

N11 Junction Q Scheme
Part 8 Environmental Report
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N11 Junction Q

Environmental Report –Volume 2
Dun Laoghaire Rathdown County Council

23 November 2016



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APPENDIX 3.1

Appropriate Assessment

Appendix 3.1 Appropriate Assessment



**PROVISION OF INFORMATION REGARDING APPROPRIATE ASSESSMENT SCREENING
PROPOSED N11 JUNCTION Q,
CABINTEELY, DUBLIN 18**

PREPARED FOR DUN-LAOGHAIRE – RATHDOWN COUNTY COUNCIL

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1 Introduction

The information in this report forms part of, and should be read in conjunction with the documentation accompanying the planning application for the proposed N11 Junction Q at Cabinteely, Dublin 18.

This report which contains information required for the competent authority (in this instance Dún Laoghaire-Rathdown County Council) to undertake a screening exercise for Appropriate Assessment (AA), was prepared by Scott Cawley Ltd. It provides information on and assesses the potential for the proposed development to significantly affect Natura 2000 sites (hereafter 'European sites'¹).

It is necessary that the proposal has regard to Article 6 of the *Council Directive 92/43/EEC of 21 May 1992 on the Conservation of Natural Habitats and of Wild Fauna and Flora* (as amended) (hereafter "the Habitats Directive"). This is transposed in Ireland primarily by *the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477/2011)* (hereafter the Birds and Habitats Regulations) and the Planning and Development (Amendment) Act, 2010 as amended.

An AA is required if likely significant effects on European sites arising from a proposed development cannot be ruled out at the screening stage, either alone or in combination with other plans or projects.

Following the preparation of this report it may be objectively concluded that there is no likelihood of any significant effects on any European sites arising from the proposed development, either alone or in combination with other plans or projects. Therefore, it is our view that an Appropriate Assessment is not required in this instance. The information in the tables below provide a summary of the information gathered for this screening exercise and the conclusions made.

2 Methodology

This Screening Statement for Appropriate Assessment was prepared with regard to the following guidance documents, where relevant:

- *Appropriate Assessment of Plans and Projects in Ireland - Guidance for Planning Authorities*. (Department of Environment, Heritage and Local Government, 2010 revision);
- *Appropriate Assessment under Article 6 of the Habitats Directive: Guidance for Planning Authorities*. Circular NPWS 1/10 & PSSP 2/10;
- *Assessment of Plans and Projects Significantly Affecting Natura 2000 sites: Methodological Guidance on the Provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC* (European Commission Environment Directorate-General, 2001); hereafter referred to as the EC Article 6 Guidance Document. The guidance within this document provides a non-mandatory methodology for carrying out assessments required under Article 6(3) and (4) of the Habitats Directive;
- *Managing Natura 2000 Sites: The Provisions of Article 6 of the Habitat's Directive 92/43/EEC* (EC Environment Directorate-General, 2000 and updated draft April 2015); hereafter referred to as MN2000;
- *Guidance Document on Article 6(4) of the 'Habitats Directive' 92/43/EEC. Clarification of the Concepts of Alternative Solutions, Imperative Reasons of Overriding Public Interest,*

¹ Natura 2000 sites are defined under the Habitats Directive (Article 3) as a European ecological network of special area of conservation composed of sites which host the natural habitat types listed in Annex I and habitats of the protected species listed in Annex II. The aim of the network is to aid the long-term survival of Europe's most valuable and threatened species and habitats. In Ireland these sites are designated as *European sites* – defined under the Planning Acts and/or Birds and Habitats Regulations as (a) a candidate site of Community importance, (b) a site of Community importance, (c) a candidate special area of conservation, (d) a special area of conservation, (e) a candidate special protection area, or (f) a special protection area. They are commonly referred to in Ireland as Special Areas of Conservation (SACs) and Special Protection Areas (SPAs).

Compensatory Measures, Overall Coherence. Opinion of the European Commission (European Commission, January 2007);

- *Guidelines for Good Practice Appropriate Assessment of Plans under Article 6(3) Habitats Directive*. Findings of an international workshop on Appropriate Assessment in Oxford, December 2009²; and,
- *Communication from the Commission on the precautionary principle*. European Commission (2000b).

The above referenced guidance sets out a staged process for carrying out AA. To determine if AA is required, documented screening is required. Screening identifies the likely effects on European sites, if any, which would arise from a proposed plan or project, either alone or in combination with other plans and projects, and further considers whether these effects are likely to adversely affect the integrity of any European sites.

If the conclusions at the end of screening are that there is no likelihood of significant effects occurring on any European sites, as a result of the proposed plan or project, either alone or in combination with other plans and projects, then there would be no requirement to undertake Appropriate Assessment.

However, even if screening makes a finding of 'no significant effects', and therefore concludes that AA is not required, these findings must be clearly documented in order to provide transparency of decision-making, and to ensure the application of the 'precautionary principle'³.

Screening for AA involves the following:

- Determining whether a project or plan is directly connected with or necessary to the conservation management of any European sites⁴;
- Describing the details of the project/plan proposals and other plans or projects that may cumulatively affect any European sites (see Table 1);
- Describing the characteristics of relevant European sites (Table 2); and
- Assessing the likelihood and significance of effects on relevant European sites (see Table 2).

The information that was collected to allow the competent authority to screen the proposal was based on a desktop study carried out on 25th August 2016. Information relied upon included the following information sources, which included maps, ecological and water quality data:

- Ordnance Survey of Ireland mapping and aerial photography available from www.osi.ie;
- Online data available on European sites as held by the National Parks and Wildlife Service (NPWS) from www.npws.ie;
- Information on land-use zoning from the online mapping of the Department of the Environment, Community and Local Government <http://www.myplan.ie/en/index.html>;
- Information on water quality in the area available from www.epa.ie;
- Information on the Eastern River Basin District from www.wfdireland.ie;
- Information on soils, geology and hydrogeology in the area available from www.gsi.ie;
- Information on the location, nature and design of the proposed development supplied by the applicant's design team; and,

² Available online at <http://www.levett-therivel.co.uk/AAguidelines.htm> accessed July 2015

³ One of the primary foundations of the precautionary principle, and globally accepted definitions, results from the work of the Rio Declaration. Principle #15 declaration notes:

"In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation."

⁴ In this instance the proposed development is not directly connected with or necessary to the conservation management of any European sites.

- Information on the status of EU protected habitats in Ireland (National Parks & Wildlife Service, 2013a & 2013b).

The following planning and policy documents were relevant to the subject lands, in particular with regard to the assessment of other plans and projects with potential for cumulative effects:

- *National Biodiversity Plan 2011 – 2016* (Department of Arts, Heritage and the Gaeltacht, 2011);
- *Cherrywood Planning Scheme (Dún Laoghaire-Rathdown County Council, 2014)*;
- *Cherrywood Planning Scheme, Biodiversity Plan (Dún Laoghaire-Rathdown County Council, 2012a)*;
- *Cherrywood Planning Scheme, Appropriate Assessment Screening Report (Dún Laoghaire-Rathdown County Council, 2012b)*;
- *Dún Laoghaire-Rathdown County Development Plan 2010-2016*;
- *Dún Laoghaire-Rathdown County Development Plan 2016-2022*;
- *Dún Laoghaire-Rathdown Biodiversity Plan 2009-2013 (Dún Laoghaire-Rathdown County Council, 2009)*; and;
- *Eastern River Basin District, River Basin Management Plan 2009-2015*.

Table 2 outlines each European site and the corresponding qualifying interests as well as identifying any relevant source-pathway-receptor links between the proposed development and the European site that may result in adverse effects on the qualifying interests of these European sites.

Table 1 Overview of the Proposed Development and its Receiving Environment

Brief Site Description	<p>The subject lands are located at Druid’s Glen, south of Cabinteely, Dublin 18 (Grid ref: O 23552 24332). The lands are within the administrative area of Dun Laoghaire Rathdown County Council and are bounded to the north and south by the townlands of Brennanstown and Cherrywood respectively. The proposed junction is located on the N11, south of Cabinteely in Co. Dublin. The subject site is composed of developed lands, specifically the N11 National Primary Route, a major transport corridor flanked by continuous, sub-urban development on both sides.</p> <p>The N11 Junction Q will facilitate access to Development Area 5: Druids Glen of the Cherrywood SDZ as identified in Map 6.5 of the Cherrywood Planning Scheme. Table 6.5.2 of the Planning Scheme further describes the infrastructure requirements associated with Development Area 5. The proposed junction onto the N11 is required to facilitate the traffic generated from Development Area 5 (Phase 1) along the future Druids Glen Road Q-P3 initially and ultimately in conjunction with the overall proposed road network identified within the Planning Scheme; the traffic generated from all of the eight development areas within the Planning Scheme.</p>
Features of the Surrounding Environment	<p>The desktop study found no records of any species or habitats for which European sites were designated within the proposed development footprint. The following species, for which European sites listed in Table 2 below are designated, were found within 2km of the proposed development site⁵:</p> <ul style="list-style-type: none"> • Otter (<i>Lutra lutra</i>) – recorded along a stream near Carrickmines’, c. 1.5km to the west of the proposed development site (1980); • Petalwort (<i>Petalophyllum ralfsii</i>) – recorded c. 1.6km to the south-east of the proposed development site (2009); • Common Tern (<i>Sterna hirundo</i>) – recorded near Loughlinstown Woods, c. 1.7km to the south-east of the proposed development site (2011); • Oystercatcher (<i>Haematopus ostralegus</i>) – recorded in Kilbogget Park, c. 650m to the west of the proposed development site (2010); • Redshank (<i>Tringa totanus</i>) – recorded c. 2km to the north-west of the proposed development site (2010); • Black-headed Gull (<i>Larus ridibundus</i>) – recorded in Kilbogget Park, c. 530m to the north-east of the proposed development site (2011); • Peregrine Falcon (<i>Falco peregrinus</i>) – recorded near Loughlinstown Woods, c. 1.7km south-east of the proposed development site (2011); • Teal (<i>Anas crecca</i>) – recorded in Kilbogget Park, c. 825m north-east of the proposed development site (2010); and; • Curlew (<i>Numenius arquata</i>) – recorded c. 1.1km south-east of the proposed development site (2011). <p>Otter <i>Lutra lutra</i> activity has previously been recorded in the adjacent SDZ lands, particularly along the Carrickmines River Valley and Brides Glen⁶. Otter are listed on Annex II of the EU Habitats Directive, however the population that exists in the area is not listed as a Qualifying</p>

⁵ According to NBDC online data www.biodiversity.ie accessed 25/08/2016

Table 1 Overview of the Proposed Development and its Receiving Environment

	<p>Interest (QI) of any SAC's within 15km of the subject lands.</p> <p>Black-headed Gull and Curlew were also recorded in the adjacent SDZ lands during surveys for the Draft Planning Scheme. It is noted that winter migrants were recorded in small numbers and that the SDZ lands and the area is likely to be a transitory area for the species as no significant area of the typical habitats used by the species for refuge or feeding were found in the SDZ lands⁵.</p> <p>The groundwater body area, in which the proposed development site is located, is classified as '<i>Wicklow</i>' and is described as '<i>Poorly productive bedrock</i>'. According to GSI Map Viewer, the level of vulnerability to groundwater contamination from human activities across the site is given as '<i>Extreme</i>'. It is also described as a '<i>Poor aquifer- Bedrock which is generally unproductive except for local zones</i>'. The bedrock of the area is described as '<i>Granites and other igneous intrusive rocks</i>'.</p>
<p>Description of the Proposed Development</p>	<p>The proposed junction is referred to as the N11 Junction Q and this report deals with the proposed junction onto the N11 at Cabinteely.</p> <p>The N11 Junction Q will facilitate access to Development Area 5: Druids Glen as identified in Map 6.5 of the Planning Scheme. Table 6.5.2 of the Planning Scheme further describes the infrastructure requirements associated with Development Area 5. The proposed junction onto the N11 is required to facilitate the traffic generated from Development Area 5 (Phase 1) along the future Druids Glen Road Q-P3 initially and ultimately in conjunction with the overall proposed road network identified within the Planning Scheme; the traffic generated from all of the eight development areas within the Planning Scheme. The proposed junction and infrastructure for which permission is sought is identified in drawing 5139036/HW/0104.</p> <p>The length of the proposed works at point Q along the existing N11 is in the order of 350m. The proposed junction onto the existing N11 will comprise a three arm signalised at grade junction with provisions for pedestrian and cyclist movements across each arm. The proposed junction will comprise a double southbound right turning lane, a double left turn lane from the Druids Glen Road, a right turn lane from the Druids Glen Road onto the N11, a northbound left turning lane from the N11 onto the Druids Glen Road, two lanes for traffic flowing onto the Druids Glen Road from the N11 and left in/left out slip lanes on the Druids Glen Road. The preliminary design of the proposed N11 junction is based on a design speed of 85kph.</p> <p>The proposed junction onto the existing N11 will also facilitate a new entrance into Kilbogget Park and the construction of a new boundary wall to the east of the N11.</p> <p>The proposed junction onto the N11 will incorporate underground services infrastructure within the proposed road cross section.</p>

⁶ According to Cherrywood Draft Planning Scheme Biodiversity Plan (Dún Laoghaire-Rathdown County Council, 2012a).

Table 2 Analysis of European sites within 15km.

Site name and code	Distance from Proposed Development (approximate)	Reasons for designation ⁷ (*= Priority Habitat) (Sourced from NPWS online Conservation Objectives Generic Version 4.0 for SACs and 4.0 for SPAs, unless otherwise stated).	Relevant source-pathway-receptor links between proposed development and European site? No sites are “Relevant” to the Proposed Development. (European sites are “Relevant” where a relevant source-pathway-receptor link ⁸ exists).
Special Areas of Conservation			
Rockabill to Dalkey Island SAC (003000)	Located c. 3.8km east of the proposed development	Conservation Objectives Version 1.0 (07/05/13) Annex I Habitats: • Reefs [1170] Annex II Species: • Harbour porpoise <i>Phocoena phocaena</i> [1351]	– No, there are no identified pathways between the proposed development site and this European site.
South Dublin Bay SAC (000210)	Located c. 4.9km north of the proposed development	Conservation Objectives Version 1.0 (22/08/13) Annex I Habitats: • Mudflats and sandflats not covered by seawater at low tide [1140]	No, there are no identified pathways between the proposed development site and this European site.
Ballyman Glen SAC (000713)	Located c. 5km south of the proposed development	Generic Conservation Objectives (13/02/2015) Annex I Habitats: • Petrifying springs with tufa formation (Cratoneurion) [7220] • Alkaline fens [7230]	No, there are no identified pathways between the proposed development site and this European site.
Knocksink Woods	Located c.	Generic Conservation Objectives (13/02/2015)	No, there are no identified pathways between

⁷ “Qualifying Interests” for SACs and “Special Conservation Interests” for SPAs based on relevant Statutory Instruments for each SPA, and NPWS Conservation Objectives for SACs downloaded from www.npws.ie in July 2015.

⁸ For significant effects to arise, there must be a risk enabled by having a 'source' (e.g. construction works at a proposed development site), a 'receptor' (e.g. a SAC), and a pathway between the source and the receptor (e.g. a watercourse connecting a proposed development site to a SAC). The identification of a pathway does not automatically mean significant effects will arise. The likelihood for significant effects will depend upon the characteristics of the source (e.g. duration of construction works), the characteristics of the pathway (e.g. water quality status of watercourse receiving run-off from construction) and the characteristics of the receptor (e.g. the ecology including conservation status of the SAC reason for designation). When expert judgment determines, that significant effects are likely to arise, both the pathway, and the European site are considered “Relevant”, and an Appropriate Assessment is triggered.

Table 2 Analysis of European sites within 15km.

SAC (000725)	6.1km south-west of the proposed development	<p>Annex I Habitats:</p> <ul style="list-style-type: none"> • Petrifying springs with tufa formation (Cratoneurion) [7220] • Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (Alno-Padion, Alnion incanae, Salicion albae) [91E0] 	the proposed development site and this European site.
Bray Head SAC (000714)	Located c. 7.4km south-east of the proposed development	<p>Generic Conservation Objectives (13/02/2015)</p> <p>Annex I Habitats:</p> <ul style="list-style-type: none"> • Vegetated sea cliffs of the Atlantic and Baltic coasts [1230] • European dry heaths [4030] 	No, there are no identified pathways between the proposed development site and this European site.
Wicklow Mountains SAC (002122)	Located c. 8.5km south-west of the proposed development	<p>Generic Conservation Objectives (13/02/2015)</p> <p>Annex I Habitats:</p> <ul style="list-style-type: none"> • Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or Isoeto-Nanojuncetea [3130] • Natural dystrophic lakes and ponds [3160] • Northern Atlantic wet heaths with <i>Erica tetralix</i> [4010] • European dry heaths [4030] • Alpine and Boreal heaths [4060] • Species-rich <i>Nardus</i> grasslands, on siliceous substrates in mountain areas (and submountain areas, in Continental Europe) [6230] • Blanket bogs (* if active bog) [7130] • Siliceous scree of the montane to snow levels (<i>Androsacetalia alpinae</i> and <i>Galeopsietalia ladani</i>) [8110] • Calcareous rocky slopes with chasmophytic vegetation [8210] • Siliceous rocky slopes with chasmophytic vegetation [8220] • Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles [91A0] <p>Annex II Species:</p> <ul style="list-style-type: none"> • <i>Lutra lutra</i> (Otter) [1355] 	No, there are no identified pathways between the proposed development site and this European site.
North Dublin Bay	Located c.	Conservation Objectives Version 1.0 (06/11/2013)	No, there are no identified pathways between

Table 2 Analysis of European sites within 15km.

SAC (000206)	10.5km north of the proposed development	<p>Annex I Habitats:</p> <ul style="list-style-type: none"> • Mudflats and sandflats not covered by seawater at low tide [1140] • Annual vegetation of drift lines [1210] • Salicornia and other annuals colonising mud and sand [1310] • Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>) [1330] • Mediterranean salt meadows (<i>Juncetalia maritimi</i>) [1410] • Embryonic shifting dunes [2110] • Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120] • Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130] • Humid dune slacks [2190] <p>Annex II Species:</p> <ul style="list-style-type: none"> • <i>Petalophyllum ralfsii</i> (Petalwort) [1395] 	the proposed development site and this European site.
Glen of the Downs SAC (000719)	Located c. 12.6km south of the proposed development	<p>Generic Conservation Objectives (13/02/2015)</p> <p>Annex I Habitats:</p> <ul style="list-style-type: none"> • Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles [91A0] 	No, there are no identified pathways between the proposed development site and this European site.
Howth Head SAC (000202)	Located c. 13.7km north-east of the proposed development	<p>Generic Conservation Objectives (13/02/2015)</p> <p>Annex I Habitats:</p> <ul style="list-style-type: none"> • Vegetated sea cliffs of the Atlantic and Baltic coasts [1230] • European dry heaths [4030] 	No, there are no identified pathways between the proposed development site and this European site.
Special Protection Areas			
Dalkey Island SPA (004172)	Located c. 4.4km north-east of the proposed development	<p>Generic Conservation Objectives (13/02/2015)</p> <p>Qualifying Interests:</p> <ul style="list-style-type: none"> • Roseate Tern (<i>Sterna dougallii</i>) [A192] • Common Tern (<i>Sterna hirundo</i>) [A193] 	No. There is no risk of disturbance to Special Conservation Interest bird species given the distance between the proposed development and the European site.

Table 2 Analysis of European sites within 15km.

		<ul style="list-style-type: none"> Arctic Tern (<i>Sterna paradisaea</i>) [A194] 	
South Dublin Bay and River Tolka Estuary SPA (004024)	Located c. 4.9km north of the proposed development	<p>Conservation Objectives Version 1.0 (09/03/2015)</p> <p>Qualifying Interests:</p> <ul style="list-style-type: none"> Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046] Oystercatcher (<i>Haematopus ostralegus</i>) [A130] Ringed Plover (<i>Charadrius hiaticula</i>) [A137] Grey Plover (<i>Pluvialis squatarola</i>) [A141] Knot (<i>Calidris canutus</i>) [A143] Sanderling (<i>Calidris alba</i>) [A144] Dunlin (<i>Calidris alpina</i>) [A149] Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157] Redshank (<i>Tringa totanus</i>) [A162] Black-headed Gull (<i>Chroicocephalus ridibundus</i>) [A179] Roseate Tern (<i>Sterna dougallii</i>) [A192] Common Tern (<i>Sterna hirundo</i>) [A193] Arctic Tern (<i>Sterna paradisaea</i>) [A194] Wetland and Waterbirds [A999] 	No. There is no risk of disturbance to Special Conservation Interest bird species given the distance between the proposed development and the European site.
Wicklow Mountains SPA (004040)	Located c. 8.5km south-west of the proposed development	<p>Generic Conservation Objectives (13/02/2015)</p> <p>Qualifying Interests:</p> <ul style="list-style-type: none"> Merlin (<i>Falco columbarius</i>) [A098] Peregrine (<i>Falco peregrinus</i>) [A103] 	No, due to the distance between the two sites.
North Bull Island SPA (004006)	Located c. 10.5km north of the proposed development	<p>Conservation Objectives Version 1.0 (09/03/2015)</p> <p>Qualifying Interests:</p> <ul style="list-style-type: none"> Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046] Shelduck (<i>Tadorna tadorna</i>) [A048] Teal (<i>Anas crecca</i>) [A052] 	No. There is no risk of disturbance to Special Conservation Interest bird species given the distance between the proposed development and the European site.

Table 2 Analysis of European sites within 15km.

		<ul style="list-style-type: none"> • Pintail (<i>Anas acuta</i>) [A054] • Shoveler (<i>Anas clypeata</i>) [A056] • Oystercatcher (<i>Haematopus ostralegus</i>) [A130] • Golden Plover (<i>Pluvialis apricaria</i>) [A140] • Grey Plover (<i>Pluvialis squatarola</i>) [A141] • Knot (<i>Calidris canutus</i>) [A143] • Sanderling (<i>Calidris alba</i>) [A144] • Dunlin (<i>Calidris alpina</i>) [A149] • Black-tailed Godwit (<i>Limosa limosa</i>) [A156] • Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157] • Curlew (<i>Numenius arquata</i>) [A160] • Redshank (<i>Tringa totanus</i>) [A162] • Turnstone (<i>Arenaria interpres</i>) [A169] • Black-headed Gull (<i>Chroicocephalus ridibundus</i>) [A179] • Wetland and Waterbirds [A999] 	
Howth Head Coast SPA (004113)	Located c. 13.7km north-east of the proposed development	<p>Generic Conservation Objectives (13/02/2015)</p> <p>Qualifying Interests:</p> <ul style="list-style-type: none"> • Kittiwake (<i>Rissa tridactyla</i>) [A188] 	No. There is no risk of disturbance to Special Conservation Interest bird species given the distance between the proposed development and the European site.

Table 3 Identification of likely significant effects

<p>Likely significant effects in isolation and combination with other plans and projects.</p>	<p><i>Existing habitat loss pressures</i></p> <p>The subject site does not physically overlap with any European sites. The site does not contain any habitats listed under Annex I of the Habitats Directive. These habitats are not indirectly connected with any habitats within European sites (e.g. by groundwater). No mobile fauna species for which European sites are designated are known to use the habitats within the subject lands. There is therefore no potential for effects relating to habitat loss.</p> <p><i>Existing pressures on water quality within European sites in proximity to the site</i></p> <p>Several intertidal habitats for which European Sites in Dublin Bay are designated are failing to meet favourable conservation status. For some of these, water pollution is considered to be a threat ranked as being of “high importance”⁹ (NPWS, 2013a).</p> <p><i>Pressures on European sites in Dublin Bay from surface waters</i></p> <p>There is potential for “in-combination” effects of proposed plans and projects within the <i>Dún Laoghaire-Rathdown County Development Plan 2010-2016, Fingal Development Plan 2011-2017, Dublin City Development Plan 2011-2017</i> and other county level land use plans which can influence conditions in Dublin Bay via rivers and other surface water features. Dublin Bay is of “Unpolluted” water quality status (EPA 2010) and the pollutant content of future surface water discharges to the Bay is considered likely to be decreased in the long-term. This is because it is an objective of the Greater Dublin Strategic Drainage Study, and all development plans within the Greater Dublin Area to include Sustainable Urban Drainage Systems (SUDs) in new development. Together these objectives are considered likely to reduce pressures on designated marine and intertidal species and habitats in Dublin Bay.</p> <p>It is considered extremely unlikely that during construction, a pollution event would occur of a magnitude that would have any adverse effects on water quality in Dublin Bay, or affect the Qualifying Interest/Special Conservation Interests of the European sites therein, due to standard best practice construction methodology and safe guards, the distance between the site, discharge point to Killiney Bay and marine water buffer to Dublin Bay and potential for dilution in the drainage network before entering Dublin Bay. There is therefore no potential for cumulative impacts.</p> <p><i>Pressures on European sites in Dublin Bay from effluent</i></p> <p>Although the proposed development will not directly result in foul water arisings, it will enable future development of the area that will connect to the foul sewer in the area. Foul water from the adjacent SDZ area will discharge to the Shanganagh WWTW located ca. 2km to the east. Any existing or proposed projects discharging to the plant have the potential to act cumulatively to reduce water quality in Killiney Bay and hence the wider Dublin Bay area, affecting European sites therein. However, the Shanganagh WWTW was upgraded as part of the Shanganagh Bray Wastewater Project and now has a design capacity of 186,000 Population Equivalent (P.E.1). Its current loading (taken from the 2015 Annual Environmental Report, the year for which the most up to date information is available) is given as 101,818 P.E. and the</p>
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⁹ For example, “tidal mudflats and sandflats” was of “Inadequate” conservation status. This habitat was threatened by water pollution and was a reason for designation of North Dublin Bay SAC, and South Dublin Bay SAC. Under ‘wetlands’, the habitat was also a Special Conservation Interest of the South Dublin Bay and River Tolka Estuary SPA, and North Dublin Bay SPA.

report states that it is not expected for this capacity to be exceeded before 2018. There is therefore no potential for cumulative impacts.

Conclusion for potential in-combination effects from surface and/or foul waters

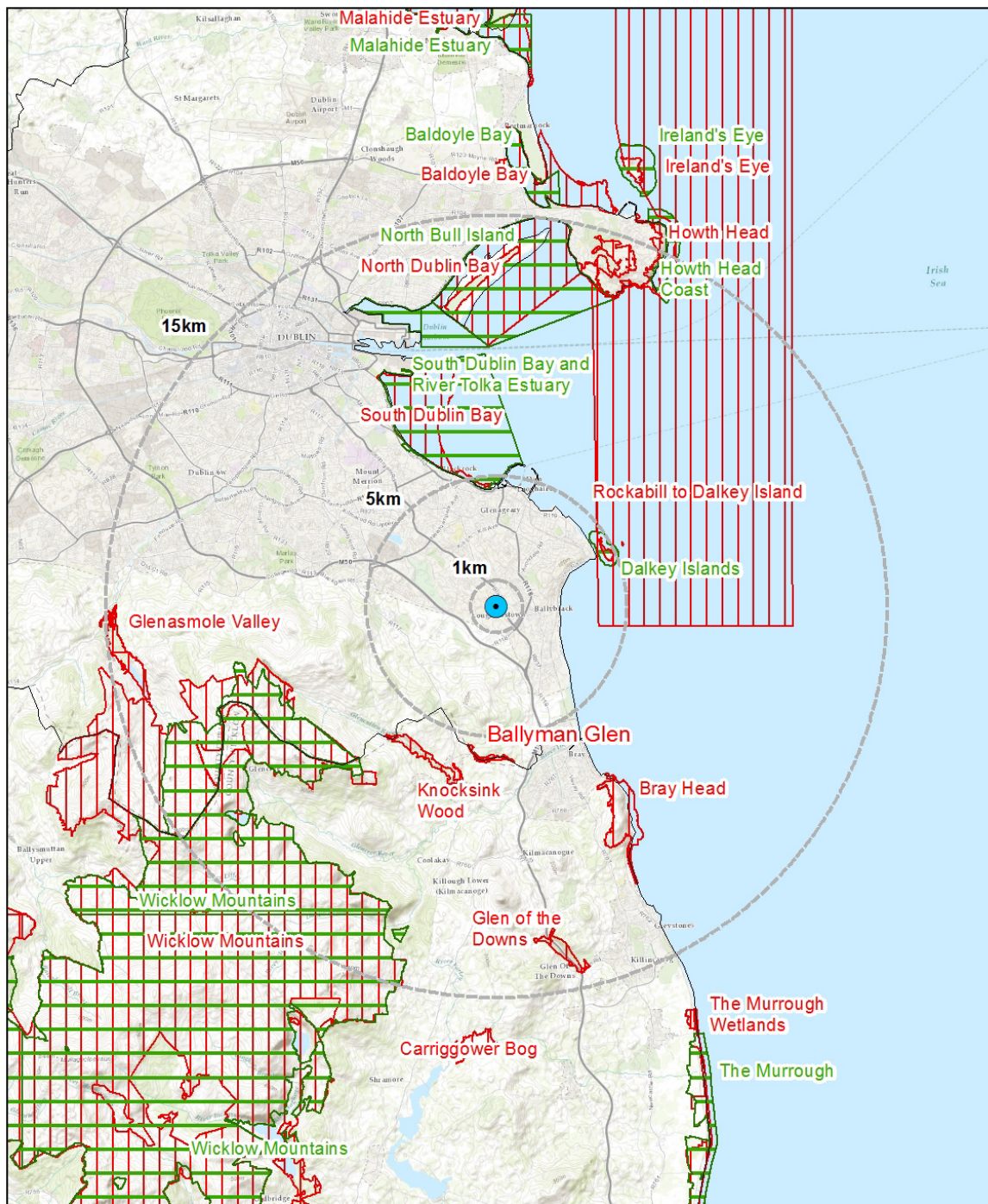
It is our professional opinion that there will be no likelihood for significant effects on any European sites, and there will be no adverse effects on European site integrity during the construction or operation of the proposed development in combination with other plans or projects.

This judgement was reached on the basis that:

- The coastal waters of Killiney Bay and the wider Dublin Bay area are classed as “Unpolluted” by the EPA;
- It is an objective of all development plans within the Greater Dublin Area to include Sustainable Urban Drainage Systems for all new development;
- It is extremely unlikely that during construction a pollution event would occur of a magnitude that would have an adverse effect on water quality in Dublin Bay;
- The upgraded Shanganagh WWTW has the capacity to cater for existing and all projected future catchment development flows.

European sites within 1km, 5km and 15km of the proposed development site are shown in Figure 1.

Figure 1. All European sites within 15km of the site



Drawing No: Figure 1: European sites within 15 km.			
Project Title: N11 Junction Q AA Screening			
Client: Dun-Laoghaire - Rathdown Co. Co.			
Project No.:	160135	Scale:	1:200,000 @ A4
Drawn:	CK	Approved:	PS
Rev. No.:	00	Date:	23/11/2016
<small>Scott Cawley Ltd. Suites 401 - 404, 127 Lower Bagin Street, Dublin 2, Ireland. Tel: + 353 1 676 9815 Fax: + 353 1 676 9816</small>			

Legend

- Proposed Development
- Special Area of Conservation (SAC)
- Special Protection Area (SPA)

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Projection: TM63 Irish Grid, Transverse Mercator.

3 Conclusions of the Screening Assessment

Following an analysis of the proposed development and potential relationships with European sites, it is our professional opinion that there will be no likelihood of significant effects on any European sites and no impacts to European site integrity, either alone or in combination with other plans or projects. Therefore, it is our view that an Appropriate Assessment is not required.

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APPENDIX 5.1

Compliance with Planning Scheme Objectives

Appendix 5.1 Compliance with Planning Scheme objectives

Planning Scheme Objective	Compliance of application with Objective
<p>GI 46</p> <p>To require the involvement of a suitably qualified Ecologist prior to and when undertaking ecologically sensitive, or ecologically related works or proposals e.g. ecological surveys, reports, proposals, site supervision.</p>	Compliant post-consent.
<p>GI 47</p> <p>To demonstrate that the development has regard to the principles of the 'Green City Guidelines' (UCD Urban Institute Ireland, 2008) and that green infrastructure is consistent with the provisions of the current County Council's Parks Biodiversity Policy.</p>	Compliant.
<p>GI 48</p> <p>To ensure that the development complies with the Cherrywood SDZ Biodiversity Plan.</p>	See below.
<p>GI 49</p> <p>Promote liaison with National Parks and Wildlife Service during the development design, construction, monitoring and management stages.</p>	Consultation with reference to the previous application was carried out.
<p>GI 50</p> <p>Require that any public lighting is minimised in areas within 30m of existing or proposed hedgerows, treelines, watercourses or woodland edges, specifically in areas that are important for bats such as along commuting routes and at foraging and roosting locations. In these locations, lighting shall be installed only where necessary for public safety, with directional illumination and to the minimum lux level consistent with this need.</p>	The lighting design along the road will be at bat-friendly levels at the margins of the road and is consistent with good practice design.
<p>GI 59</p> <p>Require the protection of existing hedgerows, treelines, woodland, scrub and other semi-natural habitats. Retention of habitats should take into account the environmental conditions required to maintain their condition (e.g. shading, drainage). In these areas, the applicant shall provide a</p>	A Habitat Management Plan has been provided and provides the required details as far as can be achieved within the proposed scheme.

Planning Scheme Objective	Compliance of application with Objective
<p>Habitat Management Plan detailing how this will be achieved.</p>	
<p>GI 65</p> <p>To require the use of native trees, shrubs and grasses in landscaping proposals and promote the re-use of existing topsoil and subsoils within landscaping plans in both public and private open space areas to allow the preservation of the native seed bank within landscaping schemes.</p>	<p>Compliant.</p>
<p>GI 68</p> <p>Require the effective control of invasive species within the Planning Scheme Area. In order to achieve this, landowners will be required to work with the Council to develop a strategic approach to controlling invasive species throughout these lands.</p>	<p>Control of Giant Hogweed is outside the area of the proposed scheme.</p>

APPENDIX 5.2

Criteria for Ecological Evaluation

Appendix 5.2 Criteria for Ecological Evaluation

Ecological Valuation Criteria
<p>International Importance:</p> <ul style="list-style-type: none">• ‘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.¹• 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)² of the following:<ul style="list-style-type: none">○ 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).³

¹ See Articles 3 and 10 of the Habitats Directive.

² It is suggested that, in general, 1% of the national population of such species qualifies as an internationally 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.

³ Note that such waters are designated based on these waters’ capabilities of supporting salmon (*Salmo salar*), trout (*Salmo trutta*), char (*Salvelinus*) and whitefish (*Coregonus*).

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)⁴ of the following:
 - Species protected under the Wildlife Acts; and/or
 - Species listed on the relevant Red Data list.
- Site containing 'viable areas'⁵ of the habitat types listed in Annex I of the Habitats Directive.

County Importance:

- Area of Special Amenity.⁶
- 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)⁷ 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.

⁴ It is suggested that, in general, 1% of the national population of such species qualifies as a nationally important population. However, a smaller population may qualify as nationally important where the population forms a critical part of a wider population or the species is at a critical phase of its life cycle.

⁵ 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).

⁶ 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.

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)⁸ 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;
- 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.

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.

⁷ It is suggested that, in general, 1% of the County population of such species qualifies as a County important population. However, a smaller population may qualify as County importance where the population forms a critical part of a wider population or the species is at a critical phase of its life cycle.

⁸ It is suggested that, in general, 1% of the local population of such species qualifies as a locally important population. However, a smaller population may qualify as locally important where the population forms a critical part of a wider population or the species is at a critical phase of its life cycle.

APPENDIX 5.3

Desk Study – Records of Rare, Protected and Notable Flora and Fauna

Appendix 5.3 Desk Study – Records of Rare, Protected And Notable Flora And Fauna

Records of Protected, Rare and other Notable Flora and Fauna Species ⁹ within 2km of the Site (Grid Square O22H)				
Common Name	Scientific Name	Protection ¹⁰	Red-Listing Status ¹¹	Nearest Location
Flora				
Red Hemp Nettle	<i>Galeopsis angustifolia</i>	FPO	Vulnerable	Ballycorus (1943)
Basil Thyme	<i>Clinopodium acinos</i> (<i>Acinos arvensis</i>)	FPO	Vulnerable	Tulla Church Yard
Lesser Snapdragon	<i>Misopates orontium</i>	FPO	Vulnerable	Monkstown and Glentanan House (1920)
Fauna				
Teal	<i>Anas crecca</i>	WA, BD II III	Amber listed on BoCCI (B+W)	Within 2km of the Proposed development (2011)
Wigeon	<i>Anas penelope</i>	WA, BD II III	Red listed on BoCCI (W)	Within 2km of the Proposed development (2011)
Mallard	<i>Anas platyrhynchos</i>	WA, BD II III	Green listed on BoCCI	Within 2km of the Proposed development (2011)
Common Swift	<i>Apus</i>	WA	Amber listed on BoCCI (B)	Within 2km of the Proposed development (2010)
Tufted Duck	<i>Aythya fuligula</i>	WA, BD II, III	Red listed on BoCCI (W)	Within 2km of the Proposed development (2010)
Greater Scaup	<i>Aythya marila</i>	WA, BD II III	Amber listed on BoCCI (W)	Within 2km of the Proposed development (2010)
Common Linnet	<i>Carduelis cannabina</i>	WA	Amber listed on BoCCI (B)	Within 2km of the Proposed development (2011)
Rock Pigeon	<i>Columba livia</i>	WA, BD II	Green listed on BoCCI	Within 2km of the Proposed development (2011)
Wood Pigeon	<i>Columba palumbus</i>	WA, BD II, III	Green listed on BoCCI	Within 2km of the Proposed development (2015)
House Martin	<i>Delichon urbicum</i>	WA	Amber listed on BoCCI (B)	Within 2km of the Proposed development (2011)
House Sparrow	<i>Passer domesticus</i>	WA	Amber listed on BoCCI (B)	Within 2km of the Proposed development (2011)
Common Kestrel	<i>Falco tinnunculus</i>	WA	Amber listed on BoCCI (B)	Within 2km of the Proposed development (2010)
Peregrine Falcon	<i>Falco peregrinus</i>	WA, BD I	Green listed on BoCCI	Within 2km of the Proposed development (2010)

⁹ Data from a combination of the following sources; NPWS Research Branch Records, www.npws.ie, Bat Conservation Ireland (BCI) and NBDC online maps <http://maps.biodiversityireland.ie> Data is quoted as obtained from these sources.

¹⁰ HDII/IV/V = Habitats Directive Annexes II/IV/V; FPO = Flora Protection Order; WA = Wildlife Acts; BD I = Birds Directive Annex I.

¹¹ Mammal Red-list from Marnell *et al.*, 2009. Birds from *Birds of Conservation Concern in Ireland 2014–2019* (Colhoun & Cummins, 2013); Vascular Flora from the Irish Red Data Book 1 Vascular Plants (Curtis & McGough 2005); Fish, Amphibians and Reptiles from (King *et al.*, 2011); Bryophytes Red List from Lockhart *et al.* 2012; Cetaceans conservation status from NPWS (2013b).

Little Egret	<i>Egretta garzetta</i>	WA, BD I	Green listed on BoCCI	Within 2km of the Proposed development (2015)
Common Coot	<i>Fulica atra</i>	WA, BD II, III	Amber listed on BoCCI (B+W)	Within 2km of the Proposed development (2011)
Oystercatcher	<i>Haematopus ostralegus</i>	WA	Amber listed on BoCCI (B+W)	Within 2km of the Proposed development (2011)
Barn Swallow	<i>Hirundo rustica</i>	WA	Amber listed on BoCCI (B)	Within 2km of the Proposed development (2010)
Herring Gull	<i>Larus argentatus</i>	WA	Red listed on BoCCI (B)	Within 2km of the Proposed development (2011)
Mew Gull	<i>Larus canus</i>	WA	Green listed on BoCCI	Within 2km of the Proposed development (2011)
Golden Plover	<i>Pluvialis apricaria</i>	WA, BD I II III	Red listed on BoCCI (B+W)	Within 2km of the Proposed development (2011)
Common Starling	<i>Sturnus vulgaris</i>	WA	Amber listed on BoCCI (B)	Within 2km of the Proposed development (2011)
Mediterranean Gull	<i>Larus melanocephalus</i>	WA, BD I	Amber listed on BoCCI (B)	Within 2km of the Proposed development (2011)
Black-headed Gull	<i>Larus ridibundus</i>	WA	Red Listed on BoCCI (B)	Within 2km of the Proposed development (2011)
Little Grebe	<i>Tachybaptus ruficollis</i>	WA	Amber listed on BoCCI (B+W)	Within 2km of the Proposed development (2011)
Common Redshank	<i>Tringa totanus</i>	WA	Red listed on BoCCI (B+W)	Within 2km of the Proposed development (2011)
Lapwing	<i>Vanellus</i>	WA, BD II	Red listed on BoCCI (B+W)	Within 2km of the Proposed development (2011)
European Hedgehog	<i>Erinaceus europaeus</i>	WA	Least Concern	Within 2km of the Proposed development (2013)
Otter	<i>Lutra</i>	WA, HD II, IV	Near Threatened	Within 2km of the Proposed development (1980)
Badger	<i>Meles</i>	WA	Least Concern	Within 2km of the Proposed development (2011)
Daubenton's Bat	<i>Myotis daubentonii</i>	WA, HD IV	Least Concern	Within 2km of the proposed development (2005)
Natterer's Bat	<i>Myotis nattereri</i>	WA, HD IV	Least Concern	Within 2km of the proposed development (2005)
Leisler's bat	<i>Nyctalus leisleri</i>	WA, HD IV	Vulnerable	Within 2km of the proposed development (2012)
Common Pipistrelle	<i>Pipistrellus</i>	WA, HD IV	Least Concern	Within 2km of the proposed development (2012)
Brown-long Eared	<i>Plecotus auritus</i>	WA, HD IV	Least Concern	Within 2km of the proposed development (2012)
Soprano Pipistrelle	<i>Pipistrellus pygmaeus</i>	WA, HD IV	Least Concern	Within 2km of the proposed development (2012)
Common Frog	<i>Rana temporaria</i>	WA, HD V	Least Concern	Within 2km of the Proposed development
Moss Carder- bee	<i>Bombus (Thoracombus) muscorum</i>	N/A	Near Threatened	Within 2km of the Proposed development (2004)
Small Heath	<i>Coenonympha pamphilus</i>	N/A	Near	Within 2km of the Proposed

			Threatened	development (2015)
Brown Rat	<i>Rattus norvegicus</i>	High Impact Invasive Species (2014)		
Grey Squirrel	<i>Sciurus carolinensis</i>	High Impact Invasive Species (2015)		
Traveller's Joy	<i>Clematis vitalba</i>	Medium Impact Invasive Species (1969)		
Hairy Rocket	<i>Erucastrum gallicum</i>	Medium Impact Invasive Species (1986)		
Nuttall's Waterweed	<i>Elodea nuttallii</i>	High Impact Invasive Species (2007)		
Giant Hogweed	<i>Heracleum mantegazzianum</i>	High Impact Invasive Species (1985)		

APPENDIX 5.4

Habitat Management Plan

Appendix 5.4 Habitat Management Plan

Introduction

This Habitat Management Plan (HMP) has been produced to support the planning application for the N11 Junction Q.,

Objective GI 50 of the Cherrywood Planning Scheme for the SDZ and Objective BP 03 of the Biodiversity Plan for the Cherrywood Planning Scheme require that a Habitat Management Plan be produced to support development applications. HMPs must detail how habitats will be retained, protected and managed. The HMP is in addition to, and should be read in conjunction with the mitigation measures outlined in the Ecological Impact Assessment and the Landscape Architect's Report for the proposed development.

The aim of the HMP is to ensure the retention, protection, maintenance and where possible, enhancement of the existing habitats on the site. The HMP focuses on habitats and species of conservation importance and potential construction/operational impacts.

Roles and Responsibilities

1. Project Co-ordinator (PC)
2. Site Manager (SM)
3. Project Ecologist (PE)
4. Landowners (LO)

The SM will inform the PC of any conflicts between the recommendations of the HMP and other site management issues. The PC will be responsible for resolving any conflict, in consultation with the relevant specialists. The primary responsibility of the PC is to ensure that the Site Manager and contractor comply with the environmental recommendations in this report.

In addition, the PC shall:

- Ensure the HMP is included in the Contractors contract;
- Ensure that the HMP is given to the Contractors and Site Manager;
- Ensure the Contractors are trained in accordance with the HMP requirements;
- Inform the Project Ecologist of the date of construction 2 weeks prior to commencing works.

The primary responsibility for the SM is to ensure that the HMP is implemented by the contractor. This includes implementation of any on-site mitigation measures and any revisions, additions, or amendments that may arise to the HMP during the course of the proposed development. The Site Manager shall also:

- Ensure compliance with the recommendations of the HMP during site inspections;
- Schedule meetings with the PC to discuss progress towards completing the HMP actions and involve the PE as necessary;
- Report and record any incidents resulting in damage to or destruction of habitats, and injury or death to fauna (including all badgers, bats, birds, otters)

The primary responsibilities of the PE will be to:

- Act as the primary on-site ecological contact for the PC and SM regarding implementation of the HMP;
- Ensure compliance with all recommendations of the HMP during regular site inspections;
- Request relevant records and documentation from the SM where necessary;
- Attend routine meetings with the SM;
- Keep detailed records of any ecological incidents and report these to the PC;
- Keep records of any variations to construction methods or design brief and modify HMP recommendations in consultation with PC;
- Produce the staged monitoring reports on flora and fauna as detailed in the section *Schedule of Reporting Requirements*. The PE will submit these to the PC. The PE will also act as overall technical advisor to the PC and PE regarding implementation of the HMP actions.

Relevant Habitats and Species to the HMP

The focus of this HMP is on those habitats and faunal species directly or indirectly affected by the development.

Habitats:

- Hedgerows and treelines
- Riparian Scrub

Faunal Species

- Badgers and Otters
- Breeding birds
- Bats
- Salmonids

Site Specific Actions

Actions have been categorised as follows:

1. *Habitats Relevant to HMP (Table 1)*

- Removal of trees at Kilbogget Park is required as part of the construction of the new site opening.
- Loss of breeding bird habitats.

2. *Faunal Species Relevant to HMP (Table 2)*

- Faunal species potentially impacted by the scheme are badgers, birds, and bats.

Specific targets have been assigned to each action objective. Where Targets are not reached, the Project Ecologist will report to the Project Co-ordinator who will assess the individual action and amend as necessary, or apply a new target. The Development Agency will be consulted regarding any changes to the HMP. The time period (construction/operation/decommissioning) to which each action applies is stated within each action objective. Where no period is stated, the action can be assumed to apply to the lifetime of the scheme.

Table 1 Objectives and Actions for Habitats Relevant to the HMP (Continued overleaf)

Table 1 Objectives and Actions for Habitats Relevant to the HMP					
Action	Habitat	Objective	Target	Responsible Personnel	Action
H1	Hedgerows and treelines	Avoid impacts to the integrity of the hedgerows/treelines to be retained during <u>construction</u> .	No damage to or loss of hedgerow/treelines to be retained and no reduction in quality or diversity compared to baseline	SM and PE	<ol style="list-style-type: none"> 1) Prior to commencement of any site clearance works, hedgerows/treelines to be retained should be fenced off, in accordance with the arborist's recommendations. 2) 3m buffer zone to be maintained around each hedgerow except at crossings including restrictions on cutting to a bi-annual frequency.
H2	Hedgerows and treelines	Offset hedgerow habitat loss.	Provision of replacement planting and new tree planting to offset habitat loss.	SM and PE	<ol style="list-style-type: none"> 3) Species and structure of the new tree planting to be planted are determined by the Landscape Architect's Plans and Report submitted alongside the application for Planning permission. 4) Planting should be as soon as possible to allow for growth but should not be put at risk of accidental damage due to machinery movement etc.

Table 2 Objectives and Actions for Faunal Species Relevant to the HMP

Table 2 Objectives and Actions for Faunal Species Relevant to the HMP					
Action Ref	Species	Objective	Target	Responsible Personnel	Action
S1	Badger/Otters	Avoid <u>construction</u> disturbance to badgers and otters.	No incidences of collision, entrapment or otherwise of badgers.	SM and PE	Measures to prevent collision with or entrapment of badgers and other wildlife such as hedgehogs are listed below: 1) No netting, wire, plastic or food waste to be left out on site that could ensnare wildlife. 2) Any excavation deeper than 600mm to be fitted with a timber ramp, wooden pallet or similar each night to provide means of escape. 3) Excavations to be checked every morning.
S2	Breeding Birds	Avoid mortalities of breeding bird populations.	No reports of infringements by SM/PE.	SM and PE	4) Set up clearly fenced exclusion zones around drip-line of hedges and treelines from 1st March -31st August. 5) Avoid groundworks & removal/trimming of any scrub, hedges and treelines from 1st March-31st August.
S4	Bats	Avoid light-induced disturbance.	Maintain bat activity around site perimeter.	SM and PE	6) Lighting controls during construction and operation in accordance with best practice.
		Replace loss of bat roosts	Replace bat roosts with network of bat boxes	SM and PE	7) Bat boxes (Type 1FD) to be erected on remaining trees immediately after felling.

Monitoring Requirements

To ensure that HMP actions are achieving the required objectives for each habitat and species, supervision and monitoring is required. Table 3 below lists the schedule of monitoring required for each habitat/species, the personnel responsible, the methodologies employed, and the reporting outputs produced.

Note: due to the lapse in carrying out of the baseline surveys, it is proposed to resurvey some of the parameters in 2016-17 to provide the baseline against which future monitoring results will be measured.

In accordance with Objective BP17 in the Biodiversity Plan for the SDZ, it is proposed to measure the richness and diversity of target species groups at 5-yearly intervals following commencement of development in the Planning Scheme lands. If further monitoring is required after this date, then the monitoring programme should be reviewed by the Project Co-ordinator in consultation with the Project Ecologist and the Development Agency to take into account the survey results.

If vegetation restoration fails to meet targets, then management action should be undertaken (see section 7 Variations). Further ecological advice and consultation will be required to determine the correct course of management action. Meetings will be scheduled between the Council, the Project Co-ordinator, and the Project Ecologist as required.

These monitoring requirements will apply to the lands described in this current application and this responsibility may be transferred to new operators or owners in the future as deemed appropriate. Other landowners in the area will be responsible for meeting the monitoring requirements for their own lands and it is expected that the Development Agency will coordinate the overall survey and reporting aspects of these requirements.

Table 3: Schedule of Monitoring Reports undertaken by Project Ecologist

Ref.	Monitoring Item	Personnel	Schedule	Methods	Outputs	Target
M1	Vegetation Health and recolonisation	Project Ecologist	<p><u>No pre-construction baseline required.</u></p> <p><u>Post-Construction:</u> - 1, 3, 5 years after completion.</p>	<p><u>NVC Phase 2¹² of 10 x 2m Quadrats:</u></p> <p>5 no. quadrats along grass verges in areas of wildflower recolonisation;</p> <p>5 no. beside attenuation ponds.</p>	<p>Report and Habitat Map of status of</p> <ol style="list-style-type: none"> 1. Quadrat GPS locations 2. NVC Attributes¹³ 3. Species Diversity Indices` 4. pH 	<p>Maintain baseline species richness and diversity established in 2010 EclA surveys.</p>
M2	Bat Activity	Project Ecologist	<p><u>Pre-Construction baseline required in summer 2016</u></p> <p><u>Post-Construction:</u> - 1, 3, 5 years after completion.</p>	<p>Bats in Druid's Glen, Bride's Glen and a transect following the line of the original Lehaunstown Lane.</p> <p>Indicator parameters will include bat activity index (bat recordings per hour), species distribution density and species diversity.</p>	<p>Report and Map of bat activity.</p>	<p>Maintain bat diversity, activity and flight paths</p>
M4	Badger	Project Ecologist	<p><u>Pre-Construction baseline required in winter 2016/7</u></p> <p><u>During Construction</u> Checks in March 2016.</p> <p><u>Post-Construction:</u> - 1, 3, 5 years after completion.</p>	<p>Record field signs of indicators of activity (e.g. bedding, latrine use, feeding, and excavation) will be recorded in the early spring when badgers are active.</p>	<p>Report on changes in activity levels.</p>	<p>Maintain activity levels and territories recorded in 2010.</p>

¹² National Vegetation Classification Phase 2 Survey (Rodwell, 2006) using quadrat data from baseline (see Appendix 2 Part 5)

¹³ Altitude, Slope, Aspect, Soil Depth, stand area, sample area, layers height and cover, geology

References

BSBI (2007). Checklist of the flora of Britain & Ireland. <http://www.bsbi.org.uk/html/database.html>. Accessed January 2009.

Hill M.O and Preston C. (2005). Downloadable checklist of British and Irish bryophytes, including English names.
<http://rbg-web2.rbge.org.uk/bbs/Resources/Downloads.htm>. Accessed January 2009

JNCC (2003) Handbook for Phase 1 Habitat Survey: Joint Nature Conservation Committee, Peterborough, UK.

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APPENDIX 6.1

Arboricultural Report

Appendix 6.1

Arboricultural Report

LAND PLANNING & DESIGN

CUNNANE STRATTON REYNOLDS

TREE SURVEY

N11 Junction Q,
DUBLIN.

November 2016

CUNNANE STRATTON REYNOLDS
LAND PLANNING & DESIGN
www.cslandplan.ie

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Summary

1. Introduction

2. Description of Site & Existing Trees

3. Arboricultural Impact Assessment

4. Recommendations – AMS

Limitations & References

Appendix 1: Tree Survey Schedule

SUMMARY

This report presents a record of those trees existing within or adjacent to the site area that may potentially be effected by a proposed development i.e. N11 Junction Q. Trees have been surveyed as individuals or tree groups in accordance with BS 5837 (2012). The survey was undertaken on 27th July 2016 by Cunnane Stratton Reynolds arborist;

Keith Mitchell Diploma Arboriculture (Level 4)
 Technician Member Arboricultural Association (UK)
 Tree Risk Assessment Qualification (International Society of Arboriculture)
 MA (Hons) Landscape Architecture
 Member of the Irish Landscape Institute
 Chartered Member of the Landscape Institute (UK)
 Diploma EIA Management

This survey and report are based on the Topographic Survey & Layout information contained in;

- Site Survey supplied by WS Atkins.

A full survey record is presented in Appendix 1, together with accompanying drawings Tree Survey Dwg No 16420_T_101 REV A, Constraints Dwg No 16420_T_102 REV A and Tree Removal & Protection Plan Dwg No 16420_T_103 REV A. After introducing the terms of reference and the methodology of the survey, the report summarises the survey findings in an overview of the existing tree cover within the site.

A total of twelve individual trees and four Tree Groups were recorded.

Where assessment takes the form of Tree / Woodland Group – trees of greatest significance within these groups are also identified. Every effort has been made to access all trees for inspection, however in some instances where site conditions preclude full access measurements may be visually estimated.

The report does not identify any 'Category U' trees - these are trees recommended for removal on management and safety grounds irrespective of any proposed development going ahead or not.

The removal of trees and scrub vegetation as part of a proposed development will present an opportunity to implement replacement tree planting both as part of a general landscape design scheme and also as part of a tree management program aimed at maintaining high quality diverse long-term amenity tree cover, in keeping with the setting and proposed site use.

This report concludes with recommendations for protection measures to ensure the conservation of retention trees during any development.

1. INTRODUCTION

Terms of Reference

Cunnane Stratton Reynolds (CSR) were instructed by ATKINS to conduct a tree survey of those trees potentially impacted by the proposed development.

CSR inspected and considered those tree and tree groups that might potentially be impacted and produced a subsequent tree survey report presenting our findings, (in accordance with BS 5837:2012), together with recommendations for their best practice management in relation to the proposed development.

This involved a survey of the principal trees / tree groups concerned recording salient information in accordance with BS 5837 (2012).

Documents supplied to CSR for purposes of conducting a tree survey include:

- Site Survey supplied by WS Atkins.
- Proposed Road Layout supplied by WS Atkins.

Site Inspection & Methodology

The site was surveyed on 27th July 2016 by a qualified Arborist. A visual inspection from the ground was performed on all existing trees / tree groups on site. Where access allowed, principal individual trees were examined establishing existing reference number tags, critical measurements then taken and observations made.

A description was recorded of each tagged tree / group of trees, their species, age class, all relevant measured dimensions (height, stem diameter, crown spread radii and crown clearance height) and an assessment of the tree health / vitality, structural form, life expectancy and quality categorisation. Any recommended remedial works required were outlined. Hedgerows and significant tree groups within/bounding the site are subject to group description and assessment, in accordance with BS 5837 (2012).

The findings of the survey are recorded and presented in this Tree Survey Report and Tree Schedule (Appendix 1).

This report is subject to the scope and limitations as given at the end of the report.

Accompanying Drawings

The tree survey report should be read in conjunction with;

- Tree Survey (Dwg No 16420/T/101 REV A).
- Constraints Drawing (Dwg No 16420/T/102 REV A).
- Tree Protection Plan (Dwg No 16420/T/103 REV A).

A1 size colour coded drawings which accompany this report, (monochrome drawings should not be relied upon). These drawings are based upon the topographical and layout plans supplied to CSR.

2. DESCRIPTION OF SITE AND EXISTING TREES

2.1 The site area is that identified in red in Figure 1 below on the existing N11 Bray Road adjacent to Kilbogget Park. A petrol service station and private residential properties are located along the boundaries, as well as Kilbogget Park.



Figure 1: Low resolution aerial photograph showing approximate extent of site area (courtesy of Bing Maps).

A total of twelve individual trees and four tree groups were inspected. Their location, size and quality category may be reviewed with reference to the accompanying Tree Survey Dwg No 16420/T/101 REV A and the tree survey (Appendix 1).

2.2 Photographic Summary of Trees Surveyed



TG1 (looking north)



TG1 (looking south)



TG2 (looking south)



TG5 (left) to T859 (right)



TG5

2.3 There are a number of trees located on the boundaries of the site area, to the west within the 'Silver Slopes' former residential property and to the east within Kilbogget Park.

The quality of trees along the western / 'Silver Slopes' boundary are of moderate to low quality. Whilst there are a number of trees of reasonable maturity and size, no high quality trees exist along the site boundary. A mix of species are present, predominantly deciduous but also a small number of coniferous trees interspersed.

The quality of trees located along the eastern / Kilbogget Park boundary can collectively be considered to be of moderate quality, though relatively immature. Deciduous species predominate with a small number of coniferous trees interspersed.

Very little management of the trees on the 'Silver Slopes' boundary appears to have occurred in the past, with any pruning that has occurred being quite unsympathetic. The high density of planting has caused a number of trees to 'bolt' in competition for light, resulting in relatively poor form. Works could be done to improve the remaining stock of trees such as the removal of ivy, weak tree growth, overcrowding regenerative growth, rubbing limbs, deadwood etc.

Trees located along the Kilbogget Park boundary are too young to have required much maintenance, however they are now at a stage whereby they would now benefit from selective thinning.

The tree cover present makes a substantial visual contribution to the surrounding landscape setting in addition to providing effective visual screening. Individually many of the trees are a low to moderate value, but collectively their value increases.

(Collectively the trees often become more 'valuable' than they might be when considered as individuals, a grouping or woodland within a suburban setting in particular being of significant visual and also ecological value. As such it should be noted that the cumulative value of tree groups often reflects an increased categorised value than might be awarded to the constituent trees if they were assessed in isolation as individuals).

3. ARBORICULTURAL IMPACT ASSESSMENT

3.1 This section discusses the potential impact of the proposed development on the existing tree cover within the site and considers the need for mitigation measures, in accordance with BS 5837 (2012), for sustainable development.

3.2 Category 'U' trees are recommended for immediate removal (felling) on general management grounds, irrespective of site development. No trees were assigned to category 'U'.

Direct Loss of Trees

3.3 It is not envisaged that the proposed development will result in the direct loss of any trees located along the western / 'Silver Slopes' boundary, (the existing boundary walls being undisturbed). The proposed development will result in some level of direct tree loss along the eastern / Kilbogget Park boundary due to a small set back of the existing boundary walls. The direct impact on existing trees are;

Tree Group 1 – loss of at least some of front row of closely spaced trees.

Tree Group 2 – loss of approximately twenty to thirty closely spaced trees at end of group.

Indirect Impacts

3.4 Cognisance must also be given to indirect impacts - in particular care must be taken to ensure the proposed development and ancillary works do not conflict with the calculated 'Root Protection Area' of the existing trees - as illustrated in Constraints Dwg No 16420/T/102 REV A.

Disturbance of 'Root Protection Area' may just as readily kill or destabilise a tree over time, by means of root damage/severance and or earth compaction/covering preventing essential transfer of water and air to roots.

It is not considered that any additional trees will require to be removed due to indirect impacts.

Additional Loss of Trees – Considerations

3.5 It is not considered that any additional trees will require to be removed based on their calculated root protection area (RPA) in relation to the proposed development.

Summary of Trees to be Removed

3.6 A number of relatively immature trees require to be removed along the sites eastern / Kilbogget Park boundary to facilitate the proposed development. The Tree Protection Plan (Dwg No 16420_T_103 REV A) illustrates in detail those proposed for removal.

There are two main locations of conflict between the proposed development and existing trees;

Tree Group 1 – loss of at least some of front row of closely spaced trees.

Tree Group 2 – loss of approximately twenty to thirty closely spaced trees at end of group.

Tree Protection

3.7 Adequate protection and so successful retention of those trees to be retained within the land take area, (including those not individually surveyed), will be achieved by rigidly excluding all construction activities from tree root protection areas by fit for purpose barriers/fencing and/or additional ground protection.

3.8 Tree Protection Areas (TPAs) are proposed, as indicated on accompanying Tree Protection & Removal Plan (Dwg No 16420_T_103 REV A). Protective fence line locations and details for these areas are indicated on the plan.

Services

3.9 Any underground services that are planned as part of this project must also avoid designated 'Root Protection Area' of tree / tree groups for retention.

4. RECOMMENDATIONS – Arboricultural Method Statement

Recommendations for the specific measures advised regarding management of the trees in relation to this development are detailed within Appendix 1. These recommendations should inform, and be referred to in, the method statements submitted for approval prior to commencement by the responsible building/engineering and landscape contractors whose works (subject to grant of permission) will affect retained trees and the Tree Protection Areas.

1. Tree Works.

Subject to the required permissions removal / felling works as illustrated on Tree Protection & Removal Plan (Dwg No No16420_T_103 REV A), should be performed prior to project commencement, by reputable contractors in accordance with BS 3998:2010 and current best practice. Removal of scrub vegetation and ivy clearance on retained trees should preferably be performed in winter outside of the bird nesting season. Tree felling should be preceded by a competent assessment as to the presence of any protected wildlife species, where required specialist advice should be sought if necessary.

2. Protective Fencing.

Following above permitted, priority tree works, protective fencing (barriers) should be erected in the positions and alignments as indicated on the Tree Protection & Removal Plan (Dwg No No16420_T_103 REV A). Fencing should be in accordance with BS 5837:2012 unless otherwise agreed with the planning authority. Commencement of development should not be permitted without adequate protective fencing being in place. This fencing, enclosing the minimum tree protection areas indicated, must be installed prior to any plant, vehicle or machinery access on site. Fencing should be signed 'Tree Protection Area – No Construction Access'. Fencing is not to be taken down or re-positioned without written approval of the project Arborist. No excavation, plant or vehicle movement, materials handling or soil storage is to be permitted within the fenced tree protection areas indicated on plan.

3. Boundary Treatments

Landscape works and installation of / work to boundary treatments within the Root Protection Area should be undertaken to a specification and method statement in accordance with BS 5837: 2012 - submitted for approval prior to commencement of works, under the supervision of an Arborist and / or Landscape Architect.

Additional Recommendations

4. Landscaping

Proposed landscaping works including new planting, shall be performed in accordance with BS 5837:2012. During these works, the ground around retained trees must not be compacted by vehicles, nor be mechanically excavated for planting, nor be significantly altered in terms of ground levels.

5. Monitoring & Compliance

As indicated above and on accompanying Tree Protection & Removal Plan (Dwg No 16420_T_103 REV A), a number of potentially critical future works in proximity to retained trees are advised to be undertaken in accordance with approved method statements and under direct supervision by a qualified consultant Arborist. Therefore, during the development, it is recommended that a professionally qualified Arborist be retained as required by the principal contractor or developer to monitor and advise on any works within the RPA of retained trees to ensure successful tree retention and planning compliance.

It is advised that tree protection fencing, any required special engineering and supervision works etc must be included / itemised in the main contractor tender document, including responsibility for the installation, costs and maintenance of tree protection measures throughout all construction phases.

Copies of the Tree Survey and all accompanying drawings, a copy of BS 5837:2012 and NJUG 4 (2007) '*Guidelines for the planning, installation and maintenance of utility apparatus in proximity to trees*' should all be kept available on site by the contractor during development. All works are to be in accordance with these documents.

It is advised that all retained trees be subject to expert re-inspection within 12 months and/or prior to completion of development and public occupancy/access of the site.

Limitations and Scope of this Survey Report

This report covers only those trees individually inspected, (shown on the 'Tree Survey Drawings' and described in the 'Schedule'), and reflects the condition of those trees at the time of inspection. Inspection is limited to visual examination of the subject trees from the ground without; test boring, use of tomographic equipment, dissection, probing, coring, ivy removal or excavation to establish structural integrity.

The trees were not climbed and dimensions are approximate, but considered a reasonable reflection of the trees measurements. This survey can only therefore be regarded as a preliminary assessment.

There is no warranty or guarantee, expressed or implied, that problems or deficiencies of the subject trees may not arise in the future. The currency of this survey report and its recommendations is one year from date of inspection.

The accompanying drawings are illustrative and based on the land (topographical) survey supplied; CSR Ltd accept no legal liability or responsibility for any errors in the information contained in the supplied drawings.

CSR Ltd accept no responsibility for the performance of trees subject to pruning or other site works (including construction activities) not performed in strict accordance with recommendations as specified in this report and/or in accordance with BS 3998:2010 and BS 5837:2012

All retained trees mentioned in this report should be subject to expert re-inspection within 12 months and prior to completion of development works and public occupancy of the site.

This report was produced as a part of a planning application for the proposed development; the author accepts no responsibility or liability for actions taken by reason of this report by the client or their agents unless subsequent contractual arrangements are agreed. Public disclosure or submission of any part of this report without title, or permission from the author, renders this report invalid and legally inadmissible.

References/Bibliography

BS 5837 (2012). *Trees in Relation to Design, Demolition and Construction - Recommendations*. British Standards Institution. TSO, London.

BS 3998 (2010) *Tree Work - Recommendations*. British Standards Institution. TSO, London.

NJUG 4 (2007) *Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees (Issue 2)*. National Joint Utilities Group.

APPENDIX 1

TREE SURVEY KEY

Information in the attached schedule is given under the following headings:

Tree No.

Individual trees have been numbered and tagged on site with corresponding survey tag or treated as a group where appropriate (e.g. Woodlands/hedgerows) and illustrated on accompanying tree survey drawing.

Species

Common & Latin names of species are provided

Height

Overall estimated height given in meters (measured using Truplus 200 Laser Rangefinder).

Stem Diameter

The diameter of the main trunk taken at a height of 1.5m on a single stem tree, or, on each branch of multi-stemmed (MS) trees.

Crown Spread

The largest radius of branch spread is provided in meters for North / East / South and West directions.

Height of lowest branch

The distance between ground level and first significant branch or canopy (and direction of growth) given in meters (m).

Any measurement or dimension that has been estimated (for offsite or otherwise inaccessible trees where accurate data cannot be recovered) is identified by the suffix #.

Life stage

The tree's age is defined as:

Y = Young, in first third of life (tree which has been planted in the last 10 years or is less than 1/3 the expected height of the species in question).

MA = Middle Age, in second third of life (tree, which is between a 1/3 and 2/3's the expected height of the species in question).

M = Mature, in final third of life (tree that has reached the expected height of the species in question, but still increasing in size).

OM = Over mature (tree at the end of its life cycle and the crown is starting to break up and decrease in size).

V = Veteran Tree (exceptionally old tree).

Physiological Condition

The tree's physiological condition is defined as:

Good - Good vitality: normal bud growth, leaf size, crown density and wound closure

Fair - Average to below average vitality: reduced bud growth, smaller leaf size, lower crown density and reduced wound closure

Poor - Low vitality: limited bud growth, small chlorotic leaves, sparse crown, poor wound closure

Dead - No longer living.

Structural Condition

The trees structural condition is defined as:

Good - No major structural defects observed (possibly some minor defects)

Fair - Minor defects present, (such as bark wounds, isolated decay pockets or structure affected due to overcrowding), that could be alleviated by tree surgery/management

Poor - Major structural defects present such as extensive deadwood, decay or defective to the point of being dangerous. (Significant defects are noted e.g. decay, collapsing etc).

Preliminary Management Recommendations & Timescale

Recommendations actions based on limitations of survey – (may include further investigation and or assessment of suspected defects by means and or methods not undertaken / within the remit of this survey).

Estimated Remaining contribution (Years)

Life of the tree is given as;

- 10 < less than 10 years remaining
- 10 + in excess of 10 years remaining
- 20 + in excess of 20 years remaining
- 40 + in excess of 40 years remaining

Tree Quality Assessment Category

U Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years.

- Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other category U trees (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning)
- Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline
- Trees infected with pathogens of significance to the health and/or safety of other trees nearby, or very low quality trees suppressing adjacent trees of better quality

(NOTE: Category U trees can have existing or potential conservation value which it might be desirable to preserve).

A High quality

Trees of high quality with an estimated remaining life expectancy of at least 40 years

A1 Trees that are particularly good examples of their species, especially if rare or unusual; or those that are essential components of groups or formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)

A2 Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features

A3 Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)

B Moderate quality

Those trees of moderate quality with an estimated remaining life expectancy of at least 20 years.

B1 Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remediable defects, including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the category A designation.

B2 Trees present in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collectives but situated so as to make little visual contribution to the wider locality.

B3 Trees with material conservation or other cultural value

C Low quality

Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm.

C1 Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories.

C2 Trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value; and/or trees offering low or only temporary/transient landscape benefits.

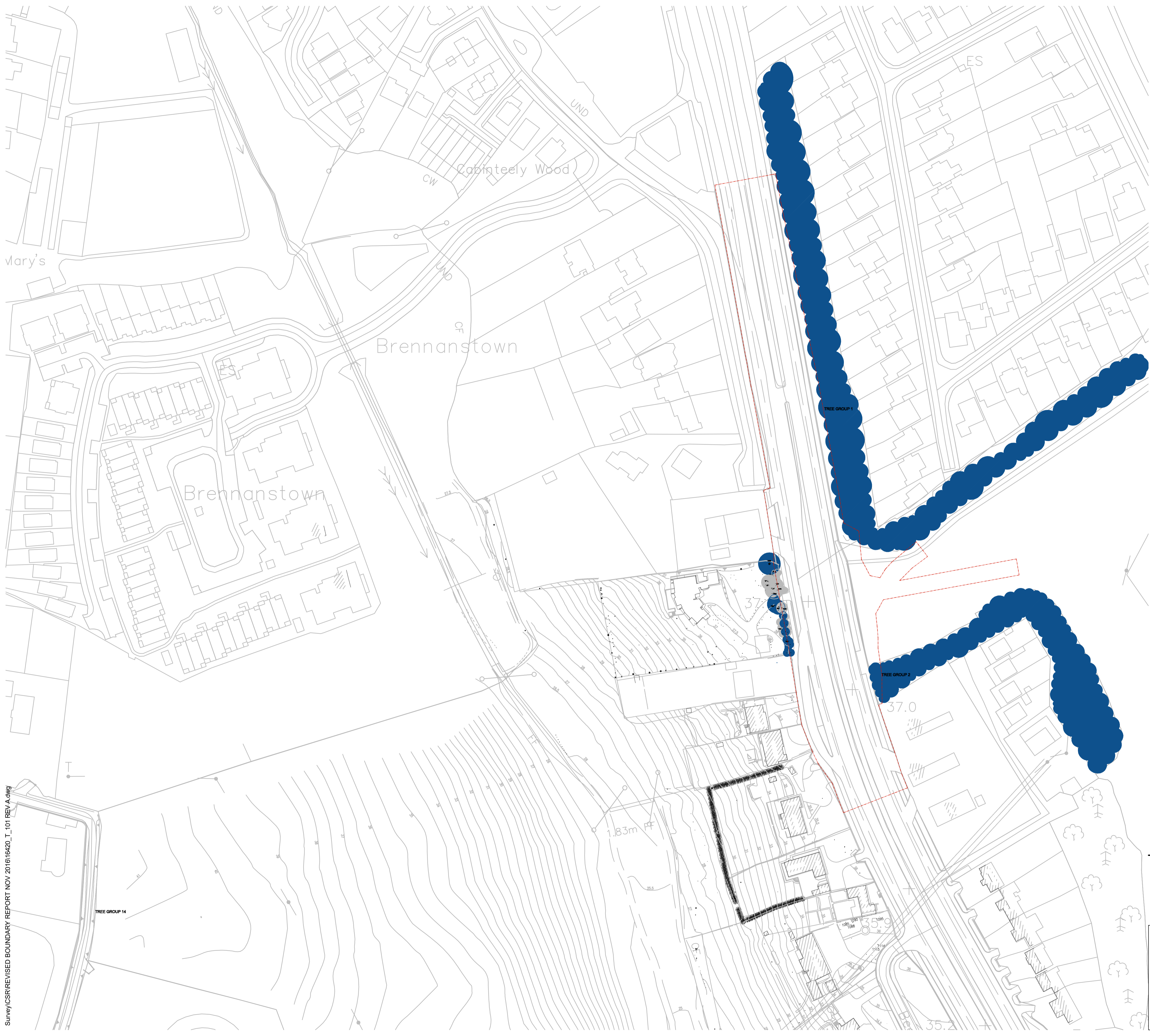
C3 Trees with no material conservation or other cultural value

Tree No.	Species	Ht (m)	Crown spread (m)	Trunk Dia @1.5m (mm) RPA circle radius (m) RPA sqm	Ht of lowest branch (m) & direction of growth	Life stage (years)	Estimated remaining contribution (years)	General observations P – Physiological condition S – Structural condition	Preliminary management recommendations	Category of retention + sub-category
Tree Group 1	Acer pseudoplatanus Alnus glutinosa Crataegus monogyna Fraxinus excelsior Prunus laurocerasus Sorbus aucuparia	Average 10m	N S W E	Average 175mm		Y	40+	P – Good S – Good	Thinning to facilitate optimal development	B2
Tree Group 2	Acer pseudoplatanus Betula pendula Fagus sylvatica Crtaegus monogyna Fraxinus excelsior Pinus sylvestris	Average 10m	N S W E	Average 175mm		Y	40+	P – Good S – Good	Thinning to facilitate optimal development	B2
859	Cupressus macrocarpa	16m	N #6m S #6m W #6m E #6m	280mm 720mm 830mm 730mm 15m 707sqm	4m (W)	M	20+	P – Fair S – Good		B1
871	Acer pseudoplatanus	#13m	N 3m S 3m W 1m E 3m	310mm 3.7m 44sqm	2m (N/S)	MA	40+	P – Good S - Fair		C1
872	Aesculus hippocastanum	#9m	N 2m S 1m W 1m E 3m	250mm 3m 28sqm	2m (E)	MA	20+	P – Fair S – Fair		C1


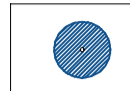
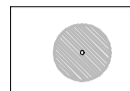
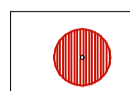
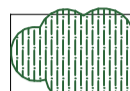
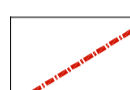
Tree No.	Species	Ht (m)	Crown spread (m)	Trunk Dia @1.5m (mm) RPA circle radius (m) RPA sqm	Ht of lowest branch (m) & direction of growth	Life stage (years)	Estimated remaining contribution (years)	General observations P – Physiological condition S – Structural condition	Preliminary management recommendations	Category of retention + sub-category
875	Fagus sylvatica	#9m	N #2m S #2m W #2m E #2m	180mm 2.2m 15sqm	3m (all)	Y	40+	P – Fair S – Fair Canker on trunk		C1
876	Fagus sylvatica	#11m	N #4m S #4m W #4m E #4m	330mm 4m 49sqm	3m (all)	MA	20+	P – Fair S – Fair Decay cavity NW @ 1.5m		C1
877	Fagus sylvatica	#14m	N #4m S #4m W #4m E #4m	440mm 5.3m 88sqm	4m (E)	MA	10+	P – Fair S – Fair	Remove Ivy Remove dead upper limb	C1
878	Pinus sylvestris	#14m	N 2m S 2m W 1m E 6m	300mm 3.6 41sqm	9m (all)	MA	10+	P – Poor S – Fair	Remove Ivy	C1
879	Acer pseudoplatanus	#14m	N #5m S #5m W #5m E #5m	370mm 4.4m 62sqm	1.5m (E)	MA	20+	P – Fair S – Fair	Remove Ivy	C1

Tree No.	Species	Ht (m)	Crown spread (m)	Trunk Dia @1.5m (mm) RPA circle radius (m) RPA sqm	Ht of lowest branch (m) & direction of growth	Life stage (years)	Estimated remaining contribution (years)	General observations P – Physiological condition S – Structural condition	Preliminary management recommendations	Category of retention + sub-category
880	Pinus sylvestris	#16m	N 2m S 2m W 2m E 3m	390mm 4.7m 69sqm		MA	20+	P – Fair S – Fair Heavy lean east.	Remove Ivy	C1
883	Pinus nigra	#15m	N #6m S #4m W #4m E #3m	590mm 7.1m 158sqm	6m (all)	MA	20+	P – Good S – Fair	Remove Ivy	B1
884	Pinus nigra	#16m	N 4m S 6m W 5m E 4m	670mm 440mm 9.6m 290sqm	8m (S)	MA	20+	P – Fair S – Fair	Remove Ivy	B1
885	Acer pseudoplatanus	#10m	N #3m S #3m W #3m E #3m	550mm 6.6m 137sqm	2m (all)	MA	20+	P – Fair S – Fair Decay cavity @ 2m (W)		C1
Tree Group 4	Pinus sylvestris	#13m	N #2m S #2m W #2m E #2m	Average 270mm 3.2m		MA	20+	P – Fair S – Fair Poor form due to overcrowding	Remove Ivy	C2

Tree No.	Species	Ht (m)	Crown spread (m)	Trunk Dia @1.5m (mm) RPA circle radius (m) RPA sqm	Ht of lowest branch (m) & direction of growth	Life stage (years)	Estimated remaining contribution (years)	General observations P – Physiological condition S – Structural condition	Preliminary management recommendations	Category of retention + sub-category
Tree Group 5	Acer psuedoplatanus Aesculus hippocastanum Fagus sylvatica Pinus sylvestris	8-12m	N #2m S #2m W #2m E #2m	Average 300mm 3.6m		MA	20+	P – Fair S – Fair Poor form due to overcrowding	Remove Ivy	B2



LEGEND

-  CLASS A INDIVIDUAL TREE
(HIGH QUALITY - RETENTION HIGHLY DESIRABLE)
-  CLASS B INDIVIDUAL TREE
(MODERATE QUALITY - RETENTION DESIRABLE)
-  CLASS C INDIVIDUAL TREE
(LOW QUALITY - RETENTION OPTIONAL)
-  CLASS U INDIVIDUAL TREE
(RECOMMEND REMOVAL)
-  EXISTING SCRUB VEGETATION
-  SITE BOUNDARY

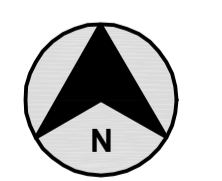
NOTE:
THIS DRAWING IS PRODUCED IN COLOUR,
MONOCHROME VERSIONS SHALL NOT BE
RELIED UPON.

Survey\CS\REVISED BOUNDARY REPORT NOV 2016\16420_T_101 REV A.dwg

REV	DATE	AMENDMENT
A	18.11.16	Site Boundary

**CUNNANE STRATTON REYNOLDS
LAND PLANNING & DESIGN**


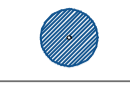
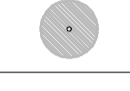
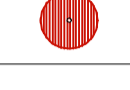
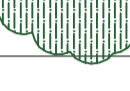
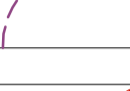

GALWAY OFFICE
ARDACONG, BALLYTRASNA, TUAM, CO GALWAY
TEL: 093 60854
EMAIL: galwayinfo@csrlandplan.ie
www.csrlandplan.ie



PROJECT: N11 DRUIDS GLEN ROAD	DATE: JULY 2016
DRAWING: TREE SURVEY	SCALE: 1:100C
	DRAWN: KM CHECKED: KM
	DRAWING NO: 16420_T_101



LEGEND

-  CLASS A INDIVIDUAL TREE (HIGH QUALITY - RETENTION HIGHLY DESIRABLE)
-  CLASS B INDIVIDUAL TREE (MODERATE QUALITY - RETENTION DESIRABLE)
-  CLASS C INDIVIDUAL TREE (LOW QUALITY - RETENTION OPTIONAL)
-  CLASS U INDIVIDUAL TREE (RECOMMEND REMOVAL)
-  EXISTING SCRUB VEGETATION
-  CALCULATED ROOT PROTECTION AREA
-  SITE BOUNDARY

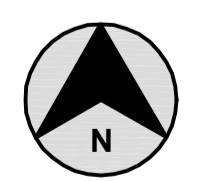
NOTE:

THIS DRAWING IS PRODUCED IN COLOUR, MONOCHROME VERSIONS SHALL NOT BE RELIED UPON.

REV	DATE	AMENDMENT
A	18.11.16	Site Boundary

**CUNNANE STRATTON REYNOLDS
LAND PLANNING & DESIGN**


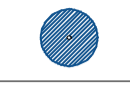
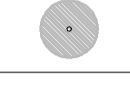
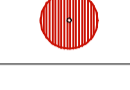
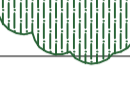
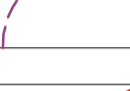

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PROJECT: N11 DRUIDS GLEN ROAD	DATE:	JULY 2016
DRAWING: TREE SURVEY - CONSTRAINTS	SCALE:	1:100C
	DRAWN: CHECKED:	KM KM
	DRAWING NO:	16420_T_102



LEGEND

-  CLASS A INDIVIDUAL TREE (HIGH QUALITY - RETENTION HIGHLY DESIRABLE)
-  CLASS B INDIVIDUAL TREE (MODERATE QUALITY - RETENTION DESIRABLE)
-  CLASS C INDIVIDUAL TREE (LOW QUALITY - RETENTION OPTIONAL)
-  CLASS U INDIVIDUAL TREE (RECOMMEND REMOVAL)
-  EXISTING SCRUB VEGETATION
-  CALCULATED ROOT PROTECTION AREA
-  SITE BOUNDARY

NOTE:

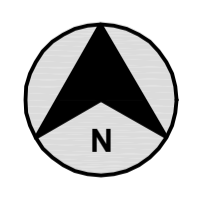
THIS DRAWING IS PRODUCED IN COLOUR, MONOCHROME VERSIONS SHALL NOT BE RELIED UPON.

Survey\CSR\REVISED BOUNDARY REPORT NOV 2016\16420_T_102 REV/Amw/g

REV	DATE	AMENDMENT
A	18.11.16	Site Boundary

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www.csrlandplan.ie



PROJECT: N11 DRUIDS GLEN ROAD	DATE: JULY 2016
DRAWING: TREE SURVEY - CONSTRAINTS	SCALE: 1:250
	DRAWN: KM CHECKED: KM
	DRAWING NO: 16420_T_102

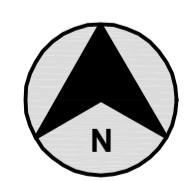


Survey\CS\REVISED BOUNDARY REPORT NOV 2016\16420_T_103 REV A.dwg

REV	DATE	AMENDMENT
A	18.11.16	Site Boundary

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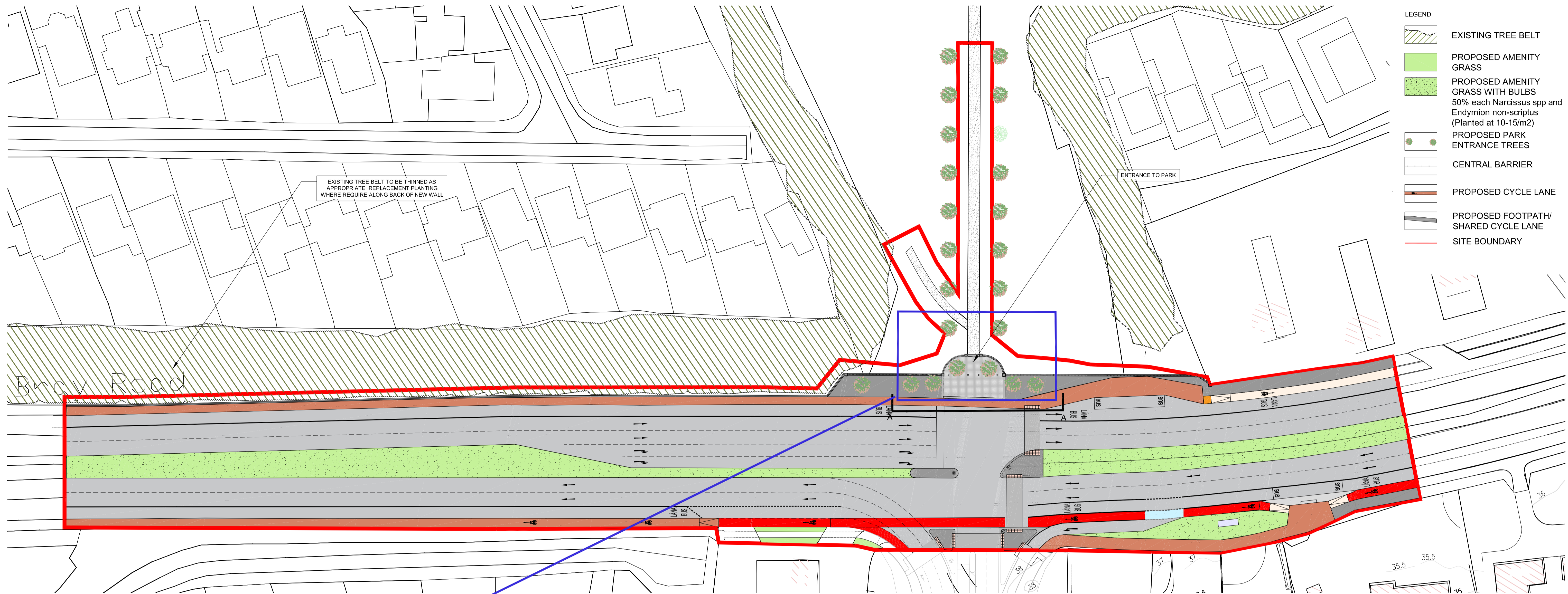
PROJECT: N11 DRUIDS GLEN ROAD	DATE: JULY 2016
DRAWING: TREE SURVEY - TREE REMOVAL & PROTECTION	SCALE: 1:100C
	DRAWN: KM
	CHECKED: KM
	DRAWING NO: 16420_T_103

APPENDIX 6.2

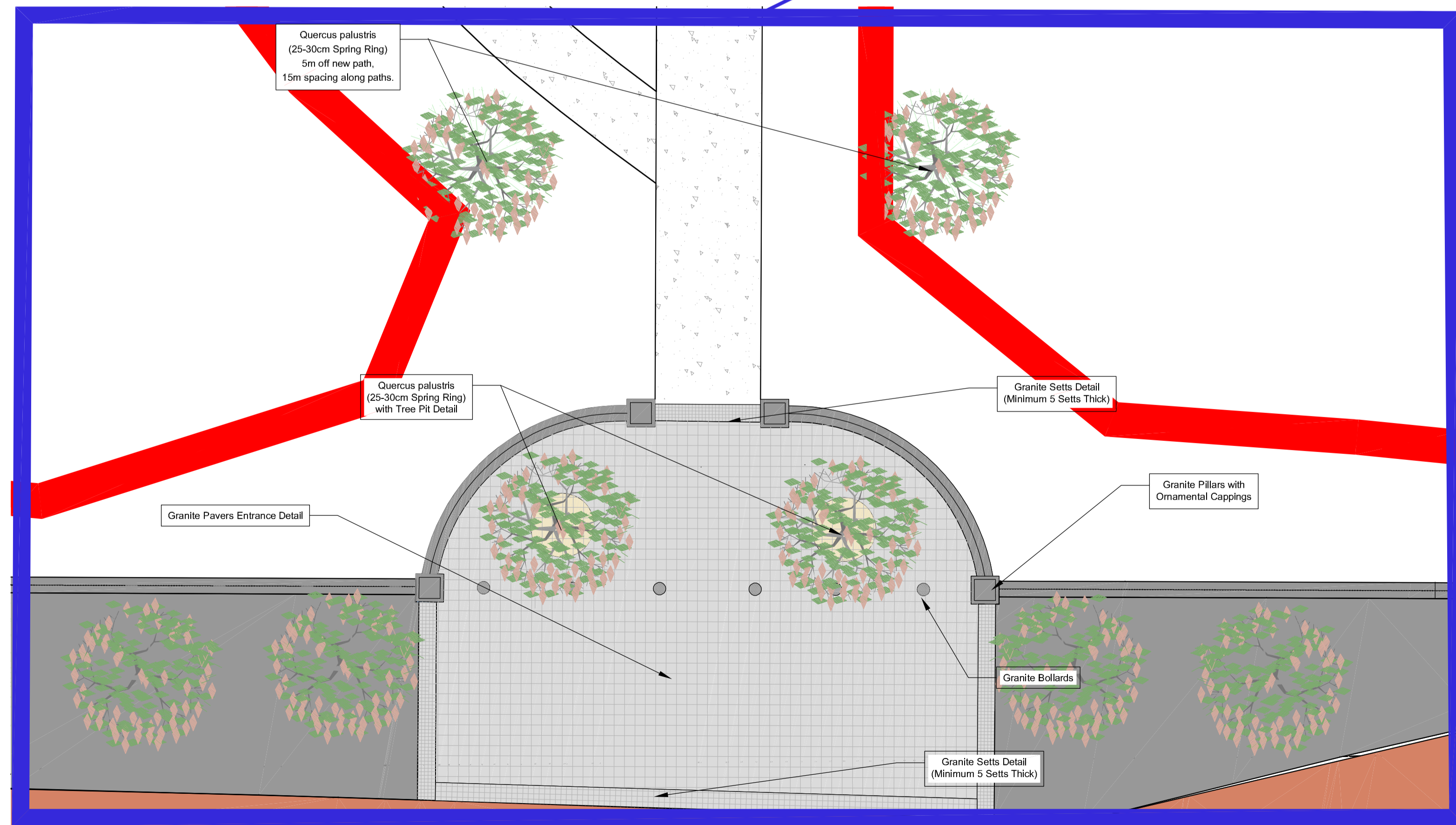
Landscape Mitigation Plan

Appendix 6.2

Landscape Mitigation Plan



PLAN
1:500 @ A1



PLAN - Kibbogget Park entrance
1:100 @ A1



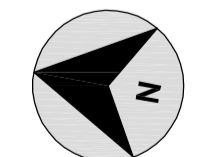
ELEVATION - Kibbogget Park entrance
1:100 @ A1

- LEGEND
- EXISTING TREE BELT
 - PROPOSED AMENITY GRASS
 - PROPOSED AMENITY GRASS WITH BULBS 50% each Narcissus spp and Endymion non-scriptus (Planted at 10-15/m2)
 - PROPOSED PARK ENTRANCE TREES
 - CENTRAL BARRIER
 - PROPOSED CYCLE LANE
 - PROPOSED FOOTPATH/ SHARED CYCLE LANE
 - SITE BOUNDARY

REV	DATE	AMENDMENT
E	23/11/2016	Red Line Boundary
D	19/10/2016	Attenuation basins moved
C	13/10/2016	Attenuation basins, bridge elevation, granite setts, park entrance trees, bollards spacing, retained tree belt extended
B	22/9/2016	Green Infrastructure Zone
A	13/9/2016	Linear Trench Detail & Text

CUNNANE STRATTON REYNOLDS
LAND PLANNING & DESIGN

DUBLIN OFFICE
3 MOLESWORTH PLACE DUBLIN 2
TEL 01 661 0419 FAX 01 661 0431
EMAIL info@csrlandplan.ie



PROJECT: N11 DRUID'S GLEN RD, CO DUBLIN	DATE: OCTOBER 2016
DRAWING: LANDSCAPE MITIGATION PLAN	SCALE: VARIES
	DRAWN: CHECKED: FC/DM RB/DOL
	DRAWING NO: 16420-2-101

APPENDIX 8.1

Air Quality and Climate

Appendix 8.1 Air Quality & Climate Appendices

Standards

National standards for ambient air pollutants in Ireland have generally ensued from Council Directives enacted in the EU (& previously the EC & EEC). The initial interest in ambient air pollution legislation in the EU dates from the early 1980s and was in response to the most serious pollutant problems at that time. In response to the problem of acid rain, sulphur dioxide, and later nitrogen dioxide, were both the focus of EU legislation. Linked to the acid rain problem was urban smog associated with fuel burning for space heating purposes. Also apparent at this time were the problems caused by leaded petrol and EU legislation was introduced to deal with this problem in the early 1980s.

In recent years the EU has focused on defining a basis strategy across the EU in relation to ambient air quality. In 1996, a Framework Directive, Council Directive 96/62/EC, on ambient air quality assessment and management was enacted. The aims of the Directive are fourfold. Firstly, the Directive's aim is to establish objectives for ambient air quality designed to avoid harmful effects to health. Secondly, the Directive aims to assess ambient air quality on the basis of common methods and criteria throughout the EU. Additionally, it is aimed to make information on air quality available to the public via alert thresholds and fourthly, it aims to maintain air quality where it is good and improve it in other cases.

As part of these measures to improve air quality, the European Commission has adopted proposals for daughter legislation under Directive 96/62/EC. The first of these directives to be enacted, Council Directive 1999/30/EC, was passed into Irish Law as S.I. No 271 of 2002 (Air Quality Standards Regulations 2002), and has set limit values which came into operation on 17th June 2002. The Air Quality Standards Regulations 2002 detail margins of tolerance, which are trigger levels for certain types of action in the period leading to the attainment date. The margin of tolerance varies from 60% for lead, to 30% for 24-hour limit value for PM₁₀, 40% for the hourly and annual limit value for NO₂ and 26% for hourly SO₂ limit values. The margin of tolerance commenced from June 2002, and started to reduce from 1 January 2003 and does so every 12 months by equal annual percentages to reach 0% by the attainment date. A second daughter directive, EU Council Directive 2000/69/EC, details limit values for both carbon monoxide and benzene in ambient air. This has also been passed into Irish Law under the Air Quality Standards Regulations 2002.

The most recent EU Council Directive on ambient air quality was published on the 11/06/08. Council Directive 2008/50/EC combines the previous Air Quality Framework Directive and its subsequent daughter directives. This has also been passed into Irish Law under the Air Quality Standards Regulations 2011 (S.I. 180 of 2011). Provisions were also made for the inclusion of new ambient limit values relating to PM_{2.5}. In regards to existing ambient air quality standards, it is not proposed to modify the standards but to strengthen existing provisions to ensure that non-compliances are removed. In addition, new ambient standards for PM_{2.5} are included in Directive 2008/50/EC. The approach for PM_{2.5} is to establish a target value of 25 µg/m³, as an annual average (to be attained everywhere by 2010) and a limit value of 25 µg/m³, as an annual average (to be attained everywhere by 2018), coupled with a target to reduce human exposure generally to PM_{2.5} between 2010 and 2020. This exposure reduction target will range from 0% (for PM_{2.5} concentrations of less than 8.5 µg/m³) to 20% of the average exposure indicator for concentrations of between 18 - 22 µg/m³. Where the Average Exposure Indicator is currently greater than 22 µg/m³ all appropriate measures should be employed to reduce this level to 18 µg/m³ by 2020. The average exposure indicator is based on measurements taken in urban background locations averaged over a three year period from 2008-2010 and again from 2018-2020. Additionally, an exposure concentration obligation of 20 µg/m³ has been set to be complied with by 2018, again based on the average exposure indicator.

Although the EU Air Quality Limit Values are the basis of legislation, other thresholds outlined by the EU Directives are used which are triggers for particular actions. The Alert Threshold is defined in Council Directive 2008/50/EC as "a level beyond which there is a risk to human health from brief exposure and at which immediate steps shall be taken as laid down in Directive 2008/50/EC". These steps include undertaking to ensure that the necessary steps are taken to inform the public (e.g. by means of radio, television and the press).

The Margin of Tolerance is defined in Council Directive 2008/50/EC as a concentration which is higher than the limit value when legislation comes into force. It decreases to meet the limit value by the attainment date. The Upper Assessment Threshold is defined in Council Directive 2008/50/EC as a concentration above which high quality measurement is mandatory. Data from measurement may be supplemented by information from other sources, including air quality modelling.

An annual average limit for both NO_x (NO and NO₂) is applicable for the protection of vegetation in highly rural areas away from major sources of NO_x such as large conurbations, factories and high road vehicle activity such as a dual carriageway or motorway. Annex III of EU Directive 2008/50/EC identifies that monitoring to demonstrate compliance with the NO_x limit for the protection of vegetation should be carried out at distances greater than:

- 5 km from the nearest motorway or dual carriageway
- 5 km from the nearest major industrial installation
- 20 km from a major urban conurbation

As a guideline, a monitoring station should be indicative of approximately 1000 km² of surrounding area.

Under the terms of EU Framework Directive on Ambient Air Quality (96/62/EC), geographical areas within member states have been classified in terms of zones. The zones have been defined in order to meet the criteria for air quality monitoring, assessment and management as described in the Framework Directive and Daughter Directives. Zone A is defined as Dublin and its environs, Zone B is defined as Cork City, Zone C is defined as 21 urban areas with a population greater than 15,000 and Zone D is defined as the remainder of the country. The Zones were defined based on among other things, population and existing ambient air quality.

EU Council Directive 96/62/EC on ambient air quality and assessment has been adopted into Irish Legislation (S.I. No. 33 of 1999). The act has designated the Environmental Protection Agency (EPA) as the competent authority responsible for the implementation of the Directive and for assessing ambient air quality in the State. Other commonly referenced ambient air quality standards include the World Health Organisation. The World Health Organisation guidelines differ from air quality standards in that they are primarily set to protect public health from the effects of air pollution. Air quality standards, however, are air quality guidelines recommended by governments, for which additional factors, such as socio-economic factors, may be considered.

APPENDIX 8.2

Air Dispersion Modelling

Appendix 8.2 Air Dispersion Modelling

The inputs to the Design Manual for Roads and Bridges model consist of information on road layouts, receptor locations, annual average daily traffic movements, annual average traffic speeds and background concentrations. Using this input data the model predicts ambient ground level concentrations at the worst-case sensitive receptor using generic meteorological data.

The Design Manual for Roads and Bridges underwent an extensive validation exercise as part of the UK's Review and Assessment Process to designate areas as Air Quality Management Areas (AQMAs). The validation exercise was carried out at 12 monitoring sites within the UK Department for Environment, Food and Rural Affairs national air quality monitoring network. The validation exercise was carried out for NO_x, NO₂ and PM₁₀, and included urban background and kerbside/roadside locations, "open" and "confined" settings and a variety of geographical locations.

In relation to NO₂, the model generally over-predicts concentrations, with a greater degree of over-prediction at "open" site locations. The performance of the model with respect to NO₂ mirrors that of NO_x showing that the over-prediction is due to NO_x calculations rather than the NO_x:NO₂ conversion. Within most urban situations, the model overestimates annual mean NO₂ concentrations by between 0 to 40% at confined locations and by 20 to 60% at open locations. The performance is considered comparable with that of sophisticated dispersion models when applied to situations where specific local validation corrections have not been carried out.

The model also tends to over-predict PM₁₀. Within most urban situations, the model will over-estimate annual mean PM₁₀ concentrations by between 20 to 40%. The performance is comparable to more sophisticated models, which, if not validated locally, can be expected to predict concentrations within the range of ±50%.

Thus, the validation exercise has confirmed that the model is a useful screening tool for the Second Stage Review and Assessment, for which a conservative approach is applicable.

APPENDIX 8.3

Dust Minimisation Plan

Appendix 8.3 Dust Minimisation Plan

A dust minimisation plan will be formulated for the construction phase of the project, as construction activities are likely to generate some dust emissions. The potential for dust to be emitted depends on the type of construction activity being carried out in conjunction with environmental factors including levels of rainfall, wind speeds and wind direction. The potential for impact from dust depends on the distance to potentially sensitive locations and whether the wind can carry the dust to these locations. The majority of any dust produced will be deposited close to the potential source and any impacts from dust deposition will typically be within two hundred metres of the construction area.

In order to ensure mitigation of the effects of dust nuisance, a series of measures will be implemented. Site roads shall be regularly cleaned and maintained as appropriate, dry sweeping of large areas should be avoided. Hard surface roads shall be swept to remove mud and aggregate materials from their surface while any un-surfaced roads shall be restricted to essential site traffic only. Furthermore, any road that has the potential to give rise to fugitive dust must be regularly watered, as appropriate, during dry and/or windy conditions.

Prior to demolition blocks should be soft striped inside buildings (retaining walls and windows in the rest of the building where possible, to provide a screen against dust). During the demolition process explosive blasting should be avoided, water suppression should be used, preferably with a hand held spray.

Vehicles using site roads shall have their speeds restricted where there is a potential for dust generation. Vehicles delivering material with dust potential to an off-site location shall be enclosed or covered with tarpaulin at all times to restrict the escape of dust. Access gates to be located at least 10m from receptors where possible.

Vehicles exiting the site shall make use of a wheel wash facility where appropriate, prior to entering onto public roads, to ensure mud and other wastes are not tracked onto public roads. Public roads outside the site shall be regularly inspected for cleanliness, and cleaned as necessary. Before entrance onto public roads, trucks will be adequately inspected to ensure no potential for dust emissions. Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable. Record should be kept of all inspections of the haul routes and any subsequent action in a site log book.

Material handling systems and site stockpiling of materials shall be designed and laid out to minimise exposure to wind. Sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place. Water misting or sprays shall be used as required if particularly dusty activities are necessary during dry or windy periods, activities such as scabbling should be avoided. Bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery.

At all times, the procedures put in place will be strictly monitored and assessed by the contractor. In the event of dust nuisance occurring outside the site boundary, satisfactory procedures will be implemented to rectify the problem. Dust monitoring should be put in place to ensure dust mitigation measures are controlling emissions. Dust monitoring should be conducted using the Bergerhoff method in accordance with the requirements of the German Standard VDI 2119. The Bergerhoff Gauge consists of a collecting vessel and a stand with a protecting gauge. The collecting vessel is secured to the stand with the opening of the collecting vessel located approximately 2 m above ground level. The TA Luft limit value is 350mg / (m²*day) during the monitoring period between 28-32 days.

The Dust Minimisation Plan shall be reviewed at regular intervals during the construction phase to ensure the effectiveness of the procedures in place and to maintain the goal of minimisation of dust through the use of best practice and procedures.

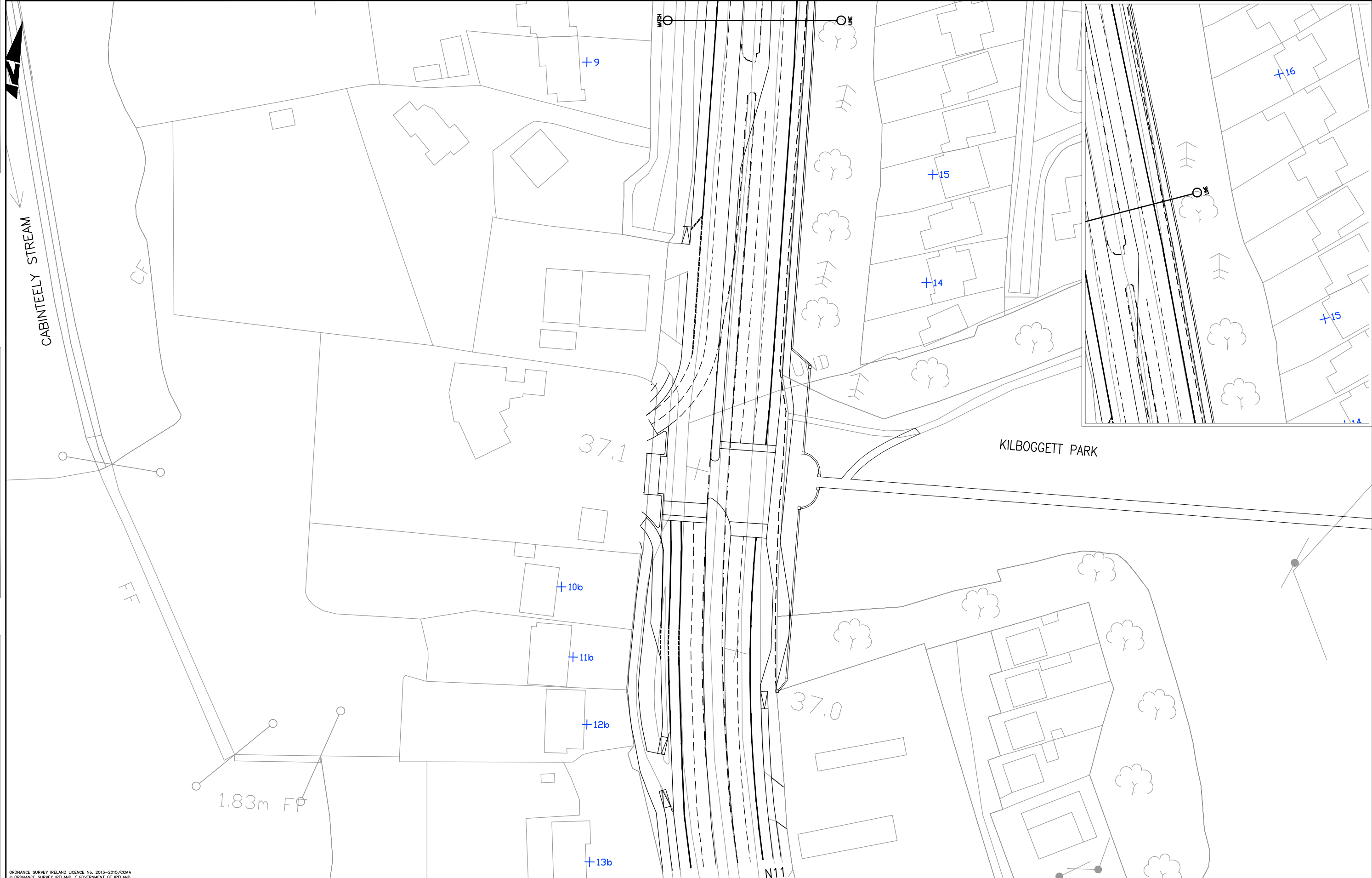
APPENDIX 9.1

Noise Receiver Locations

Appendix 9.1

Noise Receiver Locations

DO NOT SCALE



ORDNANCE SURVEY IRELAND LICENCE No. 2013-2015/CCMA
© ORDNANCE SURVEY IRELAND / GOVERNMENT OF IRELAND

dlr
Dun Laoghaire-Rathdown Co. Co.
County Hall,
Marine Road,
Dun Laoghaire,
County Dublin

LEGEND:
+ XX LOCATION OF NOISE RECEIVER

Rev	Description	By	Date	Chk'd	Auth
A	PART 8 PLANNING	JW	23.11.16	UOH	AFM

ATKINS
WS Atkins Ireland Ltd. ©

Atkins House, 150-155
Airside Business Park
Swords
Co. Dublin
Tel (+353) 01 890 9000
Fax (+353) 01 890 9001

Unit 2B
2200 Cork Airport
Business Park, Cork
Tel (+353) 021 429 0300
Fax (+353) 021 429 0360

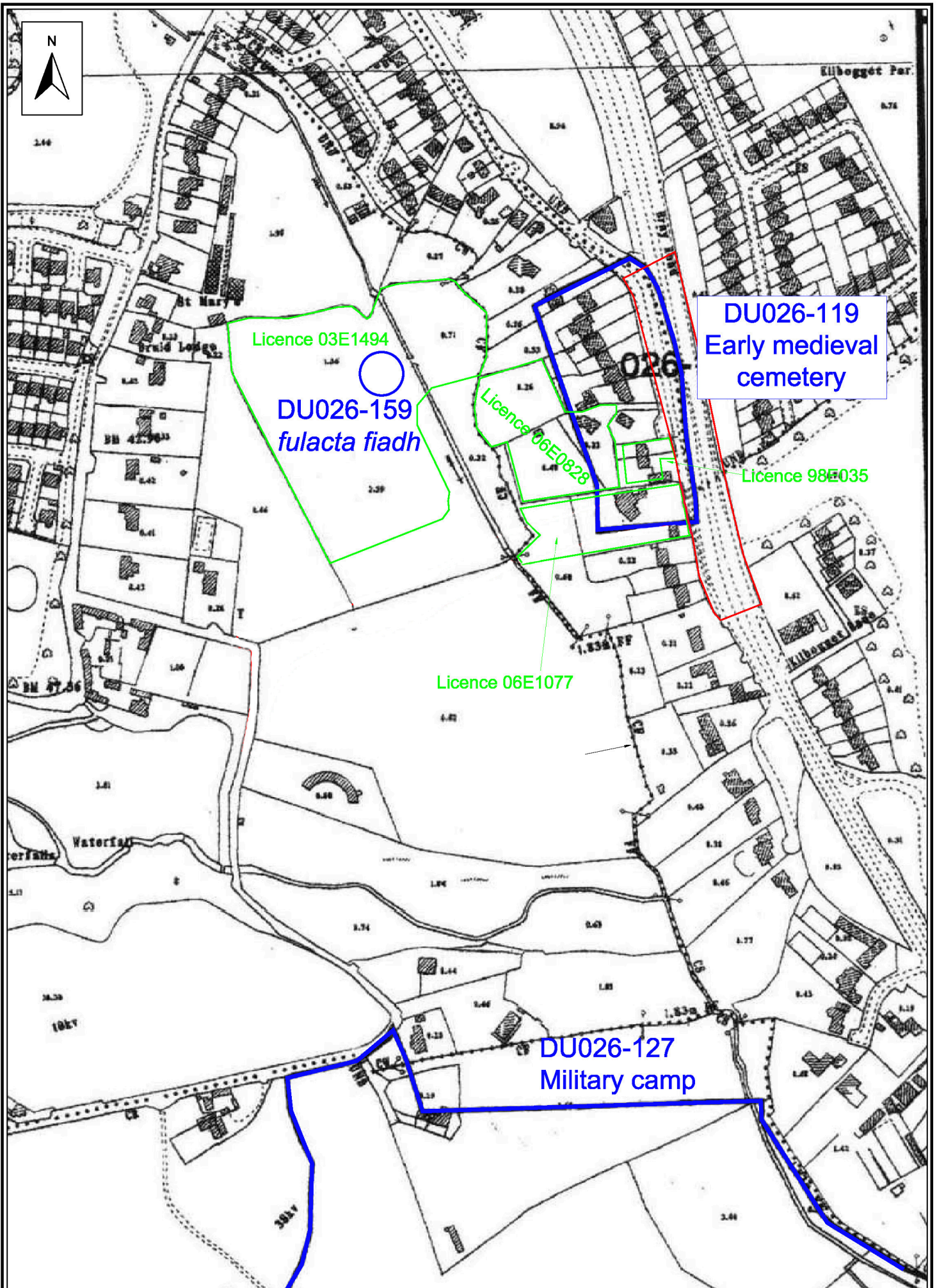
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Project	N11 JUNCTION Q

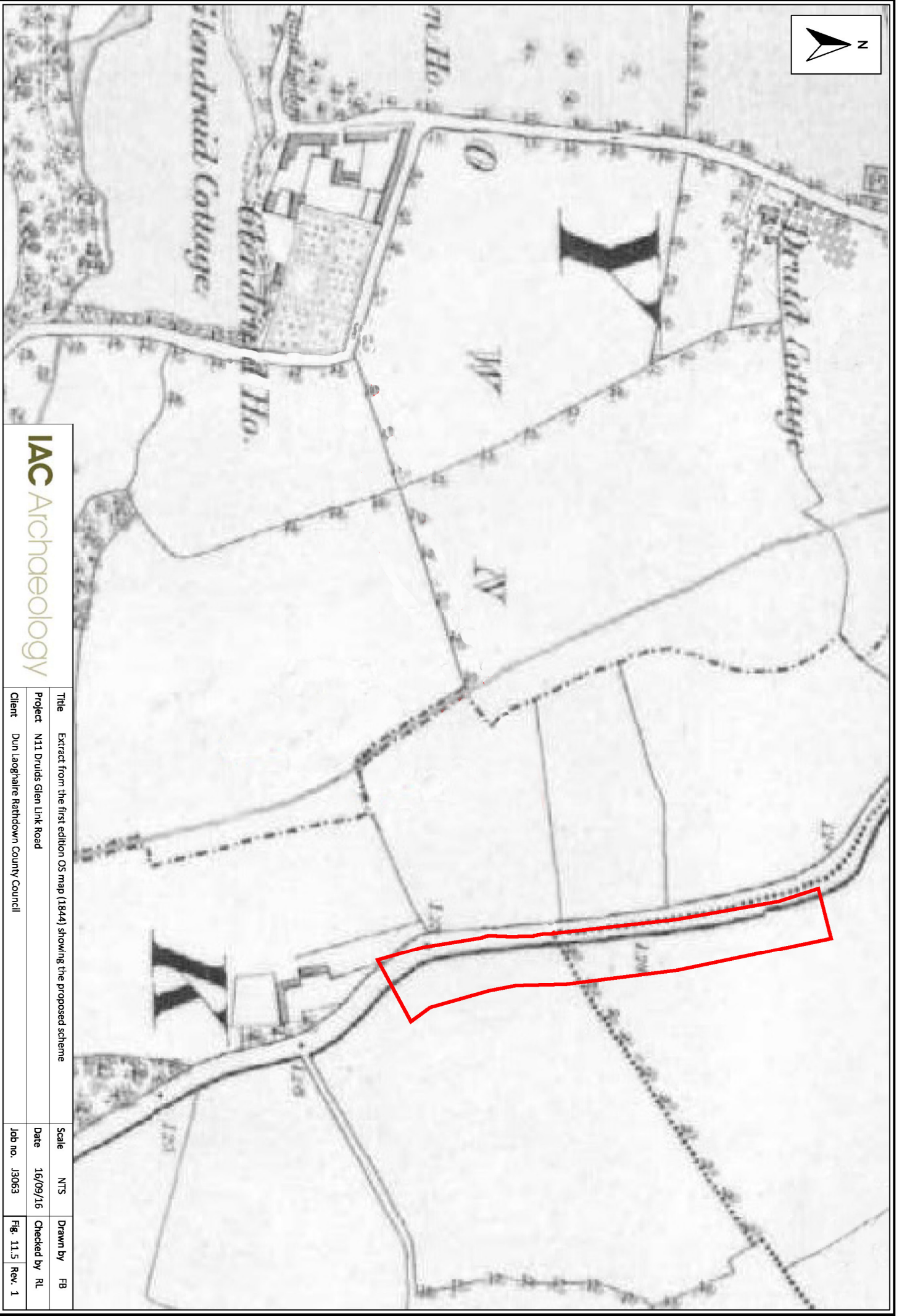
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Status	P8	JW	UOH	AFM
Drawing Number	FIGURE 9.1.2	Date	23.11.13	Date
Rev	A	Date	23.11.13	Date

APPENDIX 10.1

Archaeology Figures

Appendix 10.1 Archaeology Figures





IAC Archaeology

Title	Extract from the first edition OS map (1844) showing the proposed scheme	Scale	NTS	Drawn by	FB
Project	N11 Druids Glen Link Road	Date	16/09/16	Checked by	RL
Client	Dun Laoghaire Rathdown County Council	Job no.	J3063	Fig.	11.5 Rev. 1

APPENDIX 10.2

Recorded Monuments within the Surrounding Landscape

Appendix 10.2 Recorded Monuments within the Surrounding Landscape

RMP No.:	DU026-119
Townland:	Loughlinstown
Parish:	Killiney
Classification:	Rathdown
Dist. from development:	0m
Description:	<p>Excavation at the site in 1998 revealed a complex of 5th or 6th century burials, culminating sometime around 11th or 12th century. At least 1553 individual burials were uncovered, along with numerous deposits of disarticulated remains and two charnel pits (Bennett 1998:124, Licence Ref.: 98E0035).</p> <p>The range and type of objects recovered from the site, especially the imported pottery of 6th/ 7th century date, suggests that the site is of considerable status and importance. The exact dimensions of the enclosure surrounding the burials can only be estimated based on further investigations in 2006 (Bennett 2006:572, Licence Ref.: 06E0828). It would appear that the main central enclosure measured c. 50m east-west by c. 45m north-south. Based on the high level of burials, it is possible that the site represents the remains of an early medieval ecclesiastical site and may have contained a church, ancillary buildings and possible workshops.</p>
Reference:	SMR file, Excavations.ie

RMP No.:	DU026-127
Townland:	Laughanstown
Parish:	Tully
Classification:	Rathdown
Dist. from development:	Zone of potential located c. 300m south-southeast
Description:	<p>Lehaunstown Military Camp. The military camp was established in 1794 as part of a comprehensive military strategy in response to an unsettled political climate and a fear of a Napoleonic invasion. The site, which covers c. 120 acres, had been farmed as one unit in recent years until its development was carried out. Archaeological testing was carried out at the site in 1994 (Licence Ref.: 94E201). A large amount of stray finds were identified across the site, which dated from the period when it was in use. In addition a series of large middens were identified, along with drainage features.</p>
Reference:	SMR file, Excavations.ie

RMP No.:	DU026-159
Townland:	Brennanstown
Parish:	Tully
Classification:	Rathdown
Dist. from development:	c. 160m north-northwest
Description:	In 2003 archaeological testing was carried out on an 11 acre site in Brennanstown (Bennett 2003:462, Licence Ref.: 03E1494). Testing revealed a brick-making facility, measuring approximately 625m ² , and a <i>fulacht fiadh</i> that possessed a diameter of c. 8–10m. The <i>fulacht fiadh</i> was preserved <i>in-situ</i> and added to the RMP as DU026-159.
Reference:	SMR file, Excavations.ie

APPENDIX 10.3

Stray Finds from Within the Surrounding Area

Appendix 10.3 Stray Finds from within the Surrounding Area

Information on artefact finds from the study area in County Dublin has been recorded by the National Museum of Ireland since the late 18th century. Location information relating to these finds is important in establishing prehistoric and historic activity in the study area.

Museum No:	1957:350
Townland:	Loughlinstown
Parish:	Killiney
Find:	Long cist burial
Find place:	Garden of 'Ards' House
Description:	Human burial within a long stone cist.
Reference:	NMI files
Museum No:	1991:40
Townland:	Loughlinstown
Parish:	Killiney
Find:	Human remains
Find place:	Garden of 'Ards' House
Description:	Skeleton partially unearthed after a tree fell in the garden of 'Ards'.
Reference:	NMI files

Museum No:	2011:262- 263
Townland:	Cabinteely
Parish:	Kill
Find:	Axes
Find place:	St. Brigid's school
Description:	Two copper alloy flat axes
Reference:	NMI files

Museum No:	R2454.1-3
Townland:	Cabinteely
Parish:	Kill
Find:	Cremation burial
Find place:	Not specified
Description:	Cremated human remains found in a chamber covered with a stone, flint flake and iron disc
Reference:	NMI files

Museum No:	2543:wk058
Townland:	Cabinteely
Parish:	Kill

Find:	Ceramic cup
Find place:	Not specified
Description:	None given
Reference:	NMI files

APPENDIX 10.4

Legislative Framework Protecting the Archaeological Source

Appendix 10.4 Legislative Framework Protecting the Archaeological Resource

Protection of Cultural Heritage

The cultural heritage in Ireland is safeguarded through national and international policy designed to secure the protection of the cultural heritage resource to the fullest possible extent (Department of Arts, Heritage, Gaeltacht and the Islands 1999, 35). This is undertaken in accordance with the provisions of the *European Convention on the Protection of the Archaeological Heritage* (Valletta Convention), ratified by Ireland in 1997.

The Archaeological Resource

The *National Monuments Act 1930 to 2004* and relevant provisions of the *National Cultural Institutions Act 1997* are the primary means of ensuring the satisfactory protection of archaeological remains, which includes all man-made structures of whatever form or date except buildings habitually used for ecclesiastical purposes. A National Monument is described as 'a monument or the remains of a monument the preservation of which is a matter of national importance by reason of the historical, architectural, traditional, artistic or archaeological interest attaching thereto' (National Monuments Act 1930 Section 2).

A number of mechanisms under the National Monuments Act are applied to secure the protection of archaeological monuments. These include the Register of Historic Monuments, the Record of Monuments and Places, and the placing of Preservation Orders and Temporary Preservation Orders on endangered sites.

Ownership and Guardianship of National Monuments

The Minister may acquire national monuments by agreement or by compulsory order. The state or local authority may assume guardianship of any national monument (other than dwellings). The owners of national monuments (other than dwellings) may also appoint the Minister or the local authority as guardian of that monument if the state or local authority agrees. Once the site is in ownership or guardianship of the state, it may not be interfered with without the written consent of the Minister.

Register of Historic Monuments

Section 5 of the 1987 Act requires the Minister to establish and maintain a Register of Historic Monuments. Historic monuments and archaeological areas present on the register are afforded statutory protection under the 1987 Act. Any interference with sites recorded on the register is illegal without the permission of the Minister. Two months' notice in writing is required prior to any work being undertaken on or in the vicinity of a registered monument. The register also includes sites under Preservation Orders and Temporary Preservation Orders. All registered monuments are included in the Record of Monuments and Places.

Preservation Orders and Temporary Preservation Orders

Sites deemed to be in danger of injury or destruction can be allocated Preservation Orders under the 1930 Act. Preservation Orders make any interference with the site illegal. Temporary Preservation Orders can be attached under the 1954 Act. These perform the same function as a Preservation Order but have a time limit of six months, after which the situation must be reviewed. Work may only be undertaken on or in the vicinity of sites under Preservation Orders with the written consent, and at the discretion, of the Minister.

Record of Monuments and Places

Section 12(1) of the 1994 Act requires the Minister for Arts, Heritage, Gaeltacht and the Islands (now the Minister for the Environment, Heritage and Local Government) to establish and maintain a record of monuments and places where the Minister believes that such monuments exist. The record comprises a list of monuments and relevant places and a map/s showing each monument and relevant place in respect of each county in the state. All sites recorded on the Record of Monuments and Places receive statutory protection under the National Monuments Act 1994. All recorded monuments on the proposed development site are represented on the accompanying maps.

Section 12(3) of the 1994 Act provides that 'where the owner or occupier (other than the Minister for Arts, Heritage, Gaeltacht and the Islands) of a monument or place included in the Record, or any other person,

proposes to carry out, or to cause or permit the carrying out of, any work at or in relation to such a monument or place, he or she shall give notice in writing to the Minister of Arts, Heritage, Gaeltacht and the Islands to carry out work and shall not, except in the case of urgent necessity and with the consent of the Minister, commence the work until two months after the giving of notice’.

Under the National Monuments (Amendment) Act 2004, anyone who demolishes or in any way interferes with a recorded site is liable to a fine not exceeding €3,000 or imprisonment for up to 6 months. On summary conviction and on conviction of indictment, a fine not exceeding €10,000 or imprisonment for up to 5 years is the penalty. In addition they are liable for costs for the repair of the damage caused.

In addition to this, under the *European Communities (Environmental Impact Assessment) Regulations 1989*, Environmental Impact Statements (EIS) are required for various classes and sizes of development project to assess the impact the proposed development will have on the existing environment, which includes the cultural, archaeological and built heritage resources. These document’s recommendations are typically incorporated into the conditions under which the proposed development must proceed, and thus offer an additional layer of protection for monuments which have not been listed on the RMP.

The Planning and Development Act 2000

Under planning legislation, each local authority is obliged to draw up a Development Plan setting out their aims and policies with regard to the growth of the area over a five-year period. They cover a range of issues including archaeology and built heritage, setting out their policies and objectives with regard to the protection and enhancement of both. These policies can vary from county to county. The Planning and Development Act 2000 recognises that proper planning and sustainable development includes the protection of the archaeological heritage. Conditions relating to archaeology may be attached to individual planning permissions.

Dún Laoghaire Rathdown Development Plan 2010-2016

Policy AH1: Protection of Archaeological Heritage

It is council policy to protect archaeological sites, National Monuments (and their setting), which have been identified in the RMP, whilst at the same time reviewing and assessing the feasibility of improving public accessibility to sites and monuments under the direct ownership or control of the council or state.

Policy AH2: Protection of Archaeological Material

It is a council policy to seek the preservation in-situ (or, as a minimum, preservation by record) of all archaeological monuments included in the RMP and if previously unknown sites, features and objects of archaeological interest that become revealed through development activity. In respect of decision making on development proposals affecting sites listed in the RMP, the council will have regard to the advice and/or recommendations of the DOEHLG.

The council will strictly control development proposals that could have a negative impact on the significance of archaeological sites and monuments, their setting and/or interpretation. Land uses shall not give rise to significant losses of the integrity, quality or context of archaeological material – except as may be conditioned or directed by the appropriate heritage agencies. This shall be achieved by the application of appropriate design standards and criteria.

Policy AH5: Historic Burial Grounds

It is the council policy to protect historic burial grounds within the county and encourage their maintenance in accordance with good conservation practice.

There are numerous ecclesiastical sites dotted throughout the county which are of significant archaeological interest, many of which are listed in the RMP.

APPENDIX 10.5

Impact assessment and the Cultural Heritage Resource

Appendix 10.5 Impact Assessment and the Cultural Heritage Resource

Potential Impacts on Archaeological and Historical Remains

Impacts are defined as the 'degree of change in an environment resulting from a development' (Environmental Protection Agency 2003: 31). They are described as profound, significant or slight impacts on archaeological remains. They may be negative, positive or neutral, direct, indirect or cumulative, temporary or permanent.

Impacts can be identified from detailed information about a project, the nature of the area affected and the range of archaeological and historical resources potentially affected. Development can affect the archaeological and historical resource of a given landscape in a number of ways.

- Permanent and temporary land-take, associated structures, landscape mounding, and their construction may result in damage to or loss of archaeological remains and deposits, or physical loss to the setting of historic monuments and to the physical coherence of the landscape.
- Archaeological sites can be affected adversely in a number of ways: disturbance by excavation, topsoil stripping and the passage of heavy machinery; disturbance by vehicles working in unsuitable conditions; or burial of sites, limiting accessibility for future archaeological investigation.
- Hydrological changes in groundwater or surface water levels can result from construction activities such as de-watering and spoil disposal, or longer-term changes in drainage patterns. These may desiccate archaeological remains and associated deposits.
- Visual impacts on the historic landscape sometimes arise from construction traffic and facilities, built earthworks and structures, landscape mounding and planting, noise, fences and associated works. These features can impinge directly on historic monuments and historic landscape elements as well as their visual amenity value.
- Landscape measures such as tree planting can damage sub-surface archaeological features, due to topsoil stripping and through the root action of trees and shrubs as they grow.
- Ground consolidation by construction activities or the weight of permanent embankments can cause damage to buried archaeological remains, especially in colluviums or peat deposits.
- Disruption due to construction also offers in general the potential for adversely affecting archaeological remains. This can include machinery, site offices, and service trenches.

Although not widely appreciated, positive impacts can accrue from developments. These can include positive resource management policies, improved maintenance and access to archaeological monuments, and the increased level of knowledge of a site or historic landscape as a result of archaeological assessment and fieldwork.

Predicted Impacts

The severity of a given level of land-take or visual intrusion varies with the type of monument, site or landscape features and its existing environment. Severity of impact can be judged taking the following into account: -

- The proportion of the feature affected and how far physical characteristics fundamental to the understanding of the feature would be lost;
- Consideration of the type, date, survival/condition, fragility/vulnerability, rarity, potential and amenity value of the feature affected;
- Assessment of the levels of noise, visual and hydrological impacts, either in general or site specific terms, as may be provided by other specialists.

APPENDIX 10.6

Mitigation Measures and the Cultural Heritage Resource

Appendix 10.6 Mitigation Measures and the Cultural Heritage Resource

Potential Mitigation Strategies for Cultural Heritage Remains

Mitigation is defined as features of the design or other measures of the proposed development that can be adopted to avoid, prevent, reduce or offset negative effects.

The best opportunities for avoiding damage to archaeological remains or intrusion on their setting and amenity arise when the site options for the development are being considered. Damage to the archaeological resource immediately adjacent to developments may be prevented by the selection of appropriate construction methods. Reducing adverse effects can be achieved by good design, for example by screening historic buildings or upstanding archaeological monuments or by burying archaeological sites undisturbed rather than destroying them. Offsetting adverse effects is probably best illustrated by the full investigation and recording of archaeological sites that cannot be preserved *in situ*.

Definition of Mitigation Strategies

Archaeological Resource

The ideal mitigation for all archaeological sites is preservation *in situ*. This is not always a practical solution, however. Therefore a series of recommendations are offered to provide ameliorative measures where avoidance and preservation *in situ* are not possible.

Full Archaeological Excavation can be defined as ‘a programme of controlled, intrusive fieldwork with defined research objectives which examines, records and interprets archaeological deposits, features and structures and, as appropriate, retrieves artefacts, ecofacts and other remains within a specified area or site on land, inter-tidal zone or underwater. The records made and objects gathered during fieldwork are studied and the results of that study published in detail appropriate to the project design’ (IFA 2014).

Archaeological Test Trenching can be defined as ‘a limited programme of intrusive fieldwork which determines the presence or absence of archaeological features, structures, deposits, artefacts or ecofacts within a specified area or site on land, inter-tidal zone or underwater. If such archaeological remains are present field evaluation defines their character, extent, quality and preservation, and enables an assessment of their worth in a local, regional, national or international context as appropriate’ (IFA 2014).

Archaeological Monitoring can be defined as ‘a formal programme of observation and investigation conducted during any operation carried out for non-archaeological reasons. This will be within a specified area or site on land, inter-tidal zone or underwater, where there is a possibility that archaeological deposits may be disturbed or destroyed. The programme will result in the preparation of a report and ordered archive (IFA 2014).

Underwater Archaeological Assessment consists of a programme of works carried out by a specialist underwater archaeologist, which can involve wade surveys, metal detection surveys and the excavation of test pits within the sea or riverbed. These assessments are able to access and assess the potential of an underwater environment to a much higher degree than terrestrial based assessments.

APPENDIX 10.7

Archaeological Testing

Appendix 10.7 Archaeological Testing

**ARCHAEOLOGICAL ASSESSMENT
AT
BEECH PARK, LOUGHLINSTOWN & CABINTEELY,
DUBLIN 18**

**(Woodbrook, Foinavan, Lynwood, Corrente, Dun Baoi, Teely Lodge, The
Galliard, El Dorado, Capard, Greenhills, and Silver Slope & the road area &
associated open spaces at Beech Park Bray Road & its connection with the
N11)**

ON BEHALF OF

O'FLYNN CAPITAL PARTNERS

AUTHOR:

FAITH BAILEY, MA, BA (HONS)

DECEMBER 2014

IAC Irish Archaeological
Consultancy

ABSTRACT

Irish Archaeological Consultancy Ltd has prepared this report on behalf of O'Flynn Capital Partners, to study the impact, if any, on the archaeological and historical resource of a proposed residential development, located at Beech Park, Loughlinstown and Cabinteely, County Dublin (OS Sheet 26). The development area contains the following properties: Woodbrook, Foinavan, Lynwood, Corrente, Dun Baoi, Teely Lodge, The Galliard, El Dorado, Capard, Greenhills, and Silver Slope along with the road area and associated open spaces at Beech Park Bray Road and its connection with the N11. The report was undertaken by Faith Bailey of IAC Ltd and forms part of the planning application for development at the site.

The proposed development area is bordered by the N11 to the east, residential housing to the north and south and the Loughlinstown River and open green fields to the west. The site is characterised by 11 existing detached properties, a small access road and a number of large associated garden areas. There are three recorded monuments located within 500m of the proposed development area. The closest of these consists of DU026-119, which is listed as an early medieval cemetery. The zone of archaeological potential associated with this site includes a small portion of the northern part of the proposed development area (Plot 10).

As part of the proposed development, it is proposed to preserve *in-situ* the area of archaeological potential identified as a patch of charcoal-rich soil in 2006 within Plot 10. As such no adverse impact is predicted upon this area as part of the proposed development. However, it is recommended that in order to ensure the preservation *in-situ* of the area in Plot 10, that the site is cordoned off during construction to avoid inadvertent impacts.

Plot 10 (DU026-119) was subject to archaeological testing in 2006 and no definite features of archaeological potential were identified (with the exception of the area outlined above). However, it is possible that isolated features survive beneath the current ground level in areas of the plot outside of the footprint of the test trenches. Ground disturbances associated with the construction of the access road and crèche have the potential to adversely impact on these potential features. It is therefore recommended that all topsoil stripping within Plot 10 is subject to archaeological monitoring. This should be carried out by a suitably qualified archaeologist. It is the developer's responsibility to ensure full provision is made available for the resolution of any archaeological remains, both on site and during the post excavation process, should that be deemed the appropriate manner in which to proceed.

Seven plots (1-4, 5a, 6a, 7) within the proposed development area remain relatively intact due to their use as large gardens. They all possess archaeological potential due to the proximity of the water courses that border them to the west. Ground disturbances associated with the proposed development have the potential to adversely impact on archaeological remains that have the potential to survive in these areas with no surface expression. It is therefore recommended that Plots 1-4, 5a, 6a and the southern section of 7 be subject to archaeological testing prior to development going ahead. This should be carried out by an archaeologist under licence to the Department of Arts, Heritage and the Gaeltacht. The level of testing should be thorough in order to negate the need for archaeological monitoring during construction. It is the developer's responsibility to ensure full provision is made available for the resolution of any archaeological remains, both on site and during the

post excavation process, should that be deemed the appropriate manner in which to proceed.

The north-east portions of Plots 1-4, along with Plots 5b and c, 6b, c, d, 8 and 9 have been impacted upon by construction of houses and landscaping. It is therefore likely that any archaeological remains in these areas have since been removed and as such no impact is anticipated upon the archaeological resource as a result of development in these areas. No further archaeological mitigation is deemed to be necessary with regards to the redevelopment of the north-east portions of Plots 1-4, along with Plots 5b and c, 6b, c, d, 8 and 9.

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Post Medieval Period (AD 1600-1900)

The 17th century saw dramatic rise in the establishment of large residential houses around the country. The large country house was only a small part of the overall estate of a large landowner and provided a base to manage often large areas of land that could be located nationwide. Lands associated with the large houses were generally turned over to formal gardens, which were much the style of continental Europe. Gradually this style of formal avenues and geometric gardens designs was replaced during the mid-18th century by the adoption of parkland or demesne landscapes – which enabled the viewing of a large house within a designed 'natural' setting. Although the creation of a parkland landscape involved working with nature, rather than against it, considerable constructional effort went into their creation. Earth was moved, field boundaries disappeared, streams were diverted to form lakes and quite often roads were completely diverted to avoid travelling anywhere near the main house or across the estate.

A number of large houses and demesne landscapes once surrounded the area containing the proposed development. These included Cabinteely House, Brenanstown House and Glendruid House to the west; Kilbogget House to the north and Loughlinstown House, Ballybrack Grove and Beechwood to the south-east. These buildings were accompanied by naturalised demesne landscapes, which today have become substantially denuded due to suburban residential development. The best preserved building and landscape within the vicinity is Cabinteely House and demesne, c. 920m to the WNW.

Approximately 100m to the south of the proposed development area is the northern boundary of the zone of archaeological potential that surrounds the post medieval Lehaunstown Military Camp (DU026-127). The military camp was established in 1794 as part of a comprehensive military strategy in response to an unsettled political climate and a fear of a Napoleonic invasion. The site, which covers c. 120 acres, had been farmed as one unit in recent years until parts of it underwent development. Archaeological testing was carried out at the site in 1994 (Licence Ref.: 94E201). A large amount of stray finds were identified across the site, which dated from the period when it was in use. In addition a series of large middens were identified, along with drainage features.

3.2 Summary of Previous Archaeological Fieldwork

A review of the Excavations Bulletin (1970-2010) has revealed that archaeological testing was carried out within the northern part of the proposed development area in 2006. A large number of investigations have also been carried out within the surrounding landscape. These are summarised below.

In 2006 a total of 16 trenches were excavated across the northern section of the proposed development area (Plot 10) as part of a previous planning application (Bennett 2006:573, Licence Ref.: 06E1077) (Figure 4). The only features of potential archaeological interest uncovered during the course of testing were two possible shallow drains, downslope and to the west of the existing house, as well as a spread of charcoal-rich soil in a trench adjacent to the Cabinteely Stream. A possible drain was also located adjacent to the northern boundary of the site (to the immediate south of the Esso Station and the site of the cemetery excavated in 1998). No artefacts of archaeological or historical interest were recovered during the course of the work. A quantity of disturbed and fragmented bone was recovered from the topsoil, none of which was associated with any features of archaeological interest. Analysis of the bone undertaken by Clare Mullins proved that all was derived from animals.

In 1995 archaeological testing associated with the construction of a service station to the immediate north of the eastern part of the proposed development area revealed the presence of significant human remains (Bennett 1995:103, Licence Ref.: 95E131). Excavation of the site in 1998 revealed a complex of 5th or 6th century burials, culminating sometime around 11th or 12th century. At least 1553 individual burials were uncovered, along with numerous deposits of disarticulated remains and two charnel pits (Bennett 1998:124, Licence Ref.: 98E0035). A number of enclosure ditches were noted within the eastern part of the site. It appears that these had been moved further to the east over time in order to accommodate the expansion of the cemetery. In 1998 a small investigation was also carried out at the site of a proposed extension on an existing house located to the immediate north of the service station. Whilst no human remains were identified, a section of large ditch was identified, which may have formed part of the enclosing element to the cemetery (Bennett 1998:123, Licence Ref.: 98E0582). Further archaeological monitoring was undertaken at this location in 2010 Bennett 2010:242, Licence Ref.: 10E308). However, nothing of archaeological significance was identified.

In 2006 further investigations were carried out to the immediate north of the western part of the proposed development area and to the west of the service station (Bennett 2006:572, Licence Ref.: 06E0828). The western enclosure ditch to the cemetery was identified although no further human remains were found. It would appear that the main central enclosure measured c. 50m east-west by c. 45m north-south. Testing to the west of the cemetery (and to the north of the proposed development area) revealed the presence of archaeological soil, ditches and deposits that are consistent with early medieval enclosed settlement remains. These deposits included evidence for burning, possible smithing activity, occupation deposits including food waste discarded in ditches or enclosures and possible habitation areas.

In 2003 archaeological testing was carried out on an 11 acre site c. 75m WNW of the proposed development area in Brennanstown (Bennett 2003:462, Licence Ref.: 03E1494). Testing revealed a brick-making facility, measuring approximately 625m², and a *fulacht fiadh* that possessed a diameter of c. 8–10m. The *fulacht fiadh* was preserved *in-situ* and added to the RMP as DU026-159. The site is located c. 155m north-west of the proposed development area. The post medieval brick clamp was subject to archaeological excavation prior to the construction of the residential development (Bennett 2003:463, Licence Ref.: 03E1681).

3.3 Cartographic Analysis

Sir William Petty, Down Survey Map, 1655-56, Barony of Rathdown

This map shows the rough path of the Carrickmines and Cabinteely Stream, which borders the proposed development area to the west. It shows a number of buildings at Loughlinstown Village, which is located further to the south. No structures or features are marked in the approximate area of the proposed development.

Rocque's Map of County Dublin, 1760

This map provides the first relatively detailed mapping coverage of the proposed development area (Figure 5). The map shows the approximate location of the proposed development area as open green fields located between the streams to the west and the precursor of the N11 to the east. A building is marked within the area, and adjacent to the road as 'Gentleman's Hall'.

4 RESULTS OF FIELD INSPECTION

4.1 Field Inspection

The field inspection sought to assess the proposed development area, its previous and current land use, the topography and whether any areas or sites of archaeological or historical potential were present. The field inspection was carried out on 24th July 2014 in sunny and dry conditions.

The proposed development area is characterised by the presence of 12 detached houses, which are accompanied by property plots that vary significantly in size. The locations of the plots described below are referenced on Figure 7.

Plot 1

This plot forms the southernmost part of the proposed development area. It is sub-oval in plan and contains a large detached house at its northern end. The remainder consists of a very large garden that slopes gradually from the house in a south-west direction to the Carrickmines Stream (Plate 1). This area has not been maintained as a garden and at the time of the inspection was covered in long grass and vegetation. The southern and eastern boundary to the plot is present on the first edition OS map of 1838 and is characterised by a bank that is covered in mature trees. In places modern revetting has been added to stabilise the western side of the boundary. The western boundary is formed by the Carrickmines Stream, which consists of a stream channel with reasonable depth and at the time of the inspection contained a moderate flow (Plate 2). The north-west boundary is formed by a mature, but recently planted row of conifers.

Plot 2

This plot is rectangular in plan and located to the north-west of Plot 1 and south-west of Plot 3. A large detached house is located at the north-east end, which has been partially scarped into the south-west facing slope. The remainder is formed by a linear garden that has not been maintained and was overgrown at the time of the inspection (Plate 3). The north-west and south-east boundaries are formed by mature, but recently planted rows of conifers. The Carrickmines Stream borders the plot to the west.

Plot 3

This plot is rectangular in plan and located to the north-west of Plot 2 and south-west of Plot 4. A large detached house is located at the north-east end, which has been partially scarped into the south-west facing slope. The remainder is formed by a linear garden that has not been maintained and was overgrown at the time of the inspection (Plate 4). The north-west and south-east boundaries are formed by mature, but recently planted rows of conifers. The Cabinteely Stream borders the plot to the west.

Plot 4

This plot is rectangular in plan and located to the north-west of Plot 3 and south-west of Plots 5a and 5b. A large detached house is located at the north-east end, which has been partially scarped into the south-west facing slope. The remainder is formed by a linear garden that has not been maintained and was overgrown at the time of the inspection (Plate 5). The north-west and south-east boundaries are formed by mature, but recently planted rows of conifers. The Cabinteely Stream borders the plot to the west.

Plot 5a

This plot consists of a sub-rectangular area of overgrown pasture (Plate 6) located to the south-west of Plots 5b and c, to the north-west of Plot 4 and to the south-east of Plot 6a. The area is relatively level but the western boundary is formed by a mature hedge line and steep drop down to the Cabinteely Stream. The boundary between this plot and Plot 6a is no longer present. The boundaries on the eastern side are formed by relatively recent hedge lines.

Plots 5b and 5c

These plots are located to the east of Plot 5, to the north of Plot 4 and to the south of Plot 6b. Both plots are small sub-rectangular areas that contain detached houses, which have been impacted upon by construction and landscaping. The N11 borders the plots to the east. The former Half Mile House was partially located in Plot 5c and Plot 6b further to the north. It also extended under the N11 to the east.

Plot 6a

This is a narrow rectangular plot located to the north of Plot 5a, to the west of Plots 6b and c and to the south of Plot 7. The area is relatively level although overgrown. The western boundary is formed by a mature hedge line and steep drop down to the Cabinteely Stream. It appears that portions of this plot have been impacted upon by the removal of some of the topsoil (Plate 7). Subsoil was evident in places underfoot and the growth of grass in this area was not as lush as on other parts of the site.

Plots 6b, 6c and 6d

Plots 6b and d are both occupied by detached houses, whereas Plot 6c is formed by an area of lawn associated within the house in 6d. These plots are bordered to the east by the N11, to the south by Plot 5c, to the north by Plot 8 and to the west by Plot 6a. The plots are relatively small sub-rectangular areas that have been impacted upon by construction and landscaping.

Plot 7

This plot is located in the north-western portion of the proposed development area. It is irregular in plan and bordered to the west by a mature hedge line, a portion of which follows the Cabinteely Stream. It slopes very slightly in a westerly direction. Plots 9 and 8 border it to the east, along with a linear plot that is not included within the proposed development area. Plot 6a is located to the south and Plot 10 to the north. However, there is no physical boundary present between this plot and Plot 10. At the time of the inspection the area was quite overgrown with grass (Plate 8).

Plots 8 and 9

These plots are both formed by relatively small rectangular areas that contain detached houses and garden. They are bordered to the east by the N11, with a property not included within the development area located to the north. Plot 7 is located to the west. These plots have been impacted upon by construction and landscaping.

Plot 10

This plot is located within the north-eastern part of the proposed development area and also occupies the southern part of the zone of potential surrounding the recorded cemetery (DU026-119). The plot is rectangular in plan and bordered to the east by the N11. The northern boundary is formed partially by a wall that separates the site from a service station and a mature hedge line that is marked on the first edition OS map of 1838. Plot 7 is located to the south, as is a property plot not included within the development area. The house that occupies the site is large and a large part of

the plot is planted with immature trees (Plates 9 and 10). The eastern section is relatively level, although the western part of the plot slopes down to the Cabinteely Stream. The plot was tested in 2006 as part of a separate planning application. However, no evidence of the test trenches was noted during the inspection. No potential features with a surface expression were noted in the area where the charcoal-rich soil was identified. This area is highlighted in Plate 11 with a red circle.

No specific features of archaeological potential were noted within the proposed development area. However, Plots 1-4, 5a, 6a and 7 (in between the houses and the streams) should be considered as possessing archaeological potential due to the proximity of the water course to the west. In addition, it is possible that further features are associated with the charcoal-rich soil identified within the northern part of Plot 10. Plot 10 should be considered as possessing some archaeological potential, as although it has already been subject to archaeological testing, some additional isolated archaeological features may still exist within this area that are associated with DU026-119 to the north. Despite the overall archaeological potential of the area, it is clear that the development area has already been impacted on to a high degree by the construction of the houses already on site and associated landscaping works.

4.2 Conclusions

The proposed development consists of the construction of a large scale residential development on lands within the townland of Loughinstown, which is bordered to the east by the N11. The site is currently occupied by a 11 detached houses, although the western part of the site remains relatively undisturbed. There are three recorded monuments located within 500m of the proposed development area. The closest of these is a recorded early medieval cemetery site (DU026-119). The southern section of the zone of archaeological potential that surrounds this site occupies the northern plot of the development area (Plot 10). The cemetery site was subject to archaeological excavation in 1998 as part of the development of a service station. In 2006 archaeological testing was carried out within the northern part of the proposed development area as part of a previous planning application. This failed to identify any definite archaeological remains associated with the cemetery site. Further investigations to the north of the proposed development area did identify additional archaeological remains. However, one area of charcoal-rich soil was identified within the northern part of Plot 10 of the proposed development area. This remains *in-situ* today.

A review of the historical mapping has shown that up until relatively recently, the development area consisted of open fields that were bordered to the west by the Carrickmines and Cabinteely Streams and to the east by the road that became the N11. One building was located within the eastern part of the proposed development area, which is likely to have functioned as an inn. Today the site of this structure is partially covered by the N11 and the houses that occupy Plots 5c and 6b. No previously unrecorded features of archaeological potential were noted within the mapping. Similarly, a review of the aerial photographic coverage of the site failed to identify any sites of potential.

As described above, a review of the Excavations Bulletin (1970-2010) has shown that archaeological testing has been carried out in the northern part of the proposed development area. One small area of charcoal-rich soil was identified, along with a number of more recent drains. A large amount of field work has been carried out to the immediate north, including the excavation of c. 1500 skeletons in 1998 at the site of the service station that fronts onto the N11 and the identification of the possible extent of the enclosure associated with the cemetery in 2006.

During a field inspection of the proposed development area, it was clear that the construction of 11 detached houses and associated garden landscaping has had a direct impact on the eastern part of the development area. However, the western portion of the site, which for the most part is formed by large gardens, remains relatively intact. Seven plots (1-4, 5a, 6a, 7), which are bordered by the Cabinteely and Carrickmines Streams to the west, are considered to possess archaeological potential due to the close proximity of the water course. The north-east portions of Plots 1-4, along with Plots 5b and c, 6b, c, d, 8 and 9 have been impacted upon by construction of houses and landscaping. Plot 10 retains some archaeological potential, due to its proximity to the cemetery immediately north and the presence of a small area of archaeological potential identified during testing in 2006. However, this area has been subject to disturbance by the construction of a large house and associated landscaping.

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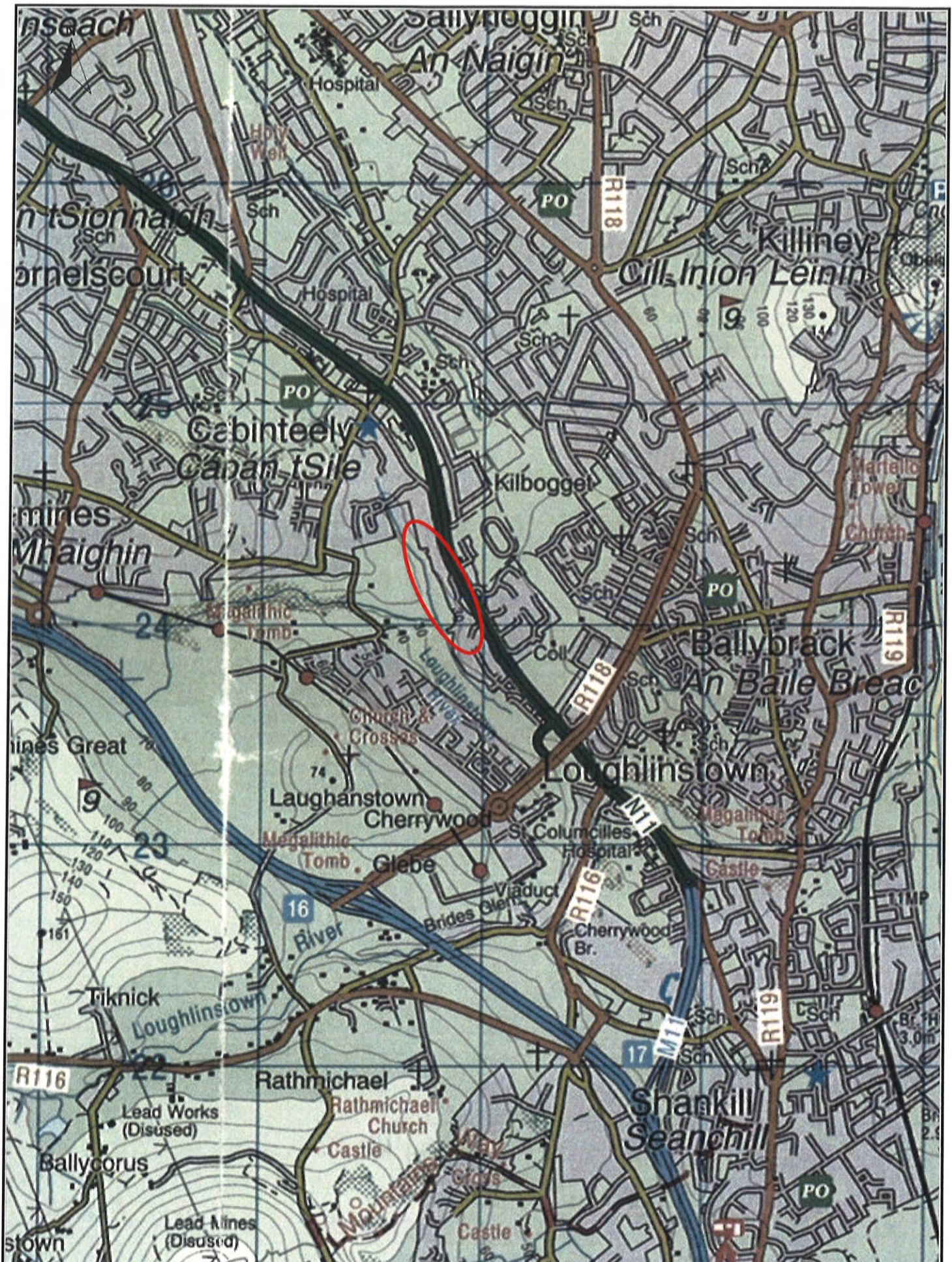
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Electronic Sources

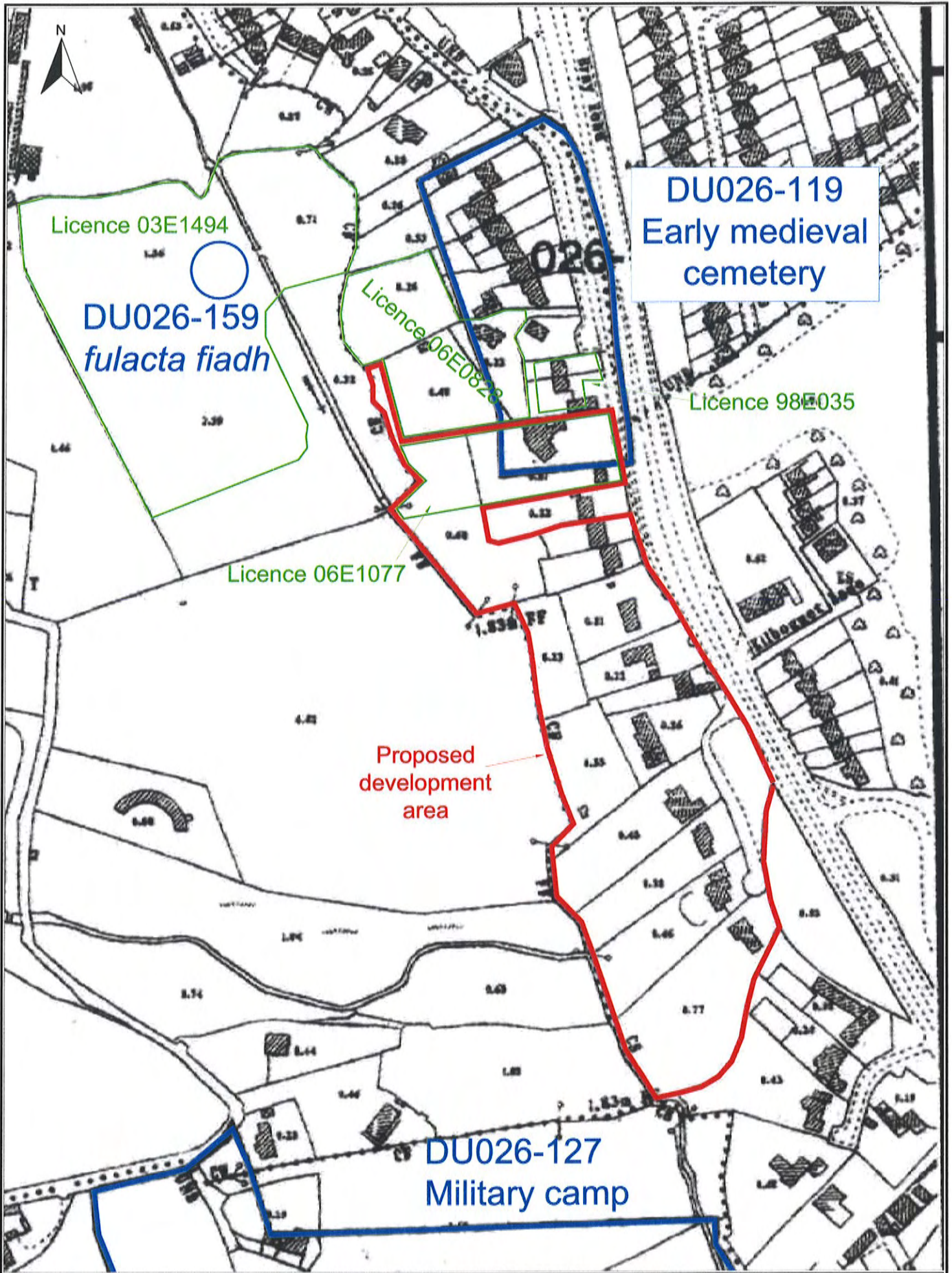
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	Title:	Site location	Scale:	NTS @ A4
	Project:	Beech Park, Loughlinstown, Co. Dublin	Date:	22/08/14
	Client:	O'Flynn Capital Partners	Produced by:	F Bailey
			Job No:	J2854
			Figure No:	1



DU026-119
Early medieval
cemetery

DU026-159
fulacta fiadh

Proposed
development
area

DU026-127
Military camp



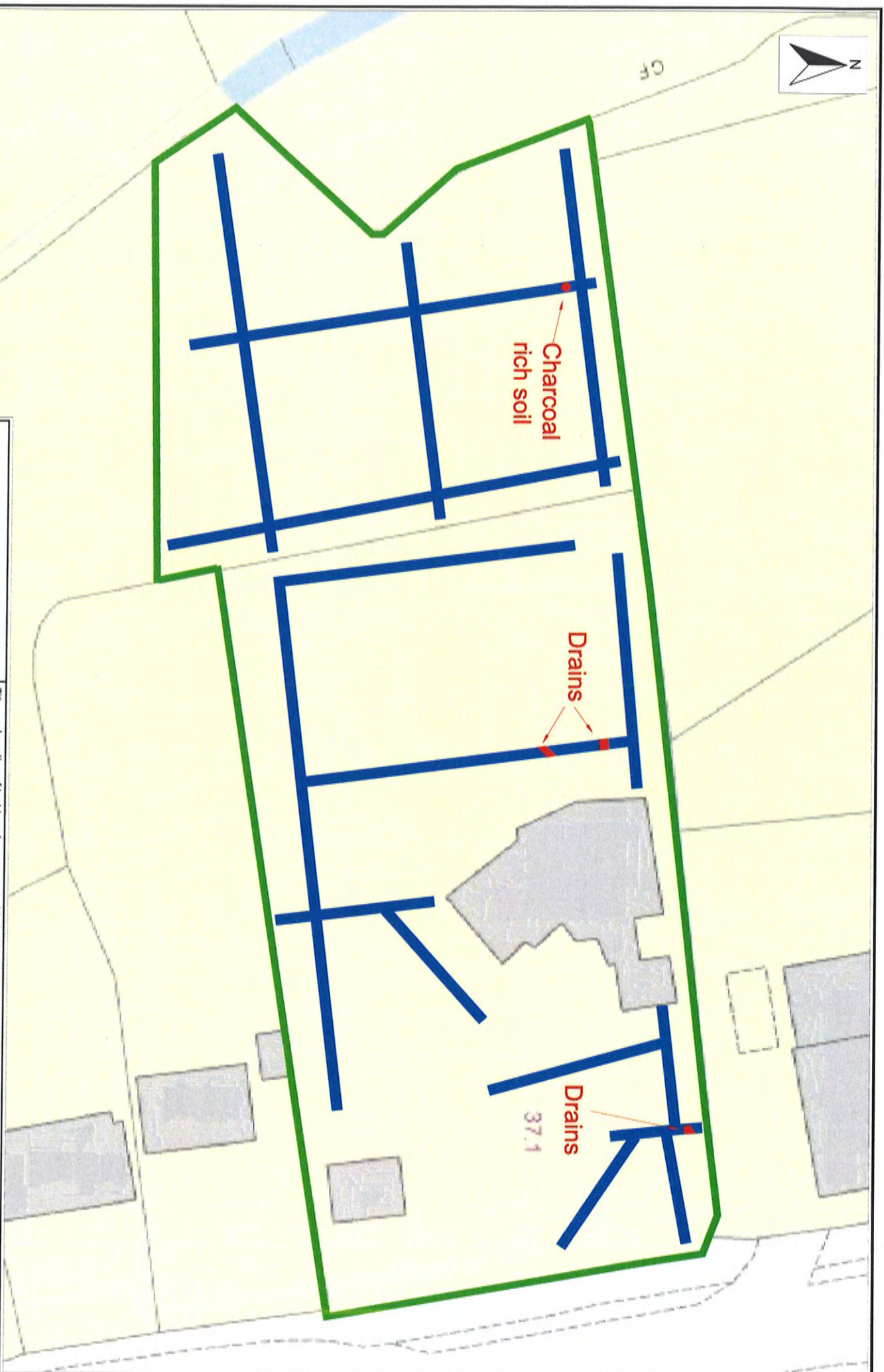
CF

FF

Charcoal
rich soil

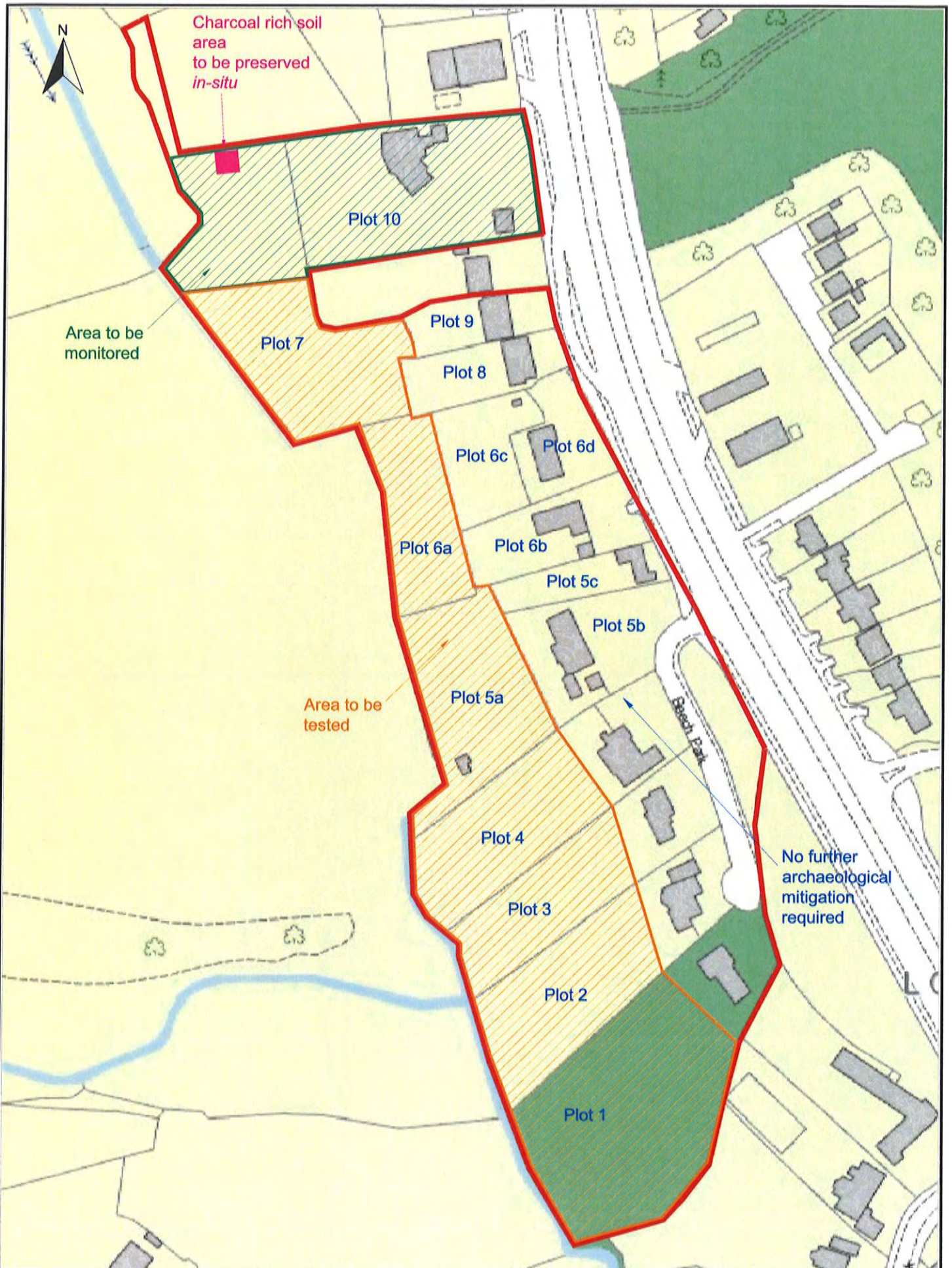
Drains

Drains
37.1



IAC Irish Archaeological
Consultancy

Title:	Location of test trenches excavated in 2006 within the northern part of the proposed development area	Scale:	NTS @ A4
Project:	Beech Park, Loughlinstown, Co. Dublin	Date:	22/08/14
Client:	O'Flynn Capital Partners	Produced by:	F Bailey
		Job No:	J2854
		Figure No:	4



APPENDIX 1: RMP SITES WITHIN THE SURROUNDING AREA

RMP No.:	DU026-119
Townland:	Loughlinstown
Parish:	Killiney
Classification:	Rathdown
Dist. from development:	The proposed development area is located in the southern section of the zone of potential
Description:	Excavation at the site in 1998 revealed a complex of 5th or 6th century burials, culminating sometime around 11th or 12th century. At least 1553 individual burials were uncovered, along with numerous deposits of disarticulated remains and two charnel pits (Bennett 1998:124, Licence Ref.: 98E0035). The range and type of objects recovered from the site, especially the imported pottery of 6th/ 7th century date, suggests that the site is of considerable status and importance. The exact dimensions of the enclosure surrounding the burials can only be estimated based on further investigations in 2006 (Bennett 2006:572, Licence Ref.: 06E0828). It would appear that the main central enclosure measured c. 50m east-west by c. 45m north-south. Based on the high level of burials, it is possible that the site represents the remains of an early medieval ecclesiastical site and may have contained a church, ancillary buildings and possible workshops.
Reference:	SMR file, Excavations.ie

RMP No.:	DU026-127
Townland:	Laughanstown
Parish:	Tully
Classification:	Rathdown
Dist. from development:	Zone of potential located c. 100m south
Description:	Lehaunstown Military Camp. The military camp was established in 1794 as part of a comprehensive military strategy in response to an unsettled political climate and a fear of a Napoleonic invasion. The site, which covers c. 120 acres, had been farmed as one unit in recent years until it development was carried out. Archaeological testing was carried out at the site in 1994 (Licence Ref.: 94E201). A large amount of stray finds were identified across the site, which dated from the period when it was in use. In addition a series of large middens were identified, along with drainage features.
Reference:	SMR file, Excavations.ie

RMP No.:	DU026-159
Townland:	Brenanstown
Parish:	Tully
Classification:	Rathdown
Dist. from development:	c. 155m north-west

Description:	In 2003 archaeological testing was carried out on an 11 acre site in Brennanstown (Bennett 2003:462, Licence Ref.: 03E1494). Testing revealed a brick-making facility, measuring approximately 625m ² , and a <i>fulacht fiadh</i> that possessed a diameter of c. 8–10m. The <i>fulacht fiadh</i> was preserved <i>in-situ</i> and added to the RMP as DU026-159.
Reference:	SMR file, Excavations.ie

APPENDIX 2: STRAY FINDS WITHIN THE SURROUNDING AREA

Information on artefact finds from the study area in County Dublin has been recorded by the National Museum of Ireland since the late 18th century. Location information relating to these finds is important in establishing prehistoric and historic activity in the study area.

Museum No:	2011:262- 263
Townland:	Cabinteely
Parish:	Kill
Find:	Axes
Find place:	St. Brigid's school
Description:	Two copper alloy flat axes
Reference:	NMI files

Museum No:	R2454.1-3
Townland:	Cabinteely
Parish:	Kill
Find:	Cremation burial
Find place:	Not specified
Description:	Cremated human remains found in a chamber covered with a stone, flint flake and iron disc
Reference:	NMI files

Museum No:	2543:wk058
Townland:	Cabinteely
Parish:	Kill
Find:	Ceramic cup
Find place:	Not specified
Description:	None given
Reference:	NMI files



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