NATURA IMPACT STATEMENT FOR A PROPOSED RESIDENTIAL DEVELOPMENT AT CASTLETREASURE/MARYBOROUGH, DOUGLAS, CO. CORK.

In support of the Appropriate Assessment Process

Prepared for:

McCutcheon Halley

On behalf of Cairn Homes Properties Ltd.

Prepared by:

Kelleher Ecology Services Ltd.

April 2019

KELLEHER ECOLOGY SERVICES

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Executive Summary

This report presents the results of a Natura Impact Statement (NIS), which is part of the appropriate assessment process to identify whether significant impacts on a Natura 2000 site are likely to arise from a proposed residential development at Castletreasure/Maryborough (townlands), Carr's Hill/ Carrigaline Road (R609), Douglas, Co. Cork.

It is objectively concluded that with the application of mitigation measures no significant effects arising from the proposed development are likely to occur in relation to the Natura 2000 sites; Cork Harbour SPA and Great Island Channel SAC.

1 Introduction

Kelleher Ecology Services Ltd. (KES) was commissioned by McCutcheon Halley planning consultants, on behalf of Cairn Homes Properties Ltd., to undertake a Natura Impact Statement (NIS) in support of the Appropriate Assessment process regarding potential impacts on Natura 2000 sites in the wider area arising from a proposed residential development at Castletreasure/Maryborough (townlands), Carr's Hill/ Carrigaline Road (R609), Douglas. This assessment was undertaken as part of an application by the client for planning permission under the Strategic Housing Development (SHD) process.

1.1 Statement of Competence

1.1.1 Dr Katherine Kelleher

Katherine Kelleher is a graduate of University College Cork with a BSc in Zoology and PhD in Ecology, and established Kelleher Ecology Services in 2011. She has over ten years of experience in ecological consultancy, acting as project manager on a range of ecological assessments & projects including solar/wind farm, road, gas pipeline, landfill, grid connection, industrial development, retail and housing. Katherine has significant experience of research, evaluative and analytical work in relation to planning applications, EIAR, appropriate assessment, planning compliance, commitments, licensing, baseline assessments, scoping studies *etc*.

1.1.2 Dr Daphne Roycroft

Daphne has over 10 years of experience in the field of Ecological Consultancy and holds a BSc and PhD in Ecology from University College Cork. She is a self-employed Ecological consultant, trading as Croft Ecology. Daphne is experienced in the preparation of Ecological Impact Assessment Reports and Appropriate Assessment screening appraisals as well as Natura Impact Statements for a variety of projects including wind farms, solar farms, roads, pipelines, residential developments, ports and landfill sites. She has published research papers in several peer-reviewed scientific journals and has lectured on several degree and certificate courses in University College Cork.

1.2 Background: Appropriate Assessment

An Appropriate Assessment is undertaken to establish if any proposed plan or project is likely to have a significant effect or impact on any site that has been designated under: the E.U. Habitats Directive (92/43/EEC) *i.e.* SAC; or the E.U. Birds Directive (79/409/EEC as amended 2009/147/EC) *i.e.* SPA. Collectively, SAC's and SPA's are known as Natura 2000 sites. The E.U. Habitats Directive has been transposed into Irish law under Part X AB of the Planning and Development Act 2000-2015 and the European Communities (Birds and Natural Habitats) Regulations 2011-2015.

A NIS is part of an appropriate assessment process that consists of up to four stages, where each stage follows on from the preceding one. The need to undertake one or more stages of this process has arisen from Articles 6(3) and 6(4) of the aforementioned Habitats Directive; where the former Article is primarily concerned with the protection of sites from likely significant effects and the latter allows derogation from such protection in very specific circumstances involving imperative reasons of overriding public interest.

In Stage 1, a screening process is undertaken to identify whether significant[1] impacts on a Natura 2000 site are likely to arise from the project or plan in question. If significant impacts are likely to occur or if it is unclear whether significant impacts are likely to occur, then the process moves on to Stage 2 where an AA considers potential mitigation measures for adverse impacts. If it is considered that mitigation measures will not be able to satisfactorily reduce potential adverse impact on a Natura 2000 site then an assessment of alternative solutions is considered in Stage 3. This is then followed by Stage 4 in the event that adverse impacts remain and the proposed activity or development is deemed to be of Imperative Reasons of Overriding Public Interest (IROPI), allowing an assessment of compensatory measures to be considered. The outcome of a Stage 2 and higher assessment is presented in a report known as a Natura Impact Statement (NIS).

While an AA NIS is provided by the advocate of the plan or project in question, the AA NIS itself is undertaken by the competent authority (*e.g.* planning authority, An Bord Pleanála). So, in this case, the AA NIS for the proposed development described herein is undertaken by An Bord Pleanála; although informed by this NIS and any other necessary information.

1.3 Methodology

This report presents a detailed NIS that considers measures to mitigate possible significant impacts on relevant Natura 2000 sites. This report has been completed as part of a planning application by the client to Cork County Council to permit a proposed residential development at Castletreasure/Maryborough (townlands), Carr's Hill/ Carrigaline Road (R609), Douglas, Co. Cork.

The conservation objectives of Natura 2000 sites have been compiled by the National Parks & Wildlife Service (NPWS) in relation to the habitats and species (*i.e.* qualifying interests) for which the sites are selected. These conservation objectives are referred to when carrying out appropriate assessments for plans and projects that might impact on these sites. So, in this case, the conservation objectives of the relevant Natura 2000 sites have been considered in the following assessment and report.

Documents associated with the development and relevant ecology databases were consulted as part of this assessment (as outlined in Sections 5 and below), as well as an ecological field assessment of the study site from May to August 2018 to inform the Environmental Impact Assessment Report (EIAR, Cairn PLC 2019) associated with the application here. The following guidelines were used in the completion of this assessment;

- Assessment of Plans and Projects Significantly Affecting Natura 2000 Sites – European Commission Methodical Guidance on the provisions of Article 6(3) and 6(4) of the 'Habitats' Directive 92/43/EEC (European Commission 2001).

[1]A European Court of Justice ruling in 2013 (Case C-258/11) has stated the following regarding significant effect: "Where a plan or project not directly connected with or necessary to the management of a site is likely to undermine the site's conservation objectives, it must be considered likely to have a significant effect on that site. The assessment of that risk must be made in the light of, in particular, the characteristics and specific environmental conditions of the site concerned by such a plan or project (see, to this effect, Waddenvereniging and Vogelbeschermingsvereniging, paragraph 49)"

- Managing Natura 2000 sites. The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC. Commission Notice (European Commission 2018).
- Appropriate Assessment of Plans and Projects in Ireland – Guidance for Planning Authorities (DoEHLG 2009).
- Integrated Biodiversity Impact Assessment – Streamlining AA, SEA and EIA Processes: Practitioner's Manual (EPA 2013).
- European Court of Justice Opinion 22nd November 2012 by Advocate General Sharpston; Case C-258/11 Peter Sweetman and Others v An Bord Pleanála – in determining whether a project or plan has an adverse effect on the integrity of a site (to which Article 6(3) of Council Directive 92/43/EEC applies), an effect which is permanent or long lasting must be regarded as an adverse effect.
- European Court of Justice Judgement 11th April 2013 by the Third Chamber; Case C-258/11 Peter Sweetman and Others v An Bord Pleanála - criteria to be applied when assessing the likelihood that a project or plan (N6 Galway City Outer Bypass road scheme in this case) will adversely affect the integrity of a Natura 2000 site (Lough Corrib SAC in this case), where the integrity of a Natura 2000 site is considered to be adversely affected if a plan or project is liable to prevent the lasting preservation of the constitutive characteristics of the site that are connected to the presence of a priority natural habitat whose conservation was the objective justifying the designation of the site.
- High Court Ruling 25th July 2014 by Ms. Justice Finlay Geoghegan; Neutral Citation [2014] IEHC 400; High Court Record No. 2013 802 JR; Kelly -v- An Bord Pleanála – judicial review of grant of planning by An Bord Pleanála for two wind farm phases in County Roscommon, including failure of ABP to carry out lawful appropriate assessment and giving reasons for its determination.
- High Court Ruling 24th November 2014 by Mr. Justice Hedigan; Neutral Citation [2014] IEHC 557; High Court Record No. 2014 320 JR; Rossmore Properties Limited & Anor -v- An Bord Pleanála – where mitigation measures are an intrinsic part of a project, they may be taken into account in the stage 1 screening process.
- High Court Ruling 25th February 2016 by Mr. Justice Barton; Neutral Citation [2016] IEHC 134; High Court Record No. 2013 450 JR; Balz & Heubach -v- An Bord Pleanála - recording complete definitive and precise findings, and conclusions re Appropriate Assessment.
- European Court of Justice Judgement 12th April 2018 by the Seventh Chamber; Case C 323/17; People Over Wind & Sweetman -v- Coillte Teoranta - it is not appropriate, at the screening stage, to take account of the measures intended to avoid or reduce the harmful effects of the plan or project on a Natura 2000 site.
- European Court of Justice 19th April 2018; Case C 164/17; Grace & Sweetman -v- An Bord Pleanála – a measure compensating for the negative effects of a project cannot be taken into account in an Appropriate Assessment Natura Impact Statement (Stage 2).

- European Court of Justice 7th November 2018; Case C 461/17; Holohan & Others v. An Bord Pleanála - all the habitats and species for which the Natura 2000 site is protected must be catalogued; an Appropriate Assessment must identify and examine the implications of the proposed project for species present on the Natura 2000 site, including species for which the site has been listed and those for which it has not, provided those implications are liable to affect the conservation objectives of the site; an Appropriate Assessment must identify and examine the implications of the proposed project for species and habitats outside the boundaries of the Natura 2000 site, provided those implications are liable to affect the conservation objectives of the site.; the competent authority may grant consent for a plan or project that leaves for later decision the determination of certain parameters relating to the construction phase if the competent authority is certain (i.e. 'no reasonable scientific doubt) that the development consent granted establishes conditions that are strict enough to guarantee that those parameters will not adversely affect the integrity of the site.

- High Court Ruling 2nd February 2019 by Mr. Justice Barniville; Neutral Citation [2019] IEHC 84; High Court Record No. 2017 883 JR; Kelly -v- An Bord Pleanála & Anor- SUDS are not mitigation measures which a competent authority is precluded from considering at the stage 1 screening stage.

2 Brief Description of the Site & Project

2.1 Study Site: Location

The study site is located at Castletreasure/Maryborough (townlands), Carr's Hill/ Carrigaline Road (R609), at Douglas, Co. Cork (see Figure 2.1). The application site is approximately 22ha (where the study site applied here is a little larger *c.* 24.7ha) and primarily comprises of scrub and neutral grassland. The site generally slopes from approximately 90m above sea level in the south to approximately 30m in the north. The study site is surrounded by agricultural land to the south, residential developments to the west and north and a golf course to the east (see Figure 2.2). A school (permitted under Cork County Council planning application ref. 18/5369 & An Bord Pleanala ref. ABP-302924-18) is permitted at lands at the north-western area of the study site. Access will be from the R609/Carr's Hill Road, which runs along the eastern boundary of the study site.

The study site is located within the Lee, Cork Harbour and Youghal Bay River Catchment (Glasheen sub-catchment), Hydrometric Area 19 in the South-Western River Basin District[2]. There are two watercourses draining the study site in a northerly direction; Douglas Stream and Moneygurney Stream. The Moneygurney Stream flows through the eastern portion of the site, while the Douglas Stream flows along the western boundary of the study site and joins the Moneygurney Stream[3] just north of the site *c.* 100m downstream of the study site. The current Water Framework Directive (WFD) status/risk for both the Douglas and Moneygurney Streams in the vicinity and downstream of the study site is under review/unassigned[2]; however, biological water quality sampling completed as part of the associated Environmental Impact Assessment Report (EIAR, Cairn PLC 2019) of the proposed development indicates Good Status (Q4) for Moneygurney Stream and Moderate Status (Q3-4) for Douglas Stream in the vicinity of the study site. Moneygurney Stream eventually flows into Douglas estuary/Lough Mahon transitional waterbody, which is designated as part of Cork Harbour SPA. The latest water quality for Lough Mahon transitional waterbody indicates that it is intermediate, while its current WFD status/risk is moderate and at risk respectively[2].

2.2 Study Site: Ecology Field Assessment

An ecological field assessment of the study site was undertaken from May to August 2018 as part of the EIAR (see Cairn PLC 2019) associated with the planning application here. An objective of the ecological surveys was to gain an overview of the study site as well as to note ecological points of interest such as the presence of habitats/species that are protected or are qualifying interests of the Natura 2000 sites relevant here (as outlined in Section 3 below) and invasive plant species.

Scrub and neutral grassland[4] are the dominant habitats present within the study site (see Appendix A). The main habitats directly impacted by the proposed development footprint (and works area) include habitats of higher local value[5] (scrub WS1 and hedgerow WL1) or of lower local value (neutral grassland GS1, wet grassland GS4, recolonising bare ground ED3 and spoil and bare ground ED2). Other semi-natural habitats

[2] see https://gis.epa.ie/EPAMaps/
[3] Also known as Ballybrack Stream after the confluence of Douglas and Moneygurney Streams
[4] classification after Fossitt 2000
[5] biodiversity evaluation follows criteria amended after Triturus Environmental 2016 (unpub.), NRA 2009 and Nairn and Fossitt 2004; see Appendix B

present in the study area include eroding rivers (FW1) of local/county value and associated wet pedunculate oak-ash woodland (WN4) corridors of county value.

No Annex I habitats listed under the EU Habitats Directive or botanical species protected under the Flora (Protection) Order 2015, listed in the EU Habitats Directive or red-listed in Ireland were recorded at the study site. No qualifying interest species/habitats of the Natura 2000 sites under consideration here were noted during the EIAR ecological field assessment of the study site. Furthermore, the study site does not currently support habitats of ex-situ ecological value for relevant qualifying interests.

Stands of the highly invasive plant species Japanese Knotweed *Fallopia japonica* were noted at the study site; one small and relatively recently established stand at one location within the proposed housing development area (Irish Grid Reference W70545 68195) and several stands within the proposed school development area of the study site. Japanese Knotweed is listed on the Third Schedule of the 2011 European Communities (Birds and Natural Habitats) Regulations where it is an offense to disperse, spread or otherwise cause to grow in any place. All Japanese Knotweed was removed in August 2018 through a new process known as 'Eraginate process' (see Appendix C for full details). Other non-native invasive plant species noted within the study site include Buddleia *Buddleia davidii* and Traveler's Joy *Clematis vitalba*; none of which are listed on the Third Schedule of the 2011 European Communities (Birds and Natural Habitats) Regulations. It is also worth mentioning that the non-native invasive plants Rhododendron *Rhododendron ponticum* and Laurel *Prunus laurocerasus* are also present in private properties adjoining the north-western boundary of the study site.

2.3 Project Details

Cairn Homes Properties Ltd is seeking planning permission for a proposed strategic housing development at Castletreasure/Maryborough (townlands), Carr's Hill/ Carrigaline Road (R609), Douglas, Co. Cork. The proposed development includes the construction of a strategic housing development comprising 472 residential units, a creche and all associated ancillary development works (see Appendix D). The proposed 472 residential units are broken down as follows:

- 234 no. semi-detached and terraced houses comprising 67 no. 4 bed units and 167 no. 3 bed units;
- 93 no. duplexes/apartments and 145 no. apartments (in Blocks A, B, C & D) comprising 76 no. 1 bed units, 123 no. 2 bed units and 39 no. 3 bed units.

The development also includes a number of play areas, active amenity spaces and circa 4.4ha of landscaped parkland which runs northwest to southeast through the site. A section of the Ballybrack Greenway is also provided within the parkland which will connect to the existing Cork County Council cycle network at the site's western boundary via the existing Irish Water Pumping Station compound, and to the future expansion of the Greenway towards Maryborough at the site's eastern boundary.

Primary access to the proposed development will be from a new signalised junction on to the R609/Carr's Hill Road, which will be shared with the permitted school (permitted under Cork County Council planning application ref. 18/5369 & An Bord Pleanala ref. ABP-302924-18). Upgrades are also proposed to the Carr's Hill/Carrigaline Road (R609) including road widening, traffic calming and footpath connections. A second access point and footpath connections will be provided onto the Carr's Hill/Carrigaline Road (R609) (serving 98 apartments in Blocks B, C & D only) and access will also be provided via the adjoining Temple Grove residential area.

Provision is also made for the diversion of the existing 300mm Irish Water watermain, the construction of an underground wastewater pumping station and rising main to serve Apartment Blocks B, C and D, and all other associated ancillary site development works including ground works and retaining structures, foul drainage, stormwater drainage, water supply, 7 no. electrical substation kiosks, service ducting and cabling, boundary treatments, access roads including a vehicular and pedestrian bridge over the Moneygurney Stream, gateway treatment/signage on the Carr's Hill/Carrigaline Road (R609), bicycle and car parking and landscaping. A temporary single storey marketing suite, adjoining the Carr's Hill/Carrigaline Road (R609), and signage (including hoarding) will be provided during the construction phases.

A flood risk assessment for the proposed development has been undertaken (see JBB 2019). While a small number of dwellings at the western area are within close proximity to the relevant 0.1% AEP fluvial flood extent, all proposed dwellings will be constructed outside of the relevant fluvial flood extent at the study site. Furthermore, all development will be constructed at an elevation higher than the 1% AEP flood level with a suitable freeboard, and the proposed FFL of buildings will also be greater than the 0.1% AEP flood level. Therefore, there will be no loss of flood plain storage such that the development will have no impact on the remaining flood plain.

It is currently anticipated that the units will be constructed on a phased basis (four phases in total) over a 4 to 5 year-period. Environmental inputs associated with the proposed development will include surface-water run-off, waste-water and other wastes; however, these inputs will be controlled/managed in accordance with best practice regarding standard environmental protection (*e.g.* CIRIA 2010 and 2001) as follows.

2.3.1 Surface-Water Run-Off

Both construction and operational phase surface-water drainage from the proposed development site will ultimately discharge into the Moneygurney and Douglas watercourses. The watercourses could convey silt-laden or contaminated run-off into Douglas Estuary/Lough Mahon transitional waterbody and associated Cork Harbour SPA *c*. 2km downstream of the closest proposed stormwater discharge points at site (see Figure 2.2).

2.3.1.1 Construction Stage

Where surface-water run-off occurs at the site during the **construction phase**, it will be managed and controlled prior to discharge into the environment by implementing standard environmental controls. Such environmental protection will be specific to the site, proposed works and Douglas and Moneygurney Streams. Although, such controls will also serve to minimise potential construction phase run-off impacts into the wider downstream environment including Douglas Estuary/Lough Mahon transitional waterbody and associated Cork Harbour SPA; even if not primarily designed to address any particular risks to the estuary/transitional waterbody and designated sites as such. The construction stage surface-water run-off environmental controls in question here include (after Chapters 2, 6, 7 & 8 of the EIAR after Cairn PLC 2019);

After Section 2.6.4, Chapter 2 of EIAR: Construction Management Plan

General Construction / Excavation Areas:

• Interceptor drains up-gradient and around any excavations to intercept clean surface runoff and divert it around and away from the works will be installed; surface water runoff may also be diverted around the excavation by silt fences, sand bags or similar laid on the surface of the ground;
• The base of the excavation will be constructed level, and water will be gathered in a temporary sump and pumped at a low flow rate into either a temporary settlement pond or downgradient collector drains for treatment prior to controlled release onto the natural vegetation surface;
• The use of a proprietary settlement system such as Siltbuster may be required to treat dirty construction water where additional treatment is required.

Access Roads / Haul Roads:

• Interceptor drains will be placed on the up-gradient side of the road excavations to divert clean runoff away from the road section to be excavated;
• Under road culverts will be installed regularly beneath the road section to allow the flow of clean surface runoff to the down-gradient side;
• Road culverts will be regular to disperse clean surface water runoff onto natural vegetated surfaces on the down-gradient side of the road in a diffuse manner;
• All haul routes will utilise clean 4" - 6" crushed stone in a 300mm to 400mm layer at the base of access track or hardstand platform.
• An impermeable membrane will be required above the porous fill to prevent vertical migration of surface water into the stone track fill [from access track or material storage areas] and to prevent finer material from being washed down and blocking the porous layer;
• The haul routes will be regularly topped up with additional stone in areas that are showing excessive wear, such as at entrances, turning circles or sharp bends.

Soil Storage areas:

• In Phase 1 the temporary storage of material acceptable for re-use, surplus to on site requirements, will be stockpiled until the Moneygurney Bridge is operational
• During the initial placement of earthworks material, silt fences and straw bales will be used to control surface water runoff from the storage areas;
• Where areas are deemed suitable for temporary storage (*i.e.* outside buffer zones), these will be initially marked out on the ground, and an agreed preliminary drainage plan should be drawn up;
• The marked temporary storage areas will also be surrounded on 3 sides with silt fencing, and the area will be filled by access through the open side;
• Once the temporary stockpile is filled to its intended area, silt fencing around the remaining edge will be installed;
• Stockpiles to be retained for a period greater than six months will be sown with a grass (a non-perennial ryegrass mix or sterile ryegrass) which will reduce the potential for weed germination.

Works within 20m Hydrological Buffer Zone – (*e.g* Bridge Construction, drainage outfalls):

• Similar to as detailed in Figure 2.6, Interceptor drains up-gradient and around any foundation excavations to intercept clean surface runoff and divert it around and away from the works will be installed; surface water runoff may also be diverted around the excavation by silt fences, sand bags or similar laid on the surface of the ground;
• Silt Fences: Down gradient double silt fences will be placed where work is required within the 20m hydrological buffer zones.
• The base of the bridge foundation excavations will be constructed level, and water will be gathered in a temporary sump and pumped at a low flow rate with the use of a proprietary settlement system such as Siltbuster may be utilised to treat dirty construction water. Where additional treatment is required the provision of silt bags and sedimats will be utilised.

After Section 6.7.1, Chapter 6 of EIAR: Soils Mitigation Measures

• Stripping of topsoil will be carried out in a controlled and carefully managed way and coordinated with the proposed staging for the development. Keeping the surface area of exposed soils in the construction areas to a minimum is the most effective way of preventing the release of dust in dry weather and suspended sediments in wet conditions. Potential impacts are therefore avoided.

• At any given time, the extent of topsoil strip (and consequent exposure of subsoil) will be limited to the immediate vicinity of active work areas. Limiting activities to work areas and not allowing machinery or construction activity in proposed future green, open space and/or undeveloped areas will ensure that there is no dust or sediment runoff generated and no soil compaction will occur in those areas.

• Topsoil stockpiles will be protected for the duration of the works and not located in areas where sediment laden runoff may enter watercourses.

• Disturbed subsoil layers will be stabilised as soon as practicable. Therefore, backfilling of service trenches, construction of road capping layers, construction of building foundations and completion of landscaping), will all be carried out promptly to minimise the duration that subsoil layers are exposed to the effects of weather.

• Similar to comments regarding stripped topsoil, stockpiles of excavated subsoil material will be protected for the duration of the works. Stockpiles of subsoil material will be located separately from topsoil stockpiles.

• Earthworks plant and vehicles delivering construction materials to site will be confined to predetermined haul routes around the site. This will help reduce the surface area of disturbed ground which will limit the potential for soil compaction, sediment runoff or dust generation.

• Refueling and servicing of construction machinery will take place in a designated hardstanding area, remote from surface water inlets (when it is not possible to carry out such activities off-site).

• In order to prevent the accidental release of hazardous materials (fuels, paints, cleaning agents, etc.) during construction site activity, all hazardous materials will be stored within secondary containment designed to retain at least 110% of the storage contents. Temporary bunds for oil/diesel storage tanks will be used on the site during the construction phase of the project. Safe materials handling of all potentially hazardous materials will be emphasised to all construction personnel employed during this phase of the project.

• Designated stockpile areas for the temporary storage of topsoil, subsoils and rock material required for site use will be established in areas where the ground flattest and well away (>20m) from surface water features and steep slopes.

• Phase 1 temporary storage of material acceptable for re-use surplus to on site requirements will be stockpiled until the completion of the Moneygurney Bridge is operational. The stockpile will be limited to a maximum height of 2.5m above existing ground levels. Stockpiles to be retained for a period greater than six months will be sown with a grass (a non-perennial ryegrass mix or sterile ryegrass) which will reduce the potential for weed germination. Topsoil stockpiles will be clearly signposted for easy identification and to avoid any inadvertent losses. Stockpiles will have sediment control measures installed (as detailed in Section 2 – Construction Management Plan of the EIAR).

• A contaminated soils management plan will be in place in case unexpected materials are encountered during the exaction of subsoils (in particular existing areas of made ground TP011, BH7 and BH 8 (south of the Templegrove Apartments) and TP 14 and BH10 (east of the Irish Water Pump Station). This will include the detailed site assessment, soil segregation, storage, testing and if necessary, removal from site, of any suspect or contaminated material.

After Section 7.6.1, Chapter 7 of EIAR: Water Mitigation Measures

General Site Works:

• Implement best practice construction methods and practices complying with relevant legislation to avoid or reduce the risk of contamination of watercourses or groundwater.

• A site-specific Construction Management Plan will be developed and implemented during the construction phase. Site inductions will include reference to the procedures and best practice as outlined in the Construction and Environment Management Plan.

• Surface water runoff from areas stripped of topsoil and surface water collected in excavations will be directed to on-site settlement ponds where measures will be implemented to capture and treat sedimentladen runoff prior to discharge of surface water at a controlled rate.

• Weather conditions and seasonal weather variations will also be taken account of when planning stripping of topsoil and excavations, with an objective of minimizing soil erosion.

• The extent of sub-soil and topsoil stripping to be minimised to reduce the rate and volume of the run-off during construction until the topsoil and vegetation are replaced.

• Precast concrete units fabricated off site will be specified for bridging structures with cast in-situ requirements minimised.

• Concrete batching will generally take place off site, or if carried out on site, in a designated area with an impermeable surface and appropriate drainage/interception/collection measures in place.

• Concrete wash down and wash out of concrete trucks will take place off site or in a designated area with an impermeable surface and appropriate drainage/interception/collection measures in place.

• Discharge from any vehicle wheel wash areas is to be directed to on-site settlement ponds.

• Oil and fuel stored on site for construction will be stored in designated areas. These areas shall be bunded and should be located away from surface water drainage and features.

• Refuelling of construction machinery shall be undertaken in designated areas away from surface water drainage in order to minimise potential contamination of the water environment. Spill kits shall be kept in these areas in the event of spillages.

• Hazardous construction materials shall be stored appropriately to prevent contamination of watercourses or groundwater.

• Spill kits should be kept in designated areas for re-fuelling of construction machinery.

• Dewatering measures should only be employed where necessary and if such works are necessary an agreed Method Statement will be prepared to ensure full control of these works.

Bridge & Greenway Works:

• Best site management practice for the control of silt and solids discharge into the watercourse.

• Excavation must be properly monitored; all topsoil is to be stored at a safe distance from the excavation.

• Site clearance. All areas of vegetation removal will have appropriate surveys for wildlife/ecological purposes as outlined in the EIAR in accordance with and on approval of the IFI and NPWS (National Parks and Wildlife Services). Any mitigation or control measures within the survey will be detailed in the contractor's detailed construction management plan prior to construction.

• Earthworks to allow construction of abutments will be carried out to reduce existing ground levels to formation/foundation levels. Soil heap locations to be detailed in the contractor's detailed construction management plan.

• Piling Setup for installation of piled foundations (to be confirmed at detailed design stage). Temporary access routes for piling rig to be agreed prior to construction and be detailed in the contractor's detailed construction management plan. Construction of hard standing and management of spoil arisings and runoff to be included as detailed in Section 2.4, Outline Construction Management Plan of the EIAR.

• Crane Setup for installation of main spans. Temporary access routes for craneage to be agreed prior to construction and be detailed in the contractor's detailed construction management plan. Construction of hard standing including foundations for crane outriggers need to be included.

• Prefabricated beams transportation. Delivery of precast elements to site. Storage area of precast elements to be defined in contractor's construction management plan within reach of crane to minimise further disruption/construction traffic at river edge.
• Placement of prefabricated bridge beams. Crane position to be designed to minimise movements near stream edge.
• Bridge design and installation/construction including any associated temporary stream crossings to be agreed with IFI.

After Section 8.6.3.1, Chapter 8 of EIAR: Aquatic Ecology Mitigation Measures

- To minimise the impact of the construction phase on the water environment, soils and water management measures will be implemented (see Chapters 2, 6 & 7 of the EIAR). This includes measures relating to the storage and management of potentially polluting substances (*e.g.* chemicals, hydrocarbons, cement, hydraulic fluid and cleaning agents).
- In advance of all site clearance and soil stripping, a siltation management plan will be prepared and implemented in full. This will include silt fences and settlement ponds that are sized and positioned in order to minimise pollution escapement and maximise attenuation efficiency. The performance of such devices will be reviewed and upgraded as appropriate by suitably qualified staff. The construction footprint will be fenced to prevent ingress of machinery within 20m of watercourses with the exception of areas for bridging construction works or unavoidable 'pinch points' (*e.g.* western portion of the site closest to Douglas Stream). The zone between the fence and river will not be interfered with, as adjoining woodland and riparian habitats are critical for aquatic ecosystem health.
- All temporary crossings constructed will be agreed with Inland Fisheries Ireland to ensure appropriate culvert size, burial depth, width *etc*. This will reduce the potential for solids to enter watercourses and facilitate fish passage. Silt fences and other control measures will tie into temporary crossings to prevent 'weak points' where silt laden water can enter the adjoining streams.
- The suspended solids control measures will follow best practice guidance: (i) Technical Guidance C532: Control of Water Pollution from Construction Sites (CIRIA 2001); (ii) Technical Guidance C648: Control of Water Pollution from Linear Construction Projects (CIRIA 2006) and (iii) Guidelines for the protection of Fish during construction works in and adjacent to waters (IFI 2016).
- The suspended solids levels will aim to remain below 25mg/l as per the Guidelines on Protection of Fisheries during construction works in and adjacent to waters (IFI 2016). The same guidance also specifies that there will be no deposition of silts resulting from construction works on the gravels of the receiving watercourses.
- Significant works/earthworks near water will not take place if storm rainfall events are predicted (*e.g*. >10mm/hr, >25mm in a 24hour period) as heavy rain will significantly increase the risk of suspended solids escapement to the adjoining stream habitats.
- Concrete pouring will be undertaken in the dry and away from surface-water pathways. Ready mix trucks will not be washed on site. *In-situ* mixing will use faster setting concrete. When using *in-situ* concrete near watercourses an approach will be agreed with IFI as it presents a risk to fish and invertebrates should residues enter the receiving watercourses (*i.e.* Douglas, Moneygurnery & Ballybrack Streams here).
- All structural/bridge designs adjacent to/within watercourses (including method of construction and proposed mitigation measures to prevent damage to riparian habitats and instream fisheries habitat) will be agreed with Inland Fisheries Ireland to minimise impacts to the riverbed, riparian zone and fish. In such an approach the design of such structures will not encourage downstream erosion or deposition, as such hydrological impacts to the channel will not occur and instream works will be avoided as the channel widths in this case are small.
- Instream works will only take place between July and September (IFI 2016, p. 16). However, the precise allowable timing of instream works can vary between regions and will be agreed with IFI in advance of construction commencement.

- An ecological clerk of works (ECoW) will be present during all bridge crossing construction, but also for culvert/outfall headwall construction near watercourses or indeed any works potentially presenting a serious risk to water quality.
- An emergency response plan will be prepared to ensure accidental or intentional spillages (*e.g.* security breech) of chemicals can be dealt with to minimise harm to the environment. This will include suitably trained and qualified personnel, the availability of spill kits and suitable means of disposal.

2.3.1.2 Operational Stage

During the **operational phase**, surface-water run-off associated with the residential site will be managed and controlled prior to discharge into the environment via a surface-water strategy that will incorporate sustainable drainage systems (SuDS) to reduce run-off. Parking surfaces will comprise of permeable paving overlying a porous aggregate reservoir, which has been sized to ensure the run-off from these parking areas drains via the porous aggregate and not directly over the surface to the sealed surface-water sewer pipework, thereby providing an additional element of source attenuation. Other SuDS measures such as filter drains behind retaining structures will be incorporated into the surface-water drainage system.

The development will also include the construction of a gravity surface-water drainage network throughout the site. The surface-water drainage network will include the installation of dedicated attenuation facilities upstream of proposed outfalls towards the Moneygurney and Douglas Streams, to attenuate discharges to the undeveloped greenfield run-off rates with the operation of proprietary hydrobrake flow-control devices. These attenuation facilities are sized on the basis of a design storm with a 100-year return period and an additional 20% allowance for the effect of climate change. The attenuation facilities will be in the form of linear chambers similar to that supplied by StormTech or Triton. While not factored into the design volume assessment, these systems will permit an element of infiltration where underlying ground conditions are suitable. A hydrocarbon interceptor will be installed upstream of each of the attenuation areas to remove any traces of oils which may be washed off road surfaces. Also, grit sumps will be incorporated into the manholes immediately upstream of the attenuation areas to ensure that the bulk of the grit suspended in run-off is settled out before entering the attenuation areas. The surface-water outfall structures will comprise stone-filled gabion block headwalls and wingwalls and a stone-filled apron, with headwalls set-back from the existing stream banks (see Figure 2.2) and constructed to prevent scouring and erosion. A regular maintenance and inspection programme of the flow control devices, attenuation storage facilities, gullies and petrol interceptor will be required during the operational phase to ensure that the surface-water drainage network functions and discharges correctly. The site will be serviced by two drainage networks as follows:

a) Surface-water run-off from impermeable areas west of the Moneygurney Stream will be collected by a network of surface-water sewers and directed into proposed stormwater attenuation areas at the north-eastern and north-western corners of the site. Attenuated run-off from these areas will be discharged towards the Moneygurney Stream (on the east) and the Douglas Stream (on the west). See outfall locations in Figure 2.2.

b) Surface-water run-off from impermeable areas east of the Moneygurney Stream will be collected by a network of surface-water sewers and directed into a proposed stormwater attenuation area within that location. Attenuated run-off from this area will be discharge towards the Moneygurney Stream. See outfall locations in Figure 2.2.

Operational SuDS/surface-water drainage system will be specific to the site, proposed development and Douglas and Moneygurney Streams. Although, it will also serve to minimise potential operational phase run-off impacts into the wider downstream environment including Douglas Estuary/Lough Mahon transitional waterbody and associated Cork Harbour SPA - even if not primarily designed to address any particular risks to the estuary/transitional waterbody and designated sites as such. The operational stage surface-water run-off environmental controls in question here are summarised as follows (after Chapters 7 & 8 of the EIAR, Cairn PLC 2019);

After Section 7.6.2, Chapter 7 of EIAR: Water Mitigation Measures

• The design of proposed site drainage has been carried out to replicate, in as far as practicable, existing surface contours, break lines etc. and therefore replicating existing overland flow paths, and not concentrating additional surface water flow in a particular location.
• Surface water runoff from the site will be attenuated to the greenfield runoff rate as recommended in the Greater Dublin Strategic Drainage Study (GDSDS). Surface water discharge rates will be controlled by Hydrobrake flow control devices, with underground attenuation tanks, provided to store runoff from a 1 in 100 year return period event. SuDS features such as the use of permeable paving are implemented in the surface water drainage network to reduce the rate of runoff form hard standing area and to improve the quality of surface water runoff.
• Surface water runoff from the development will be collected by an appropriately designed system with contaminants removed prior to discharge i.e. petrol interceptor.
• A regular maintenance and inspection programme of the flow control devices, attenuation storage facilities, gullies and petrol interceptor will be required during the Operational Phase to ensure the proper working of the development's networks and discharges.
• A regular maintenance and inspection programme for the bridge structures (main and pedestrian bridges) will be required during the Operational Phase to ensure the proper working of the development's infrastructure.

After Section 8.6.3.2, Chapter 8 of EIAR: Aquatic Ecology Mitigation Measures

- Operational phase mitigation for aquatic ecology will broadly follow measures stipulated in Chapter 7 of the EIAR. The mitigation measures include surface water runoff at greenfield rates using adequately sized attenuation facilities *etc*. for storm runoff and attenuation of the collected runoff. This includes the use of integrated silt traps and petrol interceptors. These structures will be inspected and maintained. Maintenance will prevent the excessive build-up of sludge that can be removed to reduce the risk of pollution during storm rainfall events (particularly after dry periods). A maintenance plan and schedule will therefore be developed for silt traps and hydrocarbon interceptors to prevent impacts to the receiving stream habitats due to operational failures.

2.3.2 Waste-Water/Foul Effluent

Prior to the residential site being connected into the public foul sewer, **construction stage** waste-water/foul effluent will initially be managed and controlled at the temporary site compound through the use of portaloos and welfare units with storage tanks, where sanitary waste will be removed from site via a licenced waste disposal operator.

When the site is connected to the public foul sewer network, construction and **operational stage** waste-water/foul effluent arising from the proposed development will be discharged into the public foul effluent network for treatment at Cork City Wastewater Treatment Plant (WWTP) that ultimately discharges into Cork Harbour at Lough Mahon, where Cork Harbour SPA is downstream of the WWTP discharge point.

2.3.3 Other Wastes

Other wastes associated with the development will be collected and removed from site by licensed operators during the construction and operational stages of the project. This will allow for the appropriate control and management of other wastes at site, with no uncontrolled releases of same into the environment.

Figure 2.1: Study Site Location & Natura 2000 Sites

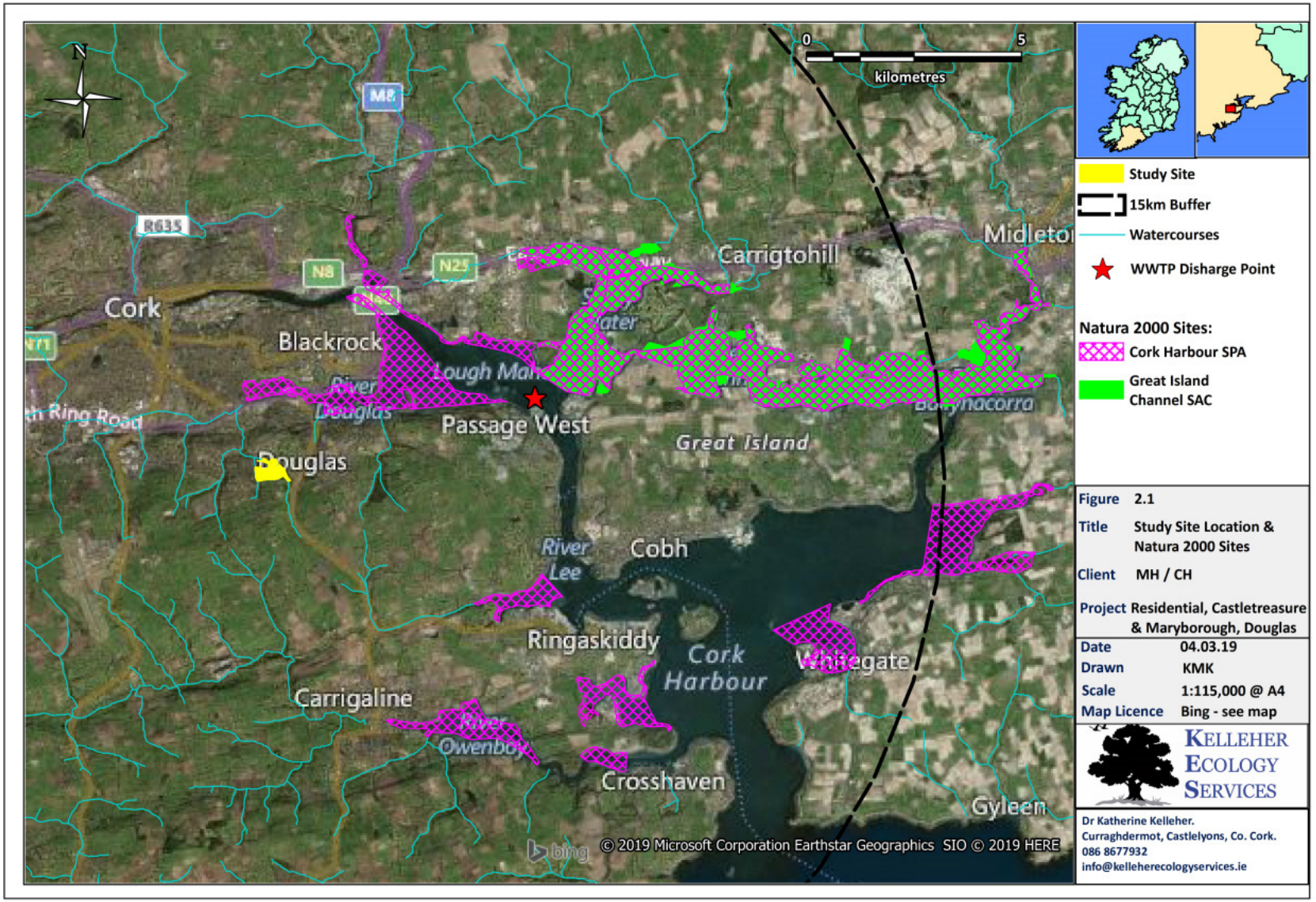
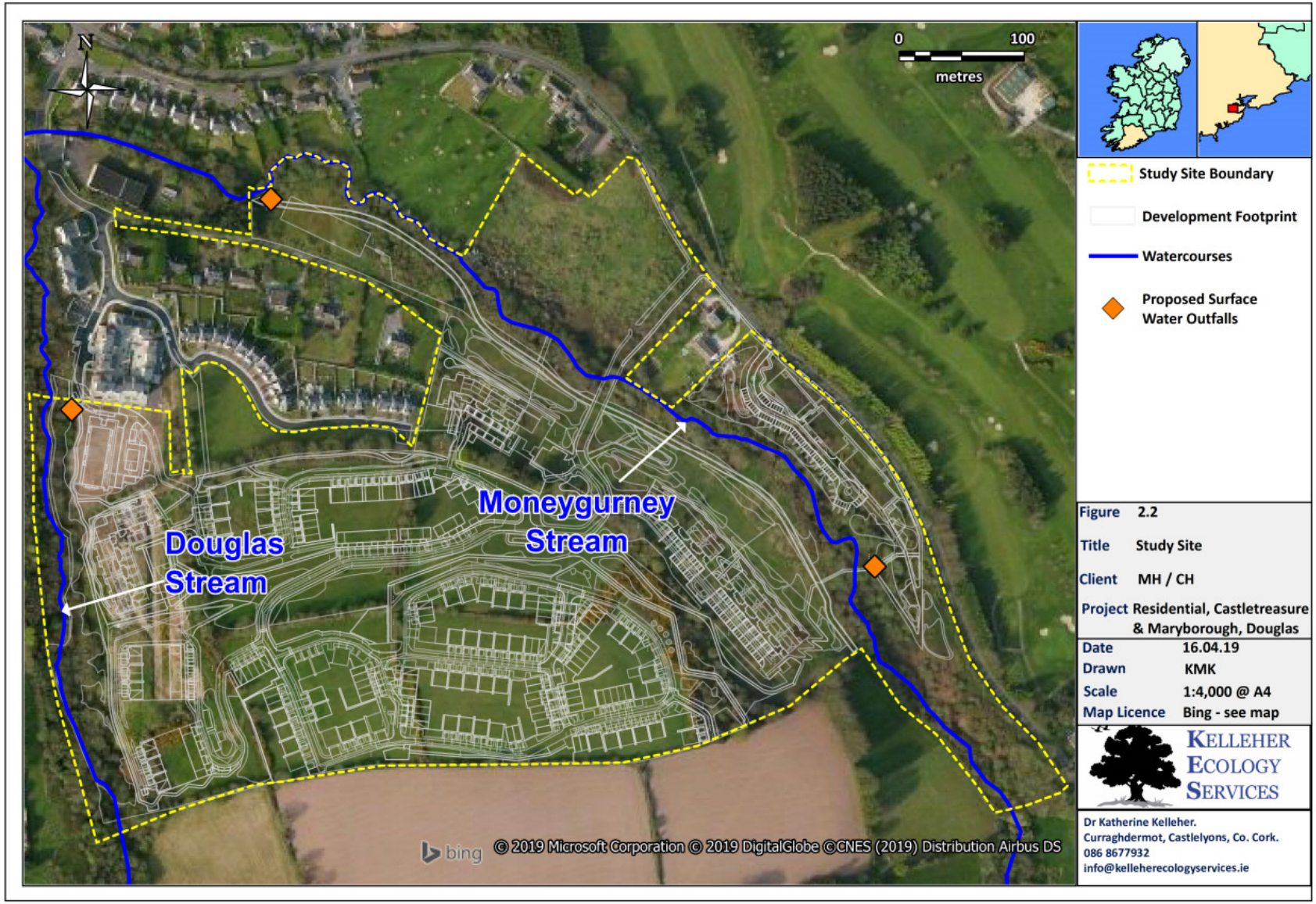


Figure 2.2: Study Site



3 Description of the Natura 2000 Sites

The study site is not part of or close to any Natura 2000 designated sites nor does it require any resources from them; thereby ruling out any direct habitat loss at such conservation sites. Cork Harbour SPA and Great Island Channel SAC are the only Natura 2000 sites within 15km of the study site (see Figure 2.1 & Table 3.1). There are no other sites greater than 15km away where a potential impact-receptor pathway is relevant.

3.1.1 Potential Impact-receptor Pathways: Overview

3.1.1.1 Surface-Water Run-Off

There is a potential impact-receptor pathway via surface-water links between the study site and Cork Harbour SPA. Surface-water run-off arising from the site will discharge into the Moneygurney and Douglas watercourses at site, which ultimately flow into (a section of) Cork Harbour SPA at Douglas River Estuary/Lough Mahon transitional waterbody *c.* 2km downstream of the closest proposed stormwater discharge points at site (see Table 3.1 & Figures 2.1 & 2.2). Therefore, the potential for indirect hydrological impacts on this Natura 2000 site via surface-water run-off arising from the study site is further considered in Section 4.1 of this report.

As Great Island Channel is not downstream of the surface-water discharge point, no hydrological link via surface-water is relevant in this case. Therefore, no further consideration is required regarding such an impact in relation to this SAC.

3.1.1.2 Waste-Water/Foul Effluent

Prior to the residential site being connected into the public foul sewer, construction stage waste-water/foul effluent will initially be managed and controlled at the temporary site compound through the use of portaloos and welfare units with storage tanks, where sanitary waste will be removed from site via a licenced waste disposal operator. In this instance, no hydrological link via effluent will be relevant to any of the Natura 2000 sites under consideration here.

When the site is connected to the public foul sewer network, construction and operational stage waste-water/foul effluent arising from the proposed development will be discharged into the public foul effluent network for treatment at Cork City Wastewater Treatment Plant (WWTP) that ultimately discharges into Cork Harbour at Lough Mahon, where Cork Harbour SPA is >4km downstream of the WWTP discharge point (see Table 3.1 & Figure 2.1). Therefore, the potential for indirect hydrological impacts on Cork Harbour SPA via waste-water arising from the study site are further considered in Section 4.1 of this report.

While Great Island Channel SAC is not downstream of the WWTP discharge point, tidal/wind movements could be of some relevance in relation to the SAC, where its boundary is *c.* 550m north-east of the WWTP's discharge point (see Figure 2.1). However, an assessment on the conservation status of the SAC does not highlight potential impacts arising from tidal/wind movements from Cork City WWTP's discharge point as a significant point of concern but instead highlights water quality management in relation to two other WWTPs (Midleton & Carrigtwohill WWTPs) to maintain/restore

the favourable conservation status of the SAC's qualifying interest 'Mudflats and Sandflats' (O'Neill *et al.* 2014). Therefore, a hydrological link via effluent is not considered relevant in this case and no further assessment is made in this report regarding such an impact in relation to Great Island Channel SAC.

3.1.1.3 Disturbance/Displacement

Disturbance/displacement impacts of fauna that are listed as qualifying interests of a Natura 2000 through noise and/or visual cues needs consideration. This also includes ex-situ disturbance/displacement impacts on highly mobile species that are qualifying interests of the relevant Natura 2000 sites; ex-situ impacts occur when highly mobile species occur outside of the boundaries of their designated Natura 2000 sites (*e.g.* to forage or commute).

As the conservation objectives of Great Island Channel SAC relate to habitats and not fauna (see Table 3.1), disturbance/displacement impacts are not relevant to this Natura 2000 site. Furthermore, the study site does not overlook the SAC due to distance combined with screening from existing buildings/vegetation/topography.

The conservation objectives of Cork Harbour SPA relate to qualifying interests that include bird fauna associated with Cork Harbour (see Table 2.1). While such fauna could suffer disturbance/displacement impacts as a result of the construction/operation of a development such as described here, the study site in this case does not overlook Cork Harbour due to distance combined with screening from existing buildings/vegetation and topography. Furthermore, the study site does not support habitats of ex-situ ecological value for qualifying interest species of the SPA in question.

Therefore, no further consideration is required regarding potential disturbance/displacement impacts (including ex-situ) in relation to any Natura 2000 site under consideration here.

3.1.1.4 Invasive Plant Species

Activities associated with development works can inadvertently result in the spread of invasive plants, where watercourses such as the Douglas and Moneygurney Streams here can subsequently act as a potential impact-receptor pathway regarding indirect habitat loss/damage to downstream locations in the wider area including any designated nature conservation sites that are present.

In this case, stands of the highly invasive Japanese Knotweed *Fallopia japonica* were noted growing at the study site. However, all Japanese Knotweed was removed in August 2018 through a new process known as 'Eraginate process' (see Appendix C for full details). Therefore, potential habitat loss/damage impacts on downstream Natura 2000 sites are not considered relevant here.

3.1.1.5 Flooding/Floodplain

In relation to potential flooding/floodplain impacts, a flood risk assessment for the proposed development has been undertaken (see JBB 2019). While a small number of dwellings at the western area are within close proximity to the relevant 0.1% AEP fluvial flood extent, all proposed dwellings will be constructed outside of the relevant fluvial flood extent at the study site. Furthermore, all development will be constructed at an elevation higher than the 1% AEP flood level with a suitable freeboard, and the proposed FFL of buildings will also be greater than the 0.1% AEP flood level.

Therefore, there will be no loss of flood plain storage such that the development will have no impact on the remaining flood plain. Also, the implementation of appropriate sustainable drainage systems (SuDS) will ensure no increase in surface-water run-off arising from the developed study site, where excess surface-water run-off will be attenuated and discharged at the greenfield discharge rate (see Section 2.3.1.2 above). Therefore, potential flooding/floodplain impacts on Natura 2000 sites are not considered relevant in this case.

3.1.2 Potential Impact-receptor Pathways: Summary

In summary, Section 4 of this report further considers; (i) potential surface-water run-off impacts in relation to Cork Harbour SPA and (ii) potential waste-water discharge impacts in relation to Cork Harbour SPA.

No potential impacts on Great Island Channel SAC have been identified as a result of the proposed development. Therefore, it is objectively concluded that no significant effects arising from the proposed development are likely to occur in relation to this SAC; a Finding of No Significant Effects report for this Natura 2000 site is available in Appendix E.

Table 3.1 Natura 2000 Site Summary

Natura 2000 Site & Site Code	Qualifying Interests & Conservation Objectives	Minimum Distance From Site Boundary & Discharge Points
Cork Harbour SPA 004030	Cork Harbour is of major ornithological significance, being of international importance both for the total numbers of wintering birds (*i.e.*>20,000). Several of the species which occur regularly are listed on Annex I of the E.U. Birds Directive. The site provides both feeding and roosting sites for the various bird species that use it. Its conservation objectives relate to maintaining the favourable conservation condition of the following qualifying interests (after NPWS 2014a); **Wintering bird species:** Little Grebe *Tachybaptusruficollis,* Grey Plover *Pluvialissquatarola,* Great Crested Grebe *Podicepscristatus,* Lapwing *Vanellus vanellus,* Cormorant *Phalacrocorax carbo,* Dunlin *Calidris alpine alpine,* Grey Heron *Ardeacinerea,* Black-tailed Godwit *Limosa limosa,* Shelduck *Tadorna tadorna,*Bar-tailed Godwit *Limosa lapponica,* Wigeon *Anas Penelope,* Curlew *Numenius arquata,* Teal *Anascrecca,* Redshank *Tringatetanus,*Pintail *Anasacuta,* Black-headed Gull *Chroicocephalus ridibundus,* Shoveler *Anas clypeata,* Common Gull *Larus canus,* Red-breasted Merganser*Mergus serrator,*Lesser Black-backed Gull *Larus fuscus,* Oystercatcher *Haematopus ostralegus,*Golden Plover *Pluvialis apricaria.* **Breeding bird species:** Common Tern *Sterna hirundo.* **Habitat:** Wetlands.	<u>Site Boundary:</u> Over-land: 1.37km <u>Discharge Points:</u> Surface-water: *c.*2.0 km Waste-water: > 4.0km
Great Island Channel SAC 001058	The Great Island Channel stretches from Little Island to Midleton, with its southern boundary being formed by Great Island. The main habitats of conservation interest in Great Island Channel SAC are the sheltered tidal sand and mudflats and the Atlantic salt meadows. This SAC overlaps with part of the Cork Harbour SPA, with its estuarine habitats providing foraging and roosting resources for wintering waders and wildfowl for which the SPA is designated. Its conservation objectives relate to maintaining the favourable conservation condition of the following qualifying interests (after NPWS 2014b); **Annex I Habitats:** Tidal Mudflats and Sandflats (1140), Atlantic Salt Meadows (1330).	<u>Site Boundary:</u> Over-land: 6.16km <u>Discharge Points:</u> Surface-water: n/a Waste-water: n/a

4 Assessment: Natura Impact Statement

Elements of the proposed development that may potentially impact on the qualifying interests of the conservation objectives of the Cork Harbour SPA are further considered in Section 4.1 below.

4.1 Elements of the Project that may Potentially Impact on Qualifying Interests of the Natura 2000 Site

4.1.1 Indirect Habitat Loss or Deterioration

Indirect habitat loss or deterioration of Natura 2000 sites within the surrounding area can occur from the effects of run-off or discharge into the aquatic environment through impacts such as increased siltation, nutrient release and/or contamination. This requires connectivity between the site and the Natura 2000 sites in question through watercourses and/or drainage. In this case, there is a potential impact-receptor pathway through surface-water discharge between the study site and Cork Harbour SPA via Douglas and Moneygurney Streams.

4.1.1.1 Surface-Water Run-Off: Construction Phase

The construction phase of the proposed development has the potential to result in temporary surface-water run-off siltation or contamination of Douglas and Moneygurney Streams through the excavation/movement of earth and building material, and through other contaminants such as accidental fuel/oil spillage. The topography of the site will require considerable preparatory earthworks. Construction of the proposed development will require the removal of a large portion of the existing topsoil across the site and extensive earthworks to facilitate the construction of the dwellings, infrastructure service provision, road construction, surface-water storage systems and other related works. The stripping of topsoil will be carried out in a controlled and carefully managed way and coordinated with the proposed staging for the development (see Section 2.3.1.1 above). Where possible, excess soil will be reused on the site for construction of embankments/backfill to retaining structures *etc.* Although, there will be a significant export of earth materials from site that will be surplus to requirements. Excavated topsoil will be protected and temporarily stored in designated storage areas >20m away from surface water-features (watercourses) and steep slopes (see Section 2.3.1.1 above). There will also be a requirement to cross the Moneygurney Stream at two separate locations by means of a vehicular and pedestrian bridge. The proposed bridge designs and construction method have been prepared in accordance with IFI guidelines (2016) where there will be no in-stream works or alterations to Moneygurney Stream or its banks. Other than the two bridge crossings of Moneygurney Stream and the western portion of the site closest to Douglas Stream, a 20m buffer will be maintained between the streams and the proposed works area, inside of which no construction activity or construction related storage will occur (see Section 2.3.1.1 above). This buffer fulfils IFI's request for a 10m such buffer from all watercourses. Where development occurs within 20m of either watercourse additional measures will be put in place to ensure maximum protection of the water-feature (see Section 2.3.1.1 above).

The proposed site development works will be carried out in accordance with best practice regarding standard environmental protection (*e.g.* CIRIA 2010 and 2001) to prevent damaging run-off from the site, where implementation of construction phase soils and water management proposals will

adequately reduce potential risks arising from site associated hydrological or water quality impacts on the Douglas and Moneygurney Streams (as summarised in Section 2.3.1.1 above). The proposed construction phase surface-water management controls will be specific to the site, proposed works and Douglas and Moneygurney Streams. However, such controls will also serve to minimise potential construction phase run-off impacts into the wider downstream environment including Douglas Estuary/Lough Mahon transitional waterbody and associated Cork Harbour SPA - even if not primarily designed to address any particular risks to the estuary/transitional waterbody and designated sites as such. Therefore, no measures are specifically required to address risks to Cork Harbour SPA in this case.

4.1.1.2 Surface-Water Run-Off: Operational Phase

Operational phase surface-water run-off will be managed and controlled prior to discharge into the environment through SuDS features and a surface-water drainage system as outlined in Section 2.3.1.2 above. Operational SuDS/surface-water drainage system will be specific to the site, proposed development and Moneygurney and Douglas watercourses. Although, such features will also serve to minimise potential operational phase run-off impacts into the wider downstream environment including Douglas Estuary/Lough Mahon transitional waterbody and associated Cork Harbour SPA; even if not primarily designed to address any particular risks to the estuary/transitional waterbody and associated SPA as such. Therefore, no measures are specifically required to address risks to Cork Harbour SPA in this case.

4.1.1.3 Waste-Water/Foul Effluent Discharge

Prior to the residential site being connected into the public foul sewer, **construction stage** waste-water/foul effluent will initially be managed and controlled at the temporary site compound through the use of portaloos and welfare units with storage tanks, where sanitary waste will be removed from site via a licenced waste disposal operator. In this instance, no hydrological link via effluent will be relevant to any of the Natura 2000 sites under consideration here.

When the site is connected to the public foul sewer network, **construction and operational stage** waste-water/foul effluent arising from the proposed development will be discharged into the public sewer for treatment at Cork City WWTP in Little Island before discharging into Cork Harbour at Lough Mahon, where sections of Cork Harbour SPA are located >4km downstream. While improvement requirements are currently under consideration in relation to Cork City WWTP, ambient monitoring of transitional and coastal receiving waters indicates that discharge from the WWTP does not have an observable negative impact on water quality while WFD status remains moderate at all monitoring points (Irish Water 2018). Furthermore, a pre-connection enquiry has been received from Irish Water that confirms that the proposed waste-water connection can be facilitated (see Appendix F).

Taking the above into consideration, potential waste-water impacts on Cork Harbour SPA arising from the proposed development via Cork City WWTP are not considered relevant here.

4.1.2 Cumulative or In-combination Effects

The proposed development comprises of a residential development and all associated site development works such as landscaping, lighting, services, access arrangements and surface/foul water drainage and network system. There are a number of other developments in the vicinity of the site that are currently permitted, proposed (*i.e.* decision still pending) or permitted but under appeal/judicial review, which are not yet commenced or completed including; (i) permitted but under judicial review M28 Bloomfield to Ringaskiddy (under Ha 0053); (ii) proposed Greenway improvements (under Part 8 pending), (iii) permitted 24 class-room Primary School (under 18/5369 & ABP-302924-18), (iv) permitted Lidl Discount shop with 5 apartments (under 18/5814), (v) permitted but under appeal 48 residential units at Clarendon Brook (under 18/6245), (vi) proposed 600 pupil secondary school (under 18/6246) and (vii) permitted 200 residential units at Maryborough Ridge Moneygurney (under 16/07271). Consequently, there is a potential for cumulative impacts on biodiversity arising from the combined impacts of all these other developments.

4.1.2.1 Habitat Loss/Change

The biodiversity value of the proposed development site in question here is primarily of lower to higher local importance for biodiversity. While there are some habitat elements of county importance present, the removal of such habitats will be confined to areas of wet woodland associated with both watercourses to facilitate the development under consideration. The landscape masterplan associated with the development proposes to retain and enhance existing hedgerows/treelines and plant new native hedgerows and woodland resulting in a net gain of such habitats (including wildlife corridors), along with a gain in new wildflower meadows, native grass/clover areas as well as parkland and flower/shrub habitats using native/non-native pollinator friendly planting. However, there will be a net loss of existing wet woodland and while this will be offset to some degree by new native woodland planting, it will not entirely be compensated for at the same time. Existing wet woodland may also be negatively impacted through direct loss with some of the other developments under consideration (school permitted under 18/5369 & ABP-302924-18; proposed greenway), although the extent will be substantially less and relatively minor in comparison to the residential site under consideration here. Otherwise habitat loss for the remaining other developments appears to be of either no/little biodiversity value or of local value that can be offset/improved through appropriate landscaping proposals. Therefore, potential cumulative impacts in respect of loss/change in habitat and associated flora and fauna primarily relate to the loss of wet woodland associated with Douglas and Moneygurney Streams in relation to the residential site under consideration here.

4.1.2.2 Aquatic Ecology: Douglas, Moneygurney/Ballybrack Streams

Cumulatively, these other proposals should have a non-significant negative effect on the aquatic ecology of the Douglas, Moneygurney/Ballybrack Streams, with the exception of the M28 Bloomfield to Ringaskiddy road. This is considered as the M28 road will involve diversion of the Moneygurney Stream in addition to road drainage. Residual impacts from the M28 according to the EIS prepared by RPS (2017) were considered 'not significant'. However, in combination short term Slight Effects are considered likely on the Moneygurney and downstream Ballybrack Streams during the construction phase (*i.e.* 'noticeable changes to the environment without changing its sensitivities'). This is

considered based on an objective working knowledge of large infrastructural projects when taking into account the scale of both projects and proximity to the connecting watercourses.

The in-combination effects of the operational phase are however, considered imperceptible on the Moneygurney/Ballybrack and Douglas Streams. This is considered given a conversion of the existing improved grassland (which itself can contribute to water quality decline) to hard surfaces (with surface water attenuation from surface water drainage) and treatment of road drainage on the proposed M28 (no existing treatment or attenuation measures on existing N28).

When viewing in combination effects during construction and operation on the Douglas Streams, impacts are however, considered imperceptible. This is considered given poor connectivity between the stream and other developments in addition to its lower overall ecological value.

4.1.2.3 Off-Site Water-Features: Natura 2000 Sites

Potential off-site cumulative effects arising from the proposed development here includes surface-water and foul effluent inputs into Douglas Estuary/Lough Mahon transitional waterbody and associated Cork Harbour SPA; where biodiversity/qualifying interests associated with these aquatic sites could be subject to cumulative impact through hydrological or water quality impacts such as increased siltation, nutrient release, contaminated run-off arising from other development sites.

The current Cork County Development Plan outlines a county-based objective in relation to the management of surface water by new developments through the incorporation of SuDS (Section 11.5 & Objective WS 5-1; CCC 2014). The surface-water management proposals incorporated into the development here compliments the Cork County Development Plan objective through the inclusion of SuDS related aspects such as greenfield attenuated storm-water, hydrocarbon/silt containment, permeable paving, separation of surface and foul water. The current Ballincollig Carrigaline Municipal District Local Area Plan also makes reference to an objective for new development within Cork City South Environs to adequately provide for storm-water disposal (Objective SE-GO-04; CCC 2017).

While improvement requirements are currently under consideration in relation to Cork City WWTP and waste-water/foul effluent treatment, ambient monitoring of transitional and coastal receiving waters indicates that discharge from the WWTP does not have an observable negative impact on water quality while WFD status remains moderate at all monitoring points (Irish Water 2018). Furthermore, a pre-connection enquiry has been received from Irish Water that confirms that the proposed waste-water connection here can be facilitated, where all new developments have to check if connection to Cork City WWTP can be facilitated through Irish Water's pre-connection enquiry process.

Assuming that all other developments closely adhere to best practice regarding soil and water management during construction and operational phases, as proposed by the development under consideration here, then significant negative cumulative impacts are considered unlikely in relation to off-site water-features and associated designated nature conservation sites.

4.2 Mitigation Measures Relevant to the Protection of the Natura 2000 Site

As outlined in Section 2.3 above, best practice regarding standard environmental protection measures in relation to surface-water run-off have been integrated as part of the proposed development under consideration here. Such measures are specific to the site, development and the Douglas and Moneygurney Streams. However, they will also serve to minimise potential construction/operational phase run-off impacts into the wider downstream environment including Douglas Estuary/Lough Mahon transitional waterbody and associated Cork Harbour SPA; even if not primarily designed to address any particular risks to the estuary/transitional waterbody and designated sites as such here.

4.2.1 Surface-Water Run-Off: Construction & Operational Stages

Surface-water run-off measures proposed in relation to the construction and operational stages of the development here are summarised in Section 2.3.1 above.

4.3 Likely Success of the Mitigation Measures

The mitigation measures have been developed in accordance with current policy, regulations and guidelines as follows;

- Government waste management: Changing Our Ways, Delivering Change – Preventing and Recycling Waste, Taking Stock & Moving Forward, A Resource Opportunity, Recycling of Construction and Demolition Waste (Task Force B4), Best Practice Guidelines for the Preparation of Waste Management Plans for Construction and Demolition Projects (NCDWC).
- Construction and Demolition Waste Management – a Handbook for Contractors and Site Managers published by FAS and the Construction Industry Federation (2002)
- Best Practice Guidelines on the Preparation of Waste Management Plans for Construction and Demolition Projects' Department of the Environment, Heritage and Local Government, 2006 (SPGWMP)
- European Waste Catalogue and Hazardous Waste List, Environmental Protection Agency, 2002 (EWC)
- Pollution Prevention Guidelines: Working at Construction and Demolition Sites, PPG6, UK Environmental Alliance (PPG6)
- Pollution Prevention Catalogue and Hazardous Waste List, Environmental Protection Agency, 2002 (EWC)
- Environmental Good Practice on Site, third edition C692, CIRIA 2010
- Control of Water Pollution from Construction Sites: Guidance for Consultants and Contractors, C532, CIRIA 2001
- The SUDS Manual, C607, CIRIA 2007
- Site Handbook for the Construction of SUDS C698, CIRIA 2008
- Control of Water Pollution from Linear Construction Projects C648, CIRIA 2006
- Guidelines for the protection of Fish during construction works in and adjacent to waters, IFI 2016
- Best Practice Guide BPGCS005 Oil Storage Guidelines, Enterprise Ireland.

Also, a suitably qualified/experienced ecologist will be engaged in the role of Ecological Clerk of Works (ECoW) for the construction phase of the project, whose role will include various biodiversity related monitoring including the following surface-water related measures;

- Adherence to the proposed 20m buffer zone between the works area and both Douglas and Moneygurney Streams and proposed distances of at least 25m between designated temporary storage areas for any excavated spoil and both streams.
- The site-specific Construction Management Plan will incorporate mitigation measures as outlined in Chapter 2 of the EIAR (Cairn PLC 2019), which will include monitoring of construction related activities during the construction phase. The ECoW will monitor water quality during critical stages of the construction schedule including soil stripping and works adjacent to watercourses. It is recommended that suspended solids and turbidity at a minimum are monitored at these stages. Visual checks of the riverbed of the Moneygurney and Ballybrack Streams should also be undertaken to ensure suspended solids are not impacting stream gravels for spawning brown trout. These should be undertaken along the works boundary but also upstream and downstream.

4.4 Timescale for the Implementation of Mitigation Measures

- The mitigation measures will be implemented prior to/during the relevant works being carried out.
- Mitigation measures relevant to the operational phase will be implemented and maintained on an ongoing basis and will be integrated into the Health & Safety Plan for the site where relevant. Note that the developer will be responsible for monitoring compliance in relation to operational mitigation measures until the development is taken into charge by the Local Authority, at which point responsibility will transfer to the Local Authority.

4.5 Contingency Plan for Mitigation Failure

- In the event of failure of the mitigation measure, the source of contamination will be removed as a matter of urgency by a suitably qualified contractor and the site closed until the relevant issue is addressed.
- In extreme cases, the Health & Safety Authority and the Fire Department and the Council will be notified.
- An Emergency Response Plan for the site will be compiled prior to the opening of the site.

4.6 Appropriate Assessment Report

Assessment of the Effects of the Project or Plan on the Integrity of the Natura 2000 Site	
Describe the elements of the project or plan (alone or in combination with other projects or plans) that are likely to give rise to significant effects on the site (from screening assessment)	As outlined in Section 2.3 above, best practice regarding standard environmental protection measures in relation to surface-water run-off have been integrated as part of the proposed development under consideration here. Such measures are specific to the site, development and the Douglas and Moneygurney Streams. However, they will also serve to minimise potential construction/operational phase run-off impacts into the wider downstream environment including Douglas Estuary/Lough Mahon transitional waterbody and associated Cork Harbour SPA; even if not primarily designed to address any particular risks to the estuary/transitional waterbody and designated sites as such here.
Set out the Conservation objectives of the site	The conservation objectives and qualifying interests of the relevant Natura 2000 sites are outlined in Table 3.1 above.
Describe how the project or plan will affect key species and key habitats. Acknowledge uncertainties and any gaps in information.	No indirect hydrological impacts on Cork Harbour SPA are expected as a result of the proposed development in relation to silt-laden or contaminated surface-water run-off arising from the construction/operational phases as follows. Standard environmental controls (as summarised in Section 2.3.1 above) will be implemented as part of the project to ensure the appropriate management and control of surface-water run-off associated with the proposed development. While surface-water management controls will be specific to the site, proposed development and Douglas/Moneygurney watercourses, they will also serve to minimise potential run-off impacts into the wider downstream environment and associated Cork Harbour SPA - even if not primarily designed to address any particular risks to the water-features and SPA as such. Therefore, no measures are specifically required to address risks to Cork Harbour SPA in this case.
Describe how the integrity of the site (determined by structure and function and conservation objectives) are likely to be affected by the project and plan (e.g. loss of habitat, disturbance, disruption, chemical changes, hydrological changes and geological changes *etc.*). Acknowledge uncertainties and any gaps in information.	As above.
Describe what mitigation measures are to be introduced to avoid, reduce or remedy the adverse effects on the integrity of the site. Acknowledge uncertainties and any gaps in information.	Measures in relation to surface-water run-off have been integrated as part of the proposed development under consideration here. Such measures are specific to the site, development and the Douglas and Moneygurney Streams. However, they will also serve to minimise potential construction/operational phase run-off impacts into the wider downstream environment including Douglas Estuary/Lough Mahon transitional waterbody and associated Cork Harbour SPA; even if not primarily designed to address any particular risks to the estuary/transitional waterbody and designated sites as such here. These measures are summarised in Section 2.3.1 above.

Results of Consultation	
Name of agency or body consulted	**Summary of response**
Inland Fisheries Ireland; National Parks & Wildlife Service via Development Applications Unit – as part of associated EIAR consultation.	Inland Fisheries Ireland: IFI would ask that the proposed development is designed and constructed in a manner that ensures there be no interference with, draining, or culverting of the onsite stream or watercourse, its banks or bankside vegetation to facilitate this development without the prior approval of IFI. The proposed bridge crossing should be of span design with no instream works. All site runoff must control so as not to enter waters. Prior to any site works a fenced (with silt fencing) off buffer zone of 10m minimum from all watercourses should be established inside of which no construction activity or storage of any soils or other construction materials can occur. To clarify site runoff contaminated with solids or other contaminants should not be allow to discharge to the adjacent stream during the construction phase.

4.7 Potential Effects: NIS Conclusion

Taking the above into consideration, it can be objectively concluded that no significant effects arising from the proposed development works are likely to occur in relation to the Natura 2000 site; Cork Harbour SPA. The key considerations that have contributed towards this conclusion are summarised as follows;

- As Cork Harbour SPA does not overlap the study site, direct impacts via habitat loss are not relevant.
- No indirect hydrological impacts on Cork Harbour SPA are expected as a result of the proposed development in relation to silt-laden or contaminated surface-water run-off arising from the construction/operational phases as follows. Best practice regarding standard environmental protection measures in relation to surface-water run-off (as summarised in Section 2.3.1 above) will be implemented as part of the proposed development under consideration here. While surface-water management controls will be specific to the site, proposed development and Douglas/Moneygurney Streams, they will also serve to minimise potential run-off impacts into the wider downstream environment including Douglas Estuary/Lough Mahon transitional waterbody and associated Cork Harbour SPA - even if not primarily designed to address any particular risks to the estuary/transitional waterbody and SPA as such. Therefore, no measures are specifically required to address risks to Cork Harbour SPA in this case.
- No indirect hydrological impacts on Cork Harbour SPA via waste-water/foul effluent are expected as a result of the proposed development as follows. Prior to the residential site being connected into the public foul sewer, construction phase waste-water/foul effluent will be managed and controlled at the temporary site compound, where sanitary waste will be removed from site via a licenced waste disposal operator. When the site is connected to the public foul sewer network, construction and operational phase waste-water/foul effluent from the proposed development will be collected via new sewer infrastructure at site and discharged for treatment at Cork City WWTP. Ambient monitoring of transitional and coastal receiving waters indicates that discharge from the WWTP does not have an observable negative impact on water quality while WFD status remains

moderate at all monitoring points. Furthermore, a pre-connection enquiry has been received from Irish Water that confirms that the proposed waste-water connection can be facilitated (see Appendix F).

- Disturbance/displacement impacts of fauna that are listed as qualifying interests of the Natura 2000 sites are not relevant here as (i) the site does not overlook Cork Harbour SPA due to distance combined with screening from existing buildings/vegetation and topography and (ii) the study site does not support habitats of ex-situ ecological significance for qualifying interest species of Cork Harbour SPA.
- Potential impacts via the spread of the highly invasive Japanese Knotweed *Fallopia japonica* plant are not relevant here as all Japanese Knotweed was removed in August 2018 (see Appendix C).
- Potential impacts via flooding/floodplain are not relevant here as there will be no loss of flood plain storage such that the development will have no impact on the remaining flood plain with all proposed dwellings constructed outside of the 0.1% AEP fluvial flood extent, all development constructed at an elevation higher than the 1% AEP flood level with a suitable freeboard, and the FFL of buildings greater than the 0.1% AEP flood level.

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APPENDIX A:
Study Site Habitats

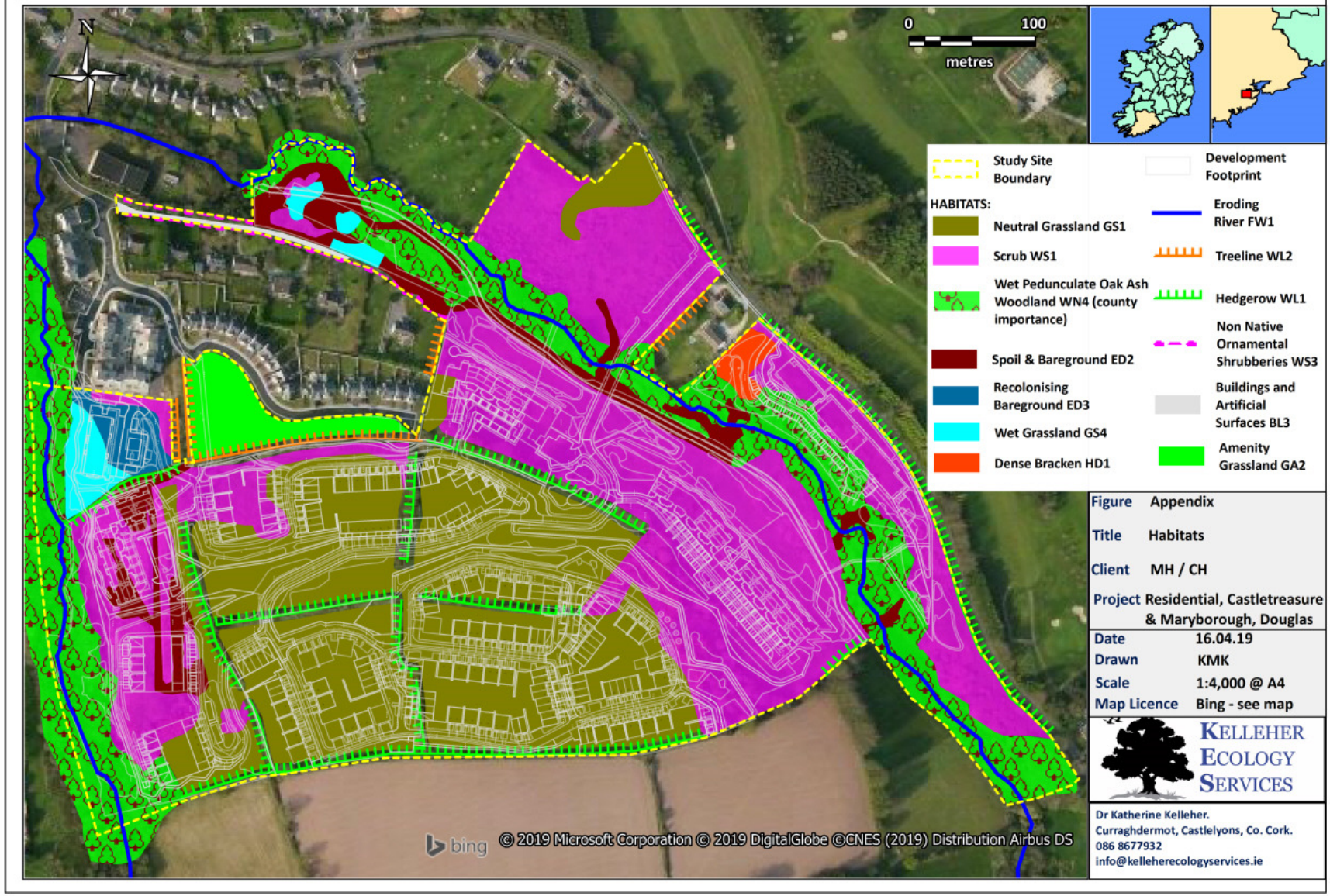

Figure	Appendix
Title	Habitats
Client	MH / CH
Project	Residential, Castletreasure & Maryborough, Douglas
Date	16.04.19
Drawn	KMK
Scale	1:4,000 @ A4
Map Licence	Bing - see map

KELLEHER ECOLOGY SERVICES

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APPENDIX B:
Biodiversity Evaluation Scheme[6]

[6] amended after Triturus Environmental 2016 (unpub.), NRA 2009 and Nairn & Fossitt 2004

Biodiversity Evaluation Criteria
International Importance: ▪ 'European Site 'including Special Area of Conservation (SAC), Site of Community Importance (SCI), Special Protection Area (SPA) or proposed Special Area of Conservation. ▪ Proposed Special Protection Area (pSPA). ▪ Site that fulfils the criteria for designation as a 'European Site' (see Annex III of the Habitats Directive, as amended). ▪ Features essential to maintaining the coherence of the Natura 2000 Network. ▪ Site containing 'best examples' of the habitat types listed in Annex I of the Habitats Directive. ▪ Resident or regularly occurring populations (assessed to be important at the national level*) of the following: - Species of bird listed in Annex I and/or referred to in Article 4(2) of the Birds Directive and/or; - Species of animal and plants listed in Annex II and/or IV of the Habitats Directive. ▪ Ramsar Site (Convention on Wetlands of International Importance Especially Waterfowl Habitat 1971). ▪ World Heritage Site (Convention for the Protection of World Cultural & Natural Heritage, 1972). ▪ Biosphere Reserve (UNESCO Man & The Biosphere Programme). ▪ Site hosting significant species populations under the Bonn Convention (Convention on the Conservation of Migratory Species of Wild Animals, 1979). ▪ Site hosting significant populations under the Berne Convention (Convention on the Conservation of European Wildlife and Natural Habitats, 1979). ▪ Biogenetic Reserve under the Council of Europe. ▪ European Diploma Site under the Council of Europe. ▪ Salmonid water designated pursuant to the European Communities (Quality of Salmonid Waters) Regulations, 1988, (S.I. No. 293 of 1988). ▪ Major salmon river fisheries.
National Importance: ▪ Site designated or proposed as a Natural Heritage Area (NHA). ▪ Statutory Nature Reserve. ▪ Refuge for Fauna and Flora protected under the Wildlife Acts. ▪ National Park. ▪ Undesignated site fulfilling the criteria for designation as a Natural Heritage Area (NHA); Statutory Nature Reserve; Refuge for Fauna and Flora protected under the Wildlife Act; and/or a National Park. ▪ Resident or regularly occurring populations (assessed to be important at the national level*) of the following: - Species protected under the Wildlife Acts; and/or - Species listed on the relevant Red Data list. ▪ Site containing 'viable areas'** of the habitat types listed in Annex I of the Habitats Directive. ▪ Major trout river fisheries. ▪ Commercially important coarse fisheries. ▪ Waterbodies with major amenity fishery value. ▪ Waterbodies with significant populations of recruiting seatrout and Atlantic salmon.

Biodiversity Evaluation Criteria
County Importance: ▪ Area of Special Amenity^. ▪ Area subject to a Tree Preservation Order^. ▪ Area of High Amenity^, or equivalent, designated under the County Development Plan. ▪ Resident or regularly occurring populations (assessed to be important at the County level*) of the following: - Species of bird listed in Annex I and/or referred to in Article 4(2) of the Birds Directive; - Species of animal and plants listed in Annex II and/or IV of the Habitats Directive; - Species protected under the Wildlife Acts; and/or - Species listed on the relevant Red Data list. ▪ Site containing area or areas of the habitat types listed in Annex I of the Habitats Directive that do not fulfil the criteria for valuation as of International or National importance. ▪ County important populations of species, or viable areas** of semi-natural habitats or natural heritage features identified in the National or Local Biodiversity Action Plan (BAP) if this has been prepared. ▪ Sites containing semi-natural habitat types with high biodiversity in a county context and a high degree of naturalness, or populations of species that are uncommon within the county. ▪ Sites containing habitats and species that are rare or are undergoing a decline in quality or extent at a national level. ▪ Small waterbodies with known salmonid populations or with good potential salmonid habitat. ▪ Large waterbodies with some coarse fisheries value. ▪ A regularly occurring substantial population of a nationally important species including lamprey, salmonids and European eel. Waters containing good resident salmonid stocks. Where coarse fish species are present supporting a known angling fishery they can be included here. ▪ Wild salmonid populations near urban centres would be of regional importance as they are important water quality indicators and very important for urban biodiversity and as food items for otter. Thus, they are considered of higher than local value in this context.
Local Importance (higher value): ▪ Locally important populations of priority species or habitats or natural heritage features identified in the Local BAP if this has been prepared. ▪ Resident or regularly occurring populations (assessed to be important at the Local level*) of the following: - Species of bird listed in Annex I and/or referred to in Article 4(2) of the Birds Directive; - Species of animal and plants listed in Annex II and/or IV of the Habitats Directive; - Species protected under the Wildlife Acts; and/or - Species listed on the relevant Red Data list. ▪ Sites containing semi-natural habitat types with high biodiversity in a local context and a high degree of naturalness, or populations of species that are uncommon in the locality.

Biodiversity Evaluation Criteria
▪ Sites or features containing common or lower value habitats, including naturalised species that are nevertheless essential in maintaining links and ecological corridors between features of higher ecological value. ▪ Waterbodies with unpolluted 'High' water quality status (Q4-5, Q5). ▪ Small waterbodies with some coarse fisheries value or some potential salmonid habitat. Smaller rivers and streams containing lamprey habitat may also be included here^^.
Local Importance (lower value): ▪ Sites containing small areas of semi-natural habitat that are of some local importance for wildlife. ▪ Sites or features containing non-native species that are of some importance in maintaining habitat links. ▪ Waterbodies with no current fisheries value, no significant potential fisheries value, poor fisheries habitat. Common and widespread species such as three-spined stickleback present often indicative of a degraded riverine habitat. ▪ No significant population of any species of fish of conservation value *i.e.* salmonids, European eel and lamprey species.

* A general suggestion is that 1% of the national population of such species qualifies as an internationally or nationally or county or locally important population. However, a smaller population may qualify as internationally important where the population forms a critical part of a wider population or the species is at a critical phase of its life cycle.

** A 'viable area' is defined as an area of a habitat that, given the particular characteristics of that habitat, was of a sufficient size and shape, such that its integrity (in terms of species composition, and ecological processes and function) would be maintained in the face of stochastic change (for example, as a result of climatic variation).

^ It should be noted that whilst areas such as Areas of Special Amenity, areas subject to a Tree Preservation Order and Areas of High Amenity are often designated on the basis of their ecological value, they may also be designated for other reasons, such as their amenity or recreational value. Therefore, it should not be automatically assumed that such sites are of County importance from an ecological perspective.

^^Note that salmonid habitats in urban and peri-urban areas may be considered of higher than local value as they are very important indicators of riverine water quality and biodiversity in urban areas. They also are indicative watercourses of Q3 and above and are thus at higher risk in urban areas pressurised from development and warrant higher protection.

APPENDIX C:

Japanese Knotweed *Fallopia japonica* Management Details

Validation Report

Castletreasure,
Carrs Hill, Douglas,
Co. Cork

Eradication of Japanese Knotweed (JKW)

Revision Issue: 002

Table of Contents

This document has been amended or otherwise reviewed since its last formal issue (shown by the issue status and date in the header above) as follows:

This document has been issued and amended as follows:

Revision	Date	Issued for/Revision details	Revised by
Rev 001	04/09/2018	For Approval	Ellen Cross
Rev 002	28/01/2019	For Approval	Stephen Donnelly

ALL REVIEWS CARRIED OUT MUST BE DATED.

Required approvals

	Name	Role	Signature	Date
Checked by	Jamie Wright	Project Manager	J. Wright	10/09/18
Reviewed by	Ciaran O'Neill	Senior Project Manager	C. O'Neill	11/09/18
Reviewed by	Stephen Donnelly	Project Manager	S. Donnelly	28/01/19

Terms of this report

The following should be read before reliance is placed on any of this report.

All work carried out in preparing this report has used, and is based upon, ATG Services (Ireland) Ltd.'s professional knowledge and understanding of the current legislation on the disposal of waste from sites.

Changes in the same may cause the recommendations and conclusions set out in this report to be incorrect. In giving the recommendations and conclusions ATG Services (Ireland) Ltd have considered the pending waste and disposal legislation and regulations which it is aware of. Following completion of this report, ATG Services (Ireland) Ltd cannot be held liable for any changes which do occur to the legislation which may affect the recommendations and conclusions given.

This report represents the professional opinion of experienced Remediation and Waste disposal professionals. Notwithstanding anything to the contrary contained in this report at our appointment, ATG Services (Ireland) Ltd shall not be construed as owing any greater duty than the use of reasonable skill and care in accordance with the normal standards of its profession.

This report and the warranty in Appendix 3 many not be relied upon by any party who is not ATG Services (Ireland) Ltd's client. ATG Services (Ireland) Ltd shall have no liability whether in contract or in tort, in negligence, for breach of statutory duty or otherwise to any party who is not a client of ATG Services (Ireland) Ltd.

1. Introduction

Daibhi Mac Domhnaill of Cairn Homes contacted ATG Group, to carry out the eradication of Japanese Knotweed (JKW) at a development site in Castletreasure, Carrs Hill, Cork. ATG mobilised to site on the 23rd July 2018 to begin the JKW eradication works.

Japanese knotweed is an upright, shrub-like herbaceous perennial plant widely considered the most invasive alien plant found in Britain today. Introduced in the 1850s as an ornamental plant, it has spread throughout the UK and Europe. During late spring the rhizome system of Japanese knotweed starts to produce new shoots, which on emergence appear like asparagus. The shoots grow particularly rapidly, becoming more bamboo-like and fleshy green red tinged in colour, and may reach 2 meters by the end of May and exceed 3 meters by the end of August. Mature leaves are light green and heart shaped; in late August the plant produces clusters of small cream sterile flowers. Japanese Knotweed dies back after the first frosts each year, leaving only dead brown hollow canes as an above ground indication of its presence underground. The rhizome network, a type of modified root system, can extend to a depth of up to 3 meters underground.

As JKW propagates via its root (rhizome), in order to adequately eradicate JKW, one must ensure the rhizomes are no longer active, irrespective of the condition of the surface growth. ATG considered this the case and if left unattended, the JKW would continue to grow unabated. Given the time scales for treatment and expenses, it was recommended that the most cost effective and rapid means of removing the knotweed was to utilize the Eraginate process.

Fig 1: Map depicting the locations of the Japanese Knotweed that were eradicated by ATG during their works.

2. Initial Site Set-up

Initial site set-up was carried out on arrival to the site and involved the establishment of a work area as well as the provision of a storage area for the skip. The main contractor was responsible for the provision of the following:

- Site Health and Safety Instructions;
- Water supply for vehicle cleaning;
- Necessary site drawings;
- Site services Drawings

2.1 Provision of Access and Protection

The access/egress route to the areas of contamination were clearly marked for the purposes of all vehicular traffic entering and leaving the site. The temporary storage and loading areas were identified as appropriate and agreed with the client. Fencing was erected and located around the site to restrict access.

2.3 Inspection of Site

All areas of the site including access/egress route, zone of contamination, adjoining site boundary were inspected by our Project Manager with key site personnel (including sub-contractor personnel) for the purposes of highlighting existing services and site hazards.

3. Eradication Works

The Eraginate process comprised of the following:

- The first operation was to carry out a pre-treatment spraying operation of the JKW.

- Following the pre-treatment spray a quarantine/lay down and treatment area was established on site. This comprised of a sufficiently large area to hold the excavated JKW impacted soils. A cleaning station was established at the entrance to the quarantine area so that any pedestrians entering or leaving the area could wash and scrub their footwear with herbicidal formulae to ensure that no JKW was spread throughout any other area of the site.

- All other vegetation surrounding the JKW was then removed. This was carried out using an excavator and riddle bucket. This was done in such a fashion as not to cause any disruption to the JKW but rather expose it, for eradication.

- The above ground vegetation was removed using an excavator and riddle bucket. The JKW vegetation was transferred to lined skips for disposal.

- A controlled excavation of the soils that were impacted with JKW roots, rhizomes and crowns was carried out. A specialist supervisor determined the extent of the excavation to ensure all roots, rhizomes and crowns were removed.

- Excavated soils were stockpiled and handpicked to remove any visible roots, rhizomes or crowns. An Allu bucket was used to mechanically process the rhizome material from the soils. Any remaining rhizome fractions were treated with herbicides. The processed soils were replaced within the excavations as agreed with the main contractor.

- During treatment operations, all spray protocols were followed including handling requirements, operators PPE, environmental protection, spray drift and protection of other site operatives and visitors.

- All plant remained in the quarantined area for the duration of the works. If any plant needed to be removed, the wheels/tracks were jet washed with approved herbicides prior to removal off site. This ensured that no JKW was spread to any other area of the site.

- Upon completion, the treatment area was de-mobilised and the site handed back to the client.

4. Resources

4.1 Plant and Equipment

The following plant and equipment was used:

Plant Description	Quantity	Operation / Process
22 tonne tracked excavator with suitable buckets	1	Excavation of JKW impacted material
Fuel Bowser (accompanied by spill kit)	1	Storage of diesel for plant
Skip	1	Disposal of JKW impacted material
Trimmers/shears	1	Cut down surrounding vegetation
Spraying equipment	1	Pre-treatment herbicidal application to JKW vegetation
Allu Bucket	1	Used during Eraginate process
Riddle Bucket	1	Sifts soils to remove plant matter
Pressure washer	1	Used to wash any JKW material off the plant used on site
210L plastic barrel	1	To store the herbicidal mix during the treatment process
2000g polythene	1	Used to set JKW impacted soils on to prevent cross contamination of JKW free areas

5. Health and Safety

A Health & Safety policy was included in this project and staff were responsible for complying with the site specific Health and Safety requirements as required by the client.

PPE	Site Personnel	Visitors
Wellingtons	X	X
High Vis Vest / Jacket	X	X
Gloves (EN 388)	X	
Hard Hat (EN 497)	X	X
Type 3 or 4 coveralls	X	
Eye Protection (BS EN 166-F)		
Ear Protection		
Face mask (FP3 III)		

6. Conclusions

ATG successfully completed the JKW eradication works on the 8th August 2018 and the site was handed back to the client. During the excavation works, all the JKW vegetation, root, crown and rhizome material, associated with the predetermined areas was identified and carefully removed. The sporadic plant of JKW was also eradicated. The JKW free soils were replaced within the excavations as agreed with the main contractor.

The operation to remove and prevent further spreading of the JKW on this site has been executed with the greatest of care and with the best method for this site, under the project circumstances.

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Head Office – Coleraine
Offices in Lisburn, Dublin, Edinburgh, Peterborough, Nairobi

Appendix 1: Site Photographs

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Appendix 2: Waste Disposal Documents

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ATG group

Duty of Care: Controlled Waste Transfer Note - ROI

Waste Management (Registration of brokers and dealers) Regulations 2008

Ref No: 05

Section A - Description of the Waste

1. Please describe the waste being transferred
2. Where did the waste come from (this should show where the waste was produced if known or where you collected it from):
3. What is the European Waste Catalogue (EWC) Code:
4. How is the waste contained?
   Loose ☐ Bags ☐ Skip ☐ Drum ☐ Containers ☐
   Other ☐ Please describe: _____
5. What is the quantity of waste (number of bags, containers; size of containers, weight of bags etc).

Section B - Current Holder of the Waste (Transferor)

1. Full Name (Block Capitals)
2. Name and Address of the Company

   Postcode _____
   SIC Code (2007): _____
3. Which of the following are you (x1 or more boxes)
   Producer of the Waste ☐
   Holder of Waste Authorisation ☐
   Waste Authorisation Number _____
   Importer of the Waste ☐
   Registered Waste Carrier ☐
   Waste Broker or Dealer ☐
   Registration Number _____

Section C - Person Receiving the Waste (Transferee)

1. Full Name (Block Capitals)
2. Name and Address of the Company
3. Which of the following are you (x1 or more boxes)
   Holder of the Waste Authority ☐
   Waste Authorisation Number _____
   Issued by _____
   Importer of the Waste ☐
   Registered Waste Carrier ☐
   Waste Broker or Dealer ☐
   Registration Number _____

Section D - Waste Hierarchy Declaration

I confirm that I have fulfilled my duty to apply the waste Hierachy as a priority order as required by the Waste Management (Registration of Brokers and Dealers) Regulations 2008 ☐

or

I confirm that I have departed from the Waste Hierarchy priority order to achieve the best overall environmental outcome, due to the following:

_____

Section E - Place of Transfer

1. Address of place of transfer/collection point:
2. Date of Transfer:
3. Time(s) of transfer (for multiple consignment, give 'between' date):
4. Name, address and registration number of broker or dealer who arranged this waste transfer (if applicable)

I confirm that the information provided is true and correct.

Section F – Signatures

Transferor
Signed

Full Name (Block Capitals)

Representing:

Transferee
Signed

Full Name (Block Capitals)

Representing:

J. RYAN HAULAGE LTD.

STRINGFIELD, BALLYWILLIAM, ENNISCORTHY, Co. WEXFORD
Tel: (045) 842380 • (051) 424715 • Fax: (045) 877967 • (051) 424949 • Mobile: 087 267 9347 • 086 267 9347
E.Mail: admin@jryangroup.ie • www.jryanhaulage.ie

TIPPER & PLANT HIRE • EXCAVATION & DEMOLITION
SUPPLIERS OF SAND, GRAVEL, TOP SOIL

404994

DATE: 7/8/2018
TIME IN: 12.00
FROM: AJG
Coolgalane Rd
Douglas Co. Cork
TO: Destruct waste
Facility

LORRY NO: 10 D 34957
TIME OUT: 12.15
TIME TIPPED: 12.00 05
Quantity: Skip Collected
Driver:

Clean excavated material (17 05 04) Topsoil | Subsoil | Clay | Gravel ☐	Mechanically treated (cut/crushed/chipped) (19 12 07) Wood - bushes, trees, stumps etc. ☐
Construction / demolition waste (17 05 03) Contaminated soil ☐	Municipal (household) waste (20 03 01) Mixed waste ☐
Construction / demolition material (17 01 01) Clean Concrete ☐	Municipal (household) waste (20 03 07) Bulky waste ☐
Construction / demolition waste (17 03 02) Tarmacadam ☐	Construction / demolition material (17 02 01) Wood - boards, beams, sheets etc. ☐
	Mechanically treated (19 12 12) Mechanicaly separated waste ☐

☐ Other (Description and EWC): Japanese Knotweed.

Received in good condition, Signed:

EOK TRANSPORT LTD. 00233 **RECEIPT**

Clongeel, Newmarket, Co. Cork.
Tel.: (087) 2895056
Email: eoktransport20@gmail com

Date: 24.7.18

Received from: ATC Group

Address: old carrigaline Rd
Chem loa CL 000255

the sum of: 12x10. CC 2908

€ :

Signed

Unit 33, Loughanhill Industrial Estate
Coleraine, Co. Derry, BT52 2NR
T +44 (0) 28 7034 3787
info@atg-group.co.uk
www.atg-group.co.uk

Head Office – Coleraine
Offices in Lisburn, Dublin, Edinburgh, Peterborough, Nairobi

Appendix 3: Warranty of Works

Unit 33, Loughanhill Industrial Estate
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info@atg-group.co.uk
www.atg-group.co.uk

Head Office – Coleraine
Offices in Lisburn, Dublin, Edinburgh, Peterborough, Nairobi

Warranty of Works

1.) ATG Services (Ireland) Ltd ("ATG") will design carry out and complete such Treatment of Japanese knotweed as ATG sees fit (subject to clause 5 below) to see that the eradication will be successful in the areas in which ATG will carry out Treatment works and will monitor these areas as a watching brief service and as further described in ATG's appointment, provided that the programme of application as advised by ATG is adhered to ("the Treatment"). In carrying out any services and the Treatment, ATG Services (Ireland) Ltd shall not be construed as owing any greater duty than the use of reasonable skill and care in accordance with the normal standards of its profession.

2.) If there is any evidence that the Treatment has not been successful despite the above, ATG undertakes to take such reasonable further steps as shall be necessary, to eradicate the Japanese knotweed.

3.) If the Client requires greater insurance cover than the above, it must in its own interests arrange such cover.

4.) On completion of the Treatment, ATG will write to the Client and to the Beneficiary confirming that the control has been successful in those areas, which have been previously identified and treated in accordance with ATG's method statement.

5.) ATG Services (Ireland) Ltd shall have no liability whether in contract or in tort, in negligence, for breach of statutory duty or otherwise for the emergence of any Japanese knotweed that has been introduced during the period of the Treatment or the period of this Warranty by the actions of a third party.

6.) This Warranty does not confer any rights other than expressly set out above and does not cover any claims for consequential loss or damage. ATG Services (Ireland) Ltd shall have no liability whether in contract or in tort, in negligence, for breach of statutory duty or otherwise for any special, indirect or consequential loss.

7.) If Japanese knotweed regrows in the site area treated by ATG, then ATG undertakes to re-treat the site area using any reasonable methods, provided that the cause of the regrowth is not due to the actions of a third party.

8.) ATG Services (Ireland) Ltd confirms that it has taken out professional indemnity insurance with a limit of indemnity of not less than £2,000,000 (two million pounds) for any one claim or series of claims arising from the same originating or underlying cause. ATG will maintain such insurance at all times until three years after the completion of the Treatment provided such insurance is available in the United Kingdom on commercially reasonable rates and terms. When reasonably requested, ATG will provide documentary evidence that the insurance required under this Warranty is being maintained.

9.) During the period of the Treatment certain factors could affect timing and effectiveness or eradication methodology. These include; Force Majeure; fire; lightning; explosion; flood; riot and civil commotion; manufacture or transportation of any of the goods or materials require for the treatment, or any persons engaged in the preparation of the design of the Treatment; exceptionally adverse weather conditions; and any other man made factors whatsoever. ATG will take reasonable steps to modify its eradication methodology to mitigate the effects of the foregoing where these are identified by ATG.

10.) ATG Services (Ireland) Ltd shall have no liability whether in contract or in tort, in negligence, for breach of statutory duty or otherwise for Japanese Knotweed brought to the site after the Treatment has been completed, or present in an area outside of the original stands treated.

11.) Subject to the terms set out above, this Warranty shall remain valid for a period of three years from completion of the Treatment.

Warranty Conditions

The warranty is conditional on the following:

- Eradication is carried out 100% under ATG's control and to detailed ATG methodology.

- A detailed site survey to identify and map at a suitable scale consistent with the site to show all knotweed infestations, and any trees or shrubs of ecological value that should be protected from the eradication treatment works. Such survey to identify any potential watercourses or other factors that would affect methodology.

- Complete Health and Safety audit of site.

- Historical record of all ground works over the last twenty four months.

- Agreement with Client that the plan accurately reflects the extent of all knotweed on site, and agreement of course of action for any boundary issues with adjacent landowners. Plan to form basis of site control document. This to be used in conjunction with proposed site development plan.

- All proposed works on site during the eradication period to be notified to ATG prior to commencement. This to include all proposed site activity and any local authority and utility works. It is the sole responsibility of the Client to keep ATG informed of any potential disturbance of the site in any way whatsoever.

- Site security to be the sole responsibility of the Client and should be consistent with any recommendations made by ATG.

- All fly tipping subsequent to contract and GPS map being agreed with Client to be disposed of at discretion of ATG in approved manner at additional cost to Client. Disposal to be organised at cost by ATG and to be charged as incurred.

- ATG to approve source and importation of any topsoil onto site and to agree any significant change in ground levels to be carried out post site treatment.

- If the performance of any part of the Treatment is prevented, restricted or delayed by reason of any cause beyond the reasonable control of ATG (including (without limitation) fire, flood, rain, wind, sleet, hail and other Act of God, industrial action including strike and lock out, riots, war, armed conflict, trade sanctions, contamination, disease and epidemic, interruption or failure of a utility service, failure of computer or other machinery, and change in law or regulatory requirements) ATG shall be excused from such performance to the extent of such prevention, restriction or delay, provided that ATG shall use commercially reasonable endeavours to avoid or remove such causes of non-performance or to find an alternative manner or means of performance.

- ATG to monitor site for a period of one year post treatment during the knotweed growing season and after that time as appropriate or as notified by Client.

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Coleraine, Co. Derry, BT52 2NR
T +44 (0) 28 7034 3787
info@atg-group.co.uk
www.atg-group.co.uk

Head Office – Coleraine
Offices in Lisburn, Dublin, Edinburgh, Peterborough, Nairobi

Appendix 4: Insurance

willis
Insurance &
Risk Management

To Whom It May Concern

Date: 25th April 2018

Our Client: ATG Services (Ireland) Ltd, ATG Environmental (NI) Ltd & ATG Services (Scotland) Ltd

We act as Insurance Brokers for the above-named client and are pleased to confirm that the following insurance cover is currently in force:

Business Description:	Environmental Consultancy, Waste Management Remediation & Consultancy

Employers' Liability Insurance

Insurance Company	Citynet
Policy Number	GC115918U
Renewal Date	28th April 2018 – 27th January 2019
Limit of Indemnity	£10,000,000 any one loss

Public/Products Liability Insurance

Insurance Company	Citynet
Policy Number	GC115918U
Renewal Date	28th April 2018 – 27th January 2019
Limit of Indemnity	£5,000,000 any one occurrence and in the aggregate in respect of Products Liability

** We confirm that the above policy is silent with regards to working on licensed premises **

Professional Indemnity Insurance

Insurance Company	Wimsure on behalf of certain underwriters at Lloyds
Policy Number	WIMPI1838006
Renewal Date	28th January 2018 to 27th January 2019
Limit of Indemnity	£5,000,000 any one claim costs and expenses in addition but in the aggregate in respect of Pollution, Asbestos and /or Toxic Mould

Engineering – Hired in Plant

Insurance Company	HSB Engineering
Policy Number	H2I178287
Renewal Date	28th January 2018 – 27th January 2019
Limit of Indemnity	£150,000 Hired in Plant
	£60,000 Own Plant

Working in Confined Spaces Endorsement
Approximately 1% turnover is undertaken in confined spaces

Endorsements applicable to Public and Products Liability
The schedule of insurance details…

Notwithstanding anything contained herein to the contrary the Underwriters will indemnify the Assured against their liability to pay Damages (including claimants' costs, fees and expenses) and Defence Costs and Criminal Prosecution Defence Costs under Sections B & C of this policy arising from the existence of or exposure to non-HSE (Health and Safety Executive) licensed asbestos and HSE licensed asbestos and any other material that contains such asbestos occurring on or after the retroactive date but only in respect of claims first made against the assured during the period of insurance and notified in accordance with the provisions contained within the policy.

Provided always that;

1. Should the assured notify the underwriters during the period of insurance of any specific event or circumstance which underwriters accept may give rise to a claim or claims which form the subject of indemnity by this endorsement then acceptance of such notification means that underwriters will deal with such claim or claims as if they had first been made against the assured during the period of insurance.
2. The underwriters will not indemnify the assured for any claims arising from the existence of or exposure to non HSE licensed asbestos and HSE licensed asbestos and any other material that contains such asbestos where the assured were aware of the circumstance or event which gave rise to the claim before the effective date of this endorsement;
3. The underwriters will indemnify the assured in connection with:
   a) Their handling, removal stripping out demolition storage, transportation or disposal of non HSE licensed asbestos including all no n NSE licensed asbestos containing materials and
   b) By bona fide subcontractors of both non HSE licensed asbestos and HSE licensed asbestos including any other material that contains such asbestos and
   c) Upon accidental discovery of HSE licensed asbestos and any other material that contains such asbestos provided that upon becoming aware all work on the area is immediately halted and access restricted until the discovery is tested and confirmed then sub-contracted to licensed asbestos removal contractors

4. In respect of any liability which arises from any requirement to clean up or remove non HSE licensed asbestos and HSE licensed asbestos and any other material that contains such asbestos from any building and/or structure:
   a) Such liability arises solely in consequence of a sudden specific and identifiable fire explosion impact or collapse;
   And
   b) The building and/or structure that is subject to the clean up or removal is not owned, leased or hired by or under hire purchase or loan to the assured
5. The underwriters will not indemnify the assured for any claims in respect of the diminution in the value of property or loss of or potential loss of rental income or any other consequential losses (including business interruption) howsoever arising;
6. The underwriter's liability to pay damages (including claimants costs, fees and expenses) and defence costs and criminal prosecution defence costs shall not exceed the sum of £1,000,000 and shall be the underwriter's total liability in respect of any one period of insurance.
7. The excess applicable to this endorsement hall be £5,000 each and every claimant including bodily injury

<u>Employers Liability, Public Liability and Pollution Liability</u>

a) all work must be carried out in accordance with the Control of Asbestos Regulations 2012 and any similar legislation or regulation
b) all work must be carried out in accordance with any HSE approved codes of practice and guidance notes relating to asbestos in so far as they apply
c) Respiratory Protective Equipment (RPE) is only used that is marked with a CE symbol and that any respirator not so marked is not used
d) The selection use and maintenance of RPE follows both the manufacturers recommendations and HSE guidance where applicable
e) In accordance with the Control of Asbestos Regulations 2012 and any similar legislation or regulation all persons employed by the assured to be engaged with materials containing such asbestos:
   1. Must be medically examined and approved. The medical examination is to be undertaken prior to the commencement of such works with the assured and renewed at such intervals as defined by the regulations
   2. Such medical questionnaires as are deemed by the regulations shall be retained within the assured's records covering the duration of their working time with the assured

   Copies of such records shall be retained by the assured in line with current legislation

All policies are subject to Insurers policy terms, conditions and exclusions.

This letter is provided as a courtesy to our client as a matter of information only and confers no rights on the holder. Our duties in relation to this insurance are to our client and we accept no duty of care or responsibility to you or any other third party and any liability to you or any third party are excluded.

willis
Insurance &
Risk Management

This letter does not amend, extend or alter the coverage afforded by the policies, nor does it purport to set out all of the policy terms, conditions and exclusions. The policy terms, conditions, limits and exclusions may alter after the date of this document or the insurance may terminate or be cancelled, and the limits shown may be reduced by claims paid.

We have no obligation to advise you of any changes which may be made to the policies or to advise you of their cancellation or termination.

Yours sincerely

Mary McCourt

Mary McCourt CII
Account Handler

T: +44 (0)28 9032 9042
DL: +44 (0) 28 9089 1977
E: mmccourt@willisinsurance.co.uk
W: www.willisinsurance.co.uk

APPENDIX D:
Proposed Development

Filename: Z:\UKIEORK1\JOBS\PR-306922_CASTLETREASURE_CORK\900_CAD_GIS\906_LA\02_SHEETS\60577778-SHT-20-0000-L-1000.DWG Last saved by: CIAN.ODONNELL Project Management Initials: Designer: MARK HAMMOND Checked: ROSS LOUGHNANE Approved: EDWARD FRAMPTON ISO A1 594mm x 841mm
Last Plotted: 2019-04-23

AECOM

PROJECT

CASTLETREASURE HOUSING DEVELOPMENT

CLIENT

CAIRN PLC

CONSULTANT

AECOM Ireland Ltd
1st Floor Montrose House
Carrigaline Road
Douglas, Cork, Ireland
T +353-021-436-5006
www.aecom.com

LEGEND

- EXISTING AND RETAINED WOODLAND TREE SPECIES
- PROPOSED WOODLAND AND UNDERPLANTING MIX
- SHRUB / PERENNIAL MIX
- SEATING
- LAWN OPEN SPACE
- PLAY AREAS
- HOMEZONE SHARED SURAFCE
- LAWN PRIVATE SPACE
- PROPOSED PEDESTRIAN PATHS
- RETAINING STRUCTURE
- NATIVE MIX HEDGE 1
- NATIVE MIX HEDGE 2
- BULB MIX
- WILDFLOWER MIX
- WAYLEAVE
- WOODLAND SPECIES
- PARKLAND TREES
- STREET TREES
- GARDEN TREES
- SECURITY FENCE

ISSUE/REVISION

I/R	DATE	DESCRIPTION
C	23-04-19	ISSUE FOR PLANNING
B	22-03-2019	FOR PLANNING (DRAFT)
A	10-07-2018	FOR COORDINATION
-	22-03-2019	FOR DISCUSSION

PROJECT NUMBER

60577778

SHEET TITLE

LANDSCAPE MASTERPLAN

SHEET NUMBER

60577778-SHT-20-0000-L-1000

APPENDIX E:

Finding of No Significant Effects Report: Great Island Channel SAC

Name and location of the Natura 2000 sites.	Great Island Channel SAC. See Figure 2.1 above.
Description of the project or plan.	Cairn Homes Properties Ltd is seeking planning permission for a proposed residential development at Castletreasure/Maryborough (townlands), Carr's Hill/ Carrigaline Road (R609), Douglas, Co. Cork. The proposed development includes the construction of a strategic housing development comprising 472 residential units, a creche and all associated ancillary development works.
Is the Project or Plan directly connected with or necessary to the management of the site (provide details)?	No.
Are there other projects or plans that together with the project of plan being assessed could affect the site (provide details)?	No.
The Assessment of Significant Effects	
Describe how the project or plan (alone or in combination) is likely to affect the Natura 2000 site.	Due to the reasons outlined in the following section, it is felt that no elements of the project are likely to impact on the Natura 2000 site; Great Island Channel SAC.
Explain why these effects are not considered significant.	▪ As the Natura 2000 site does not overlap the study site, direct impacts via habitat loss are not relevant. ▪ No indirect hydrological impacts on Great Island Channel SAC are expected as a result of the proposed development in relation to silt-laden or contaminated surface-water run-off as Great Island Channel SAC is not downstream of the surface-water discharge points at the study site in question. ▪ Indirect hydrological impacts on Great Island Channel SAC through waste-water/foul effluent via Cork City WWTP are not considered relevant here as follows. Great Island Channel SAC is not downstream of the WWTP's discharge point. While the SAC's boundary is *c.* 550m north-east of the WWTP's discharge point, potential impacts on the SAC arising from tidal/wind movements from the WWTP's discharge point have not been highlighted as being of significant concern in an assessment on the conservation status of the SAC, but rather the impacts from two other WWTPs have been highlighted instead (see O'Neill *et al.* 2014). ▪ Disturbance/displacement impacts of fauna that are listed as qualifying interests of the Natura 2000 sites are not relevant here as the conservation objectives of Great island Channel SAC relate to habitats and not fauna. ▪ Potential impacts via the spread of the highly invasive Japanese Knotweed *Fallopia japonica* plant are not relevant here as all Japanese Knotweed was removed in August 2018. ▪ Potential impacts via flooding/floodplain are not relevant here as there will be no loss of flood plain storage such that the development will have no impact on the remaining flood plain with all proposed dwellings constructed

	outside of the 0.1% AEP fluvial flood extent, all development constructed at an elevation higher than the 1% AEP flood level with a suitable freeboard and the FFL of buildings greater than the 0.1% AEP flood level.
List of agencies consulted.	Inland Fisheries Ireland; National Parks & Wildlife Service via Development Applications Unit – as part of associated EIAR consultation.
Response to consultation.	Inland Fisheries Ireland: IFI would ask that the proposed development is designed and constructed in a manner that ensures there be no interference with, draining, or culverting of the onsite stream or watercourse, its banks or bankside vegetation to facilitate this development without the prior approval of IFI. The proposed bridge crossing should be of span design with no instream works. All site runoff must control so as not to enter waters. Prior to any site works a fenced (with silt fencing) off buffer zone of 10m minimum from all watercourses should be established inside of which no construction activity or storage of any soils or other construction materials can occur. To clarify site runoff contaminated with solids or other contaminants should not be allow to discharge to the adjacent stream during the construction phase.

Data Collected to Carry out the Assessment			
Who carried out the assessment	**Sources of Data**	**Level of assessment completed**	**Where can the full results of the assessment be accessed and viewed**
Dr Katherine Kelleher, Principal Ecologist & Director of Kelleher Ecology Services Ltd. BSc & PhD Zoology & MCIEEM. Dr Daphne Roycroft, Consultant Ecologist, BSc & PhD Zoology & MCIEEM.	▪ Pers. comm. with McCutcheon Halley Planning. ▪ Associated documents/drawings of the EIAR & outline CMP (Cairn PLC 2019). ▪ Site walkover. ▪ National Biodiversity Data Centre (NBDC) online mapping ▪ EPA online river mapping database NPWS online designated site data/mapping. ▪ References (below)	Desktop study & site visit; am satisfied that this has yielded enough information to adequately complete a Screening Assessment (*i.e.* Stage 1 of AA process).	Full results of the assessment are available in Section 3.1.1 above.

APPENDIX F:

Irish Water Pre-Connection Enquiry Response

Declan White
JBA Consulting,
24 Grove Island,
Corbally,
Co. Limerick

Uisce Éireann
Bosca OP 6000
Baile Átha Cliath 1
Éire

Irish Water
PO Box 6000
Dublin 1
Ireland

T: +353 1 89 25000
F: +353 1 89 25001
www.water.ie

18th January 2018

Dear Sir/Madam,

Re: Ref no 7110857582: pre-connection enquiry - Subject to contract | Contract denied
450 unit housing development at Carrs Hill, Carrigaline Road, Douglas, Co Cork

Irish Water has reviewed your pre-connection enquiry in relation to
water and wastewater connections at Carrs Hill, Carrigaline Road, Douglas, co. Cork
Based upon the details you have provided with your pre-connection enquiry and on the capacity currently available 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 can be facilitated.

The proposed water connection is onto the 18" main on the N28 on the East of the site. Please note that there are currently 2 large diameter water mains passing through the proposed development. There is a 12" AC main and the 1200mm Cork Harbour & City main. The 1200mm is a critical water main supplying large industries in Ringaskiddy that cannot be shut off or diverted. Detailed design of the proposed development shall included detailed protection measures of this 1200mm main. Prior to any works beginning on site all protection measures of this mains must be submitted/agreed with Irish Water.

The proposed foul connection is a the network in the existing development into a manhole on the 300mm sewer to the North West of the site. This sewer connects to the 1200mm Tramore River Valley trunk further downstream. Due to the size of the development, a flow survey and CCTV survey of the 300mm sewer **is required** to confirm if there is sufficient capacity in the sewer to cater for the proposed development. Irish Water are currently carrying out a Drainage Area Plan (DAP) for Cork City. The DAP includes a CCTV survey of a section of the 300mm. There is no plan to carry out a flow survey of this sewer as part of the DAP. The DAP report is programmed for completion in Q1 2019. Irish Water can carry out a full flow survey of this sewer and CCTV of the section of Sewer that is omitted from the DAP. The costs of these surveys would be borne by the developer. Please contact me if you wish to proceed with these surveys.

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 Energy Regulation.

If you have any further questions, please contact Maurice Feehan from the design team on 022 52284 or email maufeehan@water.ie. For further information, visit **www.water.ie/connections**

Yours sincerely,

Maria O'Dwyer
Connections and Developer Services