

APPENDIX 1A STUDY AREA PHOTOGRAPHS

Photos Glenasmole / Bohernabrena / Kippure



Looking north east across Glenasmole Valley towards Piperstown Hill



Looking west across Glenasmole from local road at Cunard toward Ballymorefin and Slieveabawnoge



Looking south and west over Glenasmole from Piperstown Hill



Looking south towards Kippure and Seefingan from Kilakee



Looking south and east towards Kippure and Seefingan from Kilakee

Photos Kilakee / Cruagh



Layby / Viewing point Kilakee on R115



View from Kilakee lay-by over city – Views constrained by topograhpy



View from Cruagh over the city.



Kilakee forest looking north from R115



Clearance in Kilakee Forest following clear felling and replanting (Trail is the Dublin Mountains Way)

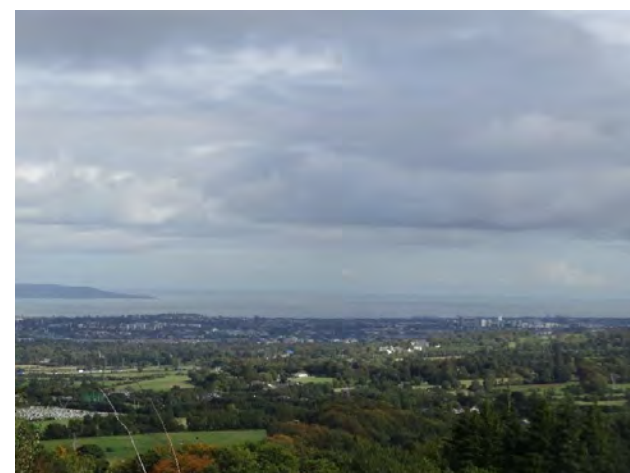
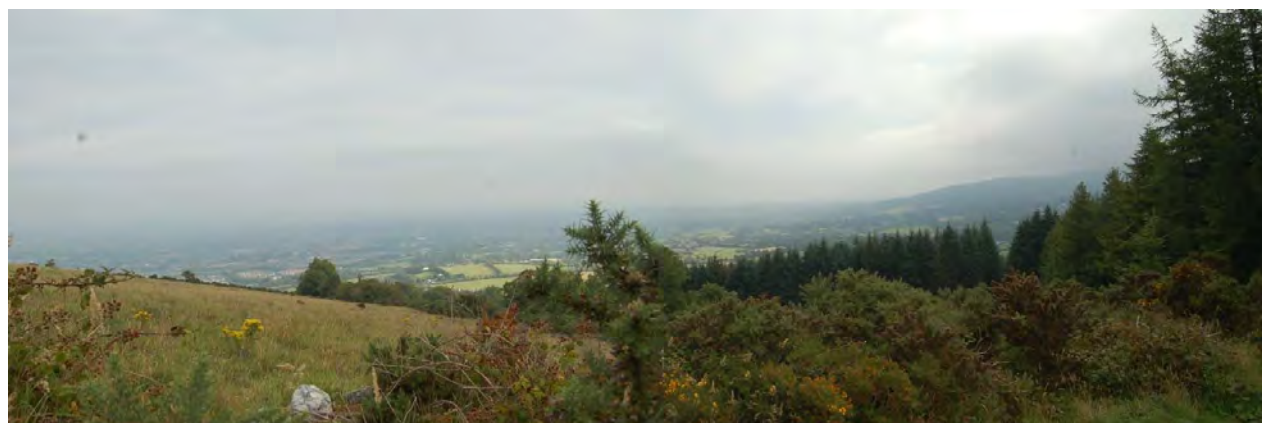


View from Kilakee at R115



Montpelier from Cruagh

Montpelier Hill / HFC and Masseys Wood



Dublin City from Montpelier Hill – as forestry is harvested the existing panoramic views will open fully over the city



South from Montpelier



Kilakee from Montpelier



Misc HFC



Masseys Wood – misc

Tibradden / Kilmarshogue

View South, towards Wicklow Mountains, on top of Tibradden Mountain

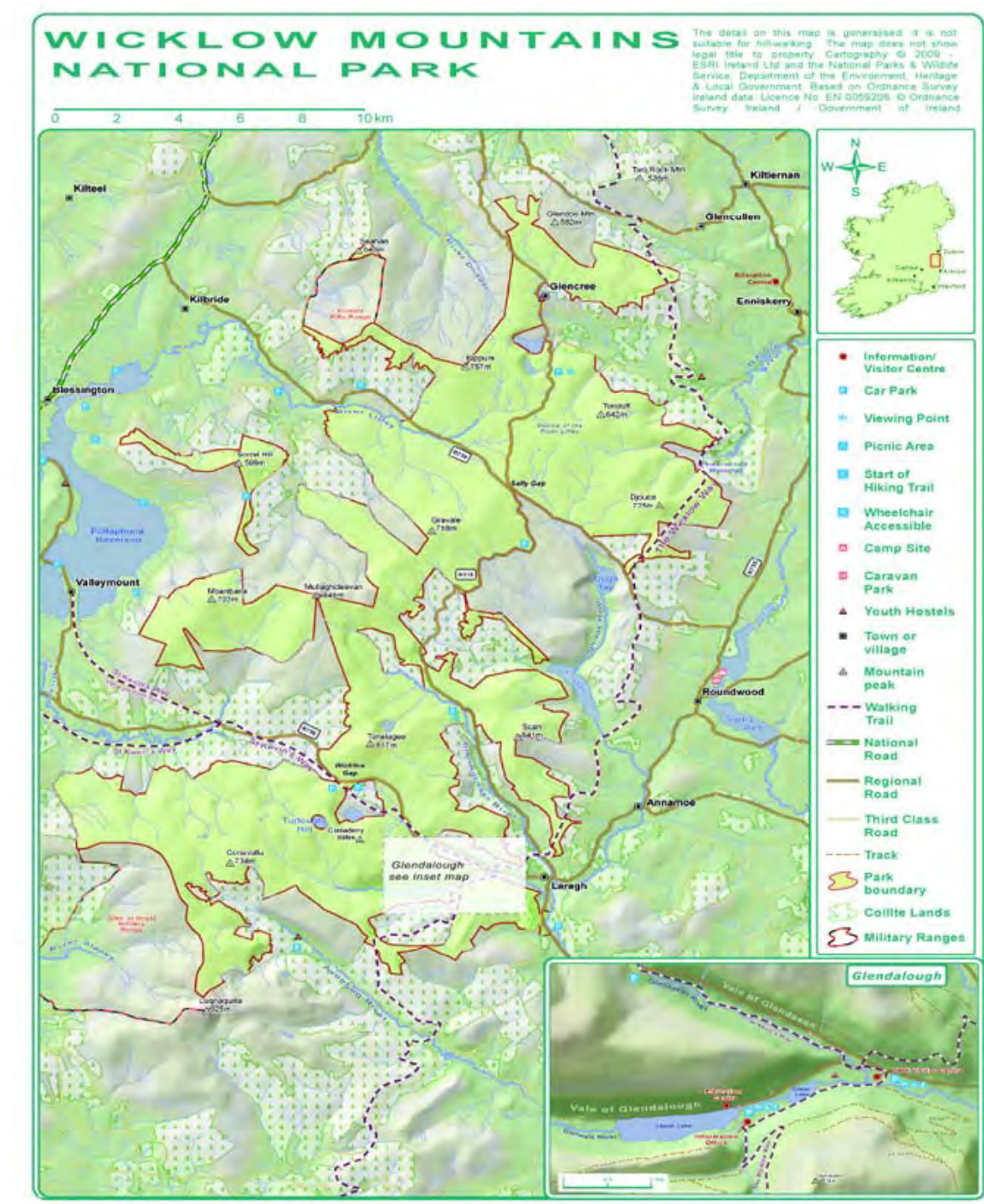


View North, towards Dublin City, on top of Tibradden Mountain

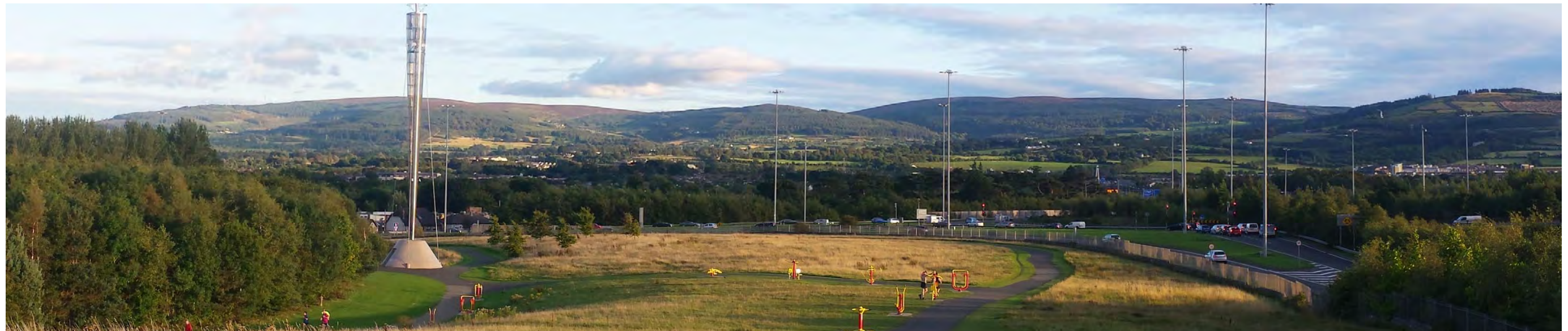


Tibradden - misc

Wicklow Mountains Park



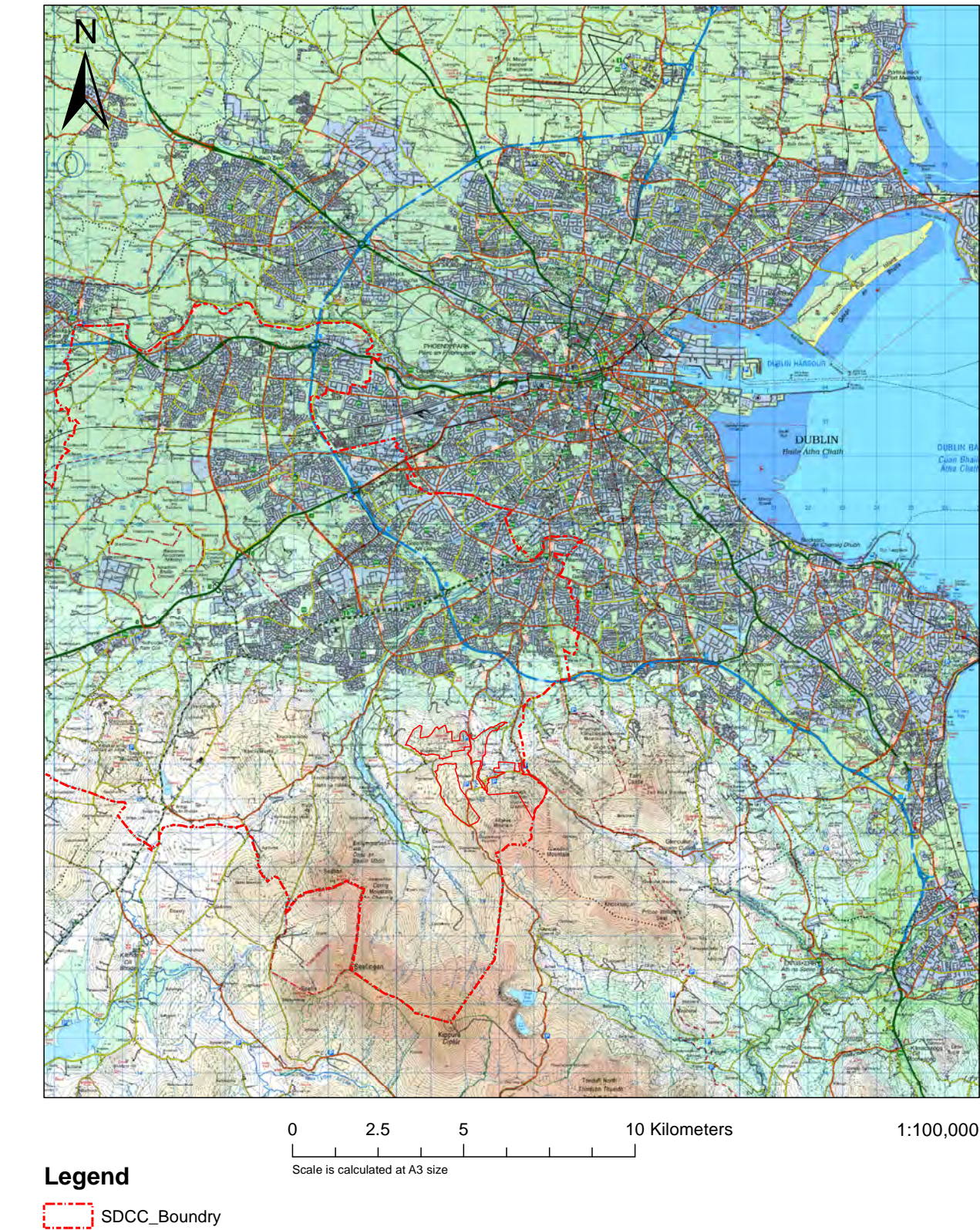
Wicklow Mountains National Park - Extents

City Views

Representative views of the Dublin Mountains from the Urban Area – Taken from an elevated point at Tymon Park, Spawell, Templeogue

APPENDIX 1B STUDY AREA MAPPING

Dublin City and Environs



Statutory data in accordance
with with South Dublin
County Council
development plan 2010-2016

FLAGSHIP TOURISM FACILITY FOR THE DUBLIN MOUNTAINS - FEASIBILITY STUDY

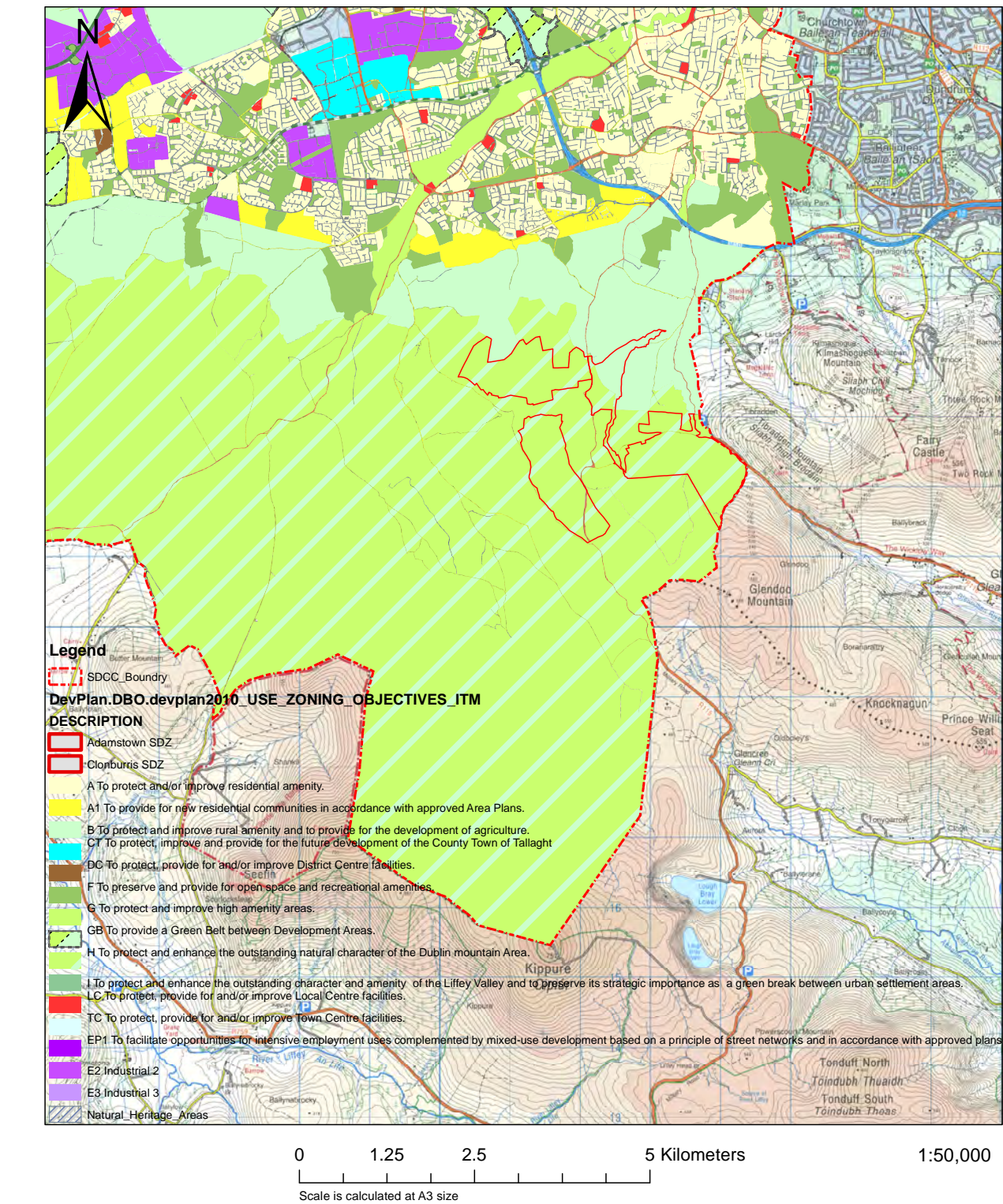
Baseplan: Dublin Mountains



Statutory data in accordance
with with South Dublin
County Council
development plan 2010-2016

FLAGSHIP TOURISM FACILITY FOR THE DUBLIN MOUNTAINS - FEASIBILITY STUDY

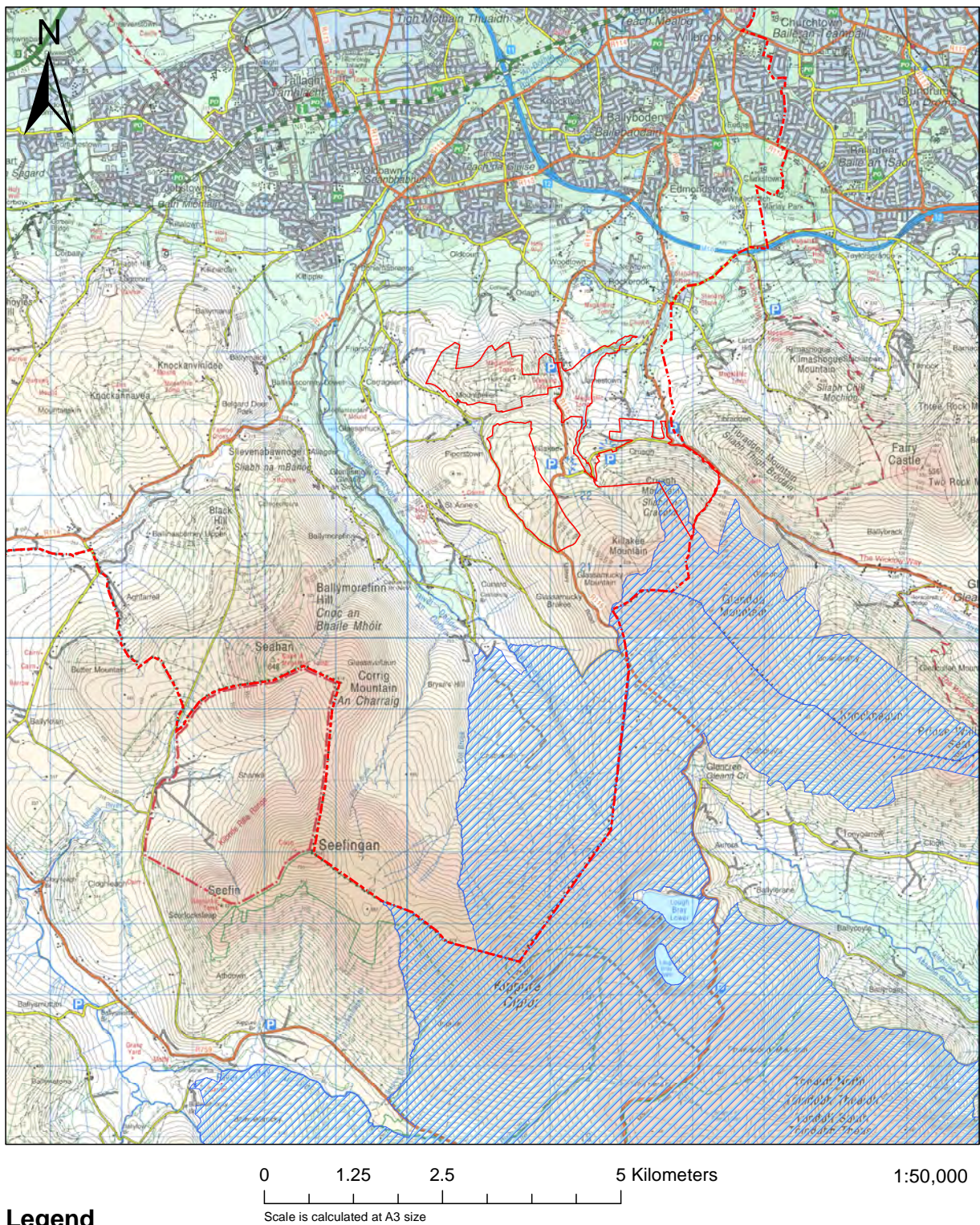
Zoning Plan



Statutory data in accordance
 with with South Dublin
 County Council
 development plan 2010-2016

FLAGSHIP TOURISM FACILITY FOR THE DUBLIN MOUNTAINS - FEASIBILITY STUDY

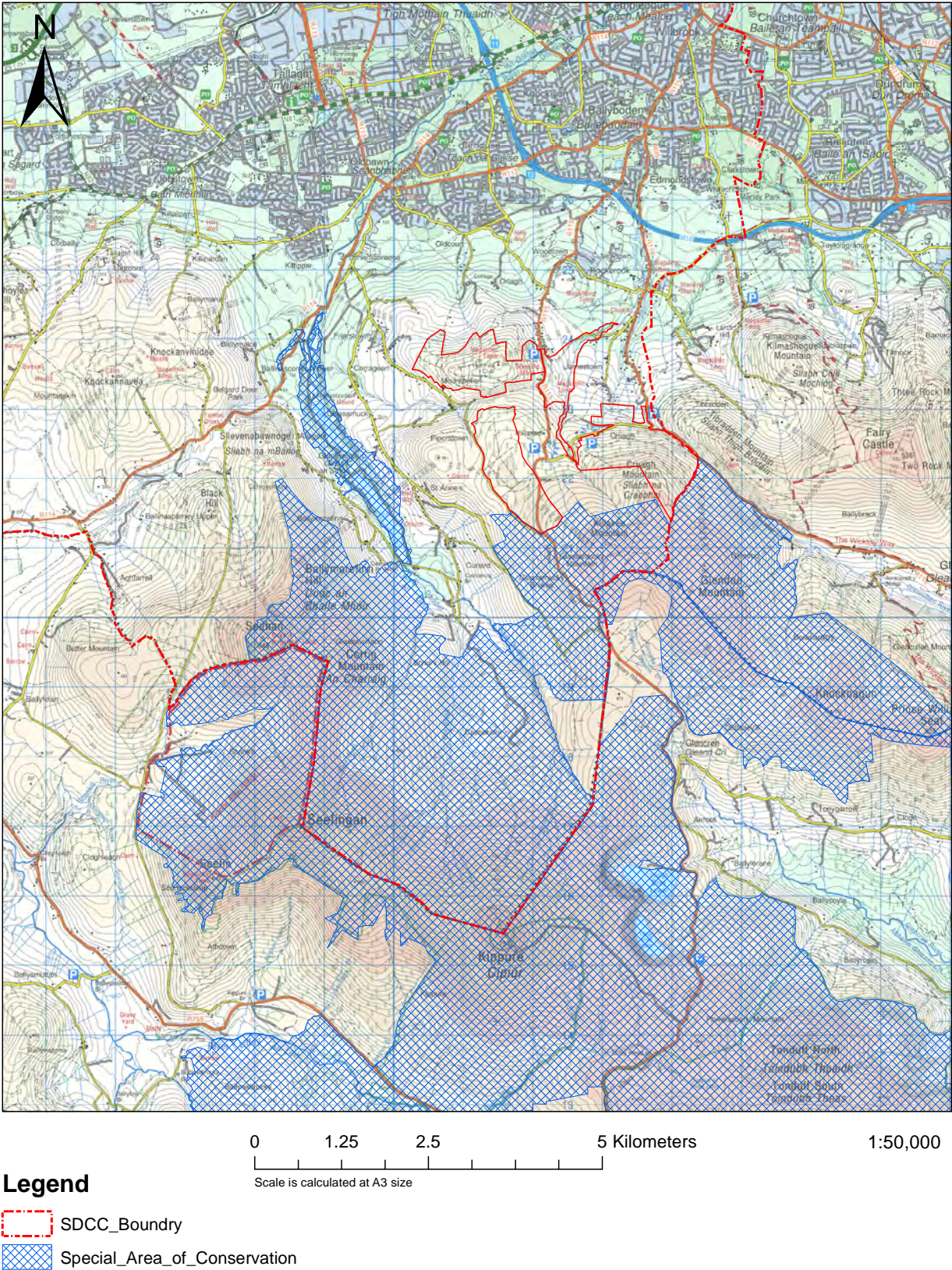
Specian Protection Areas



Statutory data in accordance
 with with South Dublin
 County Council
 development plan 2010-2016

FLAGSHIP TOURISM FACILITY FOR THE DUBLIN MOUNTAINS - FEASIBILITY STUDY

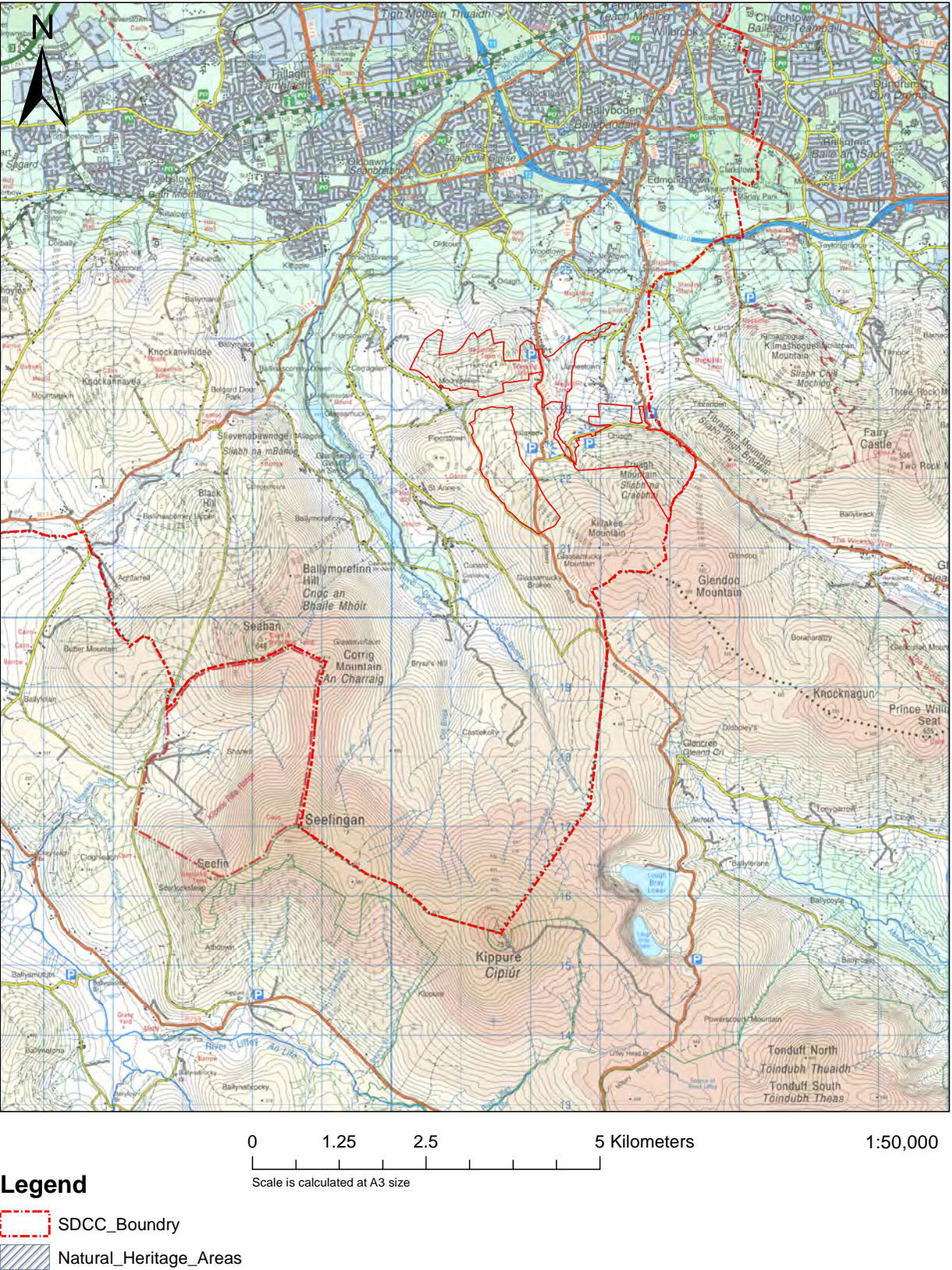
Special Area of Conservation



Statutory data in accordance
with with South Dublin
County Council
development plan 2010-2016

FLAGSHIP TOURISM FACILITY FOR THE DUBLIN MOUNTAINS - FEASIBILITY STUDY

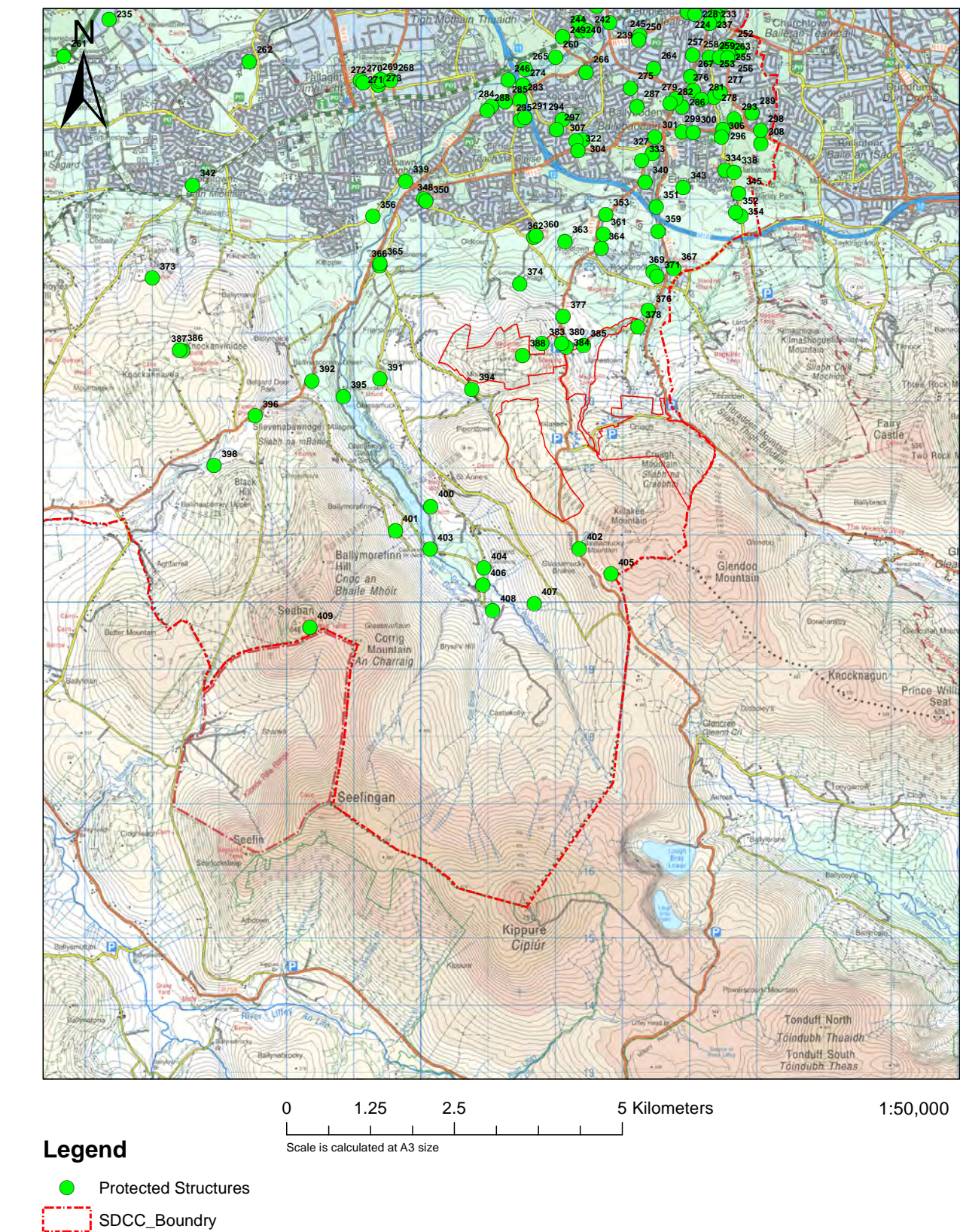
Natural Heritage Areas



Statutory data in accordance
with with South Dublin
County Council
development plan 2010-2016

FLAGSHIP TOURISM FACILITY FOR THE DUBLIN MOUNTAINS - FEASIBILITY STUDY

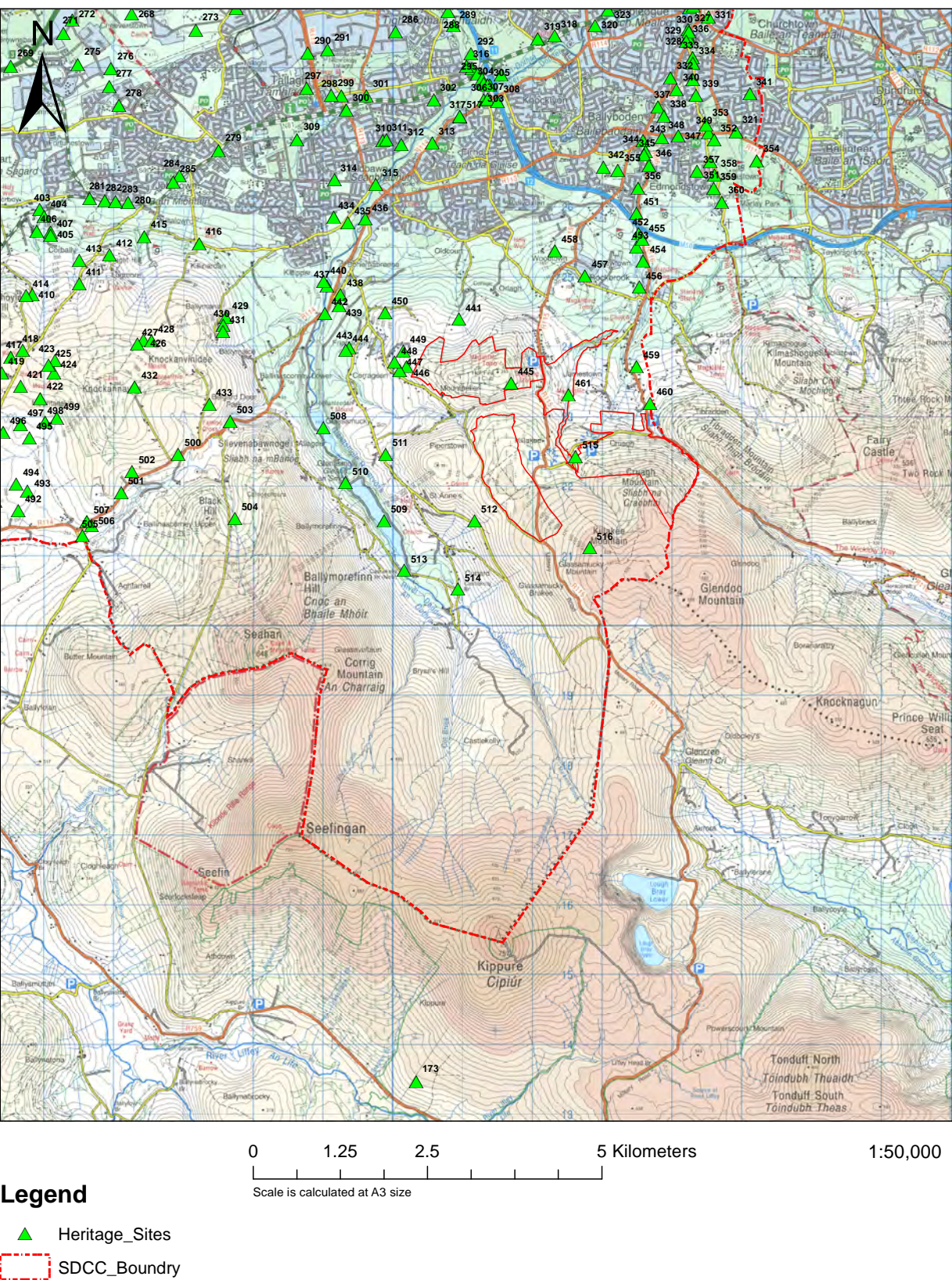
Protected Structures



Statutory data in accordance
with with South Dublin
County Council
development plan 2010-2016

FLAGSHIP TOURISM FACILITY FOR THE DUBLIN MOUNTAINS - FEASIBILITY STUDY

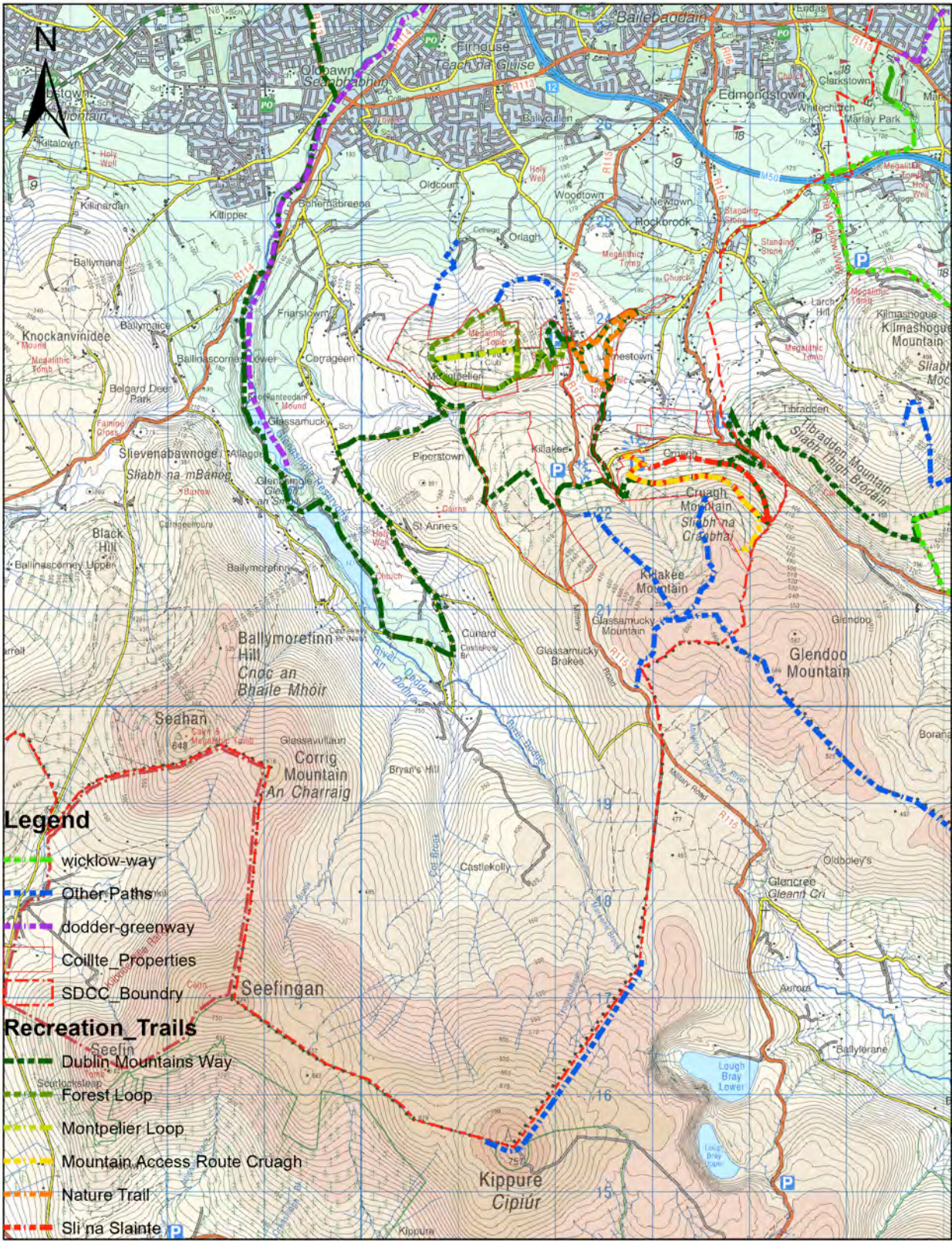
Protected Structures



Statutory data in accordance
with with South Dublin
County Council
development plan 2010-2016

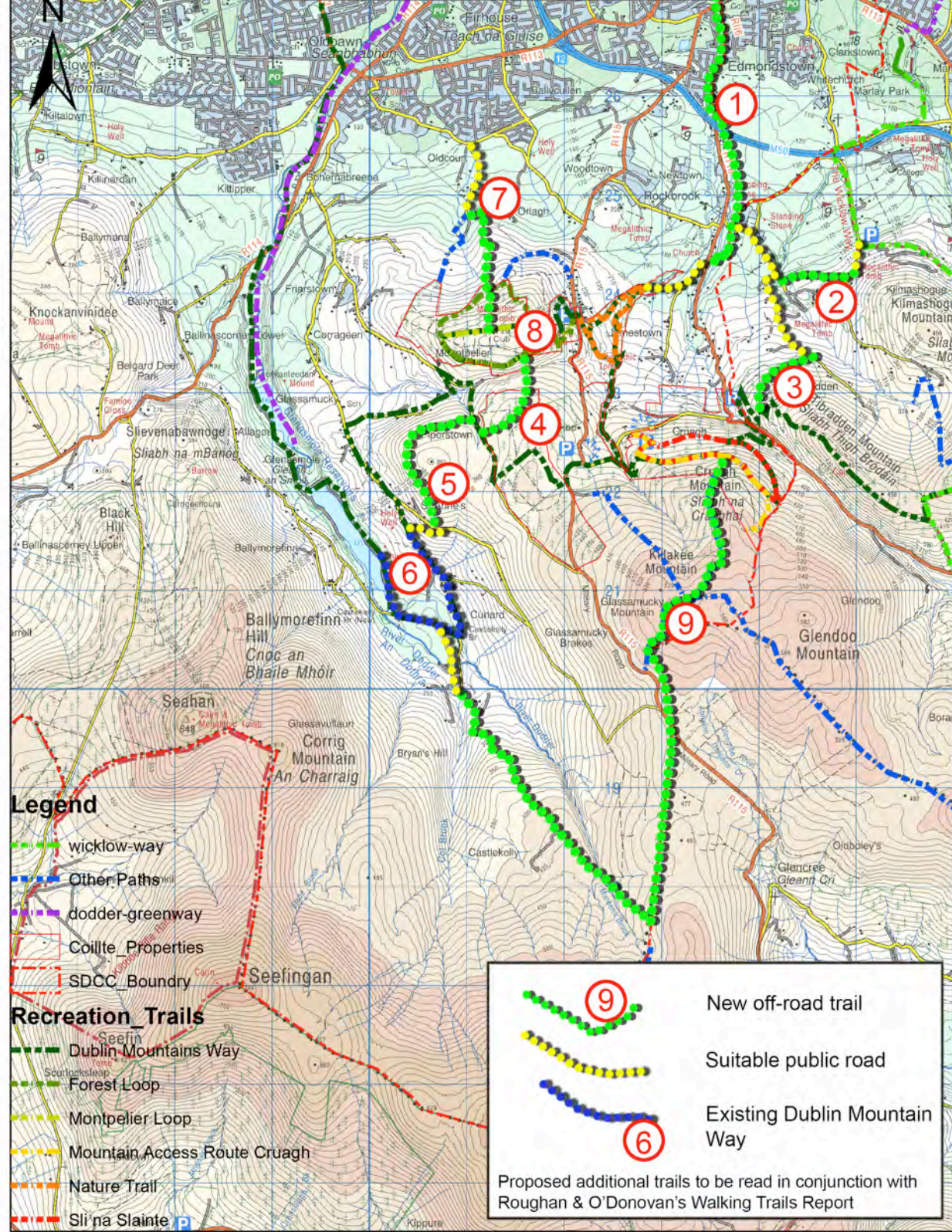
FLAGSHIP TOURISM FACILITY FOR THE DUBLIN MOUNTAINS - FEASIBILITY STUDY

Recreational Trails



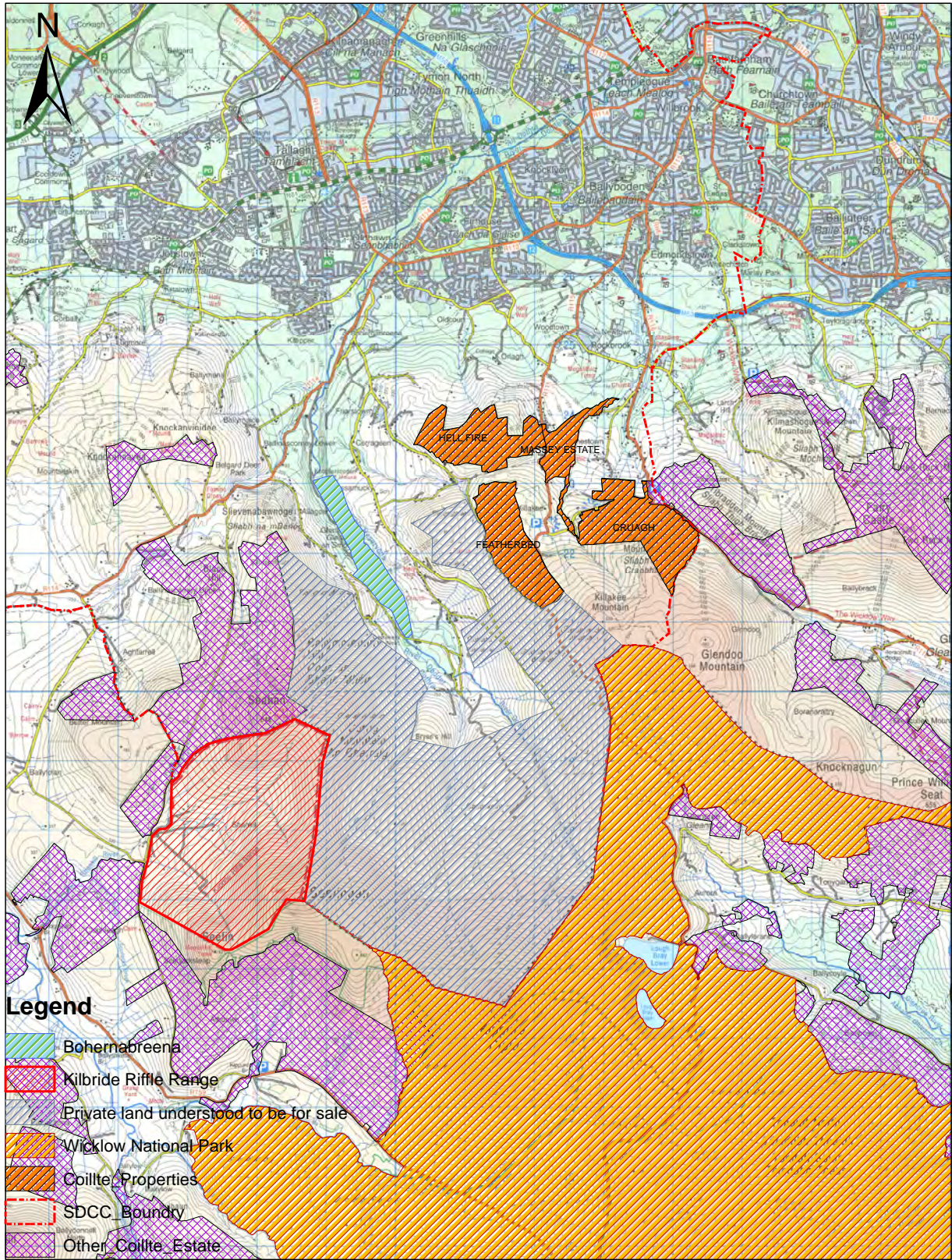
0 0.75 1.5 3 Kilometers
1:50,000
Statutory data in accordance with South Dublin County Council development plan 2010-2016
Scale is calculated at A3 size
FLAGSHIP TOURISM FACILITY FOR THE DUBLIN MOUNTAINS - FEASIBILITY STUDY

Recreation Trails/Proposed Additional Routes



0 0.75 1.5 3 Kilometers
1:50,000
Statutory data in accordance with South Dublin County Council development plan 2010-2016
Scale is calculated at A3 size
FLAGSHIP TOURISM FACILITY FOR THE DUBLIN MOUNTAINS - FEASIBILITY STUDY

Strategic Public Landholdings



Legend

SDCC_Boundary

DevPlan.DBO.devplan2010_USE_ZONING_OBJECTIVES_ITM

DESCRIPTION

Adamstown SDZ

Clonburris SDZ

A To protect and/or improve residential amenity.

A1 To provide for new residential communities in accordance with approved Area Plans.

B To protect and improve rural amenity and to provide for the development of agriculture.

CT To protect, improve and provide for the future development of the County Town of Tallaght

DC To protect, provide for and/or improve District Centre facilities.

F To preserve and provide for open space and recreational amenities.

G To protect and improve high amenity areas.

GB To provide a Green Belt between Development Areas.

H To protect and enhance the outstanding natural character of the Dublin mountain Area.

I To protect and enhance the outstanding character and amenity of the Liffey Valley and to preserve its strategic importance as a green break between urban settlement areas.

LC To protect, provide for and/or improve Local Centre facilities.

TC To protect, provide for and/or improve Town Centre facilities.

EP1 To facilitate opportunities for intensive employment uses complemented by mixed-use development based on a principle of street networks and in accordance with approved plans

E2 Industrial 2

E3 Industrial 3

Natural_Heritage_Areas

Legend

Bohernabreena

Kilbride Rifle Range

Private land understood to be for sale

Wicklow National Park

Coillte Properties

SDCC Boundary

Other Coillte Estate

Statutory data in accordance
with with South Dublin
County Council
development plan 2010-2016

0 1.25 2.5 5 Kilometers
Scale is calculated at A3 size

1:50,000

FLAGSHIP TOURISM FACILITY FOR THE DUBLIN MOUNTAINS - FEASIBILITY STUDY

APPENDIX 1C CASE STUDIES

Case Study Report

The following nine case studies have been prepared by Tourism Development International and have served to inform aspects of the emerging tourism facilities for the proposed Dublin Mountains Flagship Visitor Attraction:

- Connemara National Park Visitor Centre
- Kylemore Abbey and Victorian Walled Garden
- Malahide Castle and Gardens
- Grizedale Forest Visitor Centre
- Giant's Causeway Visitor Centre
- Stonehenge Visitor Centre
- Brockhole – The Lake District Visitor Centre
- Fota House, Arboretum and Gardens
- Airfield Estate
- Handbook on Tourism Product Development Extract

The multi-disciplinary team has also drawn from the findings of the International Handbook on Tourism Product Development with specific reference to Flagship Visitor Attractions.

1. Connemara National Park Visitor Centre, Co. Galway, Ireland

Based on site visits, [REDACTED], Connemara National Park Visitor Centre, [REDACTED] and Website <http://www.connemaranationalpark.ie/visit.html>

Location

The Connemara National Park Visitor Centre is located near Letterfrack on the N59 in County Galway. Clifden is 15km away, Westport 53km and Galway 82km. The closest major attraction is Kylemore Abbey and Walled Gardens.

Function

The visitor centre functions as the gateway to Connemara National Park and is operated by the National Parks and Wildlife Service (NPWS). It is open between March and October each year, while the Park grounds are open all year round.

Visit Numbers and Characteristics

Visit numbers have increased from around 15,000 in 1980 to 80,000 in 2005 and 170,000 in 2014 (over 8 months). The main reasons for the jump in recent years is the development of the popular Diamond Hill Trails, the introduction of free entry to the visitor centre in 2005 and the recent development of the Wild Atlantic Way:

2014	170,000
2013	169,845
2012	167,464

Of the 170,000 visitors in 2014, the estimated breakdown of origins was:

Overseas	Domestic (Irish)
French 15% 25,500	15% 25,500
German 10% 17,000	
UK 10% 17,000	
Others 50% incl USA 2%	

Figures are estimates not collated data. Anecdotally the numbers of Irish visiting have increased in recent years due to more people staying at home for holidays and, presumably with the growth in popularity of the walking opportunities

Access

Car and coach access is via a short drive off the main road. The nearest public service bus stop is in Letterfrack, not far from the centre.

Parking

Parking is adjacent to the entrance to the visitor centre and along the access route into it. There are 4 marked out spaces for coaches and around 75 for cars. However, some additional space is available more informally.

Facilities and Amenities

The principal components include:

- Reception/Information Desk, with limited retail function (5%)
- Museum/interpretative space with a multi-lingual exhibition on the Connemara Landscape (35% of the building)
- Audio-Visual Show (multi-lingual) (10%)
- Indoor/art gallery (15%)
- Education room (15%)
- Tea Room - open daily between March and October. Franchised. (20%)
- Picnic Areas (some undercover)
- Toilets (as part of the centre but accessible from outside)
- Nature Trails
- Children's Playground - The playground features a variety of wooden equipment including see-saws, slides, chin-up bars, tunnel & playhouses. There are picnic tables with views of Diamond Hill and small woodlands are alongside the playground.
- Diamond Hill Walks
- Special Events – including children's activities, guided walks and evening talks are organised throughout the year.

Size and Space Breakdown

Total area of the visitor centre is not known but breakdown is as indicated by % shown above for each component.

Ownership and Management

The Visitor Centre buildings were formerly farm buildings belonging to Letterfrack Industrial School, and the Park Office was the school infirmary. These buildings were erected around 1890. The school closed in the 1970's and the visitor centre opened in 1980, following a community-led initiative to get the area designated as a National Park. The Park's field laboratory is housed behind the Park Office and is used by research students working on various aspects of wildlife in Connemara.

The visitor centre is owned by the state and operated by NPWS. The strategic goal of the visitor centre is to provide visitor information for the National Park. The principal role of the National Park is conservation as a Category IV protected area. The visitor centre has traditionally had an educational/interpretative remit. However, this has expanded to include a role as a Tourist Information Office for the local area and a tourist attraction in its own right.

Operational Characteristics

Entry to the National Park and the visitor centre is free of charge. There is no charge for parking. The operation of the visitor centre is, as with other similar state-owned visitor centres, subsidised by the state. Revenue streams include sales from the on-site shop, including t-shirts and maps. Revenue from these sales is not ring-fenced and goes to the state. Wages are paid by NPWS.

Staff includes 5 guides/information officers, 1 full-time education officer, 4 maintenance staff and 1 foreman and 1 manager. There are 9 full-time staff and 6 part-time staff. The café, which is franchised with a 2-3 year tender process, employs 6-7 staff.

Running costs include electricity, heating, cleaning, building maintenance, advertising and AV system maintenance. Total annual costs are around €250,000 – no split available.

Plans and Images



Plan of Walking Trails on the Diamond



Picnic courtyard with The Diamond ahead



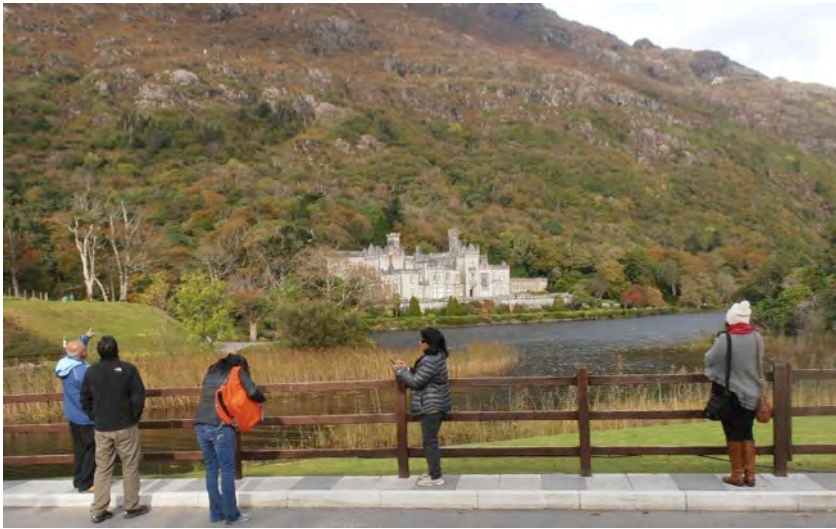
Conclusions and Lessons

For the Dublin Mountains flagship attraction, the following points are of most relevance:

- This is a good example of a visitor centre within a parkland setting that functions as a focal point for walking and other outdoor pursuits
- Since more trails and support facilities were introduced, it received increasingly more positive comments on Tripadvisor and this, in turn, led to more visits.
- The introduction of free entry has been important in getting more visits.
- This is an example of a centre that is sustainable through financial support from the state, with no real emphasis on generating commercial return
- Retail provision is limited, partly as a reflection of the above
- Although the main attraction is the outdoors, 75% of the visitor centre is dedicated to interpretation, display, AV, gallery and education space
- The tea room takes up 20% of the centre space but has substantially more space out in the courtyard. It is primarily a soup, toasties, etc facility. It is operated on a franchise and must run well commercially, but no information is available on rental levels.
- Staff experience has shown that better and clearer information is important, as is giving a better and unified trail offer with clear and standardised signage.
- Erosion has been as key issue – more people = more erosion = more maintenance. Carrying capacity needs to be considered at the outset when planning a visitor centre.
- More visitors can place pressure on the sewage system, this needs to be considered in the design
- An adequate maintenance budget is essential to ensure the ongoing quality of the product
- Success can bring its own problems – staff members have found that, due to public sector cutbacks, they have not been able to employ enough guides and have had to turn people away, resulting in negative reviews on Tripadvisor.
- Funding is required for website development. The NPWS lacks the skills for tourism development.

2. Kylemore Abbey and Victorian Walled Garden

Based on TDI's experience as consultants to Kylemore in 2014/215



Location

The 125 hectare Kylemore Estate, including Kylemore Abbey and Victorian Walled Garden, is located in picturesque Connemara, in County Galway, Ireland. It is 80km west of Galway City and 50km south of Westport. This is a highly popular area for tourists.

Function

Kylemore has been the home of the Benedictine Community for over 90 years. However, as well as being a place of worship and residence for the nuns, it is also a place of remarkable beauty and:

- A top ten visitor attraction in Ireland (with over 400,000 visits per year);
- A significant tourism asset of County Galway, and especially Connemara;
- A major contributor to the local economy.

The Estate was acquired by the Benedictine nuns (the Irish Dames of Ypres) in 1920. They retain overall responsibility for its operation and maintenance. Since 2009, however, this has been overseen by the Kylemore Trust which includes the nuns and their special advisors.

Visit Numbers and Characteristics

Kylemore attracted 264,000 admission paying visits in 2014 and an estimated 230,000 in 2013.

The experience of previous and current managers suggests that around 40% of visitors to Kylemore use the restaurant and craft shop without going into the admission paying area. These would be in addition to the 264,000 in 2014.

So if 264,000 is 60% then 440,000 is 100%, meaning that a total of 176,000 (the 40%) visitors did not go through the ticket office in 2014.

Some 80% of visitors are from Overseas and 20% from Ireland (the domestic market). This represents a higher than normal penetration of overseas markets.

Around 50% of visitors come in organised groups and 50% are casual visitors, thereby demonstrating the importance of coach tours in this part of Ireland.

Access

The main access gate is off the N59, where opening times are clearly displayed. A short drive or walk then takes the visitor into the car park and the first stunning sight of the Abbey.

Parking

Currently there is car parking for around 350 cars (150 in the surfaced car park and 200 in the overflow/hockey pitch area). This provision is frequently close to capacity. There is also parking for around 45 coaches and for 16 motor-homes or similar. There are current plans to increase parking provision.

The access from the car and coach parking areas is via an at-grade bridge from which visitors can stop to view and take photographs of the Abbey.

Facilities and Amenities

The main components of the attraction are:

(1) The Ticket Office and Reception Centre

The welcome starts in the car park where there is a well illustrated panel showing a map of what visitors can enjoy at Kylemore. These maps are located at various parts of the site and provide excellent orientation for visitors.

On arrival, the visitor has the choice of going to Mitchell's Restaurant and toilets, visiting the craft shop and pottery studio, going to Henry's Coffee Shop or going straight to the ticket office.

After purchasing their tickets, visitors walk a short distance to what is signed as the Visitor Centre. This is a small reception area, with some more information on the estate, including the map again and a model of the walled garden. This is where your ticket is checked before you can enter the attraction proper.

(2) The Abbey

Visually, the Abbey and its setting are the star attractions. The view across to the Abbey from the path that leads to and from the entrance

path is spectacular and many photo opportunities are taken here by visitors.

After passing through the Abbey's impressive front door, the visitor enters the Entrance Hall and Outer Hall areas. Interpretive panels provide information on the history of the castle (then abbey) in a simple but effective manner.

To the left of the Outer Hall is a large room with an AV presentation in English (on the hour and half hour); in German (15 mins past the hour); and in French (45 mins to the hour).

The AV describes Kylemore Abbey as a modern spiritual site and, as well as telling the story of its construction, it shows images of the nuns.

Just off the Outer Hall is a small room with a model of a schoolgirl standing in front of a blackboard at the entrance and a series of wall panels depicting the stories of the former International Boarding School run by the Benedictine Community.

Going to the right from the Outer Hall, the visitor enters the Inner Hall and ahead into the Drawing Room with fine examples of furniture added in 1993.

The next room, formerly the Breakfast and Morning Rooms, contains interpretative panels and displays largely dedicated to the history and memorabilia of the Benedictine Community. This leads on to a reconstruction of the Henry family's original Dining Room and the visitor then goes downstairs to the Gallery Hall which, again, provides information on interpretive panels.



The Dining Room

History Talks in the abbey are available in the Inner Hall for around 20 mins at 11.30am, 1.00pm and 3.00pm. Groups can have a private tour of the Abbey rooms, depending on guide availability.

In general, the impression is that, due to the limited amount of access to the public, the visit inside the Abbey offers the visitor a lot less than is expected from its spectacular exterior.

(3) The Gothic Church

An attractive walk along the edge of the lake takes the visitor to the Gothic Church or Miniature Cathedral. This is a special place, with a beautifully restored interior. There is some interpretation on panels but the real experience is being there and appreciating its beauty.



(4) The Mausoleum

Another short walk beside the lake takes the visitor to the Mausoleum, the final resting place of Mitchell and Margaret Henry.

(5) Walks and Trails

Kylemore Estate offers a range of walks and trails, including:

- The heritage trail between the visitor centre and the Mausoleum area
- The nature trail (almost the same as the above), for which there is a separate leaflet on the Tree Trail
- The woodland walk from the visitor centre to the Walled Garden via the woodland south of it
- The walk to the Walled Garden itself (as above)
- The Mitchell Henry Children's Play Trail that runs the length of the path between the Walled Garden and the Mausoleum area
- Mountain Hikes which have to be with a trained guide, involving an additional cost and have to be pre-booked (currently suspended on safety grounds).

Interpretive panels of excellent quality are provided on these walks/trails. However, there is need for maintenance of some of the play features.



Nature walk panel



Play trail feature

(6) The Victorian Walled Garden

The Walled Garden is an attraction in its own right. It is in immaculate condition, provides a relaxing walking experience, presents much of interest to garden enthusiasts and gives the visitor spectacular views and points of interest (eg. the ruins of the old glasshouses and the restored ones).



View of part of Garden with interpretive panel



Old and new glasshouses

Walled garden tours are available daily to general visitors at 14.30 from 19 May to Sept for 30 mins. Group tours can be arranged by advance booking.

(7) The Tea House by the Walled Garden

This is well located at one end of the shuttle bus route. It is also in a prominent location before the entrance to the Walled Garden, with good views out onto the Connemara scenery.



The Tea House



Interior

It is well supported by external sitting out and play facilities.



One of many picnic places around the tea house



Play feature at tea house

(8) Craft & Design Shop

The shop is well located for visitors who decide to go to the main restaurant or toilets when they arrive because they have to pass its display windows and main entrance door. However, for those on their way out via the visitor centre, its location is not the ideal one for

attractions because visitor flow to the exit is not directed through the retail space.



It is easy to pass by the shop on the way out. The shop itself is incredibly well stocked, far in excess of what would be expected at most visitor attractions. It sells books, clothing, sportswear, pottery, souvenirs, confectionery, foodstuffs, jewellery, crystal and much more.

(9) Mitchell's Café/Restaurant and Henry's Express Coffee Shop

Mitchell's is clearly a popular facility for visitors arriving at the attraction and leaving, and for those who are just there to eat and shop (ie. not entering the admission charge perimeter). It does, therefore, act as a point of arrival for all visitors if they do not want to go immediately to the ticket office.

In its foyer, it provides information for visitors in the form of boards and a small screen showing background to the attraction.



Entrance to Mitchell's and shop

Mitchell's provides a good array of reasonably priced hot and cold food. Tables catering for 200 visitors are located indoors and 150 outdoors. Henry's Cafe is one of three main components that can be visited before (or without) entering the visitor attraction or after leaving it via the turnstile at the Visitor Centre. It is promoted within the main café/restaurant as a place to go for snacks to avoid the queues and for somewhere to pick up food and drinks for picnics.

(10) Toilets

Toilets are provided at Mitchell's; opposite the shuttle bus stop (in relatively unattractive portacabins); in the Abbey; and in the Tea House at the Walled Garden. For an attraction which gets around 230,000 paid visits per year (and almost 400,000 overall), including a large proportion of coach tour tourists, this level of provision must get stretched at some times.

(11) Seating/Picnic Tables

There is a relatively good supply throughout the site, especially around the Walled Garden Tea House (as already shown).



Picnic area on lakeside walk



Seating on lakeside walk

(12) Shuttle Bus

Access to the Victorian Walled Garden is via the woodland walk or by a small shuttle bus that runs every 15 mins and picks visitors up close to the Visitor Centre. There is no additional charge for this.



Shuttle Bus and small shelter near the visitor centre



Shuttle bus and shelter at the Tea House

Opposite the queuing area for the shuttle bus near the Visitor Centre is a building that was once the domestic science classroom for the school. It is now used by the Benedictine sisters for making soaps/shampoos and candles in one part and chocolate in the other.



Shuttle Bus at stop opposite where the soap, shampoos, candles and chocolate are made

Size and Space Breakdown

The main modern buildings on the estate for use by tourists and their approximate dimensions are:

- The Shop: 600sqm
- Mitchell's Restaurant & kitchen (tables for 200 indoors and 150 outdoor): 751sqm

Ownership and Management

The Kylemore Trust, on behalf of the Benedictine Community, has overall responsibility for the Kylemore Abbey Estate. However, between July 2009 and December 2014, management of the whole estate, including the operations of Admissions, Food Area and Craft Shop was carried out under contract by a private management company – Kylemore Tourism Ltd.

This whole management arrangement ended on 14 December 2014 when the Kylemore Trust and its employees assumed sole overall operational responsibility again.

Operational Profile

The charging structure for Kylemore in 2015 was:

	€
Adult	13.00
Seniors	10.00
Students	9.00
Family A*	26.00
Family B**	35.00

*2 adults and 1-6 children 10 years old and under
**2 adults and 1-6 children 0 -17 years old

Kylemore is operated as a commercial concern and, as such, is a significant generator of operating surplus. Admission fees, the shop and catering facilities all contribute to that surplus.

Plans and Images

Within the text above

Conclusions and Lessons

Some of the main points emerging from this case study are:

- This is a good example of a very popular tourist attraction that operates as a successful going concern
- It combines spectacular beauty and a range of interests and activities for visitors with a highly professional approach to income generation

- In recent years the operation was franchised out to an external management company but the Trust decided to resume these responsibilities at the end of last year – by all accounts, this has been a successful move
- The importance of coach tours/organized groups for an attraction in this location is clearly demonstrated
- The popularity of the restaurant and shop indicates that these are attractions in their own right, and for that reason are readily accessible to visitors who do not want to enter/visit the main attraction
- Nevertheless, admission charges are a significant source of income
- The current condition of the fabric of the Abbey building and some of the estate's landscape features demonstrate the need for constant commitment to maintenance and repair
- This presents a good example of a simple free shuttle bus service taking visitors from one part of the site to and from another
- For an attraction with more than 400,000 visits per year, it is informative that the current restaurant space of .is considered inadequate, and an extension is being planned
- Similarly, parking for 350 cars is shown to be gross under-provision during peak times.

3. Malahide Castle and Gardens, Dublin, Ireland

Based on interviews with the management team of Shannon Heritage and Avoca, desk research - especially the dedicated visitor attractions website - supplemented by site visits and further information provided by the management.

Location

North Dublin, near the village of Malahide and 9 miles from the City Centre.

Function

Malahide Castle is an historic building, some of which dates back to the 12th century. With over 240 acres of estate parkland, it functions today as a year round flagship visitor attraction.

Visit Numbers and Characteristics

In 2008, there were 103,620 admission paying visitors to the attraction, but this had fallen to 83,456 by 2010. After major upgrading and renewed marketing effort, visitor numbers jumped to 104,414 in 2013 and 117,109 in 2014.

This excludes the substantial number of visitors/local community who enjoy the castle grounds/demesne. The operator estimates that 36% of visits were made by the domestic market in 2014.



Access

Malahide is highly accessible by private transport, rail and service bus. There are also a number of excursion tours from the city centre and further afield that include it as an attraction to visit.

Access is also available via Toots, the Malahide Road Train which travels to and from Malahide Castle every 30 minutes. It runs from the Malahide DART Station, through Malahide Village, to the beach and

then onto the Castle & Gardens. Family ticket (2 adults and 2 children costs €12)

Parking

There are 7 car parks throughout the Malahide Castle Demesne. Estimated no of car park spaces is 800 (TBC).

Adjacent to the new Visitor Centre there is coach parking for 7 coaches, with bike stands and a disabled parking zone



Facilities and Amenities

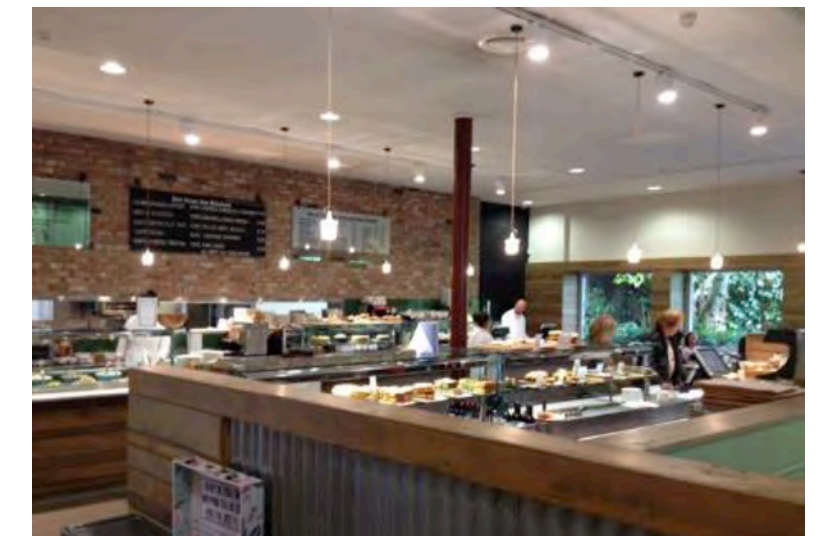
The main components of the attraction are:

- **The Visitor Centre** – which is a modern facility in the courtyard adjacent to the castle and consisting of the reception and ticketing area. It also contains:
 - the museum shop
 - Avoca retail & café
 - the Malahide Outdoor store
 - the Irish Centre for Cycling (for bike hire, information and bespoke tours)
 - the Interactive Garden Exhibition
 - toilets and first aid
- **Castle Tours** – visitors are required to purchase tickets in the visitor centre for guided tours of the castle. Prices are Adult €12, Child €6, Student €8, Senior €7.50, Family from €26. The tour covers 4 main reception rooms and bedrooms that are open to the public. Starting at 9.30am, and lasting 45 minutes, the guided tours run until 3.30pm or 4.30pm depending on the time of year. The tour guide is English speaking but there are also audio sets available in 6 other languages.

- Private evening tours, with a drinks reception and entertainment can be provided on request.
- **The Castle Interpretive Area** – is located on the ground floor of the castle and includes exhibitions presenting a range of stories mainly about the Talbot family but also about a range of other topics including the castle ghosts, renovation and conservation work, and the Battle of the Boyne.
- **The Ornamental Gardens** – consist of 22 acres accommodating 5,000 different species and varieties of plants.
- **The Walled Garden** – including 7 glasshouses
- **Meeting/Conference rooms** – which are the Project Room (with capacity for 80 in theatre style seating) and the Loft Room (50 theatre style and 20 board room style). Located in the visitor centre, they are available for hire for meetings, workshops, classes and events.
- **Avoca at Malahide Castle** – retail space in the visitor centre selling a full range of Avoca products (woollen and fibre goods), other fashion goods, homeware, gifts and beauty items.



- **Avoca Restaurant** – also in the visitor centre and in an outdoor terrace, serving fresh food



- **Avoca Food Hall** – also in the visitor centre, selling fresh deli and bakery and speciality foods.
- **Event spaces** – day & evening corporate events (eg incentive and team building) can be accommodated in the visitor centre and gardens for up to 150 participants
- **Great Hall** – a unique dining experience in the historic Great Hall is available on request for up to 36 guests
- **The Demesne and grounds** – 250 acres of parkland and woodland which includes walks, play areas, picnic sites, cricket ground, football pitches, tennis & basketball courts, boules area, 9-hole par-3 golf course and 18-hole pitch & putt.
- The attraction is being used for a growing number of activities. These include, school tours; concerts; conferences and meetings; corporate events, a large Irish Life event in September 2014; Shakespeare in the Park; a Viking festival; international Cricket to the new ground; other sporting events such as GAA, Golf, Tennis; and other festival events.

Avoca Restaurant at Malahide Castle



Size and Space Breakdown

Approx. 650sqm for Avoca shop and 750-950sqm for the café.

Ownership and Management

The owner of the attraction, Fingal County Council, created a Special Purpose Vehicle (SPV), Malahide Castle and Gardens Ltd, to run the facility. Shannon Heritage and Banqueting Limited now operates the visitor centre facility including the Project Event Room on behalf of the company. Avoca Handweavers manage and operate the Restaurant and Retail outlet. Irish Centre for Cycling operate a bicycle hire facility from within the Centre and there is a specialist outdoor clothing shop outlet in the courtyard at the entrance to the new Visitor Centre

Operating Profile

Opening times:

Open all year round (362 days) from 9.30am to 5.30pm all week.

Shannon Heritage is reported as employing 20 people to operate and market Malahide Castle and the Avoca facilities employ around 80 (source: Irish Building Magazine, 9/11/15)

Plans and Images



The Visitor Centre



The Castle ground floor displays



The Project Room



Toots Malahide Road Train

TripAdvisor Review for Toots Malahide Road Train:

'We are thankful to the Toots train for the fun around Malahide and the castle drop off. We had a quick stop to view the Malahide beach, which was nice to see. I believe the price is normally €6 but he charged us €5 since we had the Dublin Pass. He also sells a combo ticket for the train ride and the castle admission and tour. We didn't purchase it since our admission is included with the Dublin Pass. The Toots train is right outside the Dart train station every 30 minutes, last train comes at 4:30 pm.'

Conclusions and Lessons

- Malahide Castle and Gardens is an excellent example of a flagship visitor attraction that has transformed its facility offer from being tired to contemporary and innovative in line with market demand.
- Getting to Malahide Castle and Gardens is very easy as there are a number of options including:
 - By car
 - 42 bus
 - Dublin Bus – Hop on Hop off
 - Dualway Bus
 - Malahide Dart Station (9 minutes walk)
 - Toots Malahide Road Train
- The restaurant/Café at Avoca is a bright and beautiful space and is appropriately situated beside the wonderful gardens.

- There is a clever mix of tables throughout the restaurant of all sizes including tables for 2, 4, 6, 8, 10 and 12 persons.
- Malahide Castle and Gardens operates within a controlled park/zone that is managed by Fingal County Council.
- Avoca are now taking bookings for private weddings.
- The Avoca management team work in unison with the Shannon Heritage team, the result being that from a visitor perspective, there is no sense that the Centre is being managed by two different companies.
- The project/event room has proven to be a very popular facility for all types of corporate events including:
 - Food demonstrations
 - Chamber of Commerce meetings
 - Community events
 - PR events
 - Incentive/Corporate
- Overall, the flagship attraction is a stand out one, with its quality range of things to do and one gets the real impression that Malahide Castle and Gardens intend to remain at the cutting edge in terms of the delivery of high quality visitor experiences for the local community and visitors alike.

4. Grizedale Forest Visitor Centre, Lake District, England

Based on telephone interview with David Lowe, Manager (00 44 300 067 4271), desk research including Website: <http://www.forestry.gov.uk/grizedale>

Location

Grizedale Forest Visitor Centre is located in the heart of the Lake District in the middle of Grizedale Forest Park, between Lakes Conniston and Windermere. Its closest settlement, 3.5 miles away, is the attractive village of Hawkshead. It is just to the west of Kendal and around 2 hours drive north of Manchester.

Function

The centre is owned by the Forestry Commission (www.forestry.gov.uk) and is on the site of the former Grizedale Hall – a 40-room mansion that was demolished in 1957.

The former stables and other buildings of the Grizedale Hall Estate are now the base for the Forestry Commission's regional headquarters and the Visitor Centre, which has evolved from the concept of promoting a worthy cause of engaging with nature to one of operating more as a leisure attraction to enable revenue to contribute to running costs.

The location of the visitor centre within Grizedale Forest is its most attractive feature. In addition, the forest is well known for art & sculpture which attracts many people. There is a significant diversity and scale of opportunity. The total forest area is around 6,000 acres with 2,500 acres accessible to visitors. This enables long and diverse walking and cycling trails.

Visit Numbers and Characteristics

The centre has attracted an estimated 220,000 visits in each of the last 3 years (2012-2014).

Around 45% of visitors come from the Merseyside area; 8% from the London area; 20% from the Yorkshire and the majority of the remainder from the UK. Over 98% are from the UK with very few from overseas. Around 60% of people are on a repeat visit, with many on an annual visit:

Visitor Origins		
Overseas	('000's per	Domestic(UK) - Total
country)		
Less than 2%		45% Merseyside
		20% Yorkshire
		8% London
		Rest from all over UK

Numbers per year have not increased since major redevelopment started 10 years ago. It is thought that this can be attributed to the high proportion of visitors coming from Merseyside, with traditionally high

public sector employment, whose incomes have been negatively affected by the recession.

Visitors are a broad spread in terms of age range and social background. During summer holidays the market is very much family orientated and includes children, parents and grandparents. Outside of school holidays, this moves more towards couples and retired people. Around 65% of visitors are staying overnight in the area.

Access

The centre is accessible directly off a narrow minor road, off the B5285 near Hawkhead. There is good off-road access by foot, bike or horse. Public transport is provided seasonally (end March to 1st November) as part of the Cross-Lakes Bus Shuttle (with up to 16 seats). The access road is not really suitable for larger vehicles.

Parking

The main parking for the Visitor Centre is location on the opposite side of the narrow road and provides space for around 100 cars and 8 mini coaches.

Facilities and Amenities

The components of the visitor centre include:

- **Visitor Information**
- **Forest Shop** – toys, clothing, art & craft, outdoor accessories and gifts. Open every day from 10am. Operated privately by Rheged and trading as Rheged@Grizedale (www.rheged.com)
- **Forest Café** - hot meals and salads, children's meals, sandwiches, soups and cakes with a wide range of teas and coffees.
- **Toilets** - Ladies, Gents, Disabled toilets & Baby Changing facilities can be found at the top of the main car park and in the Visitor Centre Courtyard.
- **The Yan** – an education and community resource centre, mainly intended for use by schools and local community groups, but promoted for training, team building events and meetings. It was opened in 2008 at a cost of £1.2m
- **Picnic benches** - There are picnic benches sited all around the Visitor Centre, in front of the Yan and adjacent to car parking. There is also undercover seating and a water fountain adjacent to the children's play area.
- **Cycling trails** - 5 waymarked trails following forest roads, ranging from 2 miles to 14 miles long, 10 mile red-graded North Face mountain bike trail and 1km Black graded downhill trail
- **Walking trails** – Wide range of waymarked walking trails and children's trails
- **Mountain-bike hire** – run as a concession and offering premium bikes for the North Face Mountain Bike Trail, standard mountain bikes, children's bikes, tag-a-longs, trailers and electric bikes. Over 200 bikes for hire, clothing, spares or

bike accessories in the shop. Visit [Grizedale MBT](http://grizedale.mbt.co.uk) website for more info, prices & to book online.

- **Horse-riding**
- **Orienteering** - 35 control points, 7 suggested courses or make up your own. Maps available from the Visitor Centre. On Foot - Map reading challenges for children, families, beginners and experts. Three suggested courses: 2km, 3km & 4.2km. Waterproof maps are available to purchase in the Visitor Information for £2.
- **GoApe adventures** (zip line trekking, 18m high platforms, Segway trekking, children's zip wires) <http://goape.co.uk/days-out/grizedale>
- **Forest Felt** – promoted as follows: 'Create something special and personal using wool and colour. Anyone from the age of 4 to 94 can felt. Simple items such as a felt brooch or felt ball can be made in as little as 30 minutes. Children love the tactile experience of blending warm water, soap and wool together, giving a beautiful result which is uniquely expressed and ready to take home with pride.'
- **Events** – Grizedale has a programme of events throughout the year from family events to large scale sporting events including adventure races, trail runs and car rallies.
- **Sculpture** - Grizedale is the UK's first forest for sculpture and is home to over 60 sculptures sited throughout the forest.

Visitor Information, Forest Shop & Forest Café open 7 days a week - Summer - 10am to 5pm; Spring, Autumn, Winter - 10am to 4pm.

Size and Space Breakdown

The scale of the visitor centre is dictated to some extent by its use of buildings that were built for other uses. It is not, therefore of typical dimensions. For example, the bike shop is housed in a 500sq.m. building, whereas the café and retail outlets each in 200 sq.m buildings.

The main room of the Yan is big enough for a school group or wedding party.

Ownership and Management

The visitor centre complex is owned by the Forestry Commission who appointed consultants to prepare a masterplan for the whole area in 2002. As a result, major upgrades were introduced in phases. These consisted of alterations and extensions to the existing buildings to provide a new café, shop, offices, bike hire, 'Go Ape' facilities and associated external works. Also included was the construction of a new wood fuel boiler plant and workshop complete with a site-wide heating system feeding the entire complex. More recently new car parking and the Yan have been introduced.

The cost of re-developing the visitor centre was £5m. Funding came from a combination of Forestry Commission funds, EU Regional

Development, North-West Development Agency, and from concession operators who were asked for an up-front cash payment in return for 1-3 year rent holidays. Redevelopment was carried out as a rolling programme to ensure concessions stayed in business and the visitor centre remained open.

The redesign of the complex has inbuilt flexibility to enable future as yet unconsidered uses to be accommodated.

Operational Profile

The Visitor Centre is operated by the Forestry Commission and its concession holders.

Pricing/tariff structure:

- There is no entry free to the visitor centre.
- Parking is charged at £1.80 for the 1st hour, 45p for each subsequent 20mins, up to a maximum cap of £7. Payment is made on exit. The machines take coins (no change given), credit cards or you have 48hrs to pay online.
- An annual pass can be purchased for £45

Accounts are not available due to business confidentiality. Income comes from parking (50%) and from concessions (retail, café, bike shop and GoApe) (50%). However, the following indicative costs have been provided:

Income/Expenditure

Income (%/category)	Expenditure (%/category)
Parking (50%)	
Concessions (retail, café, bike shop and GoApe) 50%	
	No insurance costs as Crown land

Average Spend/Visitor

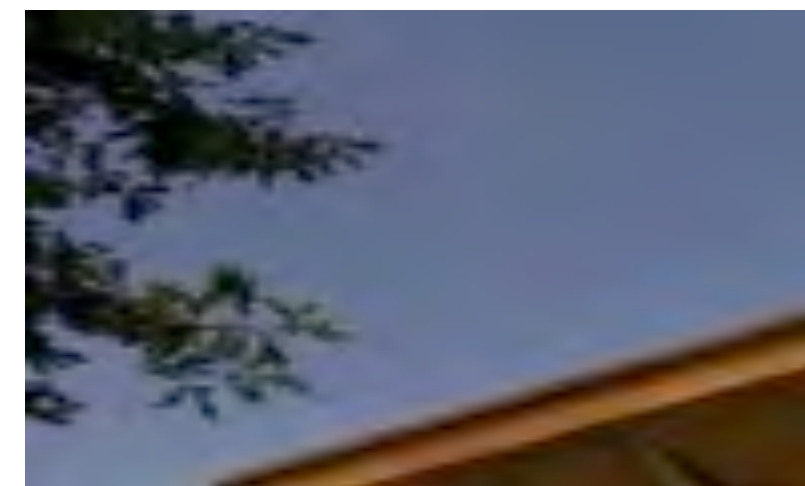
Year	£
2014	10.50-11.00
2013	10.50-11.00
2012	10.50-11.00

This relatively high on-site spending per visitor is said to be due to the range of spending opportunities available. This is supported by the view that any other local sites would struggle to get above £8/day. Holiday makers spend more and day-visitors/locals spend less.

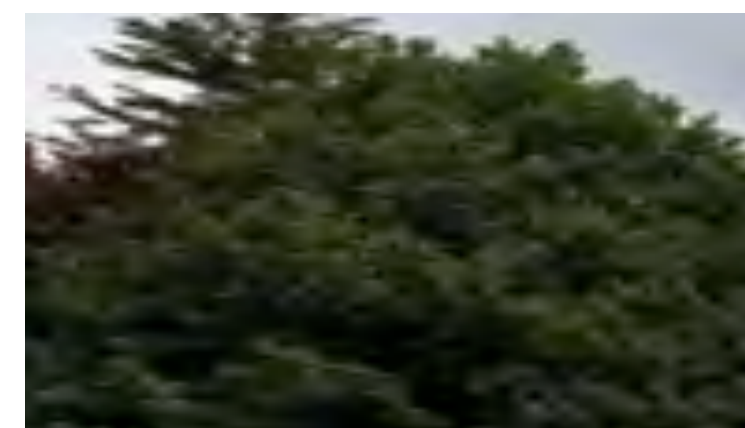
The average spend on car parking is £3.60 per vehicle.

A report on economic impact commissioned prior to the redevelopment, indicated that the visitor centre was responsible for £10m of revenue to the wider South Lakeland area.

Plans and Images



The Yan

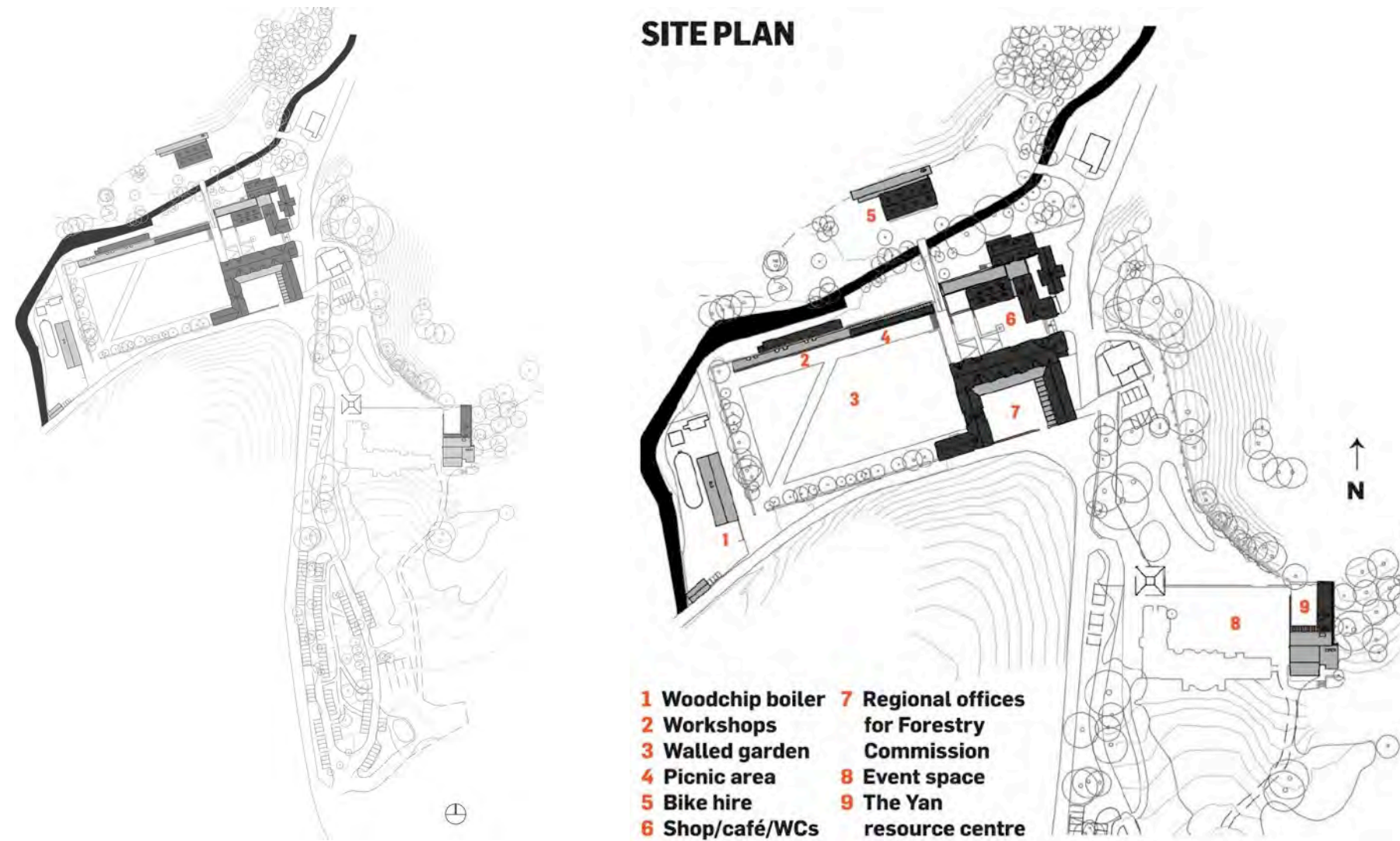


The Yan



Café and shop





The Masterplan by Sutherland Hussey Architects



Conclusions and Lessons

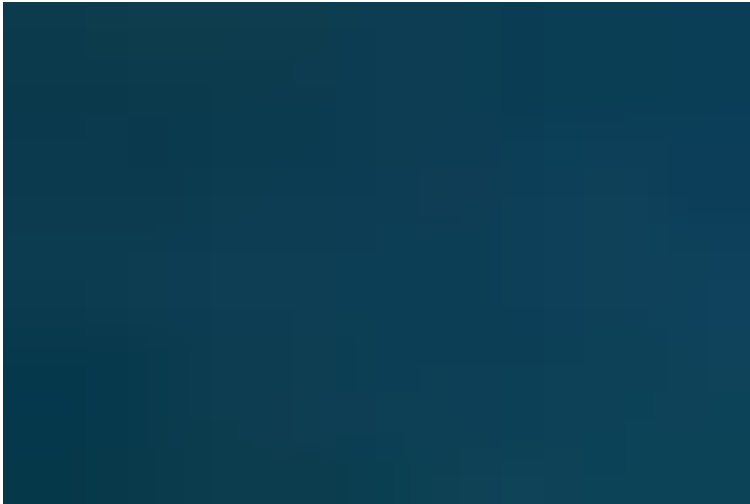
From the above information and the interview, the main issues of relevance to the proposed Dublin Mountains flagship attraction are:

- This example demonstrates the wide range of activities and facilities that can be accommodated from a visitor centre in a Forest Park (of considerable scale)
- It also shows the importance of having services and concessions that generate income (including, in this case, car parking, café, shop, bike hire, education sessions, adventure, space hire)

- To serve 220,000 annual visits, the centre has 200sqm dedicated to the shop and 200sqm to the café.
- Difficulties presented by a narrow and awkward access road are negated to some extent by a seasonal shuttle bus service to the Visitor Centre from nearby settlements or as part of a cross-lakes itinerary
- Staffing is a key issue in comparison to other businesses which operate Monday to Friday. A visitor centre often operates 7 days a week and 364 days a year.
- Signage is no substitute for good design. For example the location of toilets should be considered in the context of the market. If most visitors are travelling from further away (e.g. 90mins+) these to be one of the first things visitors come to. If the majority of visitors are travelling from relatively close distances this is less of an issue.
- Don't flood visitors with information. Get them through the door first. If the visitor centre is charging a fee to enter, then the best place for information is next to the toilets as this is where many people congregate when they first arrive.
- Some concessions can be important e.g. GoApe is responsible for around 41,000 of their total visitor numbers (18.6%).
- Families are the bigger spenders. Mountain-bikers are not big spenders and will go out of their way to not spend money. Biking at Grizedale is popular but maintenance costs are high as is insurance. There is a safety requirement to inspect and repair the trails, more so than walking trails. However mountain-bikers are less weather dependent than other visitors and will visit throughout the year – and help to keep the centre 'ticking over'.
- Attracting capital funding is important but ensuring adequate ongoing maintenance and operating funding even more so, if the centre is to be sustainable.

5. The Giant’s Causeway Visitor Centre

Based on desk research, including draft Giant’s Causeway and Causeway Coast & Glens Management Plan 2013-15; www.causewaycoastalroute.com; discovernorthernireland.com; and others



Location

Near Bushmills, on the north coast of Northern Ireland, about a 1 hour 25 min drive from Belfast.

Function

To welcome visitors to this World Heritage Site (WHS), to provide information about what they are about to see and to provide other essential visitor services (including parking, catering and retail). The new visitor centre opened in June 2012 at a cost of £18.5m. It was designed to integrate with the surrounding landscape and its size was limited to 1815sqm, within the footprint of the previous visitor centre. After an international design competition, the chosen architects were Heneghan Peng.

Visit Numbers and Characteristics

788,000 in 2014
A Giant’s Causeway Visitor Experience Survey carried out in 2013 found a range of very helpful information, including:

- Origin of Visitors:

Origin of Visitors	%
Northern Ireland	26
North America	24
Great Britain	19
Republic of Ireland	12
Rest of Europe	12
Rest of the World	6

- 32% arrived by coach
- The average time spent on site was 1 hr and 50 mins
- The places visited on-site:

Places Visited	%
The Stones	95
The Coastal Path	48
Shop in visitor centre	37
Café in visitor centre	28
Toilets in visitor centre	28
Exhibition/Interpretation	27
TIC in visitor centre	6
Toilets outside visitor centre	3

Access

The site is on The Causeway Coastal Route (for drivers), the 33 mile Causeway Coastal Way (for walkers) and the National Cycling Network. It is served by regular bus services, including a seasonal open-topped one.

It is also accessible from a Park & Ride facility in Bushmills Village (2 miles away), with a free coach service running every 20 minutes from March to October. The Giant’s Causeway & Bushmills Railway also provides a scenic 2 mile trip between Bushmills and a small station within walking distance of the visitor centre.

Parking

There are:
276 car spaces on the site adjacent to the building, 15 disabled spaces;

65 car spaces at Innisfree (20-30 min walk away);

92 car spaces, 4 disabled and 8 coach spaces, at the free Park & Ride in Bushmills

70 car spaces at the station of the Bushmills and Giant’s Causeway Railway

Facilities and Amenities

With the help of the Management Plan and other sources, these can be summarized as:

- An illuminating exhibition showcasing the stories and the science behind the Giant’s Causeway WHS;
- Various interactive media which display the story of the site, its management and conservation work underway at the Giant’s Causeway WHS;
- Multi-media handsets which offer audio guides (1 hour content) to the WHS for all visitors to the centre and provide high quality interpretation in nine languages, as well as services for people with hearing and sight difficulties;
- The option of a guided walk by experienced National Trust tour guides (lasting at least 45 minutes, at least hourly intervals but more frequent during peak times)
- A Tourist Information Centre and Bureau de Change;
- A shop selling new and exclusive local gifts and souvenirs
- A grab-and-go style café and ancillary facilities;
- A wheelchair accessible shuttle bus to the Causeway Stones, £1 each way, children 50p
- Toilets and baby changing
- Four colour coded walking trails, with on-site interpretation
- 3 car parks and park & ride facility from Bushmills;

Size and Space Breakdown

Gross internal floorspace 1,815sqm

Based on the Ground Floor Plan, the following areas have been estimated:

Entrance, Admissions and TIC 150sqm
Café 270sqm
Shop 360sqm
Exhibition 560sqm

Ownership and Management

As described by the Management Plan, there are five bodies with legal rights to the Giant’s Causeway & Causeway Coast WHS:

- The Crown Estate;
- National Trust;
- Moyle District Council; and
- Two private landowners.

The Crown Estate

The Crown Estate is the owner of all land between the high and low water mark, including the inter-tidal area of Causeway Stones.

National Trust

The Trust currently owns, leases and manages approximately 95% of the terrestrial site, including almost all of the cliffs and foreshore, the Causeway Hotel and the Visitor Centre. It is responsible for public access and visitor management at the Site and along the coastal path.

Moyle District Council

Moyle District Council retains a legal interest in certain lands which, since 2005, have been leased to and managed by the National Trust.

Private landowners

There are two private landowners who retain an interest in a relatively small part of the Site.

In addition to the Site owners, there are several other organisations and agencies with management responsibilities for, or interests in, the Site, including:

- Department of the Environment (DOE) represented by the Northern Ireland Environment Agency (NIEA)
- Department of Enterprise, Trade and Investment (DETI), represented by the Northern Ireland Tourist Board (NITB)
- Causeway Coast and Glens Heritage Trust (CCGHT), the independent body with lead responsibility for managing the Causeway Coast AONB

Operating Profile

Opening times:

January 9.00 - 17.00

February – March 9.00 – 18.00

April – September 9.00 – 19.00

October 9.00 – 18.00

November – December 9.00 – 17.00

Last visit 1 hour before closing

Admission Prices:

Admission to the Stones is free and accessible via a public right of way that by-passes the visitor centre.

Otherwise, the prices for parking and admission to the centre are (2015):

Adults £9.00

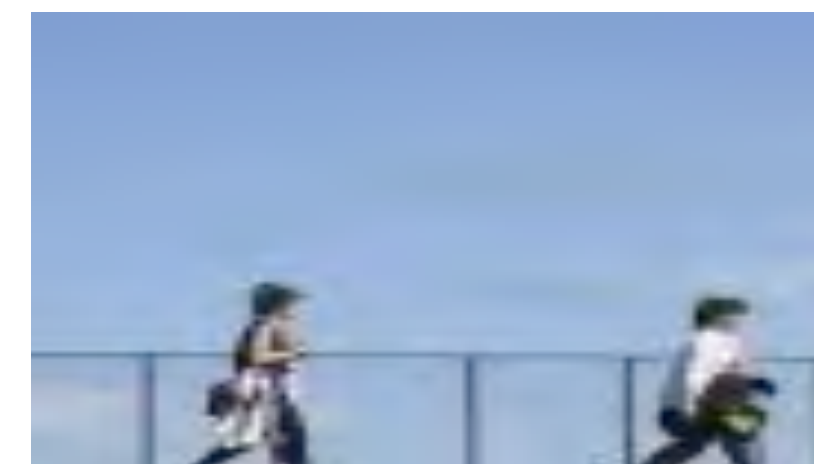
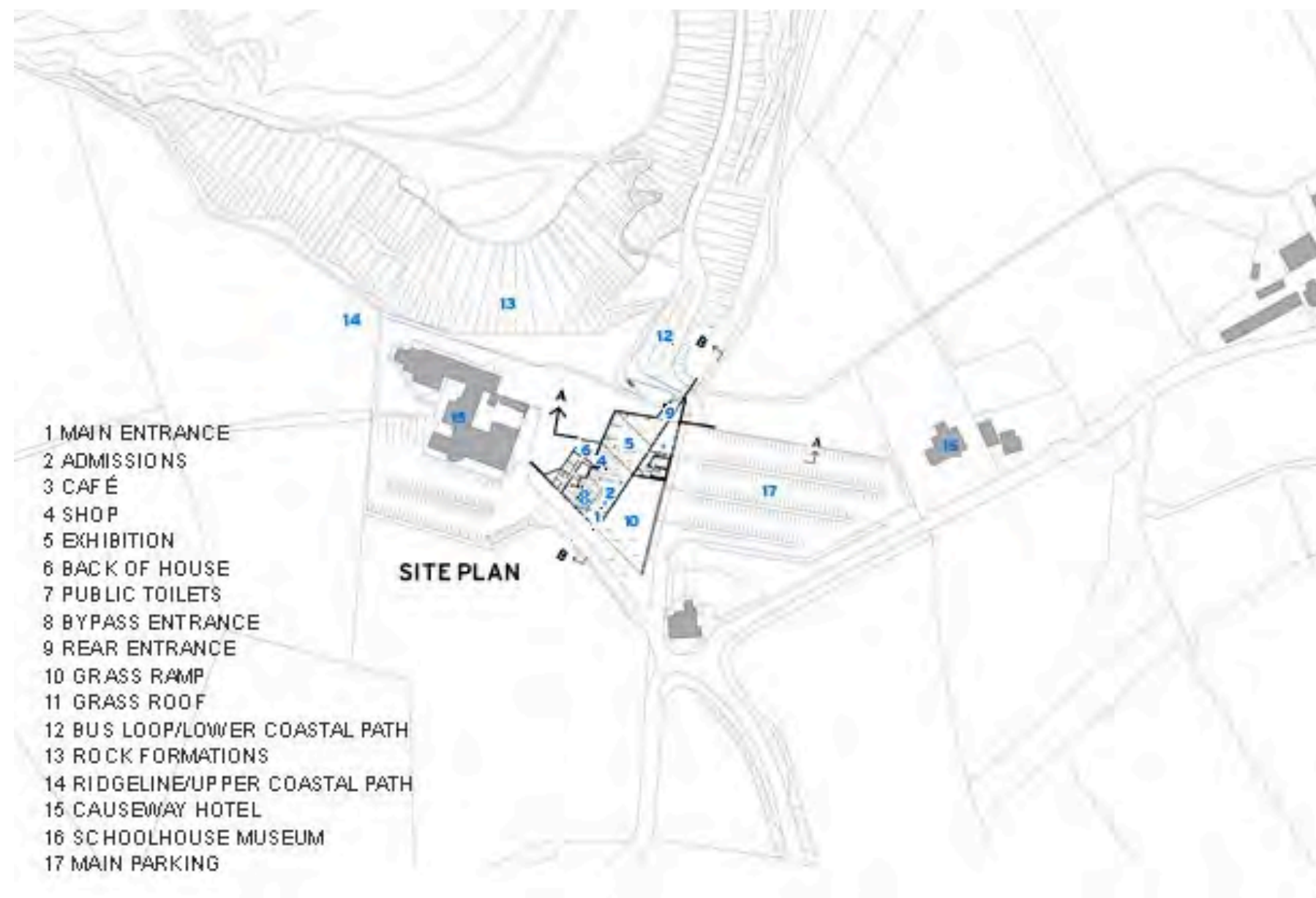
Child £4.50

Families (2+3) £22 (under 5s free)

There is no readily available information on income and operating costs for the visitor centre.

Plans and Images

The visitor centre with Causeway Hotel behind



On the roof with Causeway School behind



The entrance/reception area



The cafe



The shop



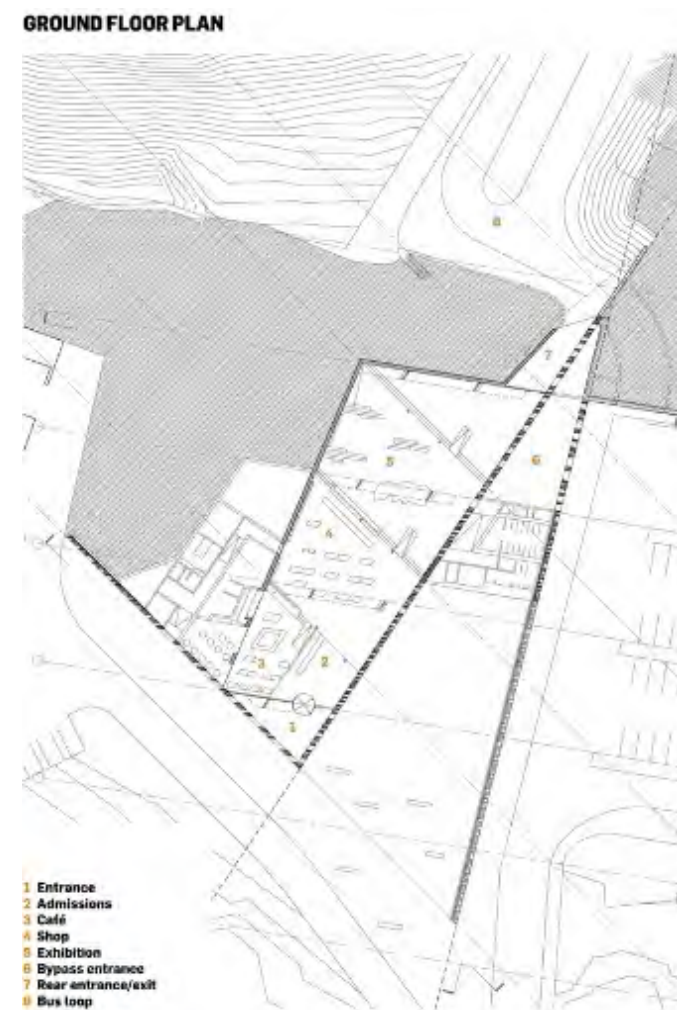
Part of the interpretive display



The shuttle to/from the Stones



The historic railway



Conclusions and Lessons

The main relevant information arising from this case study are:

- 1) This is a modern building with state-of-the-art presentation and facilities
- 2) Visiting the Stones themselves forms the focus of the attraction, for 95% of the visitors, and many people walk to them without paying to enter the visitor centre
- 3) The facilities most used in the visitor centre are the shop (by 37% of visitors), the café (28%) and the interactive exhibition (27%)
- 4) This centre is well served by a good range of modes of access, some which help to reduce parking and traffic volumes in the vicinity of the centre
- 5) This is supported by the location of car parks and park-and-ride
- 6) Broad estimates of floorspace suggest that the shop has 360sqm and the café 270sqm
- 7) The importance of a welcoming entrance with good assembly/reception space is demonstrated
- 8) The multi-agency approach required to manage such a significant natural heritage site is evident
- 9) For an attraction as popular as this, the visitor centre is open for 10 hours from April to September

6. Stonehenge Visitor Centre

Based on desk research, especially the London Toolkit, e-architect, English Heritage and other websites.



Location

About 3km west of Amesbury, Wiltshire, England and 13km north of Salisbury.

Function

The centre provides services for and organises visitors to the prehistoric monument, a World Heritage site. The £27m new centre opened on 18 December 2013. Further information is provided below.

Visit Numbers and Characteristics

It welcomed 1,346,177 visits in 2014, its first full year.

Information available on visitor characteristics prior to the new centre shows:

- 70% visitors from overseas and 30% from domestic UK market
- Holland, Germany, Italy and Spain were the main markets
- 35 – 40% travel to the site as part of a group (but more recent information suggests over 60% now travel as part of a group).

Access

The new controlled access arrangements are described below.

Parking

Car spaces 360 permanent + 140 overflow = 500 total. Coach spaces 30. But English Heritage have plans to increase this provision, including 25 more coach spaces.



Site plan showing the new visitor centre and location of the Stones

Facilities and Amenities

The best way to summarise the new facilities at Stonehenge and the visitor experience is with the following augmented and edited extracts from www.londontoolkit.com – “Stonehenge: What to expect on a visit”.

In 2014 a new Stonehenge visitor centre opened about 2.5km (1.5 miles) from Stonehenge itself and this is where you start your visit. The monument itself is out of sight, over the skyline.

So nowadays, a visit to Stonehenge is in two parts:

- (1) The visitor arrives at the car and coach park then goes to the visitor centre which hosts the exhibition, cafe, gift shop, toilets etc all in one modern building.
- (2) A bus shuttle bus service connects the visitor centre with Stonehenge itself, or you can walk if you wish.

There is one entry ticket to Stonehenge that covers the visitor centre,

shuttle trip and the viewing area at the monument itself and the surrounding landscape.

If you come by car you will park in the car park outside the visitor centre. It is free for people purchasing tickets to Stonehenge. There is a charge if you have not.
If you come by tour bus, your coach will go to the coach park about 200 yards from the visitor centre.

Groups on tour buses are treated separately from independent visitors arriving by car. Those on tour buses will be taken directly onto the shuttle bus/land train and go immediately to the Stonehenge monument and return to the visitor centre thereafter.

Those arriving independently (by car, bike or foot) go through the main entrance of the visitor centre where the ticket kiosk is located. You can choose to visit the exhibition area first and then go to Stonehenge or go direct to Stonehenge.

You Must Book Tickets In Advance. Paying On The Day Is Not An Option!

To be assured of entering Stonehenge you must reserve tickets in advance on the Stonehenge web site. If you have a Heritage Pass or are a National Trust or English Heritage member and are entitled to free entry you still need to obtain (free) tickets in advance.

You cannot reserve tickets on-line on the day of your visit. You must reserve before midnight at the latest on the day before. Only a very small number of tickets are held back each day for walk-up visitors.

The last bookable 30 minute time slot is 2.5 hours before closing time of Stonehenge. Closing times are variable according to month of the year.

The system of timed ticketing is similar to the one used for Madame Tussaud's and the London Eye.

Facilities at Stonehenge Visitor Centre

The new visitor centre contains nearly 300 archaeological treasures, which were used or buried at Stonehenge, and are now displayed on site for the first time in an exhibition space, within the visitor centre.

The high quality displays within the exhibition area are described as follows in the Telegraph (in 2014):

“The exhibition is a triumph: laser scanned stones star in a life-size 360-degree whizz through prehistory as the site changes from a henge – a ditch and bank of earth – in around 3,000 BC to a monument of growing importance, featuring first ‘bluestones’ from Wales and later mighty sarsens from the Marlborough Downs. It probably started as a cremation site and ended as a solar temple. Around 1,600 BC work stopped, leaving the stone circle roughly as it is today.

On the huge wall of the main area the landscape digitally transforms over millennia, setting Stonehenge into its physical context. Five cabinets, square glass columns, display artefacts and parts of three burials from in and around the site: antler picks for digging, stones for shaping, bone pins, archers’ wrist guards, a flint arrow tip embedded in human bone and a necklace of Dorset shale and incised gold beads, its centrepiece a miniature axe of polished jet. Witty "tool kits" for each era show stone and flint giving way to metal. You can touch modern replicas and see videos of their manufacture. A pre-Stonehenge man stands by his own skeleton. He looks like Jeff Bridges, with a perfect set of Hollywood teeth: these tell us he came from Wales or the South West. He had a thigh injury that would have given him a limp. There is also a post-Stonehenge ‘Beaker’ burial, named after the pots found in barrows.”

Back to the London Toolkit:

The visitor centre gives a good grounding into understanding how it is thought Stonehenge was built and why, along with insights into the people who used Stonehenge. There are also outdoor exhibits like typical Neolithic houses and demonstrations of how the stones were transported.

The gift shop offers an extensive range of books, gifts and souvenirs, many made in the UK exclusively for Stonehenge.

A 110-seater, counter service, café serves hot and cold drinks, soup, sandwiches, cakes, salads and other sweet and savoury delicacies. Full meals are not available.

There are also toilets and baby changing facilities and an education centre for groups.

To enter the exhibition area, you need a full ticket to Stonehenge, but anyone can access the cafe, gift shop and toilets.

Shuttle Transport to Stonehenge Itself

When you book a ticket for Stonehenge you select a 30 minute slot time slot for your arrival. This is the time that you report to the ticket desk at the entrance to Stonehenge.

At any time you can board the shuttles from a boarding point outside the exhibition space. The time slot you chose for entry has no impact on the time you can board the bus shuttles. These are totally flexible.

A kiosk dispenses audio guides in a number of languages prior to boarding. You can choose whether you want to visit the exhibition centre first (recommended) or board the shuttle straight to Stonehenge itself.

If you arrive by tour bus you will collect your audio guide device as soon as you get off the coach at the coach park and the shuttle will take you straight to Stonehenge. The trip takes 10 minutes to the

Stones, including an optional stop. You then return to the visitor centre which you visit after viewing Stonehenge.

The shuttles are 5 retro-styled VTS land trains, pulled by a Land Rover. They carry up to 60 passengers per train and have the capacity to provide a service every 4 minutes (but at times of severe pressure they are supported by small mini-coaches).



The Stonehenge monument area itself has no shelter (even at the shuttle terminus), no toilets and no refreshments. The site is very exposed and it is better to bring that extra layer. Even if there is no cloud in the sky, think of what you will need if an unexpected shower of rain comes along, with no shelter from the elements available.

Is There A Best Time To Visit Stonehenge?

Stonehenge is busy throughout the year. If you can, avoid visiting between about 10:15 and 12:00 when many of the tour coaches from London arrive. There is another spike of coach arrivals in early/mid afternoon. For independent visitors, the best time is first thing after opening and late afternoon in the summer months when the coach parties are gone.

Stonehenge is very exposed, its not a fun place to go in inclement weather. Outside the summer months, a stiff northerly wind will deter even the hardest and enthusiastic.

Expect a typical visit to last approximately 90 minutes to 2 hours. You could stay much longer as there are many Neolithic monuments of genuine interest with walking trails between them all over the Stonehenge landscape. If you have a special interest you could spend all day here.

You can walk along the road that the shuttles take to Stonehenge (which they have sole use off) and there are walking trails all over the landscape. If you want to walk around the monuments in the landscape surrounding Stonehenge, the best point to start is actually Stonehenge itself.

Audio Guide

Audio guides are included in the entry fee and available in ten languages, (English, French, Italian, Spanish, German, Japanese, Mandarin, Russian, Dutch and Swedish).

If you are visiting independently collect your audio guides before boarding the shuttle. If you arrive on a tour coach you will collect them on disembarking the coach at the coach park.

How Close To The Stones Will I Get?

During normal opening hours you cannot walk up to the stones themselves. The nearest you will get is about 10 yards, behind a low barrier.

However, it is possible to walk up to and among the stones at Stonehenge outside public opening hours. These are called Special Access Visits. During these sessions of one hour duration, only 26 people at a time are allowed to go beyond the barriers and walk amongst the stones.

The fact that these Stonehenge Special Access visits are outside public opening hours mean that they are at dawn or evening. Given that Stonehenge is a 2 hours drive from London, this obviously provides logistical issues in getting there.

Nevertheless, these Special Access Visits are also immensely popular, demand far outstrips supply and they are often sold out months in advance.

Size and Space Breakdown

The visitor centre consists of two single-storey separate blocks, under one roof with an open entrance/exit foyer in between. The individual spaces are:

Internal Components	Sqm
Ticket Office	23.6
Membership Office	17.5
Toilets	164.0
Plant Rooms	52.8
Interpretation Space (internal)	492.0
Object Chamber (adjacent to above)	100.0
Retail	275.0
Café seating, servery, kitchen (110 seats)	301.5
Education Room	120.0
Refuse Store	34.3
	1580.7

In addition, there is internal floorspace for back-of-house entrance and corridor; external café seating; and the open entrance area of about 300sqm

So total area of the building approx 1,900 – 2,000sqm
Over and above the visitor centre, there are the outside attractions like the stones themselves, outdoor interpretation, Neolithic houses, walks and other monuments.

Ownership and Management

English Heritage is responsible for overseeing the management and conservation of Stonehenge on behalf of the UK government.

Operating Profile

Opening times – every day 9.30 – 17.00, apart from closed on 24 and 25 December, and 10.00 -16.00 on Boxing Day and New Year’s Day.

Admission Charges (advanced booking prices):

Adult £14.50
Child 5-15 £8.70
Concession £13.00
Family (2+3) £37.70
There is no readily available information on the annual operating or financial performance of Stonehenge.

Plans and Images



Conclusions and Lessons

- Stonehenge is a World Heritage Site of considerable significance as a visitor attraction and only in the recent decade or so has there been a concerted effort to adopt a more sympathetic approach to its protection, conservation and presentation.
- The measures taken demonstrate the importance of:
 - Providing visitor facilities off-site, away from the more sensitive parts of the attraction
 - Adopting time-ticketing to control the flow of visitor arrivals
 - Using shuttle services to move visitors to and from the main attraction
- While the main features are outdoors, this case study demonstrates the importance of high quality interpretation and display that set the scene for the visit and provide information that cannot be conveyed at the site
- The detailed space allocations at the Visitor Centre provide good indications for a site that attracts 1.3m visits. However, these have to take account of the context that this centre attracts 60% of its visitors as part of a group and it is open from 9.30 to 17.00 and is not an evening attraction.

7. Brockhole – The Lake District Visitor Centre, Windermere, Cumbria, England

Based on desk research, including the Brockhole Master Plan Document, September 2013

Location

Brockhole is the Visitor Centre for the Lake District National Park, operated by the Lake District National Park Authority (LDNPA). It is located on the eastern shore of Lake Windermere, just off the A591 between Windermere Village and Ambleside. It is north-west of Kendal and around 2 hours north of Manchester.

Function

Since 1965, it has been the main visitor centre for the Lake District. It was the UK's first national park visitor centre, proving a taster of the whole area. LDNPA is a body that is supported by public sector funding but the aim of the 2013 Masterplan was to make Brockhole financially sustainable by the end of 2014.

Visit Numbers and Characteristics

Approx 230,000 in 2014. Characteristics are probably very similar to those for Grizedale.

Access

The entrance is directly off the A591, which provides direct access to the car park. The sense of arrival and access is criticised by the Masterplan which proposes an alternative and more attention grabbing arrangement.

Parking

The Masterplan proposals are much the same as existing provision, but with a more enhanced woodland environment:

- 240 for cars
- 10 for blue badge holders
- 15 roadside parking
- 6 for coaches

Pay on exit parking is charged as follows: up to an hour £1.00; then 40p for every additional 15 mins, up to a maximum of £8 for the day.

Facilities and Amenities

Brockhole basically consists of 30 acres of informal gardens and woodland around a historic house. The Masterplan describes it as follows:

“Whilst the main house is modest but tidy, it is Brockhole’s landscape setting that has drawn visitors to the site over the years...”

The official Brockhole website promotes the following main attractions for visitors:



- **Adventure playground** – free adventure playground for 5-14 year olds includes rope walks, slides, swings, scramble nets and zip wires. Under 7's area with swings and wacky noise tunnel.
- **All weather play** – for outside areas, they suggest '*hide & seek and cartwheels in the gardens, puddle jumping, splashing around*' and an undercover traversing wall. Indoor ideas include free indoor 'soft play and learn' for under 5's; creativity space for little ones with fun puzzles and colouring-in; and exhibitions.
- **Bike Hire** – up to 2hrs £15 Adult/£8 child, Up to 4 hrs £20/£12, Full day £25/£18. Can book 4hr hire online using secure booking facility, telephone or via lakeshore activity kiosk. Bike hire charges include helmets, locks and puncture repair kits - plus a ticket for the Brockhole to Bark Barn Bike Boat whilst it is running. From Bark Barn you can discover woodlands, bridleways and even a castle - a wonderful family day out! You don't need to pay a deposit, but you leave a valid ID in the form of a credit or debit card or photo ID. Also on offer are tag-alongs and trailers for kids.
- **Boat Hire** – rowing boats, canoes, kayaks and paddle boats
- **Café** – seating for 100 people and outdoor terrace overlooking Lake Windemere. Use local produce and local suppliers where possible. Catering available for groups who want to book facilities for training events, conferences or meetings. Tea on the terrace remains one of Brockhole's key attractions
- **Exhibitions** – free entrance to exhibitions on the ground floor of the main house including History of the Lakes (about how they were formed), photographs, art, and a temporary exhibition on Windermere Jetty.
- **Gardens and Grounds** - 30 acre of Thomas Mawson designed Arts and Crafts garden including borders, wildflower meadow, kitchen garden.

- **Mini Golf** – A 9 hole mini golf course designed by Cumbrian school children, Fees: Adult £3.50, child £2, family ticket £10 (two adults, up to three children)
- **Open water swimming with Active Blu** – concession offering open water swimming for a fee.
- **Pony rides** – concession offering pony rides for £12 for a 15 minutes circuit. During the summer holidays pony rides starting daily at 11am from Monday 13 July through to Sunday 6 September and then every weekend from Saturday 12 September to Sunday 18 October.
- **Information desk** - Friendly advisers can help make the most out of a visit to the Lake District. There is also a selection of leaflets about things to see and do in the area.
- **Shop** – in former lodge now refurbished for sale of locally-produced Lake District foods such as handmade chocolates, jams, pickles and of course Kendal Mintcake; Local ales - including Keswick Brewery's Park Your Thirst, brewed to celebrate 60 years of volunteering in the Lake District National Park.; A range of locally made whiskey, gin and flavoured alcoholic beverages; A fabulous range of Herdy products - including money boxes, mugs, tea towels and cushions; Handmade candles by the company Melt; Unusual gifts made from horn by Abbeyhorn and wood by Olive; Beautifully designed jewellery; Perfumes and skin care products inspired by the Lake District; Fun toys, pocket money treats, cuddly toys and beanie boos; Books, maps and guides;
- **Trails and orienteering**; children's trails include the Beatrix Potter trail (£1 fee for activity sheet to collect brass rubbings from each board); Discovery Trail (50p for leaflet); Orienteering courses - two fixed orienteering courses - one with 22 controls and one with 12 controls. It's all about having fun with maps and navigation! A control is the marker you are looking for. You have to navigate your way round, choosing the best route between controls. There is a letter at each control to collect and when you have them all it makes a word. £2 for a map. Jenkin Crag walk (3 miles), Wansfell walk (6 miles), Miles without Stiles easy route (0.9miles). PDF maps available.
- **Treetop nets** – 1,500m of giant trampolines, walkways, slides and tunnels made out of netting suspended 9m off the ground. From £11 to £16 per person depending on age. From age 3 up. Price includes unlimited play for 3 hours. Can book online.
- **Treetop trek** - There are 35 exciting treetop challenges including aerial obstacles like rope bridges and wobbly logs. It finishes with an amazing 250 metre triple zip from the 14 metre high Treetop tower to the shoreline. Mini Trek (Green Trek plus triple zip) for 5 year olds and up - takes approximately 1 hour. Full Trek (Green Trek plus Blue Trek plus triple zip) for 7 year olds and up - takes approximately 2 hours. You are always in view of qualified instructors. There is a continuous belay system so that once fastened into a harness by an instructor

you remain secured to a rope at all times. Prices start from £18 for children and £20 for adults. Prices for groups and schools.

- **Rooms for community use or classes** – in part of the former lodge building
- **Events** – classical concerts and afternoon tea, festive weekends with family entertainment. Spaces are also available for rent for weddings, conferences, meetings. Group bookings, etc.

Size and Space Breakdown

Existing space at September 2013:

Café, including Orangery 4085sqft (380sqm)
Visitor Centre 2115sqft (197sqm)
Shop 1620sqft (150sqm)
Toilet 470sqft (45sqm)

The 2013 Masterplan proposes re-using the main house as a hostel within 3 years and constructing a new main visitor attraction within 15 years.

Ownership and Management

Brockhole was developed as a visitor centre in 1969 by the Lake District National Park Authority who are still its owners and operators, along with tenants responsible for specific elements.

Operating Profile

Open daily from 10am, all year round apart from Christmas Day. You pay to park, but entrance is free. Opening Times:

- Visitor centre / shop: 10am - 5pm
- Café: 10am - 4.45pm
- Gardens / adventure playground: 10am - 5pm

Plans and Images

Plans illustrating the existing and proposed facilities at Brockhole can be viewed on the website www.lakedistrict.govp.uk/caringfor/policies/brockholedev which has a link to a dropbox file containing the 2013 Masterplan.



The White ouse – main visitor centre building



Information and shop



Conclusions and Lessons

The following are the main issues arising from this case study:

- Brockhole is an example of a visitor attraction in transition, as part of a 10-15 year Masterplan
- A key objective is for Brockhole to function as an Orientation Centre, where people will be encouraged to explore and enjoy the whole of the Lake District
- At the same time, the aim is that it functions as a popular and revenue-generating attraction in its own right

- Its future is committed to a sustainable approach:
 - Showcasing local materials, food and products
 - Demonstrating sustainable energy, water and operation
 - Encouraging sustainable transport choices by visitors
- However, it is also adopting a strong revenue generating policy that includes parking, retail, catering, play, activities, events, meetings and functions.
- The Masterplan provides an example of an approach involving the development of a space that will operate as an entirely new visitor centre/hub and the considerations underlying its siting and content
- Brockhole demonstrates how a wide range of activities and facilities on a relatively small site can be combined with its inherent attractiveness and outlook.

8. Fota House, Arboretum and Gardens

Based on desk research, including fotahouse.com; ireland-guide.com; discoveringcork.ie; ringofcork.ie; *Irish Times*; fotalearningzone.ie and others.



Location

Fota House is 10 km east of the City of Cork, near Carrigtwohill in an area known as Fota Island, Co. Cork, Ireland. It is easily accessible from the E30 eastbound Cork to Rosslare national primary route. It is a drive of 2 hours 50 mins drive from Dublin.

It is adjacent to, and shares an entrance road with, Fota Wildlife Park which is Ireland's 8th most visited admission-charging attraction, with 438,000 visits in 2014 (based on data made available to Fáilte Ireland).

Function

Fota House was originally built as a small two-storey hunting lodge in the 18th century, then redesigned in the 1820's by John 'The Magnificent' Smith-Barry "as a splendid setting for his sumptuous entertainments". He added two new wings and the house has over 70 rooms.

In the mid 19th century, John's son James Hugh had the formal gardens laid out, started the arboretum, and had the orangery built. The aim was to make the arboretum the finest in Ireland. Two subsequent generations continued to add to the collection of over 1,000 different species of trees and shrubs.

Over the years and changes in ownership, the house fell into disrepair, particularly in second half of the 20th century. In 1975, the estate was sold to University College Cork. The condition of the house became a critical concern:

"But not too many years ago, the very fabric of Fota House was in danger. Water was seeping in through the roof and walls, timbers were rotting, the chimney stacks were in danger of collapse and the roof looked as if it would cave in. Some of the inner walls were crumbling and with them, the delicate plaster work that distinguished the interior of the house. It had come to the point where insurers were refusing to cover public liability on the house."

The refurbishment of the house began in 1998 under the Fota Trust (a UCC, Cork City and Cork County partnership). Then in 2002, the first phase of a meticulous restoration project was completed. Overseen by the Office of Public Works (OPW), it included furnishing and introducing artworks to the ground floor and providing interpretative displays for visits by the general public. This floor includes the drawing room, library, main entrance, dining room, gallery, billiard room, flower room, ante room, kitchens and old servants' quarters.

The Heritage Service, Duchas, carried out major restoration work in the Gardens, including the orangery and a sunken garden.

The Irish Heritage Trust (IHT) took over management responsibilities for the house in December 2007. This was the first historic property to come under the stewardship of IHT which was established a year earlier. At the time, as part of the legal agreement, OPW was committed to look after the Gardens for 5 more years, when IHT would then take over.

The second restoration phase involving refurbishment of upper floor areas was completed in 2009.

Thus, under the management of the Irish Heritage Trust, the house and gardens now function as a tourist attraction and venue for events and functions.

Visit Numbers and Characteristics

There were an estimated 45,000 visits in 2014, including 9,000 who paid for a tour. It is thought that around 69% were from overseas.

Access

By Car: From the Dunkettle interchange roundabout at Cork, go east and exit at Junction 3 (signposted Cobh). Take the R624 for approximately 2.5km and Fota House is on the right hand side with a shared entrance to Fota Wildlife Park.

By Train: There is a hourly train service from Cork City to Fota train station. Fota House is a pleasant 15 minute walk from there.

Parking

All day parking costs €3 payable by Euro coins at the exit barriers. There are approximately 170 car parking spaces.

"There is unlimited coach parking facilities and drivers and tour leaders are offered complimentary refreshments, guidebooks and admission to the tours,"

Facilities and Amenities

The main components of the attraction for visitors are:

- **Welcome Desk**

For booking guided tours and purchasing guide books/brochures and self-guided tour maps of the gardens.

- **Guided tours of Fota House by volunteer guides**

"Our guides will show you the grand décor of the principle rooms and take you behind the scenes to the exquisite boudoir and charming Victorian nursery. A special feature is our service wing, where you can experience what life was like for the cooks, butlers, footmen and maids who supported the lavish lifestyle of the gentry."

- **The Arboretum and Gardens**

"Enjoy the tranquil beauty of Fota's gardens and stroll in the historic 'pleasure grounds' that continue to offer delights for visitors today. Experience the heavenly rose garden and explore the arboretum where you will discover a host of rare and majestic trees. A key feature of our recent restoration programme is the Victorian kitchen garden, now one of the finest in the country. Our team of volunteers proudly nurture organic produce using the methods handed down from the gardeners who once worked this stunning walled garden. And for something a little different visit the atmospheric fernery with its exotic tree ferns. "

Some of the oldest trees in the collection are among the earliest recorded introductions to Ireland, as plant hunters brought back seeds and specimens from all over the world.

Educational events in the gardens are available for children, as well as other events where the walled gardens, fernery and orangery can be fully enjoyed.

• **The Café at Fota/shop**

Located in the Billiard Room of Fota House, the café has a reputation for its home baking and delicious meals. In summer, outside tables provide views out into the parkland. Groups are also catered for by arrangement in the historic Long Gallery, with bespoke packages available including morning coffee, lunch, afternoon tea or drinks receptions. The gift shop at Fota opened in 2012.

• **Coach and Group Tour Venue**

A range of options are available for group tours and visits are arranged to match the schedules of tour operators. The tour of the house lasts 45 minutes and includes the grand room and service wing. A separate 45 minute tour of the working Victorian walled kitchen garden is also available. There are also self-guided maps for a tour of other parts of the gardens and arboretum.

• **Events Venue**

“A Distinctive Event Venue: Fota House is a unique gala venue and the ideal place to hold distinctive events and corporate and private functions. In addition the historic house setting is ideal for special celebrations such as small wedding ceremonies, birthdays, anniversaries and Communion and Confirmation lunches.”

“Whether it’s a civil marriage or partnership, a blessing or a distinctive setting for your photographs you can share in the renowned Fota tradition of the wedding.

Over the decades visitors and guests to Fota House have become captivated by its timeless and romantic atmosphere. The house boasts stunning Regency architecture and décor, exquisite gardens, fanfares of blossom and beautifully appointed surroundings.”

• **Events**

Fota House stages a range of events throughout the year, including, for example:

August

Cork Open Heritage Day 22nd
National Heritage Week 22nd – 30th

September

ISNA Plant Fair Sun 13th, 1am-4pm

October

You’d Be Surprised with Voce di Donna Fri 16th, 8pm
Fright at Fota House Wed 28th and Thurs 29th, 6pm-8.30pm

November

Dust Busters Light Orchestra Fri 6th, 8pm

Frameyard Christmas Fair Sat 28th and Sun 29th 11am – 5pm

December

Carols by Candlelight with Carrigaline Choral Group Sun 6th and Tue 8th, 8pm

Behind the scenes Christmas Tour 14th to 17th daily at 12 noon

The Magic of Santa at Fota House Fri 11th-Sun 13th and Fri 18th to Sun 20th

• **Educational Facilities**

Information for educational group visits (planning guide 2010) refers to the range of services available:

- Workshops with trained guides (1.5 hours)
- Activity sessions
- Free time to explore temporary exhibitions
- Visit to Arboretum and Gardens
- Space for 60 groups at a time
- Divided into 2 for museum room tour
- Fota brochure and teacher pack
- Use of education rooms on first floor
- Cost €5 per pupil
- Café in Gallery and Billiard Room
- Several toilets on ground floor

Ownership and Management

Fota House is managed by the Irish Heritage Trust – a registered not-for-profit heritage charity. The Arboretum & Gardens are maintained by the Office Of Public Works (OPW) –

Operational Profile

Opening Times: Fota House is open from April to September from 10am to 5pm (Monday to Saturday) and from 11am to 4pm on Sundays.

House tours commence at 11am each morning and the last tour departs at 3.30pm.

Arboretum and Gardens; all year round

Admission Charge: Garden/arboretum free; House €6 adult; €4 OAPs/Students; €3 children; €15 family; €4 groups 15+

Plans and Images



Conclusions and Lessons

Although this is a restoration of an historic house and landscape project, it does have some pointers that may be of relevance to a proposed new-build flagship attraction in the Dublin Mountains, including:

- 1. It is operated by a not-for-profit charitable organization but it still has strong commitment to generating income from a range of sources
- 2. It relies heavily on volunteers and this helps to keep the costs down
- 3. It offers an excellent blend of indoor and outdoor interesting features and activities
- 4. It has established a reputation for the quality of food served in the café, which also has a popular sitting out area
- 5. Like many attractions of its type, it is geared up to welcome and cater for organized coach tours and educational visits.
- 6. It promotes itself strongly and functions as venue for a wide range of events, including corporates, weddings, lunches and artistic performances.

9. Airfield Estate

Based on edited extracts from airfield.ie; Irish Times; and site visits

Location

Just off the M50 in Dundrum, south Dublin, half way between Tallaght and Dunloaghare.

Function

Airfield is Dublin’s only working farm that is open to the general public. In its 38 acres it provides the opportunity to enjoy and learn about food, farming, gardening and the history of the family that lived there.

“Airfield’s Mission is to inspire people to refresh their connection with food and the land it comes from.”

Following a 3 year period of redevelopment, costing €11m, a greatly enhanced Airfield experience was officially opened in April 2014. New and enhanced features included a farmyard, milking parlour, redesigned gardens, indoor & outdoor play areas and a café,



Visit Numbers and Characteristics

At the time of reopening, visit numbers of 200,000 were projected for 2014.

Access

Located just off the M50 at junction 13 then follow the R825 to Overend Way.

By Car: Just off the M50 at Junction 13, then follow R825 to Overend Way.

By Luas: Luas Green Line. Exit at the Balally stop.

By Bus: 11, 14, 14C, 44, 44B, 75, 116

Parking

Parking is free for all.
Allocated parking for buses

Facilities and Amenities

The main components of the attraction are:

Entrance Kiosk/Information/Airfield Market

Located directly adjacent to the car park

Overend Family Home/Heritage Experience

An interactive exhibition and guided tours of the family home, telling stories of the Overend sisters, their lives, travels and charity work and displaying family photographs, letters, original clothing, toys and books that bring to life the world of this Victorian family.

Guided tours of the family home are available Wednesday to Sunday at 11.30am and 2.30pm. Due to the popularity of guided tours, a new extended tour programme that covers, the house, garage, gardens and farm, has been introduced.

Ornamental Gardens

Including the refurbished Walled Garden and Greenhouse where gardeners are available to answer questions and give explanations.

Other Gardens

Including the Food Garden, Tea Garden and Tot’s Garden

Food Garden

Our Food/Kitchen Garden is where we share our passion and commitment to the production and consumption of local, seasonal home grown food.

The Vintage Cars Garage

Providing an interactive display showing the Overend’s family cars, including Letitia’s 1927 Rolls Royce, Naomi’s Austin Tickford and Lily’s Peugeot Quadrilette.

New Farm Yard and Milking Parlour

Where visitors can experience the animals, the milking parlour and dairy kitchen. The working farm has a milking Jersey herd, sheep, pigs, chickens, 50 laying hens and donkeys.

The farmers, are there all day to explain the workings of the farm, and give demonstrations such as daily milkings (10.30am), egg collecting (10am), mucking out and feeding.

Woodlands

Through the years, over 2,000 native woodland trees were planted to create an attractive oak-ash woodland mixed with hazel, hawthorn, holly, guelder rose, rowan, spindle, wild cherry, blackthorn, dog rose, honeysuckle, birch, crab, bird cherry, whitebeam and wych elm. There are Woodland Walks to enjoy these.

Wild Pond

The wild pond was built in as part of the Airfield's on-going commitment to habitat development. It now provides a home for dragonflies, damselflies, frogs, ducks, water-hens, coots and water scorpions.

Children's Play Areas

The Grey Barn soft play area for 0-4 year old children is themed for children to play farmer, gardener or chef at Airfield.

Naturescape - an interactive play area for 4-12 year olds, located in the woodland walk area. It includes a zip wire, balance beams, climbing structure and willow tunnel.

Overends Restaurant

A high quality eating environment with views out into the reflecting pool, animals grazing and fruit and vegetables growing in our Kitchen Field. It can be accessed without paying admission. Opening Hours Mon – Sun 9am – 5pm.



Old Stables Cafe

Located at the back of the main house, inside the admission area. It serves take away tea, coffee, soft drinks, smoothies, sandwiches, salads and a selection of baked goods. There is an indoor and outdoor seating area.

Shop

The Garden House at Airfield Estate is a sister store to the shop in Malahide. It sells plants, gardening equipment, gifts, lifestyle products and outdoor furniture. It is accessible without paying admission.

Education Programme – Active Learning

“Our child-centred education programmes provide a wonderful opportunity for active learning in a unique and relaxed environment that celebrates food, farming and natural world.”

This includes Primary School Tours in May and June from 10am-2pm with a cost of €12 per child. There is also a series of workshops for teachers to help them with their school gardens.

The recently build education centre accommodates the workshops, lectures and demonstrations.



Private Events

Airfield is also available as a venue for weddings, christenings, birthdays, corporate events, training days, workshops and meetings, in a unique and quality environment.

Ownership and Management

Airfield has been in the ownership of members of the Overend family since 1894. It is now a not-for-profit charitable organisation, established by the two sisters in 1974, for educational and recreational purposes. At that time, it was bequeathed to the people of Ireland and it now runs as a self-funded operation.

Operating Profile

Visitor Centre Opening Hours:

September - May: Monday - Sunday: 9.30am to 5.00pm
June: Monday - Friday: 9.30am to 5.00pm
Saturday & Sunday: 9.30am to 7.00pm.
July & August: Monday - Sunday: 9.30am to 7.00pm
Last admission one hour before closing

Overends Restaurant Opening Hours:

Monday - Sunday: 9.00am to 5.00pm

Admission Charges:

Adults: €10
Child: €5 (4-17)
Senior: €8
Student:s €8
Family: (eg. 2+2) €28
Groups: concessions for 10 or more
Annual memberships – for unlimited access, with discounts on paid events and workshops and food purchased in Overends Restaurant

Plans and Images



While this is an urban farm with strong heritage themes, it provides some helpful guidelines for the development and operation of a new visitor attraction, namely:

- 1) It is excellent example of the quality and range of experiences, activities and services required to establish an attraction capable of attracting 200,000 visits or more annually.
- 2) It provides an appealing blend of outdoor and indoor facilities and points of interest.
- 3) It appeals to younger age groups with its opportunities for fun, play and learning
- 4) In addition, it appeals to older age groups through its high quality food & beverage offer and its presentations for people with a general interest in plants and garden enthusiasts
- 5) As a result of extensive renovation work it presents an attractive and enjoyable environment to visitors, outdoors and indoors
- 6) It shows the advantage of having a pay perimeter covering all components of the attraction but, at the same time, allowing free access to the restaurant and shop
- 7) It has a strong offer of education groups
- 8) It also offers quality facilities for small corporate events and functions
- 9) It operates on a self-funded basis, due largely to the range of income generating components on-site.

10. Handbook on Tourism Product Development Extract



Handbook on Tourism Product Development



Prepared by
Tourism Development International

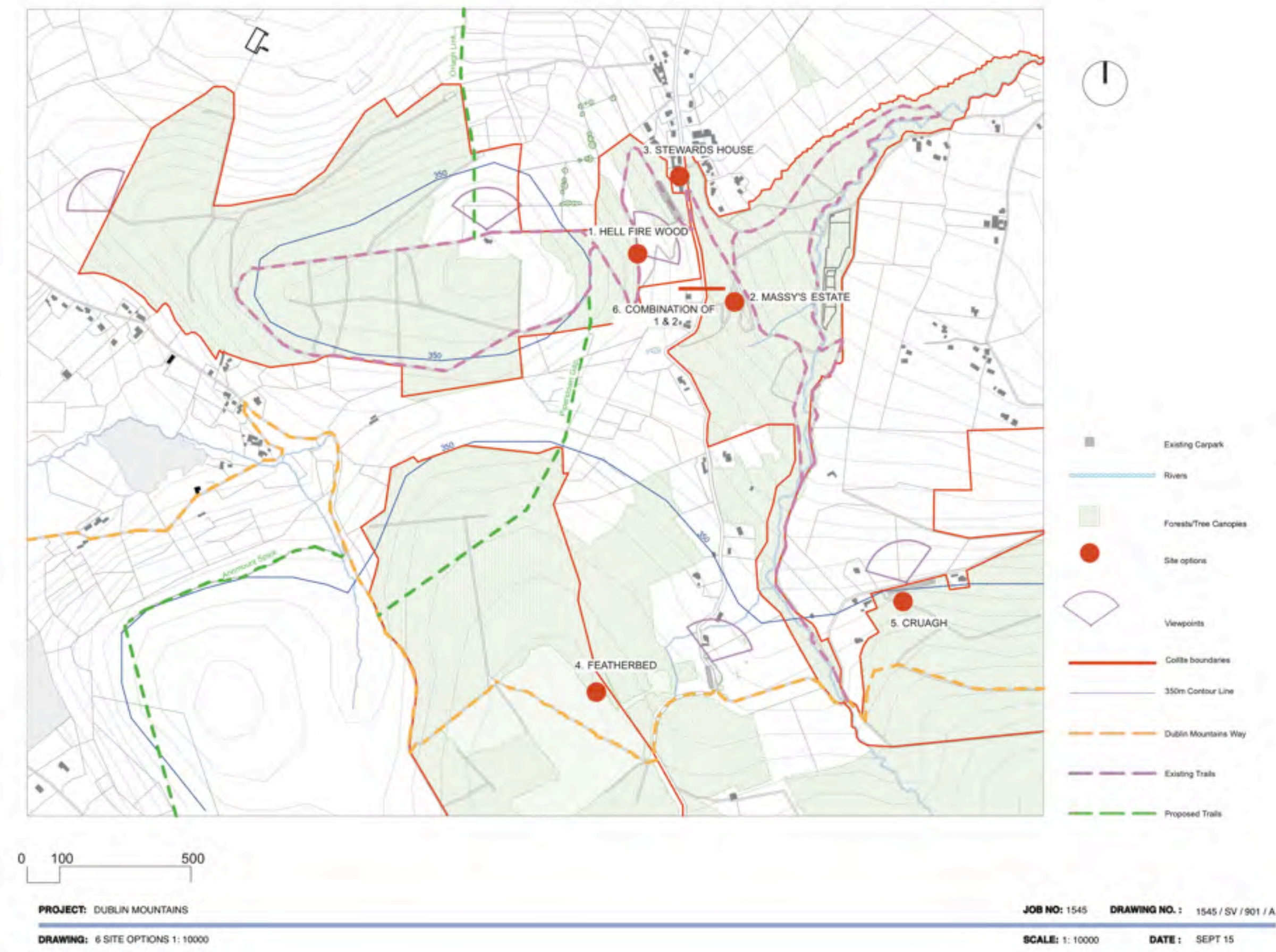
The emerging flagship visitor attraction concept for The Dublin Mountains follows the key lessons to be taken from the Handbook on Tourism Product Development

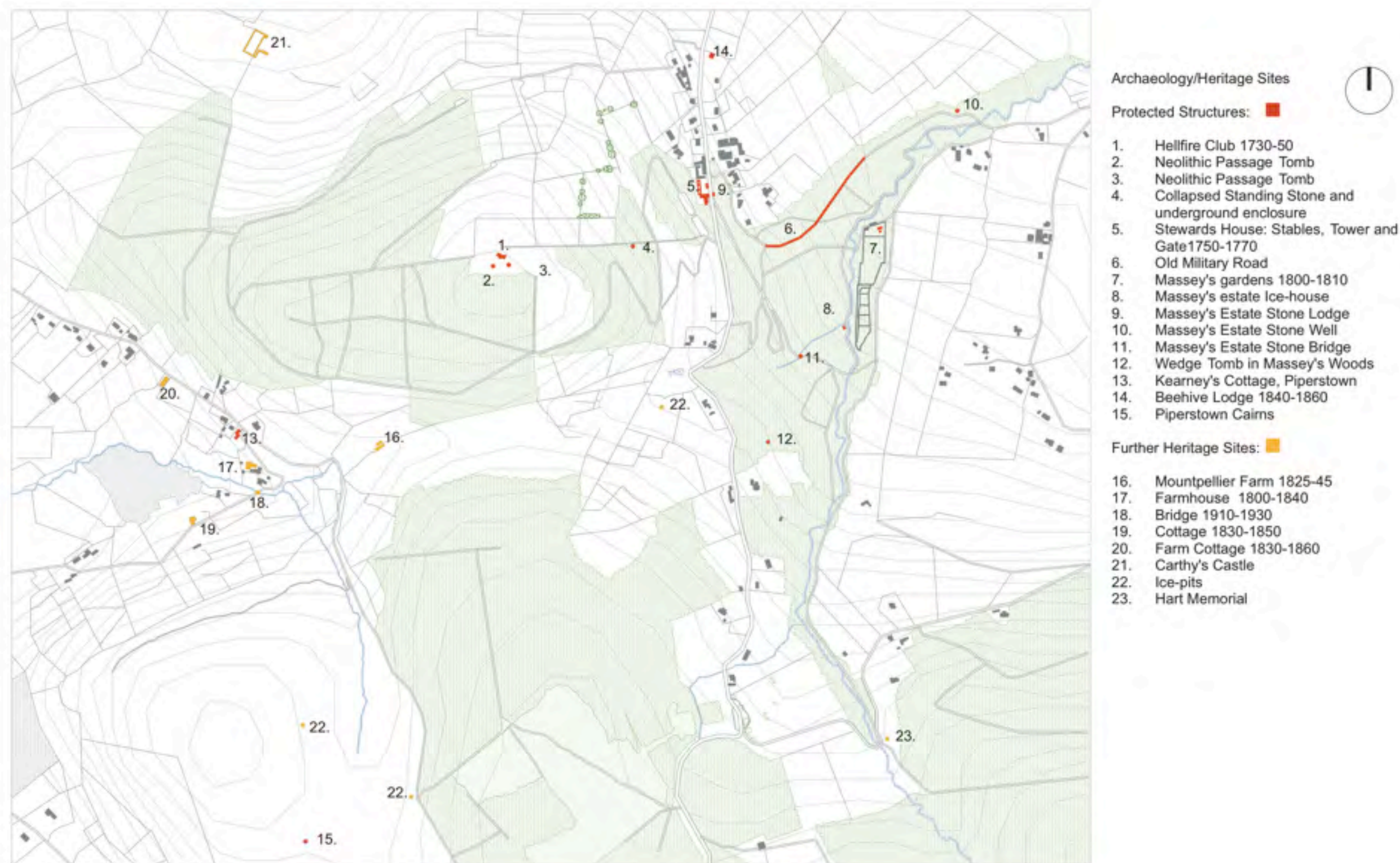
Lessons to be learned in Tourism Product Development TPD

- 1. Tourists do not recognise administrative boundaries, so working closely with ones neighbours creates experiences for tourists that will be mutually beneficial.
- 2. TPD should be seen as providing 'sets of experiences' for tourists and be developed on the basis of creating logical and accessible combinations, based either on themes or geographic areas.
- 3. Tourists are becoming increasingly demanding about the range and quality of tourism products provided when choosing their destination.
- 4. No destination can grow its tourism sector without a stream of new TPD, and ensuring the highest quality standards of delivery are maintained.
- 5. Tourism product development can be an effective way of creating opportunities for SME development and local community participation, thereby contributing to poverty alleviation.
- 6. Achieving a 'mix' of tourism products that meets the triple bottom line requirements (e.g. economic contribution, environmental preservation and the maintenance of social cohesion) as well as maximising visitor spending and satisfaction is the optimal approach to tourism product development.
- 7. The goal should be to achieve a blend of:
 - major developments – flagships – to act as attractors to a destination and form the 'hub' for tourist movement and activity, combined with
 - clusters and circuits of attractions and activities – the spokes - that can be based around a particular theme or a geographic area.

The proposed flagship visitor attraction for the Dublin Mountains seeks to build on all seven lessons learnt from tourism product development worldwide.

APPENDIX 1D STUDY AREA SITE ANALYSIS





0 100 500

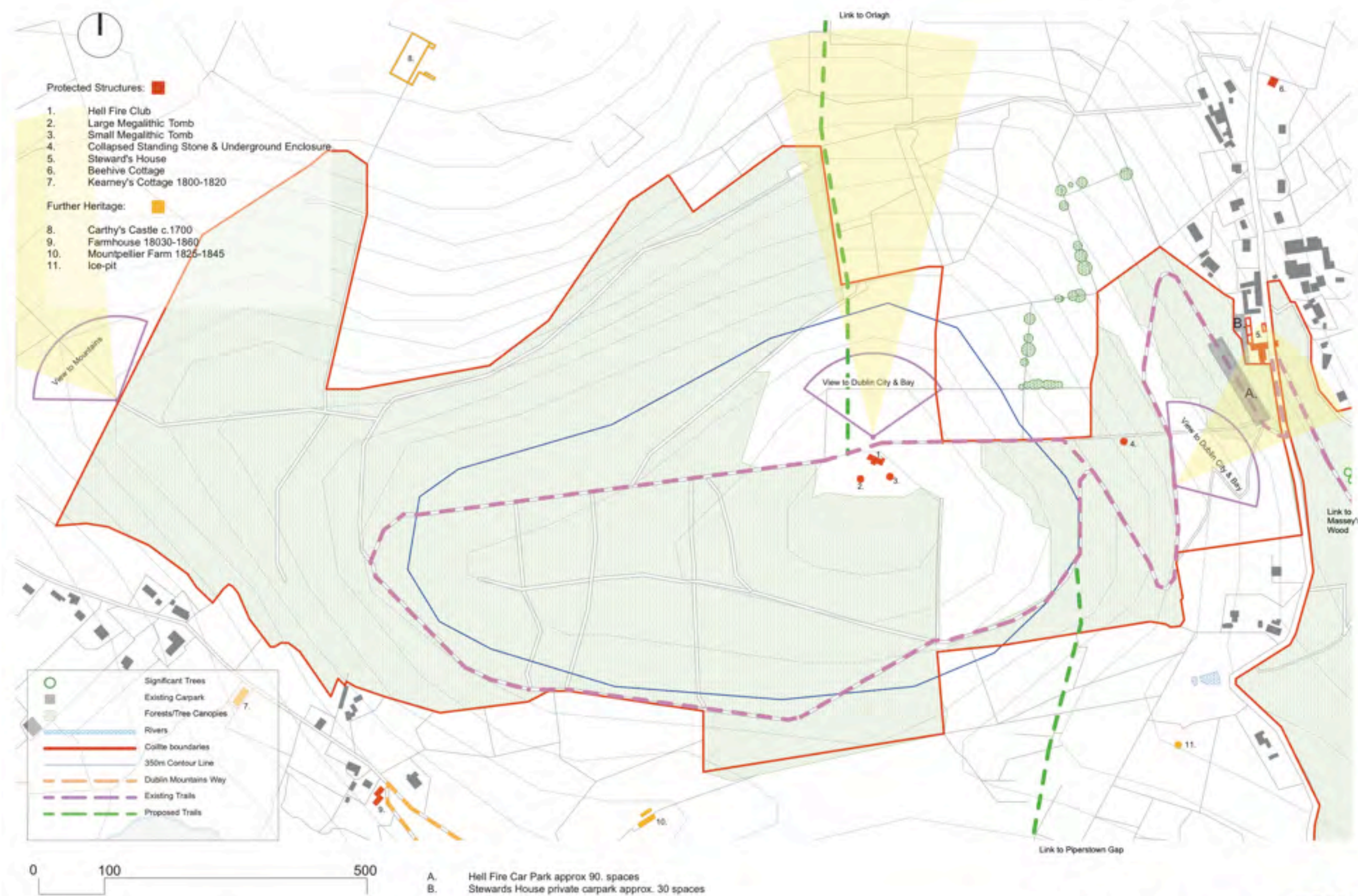
PROJECT: DUBLIN MOUNTAINS

DRAWING: HERITAGE/ARCHAEOLOGY SITES 1: 10000

JOB NO: 1545 **DRAWING NO.:** 1545 / SV / 902 / A

SCALE: 1: 100000 **DATE:** SEPT 15





PROJECT: DUBLIN MOUNTAINS

DRAWING: OPTION 1 HELLFIRE WOOD 1: 5000

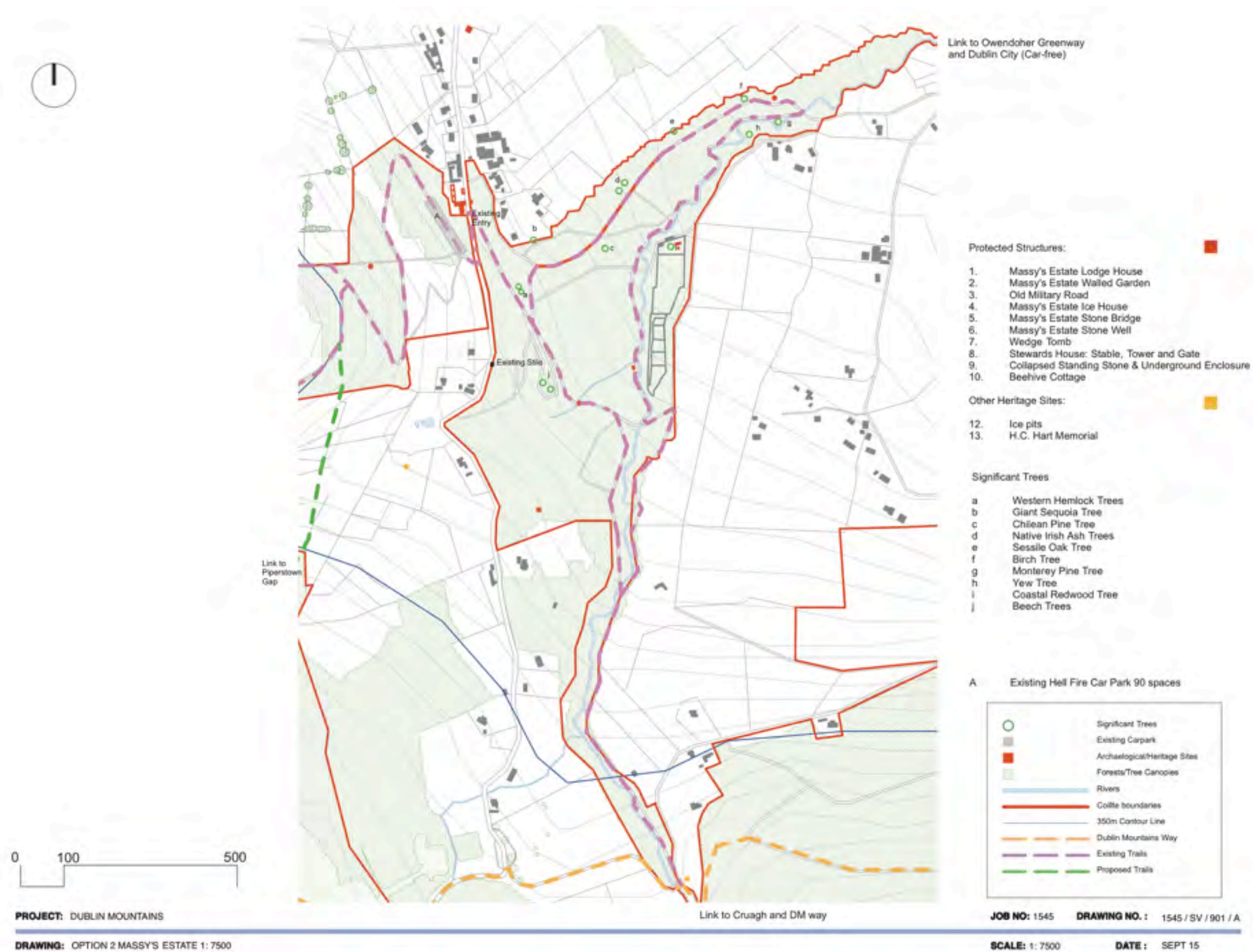
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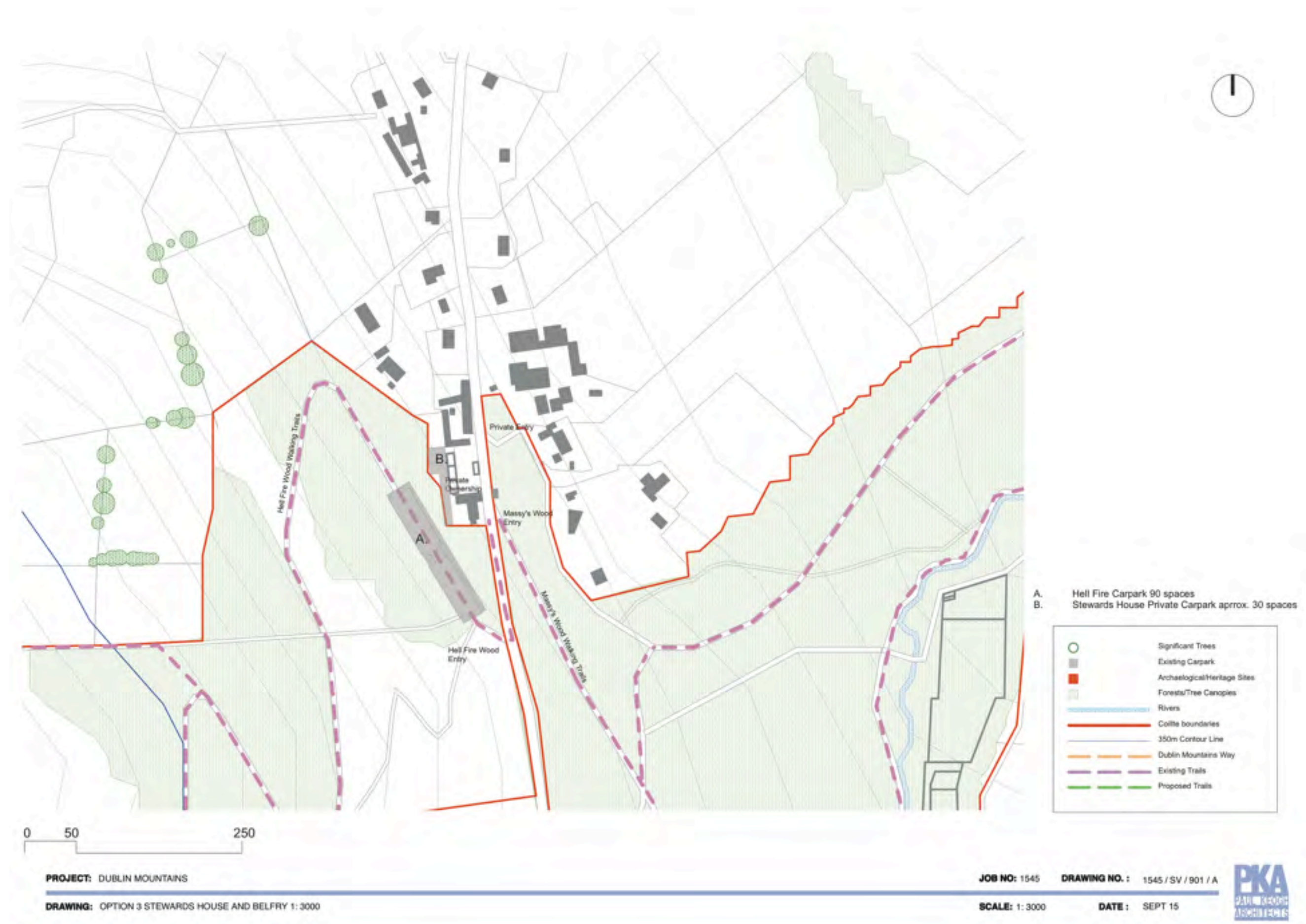
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SCALE: 1: 5000

DATE: SEPT 15



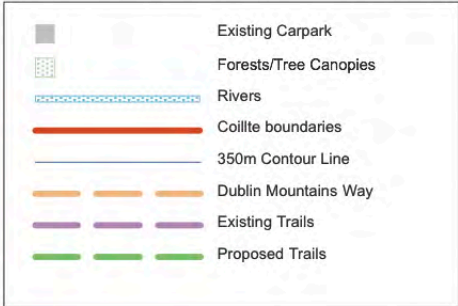








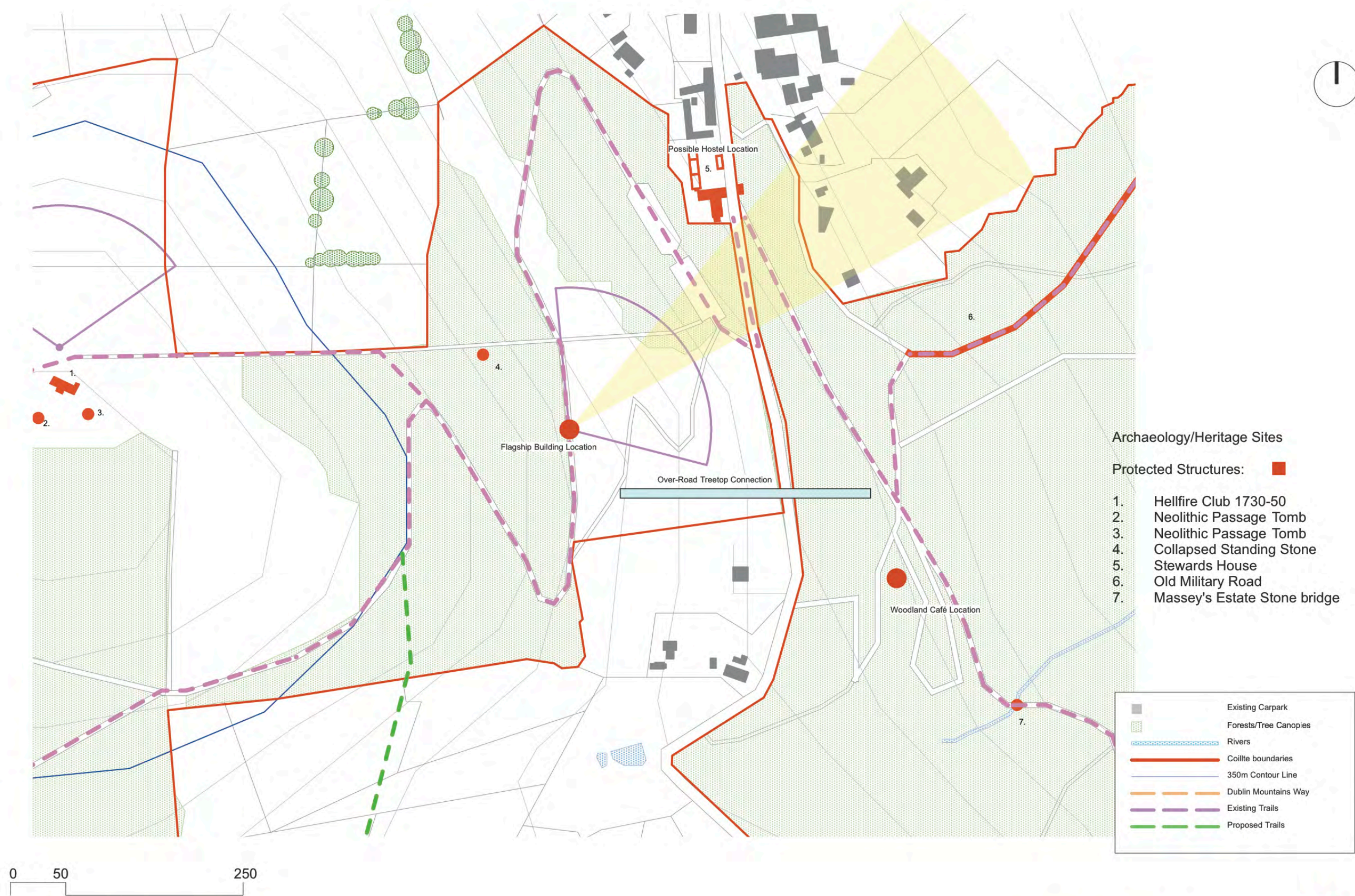
A Cruagh Wood Carpark 35 spaces
B Killakee Viewing Point Carpark 35 spaces



PROJECT: DUBLIN MOUNTAINS
DRAWING: OPTION 5 CRUAGH 1: 3000

JOB NO: 1545 DRAWING NO.: 1545 / SV / 901 / A
SCALE: 1: 3000 DATE: SEPT 15





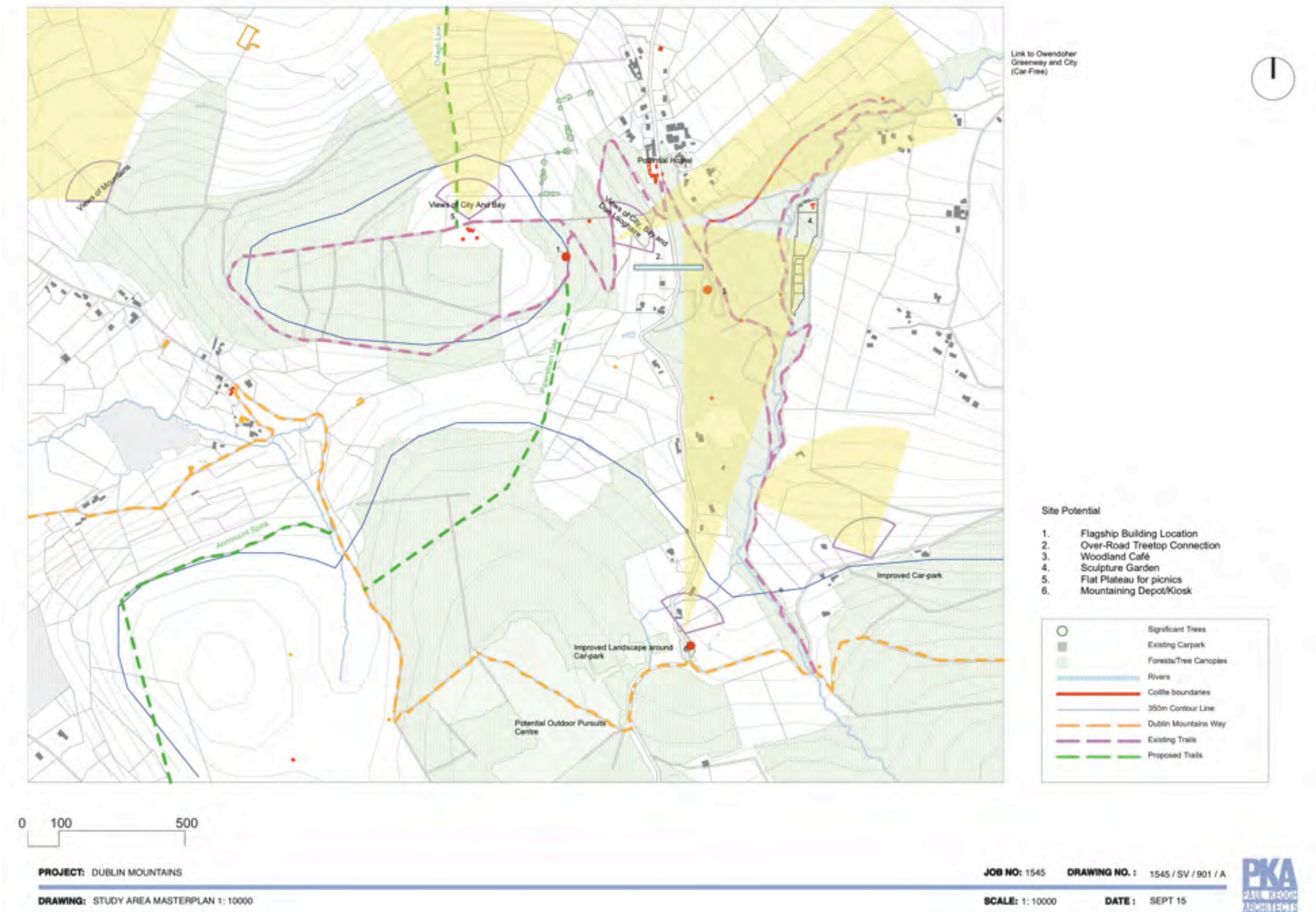
PROJECT: DUBLIN MOUNTAINS

DRAWING: OPTION 6 Combination of 1 & 2 1: 3000

JOB NO: 1545 DRAWING NO.: 1545 / SV / 901 / A

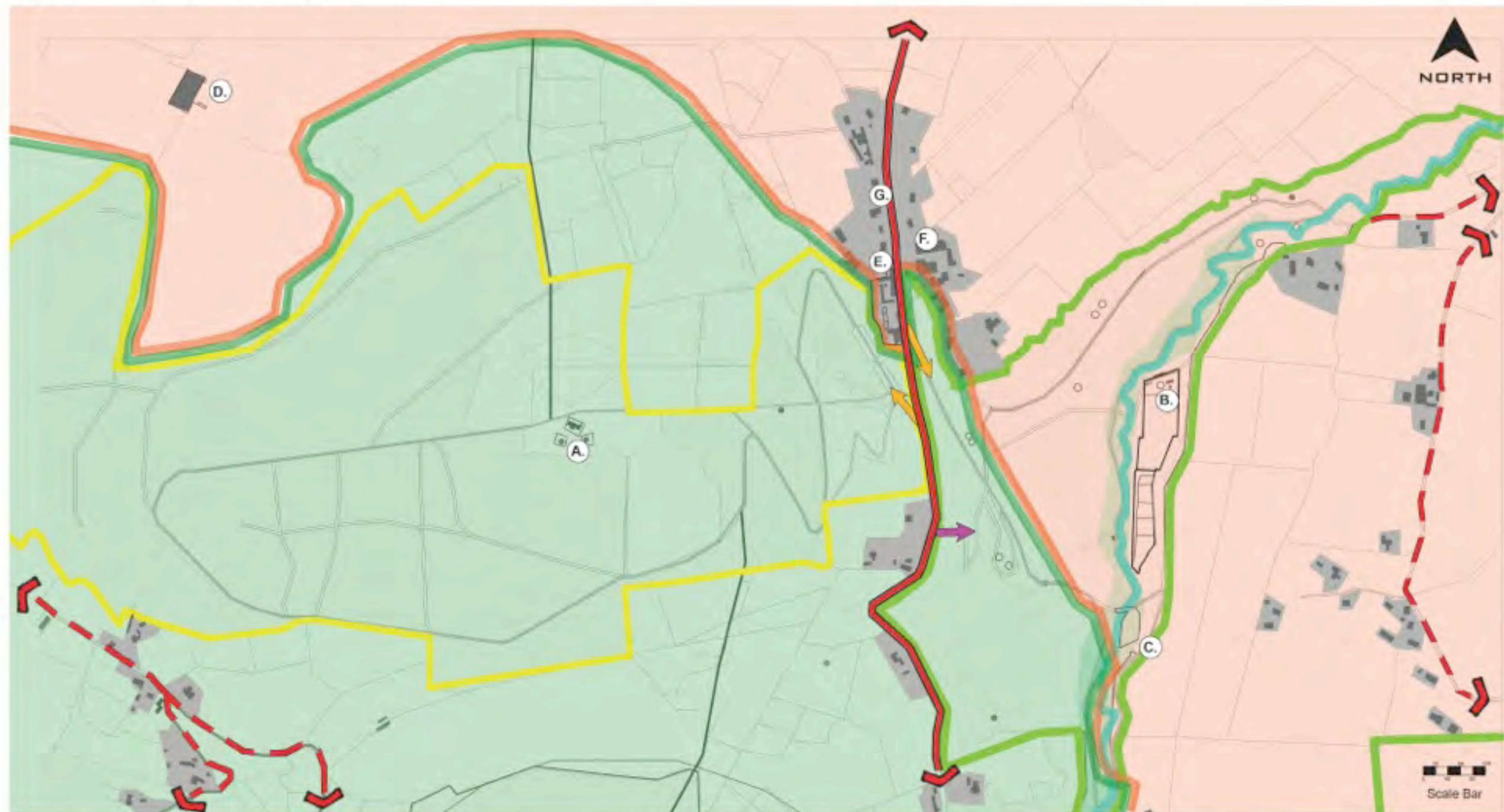
SCALE: 1: 3000 DATE: SEPT 15





APPENDIX 2A THREE OPTIONS SITE ANALYSIS

Figure 1 - Land Use/ Zoning & Access

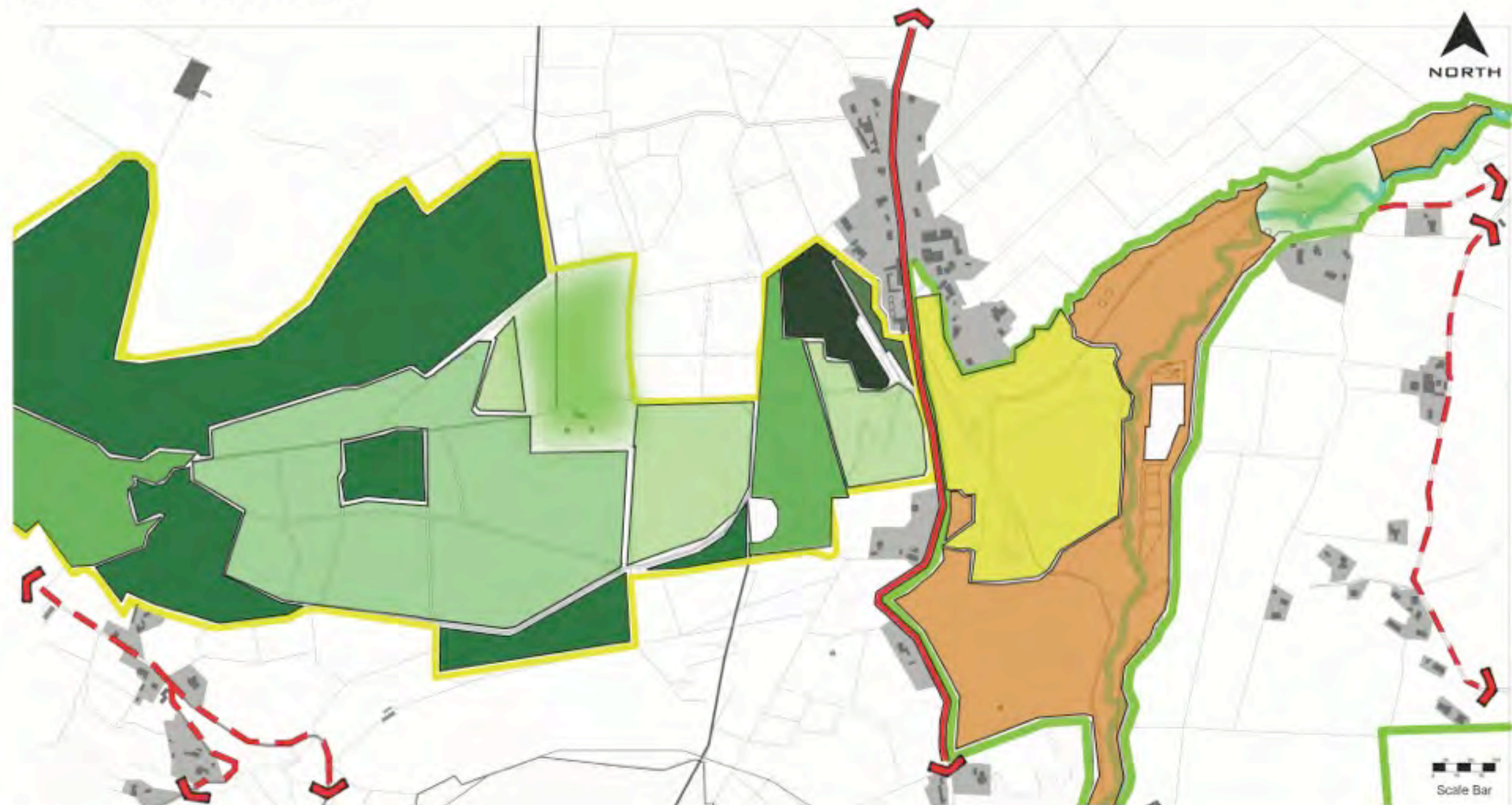


Legend:

Key Heritage/Landscape Features
& Points of Interest:

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

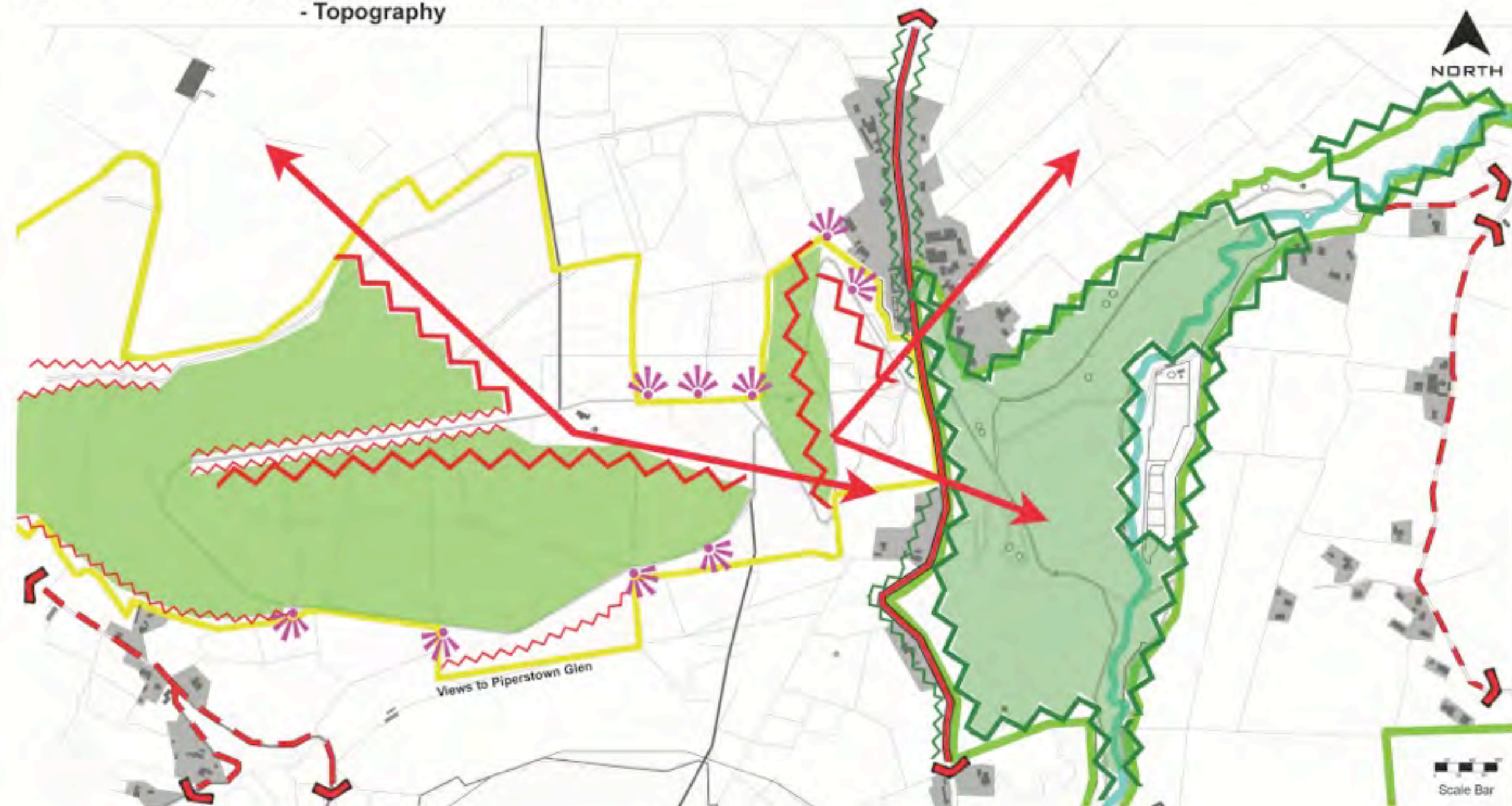
Figure 3 - Vegetation & Forestry



Legend:

Forestry/ Coillte - Hell Fire Club Wood	Local Access	Conifer Plots for Thinning 2015-2019	Regenerating/ Replanted Youngs Trees & Vegetation	Predominantly Mature Broadleaved Woodland with some Conifers/ Specimens
Forestry/ Coillte - Massey's Wood	River	Overmature Conifer Trees which will need to be felled in the coming years.	Mixed Native Trees Adjacent to Carpark	Open/ Partially Open Grassed Areas
Main Road	Conifer Plots for Clear-Fell in 2016	Young/ Immature Conifer Plantations	Beech Wood to be Thinned in 2015	

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



Legend:

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

Figure 2 - Trails, Forest Roads & Open Areas

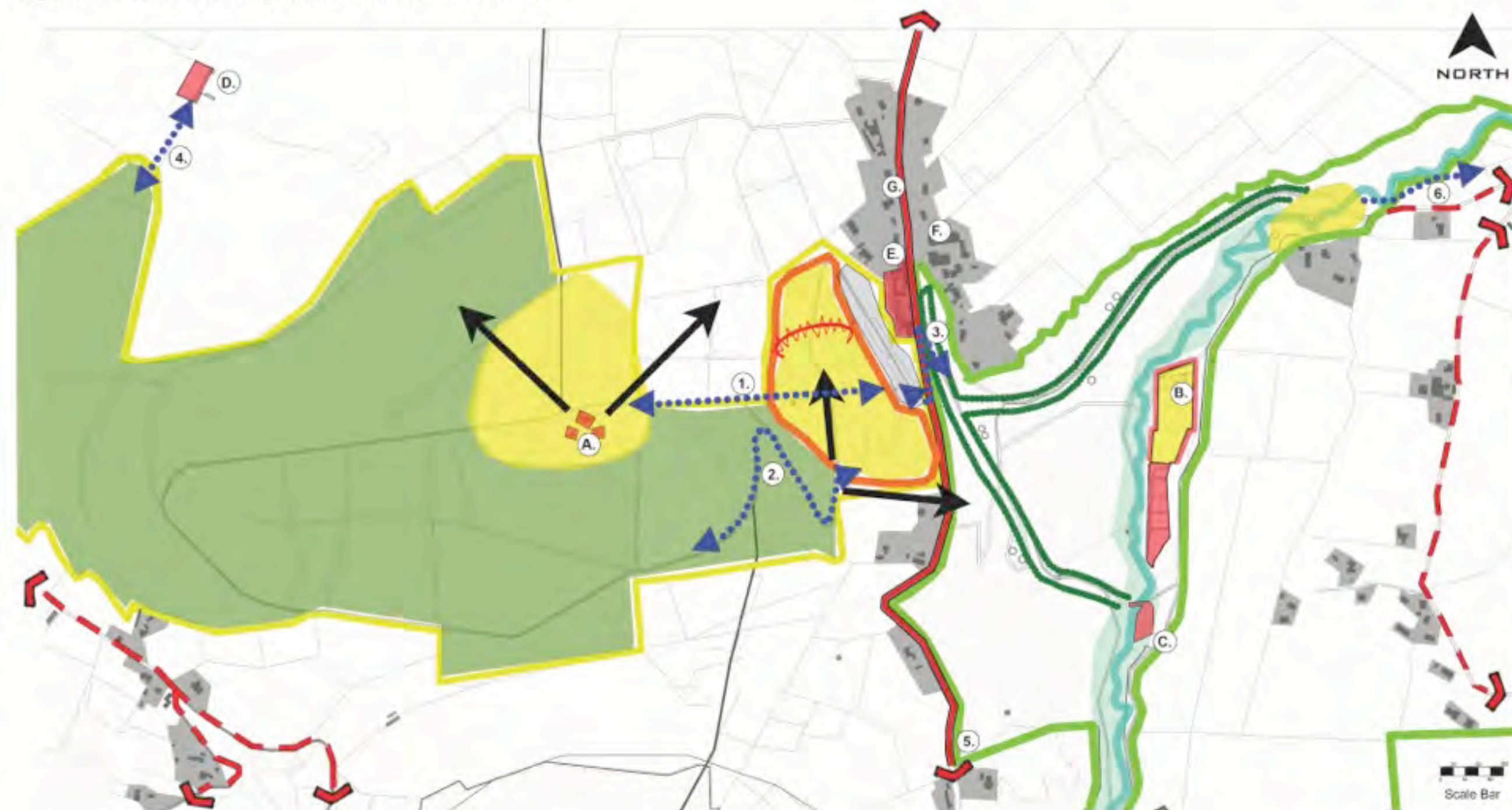


Legend:

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

* All routes to be audited
regarding current usage
and compliance with
Trails Standards

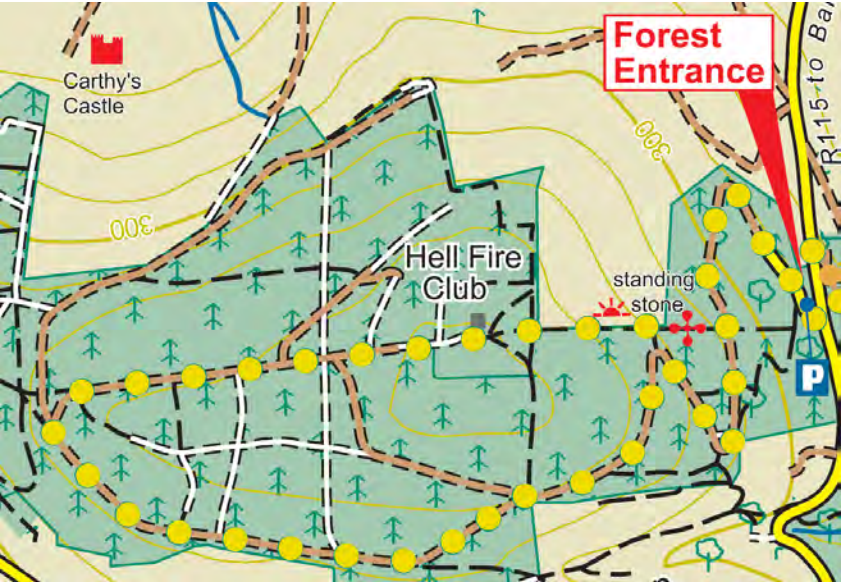
Figure 5 - Synthesis: Spaces, Places & Features

**Legend:**

- | | | | | | |
|----------------------------------------------|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Hell Fire Club Wood - A Forested Hill | Local Access | Woodland Draw/ Ride (including Military Rd) | 4. Link to Carthy's Castle & onto Orlagh/City.
5. Link to Cruagh and D.M.W
6. Link to Rockbrook, Edmondstown & Marley Park & Potential Owendoher Grenway | 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- Stewards House
F- Timbertrove
G- Montpellier Farm |
| Massey's Wood - Magical Broadleaved Woodland | River | 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. | | | |
| Main Vehicular Access to City & Mountains | Arrival, Parking & Access | | | | |

APPENDIX 2B WALKING TRAIL REPORT

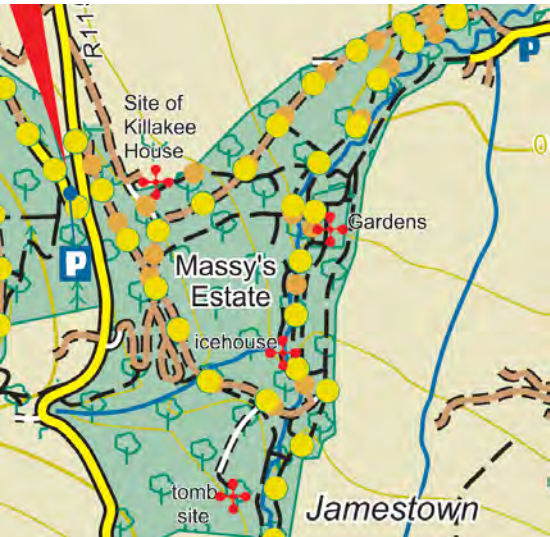
There are a number of existing walking trails within *Hell Fire Wood* and *Massey's Wood* as shown on the official map on the Coillte Outdoors website, for which extracts are shown below.



Coillte Outdoors Map for Hell Fire Wood (Dublin Mountains Way shown as yellow dots)

The only official designated walking trail is for the *Dublin Mountains Way* which extends north-westward from Cruagh Wood via a series of loops through both woodlands and then returns to Cruagh Wood to continue either east or west. In Massey's Wood, the map also denotes a nature trail which overlaps fully with a part of the Dublin Mountains Way, and involves no other paths.

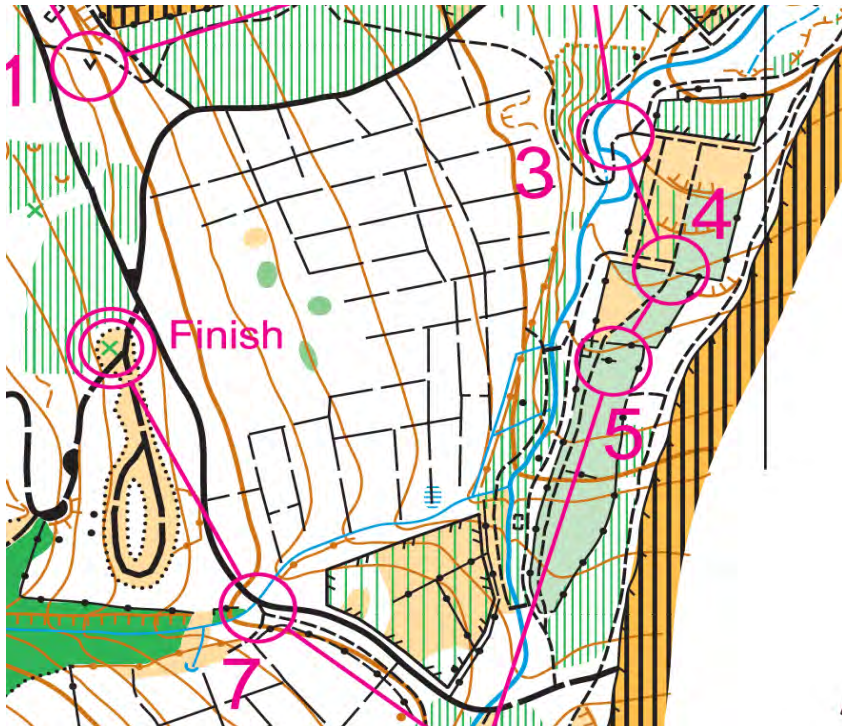
In addition there are various other paths and forest roads within both recreation areas, as are shown on the Coillte Outdoors Map. These are not formally designated as way-marked walking trails.



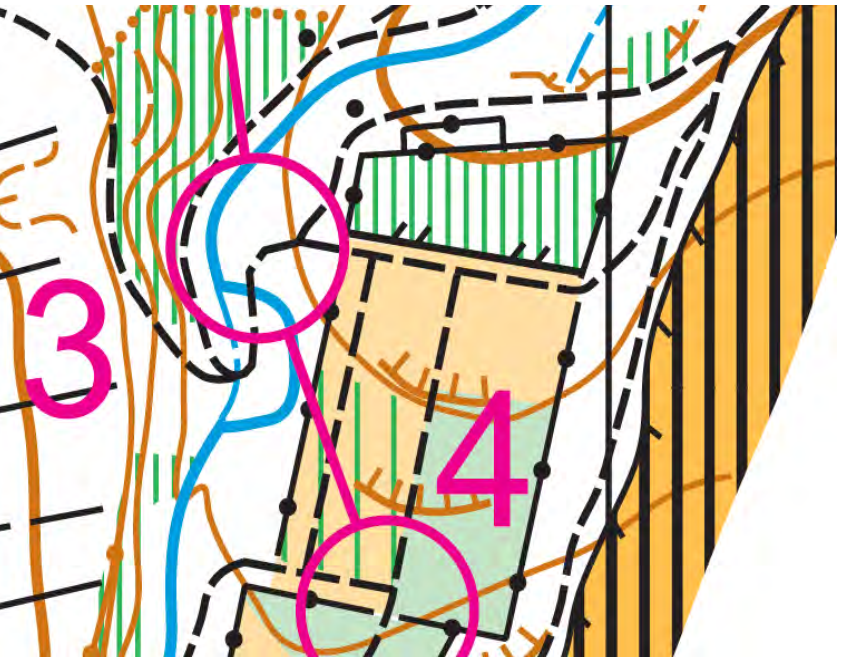
Coillte Outdoors Map for Massey's Wood (Dublin Mountains Way shown as yellow dots)

Orienteering Maps

The most detailed available maps for the two recreational forests are published by *Setanta Orienteers* on the *Orienteering Ireland* website at a very large scale of 1:5,000 or 1:7,500. These maps are very finely detailed and record every path no matter how minor, as well as other features such as banks, ditches, boulder clusters and contours at 5m intervals. At Massey's Wood, the various paths along the Glendoo Brook and through the old walled garden are shown, as can be seen on the following extract



Orienteering Map for Part of Massey's Wood



Detail of Orienteering Map at Walled Garden in Massey's Wood

As can be seen in the above extract, there are numerous paths in and around the walled garden, which provide opportunities for intricate but distinct walking routes within a very compact area. Only that part of these trails used for the Dublin Mountains Way is way-marked at present, and it is surprisingly easy for new visitors to become a little lost on the other paths. However, they all tend to converge at a few node points along the river that allow for re-orientation.

Trails Audit & Classification

The *Guide to Planning and Developing Recreational Trails in Ireland* and the associated document *Classification and Grading of Recreational Trails*, both published by the *National Trails Office*, are used in this report to assess the quality of the various existing trails on a 5 point scale, which is summarised in the following table.

Table 1 - Trails Audit for Hell Fire Wood					
Class	Surface	Width	Gradient	Available	Length
1	Very Smooth	1.8 - 3.0m	<5%	None	0
2	Fairly Smooth	1.2 - 3.0m	<8%	Forest Roads	4 km
3	Partly Loose	0.6 - 1.2m	<12%	Summit Paths	0.6 km
4	Fairly Rough	0.5 - 1.0m	<30%	Hell Fire Direct Routes	1.6 km
5	Rough / Remote	0.5 - 1.0m	n/a	n/a	0

Table 2 - Trails Audit for Massey's Wood					
Class	Surface	Width	Gradient	Available	Length
1	Very Smooth	1.8 - 3.0m	<5%	None	0
2	Fairly Smooth	1.2 - 3.0m	<8%	Forest Roads	1.7 km
3	Partly Loose	0.6 - 1.2m	<12%	Valley Paths	3 km
4	Fairly Rough	0.5 - 1.0m	<30%	None	0
5	Rough / Remote	0.5 - 1.0m	n/a	n/a	0

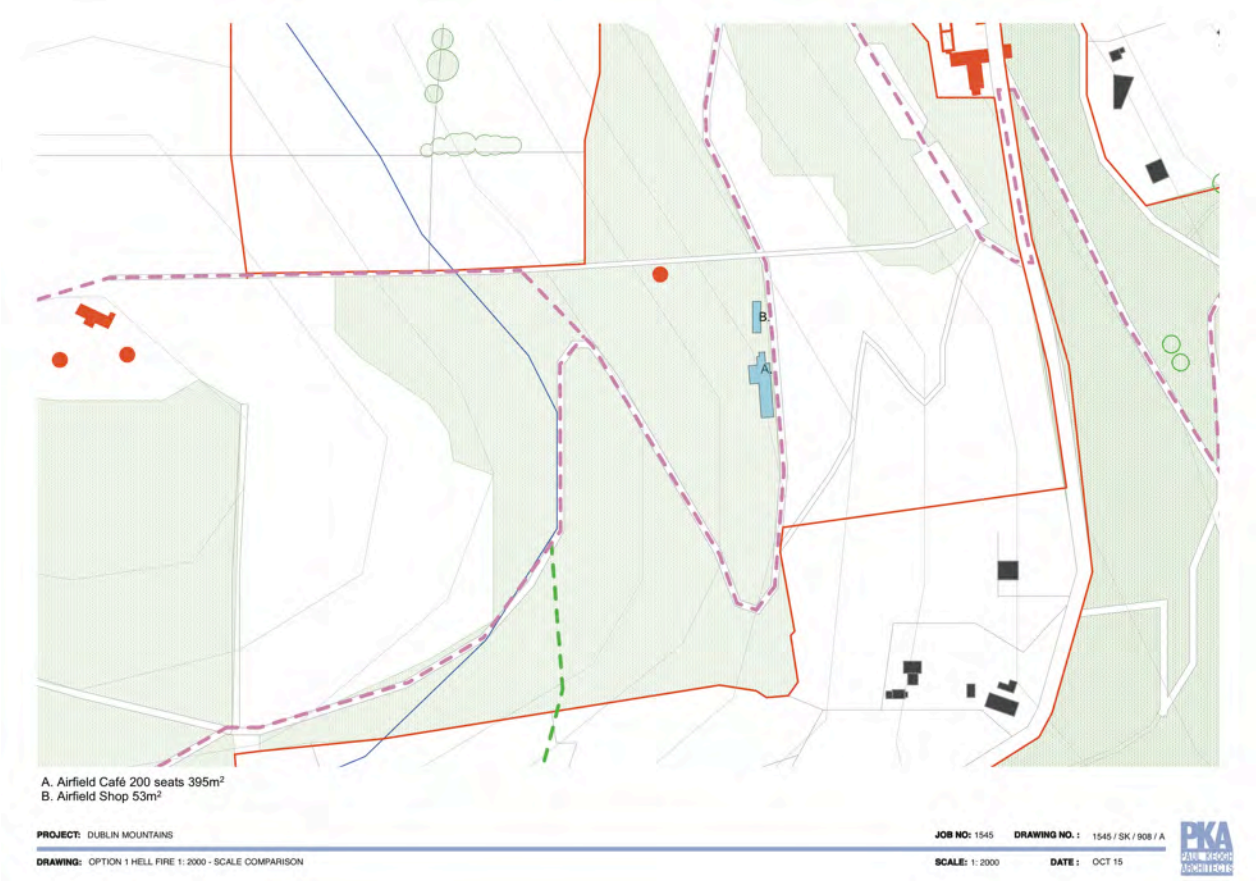
Equestrian Trails

None available.

Mountain Biking Trails

None available.

APPENDIX 2C COMPARITIVE SCALE STUDIES



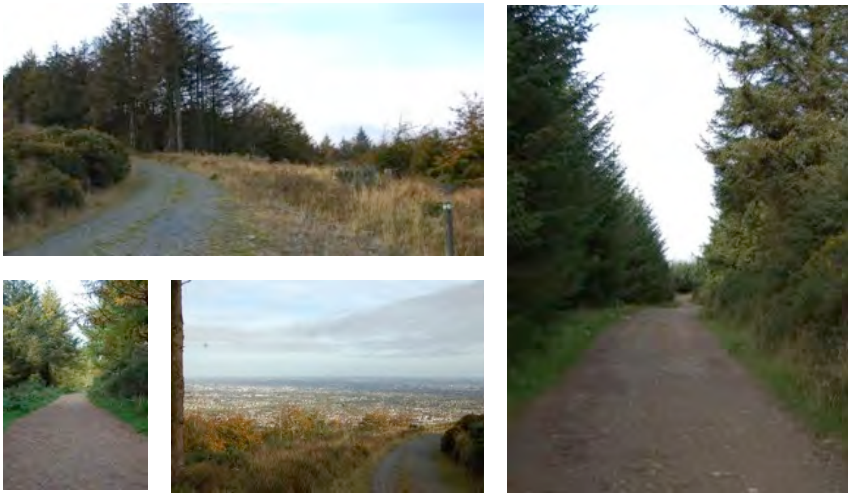




APPENDIX 3A PREFERRED OPTION TRAIL AUDIT AND REPORT

Trails Survey Hell Fire Club

Primary Trail (See Hell Fire Club Trails Survey drawing)	
General Description	<ul style="list-style-type: none">• Typical forestry road for circulation around the woodland.• Well used by the public and Coillte employees• Reasonably gentle gradients on level surfaces• Provides access to HFC and various viewpoints
Trail Surface	<ul style="list-style-type: none">• Good condition surface made up of stone dust/gravel• Relatively smooth surface with minimal loose material• Occasional sections made up of slightly rougher gravel finish
Trail Width	<ul style="list-style-type: none">• Typical width between 2.5-3m
Trail Gradient	<ul style="list-style-type: none">• Gradients generally ranging between flat to 9.5% (however there is a small section of approx. 200m with a 15% gradient at the start of route)
Current Use	<ul style="list-style-type: none">• Vehicle/Machinery - Maintenance/ Access for forestry work• Horse Riding – Evidence of horse use• Mountain biking - Evidence of biking• Walking - Well used walking routes
Issues /Opportunities	<ul style="list-style-type: none">• Potential to create accessible looped trails, by linking dead end routes (see *1 on map)• Potential to create a Class 1 walking trail subject to addressing initial 200m gradient (by reducing level change by half or increasing length of walk) and other short lengths or steep sections



Secondary Trail (See Hell Fire Club Trails Survey drawing)	
General Description	<ul style="list-style-type: none">• Typically trails made up of uneven/ loose ground• Circulates perimeter of HFC woods• Can be exposed to elements in parts• Access to various viewpoint
Trail Surface	<ul style="list-style-type: none">• Ground conditions are made up of various sizes of gravel/stone creating a loose underfoot surface• Some sections with flood damage and large exposed rock
Trail Width	<ul style="list-style-type: none">• Typical width between 1-2.5m
Trail Gradient	<ul style="list-style-type: none">• Gradients ranging from 8.6% - 22% (however there is a small section of approx. 68m with a gradient of 30%)
Current Use	<ul style="list-style-type: none">• Vehicle/Machinery – Heavy duty forestry machinery• Horse Riding – No Evidence of horse use• Mountain biking - Evidence of biking• Walking - Evidence of walkers
Issues /Opportunities	<ul style="list-style-type: none">• Mapped link to McCarthy's Castle however no stile/ access across field boundary to site of ruins (see *2 on map)• Potential for link to Dublin Mountains Way, incorporating HFC to the walking route (see *3 on map)• Mapped link to Orlagh however no evidence of stile/access (see *4 on map)• Potential to create a more strenuous route coupled with the Primary Trails• Can be quite steep and tough on foot• Potential for mixed Class 3-4 walking trails - Surface can be improved but limited change to gradients.• Potential dual use designated Class 2-3 equestrian trail.



Tertiary Trail (See Hell Fire Club Trails Survey drawing)	
General Description	<ul style="list-style-type: none">• Typically uneven, narrow trails and/or fire breaks• Generally permeates HFC woods/scrub• Can be exposed to elements in parts• Can be relatively steep terrain• Overgrown in parts
Trail Surface	<ul style="list-style-type: none">• Range of surfaces including loose gravel, stone dust, grassed and desire lines• Some evidence of flood damage in places• Protruding rocks/roots on occasion
Trail Width	<ul style="list-style-type: none">• Typical width between 500mm- 1.5m
Trail Gradient	<ul style="list-style-type: none">• Gradients ranging from 7.4% to 23%
Current Use	<ul style="list-style-type: none">• Vehicle/Machinery – No evidence of machinery• Horse Riding – Evidence of horse use• Mountain biking - Evidence of biking• Walking - Evidence of walkers
Issues/Opportunities	<ul style="list-style-type: none">• Could use some maintenance by ways of cutting back vegetation• Can be quite steep• Linkages to other routes could be improved – increasing the legibility and permeability of the woods• Potential to create Class 4 walking trails• Potential to support equestrian trails



Trails Survey Massy’s Woods

Primary Trail (See Massy’s Trails Survey drawing)	
General Description	<ul style="list-style-type: none"> Maintenance/access road for circulation around the woodland. Well used by the public and Woodland management Relatively gentle gradients with slightly steeper gradients in parts Provides vehicular access to much of the Massy’s Wood however it does not service eastern edge of the site Can get slippery in wet conditions with foliage underfoot
Trail Surface	<ul style="list-style-type: none"> Good condition surface made up of compacted gravel and stone dust Relatively smooth surface with minimal loose material (However the nature of a broadleaved woodland is to shed leaves and debris during Autumn and Winter months) Section along the northern perimeter is partly constructed with old cobbles (Military Rd)
Trail Width	<ul style="list-style-type: none"> Typical width between 2-3m
Trail Gradient	<ul style="list-style-type: none"> Gradients generally ranging between flat to 14%
Current Use	<ul style="list-style-type: none"> Vehicle/Machinery - Maintenance/ Access for forestry work Horse Riding – Evidence of horse use Mountain biking - Evidence of biking Walking - Well used walking routes
Issues/Opportunities	<ul style="list-style-type: none"> Potential to create link to café and shop at ‘Timbertrove’ (see *1 on map) Potential to create link to DSPCA north east of the site (see *2 on map) Potential for substantial lengths to be Class 1 walking route

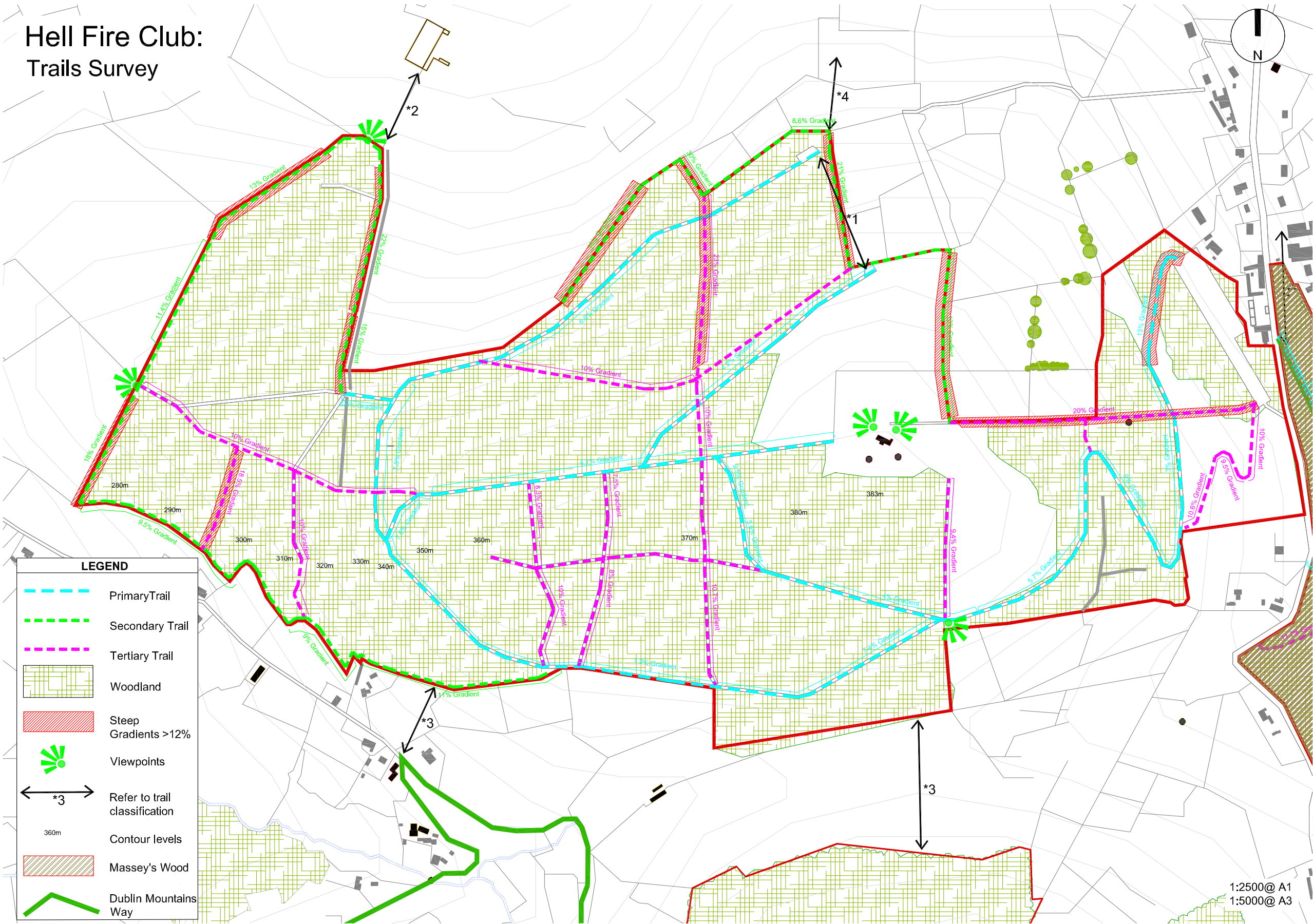


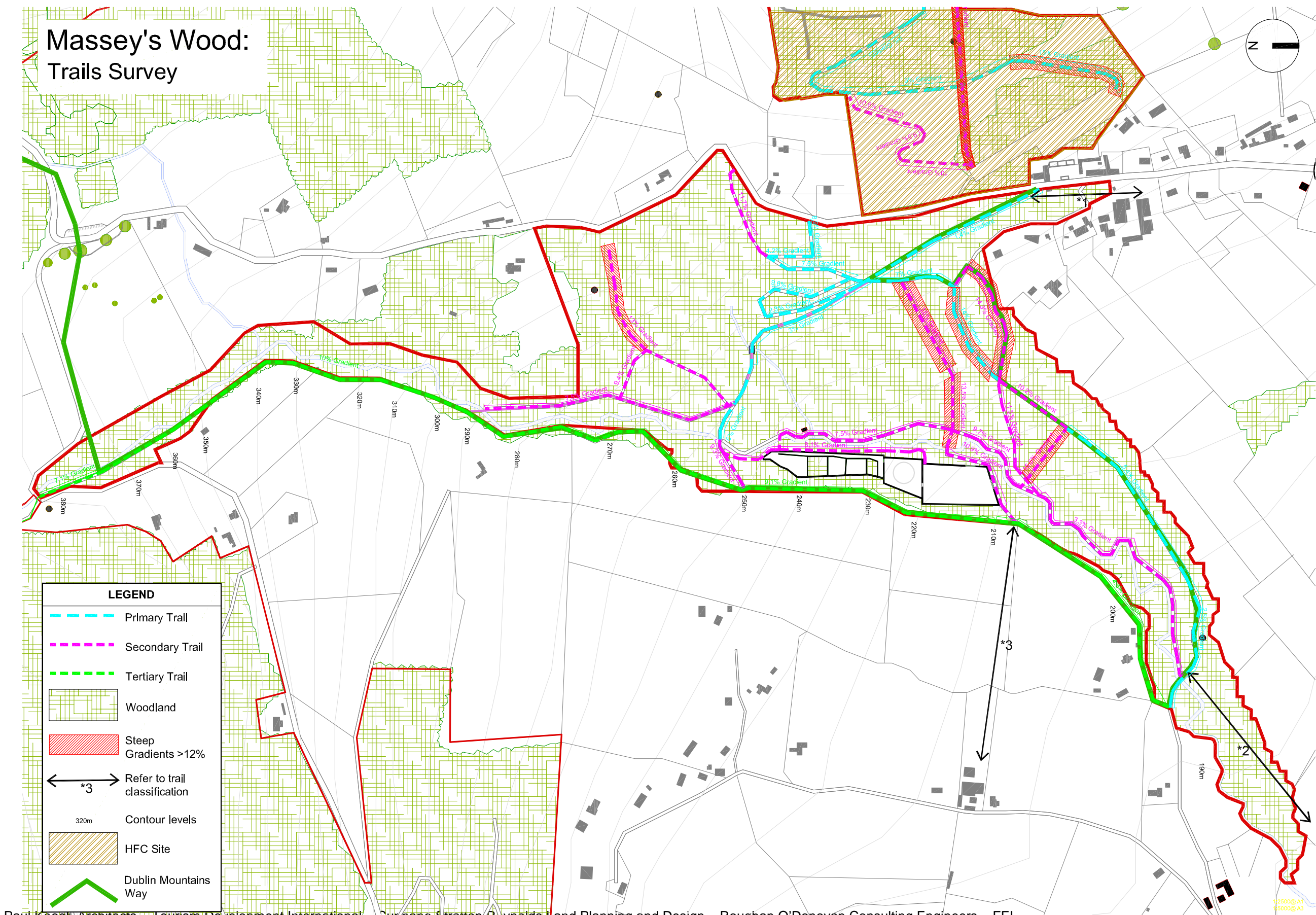
Secondary Trail (See Massy’s Trails Survey drawing)	
General Description	<ul style="list-style-type: none"> Typically trails made up of beaten tracks through woodland Permeates throughout Massy’s Woods with some trails better under foot than others Gradients of trails vary considerably Access to various heritage points of interest Can get slippery in wet conditions with foliage underfoot Trail routes can be hard to distinguish during winter months with foliage on surface
Trail Surface	<ul style="list-style-type: none"> Generally good condition surface made up of compacted gravel and stone dust Relatively smooth surface with minimal loose material (However the nature of a broadleaved woodland is to shed leaves and debris during Autumn and Winter months) Some sections with flood damage and tree roots exposed
Trail Width	<ul style="list-style-type: none"> Typical width between 0.5m -1.5m
Trail Gradient	<ul style="list-style-type: none"> Gradients ranging from 3.3% - 15%
Current Use	<ul style="list-style-type: none"> Vehicle/Machinery – No Evidence of vehicular use Horse Riding – Evidence of horse use Mountain biking - Evidence of biking Walking - Evidence of walkers
Issues/ Opportunities	<ul style="list-style-type: none"> Potential to create a more legible network to allow ease of wayfinding- some sections could be upgraded to Class 1 Mostly Class 2 walking, Potential use of signage to various heritage points of interest Potential linkage to ‘Lambert’s Pick Your Own Soft Fruit Farm’



Tertiary Trail (See Massy’s Trails Survey drawing)	
General Description	<ul style="list-style-type: none"> Mix of even/uneven surfaces with tree roots and rocks exposed in parts Runs along the eastern boundary, following the direction of the stream Generally elevated above the stream Can be relatively steep terrain Overgrown in parts
Trail Surface	<ul style="list-style-type: none"> Compacted gravel and stone dust surface Some evidence of flood damage in places Protruding rocks/roots on occasion (especially on northern end of trail)
Trail Width	<ul style="list-style-type: none"> Typical width between 500mm- 2.5m
Trail Gradient	<ul style="list-style-type: none"> Gradients ranging from 4.8% to 10%
Current Use	<ul style="list-style-type: none"> Vehicle/Machinery – No evidence of machinery Horse Riding – Evidence of horse use Mountain biking - Evidence of biking Walking - Evidence of walkers
Issues/ Opportunities	<ul style="list-style-type: none"> Could use some maintenance by ways of cutting back vegetation and levelling off sections Can be quite steep Barriers may be needed where the trail has steep embankments on its western side Potentially Class 3-4 walking trails







APPENDIX 3B WASTEWATER

Dublin Mountains Visitor Centre Wastewater Disposal

1. Introduction

This technical paper has been prepared to outline the options for wastewater disposal from the proposed Dublin Mountains Visitor Centre. The two options examined were on-site disposal and disposal to the existing public foul sewer network.

2. On-Site Disposal

Using the average daily visitor numbers from the Stage 1 Access Report and assuming that half of the visitors will use the restaurant facilities and all visitors will use the toilet blocks, the daily hydraulic loading from the development has been estimated as 16.5m³/day. For the purpose of sizing the polishing filter / percolation area it has been assumed that the soil at the site is predominantly silt/clay and therefore has a relatively low infiltration rate with a T-value between 15-43, as per Table C.3 in Appendix C of the EPA Code of Practice: Wastewater Treatment and Disposal Systems Serving Single Houses (p.e. ≤ 10).

The required size of a polishing filter for the proposed development is 1,653m² if the in-situ material is to be used as the filter material. An alternative would be to construct a sand polishing filter which has a higher allowable hydraulic loading rate and therefore would reduce the area required for the filter to 275m². This solution would require a 550m² area of subsoil underneath the polishing filter for the distribution of the treated effluent. A typical cross section through a sand polishing filter is presented in Figure 1.

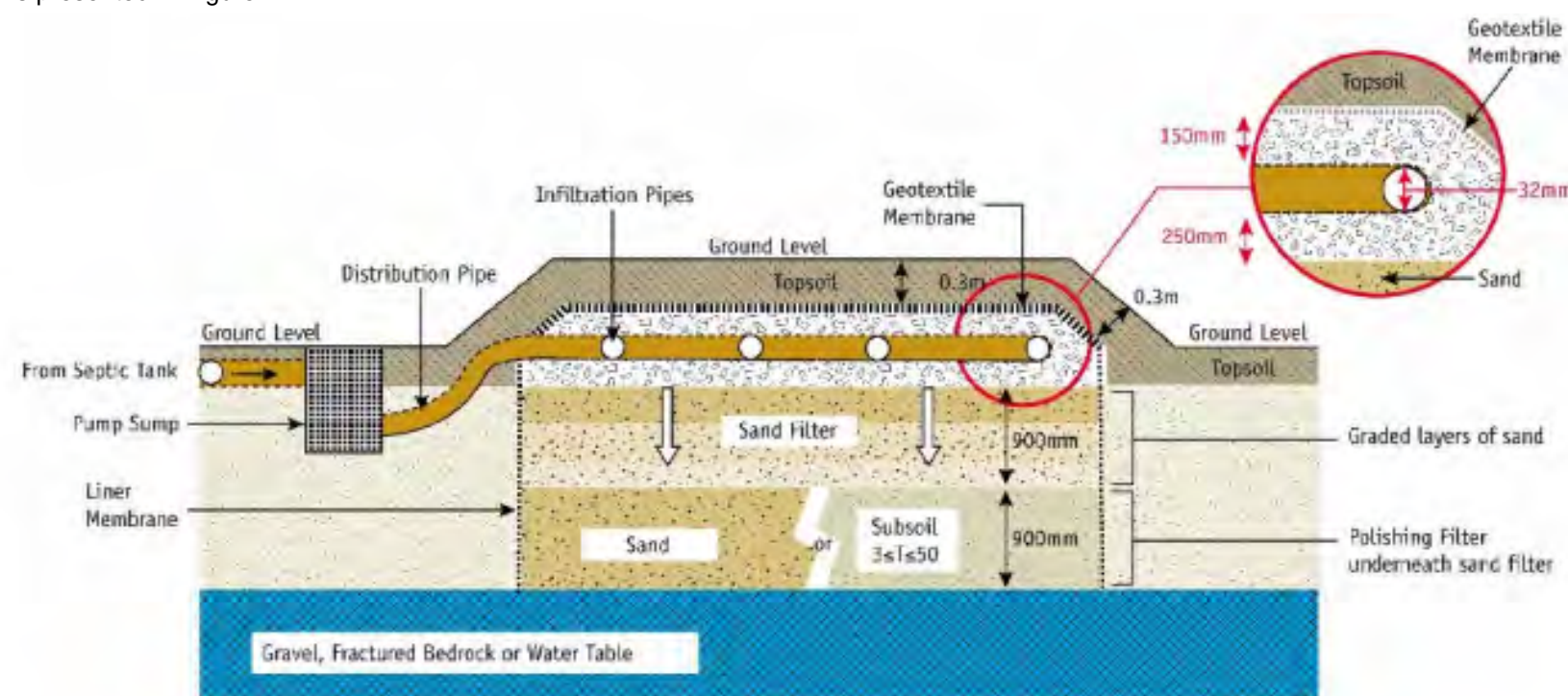


Figure 2.1 – Intermittent Sand filter System with Underlying Sand/Subsoil Polishing Filter (EPA)

All on-site wastewater disposal options will require the wastewater to be treated prior to discharge to the percolation area / polishing filter. A 372 PE wastewater treatment system will be required to treat the effluent before it is pumped to the polishing filter. The treatment system will be designed to achieve a minimum treatment standard of 20mg/l BOD₅ and 30mg/l of TSS.

For a gravity discharge system, approximately 1,322m of 500mm wide percolation trenches would be required to discharge the treated wastewater to ground. As the maximum allowable length of a percolation trench is 10m, this would require a total of 132 trenches across a plan area of 3,300m², allowing for a distance of 2.5m between the centre of each trench in accordance with the EPA Code of Practice.

The area required for the discharge of wastewater to ground may be reduced following the completion of a site characterisation assessment. There is also a risk that a raised polishing filter will be required if bedrock is shallow as a minimum of 0.9m of unsaturated permeable subsoil is required below the base of a polishing filter. More information on the soil conditions and depth to bedrock will be available after the excavation of the proposed trial pits.

3. Public Foul Sewer

The closest public foul sewer to the site is located at Stocking Avenue approximately 2.6km north of the site, as shown in figure 3.1.

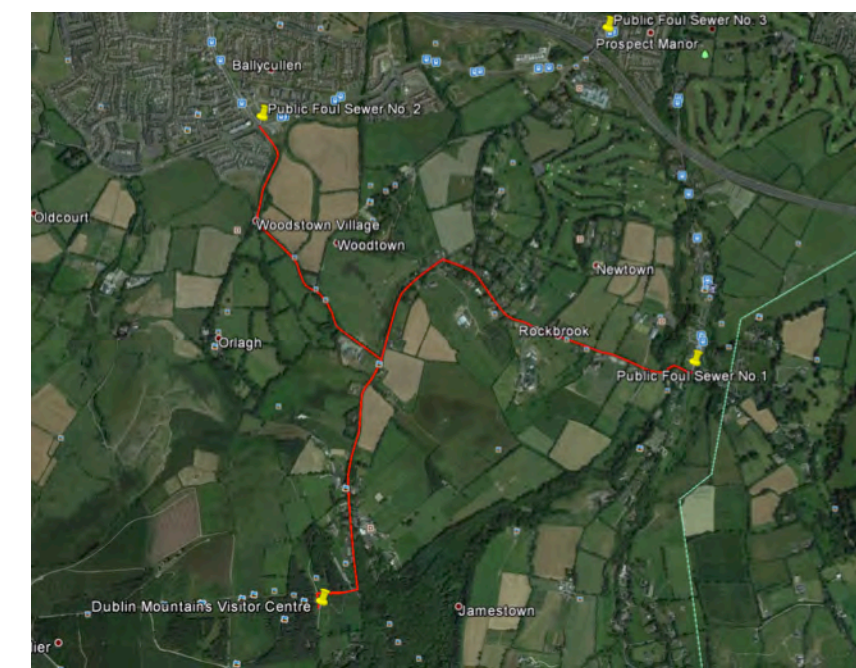


Figure 3.1 – Public Foul Sewers within the vicinity of the site

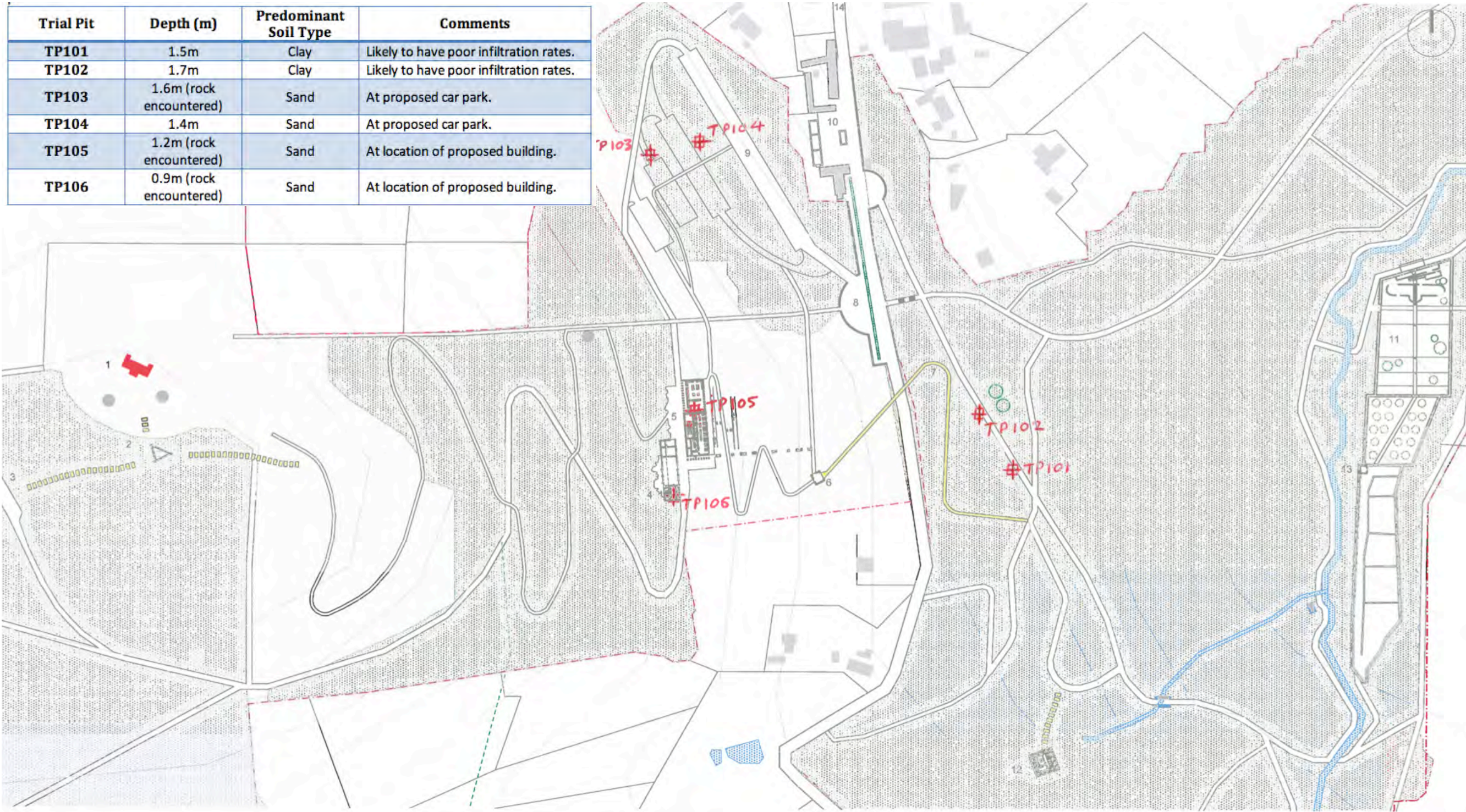
The foul sewer on the R116 to the north east of the site is approximately 3.1km from the site. The topography of this route, based on a Google Earth elevation profile, is more undulating than the shorter route to Stocking Avenue and may require a number of deep excavations to ensure any proposed pipe falls by gravity. The third foul sewer in the area is approximately 3.2km away and is on the opposite side of the M50 which would make any connection difficult. Therefore, at this point the best option for connection to a public foul sewer is the sewer at Stocking Avenue. Any connection to the public foul sewer network would require approval from Irish Water.

4. Recommendations

Based on the information available, the most feasible solution for the disposal of wastewater from the development is to discharge to the existing public foul sewer at Stocking Avenue. The option of providing on-site wastewater treatment and disposal is not feasible as there are a number of technical and environmental issues associated with it. The depth to bedrock at the site is likely to be shallow with poor infiltration rates which will result in a raised sand polishing filter with a large plan area. This will have a negative impact on the woodland area in Massey's Wood. Also, there is an environmental risk associated with this option as the groundwater vulnerability in the area varies from high to extreme, indicating that the groundwater in the area is susceptible to contamination.

APPENDIX 3C TRIAL PITS

Trial Pit	Depth (m)	Predominant Soil Type	Comments
TP101	1.5m	Clay	Likely to have poor infiltration rates.
TP102	1.7m	Clay	Likely to have poor infiltration rates.
TP103	1.6m (rock encountered)	Sand	At proposed car park.
TP104	1.4m	Sand	At proposed car park.
TP105	1.2m (rock encountered)	Sand	At location of proposed building.
TP106	0.9m (rock encountered)	Sand	At location of proposed building.



 TRIAL PIT LOCATIONS

- 1 HELL FIRE CLUB

2 ARCHAEOLOGY ENCLOSURE - MAKING OF THE KINGS

3 SHUTTLE DROP OFF

4 EVENTS
- 5 DUBLIN MOUNTAINS VISITOR CENTRE

6 BRIDGE HOUSE

7 TREETOP FOOTBRIDGE

8 ARRIVAL PROMENADE
- 9 UPGRADED CAR PARK

10 STEWARD'S HOUSE COMPLEX

11 MASSY'S GARDENS

12 MASSY'S FORREST KIOSK AND WORKSHOP
- 13 MASSY'S POTTING SHED

14 TO STOCKING LANE COACH PARK

PROJECT: DUBLIN MOUNTAINS

DRAWING: PREFERRED OPTION: MASTERPLAN

JOB NO: 1545 DRAWING NO. : 1545 / PO / 001 / A

SCALE: 1: 3000 DATE : NOV 15





SCALE: 1:1000 **DRAWING NO.:** 1545 / PO / 901 / A

