooding then overland flood routes would direct water towards the open space areas and Regional Drainage Facility.

Should extreme pluvial flooding occur in excess of the development's drainage capacity i.e. exceeding 1%AEP, then overland flood routes towards the on-site open spaces and Regional Drainage Facility will protect the development and houses with lowest proposed floor levels.

While the development constitutes 'highly vulnerable' development, it is appropriate for this flood zone (Flood Zone C) and the scheme has been designed to ensure that the risk of flooding of the development is reduced as far as is reasonably practicable (residual risks noted in chapter 6) . The development does not increase the risk of flooding to adjacent areas and roads once mitigation measures are implemented. '

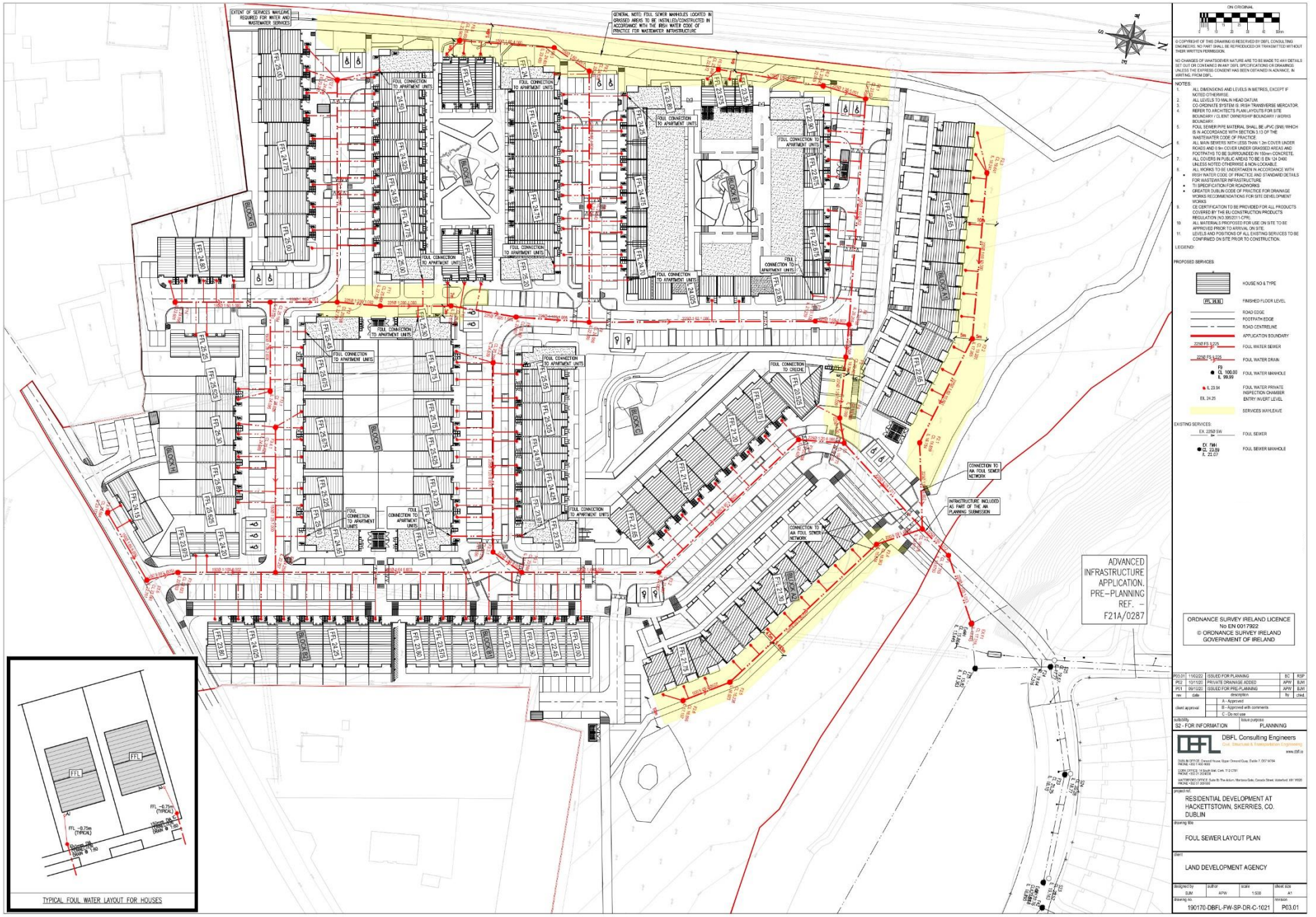

Figure 5. Foul sewer layout plan

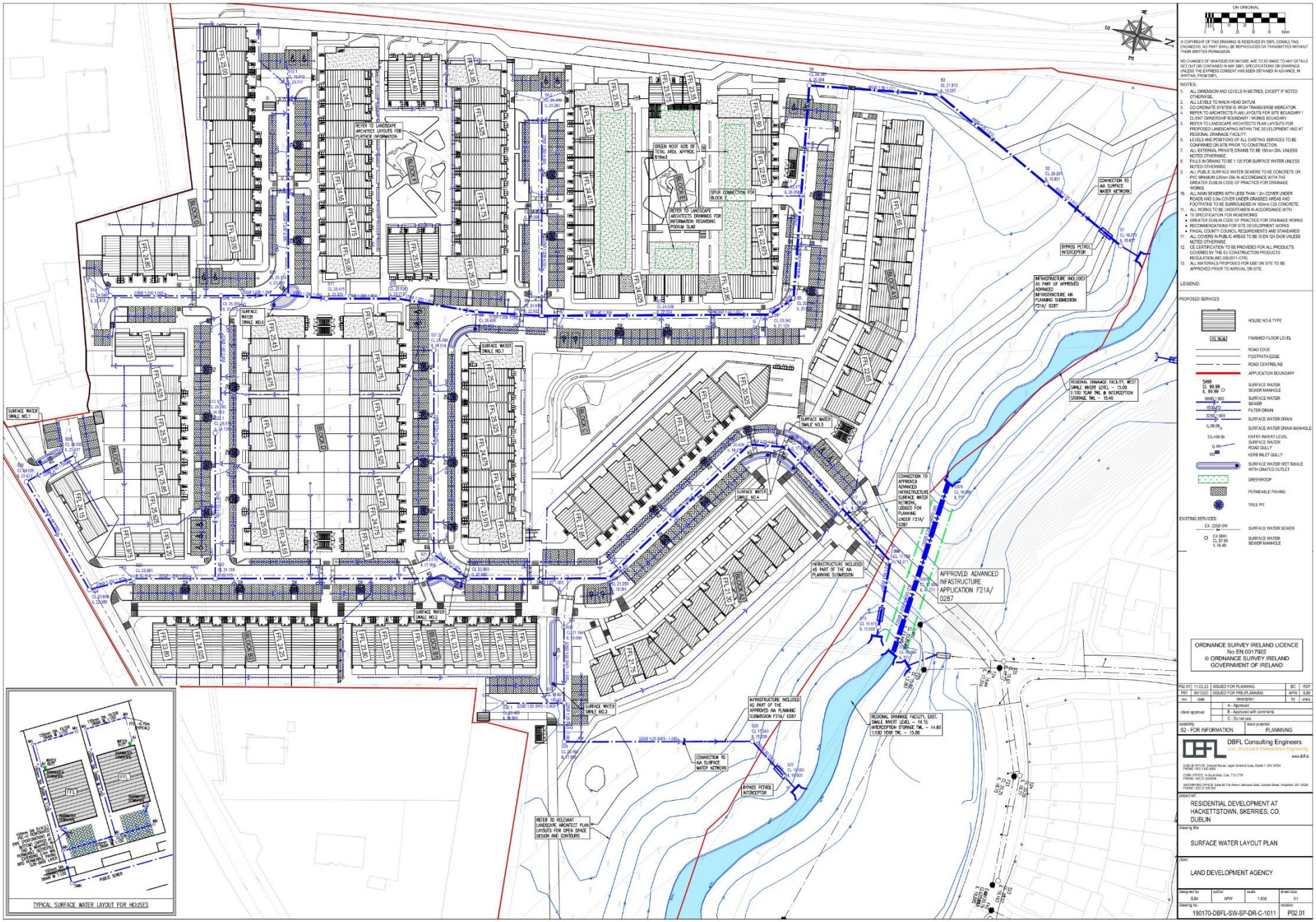

Figure 6. Surface water layout plan

Identification of Relevant European Sites (Natura 2000)

The proposed works are not located within a European site. Following the precautionary principle, screening of all European sites within 15km and those with a direct/indirect pathway beyond 15km is carried out. The European sites within 15 kilometres of the subject site are detailed in Table 1 and Figures 7 and 8. The 15km distance has been used as a guide for assessment but any European sites beyond that which have the potential to be significantly affected have also been assessed. Their features of interest and the potential impact of the works on these features of interest are found in Table 3.

The proposed development site is located in a suburban/rural environment, bounded to the north by recolonising bare ground and a recently constructed residential development (Ballygossan Park), while a rail-line acts as the western boundary. A drainage ditch runs through the site which, according to the Engineering and Flood Risk reports, only provides localised drainage for the subject lands. Furthermore, there is a watershed at the eastern edge of the rail embankment. A culvert extends under the railway embankment and drains the eastern embankment. This flows to the west of the railway from the subject lands and to the Mill Stream (Skerries_010). The remainder of the site drains to a drainage ditch which flows eastwards into the marine environment. At low tide there is a potential pathway to Skerries Islands SPA from this drainage ditch and the outfall of the Mill Stream. Other marine sites have been excluded due to the significant distance to these sites in addition to the mixing and dilution of potential silt or pollution to negligible levels prior to reaching European sites.

The foul water drainage from the site will discharge to the existing foul line which was constructed as part of the Ballygossan Park development to service the lands comprising the former Hackettstown Local Area Plan (LAP). The foul sewage from the site connects to the foul sewer before discharging to the municipal pumping station. The foul sewage is then pumped to the Barnageeragh Wastewater Treatment Works, where it is treated and then discharged to the Irish Sea. The Wastewater Treatment Facility is compliant with Emission Limit Values (ELV) set in the Wastewater Discharge Licence. In 2020 the Organic Capacity (PE) remaining was 27501 for the Barnageeragh Treatment Facility[2].

Due to the significant distance in addition to mixing and dilution within the intervening distance it is considered that there are no European sites with a direct/indirect pathway beyond 15km of the subject site.

Table 1. Proximity to European Sites

Code	European Site	Distance	Direct Hydrological / Biodiversity Connection
Special Areas of Conservation			
IE003000	Rockabill to Dalkey Island SAC	2.8 km	No
IE000208	Rogerstown Estuary SAC	5.4 km	No
IE000204	Lambay Island SAC	9.3 km	No
IE000205	Malahide Estuary SAC	9.7 km	No
Special Protection Area			
IE004122	Skerries Islands SPA	1.0 km	**Yes, potentially at low tide**
IE004014	Rockabill SPA	3.4 km	No
IE004015	Rogerstown Estuary SPA	5.4 km	No
IE004069	Lambay Island SPA	8.9 km	No
IE004025	Malahide Estuary SPA	10.3 km	No
IE004158	River Nanny and Shore SPA	11.3 km	No

Table 2 provides an overview of the initial screening of European sites within 15km of the proposed development that have been screened 'IN'.

[2] Irish Water (2020) Annual Environmental Report- Balbriggan D0023-01

Table 3 provides an overview of the initial screening of European sites within 15km of the subject site. Included within this table are the features of interest for each European site and the Source/Pathway/Receptor links between the works and the respective European site with the potential to result in likely significant effects (without mitigation measures).

A distance of 15km was selected due to the proximity of the proposed project to various waterbodies and/or pathways. European sites and waterbodies within 15km are shown in Figures 10 to 13.

Table 2. Initial screening of European sites within 15km and European sites within 15km with potential of hydrological connection to the proposed development – Screened IN (NIS Required)

European site code	Name	Screened IN/OUT	Details/Reason
Special Protection Areas			
IE0004122	Skerries Islands SPA	**IN**	**Conservation Objective:** To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA. **Qualifying Interests** Cormorant (*Phalacrocorax carbo*) [A017] Shag (*Phalacrocorax aristotelis*) [A018] Light-bellied Brent Goose (*Branta bernicla hrota*) [A046] Purple Sandpiper (*Calidris maritima*) [A148] Turnstone (*Arenaria interpres*) [A169] Herring Gull (*Larus argentatus*) [A184] **Potential Impact** The proposed development site is 1.0 km from the Skerries Islands SPA (Figure 8). Disturbance and impacts caused by the works will be localised to the immediate environs of the development and would not extend to the SPA. However, there is a potential hydrological pathway to this SPA at low tide via surface water networks and the marine environment through the onsite drainage ditch, which enters the intertidal environment. At low water, the intertidal extends out to the Skerries Island SPA (see Figure 10). Therefore, a potential pathway exists between the proposed development and the Skerries Islands SPA via the surface water that crosses the intertidal environment from the ditch at low water. Surface water from the embankment area has the potential to flow westwards under the railway embankment, join the Mill Stream and enter the marine environment within Skerries. As outlined in relation to the onsite drainage ditch above, there is a potential pathway from the proposed development site and Skerries Island SPA at low water. This is also the case for the pathway via the Mill Stream, as the Skerries Island SPA extends into the intertidal proximate to where the Mill Stream enters the marine environment. During mid-high tide there would be sufficient mixing and dilution within the marine environment. Foul water from the proposed development will join to an existing foul sewer system which discharges to the municipal pumping station from where it is pumped to the Barnageeragh Wastewater Treatment Works where it will be treated. There is, therefore also, potential for an indirect pathway from the proposed development site to this SPA via the foul water network. However, given the distance from the outfall and the fact that the water will be treated before being discharged, it is not likely that the foul water drainage will impact on the conservation objectives of this SPA and significant effects can be excluded. Irish Water have confirmed that there is adequate capacity in the existing public network to

European site code	Name	Screened IN/OUT	Details/Reason
Special Protection Areas			
			accommodate the proposed development and that the proposed wastewater connection is possible without a requirement for upgrading. As outlined in Appendix II "*Of the SCI species listed for the SPAs within the ZOI, only brent goose, herring gull and lesser blackbacked gull were observed within 500m of the proposed development. The proposed development is not within an SPA, however given the proximity of a number of SPAs, there may be potential for impacts to result during construction and operational phases of the proposed development on birds which are associated with these SPA. Potential impacts could include:* *Disturbance/displacement during the construction and operational phases of the proposed development to Special Conservation Interest of the SPA including through movement of machinery, personnel, noise, vibration and/or noise associated with domestic dwellings. Water pollution."* *"The maximum likely distance at which disturbance will impact SCIs from an SPA is 300m (Cutts et al., 2013) from the proposed development boundary. Given the separation distance from the SPAs, disturbance impacts within an SPA are not anticipated. However, given the proximity of the proposed development to areas of suitable feeding/roosting habitat (e.g. Skerries golf club), disturbance/displacement impacts during the construction phase on these areas cannot be ruled out. The proposed housing scheme may result in disturbance of SCI's of the adjacent SPA, which utilize the areas surrounding the proposed development for feeding and roosting. However, it is likely that habituation will occur to this new source of disturbance given that the SCIs of the SPA are already accustomed to the disturbance associated with Skerries town and existing surrounding housing developments*." Noise from the site during construction and operation would be localised and would not be expected to extend to designated sites. In a strict application of the precautionary principle, it has been concluded that qualifying interests of the SPA may be in the vicinity of the proposed construction works and noise mitigation measures will be implemented during construction. During operation as outlined in Appendix I "*it is likely that habituation will occur to this new source of disturbance given that the SCIs of the SPA are already accustomed to the disturbance associated with Skerries town and existing surrounding housing developments."* and that the operation of the proposed development would not cause significant effects on the qualifying interests of the SPA. Accordingly, it is necessary to proceed to a NIS. **Significant effects are likely - Natura Impact Statement Required**
IE0004015	Rogerstown Estuary SPA	**IN**	**Conservation Objective:** The maintenance of habitats and species within European sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level. **Qualifying Interests** A043 Greylag Goose (*Anser anser*)

European site code	Name	Screened IN/OUT	Details/Reason
Special Protection Areas			
			A046 Brent Goose (*Branta bernicla hrota*) A048 Shelduck (*Tadorna tadorna*) A056 Shoveler (*Anas clypeata*) A130 Oystercatcher (*Haematopus ostralegus*) A137 Ringed Plover (*Charadrius hiaticula*) A141 Grey Plover (*Pluvialis squatarola*) A143 Knot (*Calidris canutus*) A149 Dunlin (*Calidris alpina alpine*) A156 Black-tailed Godwit (*Limosa limosa*) A162 Redshank (*Tringa tetanus*) A999 Wetlands **Potential Impact** The proposed development site is 5.4 km from the Rogerstown Estuary SPA (Figure 8). Disturbance and impacts caused by the works will be localised to the immediate environs of the development. There is no direct pathway to this SPA. Surface water runoff from the proposed development will drain to the onsite drainage ditch which ultimately drains to the Irish Sea to the east. Furthermore, there is a watershed at the eastern edge of the rail embankment. A culvert extends under the railway embankment and drains the eastern embankment. This flows to the west of the railway from the subject lands and to the Mill Stream (Skerries_010) which also discharges to the marine environment. The foul water from the site will pass through a foul water drainage infrastructure located on-site and outfall to an existing public sewerage network. From here it will discharge to the municipal pumping station from where it is pumped to the Barnageeragh Wastewater Treatment Works, where it will be treated and then discharge to the Irish Sea. Due to the distance via the indirect pathways (e.g. surface and foul water networks) and the eventual discharging into the marine environment, any pollutants or silt will be dispersed, settle or diluted. There is no direct pathway from the proposed development site to this SPA. There is an indirect pathway via the surface water and foul water drainage network. The indirect pathway of surface or foul water will not result in a significant effect on the European site which is located in the marine environment in the Irish Sea. As outlined in Appendix II "*Of the SCI species listed for the SPAs within the ZOI, only brent goose, herring gull and lesser blackbacked gull were observed within 500m of the proposed development. The proposed development is not within an SPA, however given the proximity of a number of SPAs, there may be potential for impacts to result during construction and operational phases of the proposed development on birds which are associated with these SPA. Potential impacts could include:* *Disturbance/displacement during the construction and operational phases of the proposed development to Special Conservation Interest of the SPA including through movement of machinery, personnel, noise, vibration and/or noise associated with domestic dwellings. Water pollution."* *"The maximum likely distance at which disturbance will impact SCIs from an SPA is 300m (Cutts et al., 2013) from the proposed development*

European site code	Name	Screened IN/OUT	Details/Reason
Special Protection Areas			
			boundary. Given the separation distance from the SPAs, disturbance impacts within an SPA are not anticipated. However, given the proximity of the proposed development to areas of suitable feeding/roosting habitat (e.g. Skerries golf club), disturbance/displacement impacts during the construction phase on these areas cannot be ruled out. The proposed housing scheme may result in disturbance of SCI's of the adjacent SPA, which utilize the areas surrounding the proposed development for feeding and roosting. However, it is likely that habituation will occur to this new source of disturbance given that the SCIs of the SPA are already accustomed to the disturbance associated with Skerries town and existing surrounding housing developments." Noise from the site during construction and operation would be localised and would not be expected to extend to designated sites. In a strict application of the precautionary principle, it has been concluded that qualifying interests of the SPA may be in the vicinity of the proposed construction works and noise mitigation measures will be implemented during construction. During operation as outlined in Appendix I "*it is likely that habituation will occur to this new source of disturbance given that the SCIs of the SPA are already accustomed to the disturbance associated with Skerries town and existing surrounding housing developments."* and that the operation of the proposed development would not cause significant effects on the qualifying interests of the SPA. Accordingly, it is necessary to proceed to a NIS. **Significant effects are likely - Natura Impact Statement Required**
IE0004025	Malahide Estuary SPA	**IN**	**Conservation Objectives:** The maintenance of habitats and species within European sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level. **Qualifying Interests** A005 Great Crested Grebe *(Podiceps cristatus)* A046 Brent Goose *(Branta bernicla hrota)* A048 Shelduck *(Tadorna tadorna)* A054 Pintail *(Anas acuta)* A067 Goldeneye *(Bucephala clangula)* A069 Red-breasted Merganser *(Mergus serrator)* A130 Oystercatcher *(Haematopus ostralegus)* A140 Golden Plover *(Pluvialis apricaria)* A141 Grey Plover (*Pluvialis squatarola*) A143 Knot (*Calidris canutus*) A149 Dunlin (*Calidris alpina alpine*) A156 Black-tailed Godwit (*Limosa limosa*) A157 Bar-tailed Godwit (*Limosa lapponica*) A162 Redshank (*Tringa tetanus*) A999 Wetlands **Potential Impact** The proposed development site is 10.3 km from the Malahide Estuary SPA (Figure 8). Disturbance and impacts caused by the works will be

European site code	Name	Screened IN/OUT	Details/Reason
Special Protection Areas			
			localised to the immediate environs of the development. There is no direct pathway to this SPA. Surface water runoff from the proposed development will drain to the onsite drainage ditch which ultimately drains to the Irish Sea to the east. Furthermore, there is a watershed at the eastern edge of the rail embankment. A culvert extends under the railway embankment and drains the eastern embankment. This flows to the west of the railway from the subject lands and to the Mill Stream (Skerries_010) which also discharges to the marine environment. The foul water from the site will pass through a foul water drainage infrastructure located on-site and outfall to an existing public sewerage network. From here it will discharge to the municipal pumping station from where it is pumped to the Barnageeragh Wastewater Treatment Works, where it will be treated and then discharge to the Irish Sea. There is no direct pathway from the proposed development site to this SPA. There is an indirect pathway via the surface water and foul water drainage network. Due to the distance via the indirect pathways (e.g. surface and foul water networks) and the eventual discharging into the marine environment, any pollutants or silt will be dispersed, settle or diluted. The indirect pathway of surface or foul water will not result in a significant effect on the European site which is located in the marine environment in the Irish Sea. As outlined in Appendix II "*Of the SCI species listed for the SPAs within the ZOI, only brent goose, herring gull and lesser blackbacked gull were observed within 500m of the proposed development. The proposed development is not within an SPA, however given the proximity of a number of SPAs, there may be potential for impacts to result during construction and operational phases of the proposed development on birds which are associated with these SPA. Potential impacts could include:* *Disturbance/displacement during the construction and operational phases of the proposed development to Special Conservation Interest of the SPA including through movement of machinery, personnel, noise, vibration and/or noise associated with domestic dwellings. Water pollution."* *"The maximum likely distance at which disturbance will impact SCIs from an SPA is 300m (Cutts et al., 2013) from the proposed development boundary. Given the separation distance from the SPAs, disturbance impacts within an SPA are not anticipated. However, given the proximity of the proposed development to areas of suitable feeding/roosting habitat (e.g. Skerries golf club), disturbance/displacement impacts during the construction phase on these areas cannot be ruled out. The proposed housing scheme may result in disturbance of SCI's of the adjacent SPA, which utilize the areas surrounding the proposed development for feeding and roosting. However, it is likely that habituation will occur to this new source of disturbance given that the SCIs of the SPA are already accustomed to the disturbance associated with Skerries town and existing surrounding housing developments*." Noise from the site during construction and operation would be localised and would not be expected to extend to designated sites. In a strict application of the precautionary principle, it has been concluded that

European site code	Name	Screened IN/OUT	Details/Reason
Special Protection Areas			
			qualifying interests of the SPA may be in the vicinity of the proposed construction works and noise mitigation measures will be implemented during construction. During operation as outlined in Appendix I "*it is likely that habituation will occur to this new source of disturbance given that the SCIs of the SPA are already accustomed to the disturbance associated with Skerries town and existing surrounding housing developments.*" and that the operation of the proposed development would not cause significant effects on the qualifying interests of the SPA. Accordingly, it is necessary to proceed to a NIS. **Significant effects are likely - Natura Impact Statement Required**

Table 3. Initial screening of European sites within 15km and European sites within 15km with potential of hydrological connection to the proposed development – Screened OUT

European Site Code	Name	Screened IN/OUT	Details/Reason
Special Areas of Conservation			
IE0003000	Rockabill to Dalkey Island SAC	**OUT**	**Conservation Objectives:** To maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the SAC has been selected. **Qualifying Interests** 1170 Reefs 1351 Harbour porpoise (*Phocoena phocoena*) **Potential Impact** The development site is located within a suburban/rural area approximately 2.8 km from the Rockabill to Dalkey Island SAC (Figure 7). Surface water runoff from the proposed development will drain to the onsite drainage ditch which ultimately drains to the Irish Sea to the east. Furthermore, there is a watershed at the eastern edge of the rail embankment. A culvert extends under the railway embankment and drains the eastern embankment. This flows to the west of the railway from the subject lands and to the Mill Stream (Skerries_010) which also discharges to the marine environment. There is no direct pathway from the proposed development site to this SAC. There is an indirect pathway via the surface water and foul water drainage network. The foul water from the site will pass through a foul water drainage infrastructure located on-site and outfall to an existing public sewerage network. From here it will discharge to the municipal pumping station from where it is pumped to the Barnageeragh Wastewater Treatment Works, where it will be treated and then discharge to the Irish Sea. Due to the distance via the indirect pathways (e.g. surface and foul water networks) and the eventual discharging into the marine environment, any pollutants or silt will be dispersed, settle or diluted. The indirect

European Site Code	Name	Screened IN/OUT	Details/Reason
			pathway of surface or foul water will not result in a significant effect on the European site which is located in the marine environment in the Irish Sea. No potential impact is foreseen. Construction and operation of the proposed development will not impact on the conservation interests of the site. **No significant effects are likely**
IE0000208	Rogerstown Estuary SAC	**OUT**	**Conservation Objectives:** To maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the SAC has been selected. **Qualifying Interests** 1130 Estuaries* 1140 Mudflats and sandflats not covered by seawater at low tide 1310 Salicornia and other annuals colonising mud and sand 1330 Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) 1410 Mediterranean salt meadows (*Juncetalia maritimi*) 2120 Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes) 2130 Fixed coastal dunes with herbaceous vegetation (grey dunes) **Potential Impact** The development site is located within a suburban/rural area approximately 5.4 km from the Rogerstown Estuary SAC (Figure 7). There is no direct pathway from the proposed development site to this SAC. There is an indirect pathway via the surface water and foul water drainage network. Surface water runoff from the proposed development will drain to the onsite drainage ditch which ultimately drains to the Irish Sea to the east. Furthermore, there is a watershed at the eastern edge of the rail embankment. A culvert extends under the railway embankment and drains the eastern embankment. This flows to the west of the railway from the subject lands and to the Mill Stream (Skerries_010) which also discharges to the marine environment. The foul water from the site will pass through a foul water drainage infrastructure located on-site and outfall to an existing public sewerage network. From here it will discharge to the municipal pumping station from where it is pumped to the Barnageeragh Wastewater Treatment Works, where it will be treated and then discharge to the Irish Sea. Due to the distance via the indirect pathways (e.g. surface and foul water networks) and the eventual discharging into the marine environment, any pollutants or silt will be dispersed, settle or diluted. There is no direct pathway from the proposed development site to this SAC. There is an indirect pathway via the surface water and foul water drainage network. The indirect pathway of surface or foul water will not result in a significant effect on the European site which is located in the marine environment in the Irish Sea. No potential impact is foreseen. construction and

European Site Code	Name	Screened IN/OUT	Details/Reason
			operation of the proposed development will not impact on the conservation interests of the site. **No significant effects are likely**
IE000204	Lambay Island SAC	**OUT**	**Conservation Objectives:** To maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the SAC has been selected. **Qualifying Interests** 1170 Reefs 1230 Vegetated sea cliffs of the Atlantic and Baltic coasts 1364 Grey Seal (*Halichoerus grypus*) 1365 Common Seal (*Phoca vitulina*) **Potential Impact** The development site is located within a suburban/rural area approximately 9.3 km from the Lambay Island SAC (Figure 7). Surface water runoff from the proposed development will drain to the onsite drainage ditch which ultimately drains to the Irish Sea to the east. Furthermore, there is a watershed at the eastern edge of the rail embankment. A culvert extends under the railway embankment and drains the eastern embankment. This flows to the west of the railway from the subject lands and to the Mill Stream (Skerries_010) which also discharges to the marine environment. The foul water from the site will pass through a foul water drainage infrastructure located on-site and outfall to an existing public sewerage network. From here it will discharge to the municipal pumping station from where it is pumped to the Barnageeragh Wastewater Treatment Works, where it will be treated and then discharge to the Irish Sea. There is no direct pathway from the proposed development site to this SAC. There is an indirect pathway via the surface water and foul water drainage network. Due to the distance via the indirect pathways (e.g. surface and foul water networks) and the eventual discharging into the marine environment, any pollutants or silt will be dispersed, settle or diluted. The indirect pathway of surface or foul water will not result in a significant effect on the European site which is located in the marine environment in the Irish Sea. No potential impact is foreseen. construction and operation of the proposed development will not impact on the conservation interests of the site. **No significant effects are likely**
IE0000205	Malahide Estuary SAC	**OUT**	**Conservation Objectives:** To maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the SAC has been selected. **Qualifying Interests and targets** 1140 Mudflats and sandflats not covered by seawater at low tide. * 1310 Salicornia and other annuals colonising mud and sand*

European Site Code	Name	Screened IN/OUT	Details/Reason
			1320 Spartina swards (*Spartinion maritimae*)* As outlined in NPWS (2013) it not be necessary to assess the likely effects of plans or projects against this Annex I habitat at this site. 1330 Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) * 1410 Mediterranean salt meadows (*Juncetalia maritimi*) * 2120 Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes) * 2130 Fixed coastal dunes with herbaceous vegetation (grey dunes).* **Potential Impact** The development site is located within a suburban/rural area approximately 9.7 km from the Malahide Estuary SAC (Figure 7). Surface water runoff from the proposed development will drain to the onsite drainage ditch which ultimately drains to the Irish Sea to the east. Furthermore, there is a watershed at the eastern edge of the rail embankment. A culvert extends under the railway embankment and drains the eastern embankment. This flows to the west of the railway from the subject lands and to the Mill Stream (Skerries_010) which also discharges to the marine environment. The foul water from the site will pass through a foul water drainage infrastructure located on-site and outfall to an existing public sewerage network. From here it will discharge to the municipal pumping station from where it is pumped to the Barnageeragh Wastewater Treatment Works, where it will be treated and then discharge to the Irish Sea. Due to the distance via the indirect pathways (e.g. surface and foul water networks) and the eventual discharging into the marine environment, any pollutants or silt will be dispersed, settle or diluted. The indirect pathway of surface or foul water will not result in a significant effect on the European site which is located in the marine environment in the Irish Sea. There is no direct pathway from the proposed development site to this SAC. There is an indirect pathway via the surface water and foul water drainage network. No potential impact is foreseen. construction and operation of the proposed development will not impact on the conservation interests of the site. **No significant effects are likely**
Special Protection Areas			
IE0004014	Rockabill SPA	**OUT**	**Conservation Objective:** The maintenance of habitats and species within European sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level. **Qualifying Interests** A148 Purple Sandpiper (*Calidris maritima*) A192 Roseate Tern (*Sterna dougallii*) A193 Common Tern (*Sterna hirundo*)

European Site Code	Name	Screened IN/OUT	Details/Reason
			A194 Arctic Tern (*Sterna paradisaea*) **Potential Impact** The proposed development site is 3.3 km from the Rockabill SPA (Figure 8). Disturbance and impacts caused by the works will be localised to the immediate environs of the development. There is no direct pathway from the proposed development site to this SPA. There is an indirect pathway via the surface water and foul water drainage network. Surface water runoff from the proposed development will drain to the onsite drainage ditch which ultimately drains to the Irish Sea to the east. Furthermore, there is a watershed at the eastern edge of the rail embankment. A culvert extends under the railway embankment and drains the eastern embankment. This flows to the west of the railway from the subject lands and to the Mill Stream (Skerries_010) which also discharges to the marine environment. The foul water from the site will pass through a foul water drainage infrastructure located on-site and outfall to an existing public sewerage network. From here it will discharge to the municipal pumping station from where it is pumped to the Barnageeragh Wastewater Treatment Works, where it will be treated and then discharge to the Irish Sea. Due to the distance via the indirect pathways (e.g. surface and foul water networks) and the eventual discharging into the marine environment, any pollutants or silt will be dispersed, settle or diluted. The indirect pathway of surface or foul water will not result in a significant effect on the European site which is located in the marine environment in the Irish Sea. No potential impact is foreseen. construction and operation of the proposed development will not impact on the conservation interests of the site. **No significant effects are likely**
IE0004069	Lambay Island SPA	**OUT**	**Conservation Objective:** To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA. **Qualifying Interests** Fulmar (*Fulmarus glacialis*) [A009] Cormorant (*Phalacrocorax carbo*) [A017] Shag (*Phalacrocorax aristotelis*) [A018] Greylag Goose (*Anser anser*) [A043] Lesser Black-backed Gull (*Larus fuscus*) [A183] Herring Gull (*Larus argentatus*) [A184] Kittiwake (*Rissa tridactyla*) [A188] Guillemot (*Uria aalge*) [A199] Razorbill (*Alca torda*) [A200] Puffin (*Fratercula arctica*) [A204] **Potential Impact** The proposed development site is 8.9 km from the Lambay Island SPA (Figure 8). Disturbance and impacts caused by the works will be localised to the immediate environs of the development. The proposed development site is at a significant distance from this

European Site Code	Name	Screened IN/OUT	Details/Reason
			SPA. There is no direct pathway to this SPA. Surface water runoff from the proposed development will drain to the onsite drainage ditch which ultimately drains to the Irish Sea to the east. Furthermore, there is a watershed at the eastern edge of the rail embankment. A culvert extends under the railway embankment and drains the eastern embankment. This flows to the west of the railway from the subject lands and to the Mill Stream (Skerries_010) which also discharges to the marine environment. The foul water from the site will pass through a foul water drainage infrastructure located on-site and outfall to an existing public sewerage network. From here it will discharge to the municipal pumping station from where it is pumped to the Barnageeragh Wastewater Treatment Works, where it will be treated and then discharge to the Irish Sea. There is no direct pathway from the proposed development site to this SPA. There is an indirect pathway via the surface water and foul water drainage network. Due to the distance via the indirect pathways (e.g. surface and foul water networks) and the eventual discharging into the marine environment, any pollutants or silt will be dispersed, settle or diluted. The indirect pathway of surface or foul water will not result in a significant effect on the European site which is located in the marine environment in the Irish Sea. **No significant effects are likely**
IE0004158	River Nanny and Shore SPA	**OUT**	**Conservation Objectives:** The maintenance of habitats and species within European sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level. **Qualifying Interests** A130 Oystercatcher *(Haematopus ostralegus*) A137 Ringed Plover *(Charadrius hiaticula)* A140 Golden Plover *(Pluvialis apricaria)* A143 Knot *(Calidris canutus)* A144 Sanderling *(Calidris alba)* A184 Herring Gull *(Larus argentatus)* A999 Wetlands **Potential Impact** The proposed development site is 11.2 km from the River Nanny and Shore SPA (Figure 8). Disturbance and impacts caused by the works will be localised to the immediate environs of the development. There is no direct pathway to this SPA. There is no direct pathway from the proposed development site to this SPA. There is an indirect pathway via the surface water and foul water drainage network. Surface water runoff from the proposed development will drain to the onsite drainage ditch which ultimately drains to the Irish Sea to the east. Furthermore, there is a watershed at the eastern edge of the rail embankment. A culvert extends under the railway embankment and drains the eastern embankment. This flows to the west of the railway from

European Site Code	Name	Screened IN/OUT	Details/Reason
			the subject lands and to the Mill Stream (Skerries_010) which also discharges to the marine environment. The foul water from the site will pass through a foul water drainage infrastructure located on-site and outfall to an existing public sewerage network. From here it will discharge to the municipal pumping station from where it is pumped to the Barnageeragh Wastewater Treatment Works, where it will be treated and then discharge to the Irish Sea. Due to the distance via the indirect pathways (e.g. surface and foul water networks) and the eventual discharging into the marine environment, any pollutants or silt will be dispersed, settle or diluted. The indirect pathway of surface or foul water will not result in a significant effect on the European site which is located in the marine environment in the Irish Sea. No potential impact is foreseen. construction and operation of the proposed **No significant effects are likely**

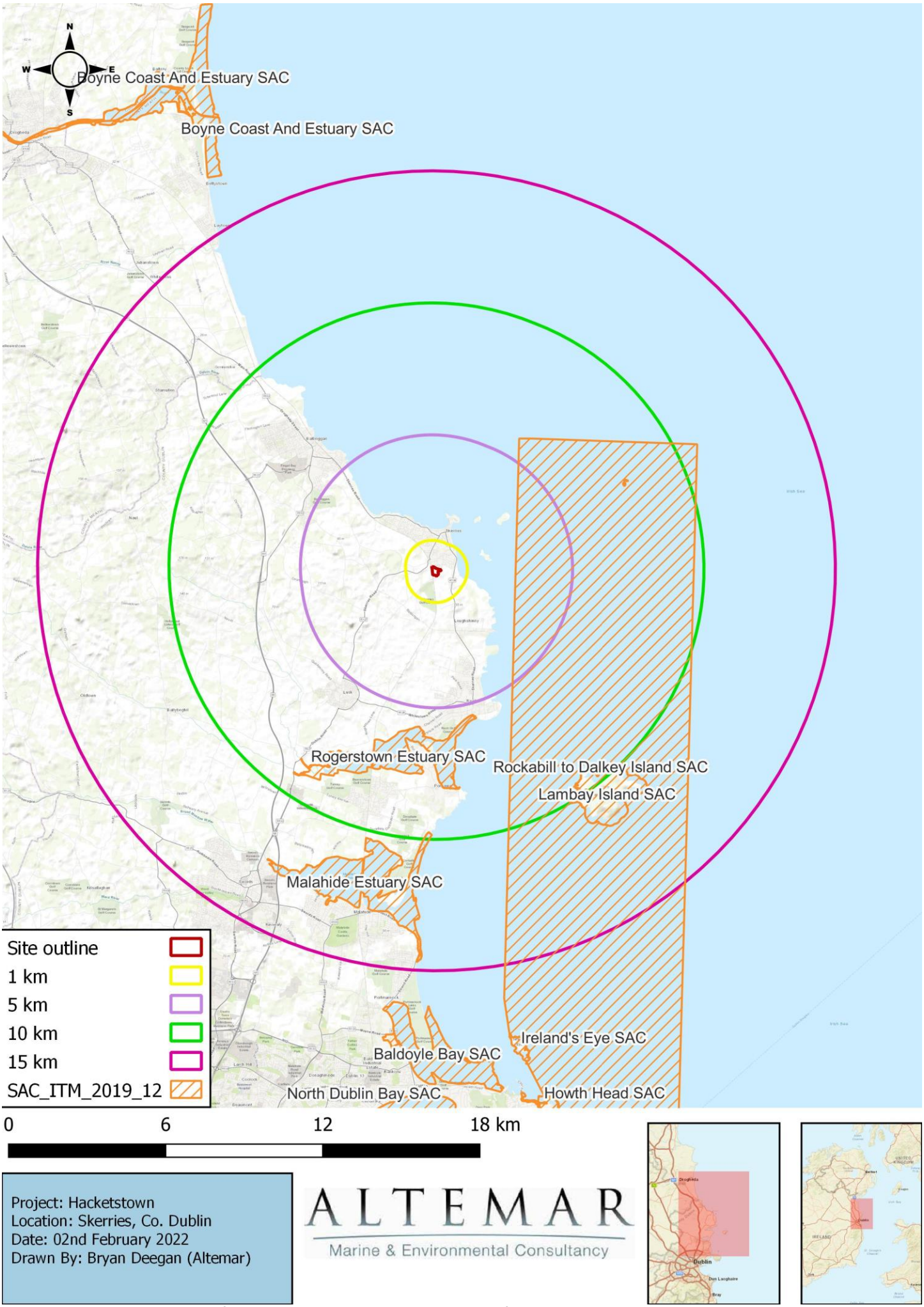

Figure 7. Special Areas of Conservation located within 15km of the proposed development

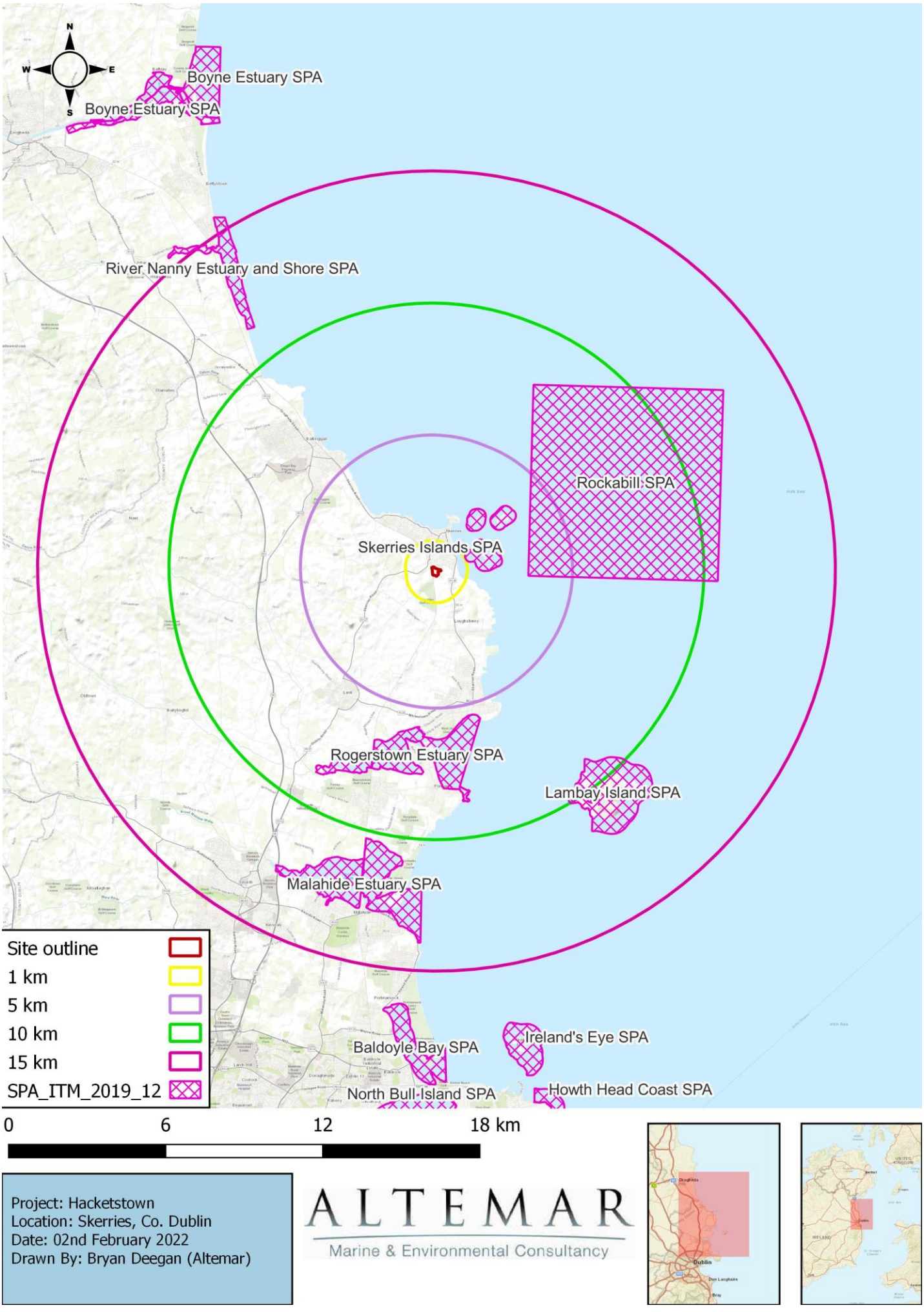

Figure 8. Special Protected Areas located within 15km of the proposed development

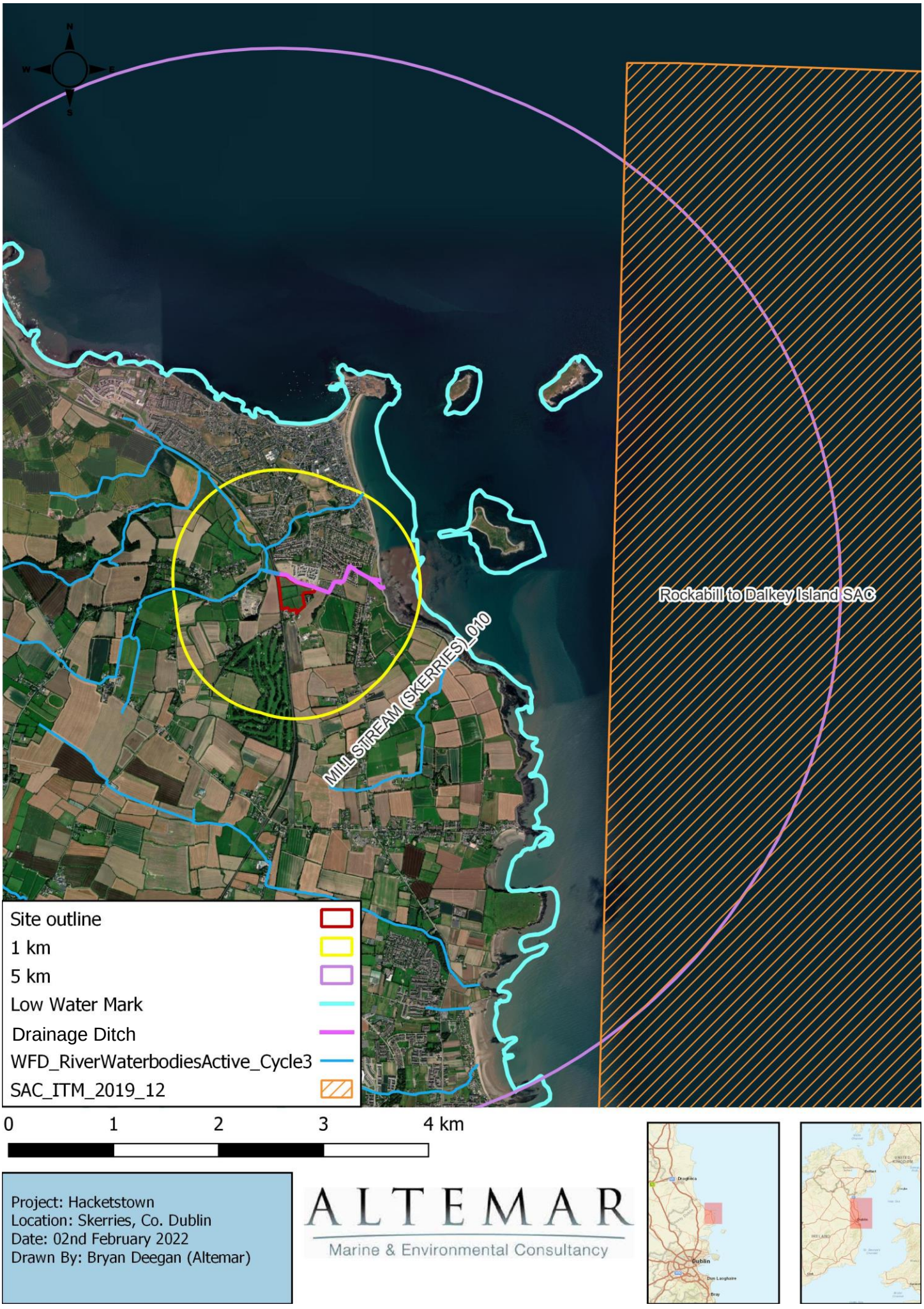

Figure 9. Hydrological pathways to SACs proximate to the proposed development

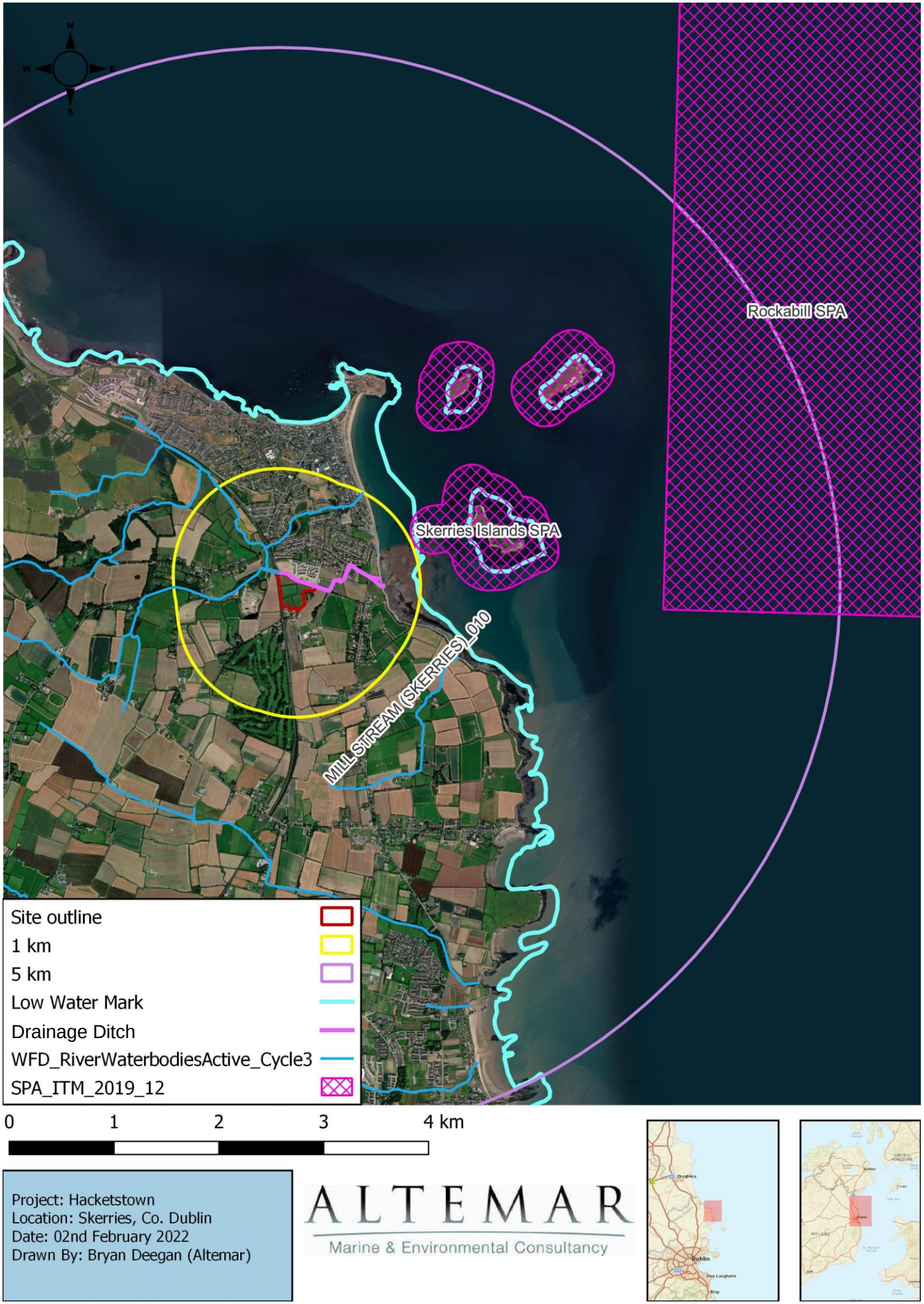

Figure 10. Hydrological pathways to SPAs proximate to the proposed development

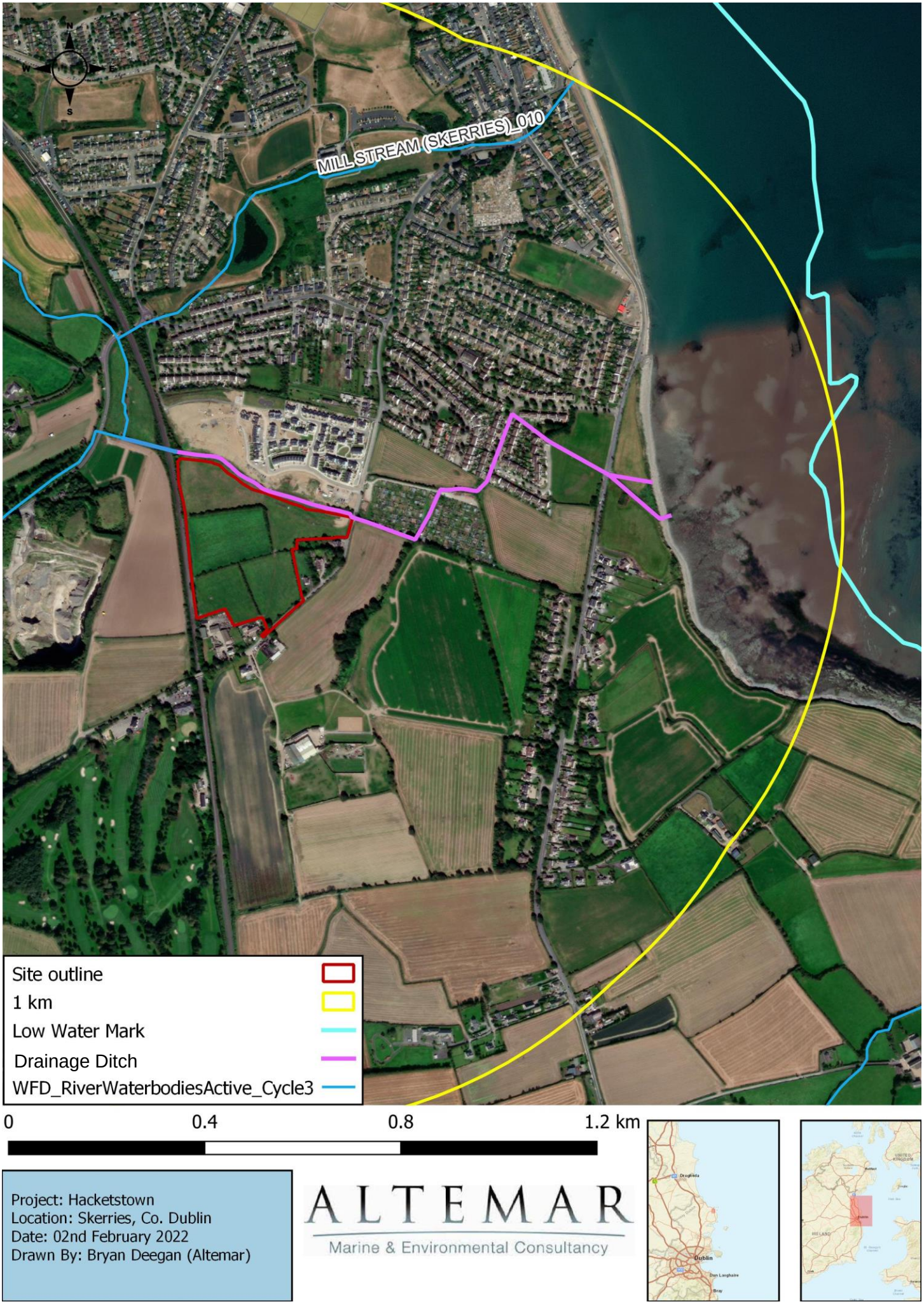

Figure 11. Watercourses proximate to site boundary

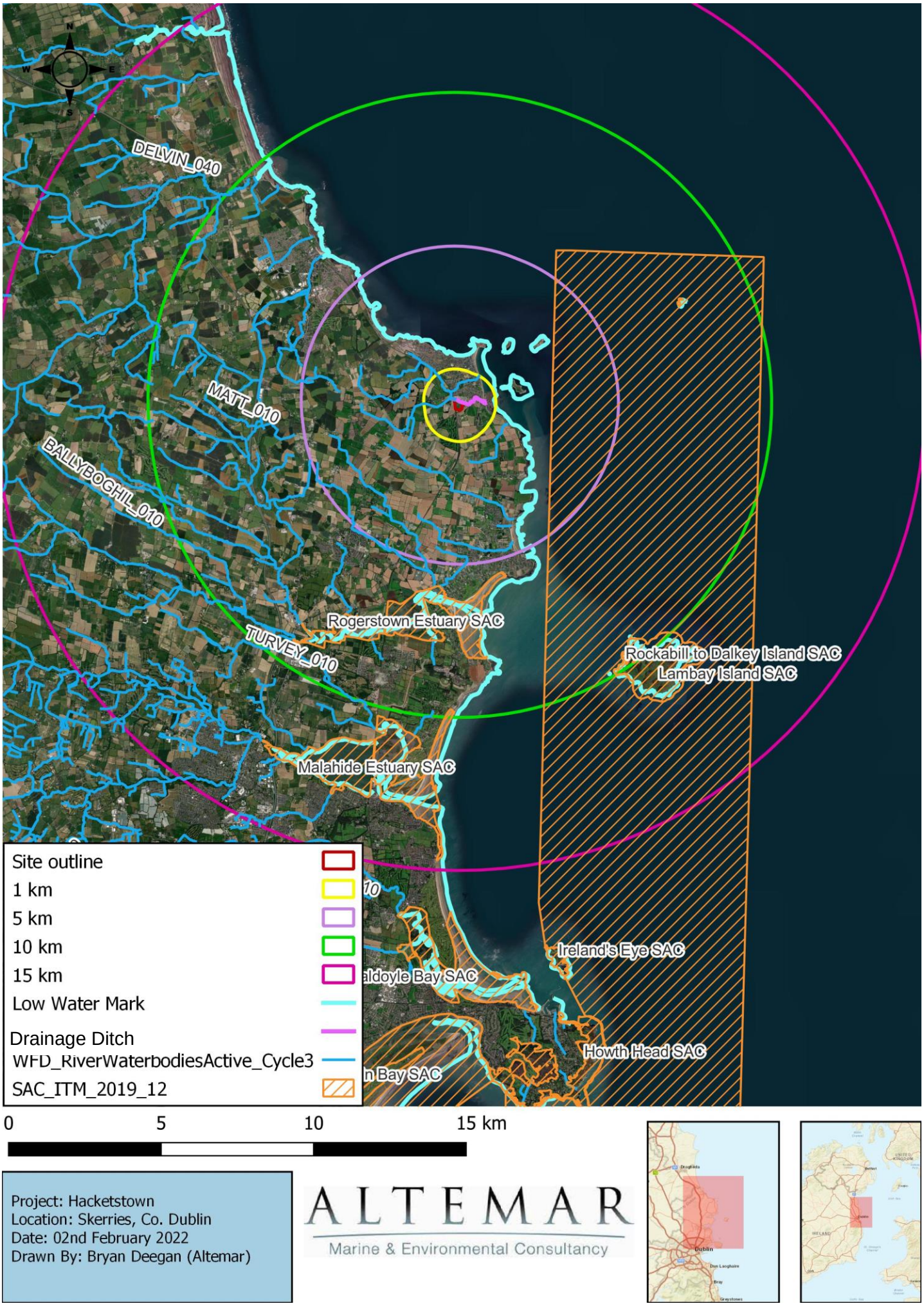

Figure 12. Watercourses and SACs within 15 km of the proposed development

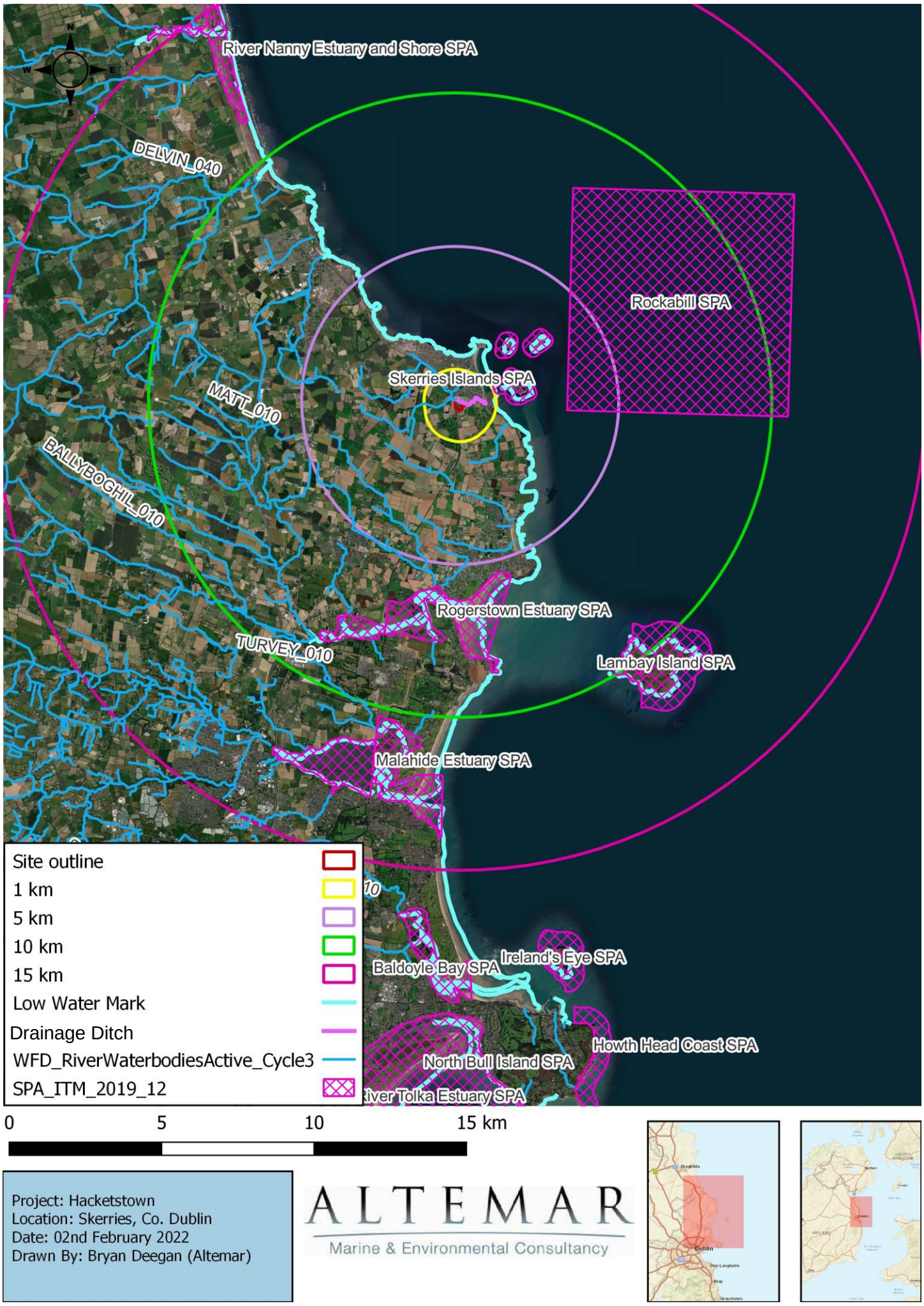

Figure 13. Watercourses and SPAs within 15 km of the proposed development

In-Combination Effects

There are several proposed developments located in the area immediately surrounding the subject site. The following is a list of planning applications as identified on the Department of Housing, Local Government and Heritage's 'National Planning Application Database' portal[3]:

Table 4. In combination effects evaluated.

Project
Advance Infrastructure Application (An Bord Pleanála Reference Number. ABP-312189-21). The proposed development consists of advance infrastructure works on a 2.5 hectare site at Hackettstown, Skerries to facilitate future residential development on lands zoned for residential use to the north and south of subject site. These infrastructural works include (1) construction of a new Link Road; (2) construction of Regional Drainage Facility; (3) foul, surface water and water supply services; (4) planting & landscaping of open space areas; (5) diversion and undergrounding of existing overhead power lines and (6) utilisation of existing field gate on Golf Links Road as a temporary access road for construction traffic.
Ballygossan Park (Phase 2) Application (An Bord Pleanála Reference Number ABP-308583-20). The proposed development will consist of Phase 2 of Ballygossan Park and will provide for the construction of 149 no. residential units, creche, parkland, and two playing pitches on a 4.8 hectare site located to the south and west of Ballygossan Park, Skerries, Co. Dublin.
Off-site Road Improvement Works Application (An Bord Pleanala Reference Number ABP-309409-21). The proposed development consists of (1) reconstruction of the Miller's Lane/Shenick Road/Golf Links Road junction to provide for a four armed mini roundabout; Upgrading and extension of the two-lane flared approach to the junction on both the northern (Dublin Road) and south-eastern (Miller's Lane) arms of the existing three-arm roundabout junction; (2) new street lighting system covering both junctions; (3) upgrades to the junction of Downside Heights/Golf Links Road and a new cycle path along the Golf Links Road; (4) new footpaths, cycle and pedestrian facilities, road gully's, road marking, signal and carriageway surfacing works;

Altemar are the ecologists for the above projects and have assessed the potential for in-combination effects for the above projects. The drainage ditch on site also serves the Ballygossan Park (Phase 2) Application. A NIS has been prepared for Ballygossan Park (Phase 2) Application by Altemar limited. The mitigation measures outlined in this and the Ballygossan Park (Phase 2) Application NIS will be applied throughout the construction phase of the proposed development and with similar mitigation measures applied for the other developments in accordance with best practice guidance then this will prevent any significant cumulative impacts on European Sites.

The operational phase of the proposed development is likely to coincide with the operational phase of the Ballygossan Park (Phase 2). As a result of this assessment, the proposed lighting and landscaping strategies for these projects complement one another in relation to retaining buffer zone surrounding the drain on site. As outlined in the wintering bird assessment in Appendix I "*it is likely that habituation will occur to this new source of disturbance given that the SCIs of the SPA are already accustomed to the disturbance associated with Skerries town and existing surrounding housing developments*." and that the operation of the proposed development would not cause significant effects on the qualifying interests of the SPA. The foul water connections will be to Barnageeragh Wastewater Treatment Works which is in compliance and based on the 2020 Environmental report has capacity (an organic capacity remaining of 27,501 PE).

It is concluded that no significant cumulative impacts will be seen as a result of the proposed development alone or combination with other projects. No projects in the vicinity of the proposed development are considered to have a significant in combination effect on European sites.

[3] https://housinggovie.maps.arcgis.com/apps/webappviewer/index.html?id=9cf2a09799d74d8e9316a3d3a4d3a8de

Conclusions

An initial screening of the proposed works, using the precautionary principle (without the use of any standard construction phase controls or mitigation measures) and the Source/Pathway/Receptor links between the proposed works and European sites with the potential to result in effects on the conservation objectives and features of interest of the European sites was carried out in Table 2. Based on best scientific knowledge and objective information and assessment, the possibility of effects caused by the proposed project was excluded for the following European sites within 15km in addition to sites beyond 15km:

Special Areas of Conservation

IE003000 Rockabill to Dalkey Island SAC

IE000208 Rogerstown Estuary SAC

IE000204 Lambay Island SAC

IE000205 Malahide Estuary SAC

Special Protected Areas

IE004014 Rockabill SPA

IE004069 Lambay Island SPA

IE004158 River Nanny and Shore SPA

In a strict application of the precautionary principle, it has been concluded that effects on the Skerries Islands SPA are likely from the proposed works in the absence of standard control or mitigation measures, as a result of the direct hydrological connection to the site via the onsite drainage which discharges to the Irish Sea . In addition, qualifying interests of Skerries Islands SPA, Rogerstown Estuary SPA and Malahide Estuary SPA have been noted in the vicinity of the proposed works but not on site. Noise mitigation is being implemented on site.

For this reason, a NIS was prepared to assess whether the proposed project, either alone or in combination with other plans or projects, in view of best scientific knowledge and in view of the sites' conservation objectives, will adversely affect the integrity of the European Site. All other European sites were screened out at initial screening.

An NIS or Stage 2 Appropriate Assessment is not required for the effects of the project on all other listed European sites above because it can be excluded on the basis of the best objective scientific information following screening that the project, individually and/or in combination with other plans or projects, will have a significant effect on the European Site/s.

A Natura Impact Statement is required for the proposed development.

Stage 2: Natura Impact Statement

A Natura Impact Statement (NIS) is prepared to enable the competent authority to undertake a Stage 2 Appropriate Assessment. In a strict application of the precautionary principle, it has been concluded that significant effects on the Skerries Islands SPA are likely from the proposed works in the absence of standard control or mitigation measures during construction and operation, as a result of the direct hydrological connection to the site via the onsite drainage which discharges to the Irish Sea. In addition, several of the qualifying interests of Skerries Islands SPA, Rogerstown Estuary SPA and Malahide Estuary SPA have been noted in the vicinity of the proposed works, but not on site. Noise mitigation is being implemented on site. In the case of the proposed development at Hacketstown, Skerries, Co. Dublin, acting on a strictly precautionary basis an NIS is required in respect of the effects of the project on the Skerries Islands SPA [004122] (due to the potential for downstream impacts during construction) and Skerries Islands SPA, Rogerstown Estuary SPA and Malahide Estuary SPA due to potential impacts of noise on qualifying interests in the absence of mitigation because it cannot be excluded on the basis of best objective scientific information, in the absence of control or mitigation measures, following screening that the plan or project, individually and/or in combination with other plans or projects, will have a significant effect on the named European Site/s.

A Stage 2 Appropriate Assessment or NIS is not required for the effects of the project on all other listed European sites within, and sites beyond, 15km because, it can be excluded, on the basis of the best objective scientific knowledge following screening, that the plan or project, individually and/or in combination with other plans or projects, will have a significant effect on the European Site/s.

The NIS evaluates the potential for direct, indirect effects, alone or in combination with other plans and projects having taken into account the use of mitigation measures. The NIS includes the proposed mitigation measures that are outlined in the EIAR to reduce the potential effects of the proposed project on species/habitats of conservation importance and the surrounding environment.

A further review of the Conservation Objectives and features of interest is necessary to determine if significant effects are likely to impact the Skerries Islands SPA, Rogerstown Estuary SPA and Malahide Estuary SPA.

Skerries Islands SPA (Site code: 004122)

As outlined in the Skerries Islands SPA Site Synopsis (NPWS, Version date 11.09.2009):

''The Skerries Islands are a group of three small uninhabited islands, Shenick's Island, St Patrick's Island and Colt Island, situated between 0.5 km and 1.5 km off the north Co. Dublin coast. Skerries Islands SPA comprises the three islands and the seas surrounding them, to a distance of 200 m from the shore. The three islands are all low-lying with maximum heights ranging from 8 m to 13 m above sea level. St Patrick's Island and Colt Island have low cliffs, while Shenick's Island has more extensive expanses of intertidal rocky shore and sand flats. Shenick's Island also has a shingle bar and is connected to the mainland at low tides; it became a BirdWatch Ireland Reserve in 1987. The vegetation of the islands is dominated by rank grasses, with Brambles (Rubus spp.) and other species such as Hogweed (Heracleum sphondylium) occurring commonly.

The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Cormorant, Shag, Light-bellied Brent Goose, Purple Sandpiper, Turnstone and Herring Gull. The E.U. Birds Directive pays particular attention to wetlands and, as these form part of this SPA, the site and its associated waterbirds are of special conservation interest for Wetland & Waterbirds.

The islands are of importance for both breeding seabirds and wintering waterfowl. In 1999 a survey recorded an internationally important population of breeding Cormorant (558 pairs) and a nationally important population of Shag (100 pairs) on St Patrick's Island. The Cormorant population, which was only established in the early 1990s, when taken together with the nearby associated colonies on Lambay Island and Ireland's Eye, comprises about 30% of the total Irish population. A nationally important population of Herring Gull (300 pairs) occurs on St Patrick's Island and Shenick's Island. Other breeding seabirds recorded during the 1999 survey include: Fulmar (35 pairs), Lesser Black-backed Gull (1 pair) and Great Black-backed Gull (95 pairs). Large gulls also breed on Colt Island

but there has been no census in recent years. Other breeding birds present include Shelduck, Ringed Plover and Oystercatcher (several pairs of each).

In winter the islands regularly support a range of waterfowl species, including an internationally important population of Light-bellied Brent Goose (242) and nationally important populations of Cormorant (391), Purple Sandpiper (46), Turnstone (242) and Herring Gull (560) – all counts are mean peaks for the five year period 1995/96- 1999/2000. Other species utilising the site during winter include Wigeon (205), Mallard (240), Oystercatcher (463), Ringed Plover (66), Golden Plover (240), Grey Plover (15), Lapwing (238), Dunlin (42), Snipe (27), Curlew (327), Black-headed Gull (110) and Great Black-backed Gull (250). The islands are also a regular wintering site for Short-eared Owl, with several birds recorded in most winters.

The Skerries Islands SPA is of high ornithological importance for both breeding seabirds and wintering waterfowl. Internationally important populations of breeding Cormorant and nationally important populations of two other breeding seabirds occur on the islands. The wintering population of Light-bellied Brent Goose is of international importance and four other species occur in nationally important numbers during the winter. The presence of Golden Plover and Short-eared Owl, two species that are listed on Annex I of the E.U Birds Directive, is of note.''

The Qualifying Interests (QI) (Features of Interest), Special Conservation Interests (SCIs) for the SPA and SAC sites and the National conservation status of the QI of the European site subject to the NIS are seen in Table 5.

Table 5. Qualifying Interests, Conservation Status, Management Objectives, Conditions underpinning site integrity for Skerries Islands SPA.

Qualifying Interests, Conservation Status, Management Objectives, Conditions underpinning site integrity for relevant European sites		
European Site Name & Code	Qualifying Interests	Current Conservation Status
Special Protection Areas (SPA)		
Skerries Islands SPA (004122)	Cormorant (*Phalacrocorax carbo*) [A017] Shag (*Phalacrocorax aristotelis*) [A018] Light-bellied Brent Goose (*Branta bernicla hrota*) [A046] Purple Sandpiper (*Calidris maritima*) [A148] Turnstone (*Arenaria interpres*) [A169] Herring Gull (*Larus argentatus*) [A184]	**Amber** **Amber** **Amber** **Red** **Amber** **Amber**

There are no site specific conservation objectives for Skerries Islands SPA, however, in the generic Conservation Objectives Report (dated 26/01/2022) retrieved from the NPWS website which states that the objective is to: "To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA"

Favourable conservation status of a habitat is achieved when:

- *its natural range, and area 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.*

The 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.*

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Rogerstown Estuary SPA (Site code: 004015)

As outlined in the Rogerstown Estuary SPA Site Synopsis (NPWS, Version date 25.03.2014):

''Rogerstown Estuary is situated about 2 km north of Donabate in north County Dublin. It is a relatively small, funnel shaped estuary separated from the sea by a sand and shingle peninsula; the site extends eastwards to include an area of shallow marine water. The estuary receives the waters of the Ballyboghil and Ballough rivers and has a wide salinity range, from near full seawater to near full freshwater. The estuary is divided by a causeway and narrow bridge, built in the 1840s to carry the DublinBelfast railway line. At low tide extensive intertidal sand and mud flats are exposed and these provide the main food resource for the wintering waterfowl that use the site. The intertidal flats of the estuary are mainly of sands, with soft muds in the northwest sector and along the southern shore. Associated with these muds are stands of Common Cord-grass (Spartina anglica). Green algae (mainly Ulva spp.) are widespread and form dense mats in the more sheltered areas. The intertidal vascular plant Beaked Tasselweed (Ruppia maritima) grows profusely in places beneath the algal mats and is grazed by herbivorous waterfowl (notably Light-bellied Brent Goose and Wigeon). Salt marsh fringes parts of the estuary, especially its southern shores. Common plant species of the saltmarsh include Sea Rush (Juncus maritimus), Sea Purslane (Halimione portulacoides) and Common Saltmarsh-grass (Puccinellia maritima).

The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Greylag Goose, Light-bellied Brent Goose, Shelduck, Shoveler, Oystercatcher, Ringed Plover, Grey Plover, Knot, Dunlin, Black-tailed Godwit and Redshank. The E.U. Birds Directive pays particular attention to wetlands and, as these form part of this SPA, the site and its associated waterbirds are of special conservation interest for Wetland & Waterbirds.

Rogerstown Estuary is an important winter waterfowl site and supports a population of Light-bellied Brent Goose of international importance (1,069) - all counts are mean peaks over the five winters 1995/96 – 1999/2000. A further 10 species have populations of national importance as follows: Greylag Goose (160), Shelduck (773), Shoveler (59), Oystercatcher (1,345), Ringed Plover (188), Grey Plover (229), Knot (2,454), Dunlin (2,745), Black-tailed Godwit (195) and Redshank (490). The Greylag Geese are part of a larger population which spends most of the winter on Lambay Island. Other species which occur regularly include Wigeon (358), Teal (346), Mallard (214), Red-breasted Merganser (30), Golden Plover (1,059) Lapwing (2,129), Sanderling (50), Curlew (505) and Turnstone (77). Large numbers of gulls including Herring Gull, Great Black-backed Gull and Black-headed Gull are attracted to the area, partly due to the presence of an adjacent local authority landfill site. Little Egret, a species which has recently colonised Ireland, also occurs at this site.

Some of the wader species also occur on passage, notably Black-tailed Godwit with numbers often exceeding 300 in April. The estuary is a regular staging post for scarce migrants, especially in autumn when Green Sandpiper, Ruff, Little Stint, Curlew Sandpiper and Spotted Redshank may be seen. Shelduck breed within the site.

Rogerstown Estuary SPA is an important link in the chain of estuaries on the east coast. It supports an internationally important population of Light-bellied Brent Goose and nationally important populations of a further 10 species. The presence of Little Egret and Golden Plover is of note as these species are listed on Annex I of the E.U. Birds Directive. Rogerstown Estuary is also a Ramsar Convention site, and part of Rogerstown Estuary SPA is designated as a Statutory Nature Reserve and a Wildfowl Sanctuary.''

The Qualifying Interests (QI) (Features of Interest) for Rogerstown Estuary SPA [004015] are seen in Table 6. The detailed Conservation Objectives and Special Conservation Interest Species for Rogerstown Estuary SPA are seen in Table 7.

Table 6. Qualifying Interests, Conservation Status, Management Objectives, Conditions underpinning site integrity for Rogerstown Estuary SPA.

Qualifying Interests, Conservation Status, Management Objectives, Conditions underpinning site integrity for relevant European sites		
European Site Name & Code	Qualifying Interests	Current Conservation Status[4]
Special Protection Areas (SPA)		
Rogerstown Estuary SPA [004015]	Greylag Goose (Anser anser) [A043] Light-bellied Brent Goose (*Branta bernicla hrota*) [A046] Shelduck (*Tadorna tadorna*) [A048] Shoveler (Anas clypeata) [A056] Oystercatcher (*Haematopus ostralegus*) [A130] Ringed Plover (*Charadrius hiaticula*) [A137] Grey Plover (*Pluvialis squatarola*) [A141] Knot (*Calidris canutus*) [A143] Dunlin (*Calidris alpina*) [A149] Black-tailed Godwit (*Limosa limosa*) [A156] Redshank (*Tringa totanus*) [A162] Wetlands	**Amber** **Amber** **Amber** **Red** **Red** **Amber** **Red** **Red** **Red** **Red** **Red**

[4] https://birdwatchireland.ie/app/uploads/2021/04/BOCCI4-leaflet-2-1.pdf

Table 7. Detailed Conservation Objectives for Rogerstown Estuary SPA

Rogerstown Estuary SPA [0004015]
Special Conservation Interest Species
1. During winter the site regularly supports 1% or more of the all-Ireland population of Greylag Goose (*Anser anser*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 160 individuals. 2. During winter the site regularly supports 1% or more of the biogeographic population of Light-bellied Brent Geese (*Branta bernicla hrota*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 1,069 individuals. 3. During winter the site regularly supports 1% or more of the all-Ireland population of Shelduck (*Tadorna tadorna*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 773 individuals. 4. During winter the site regularly supports 1% or more of the all-Ireland population of Shoveler (*Anas clypeata*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 59 individuals. 5. During winter the site regularly supports 1% or more of the all-Ireland population of Oystercatcher (*Haematopus ostralegus*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 1,345 individuals. 6. During winter the site regularly supports 1% or more of the all-Ireland population of Ringed Plover (*Charadrius hiaticula*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 188 individuals. 7. During winter the site regularly supports 1% or more of the all-Ireland population of Grey Plover (*Pluvialis squatarola*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 229 individuals. 8. During winter the site regularly supports 1% or more of the all-Ireland population of Knot (*Calidris canutus*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 2,454 individuals. 9. During winter the site regularly supports 1% or more of the all-Ireland population of Dunlin (*Calidris alpina*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 2,745 individuals. 10. During winter the site regularly supports 1% or more of the all-Ireland population of Black-tailed Godwit (*Limosa limosa*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 195 individuals. 11. During winter the site regularly supports 1% or more of the all-Ireland population of Redshank (*Tringa totanus*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 490 individuals. 12. The wetland habitats contained within Rogerstown Estuary SPA are identified of conservation importance for non-breeding (wintering) migratory waterbirds. Therefore the wetland habitats are considered to be an additional Special Conservation Interest.
Conservation Objectives
Objective 1: To maintain the favourable conservation condition of the waterbird Special Conservation Interest species listed for Rogerstown Estuary SPA.
This objective is defined by the following attributes and targets:- • To be favourable, the long term population trend for each waterbird Special Conservation Interest species should be stable or increasing. Waterbird populations are deemed to be unfavourable when they have declined by 25% or more, as assessed by the most recent population trend analysis. • To be favourable, there should be no significant decrease in the range, timing or intensity of use of areas by the waterbird species of Special Conservation Interest, other than that occurring from natural patterns of variation. Factors that can adversely affect the achievement of Objective 1 include: a) Habitat modification: activities that modify discrete areas or the overall habitat(s) within the SPA in terms of how one or more of the listed species use the site (e.g. as a feeding resource) could result in the displacement of these species from areas within the SPA and/or a reduction in their numbers.

Rogerstown Estuary SPA [0004015]
b) Disturbance: anthropogenic disturbance that occurs in or near the site and is either singular or cumulative in nature could result in the displacement of one or more of the listed waterbird species from areas within the SPA, and/or a reduction in their numbers c) Ex-situ factors: several of the listed waterbird species may at times use habitats situated within the immediate hinterland of the SPA or in areas ecologically connected to it. The reliance on these habitats will vary from species to species and from site to site. Significant habitat change or increased levels of disturbance within these areas could result in the displacement of one or more of the listed waterbird species from areas within the SPA, and/or a reduction in their numbers.
Objective 2: To maintain the favourable conservation condition of the wetland habitat at Rogerstown Estuary SPA as a resource for the regularly-occurring migratory waterbirds that utilise it.
This objective is defined by the following attributes and targets:- • To be favourable, the permanent area occupied by the wetland habitat should be stable and not significantly less than the area of 646 ha, other than that occurring from natural patterns of variation. The boundary of Rogerstown Estuary SPA was defined to include the primary wetland habitats of this site. Objective 2 seeks to maintain the permanent extent of these wetland habitats, which constitute an important resource for regularly-occurring migratory waterbirds. The wetland habitats can be categorised into three broad types: subtidal; intertidal; and supratidal. Over time and through natural variation these subcomponents of the overall wetland complex may vary due to factors such as changing rates of sedimentation, erosion etc. Waterbird species may use more than one of the habitat types for different reasons (behaviours) throughout the tidal cycle. Subtidal areas refer to those areas contained within the SPA that lie below the mean low water mark and are predominantly covered by marine water. Tidal rivers, creeks and channels are included in this category. For Rogerstown Estuary SPA this broad category is estimated to be 164 ha. Subtidal areas are continuously available for benthic and surface feeding ducks (e.g. Shelduck, Shoveler) and piscivorous/other waterbirds. Various waterbirds roost in subtidal areas. The intertidal area is defined, in this context, as the area contained between the mean high water mark and the mean low water mark. For Rogerstown Estuary SPA this is estimated to be 375 ha. When exposed or partially exposed by the tide, intertidal habitats provide important foraging areas for many species of waterbirds, especially wading birds, as well as providing roosting/loafing8 areas. When the intertidal area is inundated by the tide it becomes available for benthic and surface feeding ducks and piscivorous/other waterbirds. During this tidal state this area can be used by various waterbirds as a loafing/roosting resource. The supratidal category refers to areas that are not frequently inundated by the tide (i.e. occurring above the mean high watermark) but contain shoreline and coastal habitats and can be regarded as an integral part of the shoreline. For Rogerstown Estuary SPA this is estimated to be 107 ha. Supratidal areas are used by a range of waterbird species as a roosting resource as well as providing feeding opportunities for some species. The maintenance of the 'quality' of wetland habitat lies outside the scope of Objective 2. However, for the species of Special Conservation Interest, the scope of Objective 1 covers the need to maintain, or improve where appropriate, the different properties of the wetland habitats contained within the SPA.

Malahide Estuary SPA (Site code: 004025)

As outlined in the Malahide Estuary SPA Site Synopsis (NPWS 2013)[5]:

"*The site encompasses the estuary, saltmarsh habitats and shallow subtidal areas at the mouth of the estuary. A railway viaduct, built in the 1800s, crosses the site and has led to the inner estuary becoming lagoonal in character and only partly tidal. Much of the outer part of the estuary is well-sheltered from the sea by a large sand spit, known as "The Island". This spit is now mostly converted to golf-course. The outer part empties almost completely at low tide and there are extensive intertidal flats exposed. Substantial stands of eelgrass (both Zostera noltii and Z. angustifolia) occur in the sheltered part of the outer estuary, along with Tasselweed (Ruppia maritima). Green algae, mostly Ulva spp.,are frequent on the sheltered flats. Common Cord-grass (Spartina anglica) is well established in the outer estuary and also in the innermost part of the site. The intertidal flats support a typical macro-invertebrate fauna, with polychaete worms (Arenicola marina and Hediste diversicolor), bivalves such as Cerastoderma edule, Macoma balthica and Scrobicularia plana, the small gastropod Hydrobia ulvae and the crustacean Corophium volutator. Salt marshes, which provide important roosts during high tide, occur in parts of the outer estuary and in the extreme inner part of the inner estuary. These are characterised by such species as Sea Purslane (Halimione portulacoides), Sea Aster (Aster tripolium), Thrift (Armeria maritima), Sea Arrowgrass (Triglochin maritima) and Common Saltmarsh-grass (Puccinellia maritima).*

The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Great Crested Grebe, Light-bellied Brent Goose, Shelduck, Pintail, Goldeneye, Red-breasted Merganser, Oystercatcher, Golden Plover, Grey Plover, Knot, Dunlin, Black-tailed Godwit, Bar-tailed Godwit and Redshank. The E.U. Birds Directive pays particular attention to wetlands and, as these form part of this SPA, the site and its associated waterbirds are of special conservation interest for Wetland & Waterbirds.

This site is of high importance for wintering waterfowl and supports a particularly good diversity of species. It has internationally important populations of Light-bellied Brent Goose (1,104 individuals or 5% of the all-Ireland total) and Black-tailed Godwit (409 individuals or 2.9% of the all-Ireland total) - figures given here and below are mean peaks for the five winters 1995/96-1999/2000. Furthermore, the site supports nationally important populations of an additional 12 species: Great Crested Grebe (63), Shelduck (439), Pintail (58), Goldeneye (215), Red-breasted Merganser (99), Oystercatcher (1,360), Golden Plover (1,843), Grey Plover (201), Knot (915), Dunlin (1,594), Bar-tailed Godwit (156) and Redshank (581). The high numbers of diving ducks reflects the lagoon-type nature of the inner estuary, and this is one of the few sites in eastern Ireland where substantial numbers of Goldeneye can be found.

A range of other species occurs, including Mute Swan (37), Pochard (36), Ringed Plover (86), Lapwing (1,542), Curlew (548), Greenshank (38) and Turnstone (112).

The estuary also attracts other migrant wader species such as Ruff, Curlew Sandpiper, Spotted Redshank and Little Stint. These occur mainly in autumn, though occasionally in spring and winter.

Breeding birds of the site include Ringed Plover, Shelduck and Mallard. Up to the 1950s there was a major tern colony at the southern end of Malahide Island. Grey Herons breed nearby and feed regularly within the site.

Malahide Estuary SPA is a fine example of an estuarine system, providing both feeding and roosting areas for a range of wintering waterfowl. The lagoonal nature of the inner estuary is of particular value as it increases the diversity of birds which occur. The site is of high conservation importance, with internationally important populations of Light-bellied Brent Goose and Black-tailed Godwit, and nationally important populations of a further 12 species. Two of the species which occur regularly (Golden Plover and Bar-tailed Godwit) are listed on Annex I of the E.U. Birds Directive. Malahide Estuary (also known as Broadmeadow Estuary) is a Ramsar Convention site."

[5] https://www.npws.ie/sites/default/files/protected-sites/synopsis/SY004025.pdf

The European Standard Data Form (2020)[6] states that:

"The site is situated in north Co. Dublin, between the towns of Malahide and Swords. It comprises the estuary of the River Broadmeadow. A railway viaduct, built in the 1800s, crosses the site and has led to the inner estuary becoming lagoonal in character and only partly tidal. Much of the outer part of the estuary is well-sheltered from the sea by a large sand spit, known as "the island". This spit is now mostly converted to golf-course. The outer part empties almost completely at low tide and there are extensive intertidal flats. Salt marshes occur in parts of the outer estuary and in the extreme inner part of the inner estuary.

The site is of high importance for wintering waterfowl and supports a particularly good diversity of species. It has an internationally important population of Branta bernicla hrota (4.8% of national total), and nationally important populations of a further 12 species. Of particular note are the populations of Tadorna tadorna (3.0% of national total), Anas acuta (2.9% of national total), Mergus serrator (2.8% of national total), Pluvialis squatarola (2.7% of national total) and Calidris canutus (3.7% of national total). The site is one of the few in eastern Ireland where substantial numbers of Bucephala clangula occur. It has a regionally important population of Limosa lapponica. The site is an important and regular site for a range of autumn passage migrants, especially Calidris ferruginea and Philomachus pugnax. It supports a regular flock of non-breeding Cygnus olor."

The Qualifying Interests (QI) (Features of Interest) for Malahide Estuary SPA are seen in Table 8. The site specific Conservation Objectives for European sites are seen in Table 8.

Table 8. Qualifying Interests, Conservation Status, Management Objectives, Conditions underpinning site integrity for Rogerstown Estuary SPA.

Qualifying Interests, Conservation Status, Management Objectives, Conditions underpinning site integrity for relevant European sites		
European Site Name & Code	Qualifying Interests	Current Conservation Status[7]
Special Protection Areas (SPA)		
Malahide Estuary SPA [0004025]	Great Crested Grebe (*Podiceps cristatus*) [A005]	**Amber**
	Light-bellied Brent Goose (*Branta bernicla hrota*) [A046]	**Amber**
	Shelduck (*Tadorna tadorna*) [A048]	**Amber**
	Pintail (*Anas acuta*) [A054]	**Amber**
	Goldeneye (*Bucephala clangula*) [A067]	**Red**
	Red-breasted Merganser (*Mergus serrator*) [A069]	**Amber**
	Oystercatcher (*Haematopus ostralegus*) [A130]	**Red**
	Golden Plover (*Pluvialis apricaria*) [A140]	**Red**
	Grey Plover (*Pluvialis squatarola*) [A141]	**Red**
	Knot (*Calidris canutus*) [A143]	**Red**
	Dunlin (*Calidris alpina*) [A149]	**Red**
	Black-tailed Godwit (*Limosa limosa*) [A156]	**Red**
	Bar-tailed Godwit (*Limosa lapponica*) [A157]	**Red**
	Redshank (*Tringa totanus*) [A162]	**Red**
	Wetland and Waterbirds [A999]	**N/A**

[6] https://www.npws.ie/sites/default/files/protected-sites/natura2000/NF004025.pdf
[7] https://birdwatchireland.ie/app/uploads/2021/04/BOCCI4-leaflet-2-1.pdf

Table 9. Detailed Conservation Objectives for European sites

Attribute	Measure	Target
Malahide Estuary SPA		
A005 Great Crested Grebe *Podiceps cristatus*, A046 Brent Goose *Branta bernicla hrota*, A048 Shelduck *Tadorna tadorna*, A054 Pintail *Anas acuta*, A067 Goldeneye *Bucephala clangula*, A069 Red-breasted Merganser *Mergus serrator*, A130 Oystercatcher *Haematopus ostralegus*, A140 Golden Plover *Pluvialis apricaria* A141 Grey Plover *Pluvialis squatarola*, A143 Knot *Calidris canu*tus, A149 Dunlin *Calidris alpina alpine*, A156 Black-tailed Godwit *Limosa limosa*, A157 Bar-tailed Godwit *Limosa lapponica*, A162 Redshank *Tringa tetanus*, A999 Wetlands		
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 and intensity of use of areas by all of the above named species, other than that occurring from natural patterns of variation
Wetlands [A999] (Maintain the favourable conservation condition)		
Habitat area	Hectares	The permanent area occupied by the wetland habitat should be stable and not significantly less than the area of 765 hectares, other than that occurring from natural patterns of variation

Analysis of the Potential Impacts on Skerries Islands SPA, Rogerstown Estuary SPA and Malahide Estuary SPA.

The construction of proposed development will involve the removal of the existing terrestrial habitats on site, excavations, landscaping and the construction of roads, dwellings and associated services.

Construction Impacts

The proposed development is not within a European Site. A potential pathway exists via surface water to the nearby European sites (Skerries Islands SPA). The potential impacts on European sites are seen in Table 6. The construction of the proposed development would potentially impact on the existing ecology of the site and the surrounding area in the absence of mitigation measures. These potential construction impacts would include impacts that may arise during the site clearance, reprofiling, excavations of the site and the building phases of the proposed development. This could lead to the transportation of silt and pollutants "downstream" to the Skerries Islands SPA via the drainage ditch on site and via the Mill Stream which connects to the culvert under the railway embankment. Due to the significant distance to other European Sites, across the marine environment, where dilution and mixing will take place no significant effects would be foreseen on other European Sites from potential hydrological pathways.

Qualifying interests of Skerries Islands SPA, Rogerstown Estuary SPA and Malahide Estuary SPA have been noted in the vicinity of the proposed works but not on site. As outlined in Appendix II "*The proposed development consists of semi-natural grassland and improved agricultural grassland. Of the SCI species the SPAs within the likely zone of influence, brent geese are considered the most likely to make use such habitats, therefore are most likely to be impacted by the proposed development. However, no geese were observed roosting or foraging within 500m of the proposed development, and no goose droppings were located during habitat surveys. This species was observed infrequently commuting over the proposed development. This may be because the sward height of the grassland found at the site of the proposed development does not correspond with the typical short grazing favoured by this species. The amenity grasslands, such as Skerries golf club, located within 500m of the proposed development are short sward grassland typically favoured by brent goose. There is the potential for disturbance/displacement of this species during the construction phase of the proposed development at these locations within 500m of the proposed development boundary*."

"*Black-headed gull flocks of county importance (1% of the county population) were observed on one occasion on, or within 500m of, the proposed development site. Common gull flocks of county importance were observed on four occasions, curlew flocks of county importance were observed on one occasion, herring gull flocks of county importance were observed on three occasions, lesser black-backed gull flocks of county importance were observed on seven occasions and a grey heron flock of county importance was observed on two occasions. Of these species, lesser black-backed gull, and grey heron were observed infrequently and/or in low numbers, as such significant impacts on these species are not anticipated. Disturbance/displacement will be a key impact on the other species of county importance. Brent geese and herring gulls observed at the proposed development may be associated with the Skerries Islands SPA, given the proximity of the SPA, 700m to the east of the proposed development. Lesser black-backed gulls observed within the proposed development are potentially associated with the Lambay Island SPA, which is located nine kilometers southeast of the proposed development, given the core foraging range of this species (Thaxter et al., 2012). No commuting corridors, to or from any SPA, were identified at the proposed development during the 2020/2021 winter season. However, a clear commuting corridor for curlew was observed, as birds commuted from the coast to foraging/roosting grounds inland*."

The report concludes "*Of the SCI species listed for the SPAs within the ZOI, only brent goose, herring gull and lesser black-backed gull were observed within 500m of the proposed development. The proposed development is not within an SPA, however given the proximity of a number of SPAs, there may be potential for impacts to result during construction and operational phases of the proposed development on birds which are associated with these SPA. Potential impacts could include:*

- *Disturbance/displacement during the construction and operational phases of the*

proposed development to Special Conservation Interest of the SPA including through movement of machinery, personnel, noise, vibration and/or noise associated with domestic dwellings.

- *Water pollution*

The maximum likely distance at which disturbance will impact SCIs from an SPA is 300m (Cutts et al.,2013) from the proposed development boundary. Given the separation distance from the SPAs, disturbance impacts within an SPA are not anticipated. However, given the proximity of the proposed development to areas of suitable feeding/roosting habitat (e.g. Skerries golf club), disturbance/displacement impacts during the construction phase on these areas cannot be ruled out. The proposed housing scheme may result in disturbance of SCI's of the adjacent SPA, which utilize the areas surrounding the proposed development for feeding and roosting. However, it is likely that habituation will occur to this new source of disturbance given that the SCIs of the SPA are already accustomed to the disturbance associated with Skerries town and existing surrounding housing developments." It should be noted that as outlined in Appendix I "*No target species were observed foraging on the grassland of this proposed development area, which comprises semi-natural grassland with grass sward heights that are longer than that preferable by most target species."*

Construction phase mitigation measures are required on site particularly as significant reprofiling of the site is proposed which will remove all existing terrestrial habitats and can lead to silt laden and contaminated runoff. In addition, there is an existing drainage ditch that runs west to east across the northern boundary of the development site which will be impacted by the development of the site. There is potential for silt laden runoff and contamination to enter the watercourse with potential for downstream impacts. In addition, qualifying interests of SPA's have been noted in the vicinity of the proposed works and could be potentially disturbed by construction noise in the absence of mitigation measures. Details of the potential impacts are outlined in Table 10. Mitigation measures to avoid or reduce these potential impacts are set out in Table 11.

Operational Impacts

The development has the potential to cause pollution via surface water and downstream impacts. No significant impacts on designated sites are likely during operation. There will be increased activity on site which will cause localised disturbance within the site. As outlined in Appendix II "*The proposed housing scheme may result in disturbance of SCI's of the adjacent SPA, which utilize the areas surrounding the proposed development for feeding and roosting. However, it is likely that habituation will occur to this new source of disturbance given that the SCIs of the SPA are already accustomed to the disturbance associated with Skerries town and existing surrounding housing developments*." In addition, it should be noted that the Skerries Golf Club is located on the far side of the railway embankment which is vegetated and would reduce the impact of noise and lighting from the proposed development. No mitigation in relation to noise or disturbance is required during operation.

Table 10. Potential for adverse effects on the qualifying interests and conservation objectives of European sites		
European Site & Site Code	Qualifying Interests	Potential for Effects
Skerries Islands SPA (004122)	Cormorant (*Phalacrocorax carbo*) [A017] Shag (*Phalacrocorax aristotelis*) [A018] Light-bellied Brent Goose (*Branta bernicla hrota*) [A046] Purple Sandpiper (*Calidris maritima*) [A148] Turnstone (*Arenaria interpres*) [A169] Herring Gull (*Larus argentatus*) [A184]	**During Construction** The proposed development is not within a designated conservation site. Runoff during site demolition, re-profiling, the construction and operation of project elements could impact the onsite drainage ditch and Mill Stream (Skerries_10), with water quality or downstream impacts on Skerries Islands SPA, at low tide, 1.0 km from the proposed development site. Impacts on the onsite watercourse and Mill Stream (Skerries_10) would be seen as the primary vector for impacts on conservation sites. It should be noted that there is a direct hydrological pathway to the Skerries Islands SPA, located downstream of the proposed development site. Given the nature of the works, adjacent to an onsite drainage ditch and Mill Stream (Skerries_10), all of these effects would be expected to be localised in nature restricted to the immediate vicinity of the site. However, without the presence of mitigation measures there is a potential for downstream effects if significant quantities of pollution or silt were introduced into the onsite retainage ditches and Mill Stream (Skerries_10) with potential for downstream impacts on Skerries Islands SPA. Noise from the site during construction and operation would be localised and would not be expected to extend to designated sites. As outlined in Appendix II "*Of the SCI species listed for the SPAs within the ZOI, only brent goose, herring gull and lesser blackbacked gull were observed within 500m of the proposed development. The proposed development is not within an SPA, however given the proximity of a number of SPAs, there may be potential for impacts to result during construction and operational phases of the proposed development on birds which are associated with these SPA. Potential impacts could include:* • *Disturbance/displacement during the construction and operational phases of the proposed development to Special Conservation Interest of the SPA including through movement of machinery, personnel, noise, vibration and/or noise associated with domestic dwellings.* • *Water pollution.* *The maximum likely distance at which disturbance will impact SCIs from an SPA is 300m (Cutts et al.,2013) from the proposed development boundary. Given the separation distance from the SPAs, disturbance impacts within an SPA are not anticipated. However, given the proximity of the proposed development to areas of suitable feeding/roosting habitat (e.g. Skerries golf club), disturbance/displacement impacts during the construction phase on these areas cannot be ruled out."* **During operation** The development has the potential to cause pollution via surface water and downstream impacts. No significant impacts on designated sites are likely during operation. There will be increased activity on site

Table 10. Potential for adverse effects on the qualifying interests and conservation objectives of European sites		
European Site & Site Code	Qualifying Interests	Potential for Effects
		which will cause localised disturbance within the site. As outlined in Appendix II "*The proposed housing scheme may result in disturbance of SCI's of the adjacent SPA, which utilize the areas surrounding the proposed development for feeding and roosting. However, it is likely that habituation will occur to this new source of disturbance given that the SCIs of the SPA are already accustomed to the disturbance associated with Skerries town and existing surrounding housing developments*." In addition, it should be noted that the Skerries Golf Club is located on the far side of the railway embankment which is vegetated and would reduce the impact of noise and lighting from the proposed development. No mitigation in relation to noise or disturbance is required during operation. Given the nature of the potential effects outlined above, the proposed project could have the potential to effect the: Distribution, Number and Range of areas used by: Cormorant (*Phalacrocorax carbo*) [A017] Shag (*Phalacrocorax aristotelis*) [A018] Light-bellied Brent Goose (*Branta bernicla hrota*) [A046] Purple Sandpiper (*Calidris maritima*) [A148] Turnstone (*Arenaria interpres*) [A169] Herring Gull (*Larus argentatus*) [A184] Mitigation measures are required to remove the potential of impacts on the SPA from direct pathways via the Mill Stream and drainage ditch and noise during construction on site.
Rogerstown Estuary SPA [004015]	Greylag Goose (Anser anser) [A043] Light-bellied Brent Goose (Branta bernicla hrota) [A046] Shelduck (Tadorna tadorna) [A048] Shoveler (Anas clypeata) [A056] Oystercatcher (Haematopus ostralegus) [A130] Ringed Plover (Charadrius hiaticula) [A137] Grey Plover (Pluvialis squatarola) [A141] Knot (Calidris canutus) [A143] Dunlin (Calidris alpina) [A149] Black-tailed Godwit (Limosa limosa) [A156]	**During Construction** The proposed development is not within a designated conservation site. It should be noted that there is no direct hydrological pathway to the Rogerstown Estuary SPA. Noise from the site during construction and operation would be localised and would not be expected to extend to designated sites. As outlined in Appendix II "*Of the SCI species listed for the SPAs within the ZOI, only brent goose, herring gull and lesser blackbacked gull were observed within 500m of the proposed development. The proposed development is not within an SPA, however given the proximity of a number of SPAs, there may be potential for impacts to result during construction and operational phases of the proposed development on birds which are associated with these SPA. Potential impacts could include:*

Table 10. Potential for adverse effects on the qualifying interests and conservation objectives of European sites		
European Site & Site Code	Qualifying Interests	Potential for Effects
	Redshank (Tringa totanus) [A162] Wetlands	• *Disturbance/displacement during the construction and operational phases of the proposed development to Special Conservation Interest of the SPA including through movement of machinery, personnel, noise, vibration and/or noise associated with domestic dwellings.* • *Water pollution.* *The maximum likely distance at which disturbance will impact SCIs from an SPA is 300m (Cutts et al.,2013) from the proposed development boundary. Given the separation distance from the SPAs, disturbance impacts within an SPA are not anticipated. However, given the proximity of the proposed development to areas of suitable feeding/roosting habitat (e.g. Skerries golf club), disturbance/displacement impacts during the construction phase on these areas cannot be ruled out."* **During operation** The development has the potential to cause pollution via surface water and downstream impacts. No significant impacts on designated sites are likely during operation. There will be increased activity on site which will cause localised disturbance within the site. As outlined in Appendix II "*The proposed housing scheme may result in disturbance of SCI's of the adjacent SPA, which utilize the areas surrounding the proposed development for feeding and roosting. However, it is likely that habituation will occur to this new source of disturbance given that the SCIs of the SPA are already accustomed to the disturbance associated with Skerries town and existing surrounding housing developments*." In addition, it should be noted that the Skerries Golf Club is located on the far side of the railway embankment which is vegetated and would reduce the impact of noise and lighting from the proposed development. No mitigation in relation to noise or disturbance is required during operation. Given the nature of the potential effects outlined above, the proposed project could have the potential to effect the Distribution, Number and Range of areas used by: Greylag Goose (*Anser anser*) [A043] Light-bellied Brent Goose (*Branta bernicla hrota*) [A046] Shelduck (*Tadorna tadorna*) [A048] Shoveler (*Anas clypeata*) [A056] Oystercatcher (*Haematopus ostralegus*) [A130] Ringed Plover (*Charadrius hiaticula*) [A137] Grey Plover (*Pluvialis squatarola*) [A141] Knot (*Calidris canutus*) [A143]

Table 10. Potential for adverse effects on the qualifying interests and conservation objectives of European sites		
European Site & Site Code	Qualifying Interests	Potential for Effects
		Dunlin (*Calidris alpina*) [A149] Black-tailed Godwit (*Limosa limosa*) [A156] Redshank (*Tringa tetanus*) [A162] No impact would be foreseen on wetlands. Mitigation measures are required to remove the potential of impacts on the qualifying interests of the SPA from noise during construction on site.
Malahide Estuary SPA [0004025]	Great Crested Grebe (*Podiceps cristatus*) [A005] Light-bellied Brent Goose (*Branta bernicla hrota*) [A046] Shelduck (*Tadorna tadorna*) [A048] Pintail (*Anas acuta*) [A054] Goldeneye (*Bucephala clangula*) [A067] Red-breasted Merganser (*Mergus serrator*) [A069] Oystercatcher (*Haematopus ostralegus*) [A130] Golden Plover (*Pluvialis apricaria*) [A140] Grey Plover (*Pluvialis squatarola*) [A141] Knot (*Calidris canutus*) [A143] Dunlin (*Calidris alpina*) [A149] Black-tailed Godwit (*Limosa limosa*) [A156] Bar-tailed Godwit (*Limosa lapponica*) [A157] Redshank (*Tringa totanus*) [A162] Wetland and Waterbirds [A999]	**During Construction** The proposed development is not within a designated conservation site. It should be noted that there is no direct hydrological pathway to the Malahide Estuary SPA. Noise from the site during construction and operation would be localised and would not be expected to extend to designated sites. As outlined in Appendix II "*Of the SCI species listed for the SPAs within the ZOI, only brent goose, herring gull and lesser blackbacked gull were observed within 500m of the proposed development. The proposed development is not within an SPA, however given the proximity of a number of SPAs, there may be potential for impacts to result during construction and operational phases of the proposed development on birds which are associated with these SPA. Potential impacts could include:* • *Disturbance/displacement during the construction and operational phases of the proposed development to Special Conservation Interest of the SPA including through movement of machinery, personnel, noise, vibration and/or noise associated with domestic dwellings.* • *Water pollution.* *The maximum likely distance at which disturbance will impact SCIs from an SPA is 300m (Cutts et al.,2013) from the proposed development boundary. Given the separation distance from the SPAs, disturbance impacts within an SPA are not anticipated. However, given the proximity of the proposed development to areas of suitable feeding/roosting habitat (e.g. Skerries golf club), disturbance/displacement impacts during the construction phase on these areas cannot be ruled out."* **During operation** The development has the potential to cause pollution via surface water and downstream impacts. No significant impacts on designated sites are likely during operation. There will be increased activity on site which will cause localised disturbance within the site. As outlined in Appendix II "*The proposed housing scheme may result in disturbance of SCI's of the adjacent SPA, which utilize the areas surrounding the proposed development for feeding and roosting. However, it is likely that habituation will occur to this new source of*

Table 10. Potential for adverse effects on the qualifying interests and conservation objectives of European sites		
European Site & Site Code	Qualifying Interests	Potential for Effects
		disturbance given that the SCIs of the SPA are already accustomed to the disturbance associated with Skerries town and existing surrounding housing developments." In addition, it should be noted that the Skerries Golf Club is located on the far side of the railway embankment which is vegetated and would reduce the impact of noise and lighting from the proposed development. No mitigation in relation to noise or disturbance is required during operation. Given the nature of the potential effects outlined above, the proposed project could have the potential to effect the distribution, Number and Range of areas used by: Great Crested Grebe (Podiceps cristatus) [A005] Light-bellied Brent Goose (Branta bernicla hrota) [A046] Shelduck (Tadorna tadorna) [A048] Pintail (Anas acuta) [A054] Goldeneye (Bucephala clangula) [A067] Red-breasted Merganser (Mergus serrator) [A069] Oystercatcher (Haematopus ostralegus) [A130] Golden Plover (Pluvialis apricaria) [A140] Grey Plover (Pluvialis squatarola) [A141] Knot (Calidris canutus) [A143] Dunlin (Calidris alpina) [A149] Black-tailed Godwit (Limosa limosa) [A156] Bar-tailed Godwit (Limosa lapponica) [A157] Redshank (Tringa totanus) [A162] Wetland and Waterbirds [A999] Mitigation measures are required to remove the potential of impacts on the qualifying interests of the SPA from noise during construction on site.

Table 11. Mitigation Measures		
European Site	Impacts	Potential for Effects
Skerries Islands SPA	• Pollution • Downstream impacts • Negative impacts on the aquatic environment, aquatic species and qualifying interests.	Given the nature of the works, adjacent to an onsite drainage ditch and Mill Stream (Skerries_10), all of these effects would be expected to be localised in nature restricted to the immediate vicinity of the site. However, without the presence of mitigation measures there is a potential for downstream effects if significant quantities of pollution or silt were introduced into the onsite drainage ditches and Mill Stream (Skerries_10) with potential for downstream impacts on Skerries Islands SPA. The storage of topsoil or works in the vicinity of the drainage ditch on onsite could lead to dust, soil or silt laden runoff entering adjacent watercourses and drainage ditches. Contaminated surface water runoff on site during construction or operation may lead to silt or contaminated materials from site entering the onsite ditch and Mill Stream (Skerries_10) with downstream impacts on the SPA. If on-site concrete production is required or cement works are carried out in the vicinity of watercourses/drainage ditches there is potential for contamination of watercourses. The use of plant and machinery, as well as the associated temporary storage of construction materials, oils, fuels and chemicals could lead to pollution on site or in adjacent watercourses. **Construction Mitigation** • All works methodologies will have prior approval of a project ecologist. The project ecologist will have experience with instream works. • Best available technology (BAT) mitigation measures designed by project ecologist • Staging of project will be carried out to reduce risks to drainage ditches from contamination • Local drainage ditches and watercourses must be protected from dust, silt and surface water throughout the works. • Local silt traps established throughout site. • Mitigation measures on site include dust control, stockpiling away from drains • The project ecologist will be present for the culvert installation to ensure that sufficient measures will be in place. • Stockpiling of loose materials will be kept to a minimum of 20m from watercourses and drains. • Stockpiles and runoff areas following clearance will have suitable barriers to prevent runoff of fines into the drainage system and watercourses. • Fuel, oil and chemical storage will be sited within a bunded area. The bund will be at least 50m away from drains, ditches or the watercourse, excavations and other locations where it may cause pollution. • Bunds will be kept clean and spills within the bund area will be cleaned immediately to prevent groundwater contamination. Any water-filled excavations, including the attenuation tank during construction, that require pumping will not directly discharge to the stream. Prior to discharge of water from excavations adequate filtration will be provided to ensure no deterioration of water quality. • The excavation of the 10m buffer surrounding the drainage ditch should be carried out in dry weather with no runoff entering the drainage ditch. • Mitigation measures on site include dust control, stockpiling away from watercourses and drains • Pollution control and mitigation on site • Stockpiles and runoff areas following clearance will have suitable barriers to prevent runoff of fines into the drainage system and watercourses. • Fuel, oil and chemical storage will be sited within a bunded area. A risk based approach will be taken. • Bunds will be kept clean and spills within the bund area will be cleaned immediately to prevent groundwater contamination. • During the construction works silt traps will be put in place in the vicinity of all runoff channels the stream to prevent sediment entering the drainage ditch.

Table 11. Mitigation Measures		
European Site	Impacts	Potential for Effects
		• Petrochemical interception and bunds in refuelling area • Planting in the vicinity of the crossing should be put in place as soon as possible to allow biodiversity corridors to establish. • On-site inspections to be carried out by project ecologist. • Maintenance of any drainage structures (e.g. de-silting operations) must not result in the release of contaminated water to the surface water network. • No entry of solids to the associated stream or drainage network during the connection of pipework • Landscaping of the Riparian corridor will be carried out to the satisfaction of ecologist at an early stage of the project. • Full compliance with the water Pollution Acts will be carried out on site. • Silt traps established throughout site including a double silt fence between the site and the watercourse. • Sufficient onsite cleaning of vehicles prior to leaving the site and on nearby roads, will be carried out, particularly during groundworks. • The Site Manager will be responsible for the pollution prevention programme and will ensure that at least daily checks are carried out to ensure compliance. A record of these checks will be maintained. • The site compound will include a dedicated bund for the storage of dangerous substances including fuels, oils etc. Refuelling of vehicles/machinery will only be carried out within the bunded area. • A project ecologist will be appointed and consulted in relation to all onsite drainage during construction works. Consultation with the project ecologist will not involve the formulation of new mitigation measures for the purposes of protecting any European Site, and relate only to the implementation of those mitigation measures already stated in the submission or the formulation of mitigation for other purposes. • Dewatering of excavations may be necessary. Appropriate monitoring of groundwater levels during site works will be undertaken. Standard construction phase filtering of surface water for suspended solids will be carried out. Unfiltered surface water discharges or runoff are not permitted from the site into the onsite watercourse during the works. Trenched double silt fencing shall be put in place along boundary of the proposed development site with 10m buffer from the onsite drainage ditch. This fencing must be in place as one of the first stages on site and prior to the full site clearance. The silt fencing will act as a temporary sediment control device to protect the watercourse from sediment and potential site water runoff. The fencing will be inspected twice daily, based on site and weather conditions, for any signs of contamination or excessive silt deposits. • Concrete trucks, cement mixers or drums/bins are only permitted to wash out in designated wash out area greater than 50m from sensitive receptors including drains and drainage ditches. • Abstraction of water from watercourses will not be permitted. • Spill containment equipment shall be available for use in the event of an emergency. The spill containment equipment shall be replenished if used and shall be checked on a scheduled basis. • All site personnel will be trained in the importance of good environmental practices including reporting to the site manager when pollution, or the potential for pollution, is suspected. All persons working on-site will receive work specific induction in relation to surface water management and run off controls. Daily environmental toolbox talks / briefing sessions will be conducted to outline the relevant environmental control measures and to identify any environment risk areas/works. • Environmental risks due to construction and operation of the proposed development do potentially exist, particularly in relation runoff from sloping site, drains that could lead to the onsite watercourse. Ecological supervision will be required during diversion, excavation and enabling works stages. Silt interception measures will need to be in place to ensure that the watercourses are not impacted during works

Table 11. Mitigation Measures		
European Site	Impacts	Potential for Effects
		and in particular during the site clearance, in-stream works and reprofiling stages. Landscaping of the grassed areas of the site proximate to the onsite watercourse should take place immediately following re-profiling, to act as a buffer to protect the drainage ditch. *Air & Dust* Dust may enter the onsite drainage ditch via air or surface water with potential downstream impacts. Mitigation measures will be carried out reduce dust emissions to a level that avoids the possibility of adverse effects on the onsite watercourse. The main activities that may give rise to dust emissions during construction include the following: • Excavation of material; • Materials handling and storage; • Movement of vehicles (particularly HGV's) and mobile plant. • Contaminated surface runoff *Mitigation measures to be in place:* • Consultation will be carried with an ecologist throughout the construction phase; • Trucks leaving the site with excavated material (if required) will be covered so as to avoid dust emissions along the haulage routes. • Speed limits on site (15kmh) to reduce dust generation and mobilisation. • The drainage ditch is to be protected from dust on site. This may require additional measures in the vicinity of the building during demolition e.g. placing of terram/protective material over the stream. *Site Management* • Regular inspections of the site and boundary should be carried out to monitor dust, records and notes on these inspections should be logged. • Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken. • Make the complaints log available to the local authority when asked. • Record any exceptional incidents that cause dust and/or air emissions, either on- or offsite, and the action taken to resolve the situation in the log book. *Monitoring* • Undertake daily on-site and off-site inspection, where receptors are nearby, to monitor dust, record inspection results, and make the log available to the local authority when asked. This should include regular dust soiling checks of surfaces within 100 m of site boundary, integrity of the silt control measures, with cleaning and / or repair to be provided if necessary. *Preparing and Maintaining the Site* • Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible. • Fully enclose specific operations where there is a high potential for dust production and the site is active for an extensive period. • Avoid site runoff of water or mud.

Table 11. Mitigation Measures		
European Site	Impacts	Potential for Effects
		• Keep site fencing, barriers and scaffolding clean using wet methods. • Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on-site cover as described below. • Cover, seed or fence stockpiles to prevent wind whipping. • Hard surface roads will be swept to remove mud and aggregate materials from their surface while any un-surfaced roads will be restricted to essential site traffic. • Any road that has the potential to give rise to fugitive dust will be regularly watered, as appropriate, during dry and/or windy conditions. • Maintain a vegetated strip and vehicle exclusion zone between the works and the onsite watercourse in consultation with the project ecologist. *Operations* • Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems. • Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate. • Use enclosed chutes and conveyors and covered skips. • Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate. • Ensure equipment is readily available on site to clean any dry spillages and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods. *Measures Specific to Earthworks* • Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable. • Use Hessian, mulches or trackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable. • Only remove the cover in small areas during work and not all at once. • During dry and windy periods, and when there is a likelihood of dust nuisance, a bowser will operate to ensure moisture content is high enough to increase the stability of the soil and thus suppress dust. • The Contractor will be required to consult with an ecologist prior to the beginning of works to identify any additional measures that may be appropriate and/or required. *Storage/Use of Materials, Plant & Equipment* • Materials, plant and equipment shall be stored in the proposed site compound location; • Plant and equipment will not be parked within 50m of the onsite watercourse at the end of the working day; • Hazardous liquid materials or materials with potential to generate run-off shall not be stored within 50m of the onsite watercourse. • All oils, fuels and other hazardous liquid materials shall be clearly labelled and stored in an upright position in an enclosed bunded area within the proposed development site compound. The capacity of the bunded area shall conform with EPA Guidelines – hold 110% of the contents or 110% of the largest container whichever is greater;

Table 11. Mitigation Measures		
European Site	Impacts	Potential for Effects
		• Fuel may be stored in the designated bunded area or in fuel bowsers located in the proposed compound location. Fuel bowsers shall be double skinned and equipped with certificates of conformity or integrity tested, in good condition and have no signs of leaks or spillages; • Smaller quantities of fuel may be carried/stored in clearly labelled metal Jeri cans. Green for diesel and red for petrol and mixes. The Jeri cans shall be in good condition and have secure lockable lids. The Jeri cans shall be stored in a drip tray when not in use. They will not be stored within 50m of the onsite watercourse; • Drip trays will be turned upside down if not in use to prevent the collection of rainwater; • Waters collected in drip trays must be assessed prior to discharge. If classified as contaminated, they shall be disposed by a permitted waste contractor in accordance with current waste management legal and regulatory requirements; • Plant and equipment to be used during works, will be in good working order, fit for purpose, regularly serviced/maintained and have no evidence of leaks or drips; • No plant used shall cause a public nuisance due to fumes, noise, and leakage or by causing an obstruction; • Re-fuelling of machinery, plant or equipment will be carried out in the site compound as per the appointed Construction Contractor re-fuelling controls; • All persons working will receive work specific induction in relation to material storage arrangements and actions to be taken in the event of an accidental spillage. Daily environmental toolbox talks / briefing sessions will be conducted for all persons working to outline the relevant environmental control measures and to identify any environment risk areas/works. **Operational Mitigation** Landscape and drainage (swale) works will be inspected by the project ecologist post construction. Silt and petrochemical measures will be in place on the surface water network.
Skerries Islands SPA Malahide Estuary SPA Rogerstown Estuary SPA	• Disturbance of qualifying interests due to noise.	**Noise** The following mitigation will be in place: • A Site Representative shall be appointed for matters related to noise. • Any complaints received shall be thoroughly investigated. • A written complaints log shall be maintained by the Site Representative. This shall, at a minimum, record complainant's details (where agreed) the date and time of the complaint, details of the complaint including where the effect was observed, corrective and preventative actions taken and any close-out communications. This will ensure that the concerns of local residents who may be affected by site activities are considered during the management of activities at the site. • Noise monitoring with capability for real-time review both on-site and remotely by Project Management shall be conducted at nearby NSRs throughout. Monitoring will be conducted at NSR1 and 3 at a minimum. As development moves south, monitoring shall be conducted at NSRs 2 and 5. • In the event of exceedance of the limits at NSRs, works shall be ceased and measures implemented immediately to ensure that the limits are complied with and/or duration in minimised. • Noise monitoring with capability for real-time review will facilitate immediate mitigation at nearby NSRs especially when noisy activities are planned.

Table 11. Mitigation Measures		
European Site	Impacts	Potential for Effects
		• Due to the proximity of separate development sites, and where works are occurring in tandem, individual Site Representatives or their appointed noise and vibration representatives will be required to liaise on management of construction noise impact through real-time review of monitoring data to ensure that the limits are met cumulatively. • Temporary acoustic screening shall be placed along the boundaries with NSRs where works take place close to the boundary. As a general rule of thumb, it is recommended that temporary screening break the "line of sight" from the sources to the affected windows of the nearest NSRs where possible. It is likely that screening will be required at NSR1 throughout the duration of the proposed works. • The screening should be of sufficient surface density (minimum 10 kg/m^2) to mitigate temporary noise impact associated with the construction phase. • The operation of certain pieces of equipment, where substitution etc cannot be carried out shall be managed through monitoring and timing of use to ensure that the threshold values/criteria specified are complied with. • During the construction phase all equipment shall be required to comply with noise limits set out in EC Directive 2000/14/EC as amended by Directive 2005/88/EC on the approximation of the laws of the Member States relating to the noise emission in the environment by equipment for use outdoors. The directive covers equipment such as compressors, welding generators, excavators, dozers, loaders and dump trucks. • While piling is dictated by constraints such as ground conditions (although a worst-case scenario has been assessed in this chapter) the design and final method chosen shall ensure compliance with the threshold limits for noise as set out in this chapter and limits proposed by Irish Rail for the rail line. • Measures such as use of an acoustic shroud, damping of the hammer impact and enclosure of the hammer shall be considered for reducing noise impact if applicable to the final piling design. • At the time of tender, the contractor will be obliged to review all systems taking noise and vibration into account in the choice of equipment. As noted in BS5228-1, "the construction industry is generally innovative and constantly developing, and there may be proprietary systems available at the time of tender that were not known or available at the planning stage."

Residual Impacts Post Mitigation

A robust series of mitigation measures described above will be carried out, which will ensure that water entering the onsite drainage ditch and the Mill Stream, is clean and uncontaminated. Given the proximity to the works of the drainage ditch and stream which has a direct pathway to the to the Skerries Islands SPA, the early implementation of ecological supervision on site will be at the initial mobilisation and enabling works. This is seen as an important element to the project, particularly in relation to the implementation of surface water runoff mitigation strategies. Noise from the site during construction and operation would be localised and would not be expected to extend to designated sites. In a strict application of the precautionary principle, it has been concluded that qualifying interests of the SPA may be in the vicinity of the proposed construction works and noise mitigation measures will be implemented during construction.

With the successful implementation of the mitigation measures to limit surface water and potential noimpacts on the onsite drainage ditch, including mitigation/supervision, in addition to noise impacts during construction, no significant impacts are foreseen from the construction or operation of the proposed project. Residual impacts of the proposed project will be localised to the immediate vicinity of the proposed works and will not impact on the SPA.

The construction and operational mitigation proposed for the development satisfactorily addresses the mitigation of potential impacts on the Skerries Islands SPA, through the application of the construction and operational phase controls as outlined above. In particular, mitigation measures to ensure compliance with Water Pollution Acts and prevent silt and pollution entering the stream will satisfactorily address the potential impacts on downstream biodiversity the Skerries Island SPA. No significant adverse impacts on the conservation objectives of European sites are likely following the implementation of the mitigation measures outlined above.

The mitigation measures outlined in this NIS will be complied with, to ensure that the proposed development does not have “downstream” environmental and noise impacts. These measures are to protect the groundwater/surface water, which are potentially the primary vectors of impacts from the site, and ensure that European Sites listed in the NIS not impacted during the proposed works the proposed development.

In-combination effects

There are several proposed developments located in the area immediately surrounding the subject site. The following is a list of planning applications as identified on the Department of Housing, Local Government and Heritage’s ‘National Planning Application Database’ portal[8]:

Table 4. In combination effects evaluated.

Project
Advance Infrastructure Application (An Bord Pleanála Reference Number. ABP-312189-21). The proposed development consists of advance infrastructure works on a 2.5 hectare site at Hackettstown, Skerries to facilitate future residential development on lands zoned for residential use to the north and south of subject site. These infrastructural works include (1) construction of a new Link Road; (2) construction of Regional Drainage Facility; (3) foul, surface water and water supply services; (4) planting & landscaping of open space areas; (5) diversion and undergrounding of existing overhead power lines and (6) utilisation of existing field gate on Golf Links Road as a temporary access road for construction traffic.
Ballygossan Park (Phase 2) Application (An Bord Pleanála Reference Number ABP-308583-20). The proposed development will consist of Phase 2 of Ballygossan Park and will provide for the construction of 149 no. residential units, creche, parkland, and two playing pitches on a 4.8 hectare site located to the south and west of Ballygossan Park, Skerries, Co. Dublin.
Off-site Road Improvement Works Application (An Bord Pleanala Reference Number ABP-309409-21). The proposed development consists of (1) reconstruction of the Miller's Lane/Shenick Road/Golf Links Road

[8] https://housinggovie.maps.arcgis.com/apps/webappviewer/index.html?id=9cf2a09799d74d8e9316a3d3a4d3a8de

junction to provide for a four armed mini roundabout; Upgrading and extension of the two-lane flared approach to the junction on both the northern (Dublin Road) and south-eastern (Miller's Lane) arms of the existing three-arm roundabout junction; (2) new street lighting system covering both junctions; (3) upgrades to the junction of Downside Heights/Golf Links Road and a new cycle path along the Golf Links Road; (4) new footpaths, cycle and pedestrian facilities, road gully's, road marking, signal and carriageway surfacing works;

Altemar are the ecologists for the above projects and have assessed the potential for in-combination effects for the above projects. The drainage ditch on site also serves the Ballygossan Park (Phase 2) Application. A NIS has been prepared for Ballygossan Park (Phase 2) Application by Altemar limited. The mitigation measures outlined in this and the Ballygossan Park (Phase 2) Application NIS will be applied throughout the construction phase of the proposed development and with similar mitigation measures applied for the other developments in accordance with best practice guidance then this will prevent any significant cumulative impacts on European Sites.

The operational phase of the proposed development is likely to coincide with the operational phase of the Ballygossan Park (Phase 2). As a result of this assessment, the proposed lighting and landscaping strategies for these projects complement one another in relation to retaining buffer zone surrounding the drain on site. As outlined in the wintering bird assessment in Appendix I "*it is likely that habituation will occur to this new source of disturbance given that the SCIs of the SPA are already accustomed to the disturbance associated with Skerries town and existing surrounding housing developments*." and that the operation of the proposed development would not cause significant effects on the qualifying interests of the SPA. The foul water connections will be to Barnageeragh Wastewater Treatment Works which is in compliance and based on the 2020 Environmental report has capacity (an organic capacity remaining of 27,501 PE).

It is concluded that no significant cumulative impacts will be seen as a result of the proposed development alone or combination with other projects. No projects in the vicinity of the proposed development are considered to have a significant in combination effect on European sites.

No significant in combination effect on European sites are foreseen from this project in combination in combination with other plans/projects.

Conclusion

In a strict application of the precautionary principle, it has been concluded that effects on the Skerries Islands SPA, Malahide Estuary SPA and Rogerstown Estuary SPA are likely from the proposed works in the absence of mitigation measures, as a result of direct hydrological connection to the Skerries Islands SPA via the onsite drainage ditch and Mill Stream (Skerries_10), potential downstream impacts from the project during the reprofiling, landscaping and drainage works and from noise impacts on the qualifying interests of Skerries Islands SPA, Malahide Estuary SPA and Rogerstown Estuary SPA, during construction. For this reason, a NIS was prepared to provide the necessary information to enable the competent authority to assess whether the proposed project, either alone or in combination with other plans or projects, in view of best scientific knowledge and in view of the sites conservation objectives, will adversely affect the integrity of the European Site. All other European sites were screened out at initial screening.

Following the implementation of the mitigation measures outlined, the construction and presence of this development will not have adverse effects on the integrity of Skerries Islands SPA, Malahide Estuary SPA and Rogerstown Estuary SPA, alone in combination with other plans and projects.

This report includes an Appropriate Assessment Screening Report and a NIS for the proposed development. It outlines the information required for the competent authority to carry out a screening for appropriate assessment and to carry out an appropriate assessment in order to determine whether or not the proposed development, either alone or in combination with other plans or projects, in view of best scientific knowledge and in view of the sites' conservation objectives, will adversely affect the integrity of the European site.

On the basis of the content of this report, the competent authority is enabled to carry out a screening for appropriate assessment and conduct an Appropriate Assessment and consider whether, either alone or in combination with other plans or projects, in view of best scientific knowledge and in view of the sites' conservation objectives, will adversely affect the integrity of the European site.

No significant effects are likely on European sites, their features of interest or conservation objectives. The proposed project will not will adversely affect the integrity of European sites either alone or in combination with other plans or projects, in view of best scientific knowledge and in view of the sites' conservation objectives**.**

Data used for the AA Screening/NIS Assessment

NPWS site synopses and Conservation objectives of sites within 15km were examined. The most recent SAC and SPA boundary shapefiles were downloaded and overlaid on ESRI terrain maps and satellite imagery. Several site visits were carried out, including bat surveys, to determine if the site contained possible threats to a European site or any European species or habitats.

References

The following references were used in the preparation of this AA screening report.

1. Department of Environment Heritage and Local Government Circular NPW 1/10 and PSSP 2/10 on Appropriate Assessment under Article 6 of the Habitats Directive – Guidance for Planning Authorities March 2010.
2. Appropriate Assessment of Plans and Projects in Ireland: Guidance for Planning Authorities, Department of the Environment, Heritage and Local Government 2009; www.npws.ie/publications/archive/NPWS_2009_AA_Guidance.pdf
3. Managing EUROPEAN Sites: the provisions of Article 6 of the Habitats Directive 92/43/EEC, European Commission 2019; https://ec.europa.eu/environment/nature/natura2000/management/docs/art6/EN_art_6_guide_jun_2019.pdf
4. Assessment of Plans and Projects Significantly Affecting EUROPEAN Sites: Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC
5. Guidance document on Article 6(4) of the 'Habitats Directive' 92/43/EEC – Clarification of the concepts of: alternative solutions, imperative reasons of overriding public interest, compensatory measures, overall coherence, opinion of the commission; ec.europa.eu/environment/nature/Natura2000/management/docs/art6/guidance_art6_4_en.pdf
6. Guidance document on the implementation of the birds and habitats directive in estuaries and coastal zones with particular attention to port development and dredging; ec.europa.eu/environment/nature/Natura2000/management/docs/guidance_doc.pdf
7. The Status of EU Protected Habitats and Species in Ireland. www.npws.ie/publications/euconservationstatus/NPWS_2007_Conservation_Status_Report.pdf
8. NPWS (2013) Conservation Objectives: Rockabill to Dalkey Island SAC 003000. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.
9. NPWS (2013) Conservation Objectives: Rogerstown Estuary SAC 000208. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.
10. NPWS (2013) Conservation Objectives: Lambay Island SAC 000204. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.
11. NPWS (2013) Conservation Objectives: Malahide Estuary SAC 000205. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.
12. NPWS (2021) Conservation objectives for Skerries Islands SPA [004122]. Generic Version 8.0. Department of Housing, Local Government and Heritage.

13. NPWS (2013) Conservation Objectives: Rockabill SPA 004014. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.
14. NPWS (2013) Conservation Objectives: Rogerstown Estuary SPA 004015. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.
15. NPWS (2021) Conservation objectives for Lambay Island SPA [004069]. Generic Version 8.0. Department of Housing, Local Government and Heritage..
16. NPWS (2013) Conservation Objectives: Malahide Estuary SPA 004025. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.
17. NPWS (2012) Conservation Objectives: River Nanny Estuary and Shore SPA 004158. Version 1.0. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.
18. (EC,2021) Assessment of plans and projects in relation to Natura 2000 sites – Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC. https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52021XC1028(02)&from=EN

Appendix I – Irish Water Confirmation of Feasibility

Ben Mong
DBFL
Ormond House
Upper Ormond Quay
Dublin 7
D07W704

Uisce Éireann
Bosca OP 448
Oifig Sheachadta na
Cathrach Theas
Cathair Chorcaí

Irish Water
PO Box 448,
South City
Delivery Office,
Cork City.

www.water.ie

2 April 2020

Dear Ben Mong,

Re: Connection Reference No CDS20001995 pre-connection enquiry -
Subject to contract | Contract denied

Connection for Multi/Mixed Use Development of 380 domestic units and 1 no, crèche unit at Golf Links Road, Hacketstown, Skerries, Co. Dublin

Irish Water has reviewed your pre-connection enquiry in relation to a water and wastewater connection at Golf Links Road, Hacketstown, Skerries, Co Dublin.

Based upon the details that you have provided with your pre-connection enquiry and on the capacity currently available in the network(s), as assessed by Irish Water, we wish to advise you that, subject to a valid connection agreement being put in place, your proposed connection to the Irish Water network(s) can be facilitated.

Water:

New connection to the existing network is feasible without upgrade (through the 160 mm third party watermain as proposed).

If the connection through the third party infrastructure is not possible, approx. 450 m of 150 mm ID new main to replace the existing 3" Cast Iron and 25.4 mm Galvanised Steel watermain is required, as shown by red dashed-line in the figure below. Irish Water currently does not have any plans to extend its network in this area. Should you wish to progress with the connection you will be required to fund this network extension.

This Confirmation of Feasibility to connect to the Irish Water infrastructure also does not extend to your fire flow requirements. Please note that Irish Water cannot guarantee a flow rate to meet fire flow requirements and in order to guarantee a flow to meet the Fire Authority requirements, you may need to provide adequate fire storage capacity within your development.

In order to determine the potential flow that could be delivered during normal operational conditions, an onsite assessment of the existing network is required.

Wastewater:

New connection to the existing network is feasible without upgrade.

The proposed water and wastewater connections for this development connect to the Irish Water network via infrastructure that has not been taken in charge by Irish Water (Third Party Infrastructure). Please be advised that at connection application stage and prior to the commencement of any Self-Lay Works, you have to:

- identify and procure transfer to Irish Water of the arterial water and wastewater Infrastructure within the Third Party Infrastructure;
- demonstrate that the arterial infrastructure are in compliance with requirements of Irish Water Code of Practice and Standard Details and in adequate condition and capacity to cater for additional load from the Development.

Strategic Housing Development:

Irish Water notes that the scale of this development dictates that it is subject to the Strategic Housing Development planning process. In advance of submitting your full application to An Bord Pleanála for assessment, you must have reviewed this development with Irish Water and received a Statement of Design Acceptance in relation to the layout of water and wastewater services.

All infrastructure should be designed and installed in accordance with the Irish Water Codes of Practice and Standard Details. A design proposal for the water and/or wastewater infrastructure should be submitted to Irish Water for assessment. Prior to submitting your planning application, you are required to submit these detailed design proposals to Irish Water for review.

You are advised that this correspondence does not constitute an offer in whole or in part to provide a connection to any Irish Water infrastructure and is provided subject to a connection agreement being signed at a later date.

A connection agreement can be applied for by completing the connection application form available at **www.water.ie/connections**. Irish Water's current charges for water and wastewater connections are set out in the Water Charges Plan as approved by the Commission for Regulation of Utilities.

If you have any further questions, please contact Deirdre Ryan from the design team on 022 54620 or email deiryan@water.ie. For further information, visit **www.water.ie/connections.**

Yours sincerely,

Maria O'Dwyer

Connections and Developer Services

Appendix II - Winter Bird Survey Report 2020/2021

MKO Planning and Environmental Consultants

Winter Bird Survey Report 2020/2021

Altemar Bird Surveys, Hackettstown, North Co. Dublin

DOCUMENT DETAILS

Client:	**Altemar**
Project Title:	**Altemar Bird Surveys, Hackettstown, North Co. Dublin**
Project Number:	**201053**
Document Title:	**Winter Bird Survey Report 2020/2021**
Document File Name:	**201053 – F – Winter Bird Survey Report 2020/2021 – 2021.03.31**
Prepared By:	**MKO** **Tuam Road** **Galway** **Ireland** **H91 VW84**

Planning and Environmental Consultants

Rev	Status	Date	Author(s)	Approved By
01	Draft	23/03/2021	KS	PM
01	Final	31/03/2021	KS	PM/DO'D

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1. INTRODUCTION

McCarthy Keville O'Sullivan (MKO) was appointed to carry out bird survey works at Hackettstown, north County Dublin during the period from November 2020 to March 2021 inclusive. The proposed development scheme consists of a large housing development on a greenfield site dominated by cultivated land. The site is approximately 11.06 ha in area and is located between Skerries Train Station to the north and Skerries Golf Club to the south. Figure 1 (Appendix 2) provides a map of the location of the proposed development boundary (Grid Reference: 53.567717, -6.112750).

This report describes the ornithological survey methods employed and survey data collected at Hackettstown, north County Dublin for the period from November 2020 to March 2021 inclusive. This report also contains information compiled during the desktop study. Particular attention has been paid to species of conservation importance and identified target species.

The report is supported by Technical Appendix 1 which contains the raw data from the winter bird surveys in 2020/2021. This includes detail on survey times, weather conditions, surveyors, survey results and other additional information. Maps containing flight data and significant flocks observed during surveys are shown in Appendix 2.

The report is structured as follows:

- An introduction providing a description of the background and statement of authority regarding ornithological works.
- A description of the desktop study carried out with regards to the site.
- A comprehensive description of survey methods.
- A full description of results for all ornithological surveys conducted.
- A discussion of the potential impacts.

The following defines terms used in this report

- "Zones of Influence" (ZOI) for potential ornithological receptors refers to the zone within which potential effects are anticipated. ZOIs were assigned following best available guidance (SNH 2016 and McGuinness et.al 2015).

1.1 Statement of Authority

This report has been prepared by Kathryn Sheridan (M.Sc.), an Ornithologist with MKO, Patrick Manley (B. Sc.), a Project Ornithologist with MKO and Project Director, Dervla O'Dowd (B.Sc.). The field surveys were undertaken in the 2020/2021 winter season by Kathryn Sheridan, a competent expert in bird surveying.

CVs for the authors of this report and all personnel who carried out survey work are provided in Appendix 3.

2. DESK STUDY

2.1 Desk Study Methods

A comprehensive desk study was undertaken prior to surveys in winter 2020 to search for any relevant information on species of conservation concern which may potentially make use of the study area. The assessment included a thorough review of the available ornithological data including:

- Review of online web-mappers: National Parks and Wildlife Service (NPWS), Irish Wetland Bird Survey I-WeBS.
- Review of Birds of Conservation Concern (BoCCI) in Ireland 2014-2019 (Colhoun & Cummins, 2013)

2.2 Desk Study Results

2.2.1 Identification of Designated Sites within the Likely Zone of Influence

Using GIS software, sites designated for nature conservation within the potential ZOI of the proposed development were identified. Skerries Islands SPA and Natural Heritage Area is located to the east of the proposed development opposite the R128. The SPA is located approximately 700m east of the proposed development. It comprises three islands (St. Patrick's Island, Colt Island and Shenick's Island) and surrounding seas. Shenick's Island includes intertidal, rocky shores, sand flats and a shingle bar which connects to the mainland at low tide. St. Patrick's and Colt islands comprise low cliffs.

In addition, and in the absence of any specific European or Irish guidance, the Scottish Natural Heritage (SNH) Guidance, 'Assessing Connectivity with Special Protection Areas (SPA)' (2016) was consulted. This document provides guidance in relation to the identification of connectivity between proposed development proposals and Special Protection Areas. The guidance takes into consideration the distances some species may travel beyond the boundary of their SPAs and outlines information on dispersal and foraging ranges of bird species which are frequently encountered when considering plans and projects.

Designated sites located within the Likely Zone of Influence are listed below in Table 2-1 and illustrated in Appendix 2, Figure 2.

Table 2-1 Special Protection Areas within likely zone of influence

Designated site and code	Distance from proposed development (Km)	Qualifying Interests/Special Conservation Interests for which the European Site has been designated (https://www.npws.ie, last viewed 30/03/2021)	Conservation Objectives
Skerries Islands SPA (004122)	700m to the east of the proposed development site	〉 Light-bellied Brent Goose *(Branta bernicla hrota)* [A046] 〉 Cormorant *(Phalacrocorax carbo)* [A017] 〉 Shag *(Phalacrocorax aristotelis)* [A018] 〉 Purple Sandpiper *(Calidris maritima)* [A148] 〉 Turnstone *(Arenaria interpres)* [A169] 〉 Herring Gull *(Larus argentatus)* [A184]	This site has detailed conservation objectives for each species listed as Qualifying Interests of the SPA: "To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests of this SPA." NPWS (2021) Conservation objectives: Skerries Islands SPA [004122]. Generic Version 8.0.
Rockabill SPA (004014)	3.3km to the east of the proposed development site	〉 Purple Sandpiper (*Calidris maritima*) [A148] 〉 Roseate Tern (*Sterna dougallii*) [A192] 〉 Common Tern (*Sterna hirundo*) [A193] 〉 Arctic Tern (*Sterna paradisaea*) [A194]	This site has detailed conservation objectives for each species listed as Qualifying Interests of the SPA: "To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests of this SPA." NPWS (2013) Conservation objectives: Rockabill SPA [004014]. Version 1.0.
Rogerstown Estuary SPA (004015)	5.5km to the south of the proposed development site	〉 Greylag Goose (*Anser anser*) [A043] 〉 Light-bellied Brent Goose (*Branta bernicla hrota*) [A046] 〉 Shelduck (*Tadorna tadorna*) [A048] 〉 Shoveler (*Anas clypeata*) [A056] 〉 Oystercatcher (*Haematopus ostralegus*) [A130] 〉 Ringed Plover (*Charadrius hiaticula*) [A137] 〉 Grey Plover (*Pluvialis squatarola*) [A141] 〉 Knot (*Calidris canutus*) [A143] 〉 Dunlin (*Calidris alpina*) [A149] 〉 Black-tailed Godwit (*Limosa limosa*) [A156] 〉 Redshank (*Tringa totanus*) [A162] 〉 Wetland and Waterbirds [A999]	This site has detailed conservation objectives for each species listed as Qualifying Interests of the SPA: "To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests of this SPA." NPWS (2013) Conservation objectives: Rogerstown Estuary SPA [004015]. Version 1.0.

Designated site and code	Distance from proposed development (Km)	Qualifying Interests/Special Conservation Interests for which the European Site has been designated (https://www.npws.ie, last viewed 30/03/2021)	Conservation Objectives
Lambay Island SPA (004069)	9km to the southeast of the proposed development site	〉 Fulmar (*Fulmarus glacialis*) [A009] 〉 Cormorant (*Phalacrocorax carbo*) [A017] 〉 Shag (*Phalacrocorax aristotelis*) [A018] 〉 Greylag Goose (*Anser anser*) [A043] 〉 Lesser Black-backed Gull (*Larus fuscus*) [A183] 〉 Herring Gull (*Larus argentatus*) [A184] 〉 Kittiwake (*Rissa tridactyla*) [A188] 〉 Guillemot (*Uria aalge*) [A199] 〉 Razorbill (*Alca torda*) [A200] 〉 Puffin (Fratercula arctica) [A204]	This site has detailed conservation objectives for each species listed as Qualifying Interests of the SPA: "To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests of this SPA." NPWS (2021) Conservation objectives: Lambay Island SPA [004069]. Generic Version 8.0.
Malahide Estuary SPA (004025)	10.4km to the south of the proposed development site	〉 Great Crested Grebe (*Podiceps cristatus*) [A005] 〉 Light-bellied Brent Goose (*Branta bernicla hrota*) [A046] 〉 Shelduck (*Tadorna tadorna*) [A048] 〉 Pintail (*Anas acuta*) [A054] 〉 Goldeneye (*Bucephala clangula*) [A067] 〉 Red-breasted Merganser (*Mergus serrator*) [A069] 〉 Oystercatcher (*Haematopus ostralegus*) [A130] 〉 Golden Plover (*Pluvialis apricaria*) [A140] 〉 Grey Plover (*Pluvialis squatarola*) [A141] 〉 Knot (*Calidris canutus*) [A143] 〉 Dunlin (*Calidris alpina*) [A149] 〉 Black-tailed Godwit (*Limosa limosa*) [A156] 〉 Bar-tailed Godwit (*Limosa lapponica*) [A157] 〉 Redshank (*Tringa totanus*) [A162] 〉 Wetland and Waterbirds [A999]	This site has detailed conservation objectives for each species listed as Qualifying Interests of the SPA: "To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests of this SPA." This site also has a second conservation objective: "To maintain the favourable conservation condition of the wetland habitat in Malahide Estuary SPA as a resource for the regularly-occurring migratory waterbirds that utilise it." NPWS (2013) Conservation objectives: Malahide Estuary SPA [004025]. Version 1.0.
River Nanny Estuary and Shore SPA (004158)	11.1km to the north of the proposed development site	〉 Oystercatcher (*Haematopus ostralegus*) [A130] 〉 Ringed Plover (*Charadrius hiaticula*) [A137] 〉 Golden Plover (*Pluvialis apricaria*) [A140] 〉 Knot (*Calidris canutus*) [A143]	This site has detailed conservation objectives for each species listed as Qualifying Interests of the SPA:

Designated site and code	Distance from proposed development (Km)	Qualifying Interests/Special Conservation Interests for which the European Site has been designated (https://www.npws.ie, last viewed 30/03/2021)	Conservation Objectives
		〉 Sanderling (*Calidris alba*) [A144] 〉 Herring Gull (*Larus argentatus*) [A184] 〉 Wetland and Waterbirds [A999]	"To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests of this SPA." This site also has a second conservation objective: "To maintain the favourable conservation condition of the wetland habitat in River Nanny River and Shore SPA as a resource for the regularly-occurring migratory waterbirds that utilise it." NPWS (2012) Conservation objectives: River Nanny River and Shore SPA [004158]. Version 1.0.

2.2.2 Irish Wetland Bird Survey (IWeBS) Records

Data from this I-WeBS site has been used to estimate the population of waterbirds in the area surrounding the proposed development area. The dataset for Skerries Islands SPA was downloaded from www.birdwatchireland.ie and reviewed. I-WeBS surveys for the 2014/15, 2016/17 and 2017/18 survey seasons were not undertaken, and no data is available for these years. The most recent 5-season period and mean counts for this period are presented in Table 2-2.

Table 2-2 IWeBS data for Skerries Islands SPA

Species	2013/14	2014/15	2015/16	2016/17	2017/18	5-season mean (2013/14-2017/18)
Light-bellied Brent Goose	39	-	200	-	-	120
Shelduck	2	-	0	-	-	1
Mallard	20	-	2	-	-	11
Pintail	0	-	0	-	-	0
Long-tailed Duck	0	-	0	-	-	0
Eider	2	-	8	-	-	5
Red-throated Diver	22	-	9	-	-	16
Great Northern Diver	5	-	0	-	-	2
Great Crested Grebe	0	-	1	-	-	0
Cormorant	340	-	25	-	-	182
Shag	190	-	45	-	-	118
Little Egret	0	-	1	-	-	0
Grey Heron	2	-	1	-	-	2
Water Rail	0	-	1	-	-	0
Oystercatcher	660	-	400	-	-	530
Ringed Plover	70	-	70	-	-	70
Lapwing	10	-	0	-	-	5
Sanderling	25	-	2	-	-	14
Purple Sandpiper	0	-	17	-	-	8
Dunlin	150	-	0	-	-	75
Jack Snipe	0	-	0	-	-	0
Snipe	2	-	0	-	-	1
Bar-tailed Godwit	20	-	0	-	-	10
Whimbrel	0	-	2	-	-	1
Curlew	460	-	550	-	-	505
Greenshank	1	-	2	-	-	2
Redshank	35	-	20	-	-	28
Turnstone	240	-	140	-	-	190
Black-headed Gull	100	-	5	-	-	52
Common Gull	60	-	30	-	-	45
Herring Gull	250	-	340	-	-	295
Great Black-backed Gull	100	-	370	-	-	235

'-' indicates where no data was available.

Data from IWeBS sites in County Dublin has been used to estimate County populations of wintering waterbirds discussed in this report. Datasets for the following sites were downloaded from www.birdwatchireland.ie and reviewed:

Dublin IWeBS Sites

- Baldoyle Bay
- Brittas Pools
- Broadmeadow (Malahide) Estuary
- Delvin River – Hampton Cove
- Dublin Bay
- Dublin Zoo Ponds
- Grand Canal (Dublin)
- Hick's Tower and Robswall
- Hynestown Lake Naul
- Ireland's Eye
- Knock Lake
- Lambay Island
- Mountseskin/Gortlum
- Portmarnock Marsh
- Rockabill
- Rogerstown Estuary
- Seagrange Park
- Skerries Coast
- Skerries Islands
- Skerries, Baldongan
- South Dublin Coastline
- St. Stephen's Green
- Tymon Park

2.2.3 Method of Identification of Target Species

Following a comprehensive desk study by MKO, initial site visit and consultation, a list of "Target species" likely to occur at the site was compiled. The survey work carried out on the site was specifically designed to survey for these identified target species in accordance with relevant survey guidance, e.g. I-WeBS methods. The target species list was drawn from:

- Annex I of the Birds Directive,
- Special Conservation Interests (SCI) of Special Protection Areas (SPA) within the zone of likely significant effects,
- Red listed birds of Conservation Concern in Ireland.
- Species protected under the fourth schedule of the Wildlife Acts 1976-2012.

All species within these categories were considered as target species for the purpose of these surveys.

3. FIELD SURVEYS

3.1 Field Survey Methods

This section of the report describes the various field survey methods employed. Field surveys were undertaken from November 2020 – March 2021 inclusive. Field survey methodologies have been devised to survey for the bird species composition and assemblages that occur within the study area.

3.1.1 Initial Site Assessment

Based on the results of the desk study, the likely importance of the study area for bird species was determined. Based on the collated information available from the above preliminary assessment and adopting a precautionary approach, a site-specific scope for the ornithological surveys was developed.

3.1.2 Walkover Surveys

Winter walkover surveys were undertaken to determine the presence of bird species of high conservation concern within areas of potential suitable habitat in the study area. The walkover survey was undertaken within the redline boundary.

Transect routes were devised to ensure coverage of different habitat complexes within the study area, during each survey visit. The survey was undertaken (onsite) within two hours of high tide, as this is the period when birds from the estuary are most likely to make use of terrestrial habitats, such as those present within the proposed development area. The main aim of the survey was to identify if SCIs from the adjacent SPA were utilising areas onsite for foraging or roosting. Along with target species, all additional species observed were recorded to inform the evaluation of supporting habitat.

Survey effort, including details of survey duration and weather condition, is presented in Appendix 1, Table 1-1. Figure 1 in Appendix 1 shows the survey study area.

3.1.3 Habitat Surveys

Transect routes were walked during each survey to assess the quality and composition of habitats at various points (10 maximum) within the proposed development boundary. At each point grass sward height, percentage of grass, percentage of forb species and percentage of bare ground was noted. Also noted was the abundance of brent goose droppings present at each transect point. Results of these habitat transects are presented in Table 3-3.

3.1.4 Survey Justification

A comprehensive suite of bird surveys was undertaken at the site between November 2020 and March 2021, as detailed in this report.

The surveys undertaken provide the information necessary to allow a complete, comprehensive and robust assessment of the potential impacts of the proposed development on avian receptors.

3.2 Field survey results

3.2.1 Survey Effort

Surveys were undertaken between the 2nd of November 2020 and 15th of March 2021. Two visits a month were undertaken during this period where possible, with 12 surveys carried out in total. Table 3-1 shows the survey effort for the 2020/2021 winter season.

Table 3-1 Survey Effort conducted at the proposed development

Survey Date	Survey Duration	Surveyor
02/11/2020	06:00 starting at 09:23	KS
06/11/2020	06:00 starting at 10:42	KS
16/11/2020	06:00 starting at 09:02	KS
26/11/2020	06:00 starting at 08:10	KS
03/12/2020	06:00 starting at 10:12	KS
17/12/2020	06:00 starting at 10:06	KS
11/01/2021	06:00 starting at 08:15	KS
25/01/2021	06:00 starting at 08:15	KS
08/02/2021	06:00 starting at 07:40	KS
22/02/2021	06:00 starting at 07:15	KS
01/03/2021	06:00 starting at 09:46	KS
15/03/2021	06:00 starting at 09:50	KS

3.2.2 Walkover Survey Results

Walkover surveys were undertaken at the proposed development between November 2020 and March 2021 inclusive. Summary results from the walkover surveys are presented below in Table 3-2 and discussed in further detail in Section 4 of this report. Figure numbers refer to figures provided in Appendix 2.

Table 3-2 Total number of each species recorded on site during walkover surveys (Peak Counts for each species are presented in bold)

Species	Conservation Status	November				December		January		February		March		Figure No.
		2nd	6th	16th	26th	3rd	17th	11th	25th	8th	22nd	1st	15th	
Black-headed Gull	BoCCI Red Listed (Breeding Populations)	1	9	17	6	4	30	**70**	1	28	13	7	12	1.1
Brent Goose	BoCCI Amber Listed	**32**												1.2
Common Gull	BoCCI Amber Listed (Breeding Populations)	6	12	12	6	1	**21**		11	2	3	1	3	1.3
Curlew	BoCCI Red Listed		4	1	10	11	13	18	17	2	**46**		1	1.4
Great Black-backed Gull	BoCCI Amber Listed (Breeding Populations)		**1**	**1**				**1**						1.5
Grey Heron	BoCCI Green Listed											**1**	**1**	1.6
Herring Gull	BoCCI Red Listed (Breeding Populations)	14	**85**	10	16	6	70	30	9	21	14	8	7	1.7
Lapwing	BoCCI Red Listed								**11**					1.8
Lesser Black-backed Gull	BoCCI Amber Listed (Breeding Populations)	**2**	1	**2**	1				1	1	1			1.9
Mallard	BoCCI Green Listed												**1**	1.10
Merlin	Annex I species									**1**				1.11
Mute Swan	BoCCI Amber Listed	**2**												1.12

3.2.3 Habitat Survey Results

The quality and composition of various points on walked transects within the proposed development were assessed at each visit. The monthly range and averages of habitat compositions are detailed in Table 3-3 below. Also included is average monthly sward heights and the abundance of brent goose droppings.

Table 3-3: Habitat quality and composition of walked transects within the proposed development. Also included is the abundance of Brent geese droppings observed on transects.

Month	Sward Height (cm)	Grass (%)		Forbs (%)		Bare Ground (%)		Number of Droppings
		Range	Average	Range	Average	Range	Average	
November	36.4	40-95	78	5-40	22	0	0	0
December	32.2	10-95	76.5	5-90	23.5	0	0	0
January	38	40-95	74.25	5-60	25.75	0	0	0
February	32.85	10-100	81.4	0-90	18.6	0	0	0
March	35.2	60-100	81.2	0-40	18.8	0	0	0

3.2.4 Other Observations

A number of observations of non-target species were recorded during the survey period. The most significant of these observations are detailed in Table 3- below and discussed in further detail in Section 4 of this report. Figure numbers refer to figures provided in Appendix 2.

Table 3-4 Other observations during surveys

Species	Survey Type	Observations recorded during surveys	Activity of note	Figure Number
Buzzard	Walkover Survey	31	Flying over site, calling/displaying	1.13
Buzzard	Walkover Survey	5	Pair flying/displaying	1.13
Buzzard	Walkover Survey	1	Multiple birds (>2) circling	1.13
Kestrel	Walkover Survey	13	Flying/Hunting over site	1.14
Kestrel	Walkover Survey	3	Pair flying together	1.14
Sparrowhawk	Walkover Survey	2	Flying/Hunting over site	1.15

4. DISCUSSION

The following provides a synopsis of the findings of the surveys undertaken between November 2020 and March 2021.

Within the proposed development site and/or within 500m of the site, the following key observations were noted:

- Curlew, Brent geese and lapwing were observed travelling over the proposed development towards improved grassland to the northwest and southwest. These fields comprise short grasses such as those on the Skerries golf course, which are favourable to this species.
- No target species were observed foraging on the grassland of this proposed development area, which comprises semi-natural grassland with grass sward heights that are longer than that preferable by most target species.

Key impacts that could result from the proposed development for local avian receptors include habitat loss, disturbance/displacement and water pollution. These impacts should be considered further at assessment stage.

The proposed development consists of semi-natural grassland and improved agricultural grassland. Of the SCI species the SPAs within the likely zone of influence, brent geese are considered the most likely to make use such habitats, therefore are most likely to be impacted by the proposed development. However, no geese were observed roosting or foraging within 500m of the proposed development, and no goose droppings were located during habitat surveys. This species was observed infrequently commuting over the proposed development. This may be because the sward height of the grassland found at the site of the proposed development does not correspond with the typical short grazing favoured by this species. The amenity grasslands, such as Skerries golf club, located within 500m of the proposed development are short sward grassland typically favoured by brent goose. There is the potential for disturbance/displacement of this species during the construction phase of the proposed development at these locations within 500m of the proposed development boundary. These impacts should be considered further at assessment stage.

Black-headed gull flocks of county importance (1% of the county population) were observed on one occasion on, or within 500m of, the proposed development site. Common gull flocks of county importance were observed on four occasions, curlew flocks of county importance were observed on one occasion, herring gull flocks of county importance were observed on three occasions, lesser black-backed gull flocks of county importance were observed on seven occasions and a grey heron flock of county importance was observed on two occasions. Of these species, lesser black-backed gull, and grey heron were observed infrequently and/or in low numbers, as such significant impacts on these species are not anticipated. Disturbance/displacement will be a key impact on the other species of county importance.

Brent geese and herring gulls observed at the proposed development may be associated with the Skerries Islands SPA, given the proximity of the SPA, 700m to the east of the proposed development. Lesser black-backed gulls observed within the proposed development are potentially associated with the Lambay Island SPA, which is located nine kilometers southeast of the proposed development, given the core foraging range of this species (Thaxter et al., 2012). No commuting corridors, to or from any SPA, were identified at the proposed development during the 2020/2021 winter season. However, a clear commuting corridor for curlew was observed, as birds commuted from the coast to foraging/roosting grounds inland.

Additionally, A potential breeding pair of buzzards were observed regularly over the semi-natural grasslands and perching in linear tree and scrub within the proposed development area. A pair of kestrel were observed over improved grassland and perching in conifer trees to the west of the proposed development. These birds were observed flying towards and from conifers on several occasions, and it is possible that there could be a breeding territory within this area during the breeding season. A merlin

was observed hunting over the grasslands of the proposed development on one occasion. This area supported an abundant number of prey species (such as meadow pipit and skylark) resulting in favorable hunting ground for raptors.

5. CONCLUSION

Of the SCI species listed for the SPAs within the ZOI, only brent goose, herring gull and lesser black-backed gull were observed within 500m of the proposed development. The proposed development is not within an SPA, however given the proximity of a number of SPAs, there may be potential for impacts to result during construction and operational phases of the proposed development on birds which are associated with these SPA. Potential impacts could include:

- Disturbance/displacement during the construction and operational phases of the proposed development to Special Conservation Interest of the SPA including through movement of machinery, personnel, noise, vibration and/or noise associated with domestic dwellings.
- Water pollution

The maximum likely distance at which disturbance will impact SCIs from an SPA is 300m (Cutts et al., 2013) from the proposed development boundary. Given the separation distance from the SPAs, disturbance impacts within an SPA are not anticipated. However, given the proximity of the proposed development to areas of suitable feeding/roosting habitat (e.g. Skerries golf club), disturbance/displacement impacts during the construction phase on these areas cannot be ruled out.

The proposed housing scheme may result in disturbance of SCI's of the adjacent SPA, which utilize the areas surrounding the proposed development for feeding and roosting. However, it is likely that habituation will occur to this new source of disturbance given that the SCIs of the SPA are already accustomed to the disturbance associated with Skerries town and existing surrounding housing developments.

The magnitude of these impact and their potential significance will require further consideration at the assessment stage of any future planning application.

BIBLIOGRAPHY

Birds Directive (2009/47/EC) – http://ec.europa.eu/environment/nature /legislation/birdsdirective /index _en.htm

Bibby, C.J., Burgess, N.D., Hill, D.A., and Mustoe, S. (2000) *Bird Census Techniques*. Academic Press, London.

Birds of conservation concern in Ireland 2014-2019 – https://www.birdwatchireland.ie/LinkClick.aspx?fileticket=VcYOTGOjNbA%3D&tabid=178

Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (Habitats Directive) and Directive 2009/147/EC (codified version of Directive 79/409/EEC as amended) (Birds Directive) – transposed into Irish law as European Communities (Birds and Natural Habitats) Regulations 2011 (SI 477/2011).

Cutts, N., Hemingway, K. and Spencer, J. (2013). *Waterbird Disturbance Mitigation Toolkit Informing Estuarine Planning & Construction Projects.* Institute of Estuarine & Coastal Studies (IECS) University of Hull

Estimates of waterbird numbers wintering in Ireland, 2011/12 – 2015/16. *Brian Burke, Lesley J. Lewis, Niamh Fitzgerald, Teresa Frost, Graham Austin, & T. David Tierney*

Gilbert et al. (1998) *Bird Monitoring Methods.* Pelagic Publishing.

Mullarney, K., Svensson, L., Zetterström, D. and Grant, P. J. (1999). *Collins Bird Guide*. Harper Collins, London.

SNH (2016) *Assessing Connectivity with Special Protection Areas (SPAs) – Version 3, June 2016.* Scottish Natural Heritage.

Thaxter, C.B., Lascelles, B., Sugar, K., Cook, A.S.C.P., Roos, S., Bolton, M., Langston, R.H.W. & Burton, N.H.K. (2012). Seabird foraging ranges as a preliminary tool for identifying candidate Marine Protected Areas. Biological Conservation, 156, 53–61.

www.npws.ie – Distribution maps and associated information for sites designated for nature conservation by NPWS (i.e. SPAs, SACs, NHAs, pNHAs)

IWeBS (2015). http://f1.caspio.com/dp.asp?AppKey=f4db3000060acbd80db9403f857c. Irish Wetland Bird Survey Records.

APPENDIX 1

TECHNICAL APPENDIX

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Table 1 Survey Effort

Survey Date	Survey Method	Survey Duration	Weather Conditions	Comments	Surveyor
02/11/2020	Walkover	06:00 starting at 09:23	Wind Speed and Direction: Strong Breeze, E; Visibility: Moderate (1-2km); Cloud Height: 150-500m; Cloud Cover %: 50 Rain: Light Showers; Frost: None; Snow: None		KS
06/11/2020	Walkover	06:00 starting at 10:42	Wind Speed and Direction: Gentle Breeze, W; Visibility: Moderate (1-2km); Cloud Height: >500m; Cloud Cover %: 20 Rain: None; Frost: None; Snow: None		KS
16/11/2020	Walkover	06:00 starting at 09:02	Wind Speed and Direction: Light Breeze, NNE; Visibility: Moderate (1-2km); Cloud Height: <150m; Cloud Cover %: 7 Rain: Light Showers; Frost: None; Snow: None		KS
26/11/2020	Walkover	06:00 starting at 08:10	Wind Speed and Direction: Light Breeze, E; Visibility: Poor (<km); Cloud Height: <150m; Cloud Cover %: 90 Rain: None; Frost: None; Snow: None		KS
03/12/2020	Walkover	06:00 starting at 10:12	Wind Speed and Direction: Light Breeze, SE; Visibility: Good (>2km); Cloud Height: 150-500m; Cloud Cover %: 80 Rain: None; Frost: None; Snow: None		KS
17/12/2020	Walkover	06:00 starting at 10:06	Wind Speed and Direction: Light Breeze, NNW; Visibility: Good (>2km); Cloud Height: 150-500m; Cloud Cover %: 25 Rain: None; Frost: None; Snow: None		KS
11/01/2021	Walkover	06:00 starting at 08:15	Wind Speed and Direction: Gentle Breeze, NE; Visibility: Good (>2km); Cloud Height: 150-500m; Cloud Cover %: 33 Rain: Drizzle; Frost: None; Snow: None		KS
25/01/2021	Walkover	06:00 starting at 08:15	Wind Speed and Direction: Light Breeze, E; Visibility: Good (>2km); Cloud Height: 150-500m; Cloud Cover %: 0-33 Rain: None; Frost: Light; Snow: None		KS
08/02/2021	Walkover	06:00 starting at 07:40	Wind Speed and Direction: Moderate breeze, SW; Visibility: Moderate (1-2km); Cloud Height: 150-500m; Cloud Cover %: 66 Rain: None; Frost: light; Snow: falling	Light snow	KS
22/02/2021	Walkover	06:00 starting at 07:15	Wind Speed and Direction: Light breeze, NE; Visibility: Good (>2km); Cloud Height: >500m; Cloud Cover %: 33 Rain: None; Frost: None; Snow: None		KS
01/03/2021	Walkover	06:00 starting at 09:46	Wind Speed and Direction: Light air, W; Visibility: Good (>2km); Cloud Height: >500m; Cloud Cover %: 0-33 Rain: None; Frost: None; Snow: None		KS
15/03/2021	Walkover	06:00 starting at 09:50	Wind Speed and Direction: Light breeze, E; Visibility: Good (>2km); Cloud Height: >500m; Cloud Cover %: 66 Rain: Drizzle; Frost: None; Snow: None		KS

Table 2 Walkover Survey Data

Map Reference	Survey Date	Species	Number of Birds	Habitat	Activity	Comments	Surveyor
LB0211.1	2020-11-02	Lesser Black-backed Gull	2	GS, (Semi-natural grassland) BL, (Built land)	Flying		KS
BG0211.1	2020-11-02	Brent Goose	11	GA1, (Improved agricultural grassland) GS, (Semi-natural grassland)	Flying		KS
HG0211.1	2020-11-02	Herring Gull	6	GS, (Semi-natural grassland) BL, (Built land)	Flying		KS
BZ0211.1	2020-11-02	Buzzard	1	GS, (Semi-natural grassland)	Perching in treeline		KS
HG0211.2	2020-11-02	Herring Gull	4	GS, (Semi-natural grassland) GA1, (Improved agricultural grassland)	Flying		KS
HG0211.3	2020-11-02	Herring Gull	3	GS, (Semi-natural grassland) BL, (Built land)	Flying		KS
HG0211.4	2020-11-02	Herring Gull	9	GS, (Semi-natural grassland) BL, (Built land)	Flying		KS
CM0211.1	2020-11-02	Common Gull	5	BL, (Built land) GS, (Semi-natural grassland) GA1, (Improved agricultural grassland)	Flying		KS
HG0211.5	2020-11-02	Herring Gull	3	GS, (Semi-natural grassland) BL, (Built land)	Flying		KS
HG0211.6	2020-11-02	Herring Gull	8	GA1, (Improved agricultural grassland)	Flying		KS
HG0211.7	2020-11-02	Herring Gull	4	GS, (Semi-natural grassland) BL, (Built land)	Flying		KS
HG0211.8	2020-11-02	Herring Gull	14	GS, (Semi-natural grassland) BL, (Built land)	Flying		KS
MS0211.1	2020-11-02	Mute Swan	2	BL, (Built land)	Flying		KS
HG0211.9	2020-11-02	Herring Gull	12	GS, (Semi-natural grassland)	Flying		KS
BH0211.1	2020-11-02	Black-headed Gull	1	GS, (Semi-natural grassland) GA1, (Improved agricultural grassland)	Flying		KS
HG0211.10	2020-11-02	Herring Gull	8	GS, (Semi-natural grassland) GA1, (Improved agricultural grassland)	Flying		KS
HG0211.11	2020-11-02	Herring Gull	2	GS, (Semi-natural grassland) GA1, (Improved agricultural grassland)	Flying		KS
CM0211.2	2020-11-02	Common Gull	6	BL, (Built land) GS, (Semi-natural grassland)	Flying		KS
HG0211.12	2020-11-02	Herring Gull	5	GS, (Semi-natural grassland) BL, (Built land)	Flying		KS
HG0211.13	2020-11-02	Herring Gull	4	GS, (Semi-natural grassland) BL, (Built land)	Flying		KS
BG0211.2	2020-11-02	Brent Goose	32	BL, (Built land) GS, (Semi-natural grassland)	Flying		KS

Map Reference	Survey Date	Species	Number of Birds	Habitat	Activity	Comments	Surveyor
LB0211.2	2020-11-02	Lesser Black-backed Gull	2	BL, (Built land) GS, (Semi-natural grassland)	Flying		KS
HG0611.1	2020-11-06	Herring Gull	5	GS, (Semi-natural grassland) BL, (Built land)	Flying		KS
HG0611.2	2020-11-06	Herring Gull	4	BL, (Built land) GS, (Semi-natural grassland)	Flying		KS
HG0611.3	2020-11-06	Herring Gull	3	BL, (Built land) GS, (Semi-natural grassland)	Flying		DW
HG0611.4	2020-11-06	Herring Gull	10	BL, (Built land) GS, (Semi-natural grassland)	Flying		DW
HG0611.5	2020-11-06	Herring Gull	2	BL, (Built land) GS, (Semi-natural grassland)	Flying		DW
HG0611.6	2020-11-06	Herring Gull	6	GA1, (Improved agricultural grassland) GS, (Semi-natural grassland)	Flying		DW
HG0611.7	2020-11-06	Herring Gull	1	GS, (Semi-natural grassland)	Flying		DW
BH0611.1	2020-11-06	Black-headed Gull	9	GA1, (Improved agricultural grassland)	Flying		DW
GB0611.1	2020-11-06	Great Black-backed Gull	1	GA1, (Improved agricultural grassland)	Flying		DW
HG0611.8	2020-11-06	Herring Gull	16	GS, (Semi-natural grassland) GA1, (Improved agricultural grassland)	Flying		DW
LB0611.1	2020-11-06	Lesser Black-backed Gull	1	GA1, (Improved agricultural grassland) GS, (Semi-natural grassland) BL, (Built land)	Flying		DW
HG0611.9	2020-11-06	Herring Gull	30	BL, (Built land)	Flying		DW
HG0611.10	2020-11-06	Herring Gull	20	GS, (Semi-natural grassland) GA1, (Improved agricultural grassland)	Flying		DW
HG0611.11	2020-11-06	Herring Gull	1	GA1, (Improved agricultural grassland) GS, (Semi-natural grassland)	Flying		DW
HG0611.12	2020-11-06	Herring Gull	3	GS, (Semi-natural grassland) GA1, (Improved agricultural grassland)	Flying		DW
HG0611.13	2020-11-06	Herring Gull	2	GS, (Semi-natural grassland) BL, (Built land) GA1, (Improved agricultural grassland)	Flying		DW
HG0611.14	2020-11-06	Herring Gull	15	GA1, (Improved agricultural grassland) GS, (Semi-natural grassland)	Flying		DW
CU0611.1	2020-11-06	Curlew	4	GS, (Semi-natural grassland) BL, (Built land) GA1, (Improved agricultural grassland)	Travelling		DW
HG0611.15	2020-11-06	Herring Gull	2	GS, (Semi-natural grassland) BL, (Built land)	Flying		DW

Map Reference	Survey Date	Species	Number of Birds	Habitat	Activity	Comments	Surveyor
HG0611.16	2020-11-06	Herring Gull	10	GS, (Semi-natural grassland) BL, (Built land)	Flying		DW
HG0611.17	2020-11-06	Herring Gull	5	GA1, (Improved agricultural grassland) GS, (Semi-natural grassland) BL, (Built land)	Flying		DW
HG0611.18	2020-11-06	Herring Gull	12	GA1, (Improved agricultural grassland) BL, (Built land) GS, (Semi-natural grassland)	Flying		DW
HG0611.19	2020-11-06	Herring Gull	10	GS, (Semi-natural grassland) GA1, (Improved agricultural grassland)	Flying		DW
HG0611.20	2020-11-06	Herring Gull	5	BL, (Built land) GS, (Semi-natural grassland)	Flying		DW
BZ0611.1	2020-11-06	Buzzard	1	BL, (Built land) GS, (Semi-natural grassland) GA1, (Improved agricultural grassland)	Travelling		DW
HG0611.21	2020-11-06	Herring Gull	28	GA1, (Improved agricultural grassland) GS, (Semi-natural grassland) BL, (Built land)	Flying		DW
CM0611.1	2020-11-06	Common Gull	12	GS, (Semi-natural grassland) BL, (Built land)	Flying		KS
LB0611.3	2020-11-06	Lesser Black-backed Gull	1	GS, (Semi-natural grassland) BL, (Built land)	Flying		KS
HG0611.22	2020-11-06	Herring Gull	6	BL, (Built land) GS, (Semi-natural grassland) GA1, (Improved agricultural grassland)	Flying		KS
HG0611.23	2020-11-06	Herring Gull	18	GA1, (Improved agricultural grassland) GS, (Semi-natural grassland) BL, (Built land)	Flying		KS
HG0611.24	2020-11-06	Herring Gull	10	GA1, (Improved agricultural grassland) GS, (Semi-natural grassland) BL, (Built land)	Flying		KS
HG0611.25	2020-11-06	Herring Gull	22	GA1, (Improved agricultural grassland) GS, (Semi-natural grassland) BL, (Built land)	Flying		KS
HG0611.26	2020-11-06	Herring Gull	85	GA1, (Improved agricultural grassland) BL, (Built land)	Flying		KS
HG0611.27	2020-11-06	Herring Gull	19	GA1, (Improved agricultural grassland) GS, (Semi-natural grassland) BL, (Built land)	Flying		KS
HG0611.28	2020-11-06	Herring Gull	14	GA1, (Improved agricultural grassland) GS, (Semi-natural grassland) BL, (Built land)	Flying		KS
HG0611.29	2020-11-06	Herring Gull	34	GA1, (Improved agricultural grassland) GS, (Semi-natural grassland) BL, (Built land)	Flying		KS
HG0611.30	2020-11-06	Herring Gull	52	GA1, (Improved agricultural grassland) GS, (Semi-natural grassland) BL, (Built land)	Flying		KS

Map Reference	Survey Date	Species	Number of Birds	Habitat	Activity	Comments	Surveyor
HG0611.31	2020-11-06	Herring Gull	20	GA1, (Improved agricultural grassland) GS, (Semi-natural grassland) BL, (Built land)	Flying		KS
HG0611.32	2021-11-06	Herring Gull	18	GA1, (Improved agricultural grassland) BL, (Built land)	Flying		KS
HG0611.33	2020-11-06	Herring Gull	16	GA1, (Improved agricultural grassland) GS, (Semi-natural grassland)	Flying		KS
HG0611.34	2020-11-06	Herring Gull	23	GS, (Semi-natural grassland) BL, (Built land)	Flying		KS
HG0611.35	2020-11-06	Herring Gull	72	GA1, (Improved agricultural grassland) GS, (Semi-natural grassland) BL, (Built land)	Flying		KS
BZ0611.2	2020-11-06	Buzzard	1	GS, (Semi-natural grassland)	Flying		KS
CM1611.1	2020-11-16	Common Gull	2	BL, (Built land) GS, (Semi-natural grassland)	Flying		KS
LB1611.1	2020-11-16	Lesser Black-backed Gull	1	GA1, (Improved agricultural grassland) GS, (Semi-natural grassland)	Flying		KS
HG1611.1	2020-11-16	Herring Gull	7	BL, (Built land)	Circling over houses		KS
GB1611.1	2020-11-16	Great Black-backed Gull	1	GA1, (Improved agricultural grassland)	Flying		KS
HG1611.2	2020-11-16	Herring Gull	6	BL, (Built land) GS, (Semi-natural grassland)	Flying		KS
BH1611.1	2020-11-16	Black-headed Gull	1	GA1, (Improved agricultural grassland) GS, (Semi-natural grassland)	Flying		KS
CM1611.2	2020-11-16	Common Gull	1	GA1, (Improved agricultural grassland) BL, (Built land)	Flying		KS
BZ1611.1	2020-11-16	Buzzard	1	GS, (Semi-natural grassland)	Perching		KS
CM1611.3	2020-11-16	Common Gull	12	BL, (Built land) GS, (Semi-natural grassland)	Flying		KS
HG1611.3	2020-11-16	Herring Gull	1	GS, (Semi-natural grassland) BL, (Built land)	Flying		KS
CM1611.4	2020-11-16	Common Gull	8	GS, (Semi-natural grassland) BL, (Built land)	Flying		KS
HG1611.4	2020-11-16	Herring Gull	5	GA1, (Improved agricultural grassland) GS, (Semi-natural grassland)	Flying		KS
HG1611.5	2020-11-16	Herring Gull	5	GS, (Semi-natural grassland) BL, (Built land)	Circling over houses		KS
HG1611.6	2020-11-16	Herring Gull	3	BL, (Built land) GS, (Semi-natural grassland)	Flying		KS

Map Reference	Survey Date	Species	Number of Birds	Habitat	Activity	Comments	Surveyor
HG1611.7	2020-11-16	Herring Gull	4	BL, (Built land) GS, (Semi-natural grassland) GA1, (Improved agricultural grassland)	Flying		KS
HG1611.8	2020-11-16	Herring Gull	6	GS, (Semi-natural grassland) GA1, (Improved agricultural grassland)	Flying		KS
BH1611.2	2020-11-16	Black-headed Gull	6	BL, (Built land) GS, (Semi-natural grassland)	Flying		KS
HG1611.9	2020-11-16	Herring Gull	4	GS, (Semi-natural grassland)	Flying		KS
HG1611.10	2020-11-16	Herring Gull	5	GA1, (Improved agricultural grassland) GS, (Semi-natural grassland)	Flying		KS
BH1611.3	2020-11-16	Black-headed Gull	17	BL, (Built land) GS, (Semi-natural grassland)	Flying		KS
HG1611.11	2020-11-16	Herring Gull	9	BL, (Built land) GA1, (Improved agricultural grassland)	Flying		KS
BH1611.4	2020-11-16	Black-headed Gull	10	GA1, (Improved agricultural grassland) GS, (Semi-natural grassland)	Flying		KS
CU1611.1	2020-11-16	Curlew	1	GA1, (Improved agricultural grassland)	Flying		KS
HG1611.12	2020-11-16	Herring Gull	10	BL, (Built land) GS, (Semi-natural grassland)	Flying		KS
HG1611.13	2020-11-16	Herring Gull	4	GA1, (Improved agricultural grassland) GS, (Semi-natural grassland) BL, (Built land)	Flying		KS
BH1611.5	2020-11-16	Black-headed Gull	12	BL, (Built land) GS, (Semi-natural grassland)	Flying		KS
BH1611.6	2020-11-16	Black-headed Gull	7	BL, (Built land)	Flying		KS
BZ1611.2	2020-11-16	Buzzard	1	GS, (Semi-natural grassland) GA1, (Improved agricultural grassland)	Travelling		KS
LB1611.2	2020-11-16	Lesser Black-backed Gull	2	BL, (Built land) GS, (Semi-natural grassland) GA1, (Improved agricultural grassland)	Flying		KS
BZ2611.A	2020-11-26	Buzzard	1	WL, (Linear woodland/scrub) GS, (Semi-natural grassland)	Perched in treeline		KS
2 CM2611.1	2020-11-26	Common Gull	2	GA1, (Improved agricultural grassland) GS, (Semi-natural grassland)	Flying		KS
CM2611.2	2020-11-26	Common Gull	2	BL, (Built land) GS, (Semi-natural grassland)	Flying		KS
HG2611.1	2020-11-26	Herring Gull	4	BL, (Built land) GS, (Semi-natural grassland)	Flying		KS
CU2611.1	2020-11-26	Curlew	1	GA1, (Improved agricultural grassland) GS, (Semi-natural grassland)	Travelling		KS

Map Reference	Survey Date	Species	Number of Birds	Habitat	Activity	Comments	Surveyor
CM2611.3	2020-11-26	Common Gull	6	GA1, (Improved agricultural grassland) GS, (Semi-natural grassland) BL, (Built land)	Flying		KS
CM2611.4	2020-11-26	Common Gull	1	BL, (Built land) GS, (Semi-natural grassland)	Flying		KS
HG2611.2	2020-11-26	Herring Gull	10	BL, (Built land) GS, (Semi-natural grassland)	Flying		KS
HG2611.3	2020-11-26	Herring Gull	1	GA1, (Improved agricultural grassland) GS, (Semi-natural grassland) BL, (Built land)	Flying		KS
HG2611.4	2020-11-26	Herring Gull	6	GA1, (Improved agricultural grassland) GS, (Semi-natural grassland) BL, (Built land)	Flying		KS
BH2611.1	2020-11-26	Black-headed Gull	2	GA1, (Improved agricultural grassland)	Flying		KS
HG2611.4	2020-11-26	Herring Gull	1	GA1, (Improved agricultural grassland)	Flying		KS
CU2611.2	2020-11-26	Curlew	2	GA1, (Improved agricultural grassland) GS, (Semi-natural grassland)	Flying		KS
CM2611.5	2020-11-26	Common Gull	2	GA1, (Improved agricultural grassland) GS, (Semi-natural grassland) BL, (Built land)	Flying		KS
HG2611.5	2020-11-26	Herring Gull	8	BL, (Built land) GS, (Semi-natural grassland)	Flying		KS
BZ2611.1	2020-11-26	Buzzard	1	BL, (Built land) GS, (Semi-natural grassland) GA1, (Improved agricultural grassland)	Flying		KS
HG2611.6	2020-11-26	Herring Gull	6	BL, (Built land)	Flying		KS
HG2611.7	2020-11-26	Herring Gull	4	BL, (Built land) GS, (Semi-natural grassland) GA1, (Improved agricultural grassland)	Flying		KS
HG2611.8	2020-11-26	Herring Gull	16	GS, (Semi-natural grassland) BL, (Built land)	Flying		KS
CU2611.3	2020-11-26	Curlew	6	GA1, (Improved agricultural grassland) BL, (Built land)	Travelling		KS
CU2611.4	2020-11-26	Curlew	10	BL, (Built land) GS, (Semi-natural grassland) GA1, (Improved agricultural grassland)	Travelling		KS
BH2611.2	2020-11-26	Black-headed Gull	2	GA1, (Improved agricultural grassland) GS, (Semi-natural grassland)	Flying		KS
HG2611.9	2020-11-26	Herring Gull	2	BL, (Built land) GS, (Semi-natural grassland)	Flying		KS
HG2611.10	2020-11-26	Herring Gull	2	BL, (Built land) GS, (Semi-natural grassland)	Flying		KS
HG2611.11	2020-11-26	Herring Gull	2	GA1, (Improved agricultural grassland) GS, (Semi-natural grassland) BL, (Built land)	Flying		KS

Map Reference	Survey Date	Species	Number of Birds	Habitat	Activity	Comments	Surveyor
LB2611.1	2020-11-26	Lesser Black-backed Gull	1	GA1, (Improved agricultural grassland) GS, (Semi-natural grassland)	Flying		KS
CM2611.6	2020-11-26	Common Gull	2	GA1, (Improved agricultural grassland) GS, (Semi-natural grassland)	Flying		KS
BH2611.3	2020-11-26	Black-headed Gull	6	GA1, (Improved agricultural grassland) GS, (Semi-natural grassland)	Flying		KS
HG2611.12	2020-11-26	Herring Gull	10	GS, (Semi-natural grassland) BL, (Built land)	Flying		KS
CM0312.1	03/12/2020	Common Gull	1	BL, (Built land)	Flying		KS
HG0312.1	03/12/2020	Herring Gull	2	GS, (Semi-natural grassland)	Flying		KS
BZ0312.1	03/12/2020	Buzzard	1	GS, (Semi-natural grassland)	Flying		KS
HG0312.2	03/12/2020	Herring Gull	1	GS, (Semi-natural grassland)	Flying		KS
HG0312.3	03/12/2020	Herring Gull	1	BL, (Built land)	Flying		KS
BH0312.1	03/12/2020	Black-headed Gull	1	GS, (Semi-natural grassland)	Flying		KS
HG0312.4	03/12/2020	Herring Gull	2	GS, (Semi-natural grassland)	Flying		KS
BH0312.2	03/12/2020	Black-headed Gull	4	GS, (Semi-natural grassland)	Flying		KS
HG0312.5	03/12/2020	Herring Gull	1	GS, (Semi-natural grassland)	Flying		KS
BH0312.3	03/12/2020	Black-headed Gull	1	GS, (Semi-natural grassland)	Flying		KS
HG0312.6	03/12/2020	Herring Gull	1	GS, (Semi-natural grassland)	Flying		KS
BZ0312.2	03/12/2020	Buzzard	1	GS, (Semi-natural grassland)	Flying		KS
HG0312.7	03/12/2020	Herring Gull	2	GS, (Semi-natural grassland)	Flying		KS
HG0312.8	03/12/2020	Herring Gull	1	GS, (Semi-natural grassland)	Flying		KS
HG0312.9	03/12/2020	Herring Gull	2	GS, (Semi-natural grassland)	Flying		KS
CU0312.1	03/12/2020	Curlew	1	GS, (Semi-natural grassland)	Flying		KS
CU0312.2	03/12/2020	Curlew	2	GS, (Semi-natural grassland)	Flying		KS
HG0312.10	03/12/2020	Herring Gull	1	GS, (Semi-natural grassland)	Flying		KS
CU0312.3	03/12/2020	Curlew	3	GS, (Semi-natural grassland)	Flying		KS
HG0312.11	03/12/2020	Herring Gull	3	GS, (Semi-natural grassland)	Flying		KS
CM0312.2	03/12/2020	Common Gull	1	GS, (Semi-natural grassland)	Flying		KS

Map Reference	Survey Date	Species	Number of Birds	Habitat	Activity	Comments	Surveyor
HG0312.12	03/12/2020	Herring Gull	4	BL, (Built land)	Flying		KS
CU0312.4	03/12/2020	Curlew	8	GS, (Semi-natural grassland)	Flying		KS
HG0312.13	03/12/2020	Herring Gull	6	GS, (Semi-natural grassland)	Flying		KS
HG0312.14	03/12/2020	Herring Gull	3	GS, (Semi-natural grassland)	Flying		KS
HG0312.15	03/12/2020	Herring Gull	2	GS, (Semi-natural grassland)	Flying		KS
HG0312.16	03/12/2020	Herring Gull	4	GS, (Semi-natural grassland)	Flying		KS
HG0312.17	03/12/2020	Herring Gull	6	GS, (Semi-natural grassland)	Flying		KS
CU0312.5	03/12/2020	Curlew	11	BL, (Built land)	Flying		KS
BH0312.4	03/12/2020	Black-headed Gull	4	BL, (Built land)	Flying		KS
HG1712.1	17/12/2020	Herring Gull	20	GS, (Semi-natural grassland)	Flying		KS
CM1712.1	17/12/2020	Common Gull	5	GS, (Semi-natural grassland)	Flying		KS
HG1712.2	17/12/2020	Herring Gull	70	GS, (Semi-natural grassland)	Flying		KS
BZ1712.1	17/12/2020	Buzzard	1	GS, (Semi-natural grassland)	Flying		KS
HG1712.3	17/12/2020	Herring Gull	3	GS, (Semi-natural grassland)	Flying		KS
HG1712.4	17/12/2020	Herring Gull	16	GS, (Semi-natural grassland)	Flying		KS
CM1712.2	17/12/2020	Common Gull	2	GS, (Semi-natural grassland)	Flying		KS
BZ1712.2	17/12/2020	Buzzard	3	GS, (Semi-natural grassland)	Flying		KS
CM1712.3	17/12/2020	Common Gull	2	GS, (Semi-natural grassland)	Flying		KS
HG1712.5	17/12/2020	Herring Gull	9	GS, (Semi-natural grassland)	Flying		KS
HG1712.6	17/12/2020	Herring Gull	2	GA1, (Improved agricultural grassland)	Flying		KS
HG1712.7	17/12/2020	Herring Gull	5	GS, (Semi-natural grassland)	Flying		KS
CM1712.4	17/12/2020	Common Gull	4	BL, (Built land)	Flying		KS
HG1712.8	17/12/2020	Herring Gull	12	BL, (Built land) GS, (Semi-natural grassland)	Flying		KS
CM1712.5	17/12/2020	Common Gull	21	GS, (Semi-natural grassland)	Flying		KS
CU1712.1	17/12/2020	Curlew	10	BL, (Built land)	Flying		KS
HG1712.9	17/12/2020	Herring Gull	6	BL, (Built land)	Flying		KS

Map Reference	Survey Date	Species	Number of Birds	Habitat	Activity	Comments	Surveyor
SH1712.1	17/12/2020	Sparrowhawk	1	GS, (Semi-natural grassland)	Flying		KS
HG1712.10	17/12/2020	Herring Gull	4	GS, (Semi-natural grassland)	Flying		KS
HG1712.11	17/12/2020	Herring Gull	2	GS, (Semi-natural grassland)	Flying		KS
HG1712.12	17/12/2020	Herring Gull	4	GS, (Semi-natural grassland)	Flying		KS
BH1712.1	17/12/2020	Black-headed Gull	4	GS, (Semi-natural grassland)	Flying		KS
BH1712.2	17/12/2020	Black-headed Gull	4	GS, (Semi-natural grassland)	Flying		KS
CU1712.2	17/12/2020	Curlew	13	BL, (Built land)	Flying		KS
BH1712.3	17/12/2020	Black-headed Gull	30	GS, (Semi-natural grassland)	Flying		KS
HG1712.13	17/12/2020	Herring Gull	40	GS, (Semi-natural grassland)	Flying		KS
CU1712.3	17/12/2020	Curlew	8	BL, (Built land)	Flying		KS
CU1712.4	17/12/2020	Curlew	8	BL, (Built land)	Flying		KS
CU1712.5	17/12/2020	Curlew	2	BL, (Built land)	Flying		KS
BH1712.4	17/12/2020	Black-headed Gull	10	BL, (Built land)	Flying		KS
BH1712.5	17/12/2020	Black-headed Gull	28	BL, (Built land)	Flying		KS
BH1101.1	11-01-2021	Black-headed Gull	70	built land, semi-natural grassland and improved agricultural grassland	Flying		KS
HG1101.1	11-01-2021	Herring Gull	30	built land and semi-natural grassland	Flying		KS
BH1101.2	11-01-2021	Black-headed Gull	35	built land and semi-natural grassland	Flying		KS
SH1101.1	11-01-2021	Sparrowhawk	1	semi-natural grassland	Flying	Flew quickly through site	KS
BH1101.3	11-01-2021	Black-headed Gull	9	built land, semi-natural grassland and improved agricultural grassland	Flying		KS
CU1101.1	11-01-2021	Eurasian Curlew	18	semi-natural grassland and improved agricultural grassland	Flying		KS
CU1101.2	11-01-2021	Eurasian Curlew	14	semi-natural grassland and improved agricultural grassland	Flying		KS
HG1101.2	11-01-2021	Herring Gull	20	semi-natural grassland and improved agricultural grassland	Flying		KS
CU1101.3	11-01-2021	Eurasian Curlew	11	semi-natural grassland and improved agricultural grassland	Flying		KS

Map Reference	Survey Date	Species	Number of Birds	Habitat	Activity	Comments	Surveyor
BH1101.4	11-01-2021	Black-headed Gull	20	built land, semi-natural grassland and improved agricultural grassland	Flying		KS
K1101.1	11-01-2021	Kestrel	1	semi-natural grassland and improved agricultural grassland	Flying		KS
CU1101.4	11-01-2021	Eurasian Curlew	13	built land, semi-natural grassland and improved agricultural grassland	Flying		KS
CU1101.5	11-01-2021	Eurasian Curlew	2	built land, semi-natural grassland and improved agricultural grassland	Flying		KS
CU1101.6	11-01-2021	Eurasian Curlew	7	built land, semi-natural grassland and improved agricultural grassland	Flying		KS
BZ1101.1	11-01-2021	Buzzard	1	improved agricultural grassland and semi-natural grassland	Flying		KS
HG1101.3	11-01-2021	Herring Gull	30	built land	Flying		KS
CU1101.8	11-01-2021	Eurasian Curlew	18	improved agricultural grassland and semi-natural grassland	Flying		KS
CU1101.7	11-01-2021	Eurasian Curlew	14	built land, semi-natural grassland and improved agricultural grassland	Flying		KS
GB1101.1	11-01-2021	Great Black-backed Gull	1	built land and semi-natural grassland	Flying		KS
CU1101.9	11-01-2022	Eurasian Curlew	13	built land	Flying		KS
HG1101.4	11-01-2021	Herring Gull	6	semi-natural grassland and improved agricultural grassland	Flying		KS
CU1101.10	11-01-2021	Eurasian Curlew	1	built land, semi-natural grassland and improved agricultural grassland	Flying		KS
HG1101.5	11-01-2021	Herring Gull	8	built land and semi-natural grassland	Flying		KS
HG2501.1	2021-01-25	Herring Gull	5	semi-natural grassland	Flying		KS
CM2501.1	2021-01-25	Common Gull	2	semi-natural grassland and improved agricultural grassland	Flying		KS
CU2501.1	2021-01-25	Eurasian Curlew	14	semi-natural grassland, improved agricultural grassland and built land	Flying		KS
HG2501.2	2021-01-25	Herring Gull	16	built land	Flying		KS
HG2501.3	2021-01-25	Herring Gull	4	semi-natural grassland and built land	Flying		KS

Map Reference	Survey Date	Species	Number of Birds	Habitat	Activity	Comments	Surveyor
K2501.1	2021-01-25	Kestrel	1	improved agricultural grassland	Flying/Hunting		KS
BH2501.1	2021-01-25	Black-headed Gull	1	semi-natural grassland and built land	Flying		KS
BH2501.2	2021-01-25	Black-headed Gull	1	semi-natural grassland and improved agricultural grassland	Flying		KS
HG2501.4	2021-01-25	Herring Gull	2	built land	Flying		KS
LB2501.1	2021-01-25	Lesser Black-backed Gull	1	built land and semi-natural grassland	Flying		KS
HG2501.5	2021-01-25	Herring Gull	9	built land	Flying		KS
CU2501.2	2021-01-25	Eurasian Curlew	17	built land and improved agricultural grassland	Flying		KS
CM2501.2	2021-01-25	Common Gull	1	improved agricultural grassland	Flying		KS
BZ2501.1	2021-01-25	Buzzard	1	semi-natural grassland and linear woodland/scrub	Flying		KS
CU2501.3	2021-01-25	Eurasian Curlew	2	semi-natural grassland and improved agricultural grassland	Flying		KS
CU2501.4	2021-01-25	Eurasian Curlew	3	built land and improved agricultural grassland	Flying		KS
BH2501.3	2021-01-25	Black-headed Gull	1	semi-natural grassland	Flying		KS
HG2501.6	2021-01-25	Herring Gull	5	built land and semi-natural grassland	Flying		KS
BZ2501.2	2021-01-25	Buzzard	2	semi-natural grassland, improved agricultural grassland and linear woodland/scrub	Flying/Display		KS
K2501.2	2021-01-25	Kestrel	2	improved agricultural grassland	Gliding		KS
CM2501.3	2021-01-25	Common Gull	2	semi-natural grassland and built land	Flying		KS
CM2501.4	2021-01-25	Common Gull	11	semi-natural grassland and built land	Flying		KS
L2501.1	2021-01-25	Lapwing	11	semi-natural grassland and improved agricultural grassland	Flying		KS
CU2501.5	2021-01-25	Eurasian Curlew	12	built land and improved agricultural grassland	Flying		KS
CU2501.6	2021-01-25	Eurasian Curlew	1	improved agricultural grassland and mixed conifer woodland	Flying		KS
CM2501.5	2021-01-25	Common Gull	6	semi-natural grassland and improved agricultural grassland	Flying		KS
CU2501.7	2021-01-25	Eurasian Curlew	1	semi-natural grassland and built land	Flying		KS

Map Reference	Survey Date	Species	Number of Birds	Habitat	Activity	Comments	Surveyor
HG2501.7	2021-01-25	Herring Gull	4	built land and semi-natural grassland	Flying		KS
HG0802.1	08-02-2021	Herring Gull	4	built land and semi-natural grassland	Flying		KS
HG0802.2	08-02-2021	Herring Gull	14	semi-natural grassland and built land	Flying		KS
BZ0802.1	08-02-2021	Buzzard	1	semi-natural grassland and improved agricultural grassland	Flying		KS
HG0802.3	08-02-2021	Herring Gull	2	semi-natural grassland	Flying		KS
BH0802.1	08-02-2021	Black-headed Gull	28	improved agricultural grassland	Flying		KS
HG0802.4	08-02-2021	Herring Gull	6	semi-natural grassland	Flying		KS
HG0802.5	08-02-2021	Herring Gull	9	built land	Flying		KS
LB0802.1	08-02-2021	Lesser Black-backed Gull	1	semi-natural grassland and built land	Flying		KS
BZ0802.2	08-02-2021	Buzzard	1	improved agricultural grassland and semi-natural grassland	Flying		KS
BH0802.2	08-02-2021	Black-headed Gull	5	semi-natural grassland and built land	Flying		KS
CM0802.1	08-02-2021	Common Gull	2	semi-natural grassland and improved agricultural grassland	Flying		KS
HG0802.6	08-02-2021	Herring Gull	3	semi-natural grassland and built land	Flying		KS
HG0802.7	08-02-2021	Herring Gull	10	built land	Flying		KS
BH0802.3	08-02-2021	Black-headed Gull	2	semi-natural grassland and built land	Flying		KS
BH0802.4	08-02-2021	Black-headed Gull	4	semi-natural grassland and built land	Flying		KS
BZ0802.3	08-02-2021	Buzzard	2	improved agricultural grassland and semi-natural grassland	Flying		KS
HG0802.8	08-02-2021	Herring Gull	21	built land	Flying		KS
CU0802.1	08-02-2021	Eurasian Curlew	2	semi-natural grassland, built land and improved agricultural grassland	Flying		KS
ML0802.1	08-02-2021	Merlin	1	semi-natural grassland	Flying	Flying low over ground	KS
BH0802.5	08-02-2021	Black-headed Gull	2	semi-natural grassland and built land	Flying		KS
CM0802.2	08-02-2021	Common Gull	2	semi-natural grassland and improved agricultural grassland	Flying		KS

Map Reference	Survey Date	Species	Number of Birds	Habitat	Activity	Comments	Surveyor
LB0802.2	08-02-2021	Lesser Black-backed Gull	1	semi-natural grassland and built land	Flying		KS
CU0802.2	08-02-2021	Eurasian Curlew	2	built land	Flying		KS
LB0802.3	08-02-2021	Lesser Black-backed Gull	1	semi-natural grassland and built land	Flying		KS
HG0802.9	08-02-2021	Herring Gull	2	semi-natural grassland, improved agricultural grassland and built land	Flying		KS
BH0802.6	08-02-2021	Black-headed Gull	3	semi-natural grassland and built land	Flying		KS
BH2202.1	22-02-2021	Black-headed Gull	4	built land, semi-natural grassland and improved agricultural grassland	Flying		KS
HG2202.1	22-02-2021	Herring Gull	14	semi-natural grassland and improved agricultural grassland	Flying		KS
LB2202.1	22-02-2021	Lesser Black-backed Gull	1	semi-natural grassland and improved agricultural grassland	Flying		KS
CM2202.1	22-02-2021	Common Gull	1	semi-natural grassland and improved agricultural grassland	Flying		KS
HG2202.2	22-02-2021	Herring Gull	5	built land and improved agricultural grassland	Flying		KS
CU2202.1	22-02-2021	Eurasian Curlew	22	built land and improved agricultural grassland	Flying		KS
BH2202.2	22-02-2021	Black-headed Gull	1	semi-natural grassland and improved agricultural grassland	Flying		KS
HG2202.3	22-02-2021	Herring Gull	1	semi-natural grassland and improved agricultural grassland	Flying		KS
HG2202.4	22-02-2021	Herring Gull	1	improved agricultural grassland and semi-natural grassland	Flying		KS
BH2202.3	22-02-2021	Black-headed Gull	6	semi-natural grassland, improved agricultural grassland and built land	Flying		KS
CU2202.2	22-02-2021	Eurasian Curlew	1	built land and improved agricultural grassland	Flying		KS
CM2202.2	22-02-2021	Common Gull	2	improved agricultural grassland and semi-natural grassland	Flying		KS
CU2202.3	22-02-2021	Eurasian Curlew	10	built land, semi-natural grassland and improved agricultural grassland	Flying		KS

Map Reference	Survey Date	Species	Number of Birds	Habitat	Activity	Comments	Surveyor
CU2202.4	22-02-2021	Eurasian Curlew	10	built land, semi-natural grassland and improved agricultural grassland	Flying		KS
CU2202.5	22-02-2021	Eurasian Curlew	1	semi-natural grassland and improved agricultural grassland	Flying		KS
CU2202.6	22-02-2021	Eurasian Curlew	3	built land, semi-natural grassland and improved agricultural grassland	Flying		KS
BH2202.4	22-02-2021	Black-headed Gull	13	semi-natural grassland and improved agricultural grassland	Flying		KS
CU2202.7	22-02-2021	Eurasian Curlew	3	semi-natural grassland and improved agricultural grassland	Flying		KS
HG2202.5	22-02-2021	Herring Gull	2	improved agricultural grassland and built land	Flying		KS
CU2202.8	22-02-2021	Eurasian Curlew	2	semi-natural grassland and improved agricultural grassland	Flying		KS
BH2202.5	22-02-2021	Black-headed Gull	2	semi-natural grassland and built land	Flying		KS
CU2202.9	22-02-2021	Eurasian Curlew	1	semi-natural grassland and improved agricultural grassland	Flying		KS
CM2202.3	22-02-2021	Common Gull	3	semi-natural grassland and improved agricultural grassland	Flying		KS
CU2202.10	22-02-2021	Eurasian Curlew	46	improved agricultural grassland and built land	Flying		KS
BZ2202.1	22-02-2021	Buzzard	1	improved agricultural grassland	Flying		KS
BH2202.6	22-02-2021	Black-headed Gull	1	improved agricultural grassland	Flying		KS
CU2202.11	22-02-2021	Eurasian Curlew	1	built land and semi-natural grassland	Flying		KS
K2202.1	22-02-2021	Kestrel	1	built land	Flying	Mobbed by crows	KS
BZ2202.2	22-02-2021	Buzzard	2	improved agricultural grassland	Flying	Circling	KS
CU2202.12	22-02-2021	Eurasian Curlew	1	improved agricultural grassland, semi-natural grassland and built land	Flying		KS
BZ2202.3	22-02-2021	Buzzard	2	semi-natural grassland and built land	Flying		KS
BZ2202.4	22-02-2021	Buzzard	1	improved agricultural grassland	Flying		KS
BZ2202.5	22-02-2021	Buzzard	1	improved agricultural grassland	Flying	Circling pair	KS
HG2202.6	22-02-2021	Herring Gull	3	built land	Flying		KS

Map Reference	Survey Date	Species	Number of Birds	Habitat	Activity	Comments	Surveyor
HG2202.7	22-02-2021	Herring Gull	3	semi-natural grassland	Flying		KS
HG2202.8	22-02-2021	Herring Gull	1	built land and semi-natural grassland	Flying		KS
HG2202.9	22-02-2021	Herring Gull	1	built land and semi-natural grassland	Flying		KS
CM2202.4	22-02-2021	Common Gull	1	improved agricultural grassland	Flying		KS
HG0103.1	01-03-2021	Herring Gull	1	semi-natural grassland and built land	Flying		KS
BZ0103.1	01-03-2021	Buzzard	1	semi-natural grassland	Flying		KS
HG0103.2	01-03-2021	Herring Gull	8	improved agricultural grassland	Flying		KS
BZ0103.2	01-03-2021	Buzzard	1	semi-natural grassland and improved agricultural grassland	Flying		KS
K0103.1	01-03-2021	Kestrel	2	mixed conifer woodland and improved agricultural grassland	Flying	Pair displaying/calling	KS
K0103.2	01-03-2021	Kestrel	1	mixed conifer woodland, improved agricultural grassland and semi-natural grassland	Flying	Female	KS
K0103.3	01-03-2021	Kestrel	1	mixed conifer woodland and improved agricultural grassland	Flying	Hunting	KS
HG0103.3	01-03-2021	Herring Gull	2	built land	Flying		KS
HG0103.4	01-03-2021	Herring Gull	2	improved agricultural grassland and semi-natural grassland	Flying		KS
HG0103.5	01-03-2021	Herring Gull	1	semi-natural grassland and built land	Flying		KS
BZ0103.3	01-03-2021	Buzzard	1	improved agricultural grassland	Flying		KS
BH0103.1	01-03-2021	Black-headed Gull	2	semi-natural grassland and built land	Flying		KS
BH0103.2	01-03-2021	Black-headed Gull	2	semi-natural grassland and improved agricultural grassland	Flying		KS
BZ0103.4	01-03-2021	Buzzard	1	improved agricultural grassland and semi-natural grassland	Flying		KS
BH0103.2	01-03-2021	Black-headed Gull	1	semi-natural grassland and built land	Flying		KS
HG0103.6	01-03-2021	Herring Gull	1	semi-natural grassland	Flying		KS
HG0103.7	01-03-2021	Herring Gull	4	semi-natural grassland and improved agricultural grassland	Flying		KS
HG0103.8	01-03-2021	Herring Gull	1	semi-natural grassland	Flying		KS

Map Reference	Survey Date	Species	Number of Birds	Habitat	Activity	Comments	Surveyor
HG0103.9	01-03-2021	Herring Gull	1	improved agricultural grassland, semi-natural grassland and built land	Flying		KS
BH0103.3	01-03-2021	Black-headed Gull	5	improved agricultural grassland and built land	Flying		KS
HG0103.10	01-03-2021	Herring Gull	1	improved agricultural grassland, semi-natural grassland and built land	Flying		KS
CM0103.1	01-03-2021	Common Gull	1	improved agricultural grassland and built land	Flying		KS
H0103.1	01-03-2021	Grey Heron	1	semi-natural grassland, improved agricultural grassland and built land	Flying		KS
K0103.4	01-03-2021	Kestrel	1	improved agricultural grassland and semi-natural grassland	Flying		KS
HG0103.11	01-03-2021	Herring Gull	1	semi-natural grassland and built land	Flying		KS
K0103.5	01-03-2021	Kestrel	1	mixed conifer woodland and improved agricultural grassland	Flying	Hunting, landed in trees	KS
BZ0103.5	01-03-2021	Buzzard	1	semi-natural grassland and improved agricultural grassland	Flying		KS
BZ0103.6	01-03-2021	Buzzard	1	semi-natural grassland	Flying		KS
HG0103.12	01-03-2021	Herring Gull	2	semi-natural grassland	Flying		KS
HG0103.13	01-03-2021	Herring Gull	2	semi-natural grassland and built land	Flying		KS
K0103.5	01-03-2021	Kestrel	1	improved agricultural grassland and semi-natural grassland	Flying		KS
K0103.6	01-03-2021	Kestrel	1	improved agricultural grassland and semi-natural grassland	Flying		KS
BH0103.4	01-03-2021	Black-headed Gull	1	built land and semi-natural grassland	Flying		KS
BH0103.5	01-03-2021	Black-headed Gull	7	improved agricultural grassland	Flying		KS
H1503.1	15-03-2021	Grey Heron	1	improved agricultural grassland	Flying		KS
BH1503.1	15-03-2021	Black-headed Gull	12	semi-natural grassland and built land	Flying		KS
HG1503.1	15-03-2021	Herring Gull	3	built land and improved agricultural grassland	Flying		KS
CM1503.1	15-03-2021	Common Gull	1	semi-natural grassland and improved agricultural grassland	Flying		KS
HG1503.2	15-03-2021	Herring Gull	4	built land and semi-natural grassland	Flying	Circling over houses then flew over site	KS

Map Reference	Survey Date	Species	Number of Birds	Habitat	Activity	Comments	Surveyor
CU1503.1	15-03-2021	Eurasian Curlew	1	improved agricultural grassland and semi-natural grassland	Flying	Calling while flying	KS
HG1503.3	15-03-2021	Herring Gull	5	semi-natural grassland and improved agricultural grassland	Flying		KS
H1503.2	15-03-2021	Grey Heron	1	semi-natural grassland and improved agricultural grassland	Flying		KS
HG1503.4	15-03-2021	Herring Gull	4	semi-natural grassland and improved agricultural grassland	Flying		KS
HG1503.5	15-03-2021	Herring Gull	2	semi-natural grassland and improved agricultural grassland	Flying		KS
K1503.1	15-03-2021	Kestrel	1	improved agricultural grassland and semi-natural grassland	Flying	Flying between trees then over site directly	KS
K1503.2	15-03-2021	Kestrel	1	improved agricultural grassland and semi-natural grassland	Flying	Hunting over site	KS
BZ1503.1	15-03-2021	Buzzard	1	improved agricultural grassland	Flying	Displaying/calling	KS
HG1503.6	15-03-2021	Herring Gull	6	semi-natural grassland and built land	Flying	Circling	KS
K1503.3	15-03-2021	Kestrel	1	mixed broadleaved woodland and improved agricultural grassland	Flying	Landed in tree	KS
HG1503.7	15-03-2021	Herring Gull	3	semi-natural grassland and improved agricultural grassland	Flying		KS
K1503.4	15-03-2021	Kestrel	1	improved agricultural grassland and semi-natural grassland	Flying	Circling trees, mobbed by crows	KS
K1503.5	15-03-2021	Kestrel	1	improved agricultural grassland, semi-natural grassland and mixed broadleaved woodland	Flying	Landed in tree	KS
K1503.6	15-03-2021	Kestrel	2	semi-natural grassland and improved agricultural grassland	Flying	Single K. Flew across site, met by second K. at trees	KS
MA1503.1	15-03-2021	Mallard	1	semi-natural grassland and improved agricultural grassland	Flying		KS
HG1503.8	15-03-2021	Herring Gull	6	built land and semi-natural grassland	Flying	Circling/calling over houses	KS
BZ1503.2	15-03-2021	Buzzard	1	semi-natural grassland and built land	Flying		KS
BZ1503.3	15-03-2021	Buzzard	2	improved agricultural grassland and built land	Flying	Pair circling	KS

Map Reference	Survey Date	Species	Number of Birds	Habitat	Activity	Comments	Surveyor
BZ1503.4	15-03-2021	Buzzard	1	semi-natural grassland and improved agricultural grassland	Flying	Mobbed by gulls	KS
HG1503.9	15-03-2021	Herring Gull	2	semi-natural grassland and built land	Flying	Mobbing buzzard	KS
HG1503.10	15-03-2021	Herring Gull	7	semi-natural grassland, built land and improved agricultural grassland	Flying		KS
HG1503.11	15-03-2021	Herring Gull	4	semi-natural grassland and improved agricultural grassland	Flying		KS
CM1503.2	15-03-2021	Common Gull	3	improved agricultural grassland and built land	Flying		KS
BZ1503.5	15-03-2021	Buzzard	1	improved agricultural grassland, semi-natural grassland and linear woodland/scrub	Flying		KS
BH1503.2	15-03-2021	Black-headed Gull	3	improved agricultural grassland and semi-natural grassland	Flying		KS
BZ1503.6	15-03-2021	Buzzard	1	semi-natural grassland, linear woodland/scrub and improved agricultural grassland	Flying		KS
HG1503.12	15-03-2021	Herring Gull	3	semi-natural grassland and improved agricultural grassland	Flying		KS

APPENDIX 2

FIGURES

Map Legend

- Site Boundary - extra section
- Site Boundary
- 500m Buffer

N

Map Title

Development Boundary

Project Title	
201053 Altemar Bird Surveys	
Drawn By: **Kathryn Sheridan**	Checked By: **Patrick Manley**
Project No.: **201053**	Map No.: **Figure 1**
Scale: **1:10000**	Date: **31.03.21**

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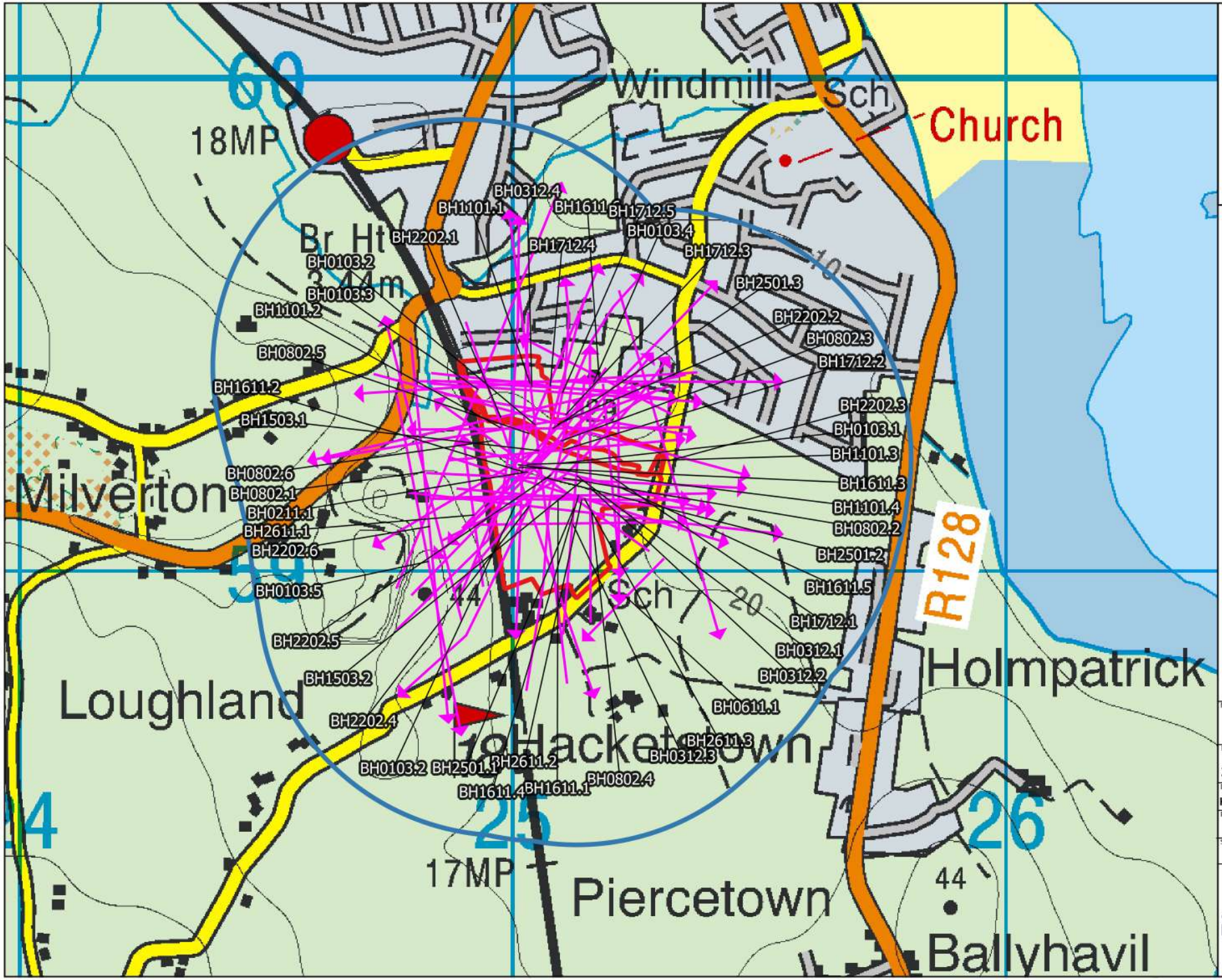
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Holmpatrick
Hacketstown
Piercetown
Ballyhavil
17MP
R128
BH0312.4
BH1101.1
BH1611
BH1712.5
BH0103.4
BH2202.1
BH1712.4
BH1712.3
BH0103.2
BH0103.3
BH2501.3
BH1101.2
BH2202.2
BH0802.3
BH0802.5
BH1712.2
BH1611.2
BH2202.3
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BH1503.2
BH0312.2
BH0611.1
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BH2611.3
BH0103.2
BH2501.1
BH2611.2
BH0312.3
BH1611.4
BH1611.1
BH0802.4
Map Legend
Site Boundary - extra section
Site Boundary
500m Buffer
Black-headed Gull Flights
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Map Title
Black-headed Gull
Project Title
201053 Altemar Bird Surveys
Drawn By
Kathryn Sheridan
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Project No.
201053
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Map Legend

- Site Boundary - extra section
- Site Boundary
- 500m Buffer
- Brent Goose Flights

N

Map Title
Walkover Survey - Brent Goose

Project Title
201053 Altemar Bird Surveys

Drawn By	Checked By
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Project No.	Map No.
201053	Figure 1.2
Scale	Date
1:10000	31.03.21

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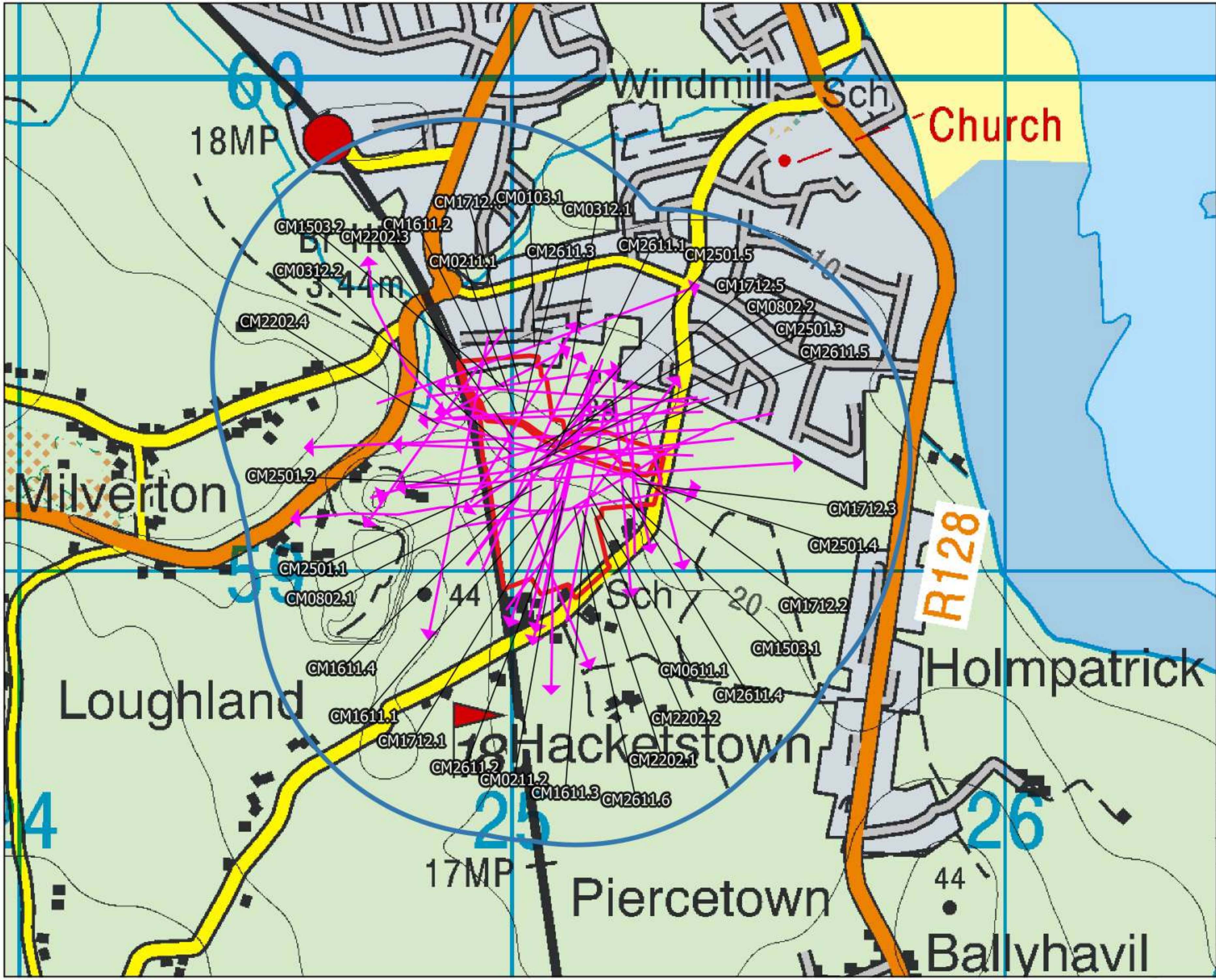

Map Legend

- Site Boundary - extra section
- Site Boundary
- 500m Buffer
- Common Gull Flights

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Map Title: **Walkover Survey - Common Gull**	
Project Title: **201053 Altemar Bird Surveys**	
Drawn By: **Kathryn Sheridan**	Checked By: **Patrick Manley**
Project No.: **201053**	Map No.: **Figure 1.3**
Scale: **1:10000**	Date: **31.03.21**

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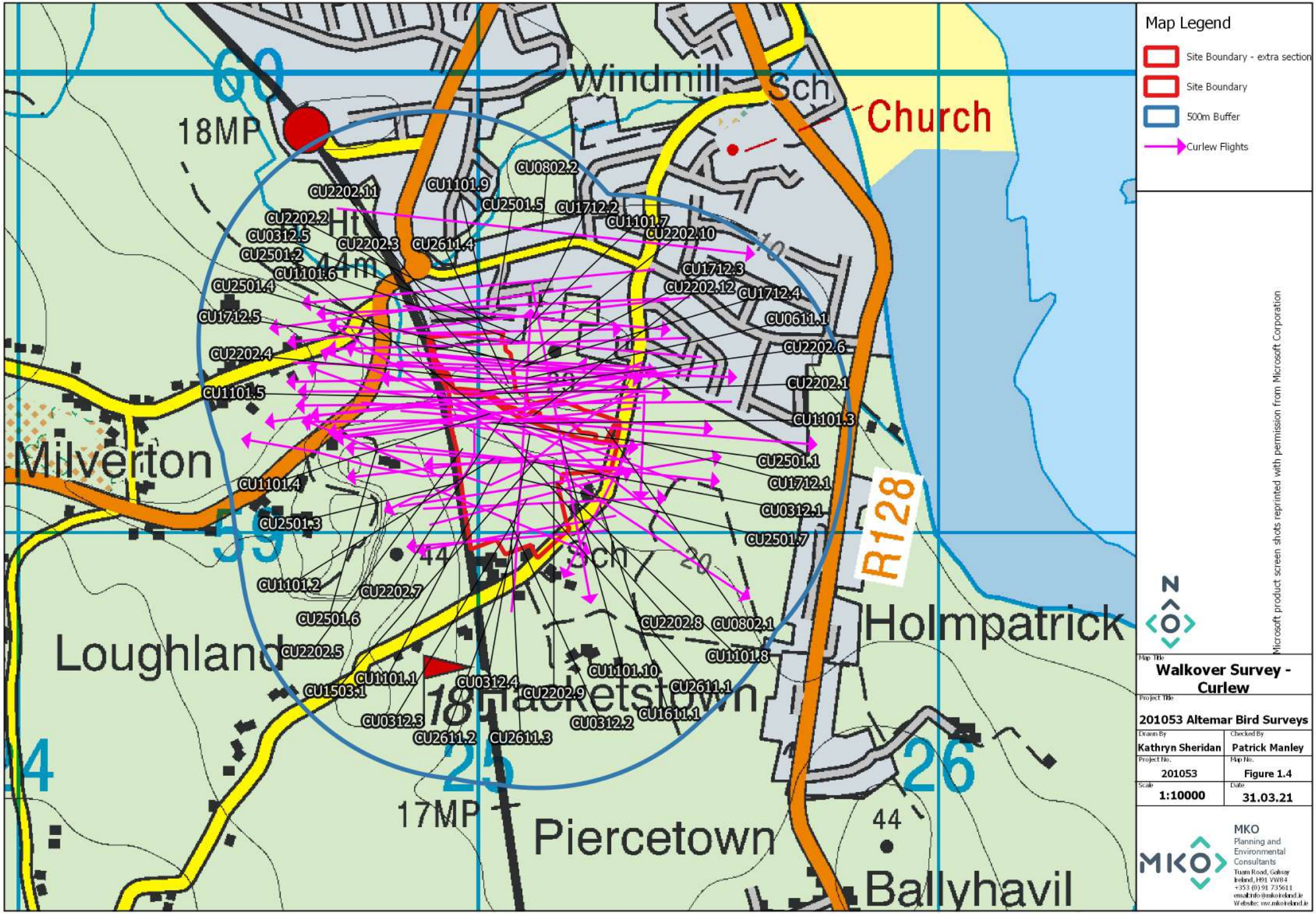
Map Legend
Site Boundary - extra section
Site Boundary
500m Buffer
Curlew Flights
Windmill
Sch
Church
18MP
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Milverton
Loughland
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Racketstown
Piercetown
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CU0312.3
CU0312.2
CU2611.2
CU2611.3
Map Title
Walkover Survey - Curlew
Project Title
201053 Altemar Bird Surveys
Drawn By
Kathryn Sheridan
Checked By
Patrick Manley
Project No.
201053
Map No.
Figure 1.4
Scale
1:10000
Date
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Windmill
Sch
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Holmpatrick
Loughland
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Hacketstown
25
26
17MP
Piercetown
44
Ballyhavil
Map Legend
Site Boundary - extra section
Site Boundary
500m Buffer
Great Black-Backed Gull Flights
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N
Map Title
Walkover Survey - Great Black-Backed Gull
Project Title
201053 Altemar Bird Surveys
Drawn By
Kathryn Sheridan
Checked By
Patrick Manley
Project No.
201053
Map No.
Figure 1.5
Scale
1:10000
Date
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Map Legend

- Site Boundary - extra section
- Site Boundary
- 500m Buffer
- Grey Heron Flights

N

Map Title
Walkover Survey - Grey Heron

Project Title
201053 Altemar Bird Surveys

Drawn By	Checked By
Kathryn Sheridan	Patrick Manley
Project No.	Map No.
201053	Figure 1.6
Scale	Date
1:10000	31.03.21

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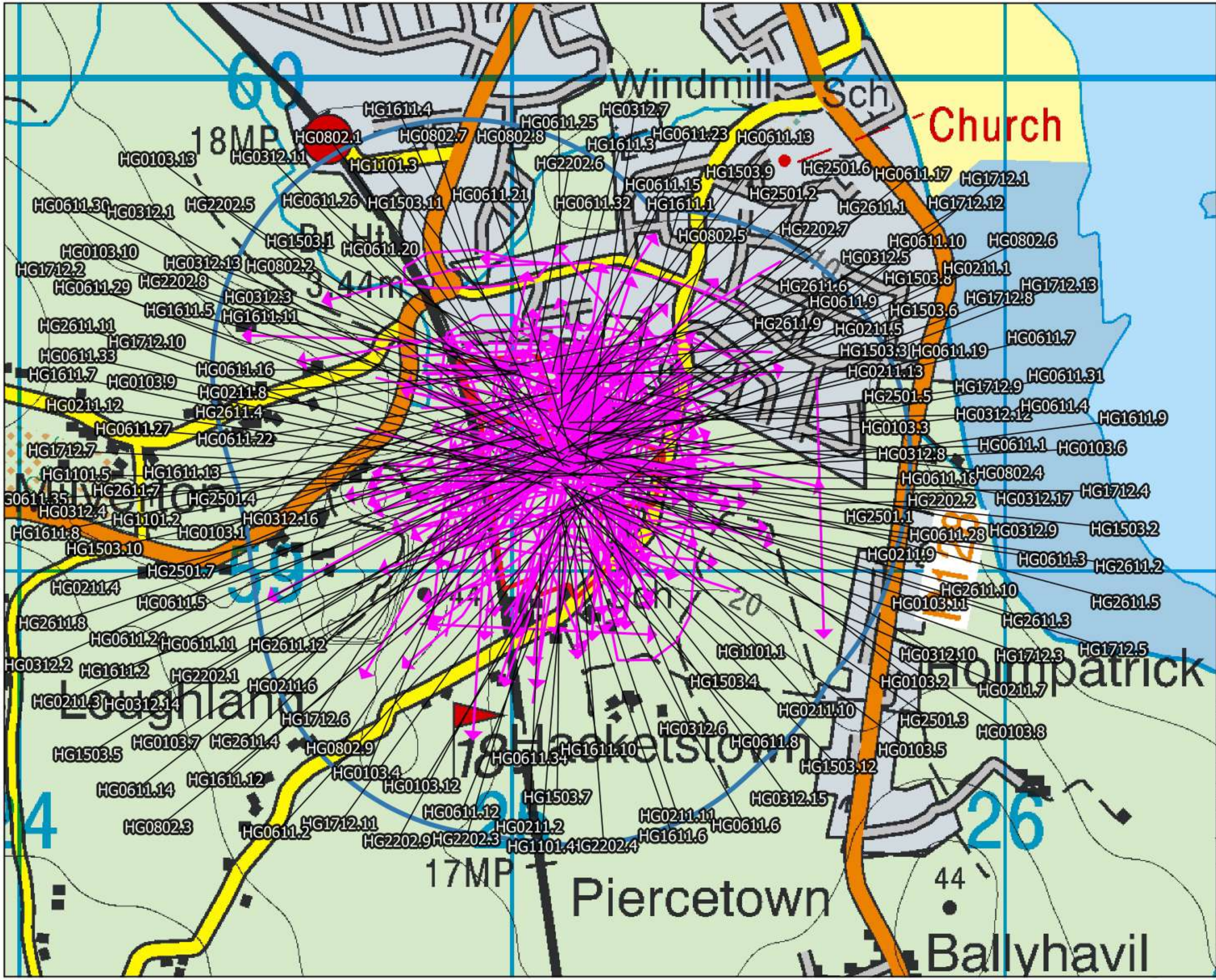

Map Legend

- Site Boundary - extra section
- Site Boundary
- 500m Buffer
- Herring Gull Flights

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Map Title	
Walkover Survey - Herring Gull	
Project Title	
201053 Altemar Bird Surveys	
Drawn By: **Kathryn Sheridan**	Checked By: **Patrick Manley**
Project No.: **201053**	Map No.: **Figure 1.7**
Scale: **1:10000**	Date: **31.03.21**

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Map Legend

- Site Boundary - extra section
- Site Boundary
- 500m Buffer
- Lapwing Flights

N

Map Title: **Walkover Survey - Lapwing**

Project Title: **201053 Altemar Bird Surveys**

Drawn By	Checked By
Kathryn Sheridan	Patrick Manley
Project No.	Map No.
201053	Figure 1.8
Scale	Date
1:10000	31.03.21

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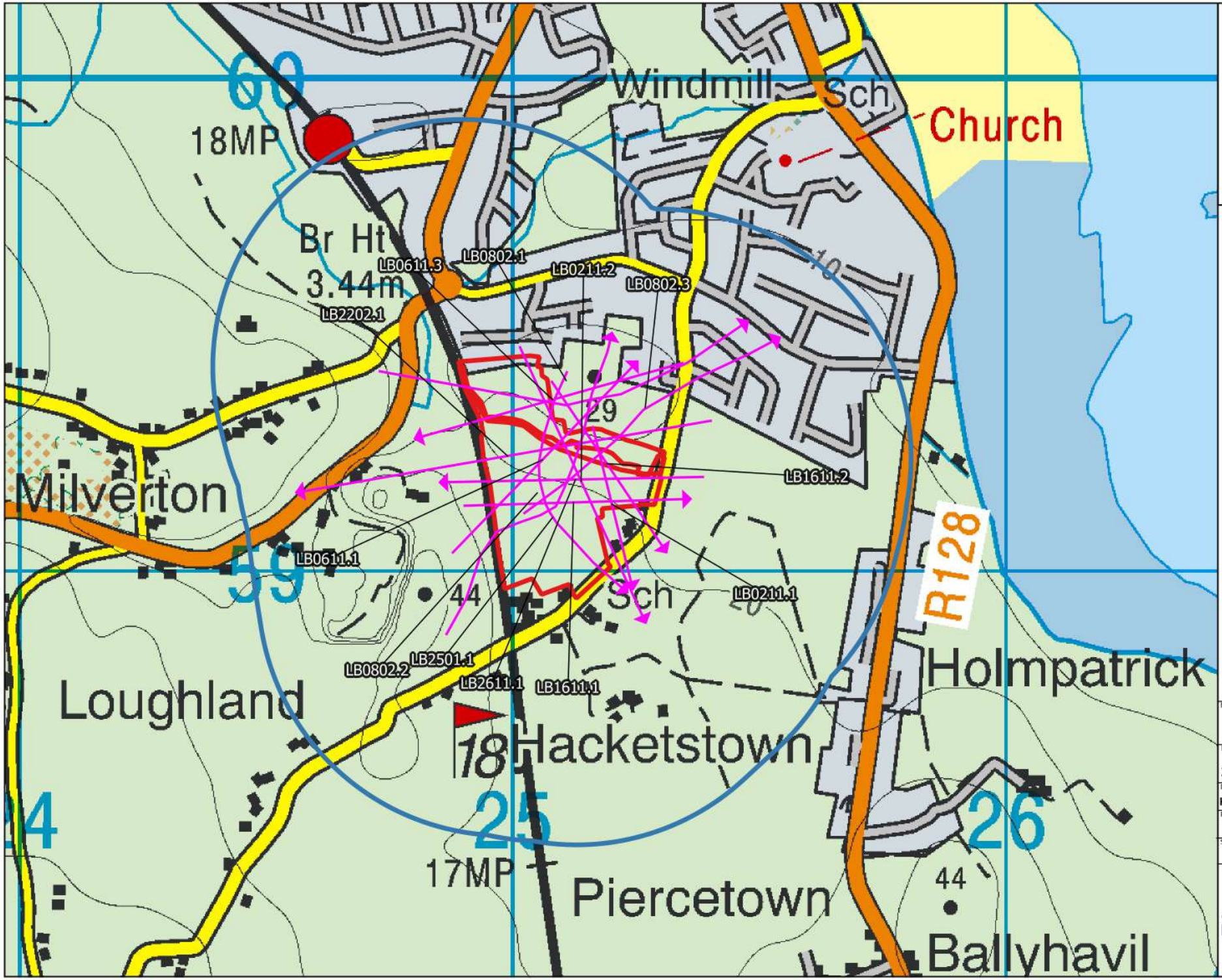
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LB1611.1
Holmpatrick
Loughland
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17MP
Piercetown
44
Ballyhavil
Map Legend
Site Boundary - extra section
Site Boundary
500m Buffer
Lesser Black-Backed Gull Flights
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Map Title
Walkover Survey - Lesser Black-Backed Gull Flights
Project Title
201053 Altemar Bird Surveys
Drawn By
Kathryn Sheridan
Checked By
Patrick Manley
Project No.
201053
Map No.
Figure 1.9
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Windmill
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R128
Holmpatrick
Loughland
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Hacketstown
25
26
17MP
Piercetown
44
Ballyhavil
Map Legend
Site Boundary - extra section
Site Boundary
500m Buffer
Mallard Flights
N
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Map Title
Walkover Survey - Mallard
Project Title
201053 Altemar Bird Surveys
Drawn By
Kathryn Sheridan
Checked By
Patrick Manley
Project No.
201053
Map No.
Figure 1.10
Scale
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Date
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Map Legend

- Site Boundary - extra section
- Site Boundary
- 500m Buffer
- Merlin Flight

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Map Title	
Walkover Survey - Merlin	
Project Title	
201053 Altemar Bird Surveys	
Drawn By: **Kathryn Sheridan**	Checked By: **Patrick Manley**
Project No.: **201053**	Map No.: **Figure 1.11**
Scale: **1:10000**	Date: **31.03.21**

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Map Legend

- Site Boundary - extra section
- Site Boundary
- 500m Buffer
- Mute Swan Flight

N

Map Title
Walkover Survey - Mute Swan

Project Title
201053 Altemar Bird Surveys

Drawn By	Checked By
Kathryn Sheridan	Patrick Manley
Project No.	Map No.
201053	Figure 1.12
Scale	Date
1:10000	31.03.21

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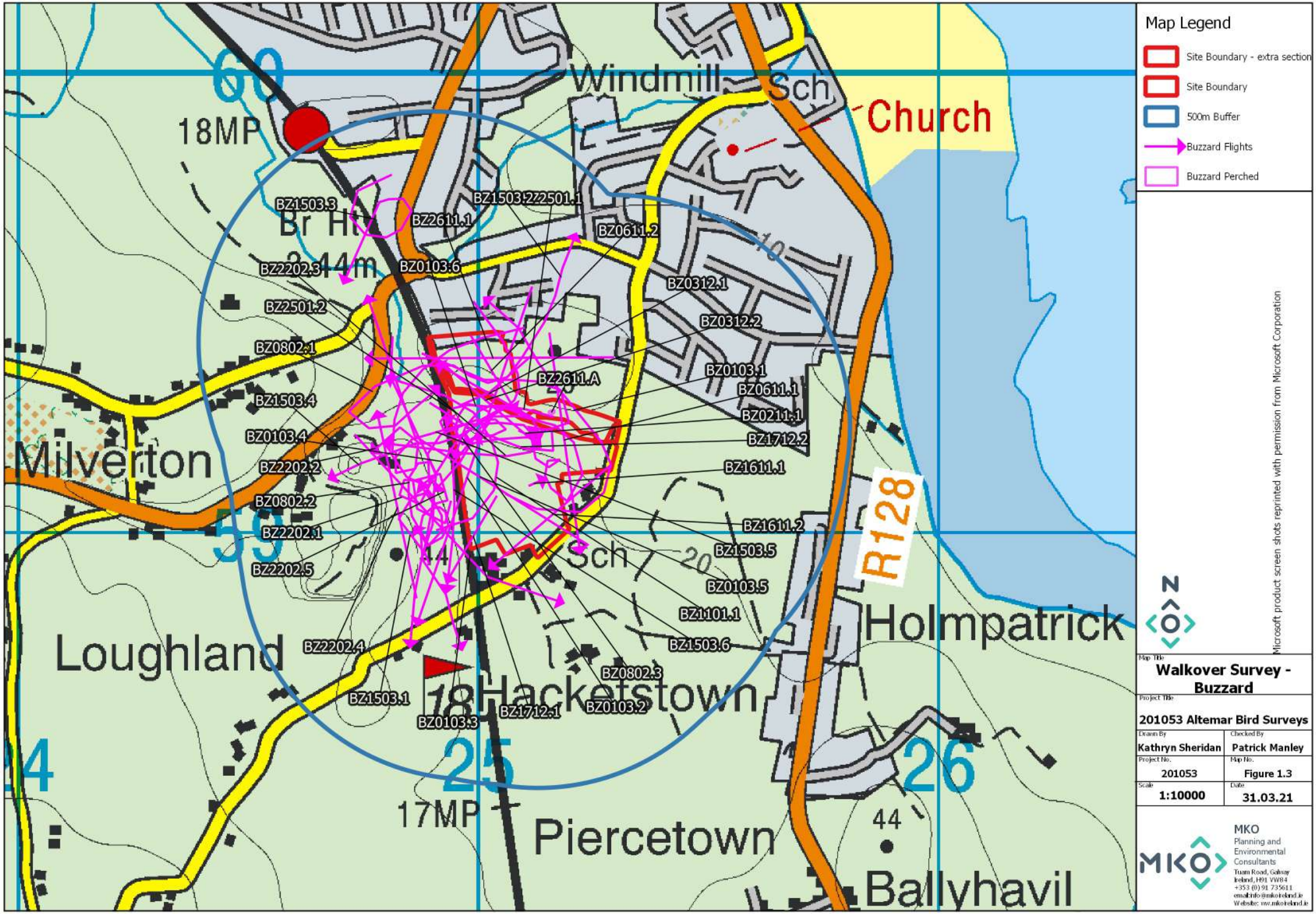
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Buzzard Flights
Buzzard Perched
Windmill
Sch
Church
18MP
Br Ht
244m
Milverton
Loughland
Holmpatrick
Hacketstown
Piercetown
Ballyhavil
17MP
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BZ1503.3
BZ2611.1
BZ1503.2
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BZ0611.2
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Map Title
Walkover Survey - Buzzard
Project Title
201053 Altemar Bird Surveys
Drawn By
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Checked By
Patrick Manley
Project No.
201053
Map No.
Figure 1.3
Scale
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Date
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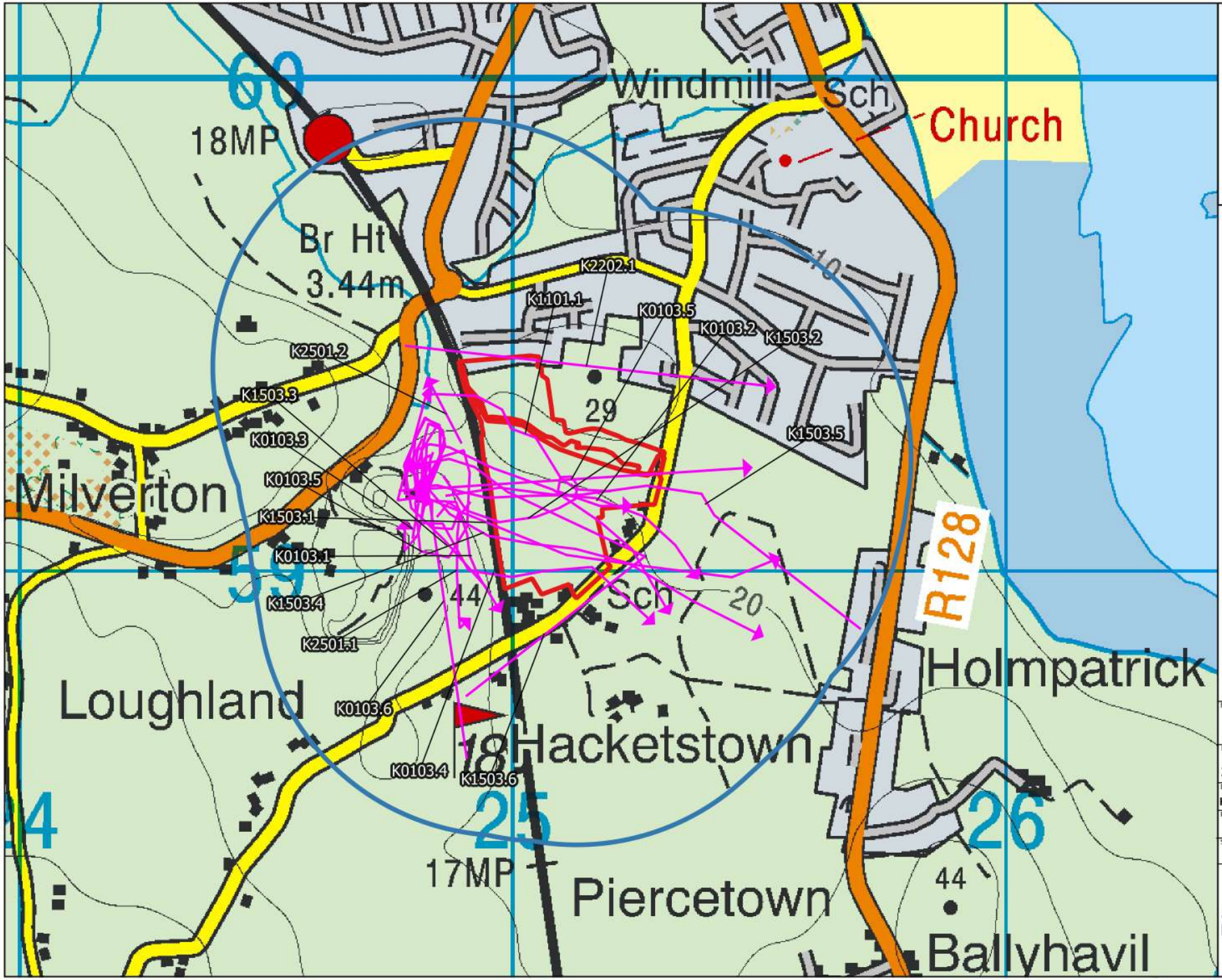

Map Legend

- Site Boundary - extra section
- Site Boundary
- 500m Buffer
- Kestrel Flights

N

Map Title
Walkover Survey - Kestrel

Project Title
201053 Altemar Bird Surveys

Drawn By	Checked By
Kathryn Sheridan	Patrick Manley
Project No.	Map No.
201053	Figure 1.14
Scale	Date
1:10000	31.03.21

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Map Legend

- Site Boundary - extra section
- Site Boundary
- 500m Buffer
- Sparrowhawk Flights

N

Map Title
Walkover Survey -

Project Title
201053 Altemar Bird Surveys

Drawn By	Checked By
Kathryn Sheridan	Patrick Manley
Project No.	Map No.
201053	Figure 1
Scale	Date
1:10000	31.03.21

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Map Legend

- Site Boundary - extra section
- Site Boundary
- 500m Buffer
- 15km Buffer
- SPA Sites

Map Title

SPA Sites

Project Title

201053 Altemar Bird Surveys

Drawn By	Checked By
Kathryn Sheridan	**Patrick Manley**
Project No.	Map No.
201053	**Figure 2**
Scale	Date
1:160000	**31.03.21**

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APPENDIX 3

CURRICULUM VITAE

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CURRICULUM VITAE

Kathryn Sheridan

Kathryn is an Ornithologist at MKO who took up her position in December 2020. Kathryn has experience of working on a wide range of bird species, beginning with her M. SC. thesis on breeding hen harrier. From this, Kathryn has gone on to work as Curlew Champion as part of the Curlew Conservation Programme, and Swift fieldworker with BirdWatch Ireland. As a sub-consultant, Kathryn has completed wintering wildfowl surveys across Ireland, as well as completing bat and mammal surveys. Throughout this work experience, Kathryn has continued to build her skills in writing and the use of GIS.

Current Role	Ornithologist
Qualifications	› M. Sc., Wildlife Conservation and Management, First Class Honours. University College Dublin. › BA Natural Science: Zoology, Second Class, First Division Honours. Trinity College Dublin.
Years of Experience	› 1 – 2 years
Relevant Experience	› Bird survey experience carrying out a range of bird survey methodology such as vantage point surveys, wintering wildfowl surveys, breeding bird surveys (including breeding raptor surveys). › Data management and GIS experience: as part of an M. Sc. Thesis and continuing into professional work. › Writing experience: one scientific paper on breeding hen harrier and several end of breeding season reports.
Practical Skills & Aptitudes	› Bird identification skills (visual & aural) › Further experience in the identification of mammals, butterflies and bats
Interpersonal & Communication Skills	› Experience of liaising with landowners for the allowance of site access › Experience of communicating with members of the public when conducting surveys and gathering bird sighting reports
Licenses Held	› Full, clean driving license

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CURRICULUM VITAE

Patrick Manley

Patrick Manley is a Project Ornithologist at MKO. He attended University College Dublin where he completed a BSc (Hons) in Geology. Patrick has over five years' experience working with MKO in designing and executing ornithological surveys, primarily within the renewables sector. Patrick has also worked on ornithological chapters of Environmental Impact Assessment Report (EIAR) to accompany planning applications. Prior to joining the company Patrick worked as part of the conservation team in BirdWatch Ireland, on projects such as the Dublin bay birds project, Kilcoole Little Tern conservation project and the results based agri-environmental scheme for breeding waders. He has extensive experience surveying birds through other projects such as the Irish wetlands bird survey, the Inishmurray all-island breeding birds survey, the national Hen Harrier survey and the countryside bird survey.

Current Role	Project Ornithologist
Qualifications	› BSc Geology, University College Dublin (2013).
Years of Experience	› 7 years post graduate experience in wildlife conservation and monitoring.
Relevant Experience	**Relevant Work Experience:** › Field ornithologist as part of the Little Tern Conservation Project with BirdWatch Ireland for two breeding seasons (2015 & 2016). Patrick gained experience in monitoring and protecting a vulnerable species and in the collection, collation and analyses of large data sets. He was also responsible for liaising with the public, the writing of weekly reports and full technical reports at the end of each breeding season. › Agri-Environmental Liaison Officer for the Results Based Agri-Environmental Payment Scheme with BirdWatch Ireland. Patrick gained experience in liaising with land owners, coordinating and finalizing terms with participants of the scheme. He also gained skills in the ecological applications for GIS, in training landowners in land management for breeding birds and in carrying out breeding bird surveys. › Conservation Team Intern with the Dublin Bay Birds Project for BirdWatch Ireland. Patrick gained experience in compiling, proofing and analysing large datasets, as well as waterbird monitoring during various tidal and weather conditions and writing technical reports. › Field Assistant with the Dublin Bay Birds Project with BirdWatch Ireland. Patrick gained experience doing waterbird surveys, radio tracking surveys and the tracking of colour ringed waders. He also gained experience in collating, proofing and validating large datasets. He was also responsible for fitting colour rings to waders during multiple catching sessions. › Volunteer Bird Surveyor on various projects including the Irish wetlands bird survey, the Inishmurray all-island breeding bird survey, the national Hen Harrier survey and the countryside bird survey. **Relevant Experience within MKO:** › Wind Farm Projects Patrick has worked on over 30 wind farm projects across Ireland. Patrick has expert experience in interpreting and implementing Scottish Natural Heritage (SNH, 2017) guidance for ornithological surveys of wind farms, in an Irish context. Patrick's key responsibilities within MKO include: designing and executing ornithological surveys at wind farm site, writing reports such as interim report, end-of-season reports, client updates etc.,

	designing mitigation measures for ornithologically sensitive species, and drafting ornithology chapters for Environmental Impact Assessment Reports (EIAR). › Solar Farm Projects Patrick has worked been responsible for conducting ornithological surveys at solar farm sites during both the breeding and winter seasons. › Large Scale Bird Monitoring Projects Patrick has been involved in a number of large scale bird monitoring projects whilst working for MKO, for clients such as the National Parks and Wildlife Service and Clare County Council. Such projects include the Shannon-Fergus Estuary waterfowl usage surveys and Lough Derg bird usage surveys. Patrick was involved in designing and conducting surveys, as well as writing the final reports for these surveys.
Practical Skills & Aptitudes	› Planning and carrying out ornithological surveys. › Working Independently and effectively in the field. › Planning surveys with sub-contractors and management. › Data presentation. › Proficient in MS Office, GIS and MapInfo software. › Adhering to required guidelines and SOP's on bird survey methodologies. › Experience surveying birds using line transects, vantage point counts, flush counts, mist netting, radio tracking and GSM trackers
Management/ Supervision	› Management of all bird surveys carried out on site. › Demonstrated ability to manage workload and plan surveys based on own initiative. › Experience managing field sites and coordinating large teams of volunteers for the Little Tern Conservation Projects 2015 and 2016 › Experience coordinating and supervising volunteers during the all-island seabird survey on Inishmurray. › Experience coordinating and liaising with volunteers/surveyors with BirdWatch Ireland and Irish Midlands Ringing Group on various projects.
Interpersonal & Communication Skills	› Extensive dealings with ecology team in planning of bird survey work and standard operating procedures. › Effective and clear communicator. › Proven ability to manage extensive survey requirements and collation of data upon completion. › Planning surveys with team members and sub-contractors. › Experience coordinating workloads and delegating tasks as a member of both large and small teams of volunteers on a number of different projects with BirdWatch Ireland and the Irish Midlands Ringing Group, often in challenging fieldwork environments. › Experience as lead author or co-author on technical project reports. › Managed public relations and public outreach for the Little Tern Conservation Project in 2015 and 2016 (including an appearance on RTE series "EcoEye" in January 2016). › Experience giving bird ringing demonstrations to various groups including BirdWatch Ireland branch members, Dublin Field Naturalist club and during heritage week.
Licenses Held	› Full Clean Driving Licence. › Current Safe Pass Holder.

Physical / Other	› Ability to plan and organize fieldwork in line with published survey methodologies and company SOP's. › Qualified bird ringer and ringing trainer with British Trust for Ornithology

Planning and Environmental Consultants

Dervla O'Dowd

CURRICULUM VITAE

Dervla O'Dowd is Project Director with MKO's Ornithology Team with fourteen years of experience in environmental consultancy as a Senior Ecologist and Project Manager. Dervla graduated with a first-class honours B.Sc. in Environmental Science from NUI, Galway in 2005 and joined Keville O'Sullivan Associates in the same year. Dervla has gained extensive experience in the project management and ecological assessment of the impacts of various infrastructural projects including wind energy projects, water supply schemes, road schemes and housing developments nationwide and has also been involved in the compilation of Environmental Impact Reports and acted as EIR co-ordinator on many of these projects. Dervla has also extensive experience in the provision of ecological site supervision for infrastructural works within designated conservations areas, in particular within aquatic habitats, and has also been involved in the development of environmental/ecological educational resource materials. Currently, Dervla is responsible for coordinating ecological work, in particular, ornithological surveys, required on major infrastructural projects, with emphasis on wind energy projects. Dervla's key strengths and areas of expertise are in project management, project strategy, business development and survey co-ordination to ensure the efficient operation of the Ornithology team's field survey schedule. Dervla holds full membership of the Chartered Institute of Ecology and Environmental Management and current Safe Pass card.

Current Role	Project Director (Ornithology)
Qualifications	› B.A. (Archaeology & German) (1996), H. Dip. (Education) (1999) › B.Sc. (Environmental Science) (2005) National University of Ireland, Galway
Years of Experience	› 14 years post graduate experience in environmental consultancy.
Relevant Experience	› Currently responsible for the management of a team of approximately 25 field surveyors undertaking bird surveys nationwide at the sites of c.25 renewable energy projects at various stages of their project life cycle and the delivery of compiled, processed bird survey data to clients based on highest industry standards. › Co-ordination of the ecological component of over 20 Wind Farm projects nationwide at various stages including pre-planning, EISs, appeals, pre-commencement and condition compliance, construction and post-construction stages. Defining the scope of the ecological works required at each stage of projects, scheduling all works, coordinating and managing a team of up to twenty field staff/sub-consultants and overseeing the ecological inputs into all stages of these projects (2014-2016). › Project Manager, Article 6(3) Screening Review of entire OPW Drainage Maintenance Programme 2011. Compilation of 31 screening reports on arterial drainage scheme catchment basis nationwide. › Senior Ecologist on habitat mapping projects for Waterways Ireland on the Royal Canal and Barrow Navigation (2010-2013). › Senior Ecologist; OPW Channel Maintenance Assessments 2009/2010. Co-ordination and completion of assessment of impacts of channel maintenance works within designated sites throughout Ireland. › Project Manager and Senior Ecologist, N59 Moycullen Bypass Preliminary Ecological Assessment/Appropriate Assessments, responsible for all ecological surveying including aquatic and bat survey and habitat mapping. › Project Co-ordinator and Senior Ecologist and; N17 Tuam Bypass; 2009; Design/pre-planning stage; Environmental Report. Responsible for ecological issues including survey requirements, habitat mapping and Appropriate Assessment Screening. › Senior Ecologist; Group Water Scheme Bundles (Galway, Mayo, Roscommon, Clare); 2005 to 2010; Preliminary design through to construction sign off; Assessment of over 75 sites; liaison with statutory consultees, development of approved working methods and

	construction supervision in most sensitive sites. Most were within or adjacent to SACs/SPAs/NHAs with significant constraints. › Senior Ecologist; Appropriate Assessment for Wastewater Treatment Plant Discharge Licence Applications in Co.s Galway and Limerick. Responsible for consultation, surveys, including detailed aquatic surveys, report preparation and appropriate assessment for sites within/adjacent to SACs/SPAs/NHAs with significant ecological constraints. › Project Ecologist on various development-led projects. Responsible for consultation, appropriate assessment, site surveys, report preparation, appropriate assessment and construction site mitigation planning/supervision.
Practical Skills & Aptitudes	› Team management. › Project management. › Co-ordination of complex field survey schedules/projects. › Project strategy. › Report-writing. › Ecological surveys including botanical surveys, habitat assessments, aquatic surveys (Stage 1 and 2 Freshwater Pearl Mussel survey licence holder, Crayfish surveys, freshwater invertebrate surveys), mammal surveys, bat surveys etc. › GIS (Mapinfo v. 10.0), proficient in use of MS Office programmes.
Management/ Supervision	› Responsible for the management of MKO Ornithology team of c. 25 in-house ornithologists and regular sub-contractors. › Management and coordination of ecological inputs for EISs, FI responses and Grounds of Appeal for c. 20 wind farm projects nationwide to date. › Project Coordinator for EISs and Environmental Reports for a range of infrastructural and residential developments. › Project manager and senior ecologist on large scale ecological projects. › Extensive experience of ecological assessment and mitigation management of development sites nationwide over past 14 years. › Accustomed to working effectively as part of larger multidisciplinary project design teams.
Interpersonal & Communication Skills	› Experience of coordinating large team of field staff and sub-consultants for ecological works at over 20 wind farm sites throughout the country. › Experience co-ordinating project teams for EISs and Environmental reports for projects such as wind energy developments, solar energy projects, road and residential developments. › Extensive experience in successful dealings with statutory ecological consultees including NPWS and IFI, usually regarding sensitive ecological sites. › Significant experience co-ordinating approach to sensitive ecological sites between client and ecological consultees and contractors, etc. › Development of technical working methodologies on behalf of contractors requiring understanding of both proposed works and sensitivities of site › Experience in environmental education presentations and training for contractors, clients and the general public.
Licenses Held	› Wildlife Act Section 22 & 23 Crayfish › Wildlife Act Section 22 & 23 Pearl Mussel › Current Safe Pass holder. › Full member of the Chartered Institute of Ecology & Environmental Management (CIEEM).