LAND PLANNING & DESIGN

Environmental Impact Assessment Report

Volume 2 - Maps and Appendices

Proposed Dublin Mountains Visitor's Centre

Comhairle Contae
Átha Cliath Theas
South Dublin County Council

CUNNANE STRATTON REYNOLDS
LAND PLANNING & DESIGN

July 2017

Prepared by **Cunnane Stratton Reynolds** in Association with

CATHAL CRIMMINS

VEON

fel Forest Enterprises Ltd.

ROD
ROUGHAN & O'DONOVAN

Introduction

This report – Volume 2 of the EIAR – presents the maps and appendices provided as supplementary information to the various chapters of Volume 1 – the Main Report.

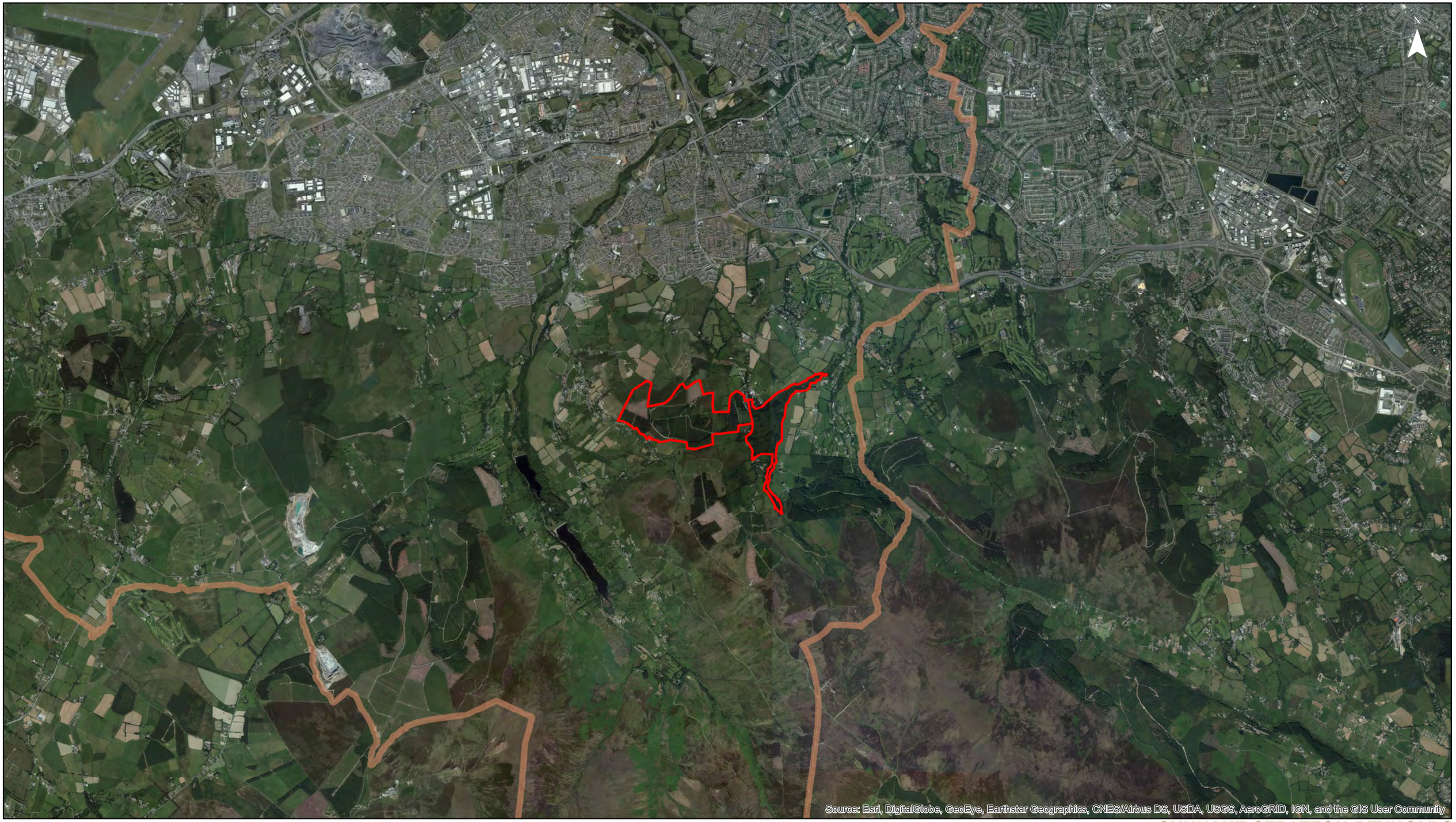
The sections of this report (Volume 2) are numbered in accordance with the chapters of Volume 1. (Not all chapters of the main report have supplementary information).

Each section of this report is comprised of two sub-sections, one for maps and one for appendices. (Not all sections have both maps and appendices; they may include only one or the other).

Chapter 1 Introduction
Supplementary Information

Chapter 1 Introduction

Maps



Kilometers
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Site Context

Site

South Dublin County Boundary

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Dublin Office
3 Molesworth Place
Tel: 01 6610419
Email: info@csrlandplan.ie

Project:	Date:	June 2017
The Dublin Mountains Project Hell Fire Club & Massy's Wood South Dublin	Scale:	1:50,000 @A3
	Drawn:	CL
	Checked:	RB
Drawing: Site Context Map	Drawing No:	Map 1.1

Chapter 2 Existing Environment

Supplementary Information

Chapter 2 Existing Environment

Maps

Zoning Objectives

- Site Boundary
- County Boundary
- Objective RES — *To protect and/or improve residential amenity*
- Objective RES-N — *To provide for new residential communities in accordance with approved area plans*
- Objective REGEN — *To facilitate enterprise and/or residential-led regeneration*
- Objective DC — *To protect, improve and provide for the future development of District Centres*
- Objective LC — *To protect, improve and provide for the future development of Local Centres*
- Objective EE — *To provide for enterprise and employment related uses*
- Objective OS — *To preserve and provide for open space and recreational amenities*
- Objective HA (LV, DV, DM) — *To protect and enhance the outstanding natural character and amenity of the Liffey Valley, Dodder Valley and Dublin Mountains areas*
- Objective RU — *To protect and improve rural amenity and to provide for the development of agriculture*

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*Note: Legend reflects zoning objectives visible on map at current scale only

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The Dublin Mountains Project Hell Fire Club & Massy's Wood South Dublin	Scale:	1:25,000 @A3
	Drawn:	CL
	Checked:	RB
Drawing: Zoning Objectives	Drawing No:	Map 3.1

Chapter 5 Population and Human Health

Supplementary Information

Chapter 5 Population and Human Health

Maps

Electoral Divisions

Electoral Divisions

	<all other values>

CSOED

	03001	*Ballinascorney*
	03003	*Bohernabreena*
	03011	*Edmondstown*
	03012	*Firhouse-Ballycullen*
	03014	*Firhouse Village*
	03035	*Tallaght-Kiltipper*
	03037	*Millbrook*
	03038	*Oldbawn*
	05069	*Tilbradden*
	Site	

0 0.5 1 2 3 4 Kilometers

Osi Map Tiles used with permission from South Dublin County Council for this project.

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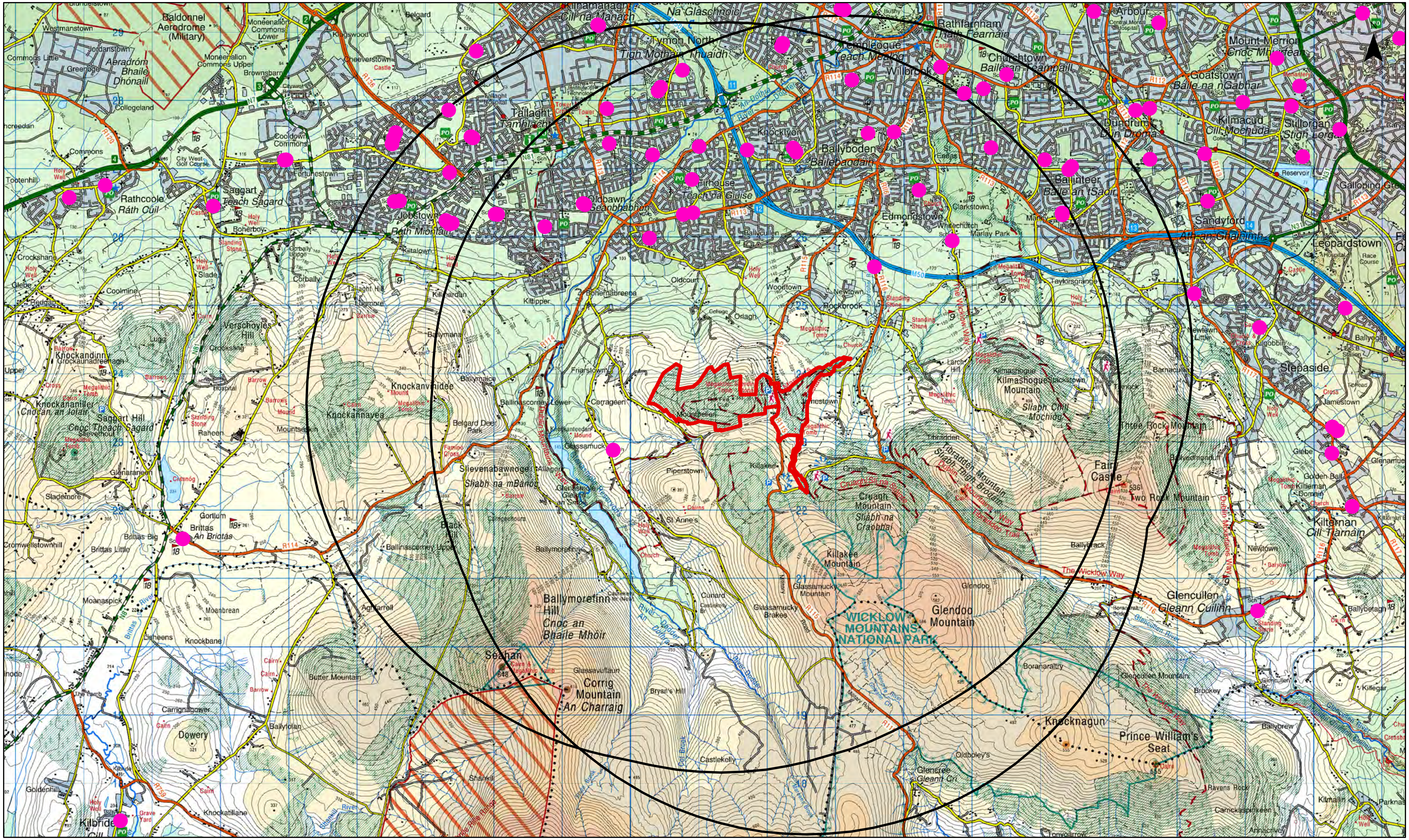
The Dublin Mountains Project Hell Fire Club & Massy's Wood South Dublin	Scale:	1:75,000 @A3
	Drawn:	CL
	Checked:	RB
Drawing: Electoral Divisions	Drawing No:	Map 5.1



0 0.25 0.5 1 1.5 2 Kilometers

Schools within 5 km Radius

Site

All Schools

5km Radius From Massy's Woods and Hell Fire Woods

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Project:	Date:	June 2017
The Dublin Mountains Project Hell Fire Club & Massy's Wood South Dublin	Scale:	1:50000 @A3
	Drawn:	CL
	Checked:	RB
Drawing: Schools within 5km of Site	Drawing No:	Map 5.2

Chapter 5 Population and Human Health

Appendices

Age Group of Population 2011 to 2016 by Electoral Division, Statistical Indicator and Census Year			
		2011	2016
03001 Ballinascorney, South Dublin			
	Persons of all ages (Number)	804	921
	Persons aged 0-4 years (Number)	92	91
	Persons aged 5-12 years (Number)	86	129
	Persons aged 13-18 years (Number)	66	56
	Persons aged 19-24 years (Number)	47	67
	Persons aged 25-44 years (Number)	277	299
	Persons aged 45-64 years (Number)	162	181
	Persons aged 65-69 years (Number)	32	36
	Persons aged 70 years and over (Number)	42	62
03003 Bohernabreena, South Dublin			
	Persons of all ages (Number)	4,592	4,496
	Persons aged 0-4 years (Number)	508	321
	Persons aged 5-12 years (Number)	615	673
	Persons aged 13-18 years (Number)	308	395
	Persons aged 19-24 years (Number)	331	263
	Persons aged 25-44 years (Number)	1,552	1,357
	Persons aged 45-64 years (Number)	914	1,042
	Persons aged 65-69 years (Number)	104	159
	Persons aged 70 years and over (Number)	260	286
03011 Edmondstown, South Dublin			
	Persons of all ages (Number)	5,712	5,757
	Persons aged 0-4 years (Number)	466	412
	Persons aged 5-12 years (Number)	674	709
	Persons aged 13-18 years (Number)	488	462
	Persons aged 19-24 years (Number)	460	451
	Persons aged 25-44 years (Number)	1,713	1,577
	Persons aged 45-64 years (Number)	1,440	1,538
	Persons aged 65-69 years (Number)	158	232
	Persons aged 70 years and over (Number)	313	376
03012 Firhouse-Ballycullen, South Dublin			
	Persons of all ages (Number)	7,773	8,230
	Persons aged 0-4 years (Number)	709	682
	Persons aged 5-12 years (Number)	1,101	1,076
	Persons aged 13-18 years (Number)	765	786
	Persons aged 19-24 years (Number)	618	686
	Persons aged 25-44 years (Number)	2,531	2,484
	Persons aged 45-64 years (Number)	1,817	2,131
	Persons aged 65-69 years (Number)	105	195
	Persons aged 70 years and over (Number)	127	190
03014 Firhouse Village, South Dublin			
	Persons of all ages (Number)	11,648	12,214
	Persons aged 0-4 years (Number)	1,218	1,088
	Persons aged 5-12 years (Number)	1,579	1,708
	Persons aged 13-18 years (Number)	910	1,073

	Persons aged 19-24 years (Number)	808	812
	Persons aged 25-44 years (Number)	4,392	3,994
	Persons aged 45-64 years (Number)	2,208	2,668
	Persons aged 65-69 years (Number)	237	399
	Persons aged 70 years and over (Number)	296	472
03035 Tallaght-Kiltipper, South Dublin			
	Persons of all ages (Number)	8,068	8,478
	Persons aged 0-4 years (Number)	873	799
	Persons aged 5-12 years (Number)	1,235	1,303
	Persons aged 13-18 years (Number)	677	791
	Persons aged 19-24 years (Number)	664	599
	Persons aged 25-44 years (Number)	3,022	3,014
	Persons aged 45-64 years (Number)	1,388	1,559
	Persons aged 65-69 years (Number)	104	231
	Persons aged 70 years and over (Number)	105	182
037 Tallaght-Millbrook, South Dublin			
	Persons of all ages (Number)	3,290	3,386
	Persons aged 0-4 years (Number)	215	197
	Persons aged 5-12 years (Number)	254	295
	Persons aged 13-18 years (Number)	185	186
	Persons aged 19-24 years (Number)	241	207
	Persons aged 25-44 years (Number)	896	897
	Persons aged 45-64 years (Number)	816	710
	Persons aged 65-69 years (Number)	356	309
	Persons aged 70 years and over (Number)	327	585
038 Tallaght-Oldbawn, South Dublin			
	Persons of all ages (Number)	4,527	4,579
	Persons aged 0-4 years (Number)	271	275
	Persons aged 5-12 years (Number)	348	404
	Persons aged 13-18 years (Number)	293	273
	Persons aged 19-24 years (Number)	421	312
	Persons aged 25-44 years (Number)	1,419	1,393
	Persons aged 45-64 years (Number)	1,231	1,094
	Persons aged 65-69 years (Number)	263	394
	Persons aged 70 years and over (Number)	281	434
069 Tibradden, Dún Laoghaire-Rathdown			
	Persons of all ages (Number)	786	1111
	Persons aged 0-4 years (Number)	64	62
	Persons aged 5-12 years (Number)	76	101
	Persons aged 13-18 years (Number)	45	264
	Persons aged 19-24 years (Number)	42	47
	Persons aged 25-44 years (Number)	249	279
	Persons aged 45-64 years (Number)	130	161
	Persons aged 65-69 years (Number)	26	29
	Persons aged 70 years and over (Number)	154	168

Population Density and Area Size 2011 to 2016 by Electoral Division, Census Year and Statistical Indicator						
	Population - 2011	Population - 2016	Actual change since previous census	Percentage change since previous census	Population density (persons per sq km)	Area (sq km)
03001 Ballinascorney, South Dublin	804	921	117	14.6	38.3	24.05
03003 Bohernabreena, South Dublin	4592	4496	-96	-2.1	103.6	43.39
03011 Edmondstown, South Dublin	5712	5757	45	0.8	1361.7	4.23
03012 Firhouse-Ballycullen, South Dublin	7773	8230	457	5.9	2897.4	2.84
03014 Firhouse Village, South Dublin	11648	12214	566	4.9	5080.4	2.4
03035 Tallaght-Kiltipper, South Dublin	8068	8478	410	5.1	5136.2	1.65
03037 Tallaght-Millbrook, South Dublin	3290	3386	96	2.9	5324.6	0.64
03038 Tallaght-Oldbawn, South Dublin	4527	4579	52	1.1	3146.7	1.46
05069 Tibradden, Dún Laoghaire-Rathdown	786	1111	325	41.3	83.3	13.34

Fáilte Ireland
National Tourism Development Authority

TOURISM FACTS 2015

September 2016

Issued By:

Research & Evaluation
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All estimates are based on information from the CSO's Country of Residence Survey (CRS), Passenger Card Inquiry (PCI) Survey and Household Travel Survey (HTS), NISRA's Northern Ireland Passenger Survey (NIPS), NISRA's Continuous Household Survey (CHS), Fáilte Ireland's Survey of Overseas Travellers (SOT), Port Survey of Holidaymakers, Accommodation Occupancy Survey, Visitor Attractions Survey, Domestic Omnibus Survey, and SouthWestern Tourism Services (Register of Accommodation).

Tourism Ireland is responsible for marketing the Island of Ireland overseas. Information on Tourism Ireland's marketing activities and the performance of overseas tourism to the island of Ireland is available on www.tourismireland.com/corporate/

TOURISM FACTS 2015

Expenditure by tourists visiting Ireland (including receipts paid to Irish carriers by foreign visitors) was estimated to be worth €6 billion in 2015, this represents growth of 16% on 2014. Combining spending by international tourists with the money spent by Irish residents taking trips here, total tourism expenditure in 2015 was estimated to be €7.7 billion.

Overseas tourist visits to Ireland in 2015 grew by 13.1% to 8.0 million. Short haul markets, Britain and Mainland Europe recorded respective growth of 11.3% and 15.7%. North America and other long haul markets also performed very strongly, increasing by 12.9% and 11.7% respectively.

Britain remains our biggest source market for overseas tourists, representing 41.6% of all such visits. The next biggest source market is Mainland Europe, which accounts for 35.8% of international volume. Some 16.1% of overseas tourists come from North America. The balance, 6.4%, comes from other long haul markets.

Economic benefits

In 2015, out-of-state tourist expenditure amounted to €4.6 billion. With a further €1.3 billion spent by overseas visitors on fares to Irish carriers, foreign exchange earnings were €6 billion. Domestic tourism expenditure amounted to €1.7 billion, making tourism a €7.7 billion industry.

Government earned estimated revenue of €1.8 billion through taxation of tourism, of which €1.3 billion came from foreign tourism. In 2015 the tourism industry accounted for 3.5% of all tax revenue.

In 2015 the value of exported goods and services was estimated at €295.4 billion of which €6 billion can be directly attributed to tourism, accounting for 2.0% of export earnings. Being largely service based, tourism goods have low import content in comparison to other exports.

Total out-of-state and domestic tourism expenditure of €7.7 billion in 2015 represented 4.0% of GNP in revenue terms.

Because tourism is characterised by the fact that consumption takes place where the service is available and tourism activity is frequently concentrated in areas which lack an intensive industry base, it is credited with having a significant regional distributive effect.

Direct employment in the tourism and hospitality industry

The Central Statistics Office's official count of direct employment in 'Accommodation and food service activities', a category which includes hotels, restaurants, bars, canteens and catering, was 139,900 in 2015 (7.1% of total employment). This estimate of employment is based on the CSO Household Survey and the jobs identified are defined as 'the respondent's main job' and include both full-time and part-time.
Source: CSO Quarterly National Household Survey

Drawing on an alternative approach, an estimate of all jobs in the tourism and hospitality industry based on past Fáilte Ireland surveys of businesses (full-time, part-time, seasonal/casual and not confined to 'main' job) indicates total employment in the sector at approximately 220,000. This estimate includes an additional category of tourism services and attractions which is not covered by the CSO.

Tourism Numbers 2012 – 2015

Where did Ireland's tourists come from?

Numbers (000s)	2012	2013	2014	2015
Britain	**2,722**	**2,870**	**3,007**	**3,346**
Mainland Europe	**2,247**	**2,346**	**2,490**	**2,880**
France	*384*	*409*	*420*	*471*
Germany	*437*	*466*	*535*	*609*
Italy	*240*	*226*	*246*	*304*
Spain	*239*	*249*	*274*	*322*
Netherlands	*137*	*148*	*151*	*174*
Belgium	*82*	*95*	*99*	*121*
Denmark	*42*	*51*	*55*	*66*
Sweden	*70*	*72*	*60*	*64*
Switzerland	*78*	*73*	*84*	*105*
Austria	*46*	*51*	*57*	*53*
Norway	*48*	*50*	*50*	*58*
Poland	*159*	*152*	*140*	*161*
All Other Europe	*284*	*306*	*318*	*373*
North America	**940**	**1,039**	**1,146**	**1,294**
USA	*833*	*924*	*1,005*	*1,129*
Canada	*107*	*115*	*140*	*165*
Rest of World	**378**	**431**	**462**	**516**
Australia, New Zealand & Other Oceania	*158*	*192*	*191*	*205*
Other Areas	*219*	*240*	*271*	*312*
Total Overseas	**6,286**	**6,686**	**7,105**	**8,036**
Northern Ireland[1]	1,299	1,572	1,708	1,492
Total out-of-state	**7,585**	**8,258**	**8,813**	**9,528**
Domestic trips[2]	8,291	8,413	8,991	9,125

Source surveys are designed to measure area of residence groupings (bold figures). Figures in italics are indicative of approximate overall market size but do not provide a sufficient level of precision to accurately reflect absolute market size or trends over time.

Source: CSO/Fáilte Ireland/TSB, NISRA

1 Revised by NISRA May 2015

2 2012-2015 domestic data revised due to new methodological approach by CSO, August 2016

Tourism Revenue 2012 – 2015

How much money did they spend?

Revenue (€m)	2012	2013[3]	2014	2015
Britain	**857.9**	**890.9**	**926.7**	**1,017.9**
Mainland Europe	**1,060.5**	**1,228.2**	**1,301.2**	**1,555.3**
North America	**745.7**	**829.0**	**940.3**	**1,199.7**
Other Overseas	**291.6**	**367.7**	**428.1**	**492.6**
TOTAL OVERSEAS	**2,955.8**	**3,315.7**	**3,596.4**	**4,265.3**
Northern Ireland[4, 5]	292.3	304.5	334.4	351.2
TOTAL OUT-OF-STATE	**3,248.1**	**3,620.3**	**3,930.7**	**4,616.5**
Carrier receipts[6]	856.0	976.0	1,166.0	1,322.0
Overseas same-day visits	34.0	35.0	41.0	38.0
TOTAL FOREIGN EXCHANGE EARNINGS	**4,138.1**	**4,631.3**	**5,137.7**	**5,976.5**
Domestic trips[7]	1,514.2	1,533.0	1,713.5	1,725.3
TOTAL TOURISM REVENUE	**5,652.3**	**6,164.3**	**6,851.2**	**7,701.8**

Source surveys are designed to measure area of residence groupings (bold figures).
Source: CSO/Fáilte Ireland/TSB NISRA/Central Bank of Ireland

Revenue – some useful figures

Per diems – spend per person per day

Overseas tourists	€68
Overseas holidaymakers	€89
Domestic overnight trips	€73

For every euro spent on tourism (domestic and overseas), 23c is generated in tax.

Employment – some useful figures

Every €1mn of tourist expenditure helps to support 29 tourism jobs.
1,000 additional tourists support 14 jobs in the tourism industry.

3 Revised March 2014

4 NISRA GBP: Northern Ireland resident expenditure data provided in STĿ from 2009 onwards. Euro exchange rate 2015-0.72585 Source: Central Bank of Ireland

5 2012,2013 Revised by NISRA May 2015

6 2012 carrier receipts revised March 2014 , 2013 and 2014 revised March 2016

7 2012-2015 domestic data revised due to new methodological approach by CSO, August 2016

Regional Visits and Revenue 2015

Where did tourists go in 2015?

Numbers (000s) ***Revenue (€m)***	**Britain**	**Mainland Europe**	**North America**	**Other Areas**	**All Overseas**	**Northern Ireland[8,9]**	**Domestic Trips**
Dublin	1,594	1,987	980	376	4,937	391	1,599
	322.9	*657.3*	*457.0*	*289.0*	*1,726.2*	*81.6*	*263.8*
East & Midlands	431	341	109	41	922	223	1,319
	116.7	*119.0*	*62.0*	*26.0*	*323.7*	*52.4*	*216.5*
South-East	298	290	215	73	876	46	1,318
	90.8	*84.1*	*55.0*	*29.0*	*258.9*	*9.6*	*258.1*
South-West	632	808	490	174	2,104	94	1,746
	191.3	*333.5*	*209.0*	*58.0*	*791.8*	*48.8*	*389.6*
Shannon	302	419	342	85	1148	n/a	890
	88.6	*99.2*	*144.0*	*35.0*	*366.8*	*n/a*	*138.6*
West	331	690	436	133	1,590	146	1,482
	101.6	*203.9*	*229.0*	*40.0*	*574.5*	*53.8*	*315.1*
North-West	302	239	110	43	694	591	771
	105.9	*58.2*	*43.0*	*17.0*	*224.1*	*104.9*	*143.7*

Source: CSO/Fáilte Ireland NISRA/Central Bank of Ireland

Overseas Tourists in 2015

How did overseas tourists spend their money in Ireland?

Breakdown of spend in Ireland (%)	**Total**	**Britain**	**Mainland Europe**	**North America**	**Rest of World**
Bed & board	31	28	33	32	27
Other food & drink	33	39	31	32	32
Sightseeing/entertainment	7	6	8	7	8
Internal transport	13	13	12	14	12
Shopping	14	12	14	13	18
Miscellaneous	2	2	2	3	2

When did they arrive?

Seasonality (%)	**Total**	**Britain**	**Mainland Europe**	**North America**	**Rest of World**
January-March	18	20	17	13	16
April	8	8	9	7	7
May	10	9	10	10	9
June	10	8	10	14	10
July	11	10	11	13	12
August	12	11	12	12	12
September	9	9	9	11	10
October-December	23	25	22	20	24

Source: Fáilte Ireland estimates based on CSO

8 Source: NISRA GBP; Euro exchange rates 2015 – 0.72585 Source: Central Bank of Ireland

9 Shannon n/a– insufficient survey response level to support an estimate

How did they arrive/depart?

(%)	Total	Britain	Mainland Europe	North America	Rest of World
Air					
From Britain	37	74	5	22	32
From Mainland Europe	37	1	87	18	28
Transatlantic	11	1	1	56	2
Asia/Middle East	2	-	-	-	29
Sea					
From Britain	9	17	3	2	6
From Mainland Europe	1	*	3	-	-
Via N. Ireland	3	7	1	1	4

Source: CSO (indicates less than 0.5 percent)*

Where did they stay? (distribution of bednights)

(%)	Total	Britain	Mainland Europe	North America	Rest of World
Hotels	19	23	14	28	16
Guesthouses/B&Bs	6	4	8	7	3
Self-catering	23	10	25	25	32
Caravan & camping	1	1	2	*	*
Hostels	3	1	4	3	3
Friends/relatives	26	54	18	21	22
Other *Source: SOT*	22	7	29	16	24
Nights (Million) *Source (CSO)*	62.5	16.4	26.7	11.8	7.6

(indicates less than 0.5 percent)*

What activities did they engage in?

	Overseas Participants (000s)
Hiking/cross country walking	1,674
Cycling	355
Golf	198
Angling	163
Equestrian	75

What was their main reason for visiting Ireland?

(000s)	Total	Britain	Mainland Europe	North America	Rest of World
Holiday	4,036	1,254	1,612	926	243
Visit friends/relatives	2,374	1,412	591	201	169
Business	1,273	618	469	115	72
Other	353	61	209	51	32

Source: CSO and NISRA

In 2015, less than 3 in ten (29%) of those coming to Ireland to visit friends/relatives were born in Ireland.

Overseas Holidaymakers 2015

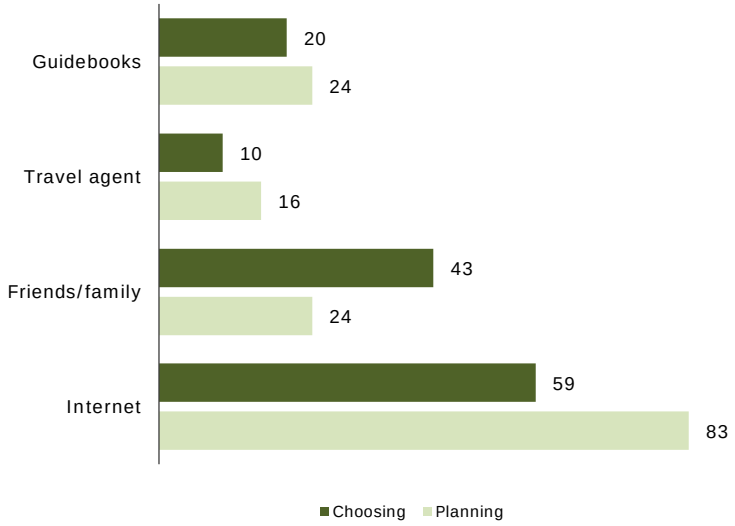
Holidaymakers in this section are defined as tourists who stated that their primary purpose for visiting Ireland was a holiday.

What was the total number of holidaymakers in 2015?

Holidaymakers (000s)	2010	2011	2012	2013	2014	2015
Britain	896	961	941	979	1,057	1,254
Mainland Europe	971	1,041	1,120	1,227	1,314	1,612
North America	546	591	634	718	803	926
Rest of World	137	167	184	220	219	243
Total	2,549	2,760	2,879	3,144	3,393	4,036

Source: CSO and NISRA

Sources of information for choosing/planning a holiday in Ireland (%)



Source: Fáilte Ireland's Port Survey of Holidaymakers 2015

How did they arrange their holiday?

(%)	Total	Britain	Mainland Europe	North America	Rest of World
Package*	16	10	14	24	15
Independent	84	90	86	76	85

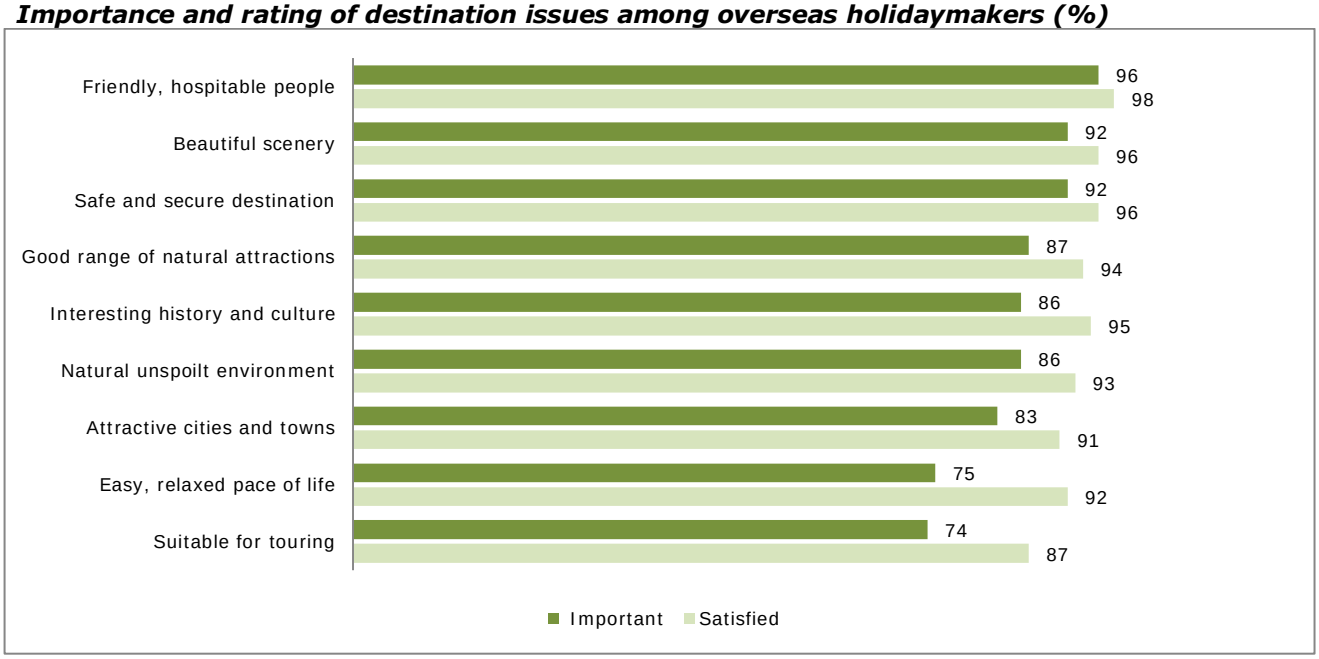
** Prepaid an inclusive price for fares to/from Ireland and at least one other element of the holiday.*
Source: Fáilte Ireland's Survey of Overseas Travellers

What were the characteristics of holidaymakers to Ireland (%)?

Experience of Ireland		Use of car		Age		Social class		Party composition	
First visit	61	Car brought	12	Under 25 years	21	Managerial/professional (AB)	28	Alone	21
Repeat	37	Car hired	32	25-34 years	24	White collar (C1)	55	Couple	43
Irish-born	2	Car not used	56	35-44 years	13	Skilled worker (C2)	13	Family	14
				45+ years	43	Unskilled worker (DE)	3	Other adult group	22

Source: Fáilte Ireland's Survey of Overseas Travellers

Importance and rating of destination issues among overseas holidaymakers (%)



Source: Fáilte Ireland's Port Survey of Overseas Holidaymakers 2015

Domestic Tourism in 2015[10]

Domestic trips (000s) by purpose of travel

	2012	2013	2014	2015
Holiday trips	4,036	4,073	4,436	4,658
- *Long (4+ nights)*	*918*	*1,088*	*1,144*	*1,078*
- *Short (1-3 nights)*	*3,118*	*2,985*	*3,292*	*3,580*
Visiting friends/relatives trips	2,765	2,988	2,918	2,921
Business trips	350	364	453	407
Other trips	1,140	988	1,184	1,138
Total trips	**8,291**	**8,413**	**8,991**	**9,125**

Source: CSO Household Travel Surveys 2012-2015

Domestic expenditure (€m) by purpose of travel

	2012	2013	2014	2015
Holiday trips	876.2	947.2	992.8	1,070.4
- *Long (4+ nights)*	*311.9*	*395.2*	*385.6*	*394.2*
- *Short (1-3 nights)*	*564.3*	*552.0*	*607.1*	*676.2*
Visiting friends/relatives trips	289.6	284.8	327.0	296.5
Business trips	80.5	84.2	110.3	98.0
Other trips	268.0	216.8	283.4	260.4
Total expenditure	**1,514.2**	**1,533**	**1,713.5**	**1,725.3**

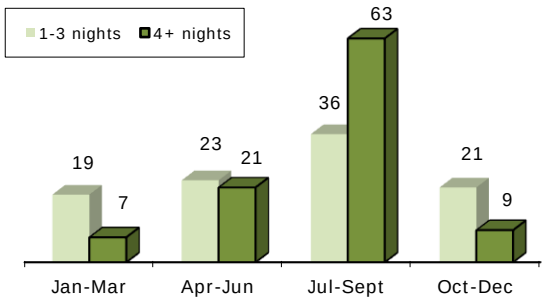
Source: CSO Household Travel Surveys 2012-2015

Accommodation bednights domestic holidaymakers (%)

	2012	2013	2014	2015
Hotels	37	34	34	35
Guesthouse/B&Bs	3	3	4	4
Caravan/camping	12	15	14	7
Self-catering	20	22	23	22
Holiday home	12	15	12	19
Friends/relatives	13	10	13	10
Other	2	1	1	3

Source: CSO Household Travel Surveys 2012-2015

Seasonality of holidaymakers (%) 2015 by length of stay



Source: CSO Household Travel Survey 2015

10 2012-2015 domestic data revised due to new methodological approach by CSO, August 2016

Activities engaged in by domestic holidaymakers (%)

Houses/castles	26
Hiking/walking	23
National parks	22
Gardens	21
Visits to spas	20
Watersports (excluding swimming)	18
Heritage/ interpretive centres	18
Monuments	16
Museums/art galleries	15
Cycling	7
Golf	7
Angling	4
Attending horse racing	3
Equestrian pursuits	1

Source: Fáilte Ireland Domestic Omnibus 2015

The Tourism Product

Accommodation in 2015

	Premises	**Rooms**
Hotels	798	56,240
Guesthouses	226	2,835
Bed and Breakfasts*	1,324	5,568
Self-Catering (group scheme only - units)	3,346	n/a
Hostels (beds)	110	7,989
Caravan & camping (pitches)	93	5,312

Source: SouthWestern Tourism Services
** includes specialist and pub accommodation*

Accommodation occupancy in 2015

	%
Hotel Room Occupancy	70
Guesthouse Room Occupancy	61
B&Bs Room Occupancy	40
Hostels Bed Occupancy	64
Group Scheme Self-Catering Bed Occupancy	30
Caravan and Camping Bed Occupancy	24

Source: Fáilte Ireland Occupancy Surveys

Attendance at popular visitor attractions in Ireland 2015

Top Fee-Charging Attractions			Top Free Attractions		
Name of Attraction	**County**	**2015**	**Name of Attractions**	**County**	**2015**
Guinness Storehouse	Dublin	1,498,124	The National Gallery of Ireland	Dublin	718,637
Cliffs of Moher Visitor Experience	Clare	1,251,574	National Botanic Gardens	Dublin	553,348
Dublin Zoo	Dublin	1,105,005	Irish Museum of Modern Art	Dublin	485,702
National Aquatic Centre	Dublin	991,554	National Museum of Ireland - Archaeology, Kildare St	Dublin	457,057
Book of Kells	Dublin	767,996	Doneraile Wildlife Park	Cork	432,180
Tayto Park	Meath	750,000	Farmleigh	Dublin	410,076
St Patrick's Cathedral	Dublin	532,042	Science Gallery at Trinity College Dublin	Dublin	409,891
Fota Wildlife Park	Cork	436,386	Newbridge Silverware Museum of Style Icons	Kildare	350,000
Blarney Castle	Cork	400,000	Chester Beatty Library	Dublin	343,929
Bunratty Castle & Folk Park	Clare	341,685	National Museum of Ireland - Natural History, Merrion St	Dublin	320,528
Kilmainham Gaol	Dublin	326,635	National Museum of Ireland - Decorative Arts & History, Collins Barracks	Dublin	295,820
Rock of Cashel	Tipperary	300,749	Holy Cross Abbey	Tipperary	210,000
Kylemore Abbey & Garden	Galway	300,000	Connemara National Park	Galway	190,753
Castletown House & Parklands	Kildare	297,691	Dublin City Gallery The Hugh Lane	Dublin	190,000
Kilkenny Castle	Kilkenny	282,588	Sliabh Liag Cliffs	Donegal	185,760
Old Jameson Distillery	Dublin	282,056	Crawford Art Gallery	Cork	175,902
Powerscourt House & Gardens	Wicklow	249,475	Galway City Museum	Galway	174,556
Dublin Castle	Dublin	231,178	Drumcliffe Church & Audio Visual Presentation	Sligo	160,000
Christ Church Cathedral	Dublin	195,888	Malin Head Viewing Point	Donegal	154,760
The House of Waterford Crystal	Waterford	177,000	Nicholas Mosse Pottery	Kilkenny	125,000
Glenveagh Castle and Grounds	Donegal	170,797	National Museum of Ireland - Country Life, Turlough Park	Mayo	119,839

Source: Fáilte Ireland Visitor Attraction Survey 2015

Fáilte Ireland
National Tourism Development Authority

Regional tourism performance in 2015

October 2016

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Please note: tourists and holidaymakers can visit more than one county or region during one trip, therefore the sum of visits/holidays to regions and counties add up to more than the national total.

Regional distribution of overseas markets in 2015

REGION		Britain	Mainland Europe	North America	Other Areas	Total
Dublin	Tourists (000s)	1,594	1,987	980	376	4,937
	Tourist Revenue (€mn)	322.9	657.3	457.0	289.0	1,726.2
	Holidaymakers (000s)	678	1,176	777	210	2,841
East & Midlands	Tourists (000s)	431	341	109	41	922
	Tourist Revenue (€mn)	116.7	119.0	62.0	26.0	323.7
	Holidaymakers (000s)	114	207	66	17	404
South East	Tourists (000s)	298	290	215	73	876
	Tourist Revenue (€mn)	90.8	84.1	55.0	29.0	258.9
	Holidaymakers (000s)	116	210	187	44	557
South West	Tourists (000s)	632	808	490	174	2,104
	Tourist Revenue (€mn)	191.3	333.5	209.0	58.0	791.8
	Holidaymakers (000s)	298	604	410	116	1,428
Shannon	Tourists (000s)	302	419	342	85	1,148
	Tourist Revenue (€mn)	88.6	99.2	144.0	35.0	366.8
	Holidaymakers (000s)	107	324	275	54	760
West	Tourists (000s)	331	690	436	133	1,590
	Tourist Revenue (€mn)	101.6	203.9	229.0	40.0	574.5
	Holidaymakers (000s)	145	533	355	87	1,120
North West	Tourists (000s)	302	239	110	43	694
	Tourist Revenue (€mn)	105.9	58.2	43.0	17.0	224.1
	Holidaymakers (000s)	104	190	84	25	403

Overseas tourists (000s) to counties in 2015

County	Total	Britain	Mainland Europe	North America	Other Areas
Dublin	4,938	1,593	1,987	980	376
Carlow	62	31	23	7	1
Kilkenny	267	52	107	85	23
Tipperary (South)	133	46	45	29	12
Waterford	263	79	81	80	24
Wexford	221	113	63	30	15
Cork	1,449	505	565	266	113
Kerry	1,026	166	415	347	97
Clare	597	110	221	220	46
Limerick	537	166	200	134	37
Tipperary(North)	51	27	15	6	4
Offaly (West)	10	6	4	1	0
Galway	1,354	243	621	373	117
Mayo	302	79	121	85	17
Roscommon	50	23	11	11	4
Cavan	144	93	25	17	9
Donegal	289	84	126	55	24
Leitrim	57	29	16	8	3
Monaghan	65	45	10	6	4
Sligo	186	62	86	30	9
Kildare	214	113	71	19	10
Laois	57	31	17	6	3
Longford	30	15	10	3	2
Louth	125	62	44	13	5
Meath	134	58	48	20	9
Wicklow	248	95	112	32	10
Offaly (East)	38	19	14	4	1
Westmeath	116	55	42	15	4

- *"*" indicates less than 1,000.*
- *Total visits to region are less than the sum of visits to the counties because overseas tourists can visit more than one county.*
- *Data is based on three-year rolling averages.*

Overseas tourist revenue (€mn) by county in 2015

County	Total	Britain	Mainland Europe	North America	Other Areas
Dublin	1,726	323	657	457	289
Carlow	32	10	14	8	1
Kilkenny	45	14	14	12	5
Tipperary (South)	41	15	14	8	4
Waterford	75	23	24	16	12
Wexford	65	29	18	12	7
Cork	558	137	254	126	40
Kerry	234	54	79	83	18
Clare	127	30	29	60	9
Limerick	212	47	61	80	24
Tipperary (North)	25	11	9	4	2
Offaly (West)	2	2	*	*	-
Galway	475	69	174	197	34
Mayo	80	25	26	26	4
Roscommon	20	8	4	6	2
Cavan	50	27	7	10	6
Donegal	83	32	24	22	5
Leitrim	15	9	3	2	1
Monaghan	25	18	4	2	1
Sligo	51	20	20	6	4
Kildare	89	30	33	20	6
Laois	18	10	4	3	1
Longford	8	5	2	*	*
Louth	36	13	10	9	3
Meath	44	15	18	8	3
Wicklow	82	22	36	15	9
Offaly (East)	12	5	3	3	1
Westmeath	36	16	14	5	1

- *"*" indicates less than €1mn.*
- *Data is based on three-year rolling averages.*

Irish residents' trips by county

Number of trips (000s) by the main county visited, 2012 - 2015

	2012	2013	2014	2015
Total domestic – trips (000s) [1]	**8,291**	**8,413**	**8,991**	**9,125**
Cavan and Leitrim	196	242	179	234
Clare	388	347	388	410
Cork	944	902	973	967
Donegal	300	313	329	314
Dublin	1,642	1,525	1,639	1,599
Galway	720	834	916	895
Kerry	708	823	862	779
Kildare and Carlow	250	228	253	306
Kilkenny	197	291	200	228
Laois and Offaly	155	169	205	193
Limerick	188	271	253	257
Louth and Monaghan	110	148	197	142
Mayo	385	458	524	463
Meath	184	182	183	208
Roscommon and Longford	156	97	137	160
Sligo	242	207	223	263
Tipperary	202	184	161	217
Waterford	304	273	317	285
Westmeath	177	167	187	209
Wexford	575	518	603	679
Wicklow	267	234	259	315

[1] Data is published at county level above a threshold of 150,000 trips for most recent year. Data is amalgamated below this threshold.
Source: Central Statistics Office Household Travel Survey, 2012-2015

Irish residents' trip expenditure by county

Expenditure by main county visited, 2012- 2015

	2012	2013	2014	2015
Total domestic expenditure (€million)	**1,514.2**	**1,533.0**	**1,713.5**	**1,725.3**
Cavan and Leitrim	30.3	39.5	24.9	39.5
Clare	88.1	87.2	83.2	101.2
Cork	180.3	150.9	171.3	171.0
Donegal	73.0	67.8	89.2	75.7
Dublin	273.5	267.2	283.7	263.8
Galway	143.4	150.7	201.0	194.1
Kerry	171.6	200.7	198.4	202.8
Kildare and Carlow	35.1	24.9	30.4	39.9
Kilkenny	28.5	36.1	24.0	30.1
Laois and Offaly	19.0	20.5	27.9	24.8
Limerick	25.2	37.4	39.2	32.1
Louth and Monaghan	15.2	18.7	30.5	24.3
Mayo	84.5	109.6	118.6	93.3
Meath	28.6	20.7	20.3	23.6
Roscommon and Longford	19.0	19.0	26.8	28.2
Sligo	39.1	42.2	43.0	61.2
Tipperary	29.6	22.8	27.7	37.5
Waterford	63.8	51.2	73.7	62.3
Westmeath	18.2	19.6	20.8	28.2
Wexford	109.1	111.9	140.2	140.0
Wicklow	39.1	34.6	38.6	51.7

Source: Fáilte Ireland's own estimates based on CSO Household Travel Survey, 2015

Profile of overseas tourists by region in 2015

Main reason for visit (%)	Dublin	East & Midlands	South East	South West	Shannon	West	North West
Holiday	58	44	64	68	66	70	58
Business	15	9	7	9	10	5	7
Visiting friends/relatives	22	44	27	19	21	20	33
Other	5	3	3	4	2	4	2

Month of departure (%)	Dublin	East & Midlands	South East	South West	Shannon	West	North West
January-March	18	14	10	12	11	9	9
April	8	8	8	6	5	6	6
May	10	8	9	10	9	9	7
June	11	9	12	12	11	12	10
July	11	13	16	12	14	14	16
August	11	15	16	15	15	18	21
September	10	11	10	11	11	12	12
October-December	22	21	18	22	23	19	20

Route of entry (%)	Dublin	East & Midlands	South East	South West	Shannon	West	North West
Air from Britain	36	38	26	35	34	23	26
Air from Mainland Europe	45	35	27	37	30	40	31
Transatlantic Air	12	10	17	16	22	21	14
Asia/Middle East Air	2	1	3	1	1	1	3
Sea from Britain	5	14	22	8	9	11	19
Sea from Mainland Europe	1	2	4	3	3	4	6

Accommodation used (%)	Dublin	East & Midlands	South East	South West	Shannon	West	North West
Hotel	53	27	38	41	42	34	32
Guesthouse/B&B	7	12	17	24	17	24	19
Rented	4	3	4	7	6	6	2
Caravan & camping	*	2	3	2	3	3	5
Hostel	8	2	1	6	4	9	3
Friends/relatives	22	53	31	24	26	22	32
Other	5	5	5	5	5	7	8

Accommodation bednights (%)	Dublin	East & Midlands	South East	South West	Shannon	West	North West
Hotel	24	10	13	17	19	13	14
Guesthouse/B&B	3	4	5	12	6	10	11
Rented	26	12	16	23	27	28	4
Caravan & camping	*	1	1	2	2	1	2
Hostel	4	1	*	3	1	4	2
Friends/relatives	20	49	39	22	29	24	44
Other	23	23	26	21	16	20	23

Other regions visited (%)	Dublin	East & Midlands	South East	South West	Shannon	West	North West
Dublin		28	43	41	40	54	45
East & Midlands	6		12	8	8	10	15
South East	7	10		18	18	16	14
South West	16	17	42		38	38	28
Shannon	9	9	24	22		21	22
West	16	16	29	29	28		39
North West	5	8	9	7	10	13	

Experience of Ireland (%)	Dublin	East & Midlands	South East	South West	Shannon	West	North West
Irish born	8	25	17	11	10	10	18
On first visit	47	25	38	42	44	48	29
Repeat	45	50	45	48	46	42	53

Party composition (%)	Dublin	East & Midlands	South East	South West	Shannon	West	North West
Travelling alone	54	56	38	40	43	41	42
Couple	23	25	35	35	32	33	35
Family	8	9	15	13	12	13	12
Other adult party	15	10	11	13	14	14	11

Social class (%)	Dublin	East & Midlands	South East	South West	Shannon	West	North West
Managerial/professional (AB)	31	30	32	41	27	29	26
White collar (C1)	55	51	48	45	57	55	53
Skilled worker (C2)	11	14	15	11	14	12	15
Unskilled worker (DE)	3	5	5	3	2	3	5

Age (%)	Dublin	East & Midlands	South East	South West	Shannon	West	North West
Under 19 years	7	7	7	8	6	9	7
19-24 years	17	11	8	11	14	14	9
25-34 years	25	20	19	21	21	21	18
35-44 years	15	15	13	13	14	12	11
45-54 years	17	18	16	16	16	17	17
55-64 years	12	15	20	18	16	15	19
65+ years	7	14	18	14	13	12	19

Profile of overseas holidaymakers by region in 2015

Month of departure (%)	Dublin	East & Midlands	South East	South West	Shannon	West	North West
January-March	13	4	4	6	4	4	4
April	6	6	6	7	4	5	5
May	10	11	8	9	8	10	9
June	14	17	16	17	16	16	14
July	13	22	20	14	17	17	21
August	14	18	18	19	16	19	20
September	12	13	15	14	18	16	16
October-December	18	11	12	16	17	14	10

Route of entry (%)	Dublin	East & Midlands	South East	South West	Shannon	West	North West
Air from Britain	28	18	13	23	19	17	15
Air from Mainland Europe	46	47	26	38	34	42	36
Transatlantic Air	18	13	31	23	30	25	19
Asia/Middle East Air	1	1	1	1	1	1	1
Sea from Britain	5	16	21	10	10	9	16
Sea from Mainland Europe	1	6	8	6	6	6	11

Accommodation used (%)	Dublin	East & Midlands	South East	South West	Shannon	West	North West
Hotel	63	44	49	45	49	43	42
Guesthouse/B&B	13	30	29	38	29	36	31
Rented	4	3	5	7	6	4	3
Caravan & camping	1	7	7	5	7	5	9
Hostel	13	5	3	7	7	10	3
Friends/relatives	3	10	5	5	2	3	4
Other	4	4	3	5	4	5	9

Regional tourism performance in 2015

Accommodation bednights (%)	Dublin	East & Midlands	South East	South West	Shannon	West	North West
Hotel	56	31	32	31	33	30	24
Guesthouse/B&B	11	20	20	26	21	31	32
Rented	8	8	15	13	17	9	5
Caravan & camping	1	5	8	7	8	5	9
Hostel	13	4	2	6	4	7	2
Friends/relatives	6	28	17	7	5	5	7
Other	5	4	6	10	12	13	21

Other regions visited (%)	Dublin	East & Midlands	South East	South West	Shannon	West	North West
Dublin		60	69	60	63	72	64
East & Midlands	8		19	13	14	14	22
South East	14	28		29	31	27	23
South West	31	48	74		63	56	48
Shannon	18	29	44	35		33	41
West	30	41	55	45	48		64
North West	8	20	14	12	18	19	

Experience of Ireland (%)	Dublin	East & Midlands	South East	South West	Shannon	West	North West
Irish born	1	2	4	2	1	1	2
On first visit	69	54	62	61	65	64	48
Repeat	30	44	33	37	33	36	51

Party composition (%)	Dublin	East & Midlands	South East	South West	Shannon	West	North West
Travelling alone	21	20	13	16	14	19	17
Couple	42	46	56	51	50	49	52
Family	13	11	14	16	17	14	15
Other adult party	24	22	17	16	19	18	15

Social class (%)	Dublin	East & Midlands	South East	South West	Shannon	West	North West
Managerial/professional (AB)	26	28	33	35	27	30	28
White collar (C1)	58	52	51	51	58	55	56
Skilled worker (C2)	13	14	13	11	14	12	13
Unskilled worker (DE)	3	5	3	2	1	2	3

Age (%)	Dublin	East & Midlands	South East	South West	Shannon	West	North West
Under 19 years	7	6	6	7	6	8	6
19-24 years	16	9	6	9	11	10	9
25-34 years	26	20	19	21	20	21	17
35-44 years	13	13	10	10	12	12	9
45-54 years	17	20	16	15	17	17	21
55-65 years	13	19	24	21	18	18	21
65+ years	9	13	19	16	16	14	17

Gender (%)	Dublin	East & Midlands	South East	South West	Shannon	West	North West
Male	41	43	45	50	47	43	44
Female	59	57	55	50	53	57	56

Marital status (%)	Dublin	East & Midlands	South East	South West	Shannon	West	North West
Married/living as married	53	63	69	68	64	63	67
Single/widowed/divorced/ separated	47	37	31	31	36	37	33

Dependent children (%)	Dublin	East & Midlands	South East	South West	Shannon	West	North West
Yes	17	19	16	18	19	19	20
No	83	81	84	82	81	81	80

Use of car (%)	Dublin	East & Midlands	South East	South West	Shannon	West	North West
Car brought/borrowed	5	23	24	16	14	15	28
Car hired	28	55	49	54	59	53	47
Car not used	66	22	27	31	26	32	25

Whether travelling on a package (%)	Dublin	East & Midlands	South East	South West	Shannon	West	North West
Package	17	18	25	23	26	22	28
Independent	83	82	75	77	74	78	72

Value for Money (%)	Dublin	East & Midlands	South East	South West	Shannon	West	North West
Good	61	65	57	61	49	55	60
Fair	33	30	39	36	43	39	35
Poor	5	4	4	3	7	5	5

Profile of domestic tourists by region in 2015

Trips and revenue	Dublin	East & Midlands	South East	South West	Shannon	West	North West
Domestic trips (000s)	1,599	1,319	1,318	1,746	890	1,482	771
Proportion of all domestic trips (%)	18	14	14	19	10	16	8
Domestic revenue (€m)	264	217	258	390	139	315	144

Purpose of trip (%)	Dublin	East & Midlands	South East	South West	Shannon	West	North West
Holiday	34	47	69	60	41	55	48
Visiting friends/relatives	37	34	23	27	40	31	38
Business	9	5	2	4	5	3	2
Other	20	14	5	9	14	12	12

Timing of domestic trips (%)	Dublin	East & Midlands	South East	South West	Shannon	West	North West
January-March	21	18	17	18	19	19	21
April-June	27	22	26	24	21	23	22
July-September	26	35	40	35	39	36	37
October-December	26	25	17	23	21	21	20

Accommodation capacity by region in 2015

Approved room capacity	Dublin	East & Midlands	South East	South West	Shannon	West	North West
Hotels							
5*	1,684	535	248	930	255	232	96
4*	8,610	3,429	2,786	4,729	1,877	3,028	2,474
3*	7,425	1,943	2,123	3,717	2,999	3,093	2,281
2*	728	273	232	276	376	332	289
1*	84	101	54	40	32	116	34
Other	-			-		-	-
Total Hotels	**18,531**	**6,281**	**5,443**	**9,692**	**5,539**	**6,801**	**5,174**
Guesthouses and B&Bs	850	830	1,075	2,490	1,024	1,559	833
Total Paid Serviced	**19,381**	**7,111**	**6,518**	**12,182**	**6,563**	**8,360**	**6,007**
Self-catering (registered)*	48	80	182	1,303	506	260	218
Hostels**	3,039	412	285	1,700	777	1,349	511

** Self-catering registered figures are units (e.g.houses)*
*** Hostel figures are beds available.*

Notes

Note 1: Holidaymakers are defined as tourists who stated that their main reason for visiting Ireland was a holiday.

Note 2: Approved Room Capacity is supplied by by SouthWestern Tourism Services (Register of Accommodation)

Note 3: In the tables, * means less than 0.5%, - means 0%.

Note 4: Estimates are based on information from the CSO's Country of Residence Survey (CRS), Passenger Card Inquiry (PCI) and Household Travel Survey, NISRA's Northern Ireland Passenger Survey (NIPS) and Continuous Household Survey (CHS) and Fáilte Ireland's Survey of Overseas Travellers.

Definition of tourism regions

Dublin	
Dublin County	
East & Midlands	
Kildare	Laois
Longford	Louth
Meath	Wicklow
Offaly (East)	Westmeath
South East	
Carlow	Kilkenny
Tipperary (South)	Waterford
Wexford	
South West	
Cork	Kerry
Shannon	
Clare	Limerick
Tipperary (North)	Offaly (West)
West	
Galway	Mayo
Roscommon	
North West	
Cavan	Donegal
Leitrim	Monaghan
Sligo	

TOURISM FACTS 2016

Preliminary

June 2017

Issued By:

Research & Evaluation
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All estimates are based on information from the CSO's Country of Residence Survey (CRS), Passenger Card Inquiry (PCI) Survey and Household Travel Survey (HTS), NISRA's Northern Ireland Passenger Survey (NIPS), NISRA's Continuous Household Survey (CHS), Fáilte Ireland's Survey of Overseas Travellers (SOT), Port Survey of Holidaymakers, Accommodation Occupancy Survey, Visitor Attractions Survey, Domestic Omnibus Survey, and SouthWestern Tourism Services (Register of Accommodation).

Tourism Ireland is responsible for marketing the Island of Ireland overseas. Information on Tourism Ireland's marketing activities and the performance of overseas tourism to the island of Ireland is available on www.tourismireland.com/corporate/

TOURISM FACTS 2016

Overseas tourist visits to Ireland in 2016 grew by 8.8% to 8.742 million. Short haul markets, Britain and Mainland Europe recorded respective growth of 8.5% and 7.7%. North America market also performed very strongly, increasing by 14.2%.

Britain remains our biggest source market for overseas tourists, representing 41% of all such visits. The next biggest source market is Mainland Europe, which accounts for 36% of international volume. Some 17% of overseas tourists come from North America. The balance, 6%, comes from other long haul markets.

Tourism Numbers 2013 – 2016 (*preliminary*)

Where did Ireland's tourists come from?

Numbers (000s)	2013	2014	2015	2016
Britain	**2,870**	**3,007**	**3,346**	**3,632**
Mainland Europe	**2,346**	**2,490**	**2,880**	**3,102**
France	*409*	*420*	*471*	*494*
Germany	*466*	*535*	*609*	*624*
Italy	*226*	*246*	*304*	*326*
Spain	*249*	*274*	*322*	*370*
Netherlands	*148*	*151*	*174*	*222*
Belgium	*95*	*99*	*121*	*127*
Denmark	*51*	*55*	*66*	*64*
Sweden	*72*	*60*	*64*	*59*
Switzerland	*73*	*84*	*105*	*107*
Austria	*51*	*57*	*53*	*58*
Norway	*50*	*50*	*58*	*50*
Poland	*152*	*140*	*161*	*176*
All Other Europe	*306*	*318*	*373*	*427*
North America	**1,039**	**1,146**	**1,294**	**1,477**
USA	*924*	*1,005*	*1,129*	*1,294*
Canada	*115*	*140*	*165*	*183*
Rest of World	**431**	**462**	**516**	**531**
Australia, New Zealand & Other Oceania	*192*	*191*	*204*	*206*
Other Areas	*240*	*271*	*312*	*325*
Total Overseas	**6,686**	**7,105**	**8,036**	**8,742**
Northern Ireland[1]	1,572	1,708	1,492	1,358
Total out-of-state	**8,258**	**8,813**	**9,528**	**10,100**
Domestic trips[2]	8,413	8,991	9,125	9,282

Source surveys are designed to measure area of residence groupings (bold figures). Figures in italics are indicative of approximate overall market size but do not provide a sufficient level of precision to accurately reflect absolute market size or trends over time.

Source: CSO/Fáilte Ireland/TSB, NISRA

1 Revised by NISRA May 2015

2 2012-2015 domestic data revised due to new methodological approach by CSO, August 2016

Tourism Revenue 2013 – 2016 (*preliminary*)

How much money did they spend?

Revenue (€m)	2013[3]	2014	2015	2016
Britain	**890.9**	**926.7**	**1,017.9**	**1,109.8**
Mainland Europe	**1,228.2**	**1,301.2**	**1,555.3**	**1,657.5**
North America	**829.0**	**940.3**	**1,199.7**	**1,337.4**
Other Overseas	**367.7**	**428.1**	**492.6**	**533.3**
TOTAL OVERSEAS	**3,315.7**	**3,596.4**	**4,265.3**	**4,638.0**
Northern Ireland[4, 5]	304.5	334.4	338.2	366.9
TOTAL OUT-OF-STATE	**3,620.3**	**3,930.7**	**4,603.5**	5004.9
Carrier receipts[6]	976.0	1,166.0	1,322.0	1,479.0
Overseas same-day visits	35.0	41.0	38.0	48.0
TOTAL FOREIGN EXCHANGE EARNINGS	**4,631.3**	**5,137.7**	**5,963.5**	**6,531.9**
Domestic trips[7]	1,533.0	1,713.5	1,725.3	1,776.1
TOTAL TOURISM REVENUE	**6,164.3**	**6,851.2**	**7,688.8**	**8,308.0**

Source surveys are designed to measure area of residence groupings (bold figures).
Source: CSO/Fáilte Ireland/TSB NISRA/Central Bank of Ireland

Revenue – some useful figures

Per diems – spend per person per day

Overseas tourists	€68
Overseas holidaymakers	€89
Domestic overnight trips	€71

3 Revised March 2014

4 NISRA GBP: Northern Ireland resident expenditure data provided in ST£. 2016 Euro exchange rate 0.81948 Source: Central Bank of Ireland

5 2013 Revised by NISRA May 2015 2015 revised 2016

6 2013 and 2014 revised March 2016

7 2012-2015 domestic data revised due to new methodological approach by CSO, August 2016

Regional Performance 2016

Where did tourists go in 2016? (EUROSTAT NUTS 3 REGIONS, see pg 12)

Numbers (000s) ***Revenue (€m)***	**Britain**	**Mainland Europe**	**North America**	**Other Areas**	**All Overseas**	**Northern Ireland**	**Domestic Trips**
Dublin	1,893	2,231	1,169	394	5,687	310	1,406
	368	*764*	*496*	*347*	*1,975*	*106*	*272*
Mid East[8]	241	234	108	7	590	37	704
	68	*99*	*65*	*18*	*251*	*14*	*123*
Midlands[9]	128	64	28	70	289	18	401
	31	*25*	*13*	*2*	*72*	*6*	*66*
South East	358	290	227	71	946	67	1,355
	112	*73*	*56*	*32*	*273*	*25*	*233*
South West	593	772	591	122	2,079	84	2,006
	200	*280*	*317*	*52*	*849*	*38*	*401*
Mid West	377	401	357	80	1,215	9	817
	102	*133*	*120*	*36*	*390*	*2*	*170*
West	350	733	479	114	1,675	155	1,591
	110	*191*	*210*	*33*	*543*	*54*	*329*
Border	360	263	144	47	815	679	1,001
	120	*92*	*60*	*13*	*286*	*123*	*183*

Source: CSO/Fáilte Ireland NISRA/Central Bank of Ireland

Overseas Tourists in 2016

How did overseas tourists spend their money in Ireland?

Breakdown of spend in Ireland (%)	**Total**	**Britain**	**Mainland Europe**	**North America**	**Rest of World**
Bed & board	33	29	34	34	33
Other food & drink	34	40	33	32	32
Sightseeing/entertainment	6	5	7	6	7
Internal transport	12	12	12	13	11
Shopping	12	11	12	13	14
Miscellaneous	2	2	2	2	3

8 Caution – small sample sizes in individual market areas

9 Caution – small sample sizes in individual market areas

When did they arrive?

Seasonality (%)	Total	Britain	Mainland Europe	North America	Rest of World
January-March	19	22	18	13	17
April	8	9	9	6	6
May	9	8	10	10	8
June	10	8	10	12	10
July	11	9	12	13	12
August	12	11	12	12	12
September	9	9	9	11	10
October-December	22	23	21	23	23

Source: Fáilte Ireland estimates based on CSO

How did they arrive/depart?

(%)	Total	Britain	Mainland Europe	North America	Rest of World
Air					
From Britain	38	75	5	21	32
From Mainland Europe	38	1	88	22	30
Transatlantic	10	1	1	53	2
Asia/Middle East	2	-	-	-	28
Sea					
From Britain	8	16	3	2	5
From Mainland Europe	1	-	2	-	-
Via N. Ireland	3	6	1	2	4

Source: CSO (indicates less than 0.5 percent)*

Where did they stay? (distribution of bednights)

(%)	Total	Britain	Mainland Europe	North America	Rest of World
Hotels	18	22	13	31	11
Guesthouses/B&Bs	7	6	9	10	3
Self-catering	25	11	27	20	45
Caravan & camping	1	1	1	*	*
Hostels	3	1	5	4	2
Friends/relatives	25	49	19	21	19
Other *Source: SOT*	21	10	26	14	20
Nights (Million) *Source (CSO)*	67.9	17.7	28.9	13.2	8.1

(indicates less than 0.5 percent)*

What activities did they engage in?

	Overseas Participants (000s)
Hiking/cross country walking	2,077
Cycling	399
Golf	193
Angling	131
Equestrian	98

What was their main reason for visiting Ireland?

(000s)	Total	Britain	Mainland Europe	North America	Rest of World
Holiday	4,406	1,423	1,699	1,041	242
Visit friends/relatives	2,613	1,518	684	233	178
Business	1,338	633	487	139	79
Other	385	58	232	64	32

Source: CSO and NISRA

In 2016, just under one third (31%) of those coming to Ireland to visit friends/relatives were born in Ireland.

Overseas Holidaymakers 2016

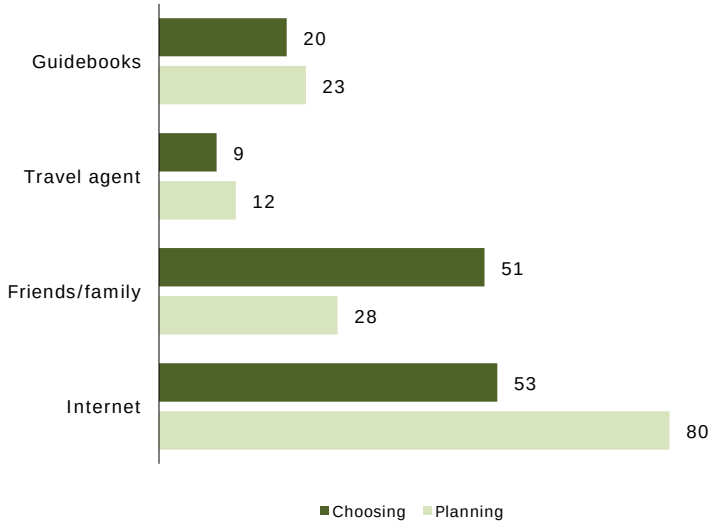
Holidaymakers in this section are defined as tourists who stated that their primary purpose for visiting Ireland was a holiday.

What was the total number of holidaymakers in 2016?

Holidaymakers (000s)	2011	2012	2013	2014	2015	2016
Britain	961	941	979	1,057	1,254	1,423
Mainland Europe	1,041	1,120	1,227	1,314	1,612	1,699
North America	591	634	718	803	926	1,041
Rest of World	167	184	220	219	243	242
Total	2,760	2,879	3,144	3,393	4,036	4,406

Source: CSO and NISRA

Sources of information for choosing/planning a holiday in Ireland (%)



Source: Fáilte Ireland's Port Survey of Holidaymakers 2016

How did they arrange their holiday?

(%)	Total	Britain	Mainland Europe	North America	Rest of World
Package*	17	6	15	28	16
Independent	83	94	85	72	84

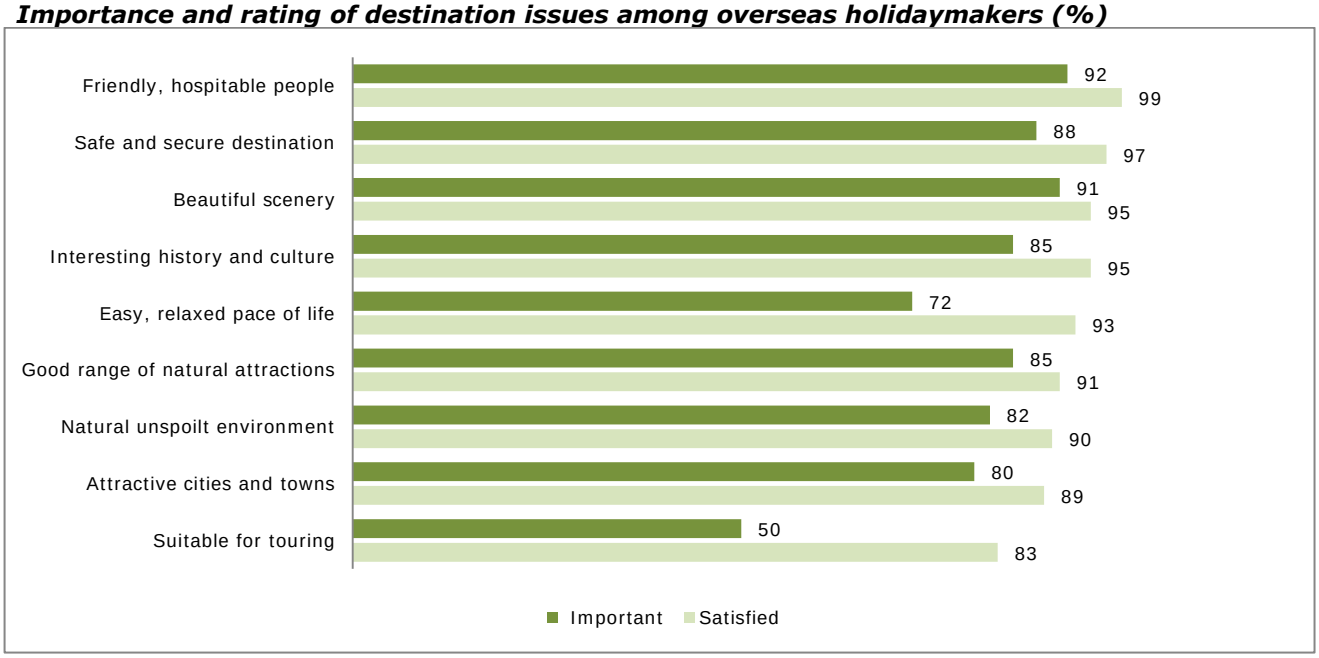
** Prepaid an inclusive price for fares to/from Ireland and at least one other element of the holiday.*
Source: Fáilte Ireland's Survey of Overseas Travellers

What were the characteristics of holidaymakers to Ireland (%)?

Experience of Ireland		Use of car		Age		Social class		Party composition	
First visit	64	Car brought	11	Under 25 years	22	Managerial/professional (AB)	30	Alone	19
Repeat	36	Car hired	31	25-34 years	24	White collar (C1)	57	Couple	42
Irish-born	1	Car not used	58	35-44 years	13	Skilled worker (C2)	10	Family	15
				45+ years	40	Unskilled worker (DE)	3	Other adult group	23

Source: Fáilte Ireland's Survey of Overseas Travellers

Importance and rating of destination issues among overseas holidaymakers (%)



Source: Fáilte Ireland's Port Survey of Overseas Holidaymakers 2016

Domestic Tourism in 2016[10]

Domestic trips (000s) by purpose of travel

	2013	2014	2015	2016
Holiday trips	4,073	4,436	4,658	4,830
- *Long (4+ nights)*	*1,088*	*1,144*	*1,078*	*1,144*
- *Short (1-3 nights)*	*2,985*	*3,292*	*3,580*	*3,686*
Visiting friends/relatives trips	2,988	2,918	2,921	3,032
Business trips	364	453	407	425
Other trips	988	1,184	1,138	994
Total trips	**8,413**	**8,991**	**9,125**	**9,282**

Source: CSO Household Travel Surveys 2013-2016

Domestic expenditure (€m) by purpose of travel

	2013	2014	2015	2016
Holiday trips	947.2	992.8	1,070.4	1,123.9
- *Long (4+ nights)*	*395.2*	*385.6*	*394.2*	*418.4*
- *Short (1-3 nights)*	*552.0*	*607.1*	*676.2*	*705.5*
Visiting friends/relatives trips	284.8	327.0	296.5	294.5
Business trips	84.2	110.3	98.0	104.7
Other trips	216.8	283.4	260.4	253.0
Total expenditure	**1,533**	**1,713.5**	**1,725.3**	**1,776.1**

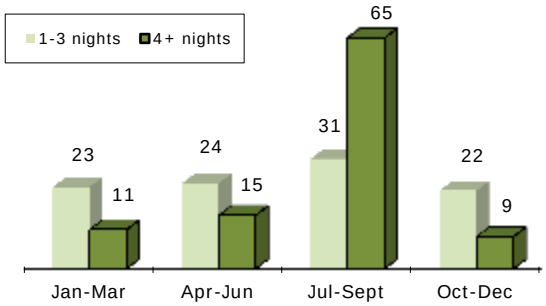
Source: CSO Household Travel Surveys 2013-2016

Accommodation bednights domestic holidaymakers (%)

	2013	2014	2015	2016
Hotels	34	34	35	28
Guesthouse/B&Bs	3	4	4	4
Caravan/camping	15	14	7	*n.a.*
Self-catering	22	23	22	15
Holiday home	15	12	19	9
Friends/relatives	10	13	10	34
Other	1	1	3	11

Source: CSO Household Travel Surveys 2013-2016

Seasonality of holidaymakers (%) 2016 by length of stay



Source: CSO Household Travel Survey 2016

10 2012-2015 domestic data revised due to new methodological approach by CSO, August 2016

Activities engaged in by domestic holidaymakers (%)

Hiking/walking	25
Houses/castles	24
National parks	23
Visits to spas	20
Heritage/ interpretive centres	20
Gardens	19
Watersports (excluding swimming)	19
Monuments	18
Museums/art galleries	14
Cycling	8
Golf	6
Angling	3
Attending horse racing	3

Source: Fáilte Ireland Domestic Omnibus 2016

The Tourism Product

Accommodation in 2016

	Premises	**Rooms**
Hotels	798	56,757
Guesthouses	203	2,584
Bed and Breakfasts	1,257	5,078
	Premises	**Beds**
Self-Catering (units)	3,143	16,694
Hostels	92	7,503
Welcome Standard	177	6,656
Caravan & camping (pitches)	92	5,333

Source: Capita

Accommodation occupancy in 2016

	%
Hotel Room Occupancy	72
Guesthouse Room Occupancy	66
B&Bs Room Occupancy	49
Hostels Bed Occupancy	66
Self-Catering Bed Occupancy	39
Caravan and Camping Bed Occupancy	24

Source: Fáilte Ireland Accommodation Survey

Attendance at popular visitor attractions in Ireland 2016

Top Fee-Charging Attractions			Top Free Attractions		
Name of Attraction	**County**	**2016**	**Name of Attractions**	**County**	**2016**
Guinness Storehouse	Dublin	1,647,408	The National Gallery of Ireland	Dublin	755,577
Cliffs of Moher Visitor Experience	Clare	1,427,166	Irish Museum of Modern Art	Dublin	584,856
Dublin Zoo	Dublin	1,143,908	National Botanic Gardens	Dublin	583,539
National Aquatic Centre	Dublin	1,037,992	Doneraile Wildlife Park	Cork	480,000
Book of Kells	Dublin	890,781	National Museum of Ireland - Archaeology, Kildare St	Dublin	479,261

Source: Fáilte Ireland Visitor Attraction Survey 2016

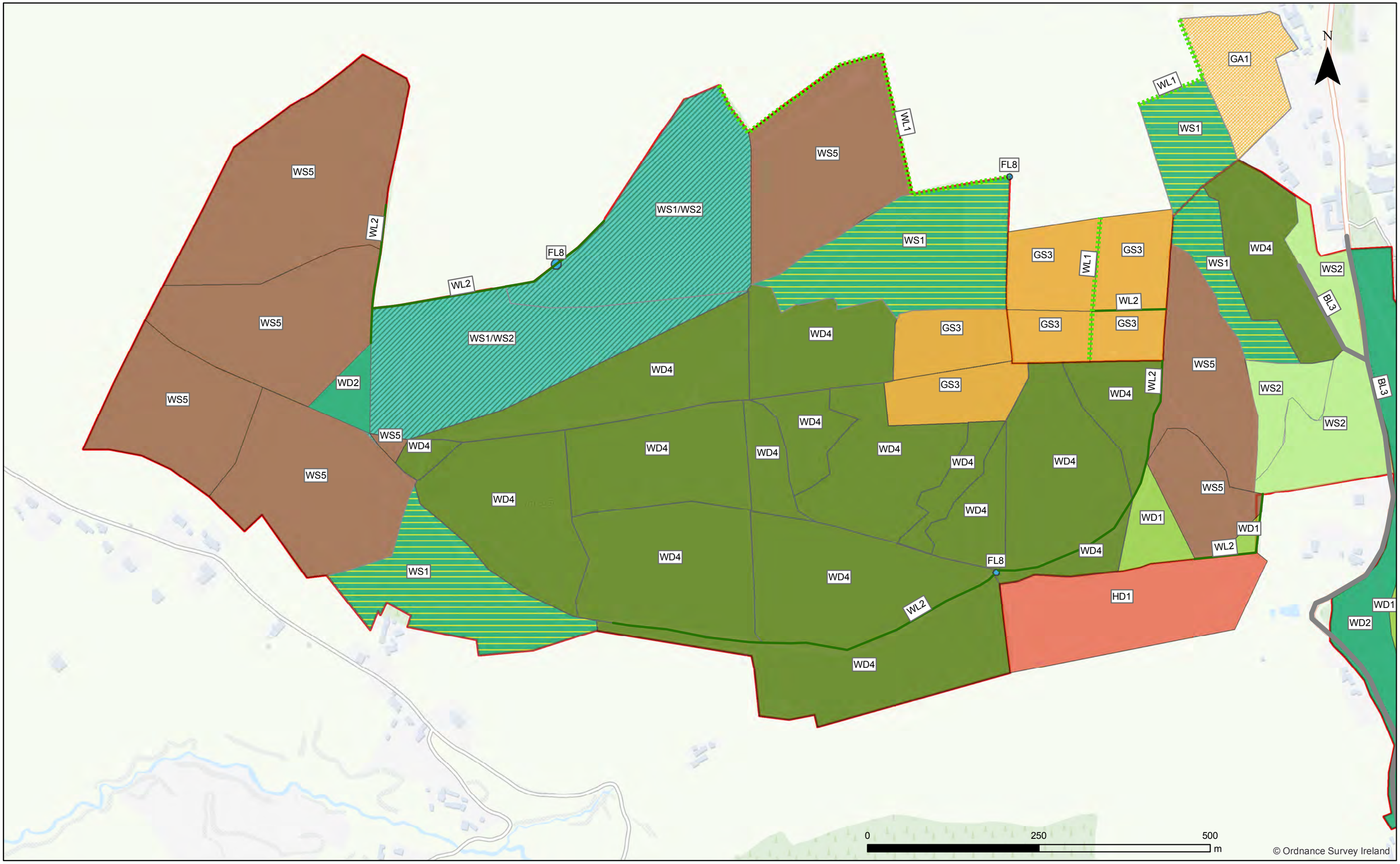
NUTS 3 Region	County
Dublin	Dublin City & County
South East	Carlow Kilkenny Tipperary (South) Waterford Wexford
South West	Cork Kerry
West	Galway Mayo Roscommon
Mid East	Kildare Meath Wicklow
Midland	Laois Longford Offaly Westmeath
Mid West	Clare Limerick Tipperary (North)
Border	Cavan Donegal Leitrim Monaghan Sligo Louth

Chapter 6 Biodiversity

Supplementary Information

Chapter 6 Biodiversity

Maps

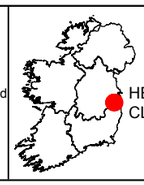


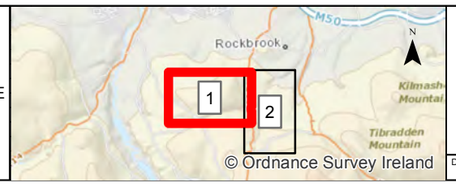
Fossitt Habitat Code Polylines

- BL3, Buildings and artificial surfaces
- FW1, Eroding/upland rivers
- WL1, Hedgerows
- WL2, Treelines

Fossitt Habitat Code Polygons

- FL8, Other artificial lakes and ponds
- GA1, Improved agricultural grassland
- GS3, Dry-humid acid grassland
- GS4/WS1, Wet grassland/Scrub
- HD1, Dense bracken
- WD1, Broadleaved woodland
- WD2, Mixed broadleaved /conifer woodland
- WD4, Conifer plantation
- WD5, Scattered trees and parkland
- WS1, Scrub
- WS1/WS2, Scrub/Immature woodland
- WS2, Immature woodland
- WS5, Recently-felled woodland





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Project Title: DUBLIN MOUNTAINS VISITOR CENTRE

Drawing Title: HABITAT MAPPING
SHEET 1 OF 2

Drawn:	Job No:	Drawing No:	Rev:
MM	15.189		

Scale: 1:5,000 @ A3 | Date: FEB '17

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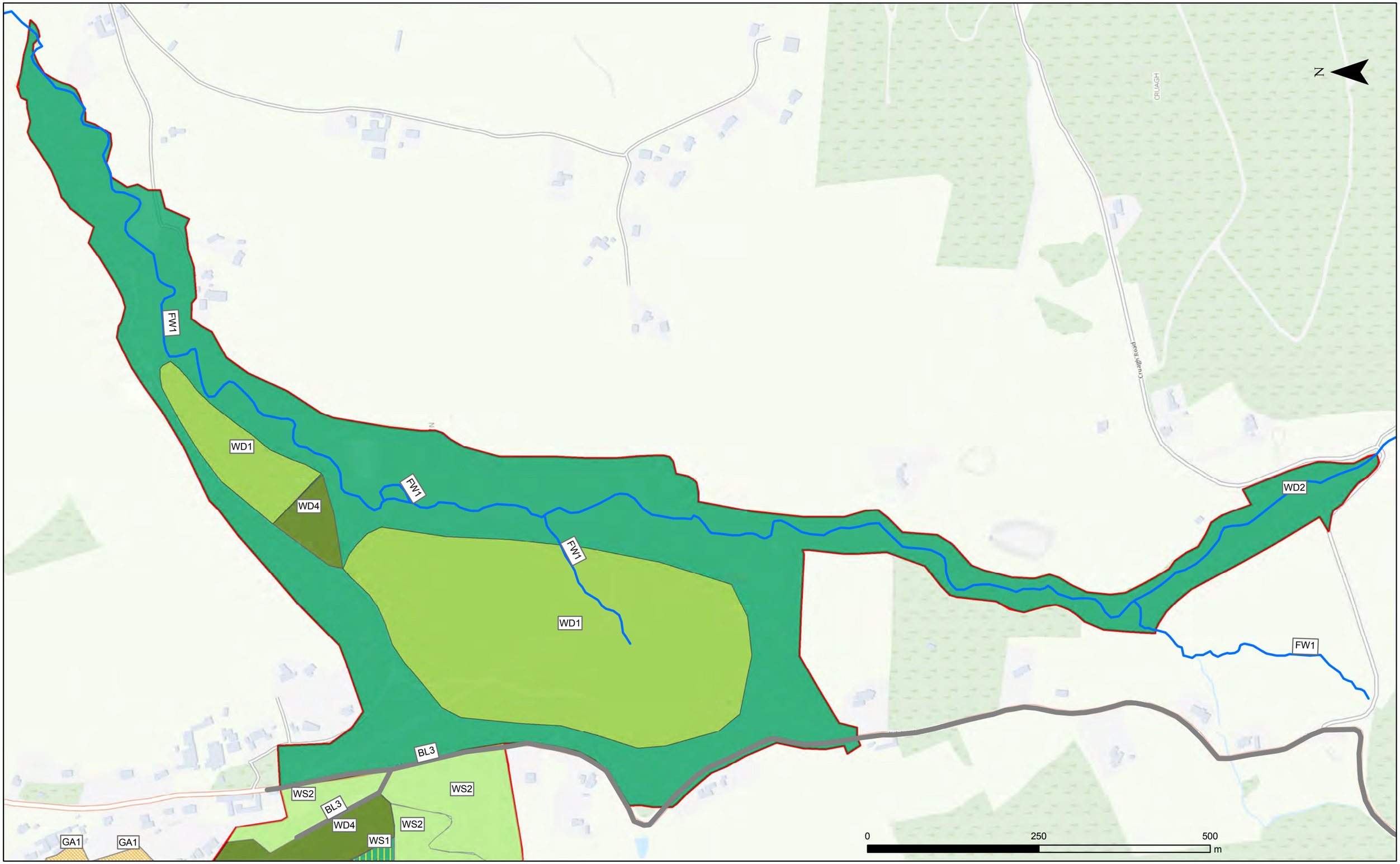

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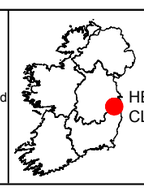

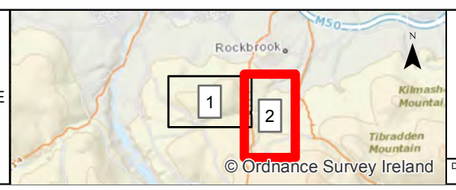

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Project Title: DUBLIN MOUNTAINS VISITOR CENTRE

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SHEET 2 OF 2

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Glenasmole Valley SAC

Wicklow Mountains SAC

Wicklow Mountains SPA

0 0.5 1 km

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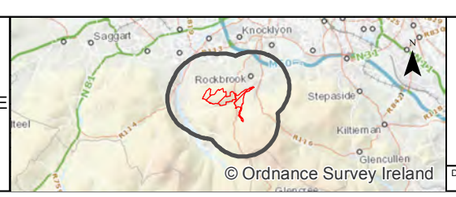
Legend

- Site Location
- Zone of Impact
- Special Proctition Areas
- Special Area Conservation

HELLFIRE CLUB



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Drawing Title: Natura 2000 Sites within the Zone of Impact

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N

Pond 2

Pond 3

Pond 1

1

2

3

4

5

6

7

8

9

MOUNTPELIER

JAMESTOWN

R115

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Legend

- Red Squirrel Drey
- Red Squirrel Sighting
- Badger Sett
- Bat Tree with bat potential
- Pond
- Otter Spraint
- Site Boundary

0 100 200 m

HELLFIRE CLUB

Rockbrook

Kilmashogue Mountain

Tibradden Mountain

M50

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ROD ROUGHAN & O'DONOVAN

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Project Title: DUBLIN MOUNTAINS VISITOR CENTRE

Drawing Title: Protected Species Survey

Designed:	Checked:	Approved:	Status:	Drawn:	Job No:	Drawing No:	Rev:
POS	POS	POS		MM	15.189		

Scale: 1:5,000 @ A3 | Date: FEB '17

Document Path: J:\2015\15189\01 BIM\01_WIP\ArcGIS\Mxd\15189 - Protected Species Survey.mxd

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Chapter 6 Biodiversity

Appendices

Dublin Mountains Visitor Centre

Supporting Information for a Licence Application to Destroy Red Squirrel (*Sciurus vulgaris*) Dreys for the Purposes of Development

JUNE 2017

ROD
ROUGHAN & O'DONOVAN

Comhairle Contae
Átha Cliath Theas
South Dublin County Council

Dublin Mountains Visitor Centre

Supporting Information for a Licence Application to Destroy Red Squirrel (*Sciurus vulgaris*) Dreys for the Purposes of Development

TABLE OF CONTENTS

1. INTRODUCTION

1.1 Background

Roughan & O'Donovan (ROD) Environmental was commissioned by South Dublin County Council to undertake a red squirrel survey to inform a planning application for the proposed Dublin Mountains Visitor Centre, hereafter referred to as "the Project", which will include a visitors centre and events building, tree canopy bridge, as well as upgrades to existing infrastructure at Montpellier Hill and Massey's Estate in South County Dublin.

Red squirrels are known to be present within the vicinity of the Project. The destruction and red squirrel dreys constitutes an offense under the Wildlife Acts 1976 to 2012.

Dedicated red squirrel surveys were conducted in November 2016, February 2017 and June 2017 within the Site including a 50m buffer where applicable. The purpose of the surveys were to identify and record the status of red squirrel in the study area and to assess the impact of the Project on the red squirrel population in accordance with the Transport Infrastructure Ireland (TII) /National Roads Authority (NRA) publication; Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes (2009).

This document provides information to the National Parks and Wildlife Service (NPWS) to support an application for a licence under Section 23 of the Wildlife Acts 1976 to 2012 to allow for the destruction of red squirrel dreys to facilitate works associated with the Dublin Mountains Visitor Centre Project.

1.2 Red Squirrels and Development

Red squirrels and their dreys are protected under the provisions of the Wildlife Acts 1976 to 2012. It is an offence to intentionally kill or injure a red squirrel or to wilfully interfere with or destroy a red squirrel drey. It is standard best practice to ensure that mitigation measures employed to limit the impacts of a project on red squirrels. On certain projects, such measures might include removal of squirrels from affected dreys and; or, control access of recreational users in sensitive areas important for red squirrel during operational phases of development. Where significant dreys have to be physically damaged or removed, alternative artificial dreys may need to be created. This will involve land owner engagement and in most cases land acquisition, creation, design and monitoring of artificial dreys .

The removal of red squirrels from affected dreys and subsequent destruction of these dreys must be conducted under licence by suitably qualified Ecologists. The National Parks and Wildlife Service (NPWS) grant licences to the specific individual Ecologist undertaking the red squirrel operations and not to the Developer or Contractor. It is normal practice to impose seasonal constraints e.g. that breeding dreys are not interfered with or disturbed during the red squirrel breeding season (December to June inclusive). No active drey should be interfered with or disturbed during the breeding season as any drey may contain kittens. Conversely, destruction of dreys during the breeding season would require monitoring to demonstrate no drey activity. Exclusion of red squirrels should only be considered where development unavoidably destroys a drey; its immediate surroundings; or, where operational phase of development makes it unsuitable for continued occupancy.

2. DESCRIPTION OF PROPOSED DEVELOPMENT

2.1 Overview

The 2015 South Dublin Tourism Strategy proposed, as its principal recommendation, the creation of a Dublin Mountains Flagship Project. This was in keeping with the 2007 report, Dublin Mountains Strategic Development Plan for Outdoor Recreation, which introduced the proposal to provide a flagship welcoming and orientation point in the Dublin Mountains, for which it estimated an indicative cost of €4 million. The Dublin Mountains Partnership (DMP) also has a key objective to develop a flagship facility that will act as a focal tourism attraction in the area.

In response, a Steering Group consisting of representatives of South Dublin County Council, Coillte and the DMP issued tender invitations for a multi-disciplinary approach to the preparation of a feasibility study and masterplan for a flagship tourism facility in the Dublin Mountains.

2.2 Location

The proposed Dublin Mountains Visitor Centre will be located at the northern gateway into the Dublin and Wicklow Mountains from Dublin City. In broad terms, the site location is in the valley of the largest tributary of the River Dodder, the Owendoher River, to the south of Rathfarnham. There are several blocks of state-owned land (Coillte conifer plantations) in and around this valley and the proposal focuses on the development of the tourism facility in the area of Hell Fire Wood on Montpellier Hill and Massey's Wood, which already provide extensive public access and walking routes linking into the higher mountains above 300 m altitude.

2.3 General Layout

The Project will comprise the following elements:

- Conservation works to protected structures including the Hellfire Club building;
- Visitors Centre and Events Building located downhill on eastern side of Montpelier Hill;
- Tree canopy bridge linking Hellfire Club Wood and Massy's wood;
- Redevelopment of walled garden (Massy's Garden) in Massy's Woods;
- Conversion of commercial conifer forest to permanent mixed woodland and development of parkland amenity areas within this woodland
- Landscape development including boundary treatment;
- Facilities for drainage, water provision, foul water treatment, electricity and gas provision;
- Upgrading of existing trails and forestry access routes where necessary; and
- Extension to existing car park to accommodate approximately 300 additional spaces. Parking surfaces could be of a range of materials from loose gravel to reinforced grass to blacktop, depending on design objectives.

2.4 Construction Sequence/Duration

The construction of the Project will be phased as funding is made available. The sequence and timing for the works will be structured to allow environmental factors to be accommodated at appropriate stages. The Project is expected to be in the order of 15 months in duration.

3. AIMS AND SURVEY METHODOLOGY

3.1 Aims

In November 2016, February 2017 and June 2017, red squirrel surveys were undertaken within the study area. The study area comprised of the footprint of the project plus a 50m buffer of the proposed development boundaries hereafter referred to as the 'Site'.

The aim of the surveys were to understand the following:

- To gain an up to date understanding of red squirrel presence and their ecology within the Site;
- Determine the likely impacts of the Project on the red squirrels;
- Design a mitigation and compensation strategy to ensure long term viability of any red squirrels affected and account for red squirrel welfare, and;
- Provide evidence for a derogation licence compliant with the Wildlife Acts 1976-2012.

3.2 Survey Methodology

All surveys were carried out by suitably qualified ecologists following best practice guidelines and methods as described in the Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes (TII/NRA 2009) and Gurnell *et al*. (2009).

A drey survey was undertaken to identify any dreys or other signs of red squirrel activity within the Site. The drey survey ensured that all dreys which would be impacted by the Project were found in advance of works. The following methodology was employed during the drey survey.

- Areas of suitable squirrel habitat including woodland and scrub within the Site, were thoroughly searched for evidence of red squirrel activity.
- Identified dreys were given a unique code.
- Notes on feeding signs were taken.
- All incidental sightings of red squirrel were also recorded.

Monitoring of identified dreys was undertaken June 2017. Dreys were monitored using the following methodology.

- Ecologists observed the drey at a suitable distance and position using binoculars, to ensure that red squirrels which may be utilising the drey were not disturbed.
- The presence of red squirrel in the immediate vicinity was recorded.
- Dreys were monitored for a duration of three hours at a time until presence was confirmed.
- Monitoring began at sunrise and lasted for a period of three hours.
- Monitoring was undertaken in suitable weather conditions, outside periods of heavy rain.

3.3 Survey Constraints

Visibility in the dense conifer plantations on Montpellier Hill was restricted and it is possible that dreys within these areas were not identified. The conifer plantations in question are being retained and will not be impacted by the project.

It is therefore considered that these constraints did not undermine the surveys and therefore all data and conclusions derived thereof are considered to be robust.

4. SURVEY RESULTS

The drey survey identified the presence of one red squirrel drey. Further details, including grid reference, notes and other recorded field signs of the drey identified during the drey survey are presented in Table 1. The level of impact associated with the drey is indicated.

Table 1: Type and Description of Drey and Predicted Impact

Drey ID	Easting (ITM)	Northing (ITM)	Location	Notes	Predicted Impact
Drey 1	711870	723998	On edge of main track running north from the car park on the outside of the bend.	Roughly round shape against trunk of mature conifer. It is on the north side of the trunk and the tree is about 10-15m from the track. Feeding signs close by in the corner of the woodland.	Drey Destruction

Three red squirrels were sighted during the drey survey. One red squirrel was observed in the woodland south of Drey 1 (Grid reference: 711663, 723439). Two other red squirrels were observed in the band of mature conifer woodland directly west of the existing car park. (Grid reference: 711991 723764)

Two red squirrels were observed during a drey monitoring survey in June 2017, one of which was at the drey. It was concluded that Drey 1 is being utilised by red squirrel.

5. DISCUSSION

The November 2016 drey survey identified one red squirrel drey within the Site. Monitoring of the drey indicated that it is currently being utilised by red squirrel. The drey identified may be destroyed as a result of the construction of the Dublin Mountains Visitor Centre, specifically felling of the remnant conifer woodland adjacent to the existing car park.

Red squirrels will be subject to disturbance as a result of the destruction of the drey, increased human presence and noise associated with the works, however, this impact will be temporary in nature.

Montpellier hill and Massey Estate contain areas of broadleaved woodland, conifer plantations and scrub which likely provide important sheltering and foraging habitat

for red squirrels. There will be a temporary loss of some woodland habitat, however this is considered to be insignificant.

There are not expected to be any long-term significant impacts on the red squirrel populations in the area as a result of the drey.

6. MITIGATION REQUIREMENTS

Mitigation and compensation measures are required to prevent, reduce and offset the impact of drey destruction and habitat loss as a result of the Dublin Mountains Visitor Centre and to comply with the requirements of the Wildlife Acts 1976 to 2012. These measures have been developed based on the TII/NRA guidance (TII/NRA, 2009).

The principal impact to be mitigated is the destruction of one drey and the associated disturbance on red squirrels. Due to the location of the drey (See Appendix 1), destruction is unavoidable but can be mitigated through the adoption of a mitigation strategy.

6.1 Ecological Clerk of Works

A suitably qualified Ecological Clerk of Works (ECoW) with experience and knowledge of red squirrel ecology and legislative requirements will be responsible for ensuring that the conditions of the granted licence are fulfilled for the duration of tree felling and construction activities. The ECoW will be present on site to supervise construction works and ensure that red squirrels are not harmed during the works. In advance of the construction works the ECoW will inform site personnel of the presence of red squirrels, their protected status and the conditions of any granted licence.

6.2 Pre-Construction Survey

A pre-construction survey will be undertaken to update the results of previous surveys and inform updates to any granted licence to account for alterations to existing dreys or record the presence of dreys which have been constructed since the November 2016 drey survey.

6.3 Installation of Artificial Dreys

To compensate for the destruction the drey, artificial dreys will be provided. Three artificial dreys should installed for every drey destroyed. Artificial dreys will be erected using the following methodology;

- The ECoW will direct the installation of replacement dreys;
- Artificial dreys will be installed in suitable areas of red squirrel woodland habitat.

6.4 Drey Destruction

Prior to tree felling works, which will lead to the destruction of the drey identified in November 2016, the following steps should taken:

- The felling of the tree containing the red squirrel drey should be scheduled to take place during mid-October to January, outside the red squirrel breeding season (February-September) and when there is least chance of encountering young squirrels;

- In the three days prior to felling, the drey will be monitored following methods described in Section 3.2 to establish if the drey is occupied or disused;
- The tree with the drey will be climbed by an experienced arborist under the supervision of the ECoW after the completion of monitoring. An endoscope will be used to visually inspect the drey. If the drey is empty it will be demolished by hand;
- If adult red squirrels are present then they will be encouraged to leave the drey by slowly dismantling it by hand at the highest point furthest from the entrance. This should enable squirrels to escape from the usual exit or climb out of the drey and into the canopy. Dismantling will not commence on the underside of the drey;
- If red squirrel kittens are present then no dismantling of the drey will be undertaken. Further, as the drey will be considered as a breeding drey, no felling of the tree containing the drey or any other tree within 50m will be allowed until it is considered that the kittens have independently left the drey;
- The tree containing the breeding red squirrel drey which will be retained until the kittens have left will be clearly marked by the ECoW and an exclusion zone of 50m will be established restricting plant and personnel;
- The drey will be monitored on a weekly basis to determine a likely date when kittens should have left the drey and the above process will be repeated once sufficient time has elapsed.

6.5 Ecological Enhancement

Planting should seek to establish new linkages and connections at the landscape scale, and the planting mix should maximise foraging opportunities for red squirrels and minimise those for greys. Compensation should focus on the creation of woodland habitat, incorporating a diverse range of coniferous species (Scot's Pine) alongside small-seeded broad-leaved species (Hawthorn, Blackthorn, Rowan).

7. SUMMARY

Red squirrels in the Site will be subject to temporary disturbance and the loss of one drey as a result of the construction of the Dublin Mountains Visitor Centre. This document supports an application under Section 23 of the Wildlife Acts 1976 to 2012 to destroy one red squirrel drey.

All works to be undertaken will follow TII/NRA guidance (TII/NRA, 2009) and will be supervised by an ECoW. These works include activities which may injure or disturb red squirrels during tree felling.

With the mitigation in place the red squirrel population will be maintained and there will be no long term impact on red squirrels in the vicinity of the Dublin Mountains Visitor Centre.

8. REFERENCES

Gurnell, J., Lurz, P., Macdonald, R. and Pepper, H. (2009). Practical techniques for surveying and monitoring squirrels. Forestry Commission Practice Note. Forestry Commission, Edinburgh.

TII/NRA (2009) Ecological Survey Techniques for Protected Flora and Fauna during the Planning of National Road Schemes. National Roads Authority, Dublin.

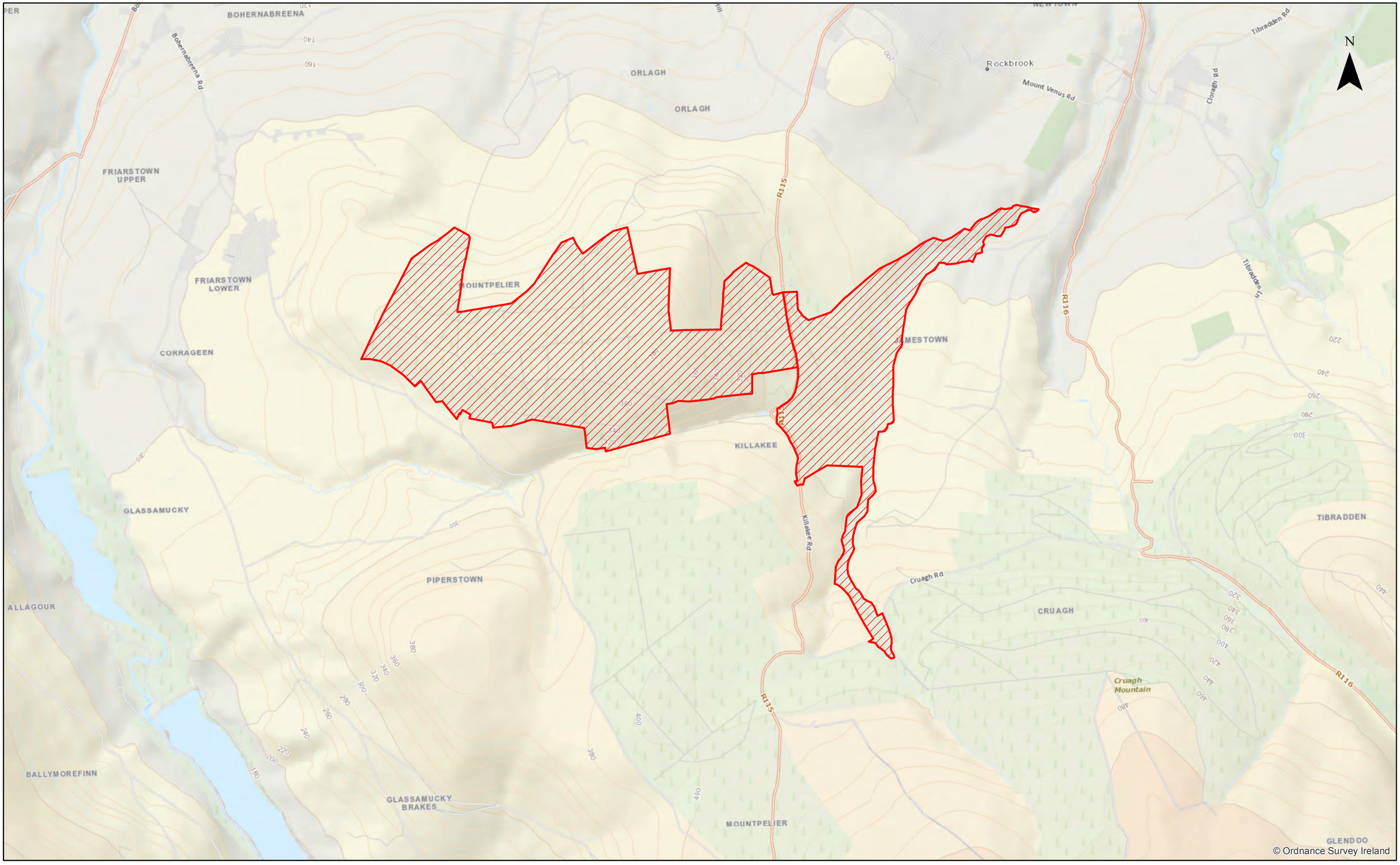
Wildlife Act, 1976, No. 39 of 1976.

Wildlife Act, 1976 (Protection of Wild Animals) Regulations, 1990, SI No. 112/1990.

Wildlife (Amendment) Act, 2000, No. 38 of 2000.

Wildlife (Amendment) Act, 2012, No 29 of 2012.

APPENDIX 1
FIGURES

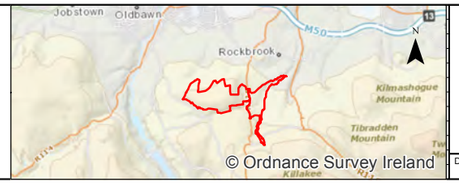


Legend

Project Location

0 500 1,000 m

Hellfire Club



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Project Title: DUBLIN MOUNTAINS VISITOR CENTRE

Drawing Title: Location of Project

Designed:	Checked:	Approved:	Status:	Drawn:	Job No:	Drawing No:	Rev:
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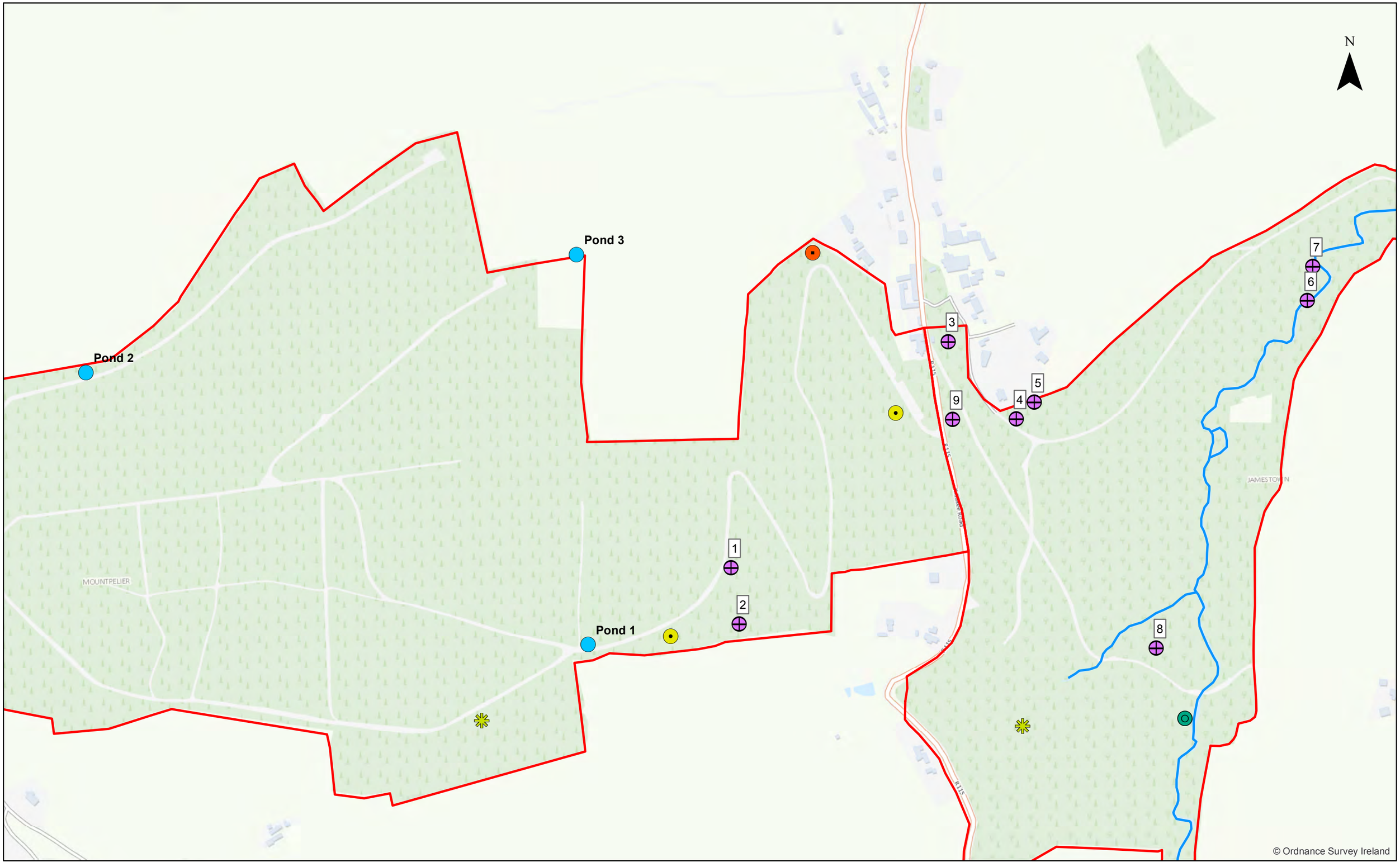
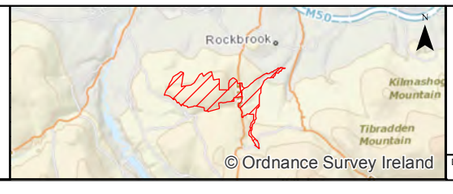


Legend

- Red Squirrel Drey
- Red Squirrel Sighting
- Badger Sett
- Bat Tree with bat potential
- Pond
- Otter Spraint
- Site Boundary

0 100 200 m

HELLFIRE CLUB



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APPENDIX 2
PHOTOGRAPHS

Drey 1

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Dublin Mountains Visitor Centre

Supporting Information for a Licence Application to Disturb Badger (*Meles meles*) Setts for the Purposes of Development

June 2017

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Comhairle Contae
Átha Cliath Theas
South Dublin County Council

Dublin Mountains Visitor Centre

Supporting Information for a Licence Application to Disturb Badger (*Meles meles*) Setts for the Purposes of Development

TABLE OF CONTENTS

1. INTRODUCTION

1.1 Background

Roughan & O'Donovan (ROD) Environmental was commissioned by South Dublin County Council to undertake a badger survey to inform a planning application for the proposed Dublin Mountains Visitor Centre, hereafter referred to as "the Project", which will include a visitors centre and events building, tree canopy bridge, as well as upgrades to existing infrastructure at Montpellier Hill and Massey's Estate in South County Dublin.

Badgers are known to be present within the vicinity of the Project. The destruction and disturbance of badger setts constitutes an offense under the Wildlife Acts 1976 to 2012.

Dedicated badger surveys were conducted in November 2016 and February 2017 within the study area. The purpose of the surveys were to identify and record the present status of badger setts and to assess the impact of the Project on the badger population within the study area in accordance with the National Roads Authority (NRA) publication; Guidelines for the Treatment of Badgers Prior to the Construction of National Road Schemes (2006).

This document provides information to the National Parks and Wildlife Service (NPWS) to support an application for a licence under Section 23 of the Wildlife Acts 1976 to 2012 to allow for the disturbance of badger setts to facilitate works associated with the Dublin Mountains Visitor Centre Project.

1.2 Badgers and Development

Badgers and their setts are protected under the provisions of the Wildlife Acts 1976 to 2012. It is an offence to intentionally kill or injure a protected species or to wilfully interfere with or destroy the breeding site or resting place of a protected wild animal. It is standard best practice to ensure that mitigation measures are taken to limit impacts on badgers. On certain projects, such measures might include removal of badgers from affected setts and provision of fencing to control either the movement of badger in relation to construction and associated works; or, control access of recreational users in sensitive areas important for badger during operational phases of development. Where significant badger setts have to be physically damaged or removed, alternative artificial setts may need to be created. This will involve land owner engagement and in most cases land acquisition, creation, design and monitoring of artificial setts and relevant licensing. Exclusion of badgers should only be considered where development unavoidably destroys a badger sett; its immediate surroundings; or, where operational phase of development makes it unsuitable for continued occupancy.

The removal of badgers from affected setts and subsequent destruction of these setts must be conducted under licence by suitably qualified Ecologists. The National Parks and Wildlife Service (NPWS) grant licences to the specific individual Ecologist undertaking the badger operations and not to the Developer or Contractor. It is normal practice to impose seasonal constraints e.g. that breeding setts are not interfered with or disturbed during the badger breeding season (December to June inclusive). No active sett should be interfered with or disturbed during the breeding season as any sett may contain cubs. Conversely, closure of setts during the breeding season would require monitoring to demonstrate no sett activity.

2. DESCRIPTION OF PROPOSED DEVELOPMENT

2.1 Overview

The 2015 South Dublin Tourism Strategy proposed, as its principal recommendation, the creation of a Dublin Mountains Flagship Project. This was in keeping with the 2007 report, Dublin Mountains Strategic Development Plan for Outdoor Recreation, which introduced the proposal to provide a flagship welcoming and orientation point in the Dublin Mountains, for which it estimated an indicative cost of €4 million. The Dublin Mountains Partnership (DMP) also has a key objective to develop a flagship facility that will act as a focal tourism attraction in the area.

In response, a Steering Group consisting of representatives of South Dublin County Council, Coillte and the DMP issued tender invitations for a multi-disciplinary approach to the preparation of a feasibility study and masterplan for a flagship tourism facility in the Dublin Mountains.

2.2 Location

The proposed Dublin Mountains Visitor Centre will be located at the northern gateway into the Dublin and Wicklow Mountains from Dublin City. In broad terms, the site location is in the valley of the largest tributary of the River Dodder, the Owendoher River, to the south of Rathfarnham. There are several blocks of state-owned land (Coillte conifer plantations) in and around this valley and the proposal focuses on the development of the tourism facility in the area of Hell Fire Wood on Montpellier Hill and Massey's Wood, which already provide extensive public access and walking routes linking into the higher mountains above 300 m altitude.

2.3 General Layout

The Project will comprise the following elements:

- Conservation works to protected structures including the Hellfire Club building;
- Visitors Centre and Events Building located downhill on eastern side of Montpelier Hill;
- Tree canopy bridge linking Hellfire Club Wood and Massy's wood;
- Redevelopment of walled garden (Massy's Garden) in Massy's Woods;
- Conversion of commercial conifer forest to permanent mixed woodland and development of parkland amenity areas within this woodland
- Landscape development including boundary treatment;
- Facilities for drainage, water provision, foul water treatment, electricity and gas provision;
- Upgrading of existing trails and forestry access routes where necessary; and
- Extension to existing car park to accommodate approximately 300 additional spaces. Parking surfaces could be of a range of materials from loose gravel to reinforced grass to blacktop, depending on design objectives.

2.4 Construction Sequence/Duration

The sequence and timing for the works will be structured to allow environmental factors to be accommodated at appropriate stages. The Project is expected to be in the order of 15 months in duration.

3. AIMS AND SURVEY METHODOLOGY

3.1 Aims

In November 2016 and February 2017, badger surveys were undertaken within the study area. The study area comprised the footprint of the project plus a 50m buffer of the proposed development boundaries hereafter referred to as the Site.

The aim of the survey was to understand the following:

- To gain an up to date understanding of badger presence and their ecology along with the Site;
- Determine the likely impacts of the Project on each Social Group identified;
- Design a mitigation and compensation strategy to ensure long term viability of any social group affected and account for badger welfare, and;
- Provide evidence for a derogation licence compliant with the Wildlife Acts 1976-2012.

3.2 Survey Methodology

The badger surveys undertaken in 2016 and 2017 enabled the identification and evaluation of badger setts. The following list outlines the methodology used to locate badger setts.

- Walkover surveys were undertaken to identify any setts or other signs of badger activity within the Site. This ensured that all setts which would be impacted by the Dublin Mountains Visitor Centre were found in advance of works.
- The walkover surveys were carried out following best practice guidelines and methods as described in the Guidelines for the Treatment of Badgers Prior to the Construction of National Road Schemes (TII, 2006). Hedgerows and other linear features, woodland and scrub, were thoroughly searched for evidence of badger activity. Where badger setts were identified, these were classified as active or inactive and assigned to a category of main sett, annex sett, subsidiary sett or outlier sett according to the scheme outlined by Harris et al. (1989).
- Each sett was given a unique code. Notes were taken on the type of sett; the number of holes located and the level of activity as well as the presence of any field signs including dung, latrines, hair and bedding.

3.3 Survey Constraints

Dense scrub on the eastern side of Montpellier Hill reduced the efficacy of surveys, particularly where access was not possible. In such situations, surveyors searched for badger field signs around the perimeter of the woodland or scrub noting the location and direction of any badger paths that appeared to enter it.

4. SURVEY RESULTS

The survey identified the presence of two Badger setts. The location and photographs of these setts is presented in the Appendices of this document. The classification and status of the setts was defined using the definitions detailed TII, 2015. These setts comprised of:

- One Main Sett; and
- One Subsidiary Sett.

Further details, including grid references, notes and other recorded field signs of each sett identified during the walkover surveys are presented in Table 1. The level of impact associated with each sett is indicated.

Table 1: Type and Description of Setts and Predicted Impact

Sett ID	Easting (ITM)	Northing (ITM)	Sett Type	Notes	Predicted Impact
Sett 1	711388	723316	Main (Inactive)	Disused former main sett. Nine entrances with very large spoil heap. All entrances are open but some have sticks / pine needles over them. Rabbit scrapes and dropping around the sett suggest rabbit are using it.	Sett Disturbance
Sett 2	712176	723308	Subsidiary (Inactive)	Disused sett. Four holes, with three of the four full of leaves. Three of the holes have big spoil heaps. The sett is at the edge of the beech woodland next to a stand of small cypress trees.	Sett Disturbance

5. DISCUSSION

The February 2017 walkover survey identified 2 setts; one main sett and one subsidiary sett. The setts identified may be subject to disturbance as a result of the construction and operation of the Dublin Mountains Visitor Centre.

Badgers will be subject to disturbance as a result of increased human presence and noise associated with the works. However, this impact will be temporary in nature. In addition, as badgers are nocturnal and will be most active outside of the period during the day when works will be carried out and would be expected to habituate to the disturbance and continue to use adjacent habitats for foraging.

Montpellier hill and Massey Estate contain areas of broadleaved woodland, hedgerow, dense bracken and scrub which likely provide important setting and foraging habitat for badgers in the local area. Given the locations of the setts away from the footprint of the Project no setts will be lost as a result of the Project. The Dublin Mountains Visitor Centre will not include fencing that would prevent badger

crossing it. There will be a permanent loss of foraging habitat, however this is considered to be insignificant.

There are not expected to be any long-term significant impacts on badger populations in the area.

6. MITIGATION REQUIREMENTS

Mitigation and compensation measures are required to prevent, reduce and offset the impacts of sett disturbance and habitat loss as a result of the Dublin Mountains Visitor Centre and to comply with the requirements of the Wildlife Act 1976-2000. These measures have been developed based on the NRA guidance (NRA, 2006).

The principal impact to be mitigated is disturbance to one inactive main sett and one inactive subsidiary sett. Due to their locations, as shown in Appendix 1, the disturbance is unavoidable but can be mitigated through the adoption of a mitigation strategy.

Construction disturbance associated with the Dublin Mountains Visitor Centre will be minimised through appropriate mitigation. Works within 30m of a badger sett will be supervised by an Ecological Clerk of Works (ECoW) (50m during the breeding season).

Any excavations over one metre deep will be securely covered at night or a ramp provided to enable animals to escape should they fall in. Works will be programmed to occur during the hours of daylight only; works involving noisy plant and machinery located near Badger protection zones will cease at least two hours before sunset (SNH, 2012).

No fencing will be used which would inhibit access to badger across the Site. Lighting design will be sensitive to areas with badger setts. As a result of the small land-take by the Project it has not been considered necessary to provide additional foraging or setting habitat specifically targeted at badgers, however areas of additional planting have been proposed as part of the landscaping strategy which will reduce both visual and acoustic disturbance and well as providing cover for badgers.

Should any active setts be recorded within the development footprint during the pre-construction survey, the procedure outlined below will be followed under licence from NPWS.

Exclusion of Badgers from currently active setts will only be carried out from July to November inclusive in order to avoid the Badger breeding season. Exclusion of Badgers from disused or currently inactive setts may be completed throughout the year. Should active setts be encountered prior to construction, the NRA guidelines (2006) will be followed for the exclusion of active setts.

The destruction of a main sett requires the provision of an artificial sett within 100m of the original. One-way gates should be installed on all entrances of active setts to allow badgers to exit but not re-enter. These gates should be tied open for the first three days. Once no badger activity is observed for a period of 21 days, the sett should be destroyed. If the gates are left in place for long periods of time Badgers may attempt to dig around them or to create new entrances. Therefore, setts should be destroyed as soon as the 21 day period has elapsed.

Disused setts are considered to be unused by Badgers. Further survey work will be required to ensure the setts are inactive at the time of construction. In the case of disused setts, initial exclusion involves the use of camera traps and lightly blocking entrances with vegetation and a light application of soil (i.e. soft blocking). If all entrances remain undisturbed for five days, setts should be destroyed immediately under licence and supervision from National Parks and Wildlife Service (NPWS). If it is not possible to destroy the sett immediately, the entrance should be hard-blocked using buried fencing material and compacted soil and destroyed as soon as possible.

With the mitigation in place the badger population will be maintained and there are no residual effects anticipated for badgers in the vicinity of the Dublin Mountains Visitor Centre.

7. SUMMARY

Badgers in the study area will be subject to temporary disturbance associated with construction of the Dublin Mountains Visitor Centre. This document supports an application under Section 23 of the Wildlife Acts 1976 to 2012 to disturb badger.

The proposed Dublin Mountains Visitor Centre will occur in areas of conifer plantation and recently felled woodland. In certain areas, broadleaved woodland and hedgerow, scrub and bracken will be removed to accommodate the Project. Two badger setts will be subject to disturbance as a result of works associated with the Dublin Mountains Visitor Centre.

All works to be undertaken will follow NRA guidance (NRA, 2006) and will be supervised by an ECoW. These works include activities which may injure or disturb badgers during vegetation clearance and fence-line construction.

If the disturbance is mitigated for, there will likely be no reduction in the viability of Montpelier hill and Massey Estate for badger.

8. REFERENCES

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Scottish Natural Heritage (2012). Badgers: Best Practice. Available from: http://www.snh.gov.uk/about-scotlands-nature/wildlife-and-you/Badgers/best-practice/ [Accessed 30/08/2015]

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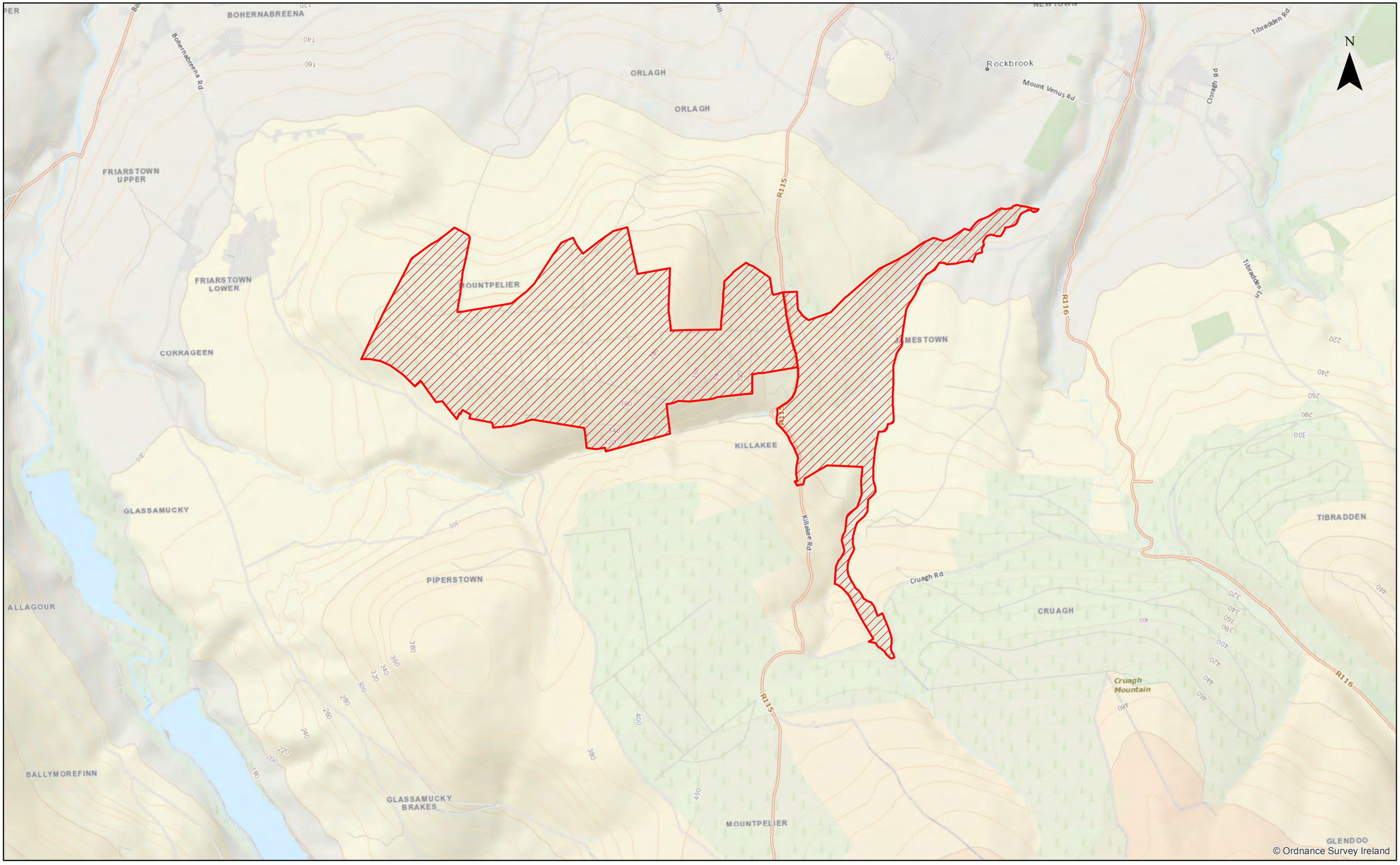
Wildlife Act, 1976, No. 39 of 1976.

Wildlife Act, 1976 (Protection of Wild Animals) Regulations, 1990, SI No. 112/1990.

Wildlife (Amendment) Act, 2000, No. 38 of 2000.

Wildlife (Amendment) Act, 2012, No 29 of 2012.

APPENDIX 1
FIGURES



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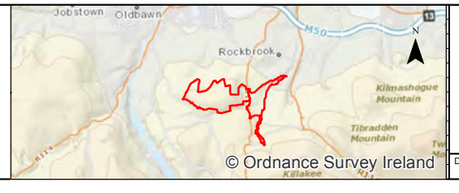
Project Location

0 500 1,000 m

Hellfire Club



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Project Title: DUBLIN MOUNTAINS VISITOR CENTRE

Drawing Title: Location of Project

Designed:	Checked:	Approved:	Status:	Drawn:	Job No:	Drawing No:	Rev:
POS	POS	POS		MM	15.189		

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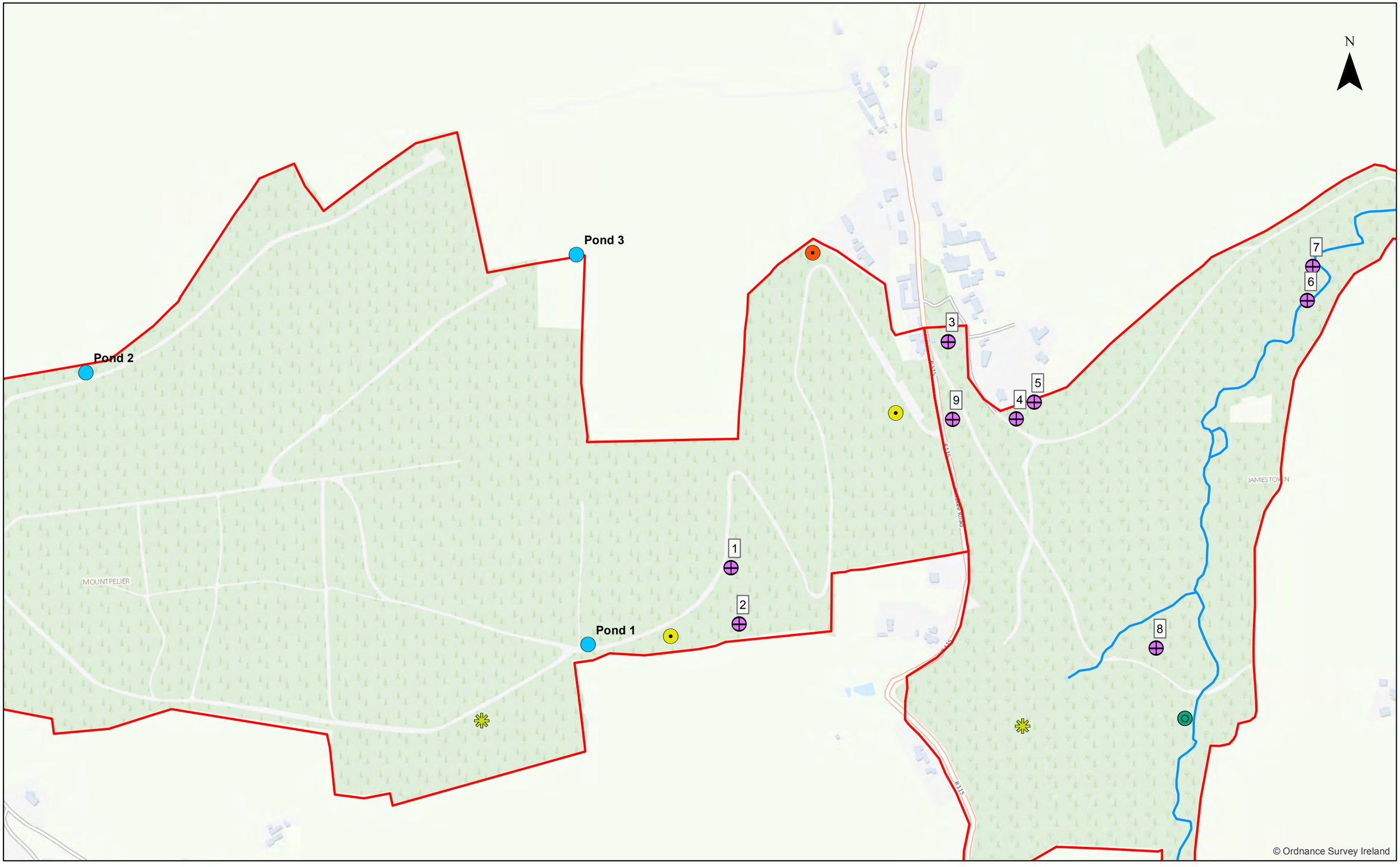
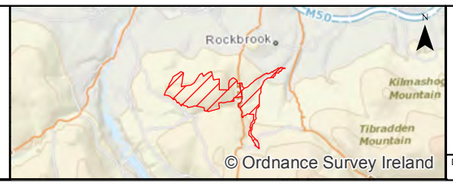


Legend

- Red Squirrel Drey
- Red Squirrel Sighting
- Badger Sett
- Bat Tree with bat potential
- Pond
- Otter Spraint
- Site Boundary

0 100 200 m

HELLFIRE CLUB



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Project Title: DUBLIN MOUNTAINS VISITOR CENTRE

Drawing Title: Protected Species Survey

Designed:	Checked:	Approved:	Status:	Drawn:	Job No:	Drawing No:	Rev:
POS	POS	POS		MM	15.189		

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Document Path: J:\2015\15189\01 BIM\01_WIP\ArcGIS\Mxd\15189 - Protected Species Survey.mxd

DO NOT SCALE USE FIGURED DIMENSIONS ONLY

APPENDIX 2
PHOTOGRAPHS

Main Sett 1

Subsidiary Sett 2

Prepared by
Roughan & O'Donovan
Arena House, Arena Road, Sandyford, Dublin 18
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Chapter 9 Air, Noise and Vibration

Supplementary Information

Chapter 9 Air, Noise and Vibration

Appendices

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DUBLIN MOUNTAIN VISITOR CENTRE

TRAFFIC NOISE IMPACT ASSESSMENT

Technical Report Prepared For

Roughan & O'Donovan
Arena House
Arena Road
Sandyford
Dublin 18

Technical Report Prepared By

Dr Stephen Smyth BA BAI MIEI MIOA

Our Reference

SS/17/9621NR01

Date Of Issue

11 July 2017

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AWN Consulting Limited
Registered in Ireland No. 319812
Directors: F Callaghan, C Dilworth,
T Donnelly, T Hayes, D Kelly, E Porter

Document History

Document Reference		Original Issue Date	
SS/17/9621NR01		11 July 2017	
Revision Level	Revision Date	Description	Sections Affected

Record of Approval

Details	Written by	Approved by
Signature		
Name	Stephen Smyth	Leo Williams
Title	Principal Acoustic Consultant	Acoustic Technician
Date	11 July 2017	11 July 2017

EXECUTIVE SUMMARY

AWN Consulting have been retained by Roughan & O'Donovan Ltd to assess the potential traffic noise impact of the proposed Dublin Mountain Visitor Centre at the Hell Fire Wood, Killakee, South Dublin.

To determine the noise impact of the scheme a noise survey has been carried out along Killakee Road on a Sunday afternoon to determine the existing noise climate. The future noise impact was then assessed based on the likely change in noise environment as a result of additional traffic along Killakee Road during the peak hour for the development of Sunday afternoon.

It has been found that the change in road traffic volumes on the main access route to the site, via Killakee Road, will not change significantly as a result of the development. Therefore, the change in noise environment during the peak hour period of Sunday afternoon is less than 1dB which is considered to be negligible.

In addition, the existing noise climate along Killakee Road was found to be dominated by road traffic. Therefore, the proposed development and the introduction of small amounts of additional traffic will not alter the existing soundscape in the area.

In conclusion, the proposed development will have a negligible impact on the existing noise environment as a result of additional road traffic. No mitigation is considered necessary.

CONTENTS

1.0 INTRODUCTION

This report, prepared by AWN Consulting deals with the assessment of potential noise impacts associated with additional road traffic as a result of the proposed Dublin Mountain Visitor Centre at Hell Fire Wood, Killakee, South Dublin.

The scheme involves the construction of a new visitors centre and as a result there will be an increase in the existing road traffic in the area.

2.0 ASSESSMENT CRITERIA

In order to provide some context for evaluating the potential impacts of the additional traffic as a result of the proposed development, the UK's *Design Manual for Roads and Bridges* (DMRB) Volume 11, Section 3 provides guidance on assessing the magnitude of impacts associated with changes in road traffic noise. The document suggests that during the year of opening, the magnitude of impacts between the Do Minimum and the Do Something scenarios are likely to be greater compared to the longer term period when people become more habitualised to the source. In order to assess the potential magnitude of impacts during the initial opening of the road therefore, the change in noise levels between the Do Minimum and Do Something scenarios for the year of opening are compared and categorised in line with the 'short term' table reproduced.

Noise Change, dB(A)	Magnitude of Impact
0	No Change
0.1 - 0.9	Negligible
1 – 2.9	Minor
3 – 4.9	Moderate
5+	Major

Table 1 Classification of Magnitude of Noise Impacts in the Short Term

3.0 EXISTING RECEIVING ENVIRONMENT

An environmental noise survey has been conducted at the site in order to quantify the existing noise environment. The survey was conducted in general accordance with ISO 1996: 2007: *Acoustics – Description, measurement and assessment of environmental noise.* Specific details are set out below.

3.1 Choice of Measurement Locations

Three measurement locations were selected as shown in Figure 1 and described below.

Location N1 is located at the entrance to the Hell Fire Wood carpark.

Location N2 is located along Killakee Road in the vicinity of the closest residences to the Hell Fire Woods.

Location N3 is located along Killakee Road to the north of the Hell Fire Woods.

Figure 1 Noise Monitoring Locations

3.2 Survey Periods

The noise survey was conducted between the following periods:

- 15:20hrs to 16:02hrs on Sunday 25 June 2017.

The measurements were carried out to capture a snapshot of existing noise environment during the period which is expected to correspond to the peak hour period of the proposed development. The weather during the survey periods was dry and clear with winds less than 1m/s and temperatures of some 15ºC.

3.3 Personnel and Instrumentation

Leo Williams (AWN) performed the measurements during the survey periods. Attended measurements were made using an Bruel & Kjaer 2250 Sound Level Meter. Sample periods were 15-minutes for attended noise measurements

Before and after the survey the measurement instrument was check calibrated using a Brüel & Kjær Type 4231 Sound Level Calibrator.

3.4 Measurement Parameters

The noise survey results are presented in terms of the following parameters.

L_{Aeq} is the equivalent continuous sound level. It is a type of average and is used to describe a fluctuating noise in terms of a single noise level over the sample period.

L_{A10} is the sound level that is exceeded for 10% of the sample period. It is typically used as a descriptor for traffic noise.

L_{A90} is the sound level that is exceeded for 90% of the sample period. It is typically used as a descriptor for background noise.

L_{AFmax} is the instantaneous maximum sound level measured during the sample period using the 'F' time weighting.

The "A" suffix denotes the fact that the sound levels have been "A-weighted" in order to account for the non-linear nature of human hearing. All sound levels in this report are expressed in terms of decibels (dB) relative to $2x10^{-5}$ Pa.

3.5 Survey Results

The results of the surveys at the three monitoring locations are presented in Table 2 below.

Location	Time	Measured Noise levels (dB re. $2x10^{-5}$ Pa)				
		L_{Aeq}	L_{AFmax}	L_{AFmin}	L_{AF10}	L_{AF90}
N1	15:20 – 15:30hrs	60	79	35	63	40
N2	15:32 – 15:47hrs	67	94	35	69	41
N3	15:47 – 16:02hrs	63	81	42	66	45

Table 2 Noise Survey Results

Noise levels were dominated by road traffic movements along Killakee Road.

4.0 ASSESSMENT OF TRAFFIC NOISE

A traffic impact assessment relating to the proposed development has been prepared by Roughan & O'Donovan as part of this application. Information from this report has been used to determine the predicted change in noise levels along Killakee Road, for the opening year of the development.

For the purposes of assessing potential noise impact, it is appropriate to consider the relative increase in noise level associated with traffic movements on the existing road network. Traffic flow data for the peak hour period, which is determined to be mid-afternoon on a Sunday, have been assessed and the calculated change in noise levels during this period is summarised in Table 3. The predicted increase in noise level has been calculated in accordance with the approach outlined in the Calculation of Road Traffic Noise (CRTN) which is the preferred calculation methodology for assessing road traffic noise in Ireland.

Road	Opening Year Peak Hour		Change in Noise Level dB (A)
	Without Development	With Development	
Killakee Road	244	300	+0.9

Table 3 Change in Traffic Noise Levels During Peak Hour with Proposed Development

Making reference to the predicted change in traffic noise level in Table 3 and comparing it to the table of significance effects from Table 1, it can be seen that the proposed development is expected to have a negligible impact on the noise environment.

In summary, the future traffic volumes associated with the development are not expected to increase the existing noise levels by any noticeable amount. Furthermore, given that the existing noise climate along Killakee Road is dominated by road traffic movements the proposed development will not alter the existing soundscape.

5.0 CONCLUSIONS

The proposed Dublin Mountain Visitor Centre at Hell Fire Woods, Killakee, South County Dublin has been assessed to determine the potential for increased road traffic to the development to generate a noise impact.

It has been found that the change in road traffic volumes on the main access route to the site, via Killakee Road, will not change significantly as a result of the development. The predicted change in the noise environment during the peak hour period of Sunday afternoon is less than 1dB which is considered to be negligible. Therefore, the proposed development and the introduction of small amounts of additional traffic will not alter the existing soundscape in the area.

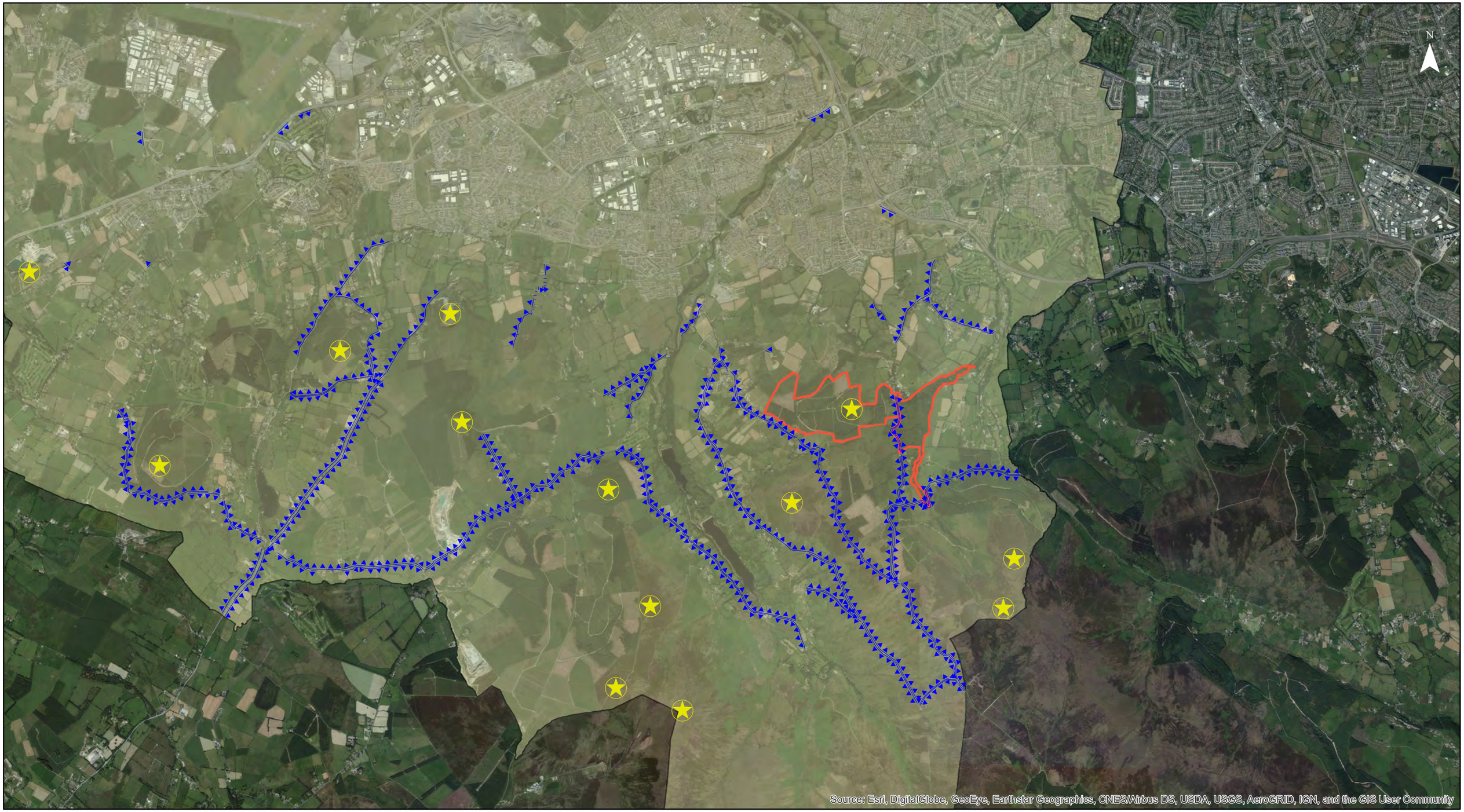
In conclusion, the proposed development will have a negligible impact on the existing noise environment as a result of additional road traffic. No mitigation is considered necessary.

Chapter 10 LVIA

Supplementary Information

Chapter 10 LVIA

Maps



Views and Prospects

- To preserve Prospects
- Protect and Preserve Significant Views
- SDCC_CountyBoundary_ITM
- Site
- World Imagery
- Citations

0 0.250.5 1 1.5 2 Kilometers

CUNNANE STRATTON REYNOLDS
LAND PLANNING & DESIGN

Dublin Office
3 Molesworth Place
Tel: 01 6610419
Email: info@csrlandplan.ie

Project:	Date:	June 2017
The Dublin Mountains Project Hell Fire Club & Massy's Wood South Dublin	Scale:	1:50,000 @A3
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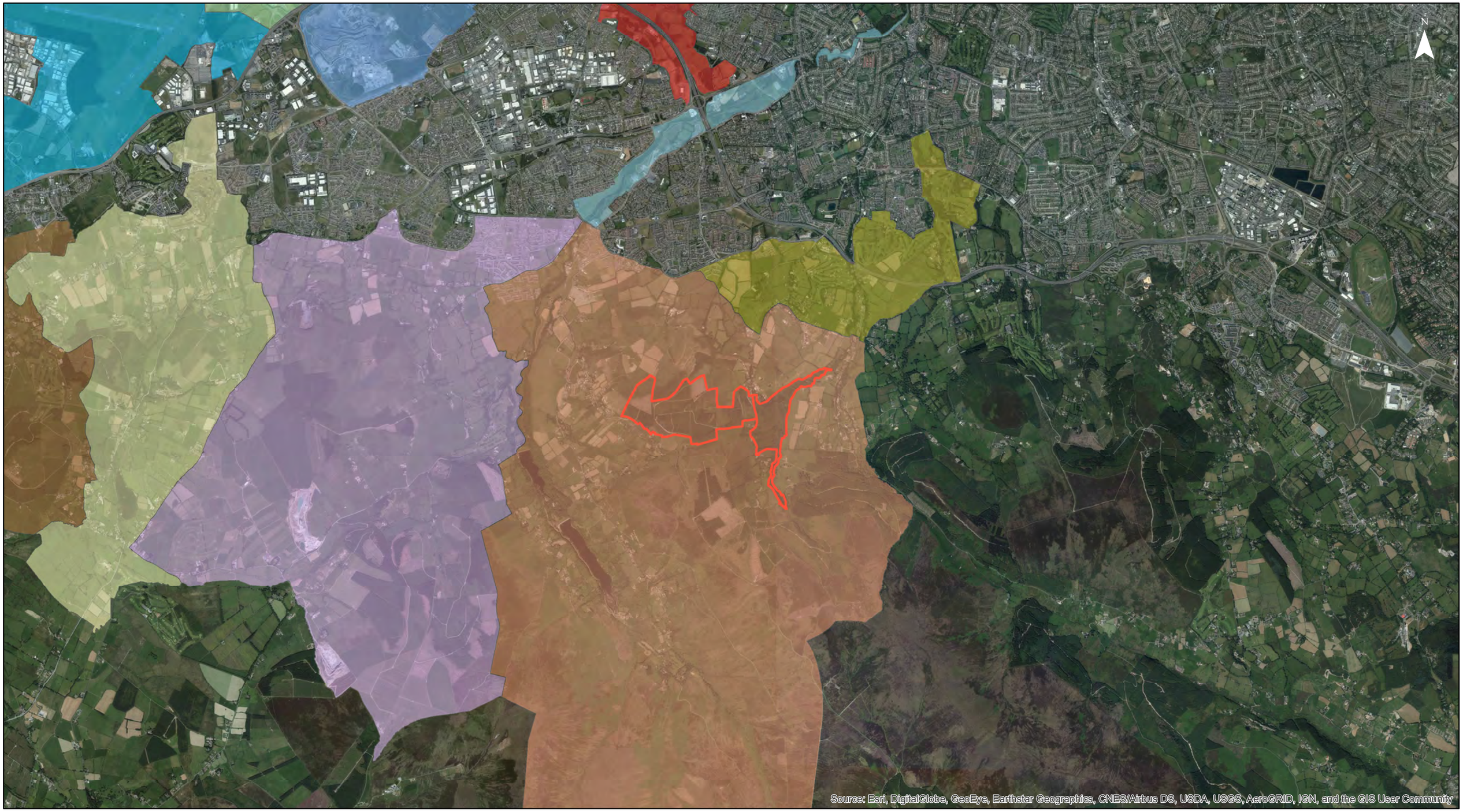
	Checked:	RB
Drawing: Views and Prospects	Drawing No:	Map 10.1



Legend

Landscape Character Areas

Name

- Ballinascorney
- Bohernabreena
- Clondalkin
- Dodder Valley
- Firhouse
- Liffey Valley
- Lucan
- Newcastle
- Rathcoole
- Saggart
- Tallaght
- Tymon
- Site

0 0.25 0.5 1 1.5 2 Kilometers

CUNNANE STRATTON REYNOLDS
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Dublin Office
3 Molesworth Place
Tel: 01 6610419
Email: info@csrlandplan.ie

Project:	Date:	June 2017
The Dublin Mountains Project Hell Fire Club & Massy's Wood South Dublin	Scale:	1:50,000 @A3
	Drawn:	CL
	Checked:	RB
Drawing: Landscape Character Areas	Drawing No:	Map 10.2

SPA's, SAC's, pNHA's, NHA's

- Special Areas of Conservation
- Special Protection Areas
- Proposed Natural Heritage Areas
- Site

0 0.25 0.5 1 1.5 2 Kilometers

CUNNANE STRATTON REYNOLDS
LAND PLANNING & DESIGN

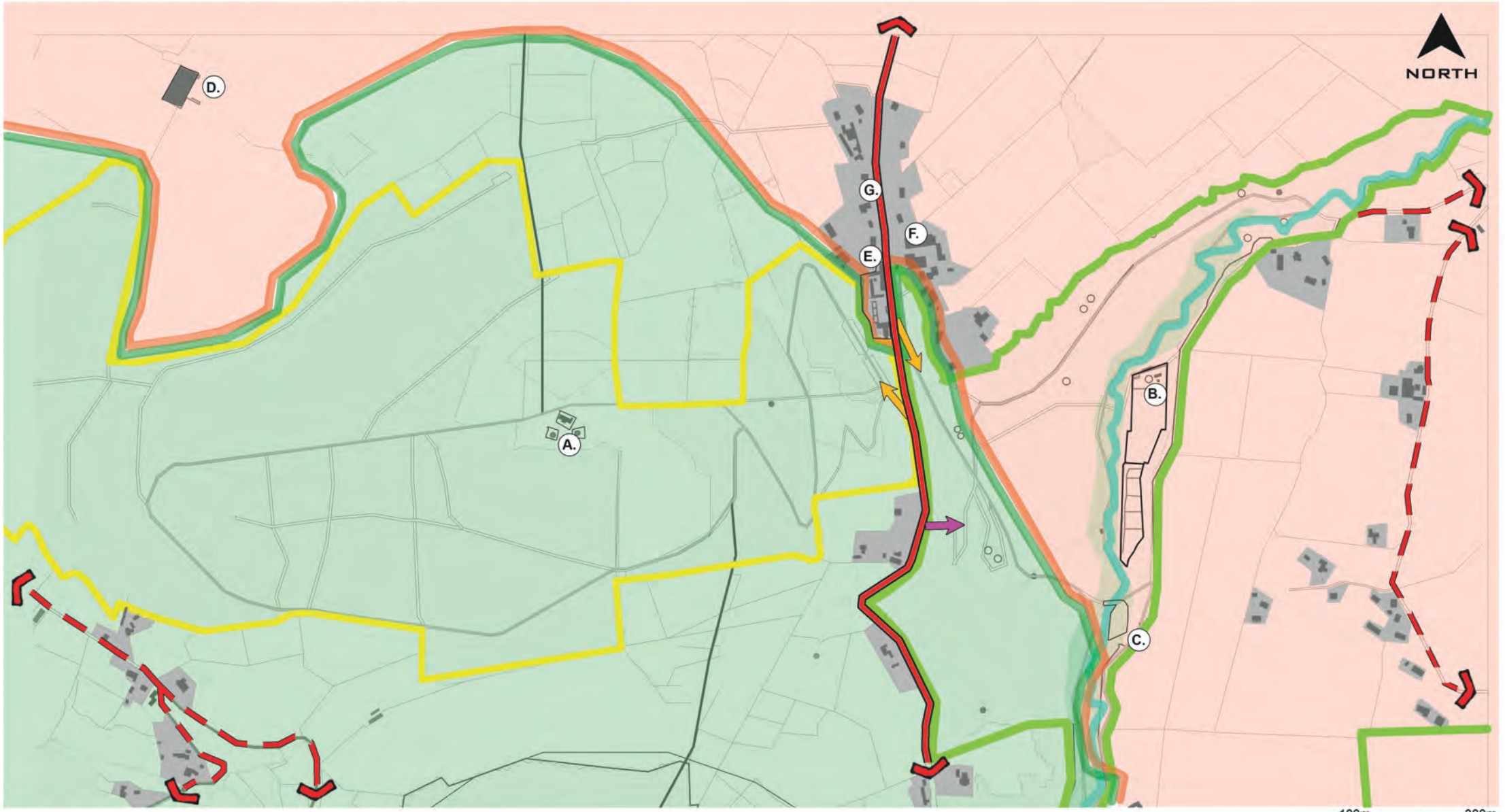
Dublin Office
3 Molesworth Place
Tel: 01 6610419
Email: info@csrlandplan.ie

Project:	Date:	June 2017
The Dublin Mountains Project Hell Fire Club & Massy's Wood South Dublin	Scale:	1:50,000 @A3
	Drawn:	CL
	Checked:	RB
Drawing: SPAs, SACs, NHAs and pNHAs	Drawing No:	Map 10.2

Chapter 10 LVIA

Appendices

Figure 1 - Land Use/ Zoning & Access



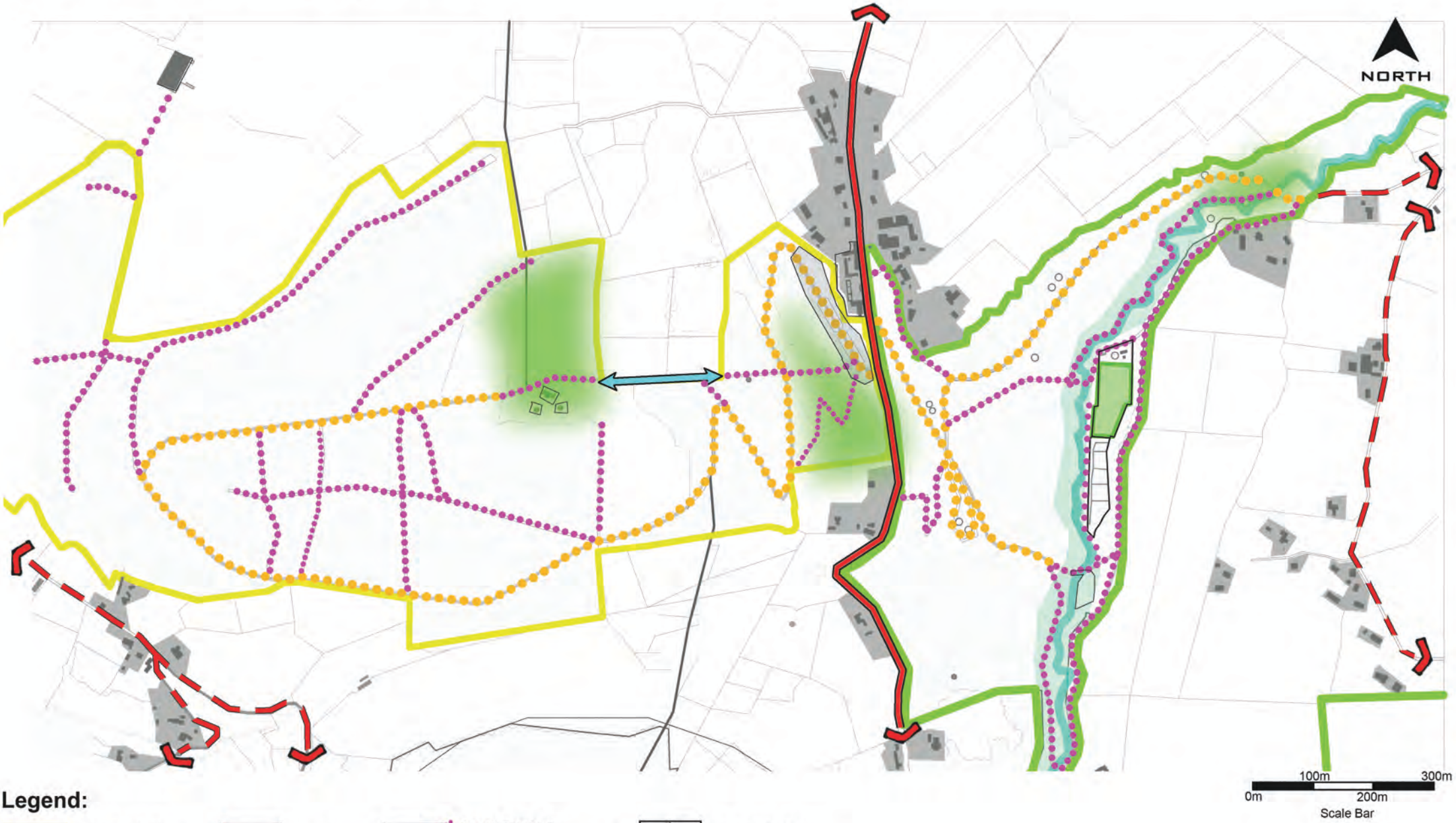
Legend:

- Zone HA - Dublin Mountains Zone
- Zone RU - Rural Amenity & Agriculture
- Forestry/ Coillte - Hell Fire Club Wood
- Forestry/ Coillte - Massy's Wood
- Main Road
- Local Access
- River
- Houses/Settlements
- Vehicular & Pedestrian Access
- Pedestrian Access

Key Heritage/Landscape Features & Points of Interest:

A- HFC
B- Walled Garden
C- Ruined Cottage, Bridge & Waterwheel
D- Carthy's Castle
E- Stweards House
F- Timbertrove Cafe
G- Montpellier Farm

Figure 2 - Trails, Forest Roads & Open Areas



Legend:

- Forestry/ Coillte - Hell Fire Club Wood
- Forestry/ Coillte - Massey's Wood
- Main Road
- Local Access
- River
- Forestry Road Trails ✱
- Rough Tracks & Other Trails -Maintenance, Desire Lines, Walks ✱
- Open Areas -Grass or Less Tree Cover
- Steep Direct Route to HFC
- Arrival, Parking & Access

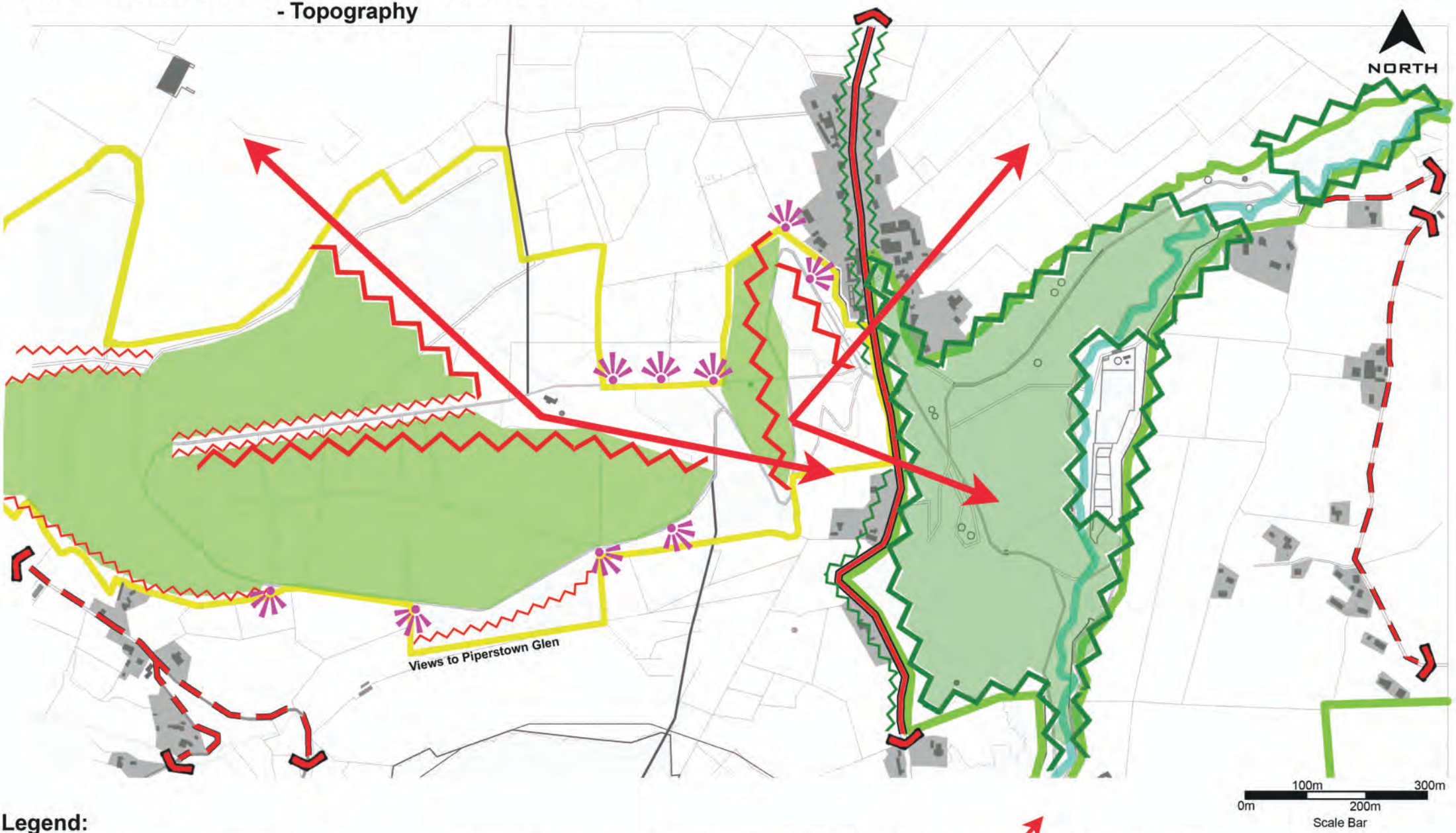
✱ All routes have been audited regarding current usage & compliance with Trails Standards & improvements & new routes proposed

Figure 3 - Vegetation & Forestry

Legend:

- Forestry/ Coillte - Hell Fire Club Wood
- Forestry/ Coillte - Massey's Wood
- Main Road
- Local Access
- River
- Recently clear felled areas with historic beech trees remaining
- Conifer Plots for Thinning 2015-2019
- Overmature Conifer Trees which will need to be felled in the coming years.
- Young/ Immature Conifer Plantations
- Regenerating/ Replanted Youngs Trees & Vegetation
- Mixed Native Trees Adjacent to Carpark
- Beech Wood to be Thinned in 2015
- Predominantly Mature Broadleafed Woodland with some Conifers/ Specimens
- Open/ Partially Open Grassed Areas

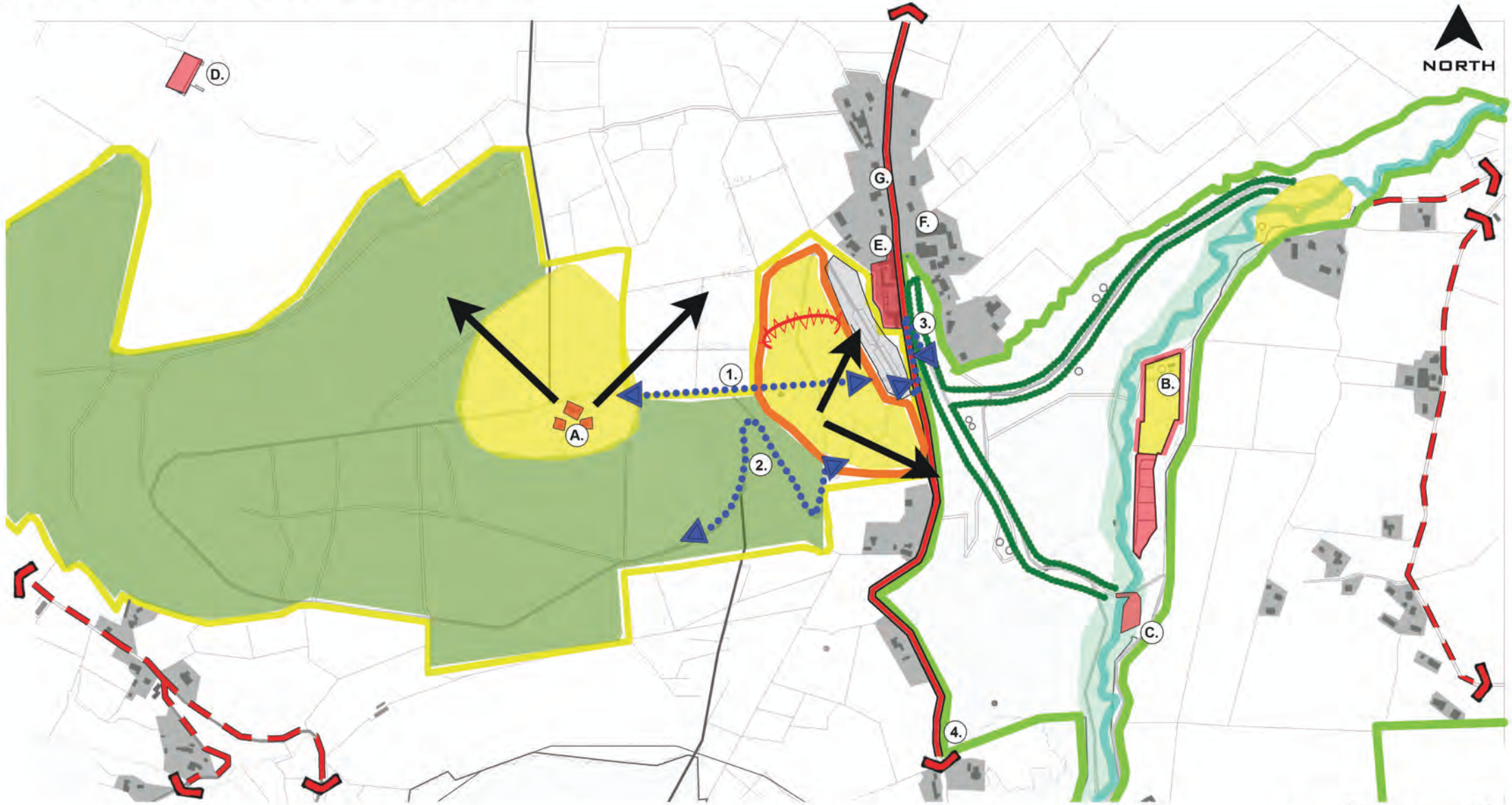
Figure 4 - Visual Analysis: Views, Visual Barriers, Enclosure - Topography



Legend:

- Forestry/ Coillte - Hell Fire Club Wood
- Forestry/ Coillte - Massey's Wood
- Main Road
- Local Access
- River
- Continuous Cover Conifer Forestry - Dark, Enclosed/ Sheltered, Very Limited Views
- Continuous Cover Woodland - Shady, Enclosed and Limited Views
- Visual Barriers -Broadleaved Trees & Vegetation
- Visual Barriers -Conifierous Trees
- Local/Partial Views & Vistas
- Citywide Panoramic Views & Vistas

Figure 5 - Synthesis: Spaces, Places & Features



Legend:

- Hell Fire Club Wood - A Forested Hill
- Massey's Wood - Magical Broadleafed Woodland
- Main Vehicular Access to City & Mountains
- Local Access
- River
- Arrival, Parking & Access
- Woodland Draw/ Ride (including Military Rd)
- Key Links:
  1. Direct Steep Route to HFC.
  2. Main Forest Road connection to HFC & Hill/Forest.
  3. Current Link between HFC & Masseys Wood along R115.
- 4. Link to Cruagh and D.M.W
- Key Panoramic Views
- Potential Future Visual Conflict
- Introductory Area/ Gateway to HFC Site - Potential Future Amenity Area following felling of Forest Plots
- Key Heritage/Landscape Features & Points of Interest:
  - A- HFC
  - B- Walled Garden
  - C- Ruined Cottage, Bridge & Waterwheel
  - D- Carthy's Castle
  - E- Stweards House
  - F- Timbertrove
  - G- Montpellier Farm

ZTV & Visual Prominence
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VISITOR CENTRE

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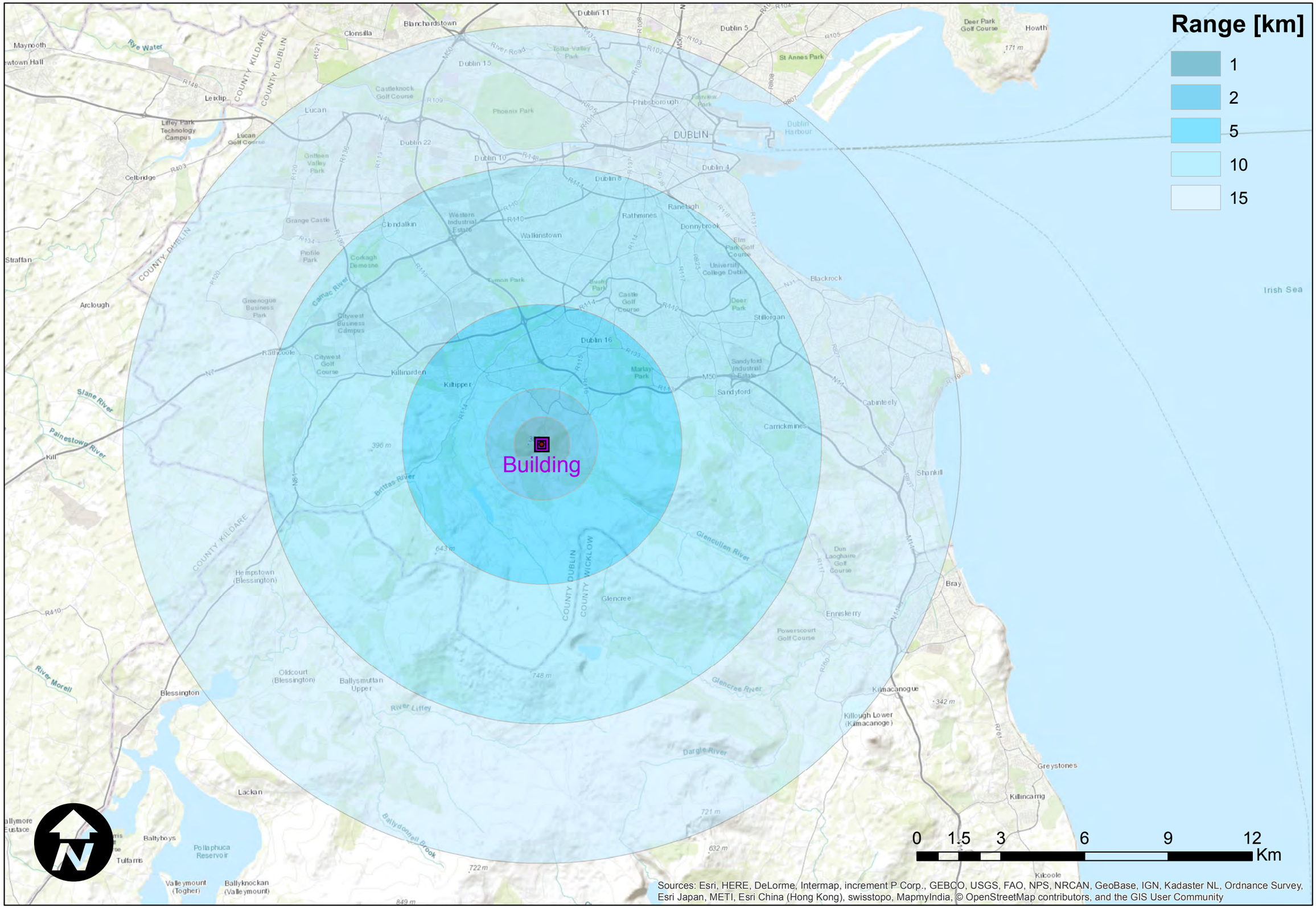
Contents

Buffer Ranges



Date Saved: 15/12/2016

Visual Prominence

When choosing the extent of a proposal's impact analysis it should be noted that the degree of visual prominence reduces as the distance from the proposed development increases. Also the larger (horizontal and vertical) the development the greater the area which needs to be evaluated since it may be visually apparent from a greater distance.

As a viewer moves away from the proposed development the visual impact reduces until it is no longer visible. However, well before this point is reached the impact on the viewer's field of view will reduce so that it no longer impacts on a significant amount of the same and thus will no longer have a significant visual impact.

The LVIA specialist will also incorporate additional considerations into the requirements for the scale of the assessment including items such the receiving environment, possible landscape mitigation factors and impact on skyline.

Horizontal & Vertical Fields of View

The visual impact may be quantified by calculating the angular arc impacted by the proposed development at a number of buffer ranges around the development.

The development consists of two buildings we have used their total width of 103.5m for these computations. No allowance is made for the reduction in visible facade when the building is skewed to the viewers perspective. For vertical height the rear building is higher so we have used this max height. For the purposes of this analysis we have elected to examine 1, 2, 5, 10 & 15km bands.

The results of these computations are shown below.

HORIZONTAL			VERTICAL		
Max Building length	**103.5**	m	Max Building Vertical	**7.25**	m
Binocular view angle	**120**	degs	Vertical view angle	**130**	degs
Dist	**View impact**		**Dist**	**View impact**	
[km]	***[degs]***		***[km]***	***[degs]***	
1	5.9		1	0.4	
2	3.0		2	0.2	
5	1.2		5	0.1	
10	0.6		10	0.0	
15	0.4		15	0.0	

This is also presented visually here showing the development as a lone entity at the same range bands in standard photomontage 50mm lens which on a full frame camera has a horizontal field of view of 40° and vertical 27°.

Based on these values and input from the LVIA specialist the assessment is that the proposal only has a visual prominence up to 10km buffer range and thus we have limited our analysis to this.

1km buffer range

2km buffer range

5km buffer range

10km buffer range

15km buffer range

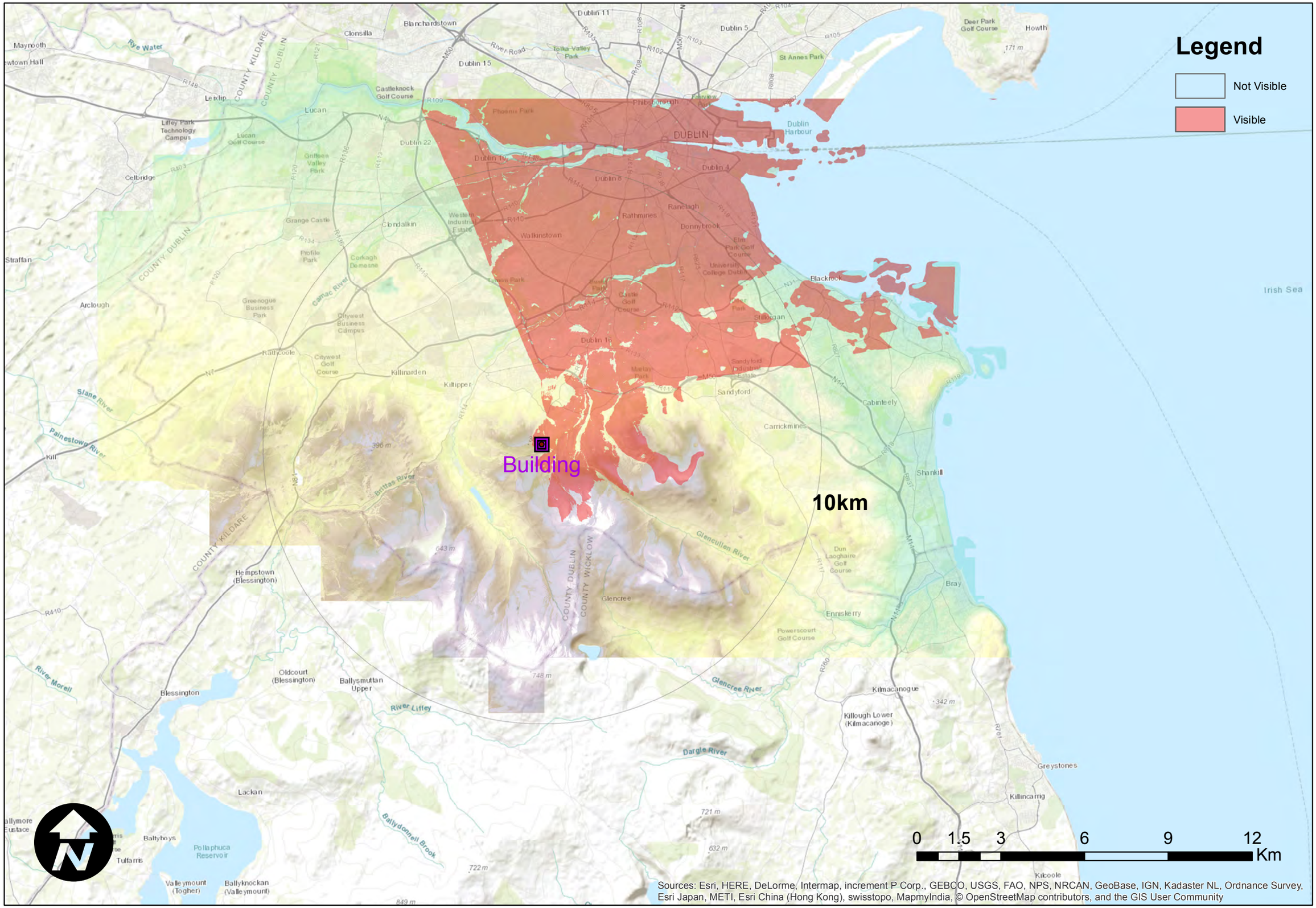
Zone of Theoretical Visibility

Zone of Theoretical Visibility (ZTV), or Zone of Visual Influence (ZVI), is a computer-generated analysis which identifies the extent of visibility of a development based on an elevation model. The results are not intended to show the actual visibility of an object, they are an aid to show where the proposal **may** be visible from. Conversely, however, areas where the analysis shows no visibility need not be checked further.

For this project the elevation model has come from Ordnance Survey Ireland and is a combination of both their 2m and 10m LiDAR grid surveys. This dataset is a bare-earth model which means it does not include trees, hedges, building, etc. and is thus a worst case scenario.

ZVT as a theoretical process and should be considered as a baseline since it does not take account of the ameliorating effects of distance in reducing the impact of a proposed development. However, used in conjunction with site surveys, photomontages and a visual prominence analysis it does provide the LVIA specialist with quantitative data for their assessment.

Zone of Theoretical Visibility



Date Saved: 15/12/2016

Chapter 11-12 Archaeological, Architectural and Cultural Heritage

Supplementary Information

Chapter 11-12 Archaeological, Architectural and Cultural Heritage

Appendices

15E0101
PRELIMINARY TESTING REPORT

The Hell-Fire Archaeology Project
Testing Phase
15E0101
Montpelier Townland
County Dublin
Author/Excavation Licence Holder: Neil Jackman
29/05/2015

An Chomhairle Oidhreachta
The Heritage Council

Comhairle Contae
Átha Cliath Theas
South Dublin County Council

coillte

ABARTA
audioguides
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ACKNOWLEDGEMENTS

This report was compiled by Neil Jackman, a licensed and published archaeologist and Managing Director of Travel Guides Limited (Abarta Audioguides). The report and geophysical survey was funded by The Heritage Council, South Dublin County Council and assisted by Coillte. This project is an action of the South Dublin County Heritage Plan 2010 – 2015.

The author of this report is very grateful to The Heritage Council for all their assistance, Earthsound Archaeological Geophysics and their team; Heather Gimson, James Bonsall, Darren Regan and volunteers Christine Melia and Joseph Culley. I am also deeply grateful to Christiaan Corlett & Tom Condit (National Monuments), Dr. Andy Halpin (National Museum), Dr. Steven Davis (UCD), Jesper Peterson (Coillte), and especially Dr Rosaleen Dwyer and Neil O'Byrne of South Dublin County Council for all their help and enthusiasm throughout this project.

I am also grateful to the superb excavation crew, Dr. Louise Nugent, William O'Shea, Lynda McCormack and Niall Garahy with excavation supervisor Róisín Burke. I also thank all the locals and visitors who showed great interest and enthusiasm throughout the dig.

SUMMARY

This report details the preliminary results of the archaeological test-trenching carried out under licence 15E0101 in Montpelier Townland in South County Dublin. This excavation was undertaken as part of the Hell-Fire Archaeology Project, which aims to highlight the archaeological landscape of Montpelier Hill, and is specifically focused on investigating the nature of the possible passage-tombs designated DU025-001001 & DU025-001002 and obtaining a better understanding of both the physical remains of the 18th Century Hunting Lodge known as the Hell-Fire Club, and a better historical insight into the group that made the site so notorious.

This hand-excavated testing phase carried out under licence 15E0101 was conducted to assess (or ground-truth) the results of the geophysical survey (carried out under licence 14R0033 by Dr. James Bonsall of Earthsound Archaeological Geophysics). Four test-pits, each measuring 2m x 2m, were targeted at specific features of archaeological potential revealed by the geophysics. The test-excavation revealed that features identified by geophysics in three of the four trenches (Trenches 1, 3 and 4) proved to be of no archaeological significance. Trench 2 revealed a possible outer berm (an enclosing element) for passage tomb DU025-001001. A feature of potentially high significance.

Following excavation, all trenches were carefully backfilled. All the archive resides in the offices of Travel Guides Ltd in Clonmel, County Tipperary. Post-excavation work and specialist analyses are currently ongoing and these will culminate to produce a final report within one year.

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1. INTRODUCTION & PROJECT BACKGROUND

The Hell-Fire Archaeology Project is aimed at investigating the nature of the possible passage-tombs designated DU025-001001 & DU025-001002 and obtaining a better understanding of both the physical remains of the 18th Century Hunting Lodge known as the Hell-Fire Club, and a better historical insight into the group that made the site so notorious. This test excavation carried out under licence 15E0101 took place over five days, from the 20/04/2015 – 24/04/2015.

The tombs of Montpelier Hill form part of a major cluster of megalithic tombs in the Dublin and North Wicklow mountains. In this region, eleven passage-tombs have been identified. They possibly form an extended cemetery, all are in prominent locations with extensive vistas over the landscape. The tomb at the Hell-Fire Club is one of the largest of the series. It stands on the summit of Montpelier Hill in South County Dublin. The tomb was said to have been largely destroyed when William Connolly constructed a hunting lodge (now known as the Hell-Fire Club) on the site (please see Plates 1 & 2). Stones from the tomb were said to have been incorporated into the fabric of the building. The remains now appear as a low mound with a possible circular stone kerb, with a diameter of approximately 26m. There are no visible above-ground traces of the stone cairn that is likely to have once covered the tomb (please see Plate 3). A second possible tomb has been identified, though smaller in size, located to the east (DU025-001002) though no visible remains survive today.

The Hell-Fire Archaeology Project aims to identify, examine and interpret the archaeological remains at the site, as part of a collaborative multi-disciplinary community outreach project involving a number of bodies and groups in a four phased approach.

Phase 1 (**Completed**)

Phase 1 was an investigation of the site using non-intrusive methods, primarily a desk-based assessment by the author, a LiDAR survey by Dr. Steve Davis of University College Dublin and a thorough geophysical survey by Dr. James Bonsall of Earthsound Archaeological Geophysics.

Phase 2 (**Completed**)

The ground work of Phase 2 is now completed and detailed in this report, saw a series of small hand-excavated test trenches to assess anomalies and features of archaeological potential identified during Phase 1. This was carried out by the author under excavation licence 15E0101.

Phase 3

The third phase will be a community-involved project involving experienced and professionally qualified archaeologists and students from an appropriate schools in the immediate area to conduct further trenches at the site to evaluate the archaeology.

Phase 4

The final phase will be the post-excavation analysis of any materials recovered during Phase 2 & 3, and will again involve community groups who will see and take part in the whole process of archaeological excavations from the research stage to the post-excavation stage. This phase will be focused on dissemination of the results, to ensure that the nature of the archaeology and the story of the site is produced in publication and easy to access formats.

2. SITE DESCRIPTION

Two megalithic tombs, thought to be passage-tombs dating to the Neolithic period, are recorded on Montpelier Hill, County Dublin in the SMR as DU025-001001 and DU025-001002. A passage-tomb is defined as being 'a round mound, usually surrounded by a kerb of large stones, enclosing a burial chamber, usually with a corbelled roof, which is entered by a passage, usually lintelled. Many tombs have side and end recesses opening off a central chamber, resulting in a cruciform plan. Cremation was the predominant burial rite in passage tombs which primarily date from 3300–2900 BC, though some simpler tombs in Carrowmore, County Sligo, have produced radiocarbon dates suggesting use even earlier in the Neolithic, circa 4000 BC' (National Monuments Service; Scope Note, www.archaeology.ie).

The larger of the two tombs in our study area; (DU025-001001), is located immediately to the south of the eighteenth-century building known as 'The Hell-Fire Club' (please see Figures 4 & 6). The remains of this possible tomb now appear as a low mound, with a diameter of approximately 26m. Visible undulation of the ground surface probably indicates the below-surface existence of at least part of the stone cairn that once would have covered the tomb (please see Plate 3). This tomb is said to have been largely demolished and its stone cairn quarried, when the Hell-Fire Club was constructed in the 18th century.

There are no visible above-surface remains of the smaller of the two tombs (DU025-001002). It was plotted as being immediately to the east of the larger tomb, and south-east of the Hell-Fire Club building. The exact location and nature of this tomb was identified and recorded by the geophysical survey conducted as part of Phase 1 (please see Figures 6, 7, 8 & 9 and see report 14R0033 by Gimson, H. & Bonsall, J. 2014).

The tombs are recorded in the Sites and Monuments Record as *'what survives today south of the Hell-Fire Club is a horse-shoe shaped embankment or mound with a hollowed interior, opening to the North-North-East. There is evidence for a recent fire in the interior. There are two stones visible along the perimeter in the south-east. To the east are traces of a second cairn (c.18m in diameter)'* (National Monuments Service, Sites and Monuments Record (DU025-001001). Recorded by Stout, G. 1993).

The two tombs form part of a major cluster of megalithic tombs in the Dublin / Wicklow mountains. In this region, eleven passage-tombs have been identified (Cooney, G. 2000). They possibly form an extended cemetery, all are in prominent locations with extensive vistas over the landscape. This extended cemetery appears to encompass a number of the summits of the South Dublin Mountains, and extends into North Wicklow. Other examples of passage-tombs in this extended cemetery in the Dublin Mountains were identified by Christiaan Corlett of the National Monuments Service, and includes tombs at Seahan, Tibradden, Kilmashogue, Fairy Castle, Two Rock Mountain, Saggart Hill and Killiney Hill (Corlett, C. 2012); to which it is reasonable to add the tombs of North Wicklow like Seefin, Seefinghan and other possible passage-tombs like Lackan, Tornant Upper, Blakestown Upper, and the tomb at Tuckmill Hill.

Not all of these tombs may be definitively Neolithic passage-tombs, as antiquarians investigating the tomb at Tibradden in 1849, discovered a Bronze Age Food Vessel along with cremated human remains. Though as Corlett points out, it is not unusual to discover that people during the Early Bronze Age reused older sacred sites for their own burials.

Though the tombs on Montpelier Hill are not well preserved above ground, they are still of high archaeological potential. In 1986 Dr. Stefan Bergh (now of NUI Galway Archaeology Department), who was visiting the Hell-Fire Club, found a chert scraper

[a small prehistoric stone tool] approximately 20m north-west of the larger of the two tombs (National Museum of Ireland Topographic Files; Register No. 1986:46).

The Hell-Fire Club building is listed in the National Inventory of Architectural Heritage as Reg. No. 11220022. The inventory describes the building as a: '*Detached five-bay single-storey-over-basement former hunting lodge on hill summit, built c.1740, burnt soon after, with vaulted stone roof repair, now derelict. Projecting porch / gallery with arched window to front, between plain openings in main elevation. Two wings with small rooms and sloping stone roofs, and projecting shelter walls. Projecting wing to rear with small semi-circular window. Internal rooms with fireplaces, arched doorways and niches, and connecting gallery. Robbed megalithic tomb and triangulation survey pillar nearby*'.

With its central half-octagonal projection, and two low flanking wings (please see Plate 1); the Hell-Fire Club is similar in architectural design to a mid-18th century house at Mount Gordon in Castlebar in County Mayo (Craig, M. 2006) (please see Plate 5). Like the house at Mount Gordon, it is likely that the main entrance was on the upper floor, with the lower floor being used as a kitchen, storage and for servants quarters. The upper floor had two large rooms, each lit by two large rectangular windows in the northern side, taking advantage of the wonderful views over Dublin (please see Plate 10). Both of these rooms are equipped with a fireplace. It is possible that these rooms originally served as a dining room and drawing room. Above them, though now unreachable, it is evident that there was a third storey, and this possibly provided accommodation.

The building and its layout was described in 1899 as:
'*…the house consisted of two large rooms and a hall on an upper floor. These rooms are sixteen feet square, each of them lighted by two tall windows, almost eight feet by three feet six inches, commanding a most extensive and magnificent view. There are two arched niches at each side of the rooms, with large fireplaces. Over the parlour and hall there was a small loft, but none over the drawing room. The hall door was reached by a lofty flight of stone steps; these, with most of the other*

cut granite stones about the house, were taken away at the time of the building of Lord Ely's hunting-lodge, lower down the hill.

Underneath the drawing-room was the kitchen, where the jambs of the great fireplace, ten feet wide, are still to be seen. There was a servants' hall at the other side, and there were two rooms built out at each end of the house. There were also two small apartments in a return opposite the hall door. The windows all face the north, for in the rear there are only a few narrow slits like embrasures. A semi-circular courtyard was in front with a gate in the centre. The walls are all very thick, built carelessly of rubble stone. The arched roof is of stone, as are the floors.' (Domville Handcock, W. 1899)

The unusual building was constructed as a Hunting Lodge for William Conolly in 1725. William Conolly, was originally from Ballyshannon in County Donegal. He was the son of a publican, but had a stratospheric rise through the ranks of Irish society to become one of the wealthiest and most powerful men in the British Isles. By the age of 34, his annual income was estimated to be in the region of £17,000 (roughly equivalent to over £3 million pounds per year). He had a residence on Capel Street in Dublin, and his grand estate at Castletown in County Kildare is one of the finest examples of Palladian architecture in the British Isles (O'Brien, J. & Guinness, D. 2005). He was a famous parliamentarian, and achieved the rank of Speaker in the Irish Parliament from 1715–1729, a role that became synonymous with him, as he became known as William 'Speaker' Conolly. He was widely acknowledged as the wealthiest man in Ireland by the time of his death in 1729.

In 1723–5, William Conolly purchased Rathfarnham Castle and a considerable amount of land and estates from The Duke of Wharton. This purchase included the land of Montpelier Hill. He chose this part of the estate to establish a 1,000 acre deer- park and he constructed the unusual Hunting Lodge on the summit of the hill. He chose the location as he believed it would be possible to see both his great estate at Castletown and his newly acquired Rathfarnham Castle from the Hunting Lodge.

William Speaker Conolly died in 1729; a mere four years after the construction of his new Hunting Lodge. The lodge stood empty until 1735; when it was rented by members of The Hell-Fire Club. They are said to have leased the building until the death of their leader, Richard Parsons, Earl of Rosse in 1741. In 1749 the building was purchased by Charles Cobbe, son of the Archbishop of Dublin. He died inside the building in 1751, just two years after he purchased it (Bohill, Kelly & de Gascun, 1991).

The Hunting Lodge then appears to have quickly fallen into disrepair. In 1763, much of the stonework and architectural features, along with the fine granite steps that lead into the building were taken away by Lord Ely to be reused in the construction of Killakee House nearby. Further significant damage was recorded when tar barrels were burned on the roof to create a large welcoming fire-beacon for Queen Victoria when she visited Dublin in 1849.

The building was described in 1899 as *'... a mere ruin, each winter hastening its decay. It is only used as a shelter for cattle. The lower rooms are half filled with manure and rubbish. The stone staircase, that I can remember inside, is all gone and the cattle can no longer ascend to the drawing-rooms as they used to do. The only way of getting to these rooms now is by climbing up the front wall to the hall-door; while the room in the return is almost inaccessible, except to an active climber'* (Domville Handcock, W. 1899).

The building then seems to have been left in this derelict condition until Coillte acquired the land in the 1960s. They carried out extensive restoration of the building and roof, and added a concrete staircase and steel bars over the windows to make it safer for the many visitors who frequent the site. The building and Montpelier Hill itself remain as a great asset to the locality and it is a popular and much-loved place for dog-walkers, joggers, families and those who want an unusual but scenic place to get away from it all. The Hell-Fire Club also remains a very popular venue for horror-themed tours around the Halloween Period, with a number of local guides bringing

visitors around the atmospheric building while chilling them with tales of supernatural terror from the large amounts of folklore that surrounds the site.

The tombs and the Hell-Fire Club building are near the summit of Mount Pelier Hill, at National Grid Reference: 53º15.096' N, 006º 19.815' W at an elevation of approximately 385m above sea level. Though much of Mount Pelier Hill is covered in a Coillte forest plantation, the summit with the Hell-Fire Club and tombs and a large area around remains unplanted as a grass covered hill. The Dublin and Wicklow Mountains form the largest continuous upland area in Ireland. The mountains are primarily composed of granite surrounded by an envelope of mica-schist and much older rocks such as quartzite. They were pushed up during the Caledonian orogeny at the start of the Devonian period and form part of the Leinster Chain, the largest continuous area of granite in Ireland and Britain. The mountains owe much of their present topography to the effects of the last ice age, which deepened the valleys and created corrie and ribbon lakes (Boyle, K & Bourke, O. 1990).

3. METHOD

Four test pits (Trenches 1, 2, 3 and 4), measuring 2m x 2m, were hand-excavated by a team of experienced archaeologists. Following the removal of the sod and topsoil, the trenches were meticulously cleaned by trowel to reveal any potential features of archaeological potential.

Upon location all archaeological features were cleaned and excavated by hand using methods appropriate to their composition, nature and date. All archaeological contexts were photographed and planned (in relation to the sides of the trench) prior to excavation. Sections were excavated through all features to obtain profiles and to expose the stratigraphic sequences. These section faces were drawn to scale and then fully excavated.

The composition, stratigraphic position and interpretation of all contexts were recorded on a context sheet prior to excavation. Contexts have been sampled for palaeobotanical material, radiocarbon dating, petrology and wood identification, where appropriate. Samples were taken from a number of the potential archaeological features and will be processed by suitable specialists.

4. RESULTS

Trench 1 (Dimensions 2m x 2m, average depth of 0.38m)

Figure: 11

Plates: 8, 11, 12, 13, 20

Trench 1 was opened to the west-north-west of the Hell-Fire Club building, and was targeted on a large rectangular feature that appeared to be a three-roomed structure identified during the geophysical survey (see Figures 9 & 10). The excavation of Trench 1 revealed no evidence of the potential large rectangular structure indicated on the geophysical survey. Instead, it revealed two possible archaeological features. The first, [C005], was located in the north-west area of the trench. [C005] was a sub-circular shaped cut, dug into the subsoil. It had dimensions of 0.29m x 0.20m and a depth of 0.20m. The cut had a sharp break of slope with steeply-sloping uneven sides and an uneven base. It was filled by (C004), a mid-brown coloured silty-clay with some inclusions of charcoal. This was located approximately 0.85m west-south-west of cut feature [C006]. This was another sub-circular cut, measuring 0.16m x 0.14m with a depth of 0.14m. It was filled by (C007), a moderately compacted yellowish-brown silty clay, with frequent inclusions of small pebbles and some medium sized stones. The edges of this cut appear to have been effected by root-disturbance, and it had uneven steeply sloping sides to a flattish base. It is quite possible that both of these features [C005 & C006] are the result of natural bioturbation in the form of tree-root activity, however they could potentially be stake or post-holes, ephemeral evidence of archaeological structure. The charcoal recovered within the fill of [C005] will be sent to a specialist for identification and analysis, and if deemed to be of archaeological interest, the charcoal will then be sent for radiocarbon dating.

No other features of archaeological potential were identified within Trench 1.

Trench 2 (Dimensions 2m x 2m, average depth of 0.33m)

Figures: 12 & 13

Plates: 14, 15, 16, 17, 21

Trench 2 was opened south of the Hell-Fire Club building, and was positioned closest to the passage tomb monument DU025–001001. The trench targeted a potential pit feature identified by the geophysical survey (see Figures 9 & 10). The excavation of Trench 2 revealed no evidence of a potential pit type feature. However it did reveal a feature of potential archaeological significance, (C008). This was a layer of medium – large sized stones within a light grey, loosely compacted silty clay that contained a moderate amount of charcoal. The majority of the stones were of granite and limestone with numerous pieces of quartz. This feature appeared in a distinct band that ran in a curving line across the northern half of the trench (see Figures 12 & 13), and was between 0.16–0.20m thick. It appeared to be respecting the curvature of a possible outer enclosing of passage tomb DU025–001001. This has the enticing possibility of being a second outer enclosing feature (a rare feature in Irish passage-tombs, see Discussion section below), or perhaps, is it is merely evidence of slippage, where the main cairn material has slid down during weathering or destruction of the cairn of the tomb. A quantity of charcoal from (C008), recovered during the environmental processing, will be sent to an appropriate specialist for species identification. Following any specialist recommendations the charcoal will be submitted for radiocarbon dating to help establish the date of this feature.

This feature overlay (C009), a greyish brown loose silty clay that contained very moderate inclusions of charcoal. This layer potentially represents the buried topsoil, sealed when the possible enclosing bank (C008) was constructed on top. This deposit was 0.05m thick. It overlay the natural glacial subsoil, a mid-brownish orange subsoil with heavy iron panning throughout.

No artefacts or other material of archaeological potential were identified in Trench 2.

Trench 3 (Dimensions 2m x 2m, average depth of 0.30m)

Plates: 9, 18, 22

Trench 3 was opened south of the Hell-Fire Club building, and was positioned east of Trench 2 to the south of passage tomb monument DU025–001001. The trench targeted a potential pit feature identified by the geophysical survey (see Figures 9 & 10). The excavation of Trench 3 revealed no evidence of a potential pit type feature or any other features of archaeological potential.

Trench 4 (Dimensions 2m x 2m, average depth of 0.26m)

Plates: 18 & 23

Trench 4 was opened south-east of the Hell-Fire Club building, and was positioned close to the smaller passage tomb monument DU025–001002. The trench targeted a potential enclosing element of the smaller tomb, identified by the geophysical survey (see Figures 9 & 10). The excavation of Trench 4 revealed no evidence of a potential enclosing element, and no other features of archaeological potential.

5.0 ARTEFACTS

No artefacts were discovered during the testing phase.

6.0 DISCUSSION

The primary aim of the programme of test-trenching carried out under licence 15E0101, was to evaluate the nature and archaeological potential of features identified during the geophysical survey [14R0033]. The results of the test-excavation revealed that the geophysical survey revealed the presence more targets of archaeological potential than were actually identified in the ground, and that two of the trenches (Trench 3 & Trench 4) proved to be completely sterile with no features of archaeological potential being identified. It appears that the shallow depth of soil and unusual geology of the hill led to the erroneous geophysical results. Dr. James Bonsall of Earthsound Geophysics who conducted the survey states that: *"The geophysical surveys suggested the presence of more archaeological features than were identified. One of the ways in which this is best understood is in relation to the 'large rectangular feature' that was identified as a conductivity anomaly and coincided with a spread of dipolar, ferrous, magnetic anomalies and interpreted as a structure. The feature was not found in Trench 1, whereas the stake-hole type features that were found were too small to be imaged by the geophysical surveys. The absence of the feature in the trench could suggest that the anomalies were geological, rather than archaeological, in origin, and that the surveys were imaging at a depth greater than the shallow soils on the hilltop that were revealed during the excavation. As a consequence, many of the anomalies revealed by the geophysical surveys were 'seeing deeper' than the archaeology revealed by the excavation. This could be overcome in the future by using shallow prospection methods suited to soils <20cm beneath the surface"* (Dr. James Bonsall pers.comm).

Trench 1 was targeted on what appeared to be a large rectangular structure that was identified during the geophysics. The excavation failed to identify any evidence of such a building, instead the only structural evidence that was identified were two small possible stake-hole type features (please see Figure 11 and Plates 11, 12 & 13). These could be the ephemeral remains of a wooden-framed structure, and are similar in dimension to some structural elements of Neolithic houses. However it is important to note that the base of Trench 1 was disturbed by tree roots, and it is quite probable that the two stake-hole type features are in fact sockets left by tree-roots that had long

since decomposed. The fill (C007) of one in particular [C006] was completely sterile. A small amount of charcoal was recovered from the fill (C004) of the westernmost feature [C005]. This charcoal will be sent to a specialist for species identification, analysis and comment as to the likelihood of it deriving from natural processes (a decomposed tree root) rather than burnt archaeological remains. If considered potentially archaeological, the charcoal will be sent for radiocarbon dating to help establish a date for the possible structure.

The discovery of archaeological material in Trench 2 is potentially highly significant. The deposit (C008) appeared to curve at an angle that respects a possible earthwork that is a potential outer enclosing element for the larger of the two tombs (DU025-001001). This possible earthwork appears quite distinctly on the LiDAR (please see Figure 6) as a raised bank curving around the south-west portion of the tomb. From it's size and curvature it is possible that it once completely enclosed the tomb, though it appears to have been largely removed apart from the south-eastern side. The presence of an enclosing earthwork for the larger tomb is an unusual and relatively rare feature in the Western European passage tomb tradition. Richard Bradley states that: '*It is more difficult to discuss those cases in which a megalithic tomb is actually enclosed within a circular earthwork. Apart from Maes Howe, the best examples of this arrangement are found in Ireland. Several occur in the Carrowmore Complex…'* (Bradley, R. 1998). Bradley goes on to suggest that possibility that these enclosing elements could be a later feature, part of a new form of ritual tradition that moved the ceremonial aspects and rites from the interior of the tomb to the exterior. Charcoal discovered within (C008) will hopefully produce a radiocarbon date that will aid in assessing the localised site chronology. Alternatively, it could be that the material discovered within Trench 2, along with the visible earthwork, could simply be slippage from the main cairn as a result of weathering or during the destruction activity that occurred when the Hell-Fire Club itself was being constructed in the eighteenth century. Only further excavation will reveal the full nature of the potential archaeology identified

during the project thus far, as it is clear from the results of Trench 2, that there is high potential for sub-surface archaeological remains on the site.

Accounts suggest that the cairn itself was demolished and the stone reused as building material. *'Upon the top of Mont Pelier, from time immemorial, stood a large cairn, similar to those on Seefin and Seeghane Mountains. The limits were composed of great stones set edgeways, which made a sort of wall or boundary; within small stones were heaped up; and in the centre there was a large slab, nine feet long, six feet wide, and three feet thick, not raised upon others, but lying low, with the small stones cleared from around it. There were several other large stones; and about sixty yards south-west stood a pillar stone about five feet out of the ground. These ancient remains have nearly disappeared. A great portion of the cairn was used in building the house.'* (Domville Handcock, 1899). Supported by Austin Cooper who also suggested that the cairn provided building materials for the building in the 18th Century (National Monuments Archive, DU025-001001). However, though the tombs were nearly entirely obliterated during the construction of the Hell-Fire Club, it is still possible to see potential evidence of some of the larger stones (possible orthostats and kerbing) reused in the fabric of the Hell-Fire Club itself (plates 6 & 7). Perhaps 3–D laser scanning with a high-density point-cloud could even reveal traces of megalithic art on some of these stones, it is a tantalising possibility.

It is clear that from its large size and potential complexity, the tombs of Mount Pelier Hill are of high significance in the Irish passage tomb tradition, and the larger tomb may be the focal point of the Dublin / Wicklow Mountains Megalithic Cemetery. Though both tombs were largely destroyed during the construction of The Hell-Fire Club, as the excavation of Trench 2 indicated, there is still high potential for sub-surface remains. Through careful archaeological excavation, there is still much these tombs can reveal of the nature, design and ritual activity of Irish passage graves.

7.0 RECOMMENDATIONS

The testing phase revealed that there is high potential for the preservation of sub-surface archaeological deposits and features associated with the passage tombs DU025-001001 and DU025-001002. The potential enclosing elements hinted at in the LiDAR survey and in the remains discovered in Trench 2 give a tantalising glimpse of the continued ritual importance of the larger of the two passage tombs beyond its initial conception and use as a tomb. The rarity of this type of feature in the European passage tomb tradition certainly requires further investigation. A larger scale excavation, that incorporates at least 50% of tomb DU025-001001 is recommended to establish the true size, nature and features of the tomb, and to establish the nature of the possible enclosing element to evaluate it's archaeological potential and to establish a local site chronology. If it proves to be an enclosing element, it is of high importance to archaeological research to assess whether the enclosing element is contemporary with the first use of the tomb, or whether as Bradley suggests, it is a later feature that indicates a change in custom, rites and ritual in the later Neolithic period.

APPENDIX 1: LIST OF CONTEXTS

C #	Type	Interpretation	Description	Dimensions	Location
1	Deposit	Sod	Sod overlying the site. Mid brown peaty sod which was moderately compact with frequent inclusions of roots. Varying in depth of 0.05 m - 0.25m across the four trenches excavated. No archaeological artefacts were recovered from this context.	Varying thickness of 0.05–0.25m	All trenches
2	Deposit	Topsoil	Mid brown moderately compact topsoil. Occasional modern artefacts like plastic and aluminium cans were found dispersed throughout the four trenches. Sub angular stones found throughout topsoil. The deposit varies in depth of 0.07m - 0.20m across the four trenches excavated. No archaeological finds or charcoal was recovered from this context.	Varying thickness of 0.07–0.20m	All trenches
3	Deposit	Natural subsoil	Mid brownish orange subsoil with heavy iron panning throughout. Underlies sod and topsoil. C003 is a natural layer with no charcoal or archaeological artefacts retrieved from it.	N/A	All trenches
4	Deposit	Fill of possible pit	This deposit was the fill of cut C005. Mid brown silty clay with very moderate inclusions of charcoal. Sub circular in shape with dimensions of 0.29m x 0.20m and had a depth of 0.20m. When excavated C004 had iron pan along the eastern edge of the deposit. There were moderate angular pebbles (dimensions: 0.03m x 0.04m) within the eastern half of the fill. There were a lot of roots mixed into the deposit. One soil sample was taken from this deposit. It has been interpreted as a possible post hole but given the proportion of root activity and the general abundance of roots within the trench, it could be fill of a naturally occurring cut. No archaeological artefacts were recovered from this deposit.	0.29m x 0.20m x 0.20m	Trench 1
5	Fill	Cut of possible pit	Sub circular cut dug into subsoil C003. This cut was filled with the deposit: C004. The cut was sub circular in shape and located in the north-west corner of Trench One. It was located approximately 0.85 metres to the north east of C006 (a similar possible post located in Trench One). The break of slope at the top of the cut was sharp and the sides of the cut sloped sharply to the base. The eastern side of the cut is uneven and has a number of crevices above and below stones located in the side of the cut. The break of slope at the base was gradual and the base was concave. It is possible that this cut was a post hole but given the uneven sides of the cut and the root activity surrounding it, it is also possible that this is natural root activity. No archaeological artefacts were recovered from this cut.	0.24m x 0.20m x 0.24m	Trench 1
6	Fill	Cut of possible pit	Sub circular cut dug into subsoil C003. This cut was filled with the deposit: C007. The cut was sub circular in shape and was located in the north-western corner of Trench One, approximately 0.85 metres to the south west of C005. The break of slope at the top of the cut was sharp on three sides and more gradual on the Northern side. The sides of the cut sloped sharply to the concave base. The break of slope at the base of the cut was sharp. It is possible that this cut was a post hole but given the uneven sides of the cut and the root activity surrounding it, it is also possible that this is natural root activity. It was noted that during de-sodding, a thick root was revealed following the orientation of this post hole. No archaeological artefacts were recovered from this context.	0.16m x 0.14m x 0.14m	Trench 1

C #	Type	Interpretation	Description	Dimensions	Location
7	Cut	Fill of possible pit	C007 was the deposit that filled the cut C006. Moderately compact yellowish brown silty clay. There were frequent inclusions of small pebbles and very occasional inclusions of larger stones (dimensions: 0.08m x 0.06m). There was frequent inclusions of root activity within this deposit. The dimensions of the deposit were: 0.16m x 0.14 m and a depth of 0.14m. C007 was similar in colour and consistency to C004 but there were no charcoal inclusions in C007. The was some flecks of manganese throughout the fill. It is possible that C007 is the fill of a posthole. It is also possible that it is the non archaeological fill of a root bole. No archaeological artefacts were recovered from this context.	0.16m x 0.14m x 0.14m	Trench 1
8	Deposit	Possible enclosing element associated with passage tomb (DU025-01001)	Light grey brown loosely compacted silty clay with frequent inclusions of medium and large stones which formed stone packing. Occasional flecks of charcoal were found throughout the deposit. Most of the stone inclusions were granite and limestone with occasional quartz. There were very occasional inclusions of slate and unworked chert. The deposit had a depth of 0.16m and extended from east - west across Trench Two (2 metres in diameter). It extended 1.35m from the northern baulk at the western edge of the trench and approximately 0.40m from the northern baulk at the eastern edge of the trench.There were larger pieces of quartz found in the centre of the deposit towards the northern edge of the trench. It is possible that C008 is the fill of a berm on the southern extent of the passage tomb monument (SMR number: DU025-00100001). It was found beneath C001 and C002 and overlies C009 and C003. Sample #002 was taken from this deposit (two 1 litre bags of soil and one 1 litre bag of stones). No archaeological artefacts were retrieved from this context.	Average thickness of 0.16m	Trench 2
9	Deposit	Deposit beneath C08	Grey brown silty clay loosely compacted with very moderate inclusions of charcoal. C009 was located in the northern half of Trench 2 and extended east - west across the trench. C009 extended 1.10m out from the northern baulk at the western edge of Trench 2 and 0.80m from the northern baulk at the eastern edge of Trench 2. It had a depth of approximately 0.05m. It is possible that this context is reburied soil beneath C008 which was a mixture of soil and stone which may be part of a berm of the passage tomb. A lens of charcoal was found within C009 and this was sampled (Sample # 003). C009 was found beneath C001, C002 and C008 and overlay C003. No archaeological artefacts were recovered from this context.	Average thickness of 0.05m	Trench 2

APPENDIX 2: LIST OF SAMPLES

Sample Number	Context	Size	Date	Sampled By:	Description
1	C04	0.5 Litres	21/04/2015	Louise Nugent	Fill of possible post hole in Trench One (inclusions of charcoal)
2	C08	3 litres	22/04/2015	Lynda McCormack	Clay associated with stone packing thought to be be berm of passage tomb (DU025-01001)
3	C09	1 litre	23/04/2015	Lynda McCormack	Deposit underlying C008 (inclusions of charcoal)

APPENDIX 3: LIST OF QUANTITIES

Context Sheets	Drawings	Samples	Finds	Photos	Registers	Notebooks
9	9	3	0	570 Digital	5	1

APPENDIX 4: PROPOSAL FOR POST-EXCAVATION AND ARCHIVING

ARTEFACTS:

Not applicable

SAMPLES:

Work done to date

All samples were passed through a 2mm, 1mm and 0.25m sieve and the charcoal and retent separated.

Further work:

Two charcoal samples are to be sent for specialist identification. Following specialist identification, if suitable the two samples are to be sent for radiocarbon dating (following approval and licence from the statutory authorities).

ILLUSTRATION:

Work done to date:

The trench plans and sections for the site have been digitised.

Further work:

None required.

FIGURES

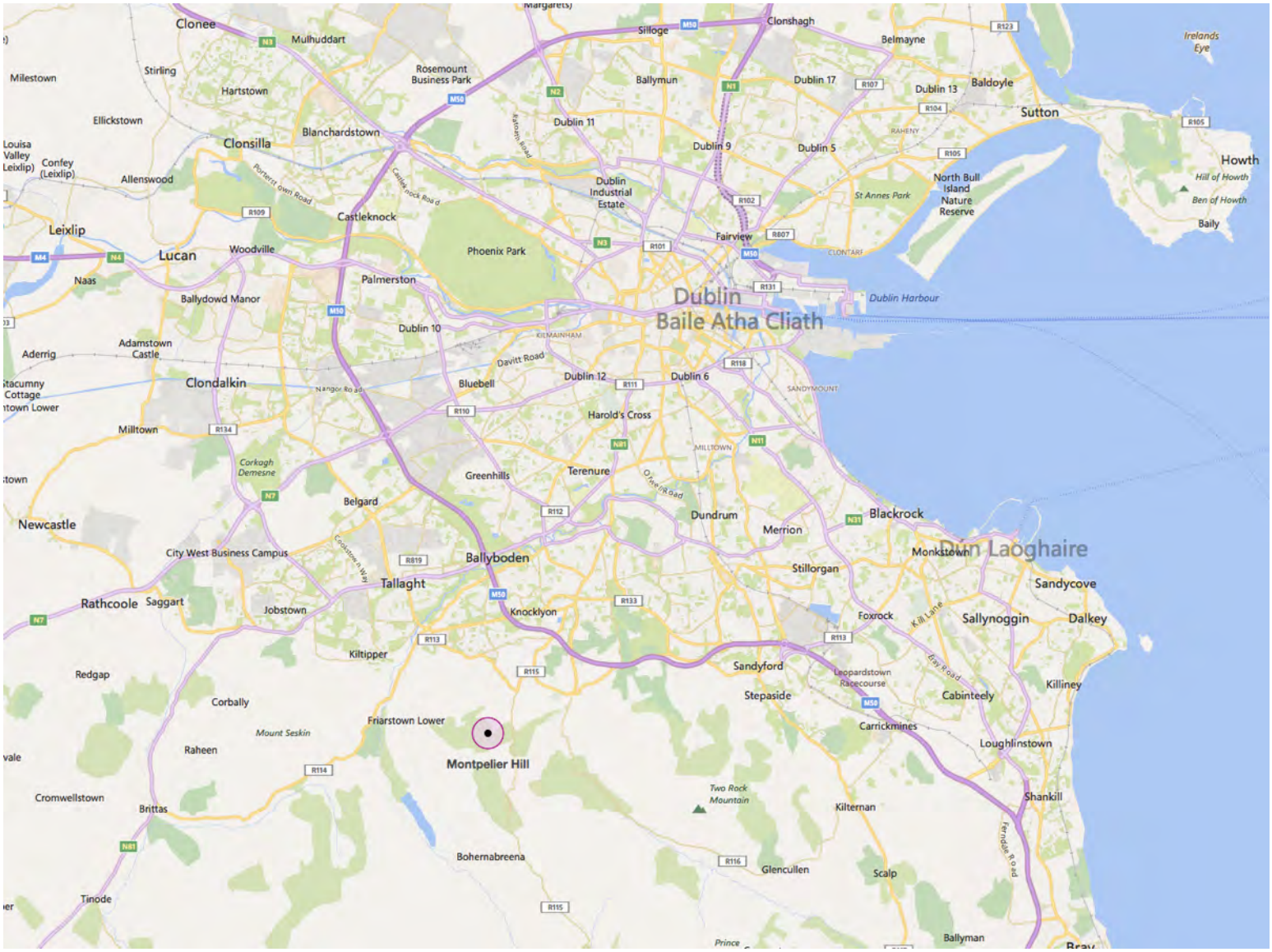

Figure 1: Location Map of Montpelier Hill (Bing Maps)

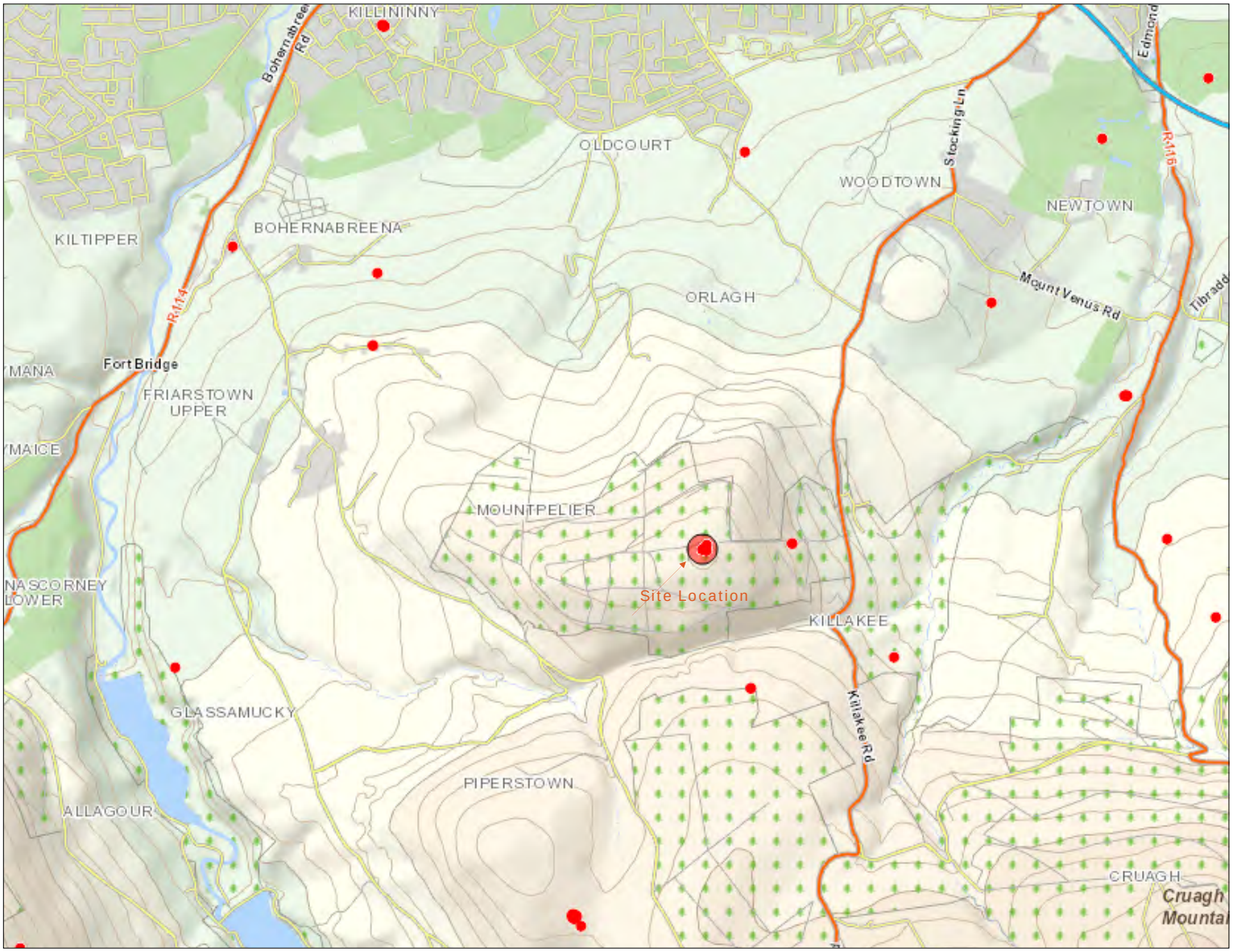

Figure 2: Site Location on Ordnance Survey Ireland Map.

Figure 3: Satellite View of Site (Bing)

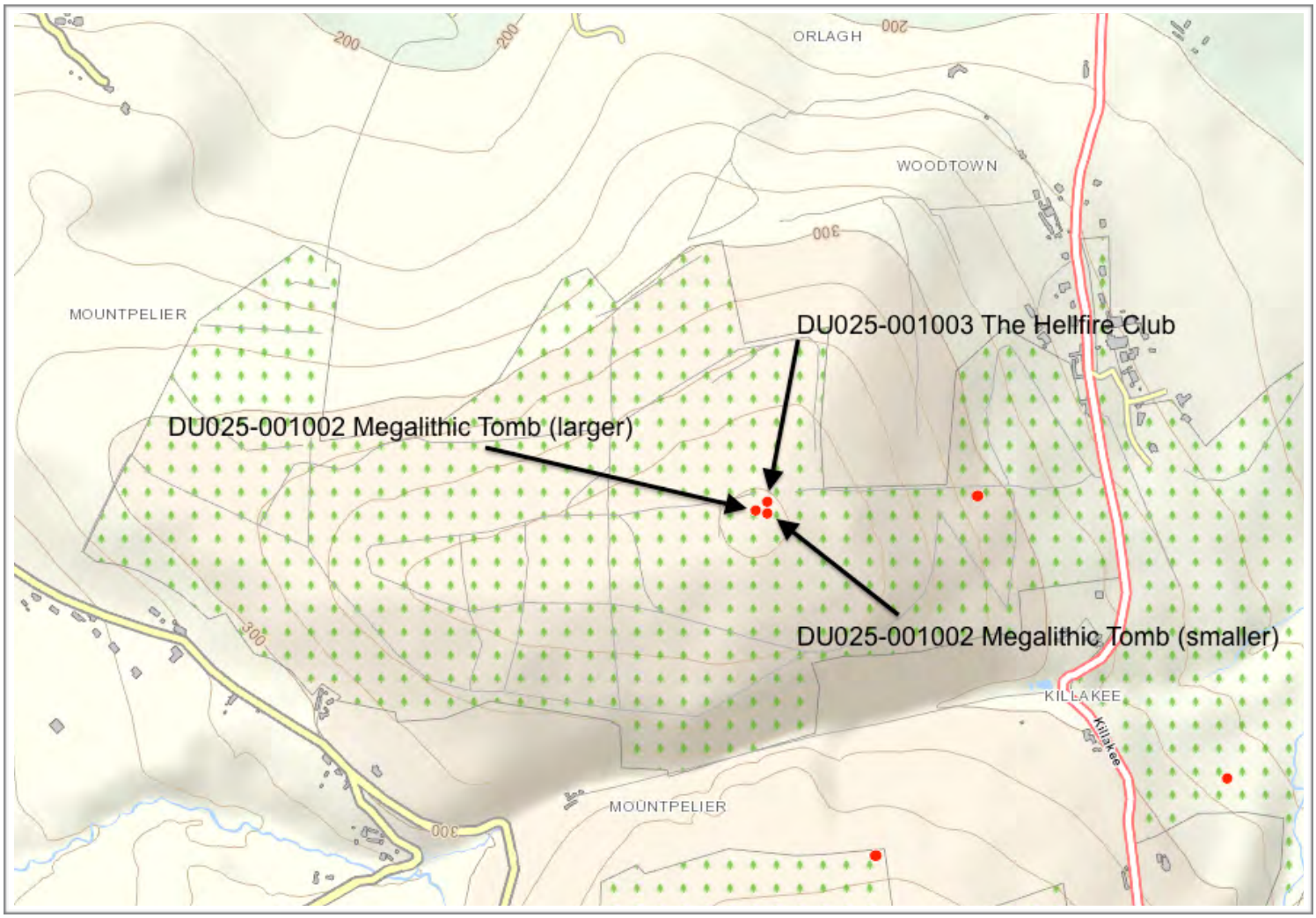

Figure 4: Relative location of the two tombs and the Hell-Fire Club building.
(Annotated screenshot by author from www.archaeology.ie)

Figure 5: Hell-Fire Club recorded as '*Sporting Lodge in ruins*' on this 6" Map from 1829–1841

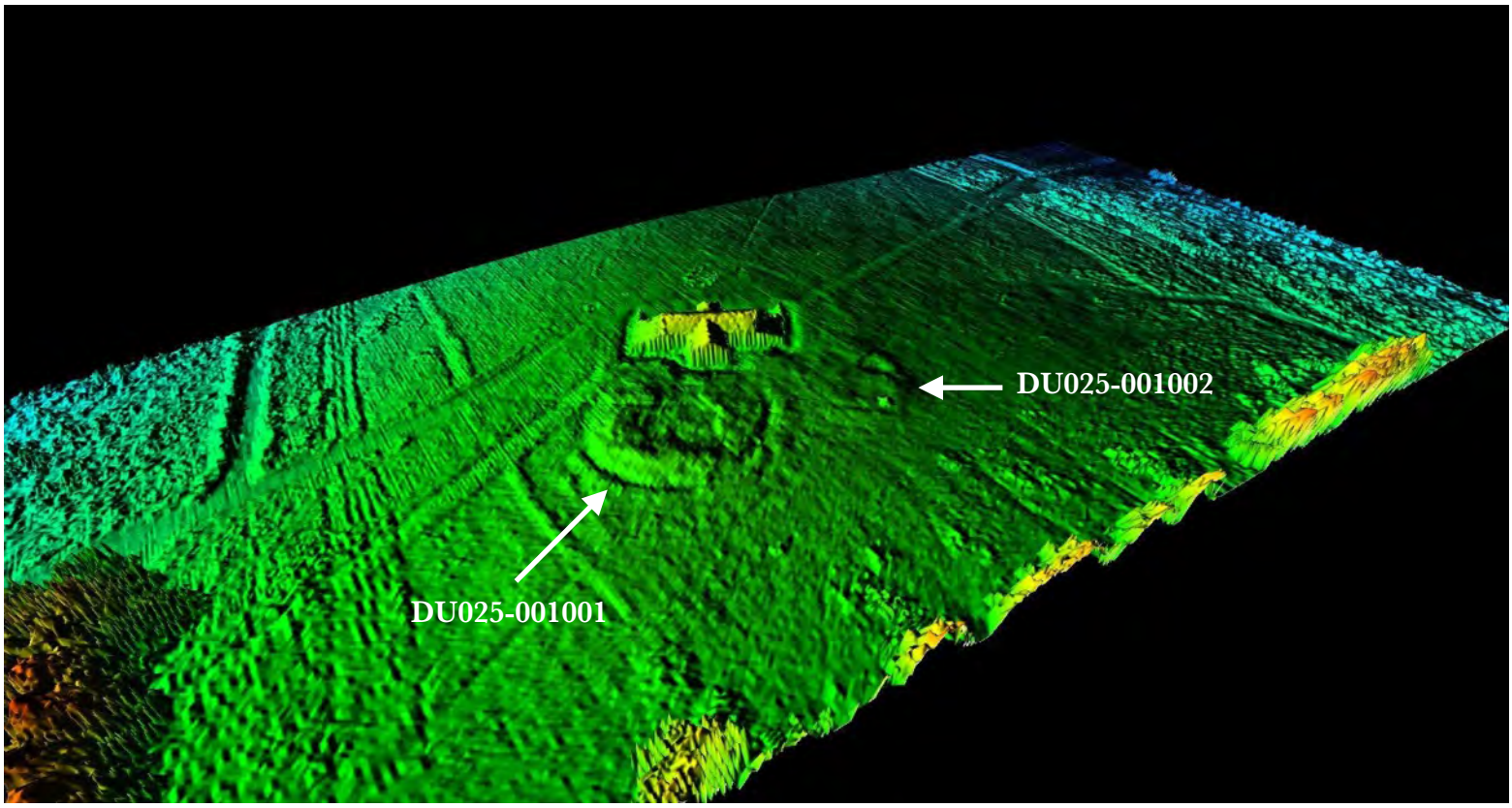

Figure 6: LiDAR survey of Montpelier Hill, the two tombs are clearly visible south of the Hell-Fire Club (with thanks to Dr. Steve Davis, UCD)

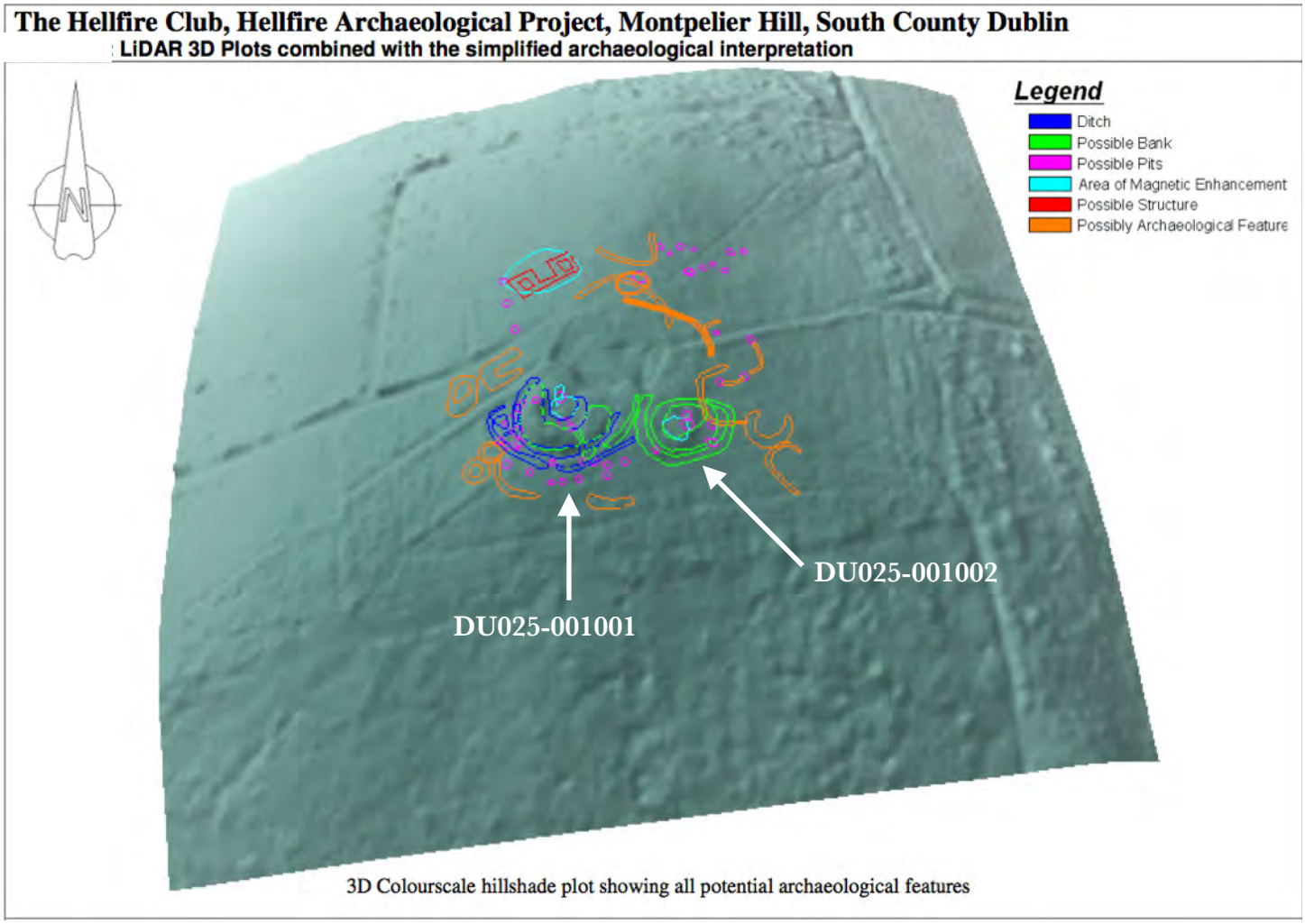

Figure 7: LiDAR Survey with preliminary geophysical interpretation added

Figure 8: Results of Electromagnetic Conductivity Survey

Figure 9: Geophysical survey results with suggested potential features highlighted

Figure 10: Geophysical plan showing trench locations

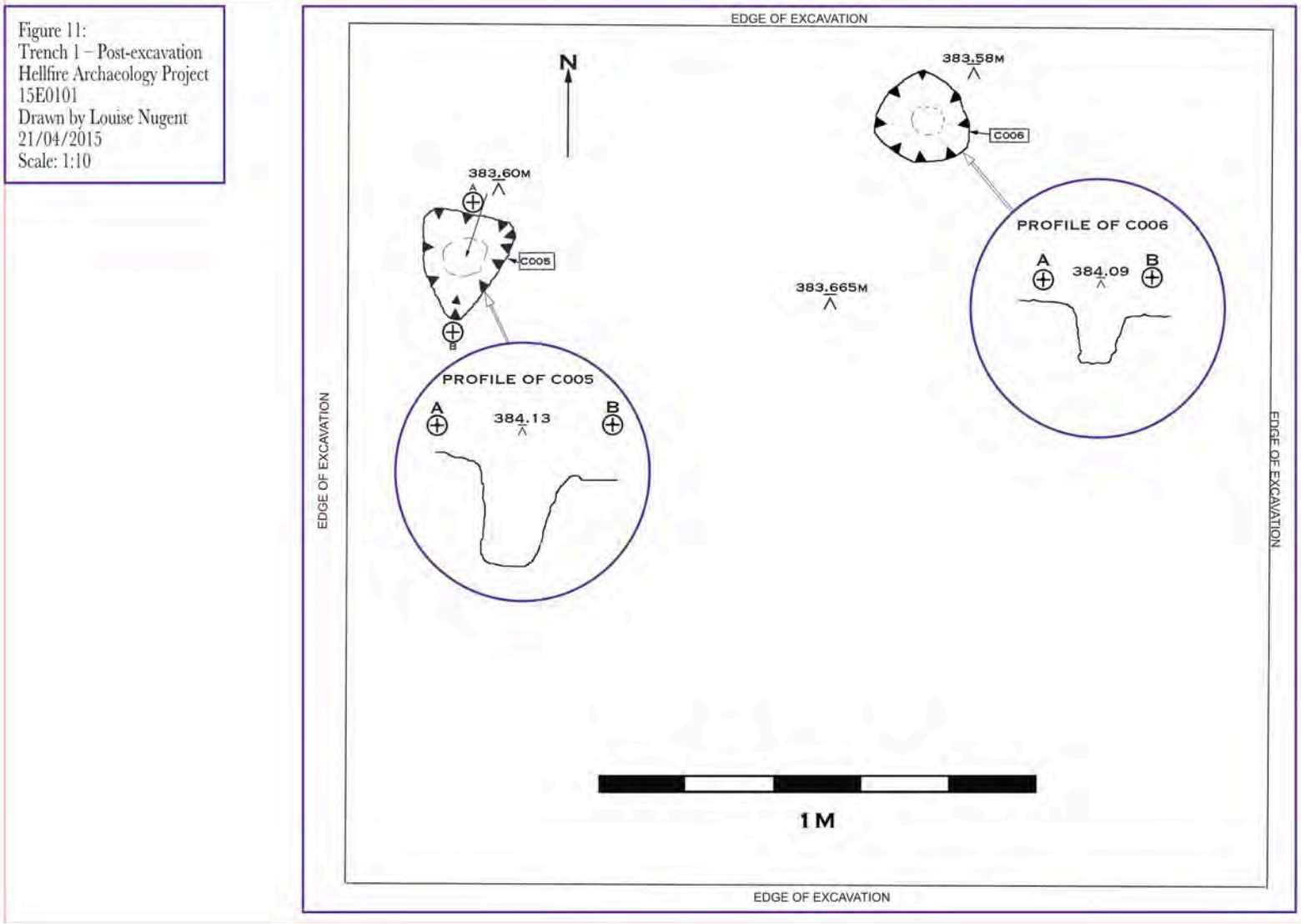

Figure 11: Post-excavation plan of Trench 1

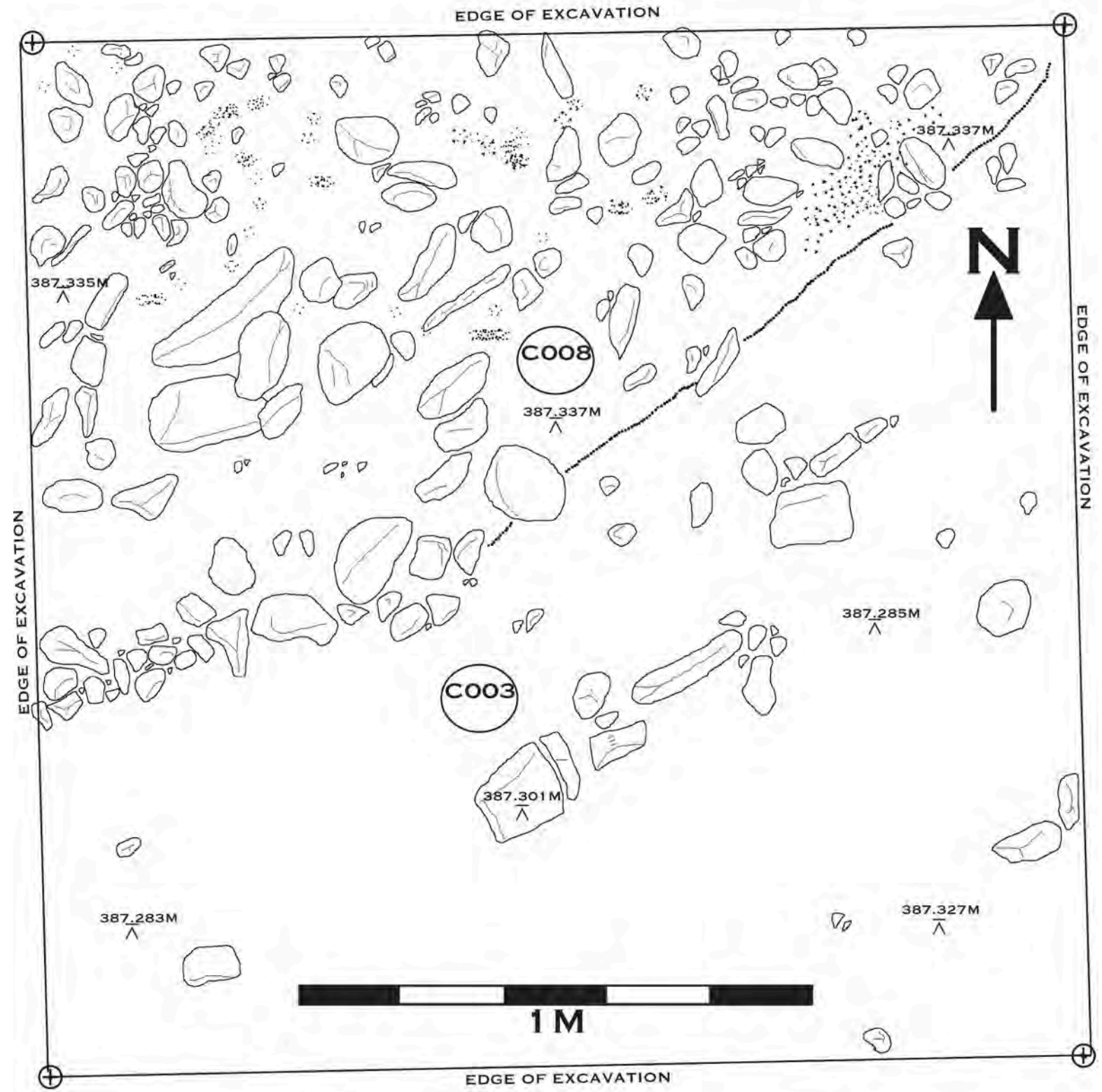

FIGURE 12: MID-EXCAVATION PLAN OF TRENCH 2
SCALE: 1:10
DRAWN BY: LYNDA MCCORMACK
DATE: 20/04/2015
HELLFIRE CLUB PHASE 1
15E0101

Figure 12: Mid-excavation plan of Trench 2

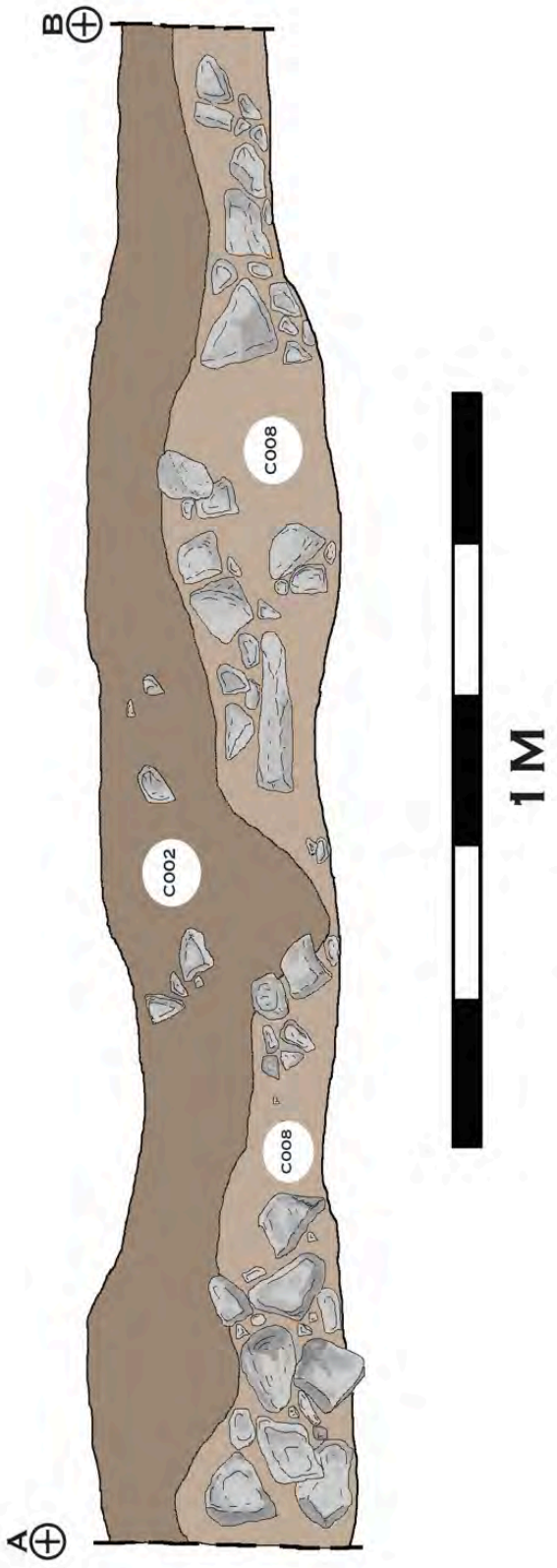

FIGURE 13: EAST FACING SECTION OF TRENCH 2
SCALE: 1:10
DRAWN BY: LYNDA MCCORMACK
DATE: 22/04/2015
HELLFIRE CLUB PHASE 1
15E0101

Figure 13: Section drawing of Trench 2

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Plate 3: This low mound is all that remains above ground of tomb DU025-001001

Plate 4: Tomb DU025-001001 visible to south of Hell-Fire Club

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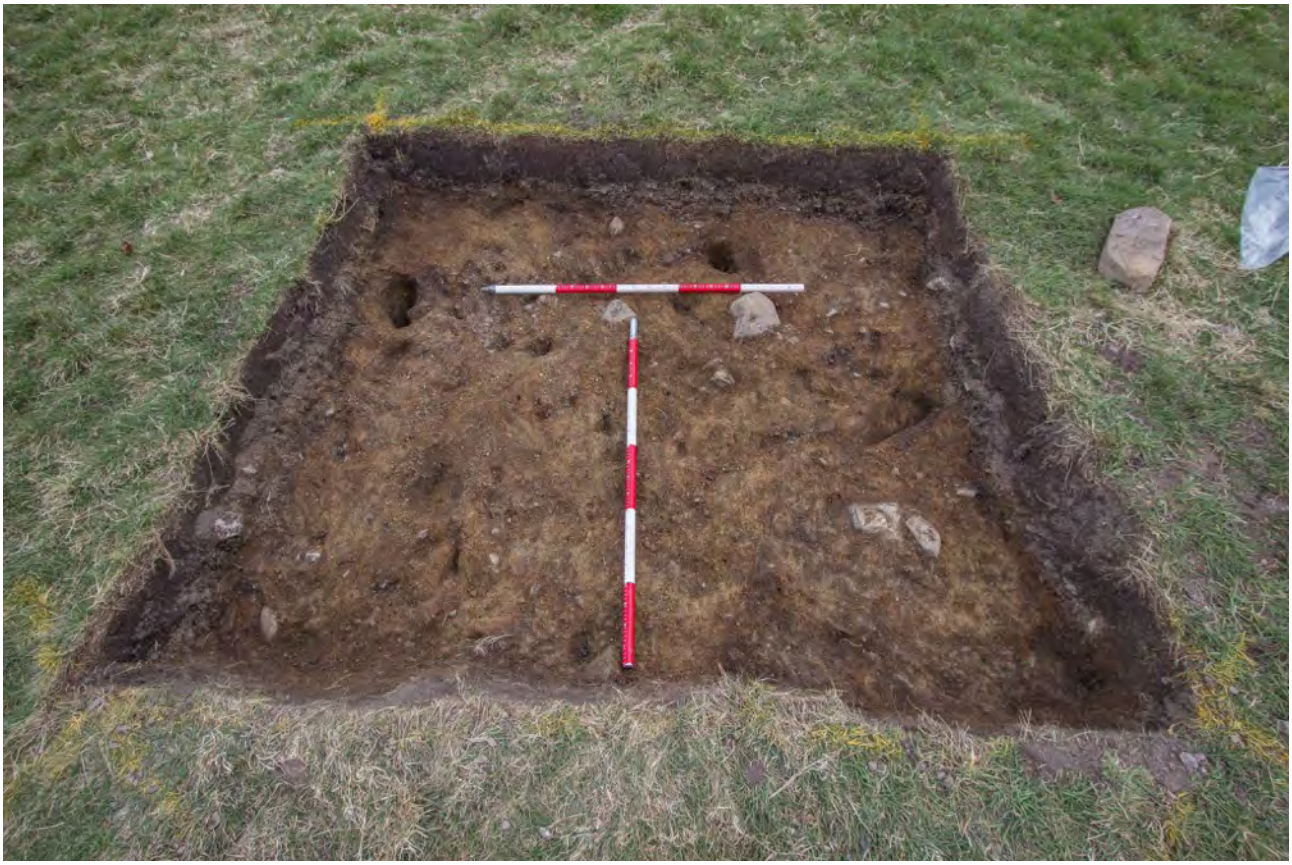

Plate 11: Mid-excavation shot of Trench 1 (facing east)

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Plate 15: Detailed mid-excavation shot of Trench 2 (facing north), (C008) exposed.

Plate 16: Working shot of Trench 2 being recorded

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Plate 22: Trench 3 backfilled (facing north-north-west)

Plate 23: Trench 4 backfilled (facing north)

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Preliminary Report
on Excavation 16E0497
Montpelier Hill, Co. Dublin

Excavation Director:
Neil Jackman, Abarta Heritage

Hellfire Club Archaeological Project
Issued November, 2016

Contents

Abstract

This report details the preliminary results of an excavation carried out under licence 16E0497 on the summit of Montpelier Hill, Co. Dublin. This excavation was undertaken as part of the Hellfire Club Archaeological Project, which aims to explore the archaeological landscape of Montpelier Hill. Previous phases of the project have included desk-based research, a geophysical survey by Earthsound Geophysics (under licence 14R0033) and a small programme of test-excavation by the author (under licence 15E0101). The Hellfire Club Archaeological Project is a collaborative, multi-agency community outreach project. A key objective of the Hellfire Club Archaeological Project, is to try to raise awareness and public engagement with the heritage of Montpelier Hill, including the tombs, Hellfire Club itself, and the wider story of the Dublin Mountains.

This excavation focused on DU025–001001, previously recorded as a possible passage tomb in the Archaeological Survey of Ireland. This monument was thought to have been largely destroyed by the construction of the Hellfire Club in the early eighteenth century. Two trenches were placed into the monument, primarily to assess whether any archaeological features had survived the disturbance of the eighteenth century, and secondly, if archaeological features were present, to assess if it is possible to conclusively prove that DU025–001001 was indeed a neolithic passage tomb or another type of archaeological monument.

Based on the results of this excavation, it is possible to determine that monument DU025–001001 does indeed represent the remains of a badly disturbed neolithic passage tomb. Trench 1 revealed that part of the mound and cairn still exists, particularly on the southern side of the monument. Trench 2 revealed that archaeological features still survive even in the area most disturbed and damaged by the construction of the Hellfire Club and other early modern activity. Artefacts recovered during the excavation included a large stone bearing megalithic art, a polished stone axehead, a number of pieces of worked flint and a small quantity of burnt bone along with a large amount of post-medieval and early modern artefacts.

Specialist analysis of these artefacts, along with environmental processing and retrieval of suitable material for radiocarbon dating from the soil samples, are currently ongoing. These results will be detailed in a Final Report to be completed within twelve months. Following excavation, all trenches were carefully backfilled. All the archive resides in the offices of Travel Guides Ltd in Clonmel, County Tipperary.

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Acknowledgements

This excavation was carried out as part of the Hellfire Club Archaeological Project, with funding from South Dublin County Council under the South Dublin County Heritage Plan, and with the kind support of Coillte, Dublin Mountains Partnership, University College Dublin School of Archaeology, the National Monuments Service and the National Museum of Ireland.

I particularly wish to thank Dr Rosaleen Dwyer, Heritage Officer of South Dublin County Council for all of her support and work throughout the project to date, and the superb excavation team of Dr. Ros Ó'Maoldúin, Lee Scotland, Brí Greene and volunteers Mark Heffernan, Stephen Matthews, Dr. Laura O'Gorman, Christina Hughes and Michala Nagyova and of course Róisín Burke of Abarta Heritage, for all of her essential work behind the scenes.

We'd also like to thank Jesper Petersen and Coillte and the Dublin Mountains Partnership, Professor Muiris O'Sullivan, Dr Steve Davis, Conor MacDermott and University College Dublin, the Discovery Programme, Earthsound Geophysics, Ken Williams, Dr Elizabeth Shee Twohig, Sean Kirwan and Andy Halpin for all of their invaluable help and support throughout the project, and Steven Duffy for his fine photography.

We'd especially like to thank everyone who came to visit us during the excavation, from locals, cyclists, joggers, dog walkers, schools and local historians – we felt so incredibly welcome and honoured to help to tell the story of this remarkable place.

1. Introduction

This report comprises the preliminary results of the partial excavation of a passage tomb on Montpellier Hill, in Montpelier townland, County Dublin (DU025–001001). These works are part of the ongoing *Hellfire Club Archaeological Project* that seeks to discover the story of the heritage of Montpelier Hill. The work was chiefly funded by South Dublin County Council, with additional resources from Abarta Heritage. The excavation was directed by Neil Jackman of Abarta Heritage, and carried out under licence number 16E0497, during October 2016. This work follows one season of archaeological testing and a geophysical survey (Jackman 2015, Bonsall & Gimson 2014).

1.1 Site Location

The monument DU025–001001 is located on Montpelier Hill, County Dublin, at National Grid / Transverse Mercator: (Easting) 311496 (Northing) 223648, [Latitude: 53:251769 Longitude: -6:330298], at an elevation of approximately 383m (Figure 1). Montpelier Hill is located in South County Dublin, approximately 12.8km southwest of Dublin City Centre and approximately 6km southeast of Tallaght.

Plate 1: The summit of Montpelier Hill surrounded by Coillte forest plantation.

Montpelier Hill forms part of the Dublin Mountains, and the site is located on Coillte land. It is a popular place for recreation, with many daily visitors. The Dublin and Wicklow Mountains form the largest continuous upland area in Ireland. The mountains are primarily composed of granite surrounded by an envelope of mica-schist and much older rocks such as quartzite. They were pushed up during the Caledonian orogeny at the start of the Devonian period and form

part of the Leinster Chain, the largest continuous area of granite in Ireland and Britain. The mountains owe much of their present topography to the effects of the last ice age, which deepened the valleys and created corrie and ribbon lakes (Boyle, K & Bourke, O. 1990).

Though most of the hill is part of a Coillte managed forest plantation, the summit of the hill, including the immediate area around the possible tombs and the Hellfire Club itself, is an open grassy field (see Plate 1). Further south, towards the tree plantation, the ground is more saturated and boggy, with rushes and water loving grasses more dominant along with some gorse.

Plate 2: The hunting lodge, tomb and a series of earthworks clearly visible from the air

The topography of the hill is quite varied (see Plate 2), with earthworks that possibly relate to the eighteenth century hunting lodge. The larger of the tombs (DU025–001001) appears above the surface as a significant curving earthen bank, hollowed in the centre and flattened to the north (in proximity to the Hellfire Club). Little can be discerned above the surface of the second tomb (DU025–001002), beyond a slightly raised platform surmounted by a modern Ordnance Survey Pillar.

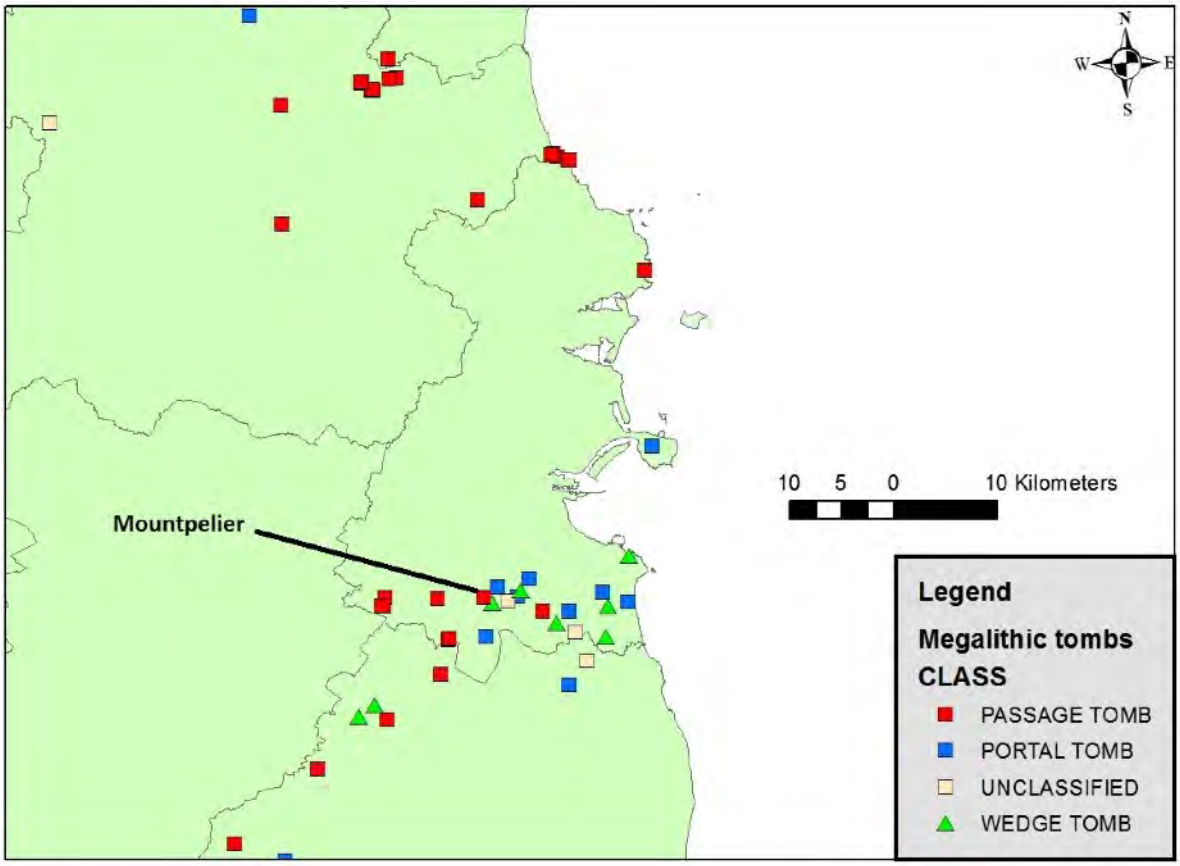

Fig 1 Site location

Fig 2 Trench locations

1.2 Project Background

The Hellfire Club Archaeological Project is aimed at investigating the nature of the possible passage-tombs designated DU025-001001 & DU025-001002 and obtaining a better understanding of both the physical remains of the eighteenth century hunting lodge known as the Hellfire Club, and a better historical insight into the group that made the site so notorious.

Primarily the Hellfire Club Archaeological Project aims to identify, examine and interpret the archaeological remains at the site, as part of a collaborative multi-disciplinary community outreach project involving a number of bodies and groups in a phased approach.

Phase 1 (Completed)
Phase 1 was an investigation of the site using non-intrusive methods, primarily a desk-based assessment by the author, a LiDAR survey by Dr. Steve Davis of University College Dublin and a geophysical survey by Dr. James Bonsall of Earthsound Archaeological Geophysics.

Phase 2 (Completed)
A series of small hand-excavated test trenches to assess anomalies and features of archaeological potential identified during Phase 1. This was carried out by the author under excavation licence 15E0101.

Phase 3 (Current Phase)
The ground work of the third phase is now completed and detailed in this report. It consisted of a partial excavation of tomb DU025–001001. The post-excavation analysis is currently underway and will culminate in a final report within one year.

1.3 Archaeological & Historical Background

Two megalithic tombs, thought to be passage-tombs dating to the Neolithic period, are recorded on Montpelier Hill, County Dublin in the SMR as DU025-001001 and DU025-001002. A passage-tomb is defined as being 'a round mound, usually surrounded by a kerb of large stones, enclosing a burial chamber, usually with a corbelled roof, which is entered by a passage, usually lintelled. Many tombs have side and end recesses opening off a central chamber, resulting in a cruciform plan. Cremation was the predominant burial rite in passage tombs which primarily date from 3300–2900 BC, though some simpler tombs in Carrowmore, County Sligo, have produced radiocarbon dates suggesting use even earlier in the Neolithic, circa 4000 BC' (National Monuments Service; Scope Note, www.archaeology.ie).

The larger of the two tombs, and the focus of this excavation; (DU025-001001), is located immediately to the south of the eighteenth-century building known as 'The Hellfire Club'. The

remains of this possible tomb now appear as a low mound, that has a diameter of approximately 26m. Visible undulation of the ground suggests the below-surface existence of at least part of the stone cairn that once would have covered the tomb (see Plate 3). This tomb is said to have been largely demolished and its stone cairn quarried, when the Hellfire Club was constructed in the eighteenth century.

Plate 3: Tombs DU025-001001 & DU025-001002 from the air

There are no visible above-surface remains of the smaller of the two tombs (DU025-001002). It was plotted as being immediately to the east of the larger tomb, and south-east of the Hellfire Club building. The exact location and nature of this tomb was identified and recorded by the geophysical survey conducted as part of Phase 1 (please see Report 14R0033 by Gimson, H. & Bonsall, J. 2014).

An important account of the site comes from the eighteenth century antiquarian Austin Cooper, who visited Montpelier Hill in 1779, just 54 years after the construction of the hunting lodge. He recorded that:

'*On The Top of the Hill of Montpelier stands a house built by the late Mr. Connolly, it is all arched & is now entirely out of Repair. Upon the Top of this Hill formerly stood a Kairn, which was removed to make room for the house… behind the house are still the Remains of the Kairn, the Limits of it, were composed of large Stones set Edgeways, which made a sort of a Wall or*

Boundary of abt. 18 Inches high & withinside those, were the small stones heaped up. It is 34 yards Diameter or 102 in Circumfe. In the very Centre, is a large Stone 9 feet long, 6 feet broad & abt. 3 feet thick, not raised upon large Stones but lying low, with the Stones cleared away from about it. There are several other large Stones lying upon the Heap. About 60 yards S.W. of this Stands a single Stone, of abt. 5 feet high, but whethr. it is a part of this Druidical Remains, or only put up there for the Cattle to scratch themselves (the Use it is now made of) I shall not positively say'.

(from the diaries of Austin Cooper, Montpelier eighteenth July 1779, in Price, L. (ed) 1942).

This account suggests that the tomb was not wholly destroyed by the construction of the Hellfire Club in 1725, and that significant features such as a kerb (…*large Stones set Edgeways, which made a sort of a Wall or Boundary…*), and large stones that may have formed part of key features such as the chamber or passageway, along with a possible standing stone, were still present at the time of his visit in 1779. Unfortunately, many of these features, including the possible kerb, are not in existence today. The construction of the Old Military Road is a likely culprit for the removal of these features. Construction of the Military Road commenced in 1800 in the aftermath of the 1798 rebellion of the United Irishmen, after which many rebels continued to hide out in the remote Wicklow Mountains. The road led from Rathfarnham in County Dublin to Aughavannagh in County Wicklow, and the remnants of the cairns at the Hellfire Club could well have provided a convenient (and still potentially substantial) source of stone.

The tombs are recorded in the Sites and Monuments Record:

'what survives today south of the Hellfire Club is a horse-shoe shaped embankment or mound with a hollowed interior, opening to the North-North-East. There is evidence for a recent fire in the interior. There are two stones visible along the perimeter in the south-east. To the east are traces of a second cairn (c.18m in diameter)'

(National Monuments Service, Sites and Monuments Record (DU025-001001). Recorded by Stout, G. 1993).

The two tombs form part of a major cluster of megalithic tombs in the Dublin and Wicklow mountains (Fig 1). In this region, eleven passage-tombs have been identified (Cooney, G. 2000). They possibly form an extended cemetery, all are in prominent locations with extensive vistas over the landscape. This extended cemetery appears to encompass a number of the summits of the South Dublin Mountains, and extends into North Wicklow. Other examples of passage-tombs in this extended cemetery in the Dublin Mountains were identified by Christiaan Corlett of the National Monuments Service, and includes tombs at Seahan, Tibradden, Kilmashogue, Fairy Castle, Two Rock Mountain, Saggart Hill and Killiney Hill (Corlett, C. 2012); to which it is reasonable to add the tombs of North Wicklow like Seefin, Seefinghan and other possible passage-tombs like Lackan, Tornant Upper, Blakestown Upper, and the tomb at Tuckmill Hill.

Not all of these tombs may be definitively Neolithic passage-tombs, as antiquarians investigating the tomb at Tibradden in 1849, discovered a Bronze Age Food Vessel along with cremated human remains. Though as Corlett points out, it is not unusual to discover that people during the Early Bronze Age reused older sacred sites for their own burials.

Artefacts dating to the Neolithic period have been discovered in the vicinity of the possible tombs. In 1986 Dr. Stefan Bergh (now of NUI Galway Archaeology Department), who was visiting the Hellfire Club, found a chert scraper [a small prehistoric stone tool] approximately 20m north-west of the larger of the two tombs (National Museum of Ireland Topographic Files; Register No. 1986:46).

The Hellfire Club building is listed in the National Inventory of Architectural Heritage as Reg.No. 11220022. The inventory describes the building as a: '*Detached five-bay single-storey-over-basement former hunting lodge on hill summit, built c.1740, burnt soon after, with vaulted stone roof repair, now derelict. Projecting porch / gallery with arched window to front, between plain openings in main elevation. Two wings with small rooms and sloping stone roofs, and projecting shelter walls. Projecting wing to rear with small semi-circular window. Internal rooms with fireplaces, arched doorways and niches, and connecting gallery. Robbed megalithic tomb and triangulation survey pillar nearby*'.

Plate 4: The front of the hunting lodge popularly known as The Hellfire Club

With its central half-octagonal projection, and two low flanking wings; the Hellfire Club is similar in architectural design to a mid-eighteenth century house at Mount Gordon in Castlebar in County Mayo (Craig, M. 2006). Like the house at Mount Gordon, it is likely that the main entrance was on the upper floor, with the lower floor being used as a kitchen, storage and for servants quarters. The upper floor had two large rooms, each lit by two large rectangular windows in the northern side, taking advantage of the wonderful views over Dublin (please see Plate 5). Both of these rooms are equipped with a fireplace. It is possible that these rooms originally served as a dining room and drawing room. Above them, though now unreachable, it is evident that there was a third storey, and this possibly provided accommodation.

Plate 5: The view over Dublin from immediately in front of the Hellfire Club. With such a vista it is easy to understand what attracted the neolithic tomb builders, and later William Conolly, to such a spot.

The building and its layout was described in 1899 as:
'*...the house consisted of two large rooms and a hall on an upper floor. These rooms are sixteen feet square, each of them lighted by two tall windows, almost eight feet by three feet six inches, commanding a most extensive and magnificent view. There are two arched niches at each side of the rooms, with large fireplaces. Over the parlour and hall there was a small loft, but none over the drawing room. The hall door was reached by a lofty flight of stone steps; these, with most of the other cut granite stones about the house, were taken away at the time of the building of Lord Ely's hunting- lodge, lower down the hill.*

Underneath the drawing-room was the kitchen, where the jambs of the great fireplace, ten feet wide, are still to be seen. There was a servants' hall at the other side, and there were two rooms built out at each end of the house. There were also two small apartments in a return opposite the hall door. The windows all face the north, for in the rear there are only a few narrow slits like embrasures. A semi- circular courtyard was in front with a gate in the centre. The walls are all very thick, built carelessly of rubble stone. The arched roof is of stone, as are the floors.' (Domville Handcock, W. 1899)

The unusual building was constructed as a hunting lodge for William Conolly in 1725. William Conolly, was originally from Ballyshannon in County Donegal. He was the son of a publican, but had a stratospheric rise through the ranks of Irish society to become one of the wealthiest and most powerful men in the British Isles. By the age of 34, his annual income was estimated to be in the region of £17,000 (roughly equivalent to over £3 million pounds per year). He had a residence on Capel Street in Dublin, and his grand estate at Castletown in County Kildare is one of the finest examples of Palladian architecture in the British Isles (O'Brien, J. & Guinness, D. 2005). He was a famous parliamentarian, and achieved the rank of Speaker in the Irish Parliament from 1715–1729, a role that became synonymous with him, as he became known as William 'Speaker' Conolly. He was widely acknowledged as the wealthiest man in Ireland by the time of his death in 1729.

In 1723–5, William Conolly purchased Rathfarnham Castle and a considerable amount of land and estates from The Duke of Wharton. This purchase included the land of Montpelier Hill. He chose this part of the estate to establish a 1,000 acre deer- park and he constructed the unusual Hunting lodge on the summit of the hill. He chose the location as he believed it would be possible to see both his great estate at Castletown and his newly acquired Rathfarnham Castle from the Hunting lodge. William Speaker Conolly died in 1729; a mere four years after the construction of his new Hunting lodge. The lodge stood empty until 1735; when it was rented by members of The Hellfire Club. They are said to have leased the building until the death of their leader, Richard Parsons, Earl of Rosse in 1741. In 1749 the building was purchased by Charles Cobbe, son of the Archbishop of Dublin. He died inside the building in 1751, just two years after he purchased it (Bohill, Kelly & de Gascun, 1991).

The Hunting lodge then appears to have quickly fallen into disrepair. In 1763, much of the stonework and architectural features, along with the fine granite steps that lead into the building were taken away by Lord Ely to be reused in the construction of Killakee House nearby. Further significant damage was recorded when tar barrels were burned on the roof to create a large welcoming fire-beacon for Queen Victoria when she visited Dublin in 1849.

The building was described in 1899 as *'... a mere ruin, each winter hastening its decay. It is only used as a shelter for cattle. The lower rooms are half filled with manure and rubbish. The stone*

staircase, that I can remember inside, is all gone and the cattle can no longer ascend to the drawing- rooms as they used to do. The only way of getting to these rooms now is by climbing up the front wall to the hall-door; while the room in the return is almost inaccessible, except to an active climber' (Domville Handcock, W. 1899).

The building then seems to have been left in this derelict condition until Coillte acquired the land in the 1960s. They carried out extensive restoration of the building and roof, and added a concrete staircase and steel bars over the windows to make it safer for the many visitors who frequent the site. The building and Montpelier Hill itself remain as a great asset to the locality and it is a popular and much-loved place for dog-walkers, joggers, families and those who want an unusual but scenic place to get away from it all. The Hellfire Club also remains a very popular venue for horror- themed tours around the Halloween Period, with a number of local guides bringing visitors around the atmospheric building while chilling them with tales of supernatural terror from the large amounts of folklore that surrounds the site.

Plate 6: The Hellfire Club

2. The Excavation

Excavation was carried out during October 2016, in unusually dry and settled weather conditions.

2.1 Excavation Methodology

In the original methodology, the excavation was to encompass the south-east quarter of the passage tomb, with the excavated quadrant measuring 25m x 20m. In order to better assess the nature of the potential archaeology, the excavation began with a 15m x 2m trench, hand-excavated along the western side of the quadrant. When this trench revealed that the mound was of high archaeological potential and complexity, it was decided to then alter the strategy to maximise resources in an attempt to answer key research questions. The strategy was altered to excavate two trenches; the initially opened 15m x 2m cutting became Trench 1, and Trench 2 was also opened, this time measuring 10m x 2m.

The sod was cut by spade, removed by hand and stacked neatly on plastic adjacent to the excavation area for later backfilling. The upper topsoil layers of the trenches were removed by hand using mattocks and shovels. All archaeological layers were excavated by trowel. Any artefacts and samples were bagged and recorded by context and 3D co-ordinates on a local floating grid were taken. Soil samples were also retained for environmental analysis (see ongoing post-excavation work below). All contexts were recorded on context sheets. Plans and sections were drawn on pre-gridded permatrace, using planning frames and off-sets, as appropriate. Laser scanning and photogrammetry of the megalithic art was also carried out on-site.

Plate 7: Team member Dr Ros Ó'Maoldúin excavating the topsoil layer with a mattock.

2.2 Results of the Archaeological Excavation

Trench 1

(SW corner – 311429.5E/223658.5N)

Trench 1 measured 15m x 2m and aligned approximately north – south. It extended from the south of the monument, into its centre, and traversed the bank/highest remnant of the cairn. The purpose of Trench 1 was to ascertain whether the bank did indeed represent the in-situ remains of a prehistoric tomb, and if so, to assess the level of disturbance of the early modern period. If the mound did indeed prove to be in-situ archaeology, another key aim of the trench was to retrieve any material suitable for radiocarbon dating.

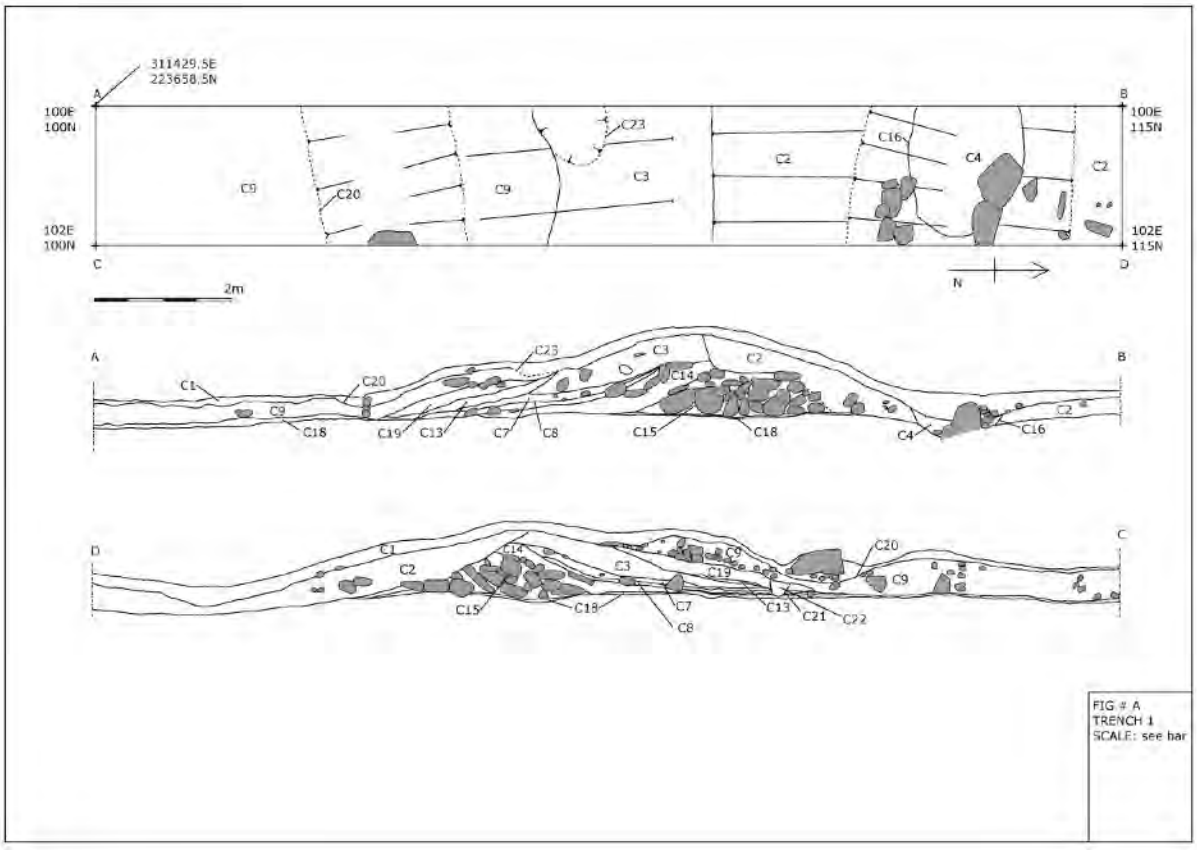

Fig 3 Trench 1

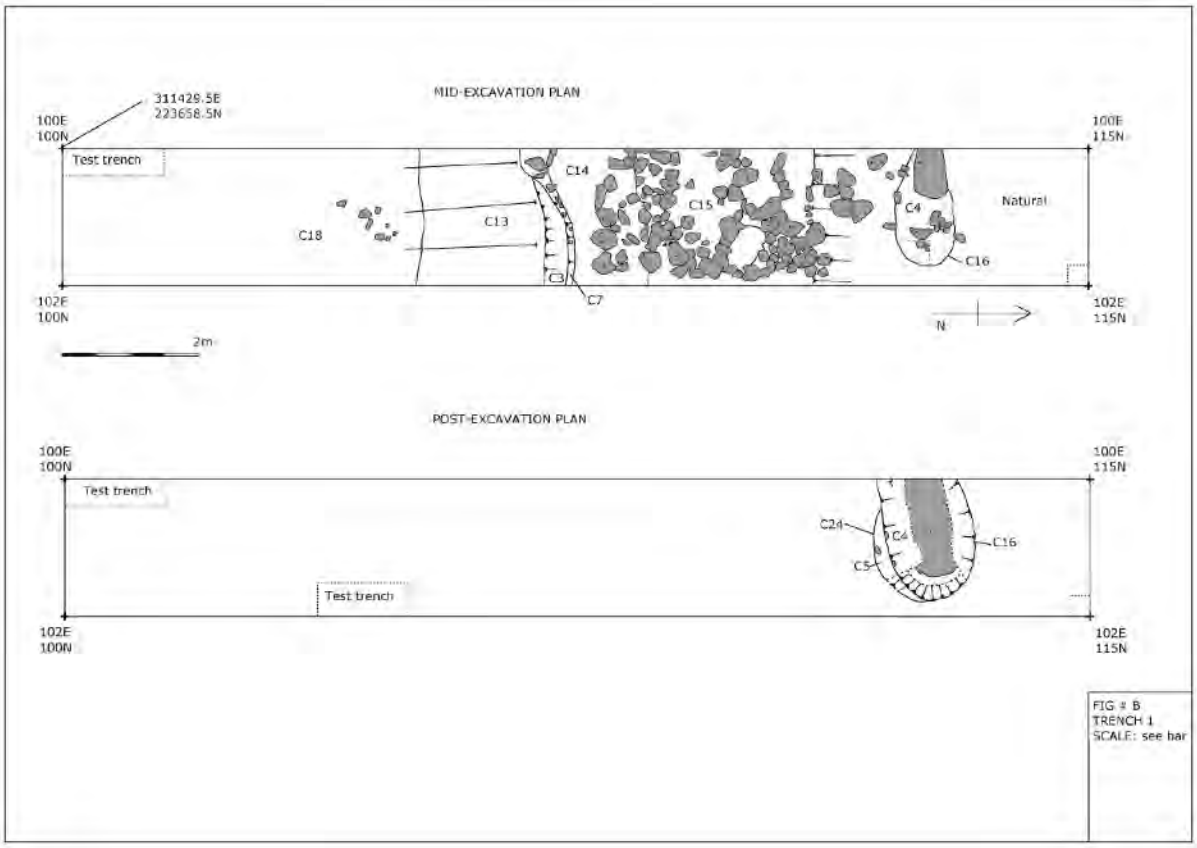

Fig 4 Trench 1

The oldest layer encountered in Trench 1 was a clay layer (C18), sealed beneath the cairn. This comprised light bluish-grey silty clay with very occasional flecks of charcoal, 0.06m deep. This was relatively well-sealed where it was encountered beneath the cairn material. The only artefacts retrieved from this layer were two potentially worked pieces of flint. These were found in (C18), just to the south of the cairn material.

The surviving cairn material (C15) in Trench 1 lay directly on top of (C18). (C15) comprised 2-3 courses of large stones up to 0.5m in diameter. These were loosely stacked and frequently interspersed by voids.

On the southern side of the cairn remnant there was a series of 6 potentially prehistoric layers, (C14), (C8), (C7), (C3), (C13) and (C19). These were approximately 0.8m in depth combined (See Appendix 3 for individual descriptions). They comprised gravels and silty clays in alternating mid-brown and bluish grey layers, interspersed with layers of iron-pan. It is likely that the bluish grey clay-like components of these layers were created through leaching and gleying processes, caused by the impermeable barriers of iron-panning. These layers may have been an original part of the construction, and possibly represent layers of cut sods that were piled around the outer edge of the cairn to help to prevent the loose stone from slipping outwards at the base.

A cut (C21), truncating the series of layers on the cairn, was noted in the east facing section of T1. It was 0.52m wide and 0.6m deep and cut through the uppermost of these layers, (C19). It was located under a large boulder, which could conceivably have been a kerbstone, and it could have served as its socket, but if so the kerbstone was later than all of the layers in that sequence. (C21) was filled by a mid-orangey brown silty clay, (C22), lighter in colour than, but not dissimilar to, the local topsoil.

A layer of fist-sized angular stones and dark blackish brown clayey silt c.0.35m (C9) covered was banked up against the outside of the cairn and extended south from it for the distance exposed within the trench (c.4m). It contained relatively modern, eighteenth–nineteenth century artefacts and is likely to represent disturbed backfilled material from a previous building or quarrying episode. One piece glazed tile, potentially medieval [though more likely eighteenth century], was found within this deposit.

Plate 8: Working shot of Trench 1

A shallow ditch (C20) runs around the exterior of the monument, visible as a topographical trace that closely follows the curvature of the mound. Where exposed within the trench it appeared to cut into (C9), the relatively modern layer, and have no expression lower down. This ditch quite probably represents a 'robber trench', from the removal of the kerb during the quarrying of the tomb for the Old Military Road in the first decade of the nineteenth century.

A layer of mid-yellowish-brown moderately compacted silty clay and gravel (C2) sat on the interior of the bank and in the middle of the monument (in the north of trench 2). Approximately 6m was exposed within the trench and it was a maximum of 0.7m deep. It is

likely to be quarry-backfill. An eighteenth – nineteenth century clay pipe and a glazed tile (potentially medieval or eighteenth century in date) were recovered from near the top of this context.

Several large stones protruded from the earth, at the base of the slope created by the bank, on the interior of the monument prior to excavation. They proved to be out of their original position, and sitting in modern bonfire debris in the upper portions of a pit (C16) cut into C2. The upper material was full of very recent rubbish, beer cans, etc. A number of large boulders were rolled out of this debris, one of which was found to have megalithic art (see description in Finds below). Underneath this material, was an oval east-west aligned pit with rounded corners and steep sides that broke gradually at the base to a flat base. 1.9m of its length was exposed within the trench, and it was 1.6m wide and 1.48m deep. It contained a very large granite boulder, almost 2m in length, and was filled by loose friable dark brown clayey silt containing frequent pebbles (C4) and some larger stones. Window glass was found near the base of the cut under the large stone. This possibly represents evidence of an attempt to remove the large stone to utilise it either in the construction of the hunting lodge, or the later construction of the Old Military Road. The possible remnant of an earlier pit (C24) was noted. The earlier cut was shallower and only survived along the southern edge of (C16). The portion that survived was 1.4m long, 0.3m wide and 0.28m deep. It was filled with mid yellowish brown firmly compacted clayey silt containing occasional rounded pebbles (C5). No finds were recovered from the small portion that was excavated. The large stone in (C16) may have been a chamber orthostat and the earlier pit remnant (C24) may have been its socket.

Plate 9: Trench 1 & 2 from above

Plate 10: The cairn (C15)

Plate 11: Pit (C16) mid-excavation

Plate 12: (C13) in section (photograph by Steven Duffy)

Trench 2

(SW corner – 530524.831 / 706891.316 ITM)

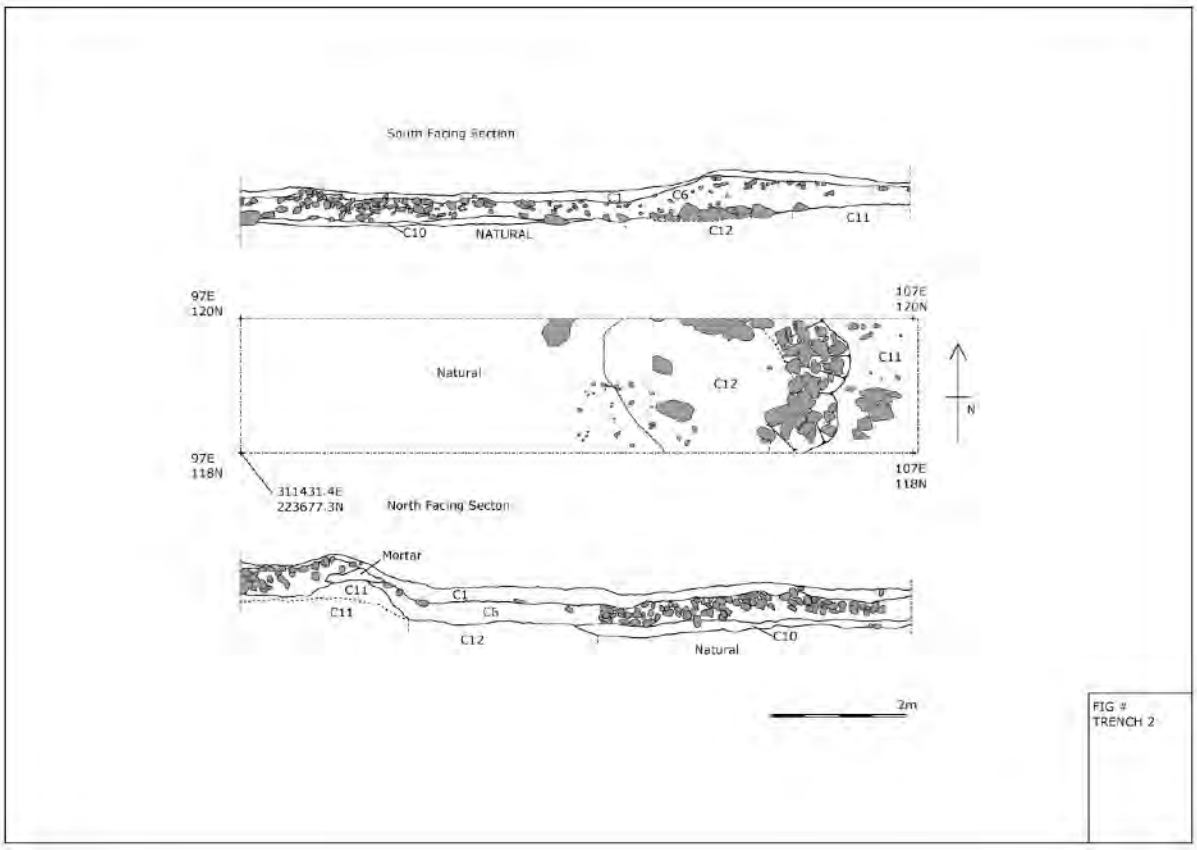

Fig 5 Trench 2

Trench 2 measured 10m x 2m, and was orientated east–west in the northern part of the tomb. It was positioned to evaluate the potential for archaeological features to survive even in the most disturbed and damaged part of the monument. At this part of the monument, the circular 'bank' is largely invisible having been flattened and landscaped during the construction of the hunting lodge.

Only the upper layers of Trench 2 were excavated. A quantity of modern and early modern debris was discovered during the removal of the sod and topsoil (similar material though in smaller quantity to that discovered in Trench 1). Following the removal of the sod and topsoil, a layer of disturbed material (C6) was identified. This contained a substantial quantity of small–medium sized stones, along with eighteenth & nineteenth century artefacts, mortar and eighteenth century brick. It appeared that this context represented backfill and waste from the disturbance of the tomb. The presence of large chunks of mortar and brick suggests that it is possible that it represented the early nineteenth century disturbance during the quarrying for the Old Military Road. Some possible flint artefacts and a particularly fine polished stone axehead were also recovered from this layer, presumably having been accidentally disturbed

from their original context. This context is possibly the same as (C9), that appeared in the southern end of the Trench 1.

At the eastern end of Trench 2, features of archaeological potential were identified, with similar contexts to those discovered in Trench 1. Though due to time and resource constraints, we did not excavate those layers, they appeared to be in-situ elements of the tomb. This discovery suggests the high potential for significant archaeological features and deposits even in the most disturbed area of the site.

Plate 13: (C6) exposed in Trench 2

Plate 14: Trench 2 facing west

Plate 15: Trench 2 facing east

3. Artefacts

3.1 Post-Medieval Artefacts

As would be expected in close proximity to a large eighteenth century building and in a place so popular over the years for hillwalkers, picnics and parties, a large assemblage of eighteenth, nineteenth and twentieth century artefacts were recovered during the dig. Of the more recent twentieth century artefacts, a representative sample of material was kept and the rest suitably disposed of. The representative sample includes pottery, glass, bottle tops and other detritus, mainly from recreational activity. A number of twentieth century coins were also discovered, including (Find 1:5) a one penny piece (1937) that was found together with a halfpenny (1939) presumably where they had slipped from the pocket of an unfortunate visitor to the site who was reclining on the mound (please see Plate 16).

Plate 16: Two coins (F:1.5) in-situ

Two pieces of tile (F:2.2 & F:9.1) were found within the upper fills of Trench 1. These tiles appear to have the remains of a lead glaze, they are similar to those of medieval date though they may well represent a 'rusticated' type tiling from the kitchens or working area of the hunting lodge. They certainly bear further examination by an expert to assess the likely period and provenance.

Of the post-medieval artefacts, perhaps the most evocative is the very fine clay tobacco pipe (F:2.1) that was recovered from Trench 1 (please see Plate 17). It is bears zoomorphic decoration, with a bird's claw holding the pipe bowl, (perhaps the bowl represents an egg). The pipe is likely to date to the first half of the nineteenth century, though it will be assessed by an expert to obtain a more definitive date.

Plate 17: Clay tobacco pipe with zoomorphic design (F:2.1) [Steven Duffy]

3.2 Prehistoric Artefacts

A number of artefacts of prehistoric date were recovered during the excavation. These included a number of pieces of worked flint, likely to represent debitage, waste material during the manufacture of flint tools. Some pieces of possibly worked chert were also discovered. A visitor to the site brought a large flint blade that they had discovered on the slopes of Montpelier Hill some years ago. All of the lithic assemblage will be subject to expert analysis.

Plate 18: Polished stone axehead (F:6.1) [Ken Williams, Shadows & Stone]

A fine example of a polished stone axehead (F:6.1) (please see Plate 18) was recovered from an upper layer of Trench 2, where it had presumably come to rest after being disturbed from its original context by either the construction of the hunting lodge, or by the quarrying for the Old Military Road. From initial observation, it looks as if the axehead had never been used, as there are no obvious signs of wear or damage along the cutting edge (please see Plate 19). However the axehead is clearly broken at the back. This may represent a ritual offering, with the axehead being made especially to be interred within the tomb, perhaps as a grave good or possibly an offering to the ancestors or ancient gods. The break may well have been deliberate, as an act of ritually 'killing' the object in this world so it is useful in the otherworld. A similarly broken axehead was discovered during the excavation of the Mound of the Hostages, the neolithic passage tomb on the Hill of Tara in County Meath (O'Sullivan, 2005).

Plate 19: Polished stone axehead (F:6.1), note lack of wear on cutting edge [Ken Williams, Shadows & Stone]

The discovery of megalithic art (F:1.9) is highly significant, as it gives extremely strong evidence that the tomb is indeed a passage tomb as megalithic art is found almost exclusively on passage graves in Ireland (Shee Twohig, E. 1981). Although the large stone that bears the art was found ex-situ, it is quite likely that it originally formed part of the kerb or burial chamber of the tomb, and was disturbed during the quarrying of the site in the eighteenth or nineteenth century. The position of the stone, exposed to the elements and the boundary of many modern bonfires, has led it to be very weathered and it has clearly suffered damage from burning. Therefore the art is very ephemeral and difficult to discern with the naked eye in less than perfect light. Laser scanning by Robert Shaw and Gary Devlin of the Discovery Programme, and photogrammetry by Ken Williams of Shadows & Stone have helped to reveal the art in detail. Further expert analysis of the art may reveal more information.

Plate 20: Team members Neil Jackman (left) and Dr Ros Ó'Maoldúin (right) with (F:1.9) [Ken Williams, Shadows & Stone]

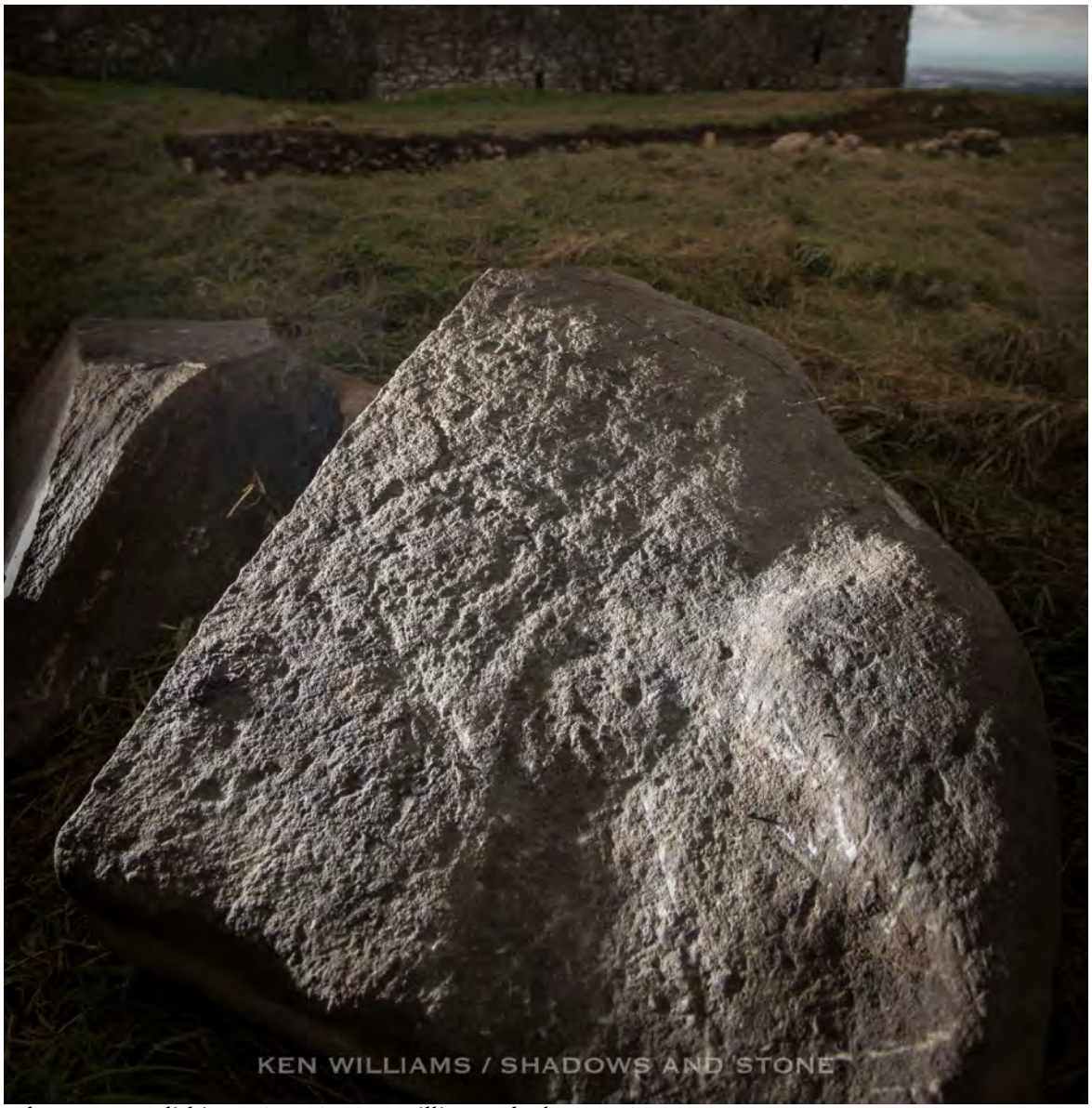

Plate 21: Megalithic art (F:1.9) [Ken Williams, Shadows & Stone]

4. Post Excavation Works to be Carried Out

4.1 Environmental Processing & Radiocarbon Dating

Bulk soil and charcoal samples were taken during the excavation. A selection of these samples will be wet-sieved to retrieve charcoal or other organic material. Any charcoal retrieved will need to be identified by an appropriate expert, with an appropriate selection sent for radiocarbon dating. It is hoped that at least three samples from within and below the cairn and mound material will be found suitable for radiocarbon dating, therefore providing a possible construction date of the tomb.

A suitable sample from the mound material will be selected for pollen analysis to help to gain an understanding of the local environment and flora at the time that the tomb was constructed.

4.2 Artefact Analysis & Processing

All pre-nineteenth century artefacts will be photographed, illustrated and assessed by appropriate experts, with reports submitted to inform the Final Report for this excavation. The megalithic art will be assessed in terms of its geology and decoration by appropriate experts. It will also be subject to further laser scanning, to identify all decoration and to aid in its possible reconstruction in the future.

5. Conclusion

The excavation was carried out in the hopes of:

a) Discovering whether the earthworks at the rear of the Hellfire Club did indeed represent the remains of a megalithic tomb.
b) If it did prove to be a tomb, we hoped to discover material suitable to provide a secure date, so the tomb can be placed in the overall chronology of passage tombs in Ireland.

Based on the archaeological features encountered, and the artefactual assemblage – particularly in light of the discovery of megalithic art – it can be said with confidence that the remains of DU025–001001 represents a neolithic passage tomb. If we can obtain radiocarbon dates from the charcoal material discovered in the lowest layers of the cairn, we should be able to securely date the construction of the monument and place it within the overall chronology of Irish passage tombs. Similarly, detailed analysis of the artefactual assemblage could reveal much about the use and activity associated with the monument and landscape. Post excavation analysis of the materials, samples and artefacts from the excavation has great potential to lead to further information about the nature, period and activity on the site.

As Trench 2 proved that even at the most disturbed part of the site there is significant potential for the survival of buried archaeological contexts. This discovery offers great potential for future archaeological excavation to discover more of the story of the tombs of Montpelier Hill. An excavation that targets the north-eastern quadrant of the tomb may reveal the stone sockets that held the orthostats upright. This will allow the orientation of the passageway to be identified, and could lead to information about whether the tomb was aligned to any particular geographical feature, or whether it had an alignment to a solstice or astronomical feature. The discovery of surviving archaeology at such a disturbed point also gives hope that a partial excavation of the smaller tomb (DU025–001002) may provide evidence about the nature and period of this monument. This could answer key questions such as, does the smaller tomb date to the same period as the larger? If so, does this indicate a societal hierarchical message? Or does the tomb date to another period? In which case does it suggest an ongoing cultural or spiritual focus on Montpelier Hill as a sacred landscape?

Though this small excavation can be considered a success, it is clear that Montpelier Hill is a landscape rich in archaeology, history and folklore and deserving of much focused study for the future.

6. Appendices

6.1 List of Contexts

Context	Description	Dimensions (Maximum)	Cutting
1	Sod and topsoil.		1 & 2
2	Mid yellowish brown moderately compacted silty clay and gravel.	L: 6m exp., W: 2m exp. & D: 0.7m	1
3	Light blueish grey firmly compacted silty clay containing occasional small stones, flecks of charcoal and veins of iron panning.	L: 4.5m exp., W: 2m exp. & D: 0.48m	1
4	Loose/friable dark brown clayey silt containing frequent pebbles and some larger stones. Fill of C16.	L: 1.9m exp., W: 1.6m & D: 1.48m	1
5	Mid yellowish brown firmly compacted clayey silt containing occasional rounded pebbles. Fill of C24.	L:1.4m, W:0.3m & D: 0.28m	1
6	Yellowish brown moderately compacted yellowish brown silty sand containing small to large sub-angular stones, post-medieval brick and mortar.	L:extent of trench, W: extent of trench & D: 0.38m	2
7	Light yellowish brown silty clay and grit containing frequent sub-rounded gravels.	L:3.3m, W:2m exp. & D: 0.25m	1
8	Light bluish grey silty clay containing frequent flecks of charcoal.	L:4.2m, W: 2m exp. & D: 0.23m	1
9	Mixed fist-sized angular stones and dark blackish brown clayey silt containing modern finds.	L:3.5m, W:2m exp. & D: 0.35m	1
10	Mottled light cream and light orangey brown friable silty sand containing occasional charcoal flecks.	L:5.15m, W: 2m exp. & D: 0.13m	2
11	Mottled orangey brown and cream friable sandy clay with a high degree of iron panning.	L:2.3m exp., W:2m exp. & D:Unknown	2
12	Light yellowish cream soft clay containing small to large stones.	L:3.1m exp., W: 2m exp. & D: Unknown	2
13	Dark bluish grey silty clay containing frequent flecks of charcoal.	L:3.2m, W:2m exp. & D: 0.16m	1
14	Cairn material. Mid orangey brown clayey silt and grit containing occasional small and large stones.	L:3.5m, W:2m & D:0.65m	1

15	2-3 courses of large stones (up to 0.5m in diam.) loosely stacked with frequent intermittent voids.	L:2.6m, W:2m exp. & D/ H:0.7m	1
16	Large oval pit with rounded corners with steep sides that broke sharply at the top and gradually at the base. It had a flat base and was orientated east-west. Filled by C4	L:1.9m exp., W:1.6m & D:1.48m	1
17	VOID	VOID	VOID
18	Light bluish grey silty clay with very occasional flecks of charcoal.	L:10m exp., W:2m & D: 0.06m	1
19	Mottled mid orangey brown and dark brown silty sand containing frequent small angular stones.	L:2.2m, W:2m exp. & D: 0.29m	1
20	Linear ditch running around the outside of the bank edge. It had gently sloping sides that broke gradually to a concave base. It ran through the trench in an east-west direction. Filled by topsoil and stone.	L:2m exp., W:1.3m & D: 0.34m	1
21	Not discerned in plan/only recorded in section. Cut of a pit with steep to vertical sides that broke gradually to a rounded base. Filled by C22.	L:?, W:0.52m & D:0.6m	
22	Mid orangey brown silty clay.	L:?, W:0.52m & D:0.6m	
23	Cut of an oval pit with rounded corners and gradually sloping sides the broke gradually to a concave base. Orientated east west. Filled by topsoil	L:0.8m exp., W:0.75m & D:0.25m	
24	Cut truncated by later cut C16. Appears to be the remnant of the cut of a pit with a curved edge, possibly circular or oval, and moderately sloping sides.	L:1.4m survives, W:0.3m survives & D:0.28m survives	

6.2 Appendix 2: List of Artefacts

Find #	Material	Description	Context	Trench
F1.1	Various	Modern and post-medieval glass, pottery and other assorted finds	1	1
F1.2	various	Modern and post-medieval glass, pottery and other assorted finds	1	1
F1.3	stone	Water rolled stone – potential hammerstone.	1	1
F1.4	various	Modern and post-medieval glass, pottery and other assorted finds	1	2
F1.5	metal	Two coins found together	1	1
F1.6	Metal	Three coins	1	1
F1.7	stone	Small water rolled stone	1	1
F1.8	stone	Possible worked sandstone	1	1
F1.9	stone	Megalithic art. Large stone in 4 parts	1	1
F2.1	Ceramic	Clay pipe bowl and stem	2	1
F2.2	Ceramic	Floor tile with glaze- possibly medieval	2	1
F3.1	Stone	Flint flake	3	1
F3.2	Stone	Chert flake	3	1
F3.4	Stone	Flint flake (possibly burnt)	3	1
F3.5	Stone	Chert (possible debitage)	3	1
F4.1	Glass	Post medieval window glass	4	1
F6.1	Stone	Polished stone Axehead	6	2
F6.2	Brick	Post medieval bricks	6	2
F6.3	Stone	Possible flint core	6	2
F6.4	Stone	Flint (possibly burnt)	6	2
F6.5	Stone	Possibly shaped stone	6	2
F9.1	Ceramic	Floor tile with glaze (possibly medieval)	9	1
F14.1	Stone	Chert flake	14	1
F18.1	Stone	Flint (possible debitage)	18	1
F18.2	Stone	Flint (possible debitage)	18	1

6.3 Appendix 3 List of Samples

Sample	Description	Context	Cutting
1	Bulk Soil sample	3	1
2	Bulk Soil sample	8	1
3	Bulk Soil sample	14	1
4	Bulk Soil sample	18	1
5	Mortar sample	6	2

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National Museum of Ireland Topographical Files

National Monuments Service Archive Unit Archaeological Survey of Ireland Database