Parks Section, Community & Cultural Development Department

Proposed Development of Shanganagh Park Masterplan – Phase 1, Shankill, Co. Dublin PC/PKS/03/21

Appendix 5 – Ecological Impact Assessment (EcIA)

ALTEMAR
Marine & Environmental Consultancy

Ecological Impact Assessment (EcIA) for the proposed development of Shanganagh Park – Phase 1, Shankill, Co. Dublin.

9th December 2021

Prepared by: Bryan Deegan (MCIEEM) of Altemar Ltd.
On behalf of: Dún Laoghaire Rathdown County Council.

DRAFT

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Document Control Sheet			
Project	Ecological Impact Assessment (EcIA) for the proposed development of Shanganagh Park – Phase 1, Shankill, Co. Dublin.		
Report	Ecological Impact Assessment		
Date	7th December 2021		
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Version	Author	Reviewed	Date
Draft A	Bryan Deegan	Jack Doyle/Eoin O'Brien	6th December 2021
Draft B	Bryan Deegan		7th December 2021

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Introduction

Background

Ecological Impact Assessment (EcIA) has been defined as '*the process of identifying, quantifying and evaluating the potential impacts of defined actions on ecosystems or their components*' (Treweek, 1999). "*The purpose of EcIA is to provide decision-makers with clear and concise information about the likely ecological effects associated with a project and their significance both directly and in a wider context. Protecting and enhancing biodiversity and landscapes and maintaining natural processes depends upon input from ecologists and other specialists at all stages in the decision-making and planning process; from the early design of a project through implementation to its decommissioning*" (IEEM, 2010).

The following draft EcIA has been prepared by Altemar Ltd. at the request of Dún Laoghaire Rathdown County Council. The project relates to the development of Shanganagh Park Shankill, Co. Dublin, Masterplan – Phase 1.

Study Objectives

The objectives of this EcIA are to:

1. Outline the project and any alternatives assessed;
2. Undertake a baseline ecological feature, resource and function assessment of the site and zone of influence;
3. Assess and define significance of the direct, indirect and cumulative ecological impacts of the project during its construction, lifetime and decommissioning stages;
4. Refine, where necessary, the project and propose mitigation measures to remove or reduce impacts through sustainable design and ecological planning; and
5. Suggest monitoring measures to follow up the implementation and success of mitigation measures and ecological outcomes.

The following guidelines have been used in preparation of this EcIA:

- Guidelines on the information to be contained in Environmental Impact Statements (EPA, 2002);
- Draft Guidelines on the information to be contained in EIARs (2018);
- Guidelines for Ecological Impact Assessment (EcIA) (IEEM, 2019);
- Advice Notes on current practice in the preparation of EIS's (EPA, 2003);
- Institute of Ecology and Environmental Management Guidelines for EIA (IEEM, 2005).

Altemar Ltd.

Since its inception in 2001, Altemar has been delivering ecological and environmental services to a broad range of clients. Operational areas include: residential; infrastructural; renewable; oil & gas; private industry; Local Authorities; EC projects; and, State/semi-State Departments. Bryan Deegan, the managing director of Altemar, is an Environmental Scientist and Marine Biologist with 26 years' experience working in Irish terrestrial and aquatic environments, providing services to the State, Semi-State and industry. He is currently contracted to Inland Fisheries Ireland as the sole "External Expert" to environmentally assess internal and external projects. He is also chair of an internal IFI working group on environmental assessment. Bryan Deegan (MCIEEM) holds a MSc in Environmental Science, BSc (Hons.) in Applied Marine Biology, NCEA National Diploma in Applied Aquatic Science and a NCEA National Certificate in Science (Aquaculture). Bryan Deegan carried out all elements of this draft Ecological Impact Assessment (EcIA). However, Hugh Delaney (ornithologist) is currently carrying out wintering bird assessments for the proposed development area and the results of the surveys will be included in due course. Final EcIA impact determination is pending these data.

Project Description

Dún Laoghaire Rathdown County Council intend to apply for Part 8 permission for the proposed development of Shanganagh Park – Phase 1, Shankill, Co. Dublin as part of the Shanganagh Park Masterplan. As outlined in the Part 8 report prepared by the Parks Section, Community & Cultural Development Department of DLR "The Shanganagh Park Masterplan identifies an intense active recreation zone towards the rear of the park. Currently DLR clubs are renting grass and all-weather pitches outside of the county for training and matches. Given the proposed significant increase in population as a result of the Woodbrook Shanganagh Local Area Plan, the development of this facility is a priority for Shanganagh Park Masterplan. The development of these facilities will increase active participation in the county through a multiple of different sports including GAA. Soccer, Baseball, Cricket, Athletics, etc. It strongly aligns with Space to Play, DLR Sports Facilities Strategy 2017-2022. The provision of these facilities ensures access to high quality active recreation facilities for the community."

The proposed site outline, location, general arrangement plan, and details of the proposed sports facilities are demonstrated in Figures 1-7. The Part 8 report outlines further details as follows:

Nature & Extent of the Proposed Development

"The nature and extent of the proposed development is outlined below. This description of the proposed works should be read in conjunction with the supporting drawings and reports.

Sand Based Grass Pitches:

The topsoil will be stripped and set aside on the site for re-use. The area is to be re-graded using a cut and fill method to create a level platform for the two pitches with falls and crossfalls. The topsoil will then be placed on the final levels and sand will be ameliorated into the surface. A warm-up area will also be located north of the proposed pitches between them and the sprint track.

Cricket & Baseball Facilities:

The cricket and baseball facilities will be amalgamed to an area to the south of the proposed pitches where the cricket pitch stands currently. This will include a standard baseball field with synthetic surface 60/90 dimensioned diamond and a competition standard cricket field with synthetic crease. In addition, it is proposed to install a fixed batting cage/cricket cage with 16z soft netting and artificial surface for practice including all associated fencing, netting and storage.

Sprint Track:

It is proposed to install a 6 lane 100m sprint/hurdles track on polymeric surfacing to World Athletics standards with long and triple jump facilities. This will include a storage area, a perimeter path and weldmesh fencing at a height of 1.2m.

Figure 1. *Proposed site outline and location*

Figure 2. *Proposed site outline*

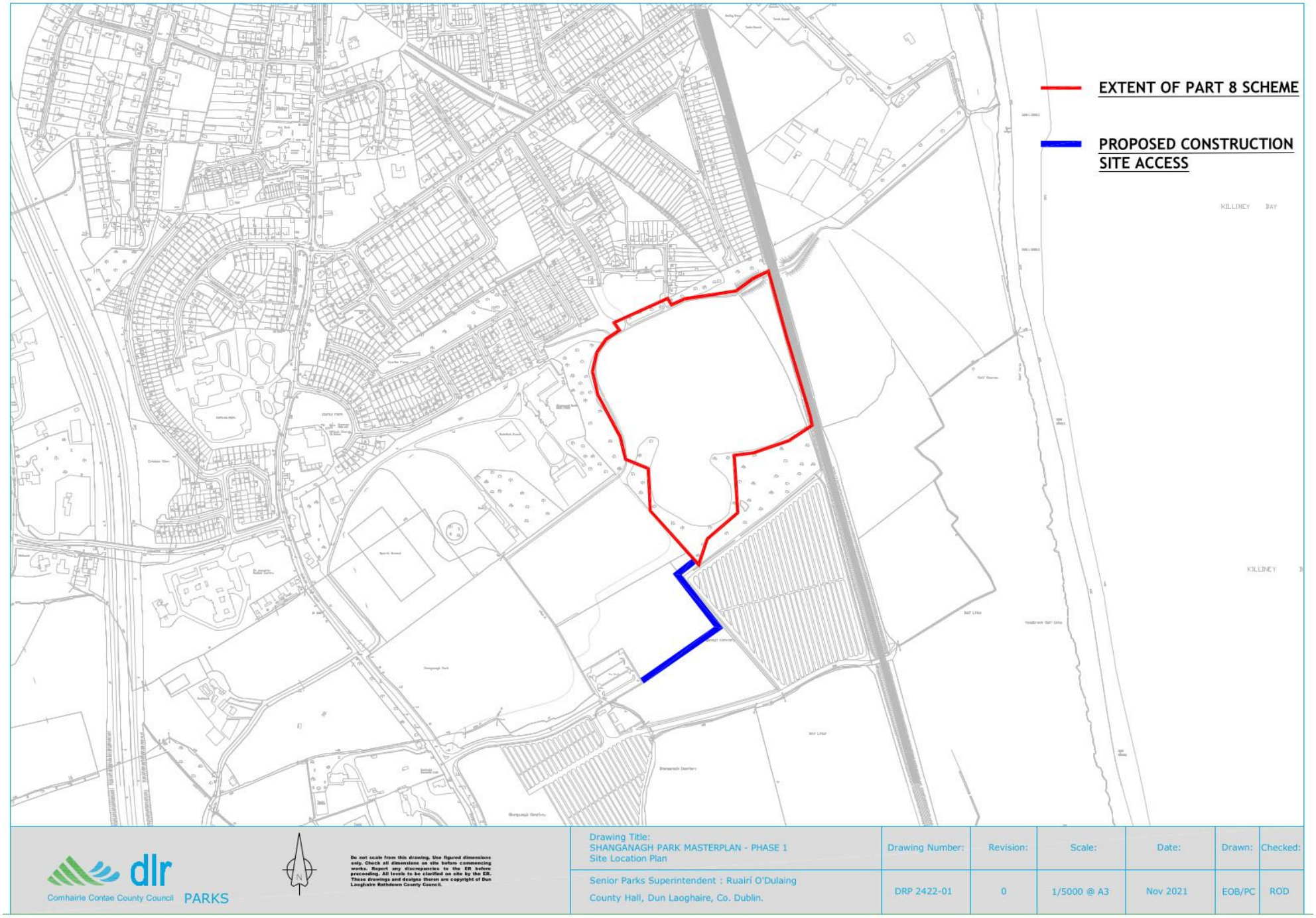

Figure 3. *Site location plan*

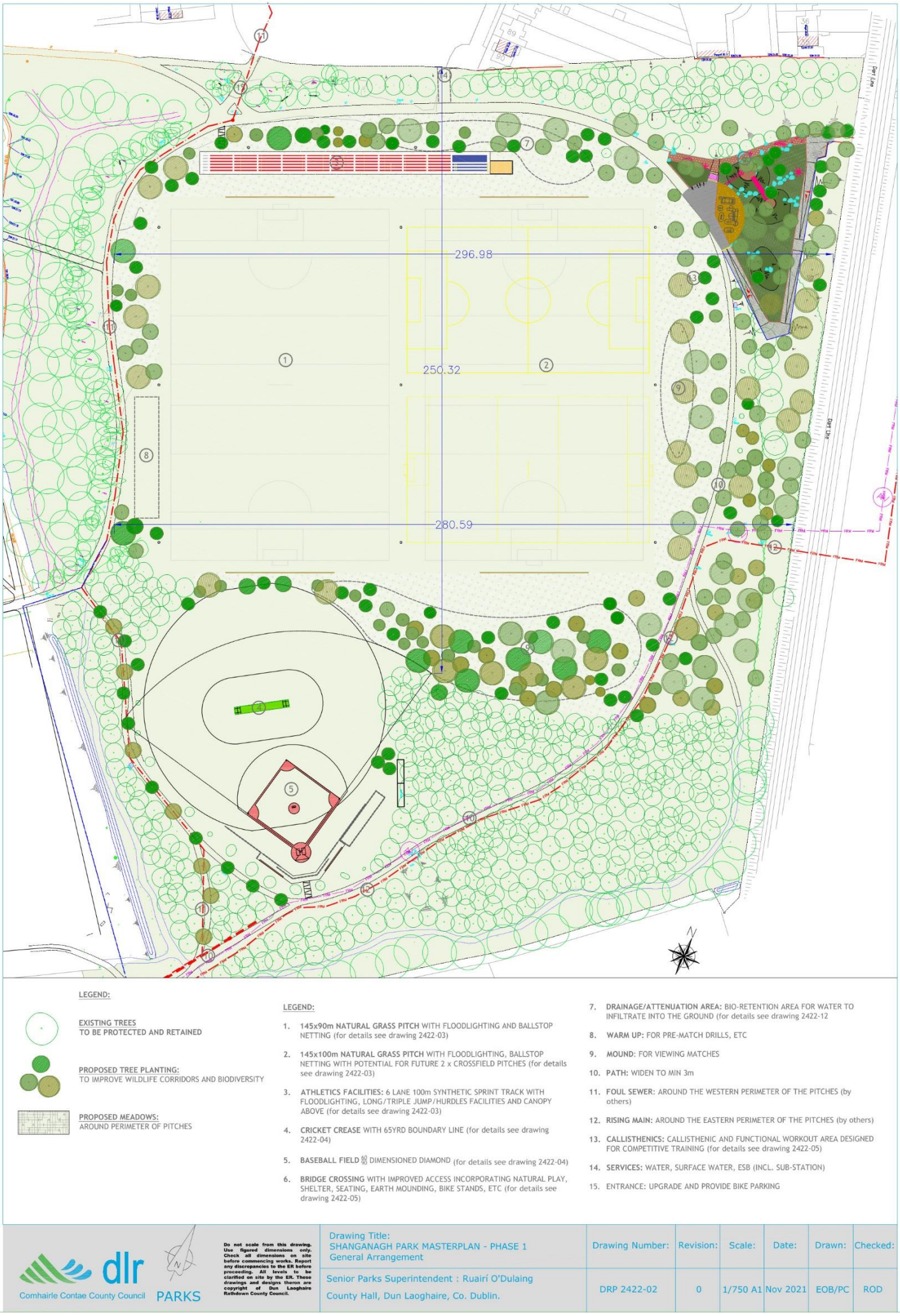

Figure 4. *General arrangement plan*

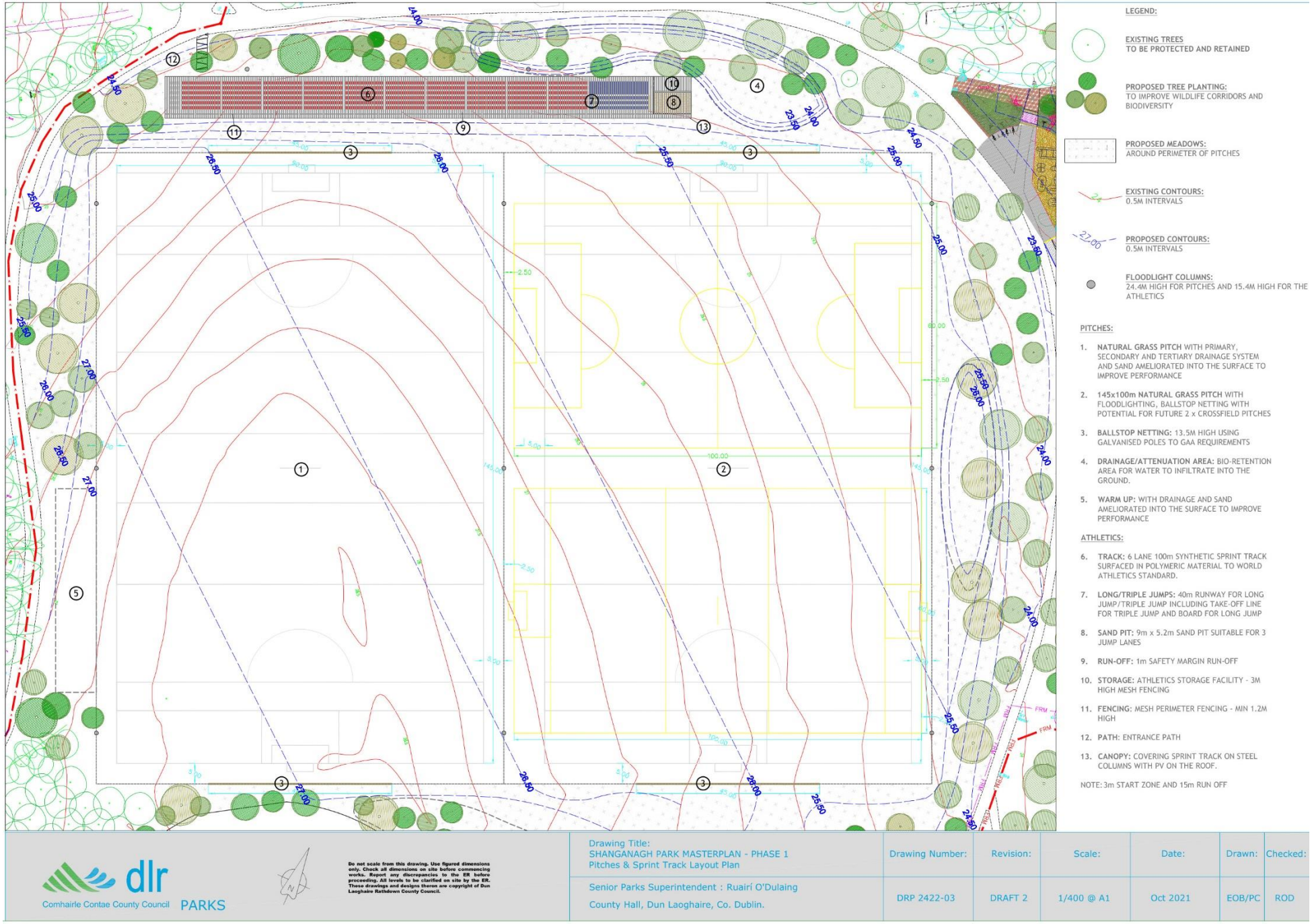

Figure 5. *Pitches and sprint track layout plan*

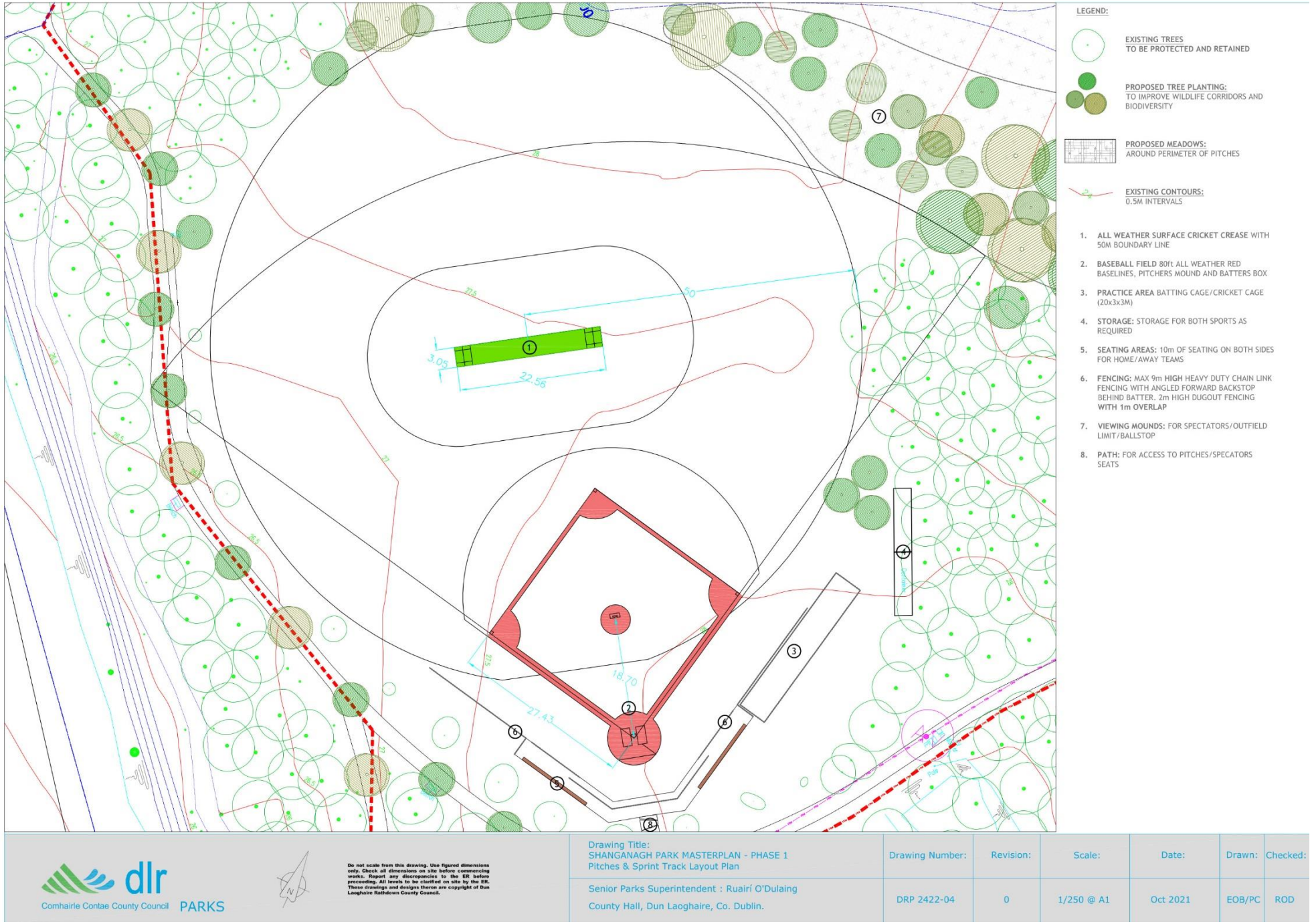

Figure 6. *Baseball and cricket pitch*

Figure 7. *Bridge crossing and calisthenics area*

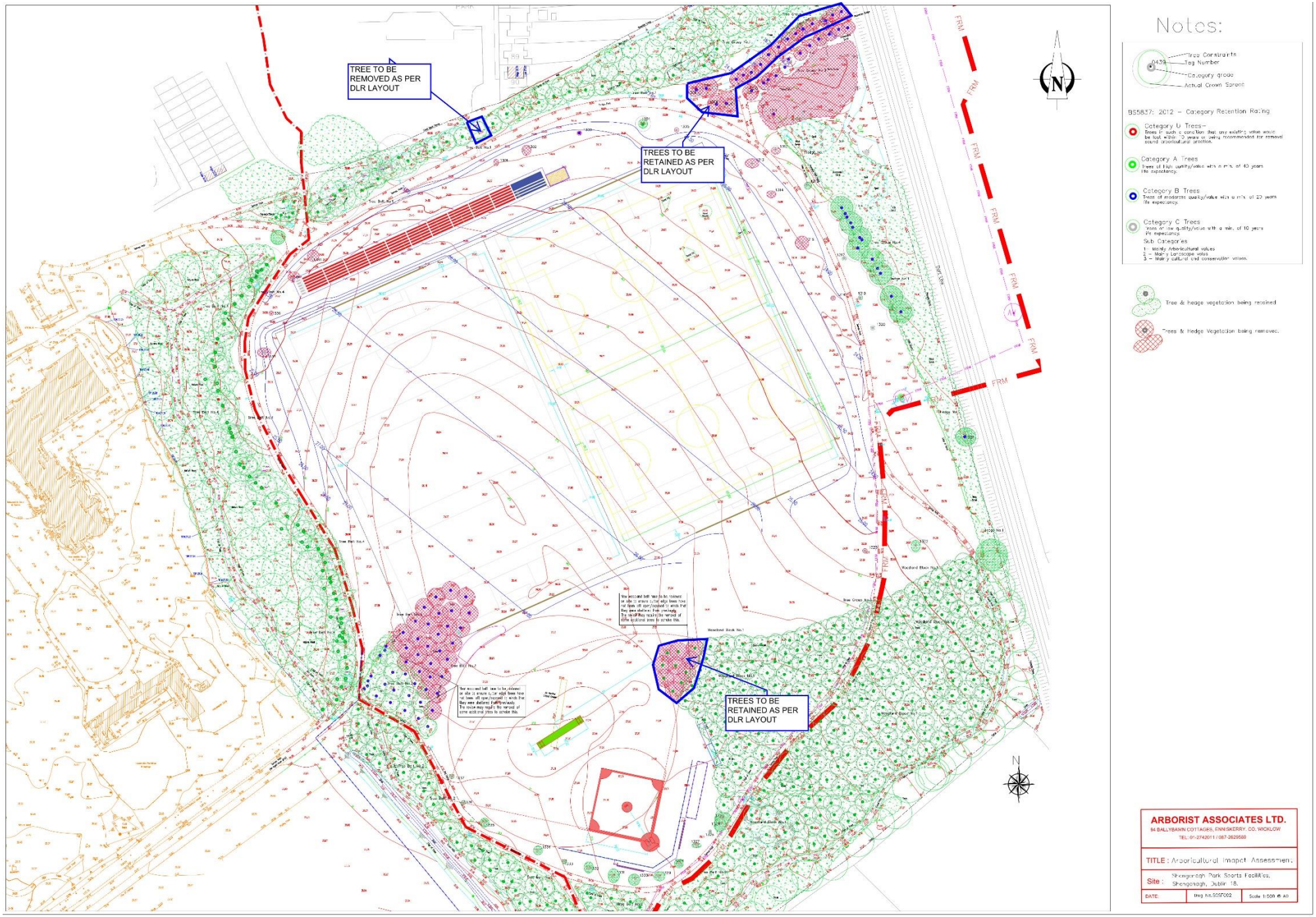

Figure 8. *Arboricultural assessment (incl. DLR markup)*

Floodlighting

Details of the proposed lighting plan for the development at Shanganagh Park are demonstrated in Figures 9-12. Discussions took place between Altemar and Musco Lighting consultants to ensure that the proposed floodlighting did not significantly impact on foraging bat activity within the park and introduce excessive light spill into the surrounding environment. Several iterations of the lighting strategy were prepared and assessed for potential negative impact on bats. The strategy proposed represent the final version of this consultation process. As seen in Figure 10 the ground light levels in the vicinity of the surrounding woodland is primarily < 1 lux (blue contour) and would therefore not prohibit bats from using existing foraging corridors. The lighting report states that "*The floodlighting design undertaken uses the latest floodlighting design technology to reduce the impact of light spill on adjoining lands, trees and hedgerows. The floodlighting for the grass pitches has been designed to achieve an average light level of 500 lux which is suitable for competitive hurling. The other potential sporting uses (soccer, gaelic football, rugby) require 250 lux level so this system can be dimmed and this lighting level will be most commonly used. The lighting design uses 9no. 24.4m high galvanised steel columns similar to those used in dlrs all-weather pitches. The floodlighting for the sprint track has been designed to achieve an average light level of 200 lux in accordance with World Athletics Standards. The lighting design uses 2no. 15.4m high galvanised steel columns similar to those used in dlrs tennis courts. The luminaires will be LED which are much more energy efficient than the metal halide alternative. Associated civil works (ducting, foundations for columns, installation of mini pillars etc) will be undertaken whilst all electrical controls and switches will be brought to an area adjacent to the substation at the tree line.*

A three-phase power connection and associated ESB substation will be required and this will be located in close proximity to the St. Annes maintenance access gate in the tree line. The lighting design has been prepared in compliance with the Chartered Institute of Building Services Engineers Lighting Guide 4: Sports Lighting (CIBSE LG4) & the Institute of Lighting Professionals (ILP), Guidance Note for the Reduction of Obtrusive Light GN01:2021 and Guidance Note for Bats and Artificial Lighting in the UK GN08:2018. All lighting will be designed to be bat sensitive. The lights will provide only the amount of light necessary for the task in hand and shield the light given out in order to avoid creating glare or omitting light above the horizontal plane. The lighting design and report has been undertaken by MUSCO Lighting and is included as an appendix to the main Part 8 report (see appendix 7)."

In discussion with Altemar a lighting strategy was prepared to further limit the potential impact of lighting on bats. The floodlighting will be operational, when required, potentially from 7am until 22:00, 7 days a week from October 15th to March 31st, during the main bat hibernation period. From April 1st to October 14th should lights be deemed necessary they will cease operation at civil twilight (rounded hour) e.g. 8pm in April, 9pm in May, 9pm in August and 8pm in September, in order to further protect bat foraging activity. This in effect reduces the potential lighting times i.e. cease lighting before 10pm for only 4 months of the year as seen (Table 1.)

Table 1. Proposed lighting times

	Time ON Civil Twilight 1st of each month	**Time OFF Mon to Thu**
Jan	16:15	22:00
Feb	17:07	22:00
Mar	18:02	22:00
Apr	19:59	20.00
May	20:53	21.00
Jun	21:42	22.00 (Not used)
Jul	21:56	22.00 (Not used)
Aug	21:20	21.00
Sep	20:15	20.00
Oct	19:02	22:00
Nov	16:53	22:00
Dec	16:10	22:00

Shanganagh Park Phase 1

Dublin,Leinster

Lighting System

Pole / Fixture Summary

Pole ID	Pole Height	Mtg Height	Fixture Qty	Luminaire Type	Load	Circuit
P1	24.4	24.4	5	TLC-LED-1500	7.15 kW	B
		24.4	4	TLC-LED-900	3.56 kW	B
P2	24.4	24.4	6	TLC-LED-1500	8.58 kW	B
		24.4	6	TLC-LED-1500	8.58 kW	C
		18.3	1	TLC-LED-1500	1.43 kW	B
		18.3	1	TLC-LED-1500	1.43 kW	C
P3	24.4	24.4	4	TLC-LED-1500	5.72 kW	C
		24.4	5	TLC-LED-900	4.45 kW	C
P4	24.4	24.4	9	TLC-LED-1500	12.87 kW	C
		24.4	9	TLC-LED-1500	12.87 kW	A
P5	24.4	24.4	10	TLC-LED-1500	14.30 kW	A
		24.4	6	TLC-LED-1500	8.58 kW	C
		24.4	6	TLC-LED-1500	8.58 kW	B
		24.4	1	TLC-LED-900	0.89 kW	A
		18.3	1	TLC-LED-1500	1.43 kW	C
		18.3	1	TLC-LED-1500	1.43 kW	B
P6	24.4	24.4	9	TLC-LED-1500	12.87 kW	A
		24.4	9	TLC-LED-1500	12.87 kW	B
P7, P9	24.4	24.4	5	TLC-LED-1500	7.15 kW	A
		24.4	5	TLC-LED-900	4.45 kW	A
P8	24.4	24.4	6	TLC-LED-1500	8.58 kW	A
		24.4	5	TLC-LED-900	4.45 kW	A
P10	15.2	15.2	4	TLC-LED-900	3.56 kW	D
P11	15.2	15.2	3	TLC-LED-900	2.67 kW	D
11			***131***		***170.05 kW***	

Circuit Summary

Circuit	Description	Load	Fixture Qty
A	Pitch 1	77.16 kW	60
B	Football 1 / Pitch 2	43.6 kW	32
C	Football 2 / Pitch 2	43.06 kW	32
D	Track	6.23 kW	7

Fixture Type Summary

Type	Source	Wattage	Lumens	L90	L80	L70	Quantity
TLC-LED-900	LED 4000K - 70 CRI	890W	89,600	>120,000	>120,000	>120,000	32
TLC-LED-1500	LED 4000K - 70 CRI	1430W	160,000	>120,000	>120,000	>120,000	99

Light Level Summary

Calculation Grid Summary

Grid Name	Calculation Metric	Illumination					Circuits	Fixture Qty
		Ave	Min	Max	Min/Max	Min/Ave		
Football 1	Horizontal Illuminance	516	376	734	0.51	0.73	B	32
Football 2	Horizontal Illuminance	508	364	771	0.47	0.72	C	32
GAA Pitch 1	Horizontal Illuminance	503	367	701	0.52	0.73	A	60
GAA Pitch 2	Horizontal Illuminance	543	386	775	0.50	0.71	B,C	64
Spill Blanket	Horizontal	269	0	926	0.00	0.00	A,B,C,D	131
Spill line	Horizontal	1.11	0	2.98	0.00	0.00	A,B,C,D	131
Spill line	Max Candela (by Fixture)	7148	27.3	43144	0.00	0.00	A,B,C,D	131
Track	Horizontal Illuminance	242	121	373	0.33	0.50	D	7

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PROJECT SUMMARY

Figure 9. *Proposed lighting – project summary*

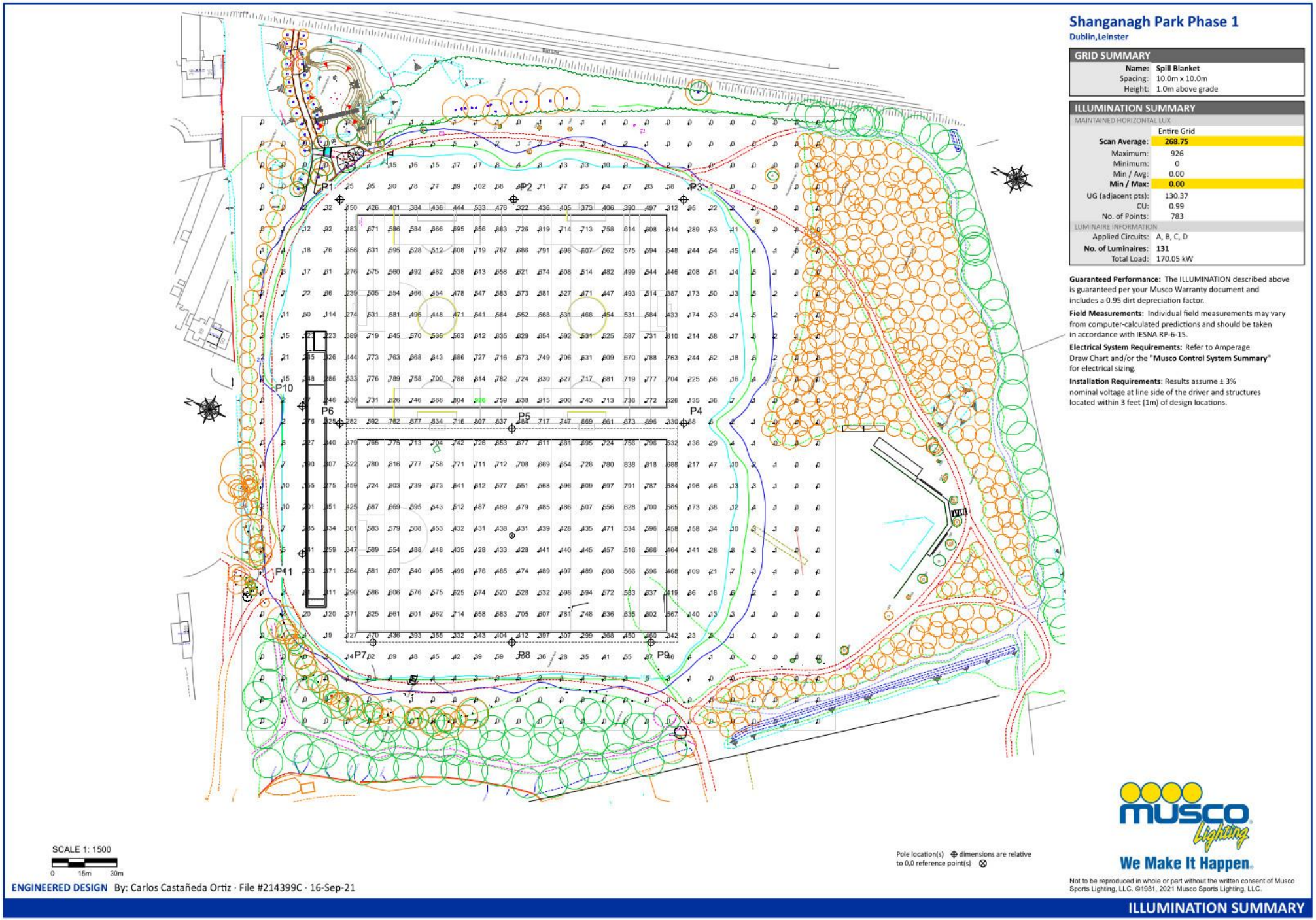
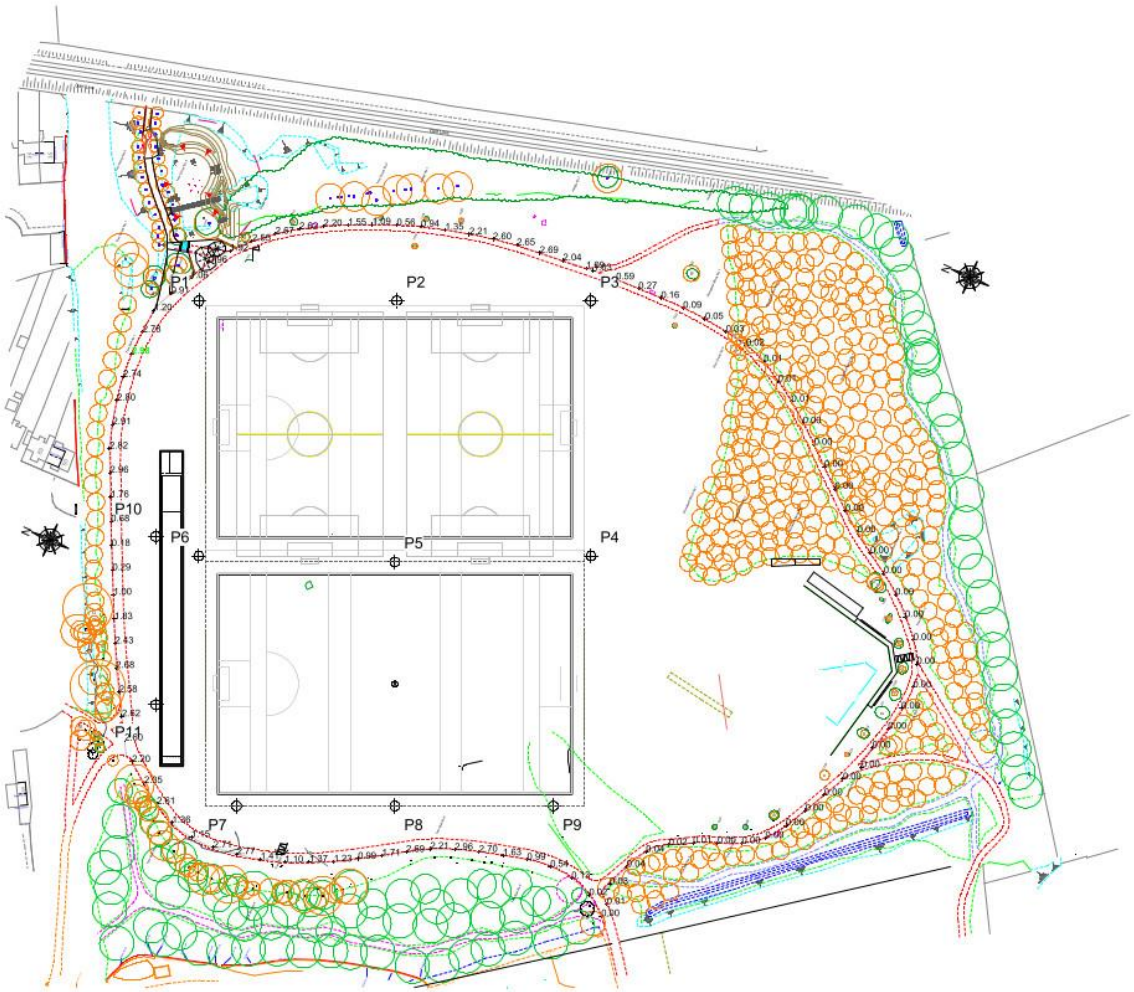


Figure 10. *Proposed lighting – spill blanket*



Shanganagh Park Phase 1

Dublin,Leinster

GRID SUMMARY	
Name:	**Spill line**
Spacing:	10.0m
Height:	1.0m above grade

ILLUMINATION SUMMARY	
HORIZONTAL LUX	
	Entire Grid
Scan Average:	1.1053
Maximum:	2.98
Minimum:	0.00
No. of Points:	102
LUMINAIRE INFORMATION	
Applied Circuits:	A, B, C, D
No. of Luminaires:	**131**
Total Load:	170.05 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

SCALE 1: 2000

0 20m 40m

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗

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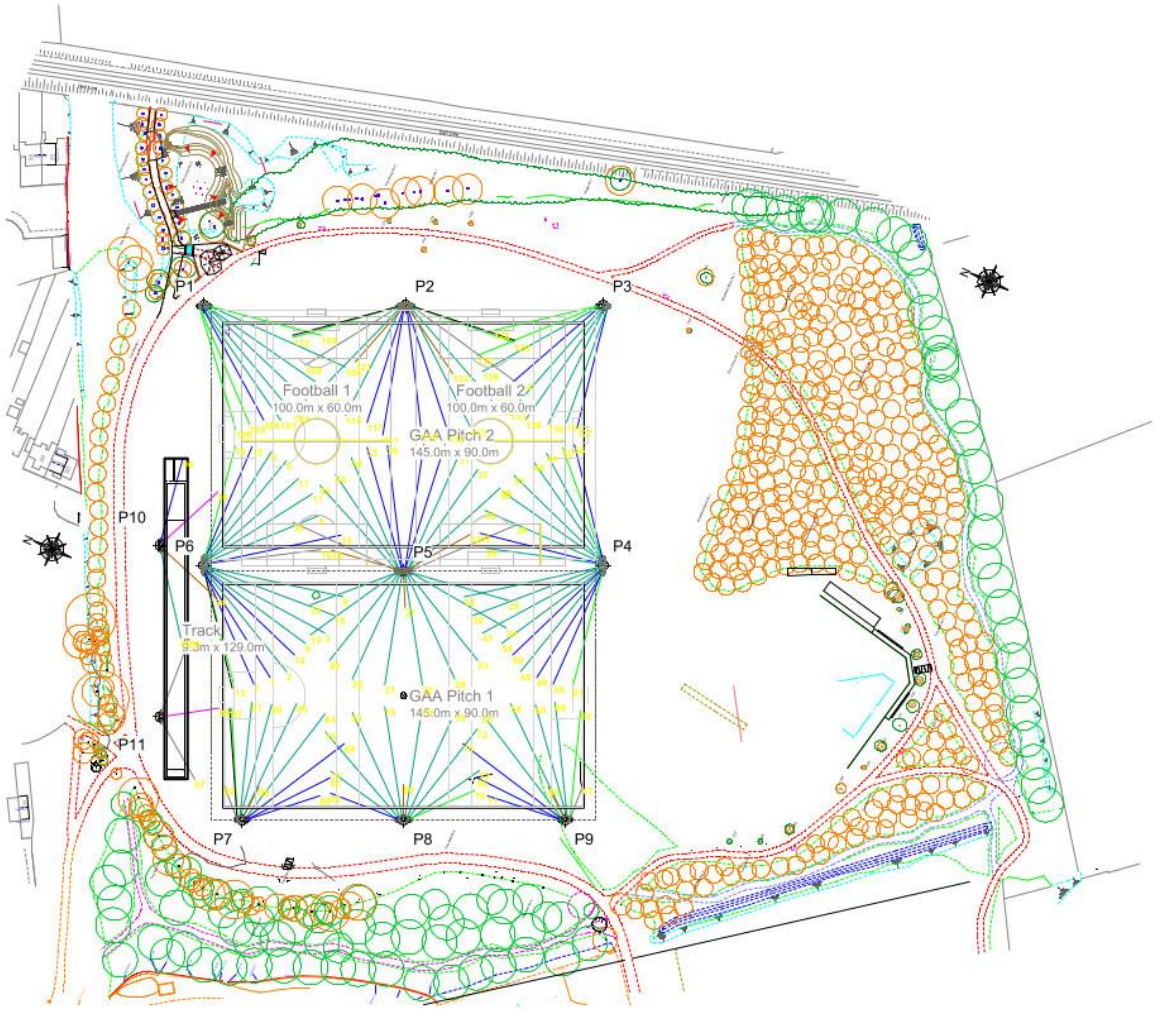
ILLUMINATION SUMMARY

Figure 11. *Proposed lighting – spill line*



Shanganagh Park Phase 1

Dublin,Leinster

EQUIPMENT LAYOUT

INCLUDES:
- Football 1
- Football 2
- GAA Pitch 1
- GAA Pitch 2
- Track

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

EQUIPMENT LIST FOR AREAS SHOWN

	Pole			Luminaires		
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE
1	P1	24.38m	-	24.38m	TLC-LED-1500	5
				24.38m	TLC-LED-900	4
1	P2	24.38m	-	18.29m	TLC-LED-1500	2
				24.38m	TLC-LED-1500	12
1	P3	24.38m	-	24.38m	TLC-LED-1500	4
				24.38m	TLC-LED-900	5
2	P4, P6	24.38m	-	24.38m	TLC-LED-1500	18
1	P5	24.38m	-	24.38m	TLC-LED-1500	10/12*
				18.29m	TLC-LED-1500	2
				24.38m	TLC-LED-900	1
2	P7, P9	24.38m	-	24.38m	TLC-LED-1500	5
				24.38m	TLC-LED-900	5
1	P8	24.38m	-	24.38m	TLC-LED-1500	6
				24.38m	TLC-LED-900	5
1	P10	15.24m	-	15.24m	TLC-LED-900	4
1	P11	15.24m	-	15.24m	TLC-LED-900	3
11	TOTALS					131

* This structure utilizes a back-to-back mounting configuration

SINGLE LUMINAIRE AMPERAGE DRAW CHART

Ballast Specifications (.90 min power factor)	Line Amperage Per Luminaire (max draw)					
Single Phase Voltage	220 (50)	230 (50)	240 (50)	380 (50)	400 (50)	415 (50)
TLC-LED-900	5.0	4.8	4.6	2.9	2.8	2.7
TLC-LED-1500	8.1	7.7	7.4	4.7	4.4	4.3

SCALE 1: 2000

0 20m 40m

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗

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EQUIPMENT LAYOUT

Figure 12. *Proposed lighting – equipment layout*

Drainage

A Part 8 Report has been prepared by Dún Laoghaire Rathdown County Council to outline details of the proposed development of Shanganagh Park – Phase 1, Shankill, Co. Dublin. In relation to Surface Water Drainage, this report outlines the following:

'*Surface Water Drainage:*

Slit drains and perforated lateral drains will be installed across the pitches and directed to a bio-retention area via collector drains that will be installed around the perimeter of the pitch. Further minor drainage will take place at the cricket/baseball field as required, the sprint track and at the bottom of any steep slopes. The attenuation system will be an above ground bio-retention pond is to be located along the northern boundary of the pitches and will be designed so that attenuation will be provided for the 1.0% AEP (1:100 year) storm event. The attenuation system outflow will be controlled by a hydrobrake connected to the existing surface water drainage system with the outflow restricted to 2l/s/ha or Qbar, whichever is the greater, in accordance with the Greater Dublin Strategic Drainage Strategy (GDSDS). The exact size of attenuation system will be determined by a drainage engineer following further geotechnical site investigation and will be subject to the agreement of the Water & Drainage Section.'

After consultation with Dún Laoghaire Rathdown County Council, it has been concluded that surface water overflow will be directed to an existing surface water drainage network within St. Anne's Park, located to the north of the subject site. This network ultimately outfalls to the marine environment at Killiney Bay.

"Callisthenics:

A callisthenics and functional workout area is proposed to the east of the pitches in close proximity to the bridge crossing. This will provide an opportunity for citizens to access high quality facilities for exercise and play in a less structured manner.

Fencing & Netting:

The cricket and baseball zone will include a zone of fencing to the rear of the batting area to protect members of the public. The fencing is to be a maximum height of 6m to the rear of the baseball diamond. The sprint track will be enclosed by a 1.2m high sprint welmesh fence with associated pedestrian and vecicular access gates.

High Ballstop Netting:

The ballstop netting will installed to the rear of the goals on the GAA pitch. The netting will be supported by galvanised steel uprights to a height of 13.5m.

Bicycle Parking:

Bike stands will be located adjacent to the St. Annes entrance and the bridge crossing at the DART line.

Car Parking:

The main car park at Shanganagh Park & Cemetery will be the car parking to serve this site. Dun Laoghaire Rathdown County Council will actively work with club users to encourage more sustainable modes of transport and to refrain from parking in nearby housing developments.

Entrances:

The entrance into St. Annes will be upgraded to improve permeability and promote access for all.

Mounding:

Earth mounding will be provided to the south and east of pitch 2 for viewing. These mounds will be also planted with trees likely to be managed as a meadow.

Access Over DART Line:

Access over the DART line is to be improved by reducing the gradient of the slope, adding handrails and resting areas. In addition, some natural play will be incorporated into the space as well as a seating and viewing space.

Footpaths:

The footpath along the eastern section of the pitches and to the south of the cricket/baseball field will be widened to approx. 3m wide and a no dig method will be used when traversing through the woodland.

Services:

The ESB and water connections will be brought to the site via the nearby St. Annes estate. A small galvanised and powder coated substation will be placed in the tree-line close to the maintenance access gates from St. Annes. In addition, the surface water connection from the attenuation system will be brought out in the same trench to minimise any impacts to trees and hedgerows.

Refillable Water Fonts:

Refillable water fonts will be placed at appropriate locations throughout the site.

Tree Planting:

Significant additional tree planting will take place throughout the site to add to the sense of enclosure and provide shelter for the sports. The majority of the proposed planting will be native species with some suitable non-native species to be considered. The new planting will primarily consist of whips and standards but will also include some semi-mature trees to have immediate impact on the site. This will help to sequester carbon, improve air quality and increase biodiversity.

Meadows:

The areas that are not sports related will be managed as meadows where paths can be cut through if appropriate. This will add a buffer to the woodland and hedgerows while adding interest and improving biodiversity."

Arborist

A Condition Assessment of Trees within the site area at 'Shanganagh Park', Shankill, Co. Dublin has been prepared by Arborist Associates Ltd. to accompany this planning application. This report outlines the following:

'Findings

The site area is irregularly square in shape and is bordered by private residencies to the north, by the railway line to its east and by the grounds of 'Shanganagh Park' to its south and west. Metal fencing makes up the boundaries on the north and east side and the tree belts make up the boundaries on the south and west sides. There is a large open grass area in the middle of the site with a public footpath around its perimeter and tree belts and hedges outside of these paths. This area has also been rejuvenated with young tree planting over the last few years.

The following gives a brief summary of the vegetation within the site area.

***Tree Belt No.1** extends east to west across the northern boundary and it is a prominent group of trees with a good mix of young to early- mature trees with diverse species such as Ash, Poplar, Field Maple, Hazel and Larch, to name but a few.*

***Tree Group No.1** is located at the western end of 'Tree Belt No.1' and they are a prominent group of trees within this area. It is an early -mature group of trees consisting of Ash, Sycamore and Willow.*

***Tree Group No.2 and Tree Group No.3** are growing in the north-east corner of the site area on either side of the pedestrian footpath/ bridge that extends over the railway line. They are semi-mature trees with good potential for the long-term tree cover in this area and they contain mixed species such as Ash, Alder and Larch.*

***Tree Nos.0301-0309** are located to the south of the above tree belts and groups and consists of a mix of tree species generally of a semi-mature to early-mature age class establishing well with some having the potential to provide good quality tree cover for the future.*

***Hedge No.1** extends north to south along the eastern boundary with the railway line and it is a broad scrubby hedge consisting predominantly of Bramble with some Hawthorn, Holly and Elder in places. Within Hedge No.1 is **Tree Group No.4** and **Tree Nos.0311 & 0321** all Ash of a semi-mature to early-mature age class and some, in particular Tree Group No.4 are of prominence within this hedge. This hedge and the trees within have value as screening in this area and act as a buffer between 'Shanganagh Park' and the railway line to the east.*

***Tree Nos.0312-0320, 0322 & 0323** are located west of 'Hedge No.1' and consists of a mix of tree species planted either side of the perimeter path. These are of a young age class having been planted in recent years and most of them are establishing well with good potential to form part of the long-term tree cover.*

***Woodland Block No.1** is located in the south-west corner of the site area and it is a large prominent group of mixed species of varying age-classes. The most predominant species is Ash and Sycamore with a lot of Field Maple in the lower canopy and seedling trees developing throughout the undergrowth. Pedestrian footpaths break up this woodland block into sub-compartments and the crowns of these trees overhang these paths. On either side of the pedestrian path on the north side of this woodland block is **Tree Group No.5** which consists of a group of young mixed-Pine trees with good potential for the long-term tree cover in this area and it adds to the species diversification of 'Woodland Block No.1'.*

***Tree Belt No.2** extends east to west across the southern boundary and the crowns of these trees overhang the public footpaths in this area. It consists of mixed species of predominantly early-mature trees and as a tree belt; they are of prominence within the treescape of the area. It is comprised of mainly Ash with some Beech and Horse Chestnut in places.*

***Tree Nos. 0324 – 1337** are located on the northern side of the public footpath out from 'Tree Belt No.2' and consists of a mix of tree species. These are of a young to semi- mature age class having been planted in recent years and most are establishing well with potential to form part of the long-term tree cover.*

***Tree Belt No.3** is located north of 'Tree Belt No.2' and it protrudes out into the open grass area. It is a prominent tree belt in this area consisting of mixed species such as Ash and Sycamore throughout the upper-canopy and Field-Maple and Rowan within the lower canopy. This tree group is made up of mainly early-mature trees.*

***Tree Belt No.4** extends north to south along the western boundary and it is a prominent tree belt in this area. This tree belt consists of mostly early-mature trees with self-seeded trees, such as Sycamore developing throughout the lower canopy. It is comprised mainly of Ash and Sycamore trees with some Poplar towering above the rest of the upper-canopy at the southern end. Hazel and Alder can be found within the lower canopy and the crowns of these trees overhang the public footpath at the southern end of this tree belt.*

Tree Nos.1338-1341 *are located on the eastern side of the public pathway out from the northern end of 'Tree Belt No.4' and consists of a mix of tree species. These are of a young age class having been planted in recent years and most are establishing well with good potential to form part of the long-term tree cover.*

Within the site area, 41Nol trees have been tagged with one woodland block, five tree groups, four tree belts and one hedge numbered numerically.

The following table gives a breakdown of the category grading allocation as per the cascade chart in BS5837 2012:

Category Grade	No. of trees
Category U **0 Trees**	**Tree Nos.** No Trees
Category A **1 Tree** **+ 2 Tree Belts** **+ 1 Tree Group** **+ 1 Woodland Block**	**Tree Nos.** 1304 **Tree Belt Nos.** 1 & 4 **Tree Group No.** 1 **Woodland Block No.** 1
Category B **8 Trees** **+ 1 Tree Belt** **+ 3 Tree Groups** **+ 1 Hedge**	**Tree Nos.** 1303, 1306, 1307, 1308, 1309, 1310, 1311 & 1321 **Tree Belt No.** 3 **Tree Group Nos.** 2, 3 & 4 **Hedge No.**1
Category C **32 Trees** **+ 1 Tree Group**	**Tree Nos.** 1301, 1302, 1305, 1312, 1313, 1314, 1315, 1316, 1317, 1318, 1319, 1320, 1322, 1323, 1324, 1325, 1326, 1327, 1328, 1329, 1330, 1331, 1332, 1333, 1334, 1335, 1336, 1337, 1338, 1339, 1340 & 1341 **Tree Group No.** 5
Total	**41 Trees + 4 Tree Belts + 5 Tree Groups + 1 Woodland Block + 1 Hedge**

Management

All tree and hedge vegetation being retained within the development of this site area will require their root protection areas enclosed by fencing to the recommendations of BS5837 2012 and this will need to be retained in place for the duration of the development works on this site area.

The tree and hedge vegetation being retained will need to be reviewed once the site layout has been completed and the necessary remedial tree surgery works have been carried out to promote safety to the end users of this area. All tree works both felling and pruning are to be carried out to the specifications of BS 3998:2010 by a competent tree surgery firm with adequate insurance.'

An Arboricultural Impact Assessment (including the markup provided by DLR Consulting) is demonstrated in Figure 8.

Ecological Assessment Methodology

Desk Study

A desk study was undertaken to gather and assess ecological data prior to undertaking fieldwork elements. Sources of datasets and information included:

- The National Parks and Wildlife Service
- National Biological Data Centre
- Satellite, aerial and 6" map imagery
- ESRI (QGIS)

A provisional desk-based assessment of the potential species and habitats of conservation importance was carried out in June 2021. Altemar assessed the project, the proposed access, construction methodology and the operation of the proposed development. It was determined that the proposed development had the potential to impact beyond the site outline and into the surrounding environment, primarily via lighting, dust, noise, surface water runoff and drainage which includes the proposed outfall of overflow surface water drainage to an existing surface water network within St. Anne's Park, located to the north of the site. As this network ultimately outfalls to the marine environment at Killiney Bay. there is an indirect hydrological pathway to designated conservation sites located within the marine environment. In relation to lighting considerable consultation hac been carried out with the lighting designer in relation to spill and the bat foraging routes along woodland boundaries. This has resulted in a design with contained light spill and restricted hours during summer months in order to ensure that bat foraging remains on site.

Spatial Scope and Zone of Influence

As outlined in CIEEM (2018) '*The 'zone of influence' for a project is the area over which ecological features may be affected by biophysical changes as a result of the proposed project and associated activities. This is likely to extend beyond the project site, for example where there are ecological or hydrological links beyond the site boundaries.*' In line with best practice guidance an initial zone of influence be set at a radius of 2km for non-linear projects (IEA, 1995).

The potential ZOI of the construction phase of the project in the absence of mitigation was deemed to be within the site outline and habitats proximate to the proposed works. However, due to the self-contained nature and limited temporal/ geographical scale of the project, within a public park space, in addition to compliance requirements in relation to SUDS, Water Pollution Acts and on site discharges, it is considered that the impacts of the proposed works, following mitigation, would not extend beyond site outline, with the exception of mammal and avian activity where the proposed site may form part of a larger territorial range. The project would also involve reprofiling, which may impact beyond the site through noise, dust. In addition, lighting of the pitches could impact beyond the site outline. However, as previously discussed considerable consultation has gone in to limit the potential for light spill from the proposed lighting. Standard but robust construction phase controls need to be implemented to limit the potential impact of the proposed development into the surrounding environment. The ZOI of the operation of the proposed development would be the immediate area of the proposed development site with potential for noise and surface water impacts beyond the site outline.

Field Survey

Field survey of the proposed development site was carried out by Altemar Ltd. on the 3rd August 2021, 25th August 2021, 16th September 2021 and 5th December 2021. The purpose of the field surveys was to identify habitat types according to the Fossitt (2000) habitat classification and map their extent. In addition, more detailed information on the species composition and structure of habitats, conservation value and other data were gathered.

A bat survey (emergent and detector) was also carried out on the 25th August 2021 and 16th September 2021 and assessed the site for roosting potential. At dusk a bat detector survey was carried out onsite using an echo meter touch 2 pro detector to determine bat activity. Bats if present were identified by their ultrasonic calls coupled with behavioural and flight observations. A mammal assessment was carried out on the 5th December 2021. A Wintering Bird Survey is currently underway at this site. Potential impacts on the bird species protected as qualifying interests of this SPA will be determined upon completion of this survey.

Survey Limitations

The surveys covered appropriate seasons for flora and bat assessments. The survey was outside the optimal time of year for terrestrial mammal and wintering bird assessments. The site consisted primarily of open ground with a small area of woodland. There was no evidence of protected terrestrial mammal activity on site. All areas of the site were accessible and there are no limitations seen in relation to the surveys. However, a further in season mammal assessment and wintering bird surveys will be carried out.

Consultation

The National Parks and Wildlife Service (NPWS) were consulted in relation to species and sites of conservation interest. Data of rare and threatened species were acquired from NPWS. The National Biological Data Centre records were consulted for species of conservation significance.

Impact Assessment Significance Criteria

This section of the EcIA examines the potential causes of impact that could result in likely significant effects to the species and habitats that occur within the ZOI of the proposed development. These impacts could arise during either the construction or operational phases of the proposed development. The following terms are derived from EPA EIAR Guidance and are used in the assessment to describe the predicted and potential residual impacts on the ecology by the construction and operation of the proposed development.

Magnitude of impact and typical descriptions

Magnitude of impact (change)		Typical description
High	Adverse	Loss of resource and/or quality and integrity of resource; severe damage to key characteristics, features or elements.
	Beneficial	Large scale or major improvement of resource quality; extensive restoration; major improvement of attribute quality.
Medium	Adverse	Loss of resource, but not adversely affecting the integrity; partial loss of/damage to key characteristics, features or elements
	Beneficial	Benefit to, or addition of, key characteristics, features or elements; improvement of attribute quality.
Low	Adverse	Some measurable change in attributes, quality or vulnerability; minor loss of, or alteration to, one (maybe more) key characteristics, features or elements.
	Beneficial	Minor benefit to, or addition of, one (maybe more) key characteristics, features or elements; some beneficial impact on attribute or a reduced risk of negative impact occurring
Negligible	Adverse	Very minor loss or alteration to one or more characteristics, features or elements.
	Beneficial	Very minor benefit to or positive addition of one or more characteristics, features or elements.

Criteria for Establishing Receptor Sensitivity/Importance

Importance	Ecological Valuation
International	Sites, habitats or species protected under international legislation e.g. Habitats and Species Directive. These include, amongst others: SACs, SPAs, Ramsar sites, Biosphere Reserves, including sites proposed for designation, plus undesignated sites that support populations of internationally important species.
National	Sites, habitats or species protected under national legislation e.g. Wildlife Act 1976 and amendments. Sites include designated and proposed NHAs, Statutory Nature Reserves, National Parks, plus areas supporting resident or regularly occurring populations of species of national importance (e.g. 1% national population) protected under the Wildlife Acts, and rare (Red Data List) species.
Regional	Sites, habitats or species which may have regional importance, but which are not protected under legislation (although Local Plans may specifically identify them) e.g. viable areas or populations of Regional Biodiversity Action Plan habitats or species.
Local/County	Areas supporting resident or regularly occurring populations of protected and red data listed-species of county importance (e.g. 1% of county population), Areas containing Annex I habitats not of international/national importance, County important populations of species or habitats identified in county plans, Areas of special amenity or subject to tree protection constraints.
Local	Areas supporting resident or regularly occurring populations of protected and red data listed-species of local importance (e.g. 1% of local population), Undesignated sites or features which enhance or enrich the local area, sites containing viable area or populations of local Biodiversity Plan habitats or species, local Red Data List species etc.
Site	Very low importance and rarity. Ecological feature of no significant value beyond the site boundary

Quality of Potential Impacts on Biodiversity

	Impact Description
Negative /Adverse Impact	A change which reduces the quality of the environment (for example, lessening species diversity or diminishing the reproductive capacity of an ecosystem; or damaging health or property or by causing nuisance).
Neutral Impact	No effects or effects that are imperceptible, within normal bounds of variation or within the margin of forecasting error.
Positive Impact	A change which improves the quality of the environment (for example, by increasing species diversity; or the improving reproductive capacity of an ecosystem, or by removing nuisances or improving amenities).

Significance of Impacts

Significance of Impact	Description of Potential Impact
Imperceptible	An effect capable of measurement but without significant consequences.
Not significant	An effect which causes noticeable changes in the character of the environment but without significant consequences.
Slight Effects	An effect which causes noticeable changes in the character of the environment without affecting its sensitivities.
Moderate Effects	An effect that alters the character of the environment in a manner that is consistent with existing and emerging baseline trends.
Significant Effects	An effect which, by its character, magnitude, duration or intensity alters a sensitive aspect of the environment.
Very Significant	An effect which, by its character, magnitude, duration or intensity significantly alters most of a sensitive aspect of the environment.
Profound	An impact which obliterates sensitive characteristics.

Duration of Impact

Duration of Impact	Description
Momentary	Effects lasting from seconds to minutes
Brief	Effects lasting less than a day
Temporary	Effects lasting less than a year
Short-term	Effects lasting one to seven years.
Medium-term	Effects lasting seven to fifteen years.
Long-term	Effects lasting fifteen to sixty years.
Permanent	Effects lasting over sixty years
Reversible	Effects that can be undone, for example through remediation or restoration
Likely Effects	The effects that can reasonably be expected to occur because of the planned project if all mitigation measures are properly implemented.
Unlikely Effects	The effects that can reasonably be expected not to occur because of the planned project if all mitigation measures are properly implemented.
Extent of Effects	Description
Extent	Describe the size of the area, the number of sites, and the proportion of a population affected by an effect.

As outlined in IEEM (2010) *'assessment of impacts should be undertaken in relation to the baseline conditions within the zone of influence of the proposed development'.* Impacts during site preparation, construction and occupation upon ecological receptors were quantified and characterised based on IEEM impact characterisation (IEEM, 2010) (Table 2) Following an evaluation of ecological receptors, the potential impact (positive, neutral or adverse) of the project on the ecological receptors was carried out based on the criteria in an impact significance matrix (based on NRA, 2009) (Table 3).

Results

Proximity to Designated Conservation Sites

Designated conservation sites (National and international) within 15km of the proposed development are seen in Figures (13-16) and Table 4. It should be noted that the proposed development site is not within a designated conservation area. The closest Natura 2000 site is Rockabill to Dalkey Island SAC, located 2.6 km from the proposed development site (Figure 13). The nearest SPA to the proposed development site is the Dalkey Islands SPA which is located 4.8 km from the subject site (Figure 14). There are no designated Natural Heritage Areas (NHA) within a 15km radius, however, the nearest Proposed NHA (Loughlinstown Woods pNHA) is located 1.6 km from the site (Figure 15). The closest RAMSAR Site is Sandymount Strand/Tolka Estuary at 7.9 km (Figure 16). There is no direct hydrological pathway to designated conservation sites. Given that the proposed development will largely consist of reconfiguring a relatively flat greenfield site, it would be expected that surface water drainage during construction will settle within the site boundaries during construction. However, measures should be in place to control surface water runoff into adjacent habitats particularly along site boundaries and haulage routes. However, as there are no watercourses on site or pathways to Natura 2000 sites during construction, these measures are deemed for local biodiversity protection and are not necessary for the protection of Natura 2000 sites. Post construction and during operation when the surface water overflow has been connected at the final stage of the project, surface water during operation will be directed to an existing surface water drainage network within St. Anne's Park, located to the north of the subject site. This network ultimately outfalls to the marine environment at Killiney Bay. In the absence of mitigation, any silt or pollutants will settle, be dispersed or diluted within the marine environment and will have no significant impact on the designated sites. Watercourses and designated conservation sites within 10km of the subject site (with the potential for an indirect hydrological pathway) are demonstrated in Figures 17-20.

Table 1. Natura 2000 sites within 15km of the proposed site

Site Code	NATURA 2000 Site	Distance
Special Areas of Conservation		
IE003000	Rockabill to Dalkey Island SAC	2.6 km
IE000713	Ballyman Glen SAC	3 km
IE000714	Bray Head SAC	3.5 km
IE000725	Knocksink Wood SAC	4.7 km
IE002122	Wicklow Mountains SAC	7.5 km
IE000210	South Dublin Bay SAC	7.9 km
IE000719	Glen of the Downs SAC	8.9 km
IE000716	Carriggower Bog SAC	13.2 km
IE002249	The Murrough Wetlands	13 km
IE000206	North Dublin Bay SAC	13.2 km
IE000202	Howth Head SAC	14.8 km
Special Protection Area		
IE004172	Dalkey Islands SPA	4.8 km
IE004040	Wicklow Mountains SPA	7.8 km
IE004024	South Dublin Bay and River Tolka Estuary SPA	7.9 km
IE004006	North Bull Island SPA	13.1 km
IE004186	The Murrough SPA	14 km

Table 2. (proposed) NHAs within 15km of the proposed development site

Status	Site Name	Distance
Ramsar	Sandymount Strand/Tolka Estuary	7.9 km
Ramsar	North Bull Island	13.2 km
Proposed NHA	Loughlinstown Woods	1.6 km
Proposed NHA	Ballyman Glen	3 km
Proposed NHA	Bray Head	3.5 km
Proposed NHA	Dargle River Valley	4.4 km
Proposed NHA	Dingle Glen	4.1 km
Proposed NHA	Dalkey Coastal Zone and Killiney Hill	1.9 km
Proposed NHA	Knocksink Wood	4.7 km
Proposed NHA	Ballybetagh Bog	5.3 km
Proposed NHA	Powerscourt Woodland	5.3 km
Proposed NHA	Great Sugar Loaf	5.8 km
Proposed NHA	Kilmacanoge Marsh	6.5 km
Proposed NHA	South Dublin Bay	7.8 km
Proposed NHA	Glencree Valley	8.2 km
Proposed NHA	Fitzsimons Wood	8.7 km
Proposed NHA	Glen of the Downs	8.9 km
Proposed NHA	Booterstown Marsh	10.5 km
Proposed NHA	The Murrough	12.2 km
Proposed NHA	Carriggower Bog	13 km
Proposed NHA	North Dublin Bay	13.2 km
Proposed NHA	Dolphins, Dublin Docks	13.6 km
Proposed NHA	Grand Canal	14.5 km
Proposed NHA	Howth Head	14.8 km
Proposed NHA	Vartry Reservoir	14.8 km

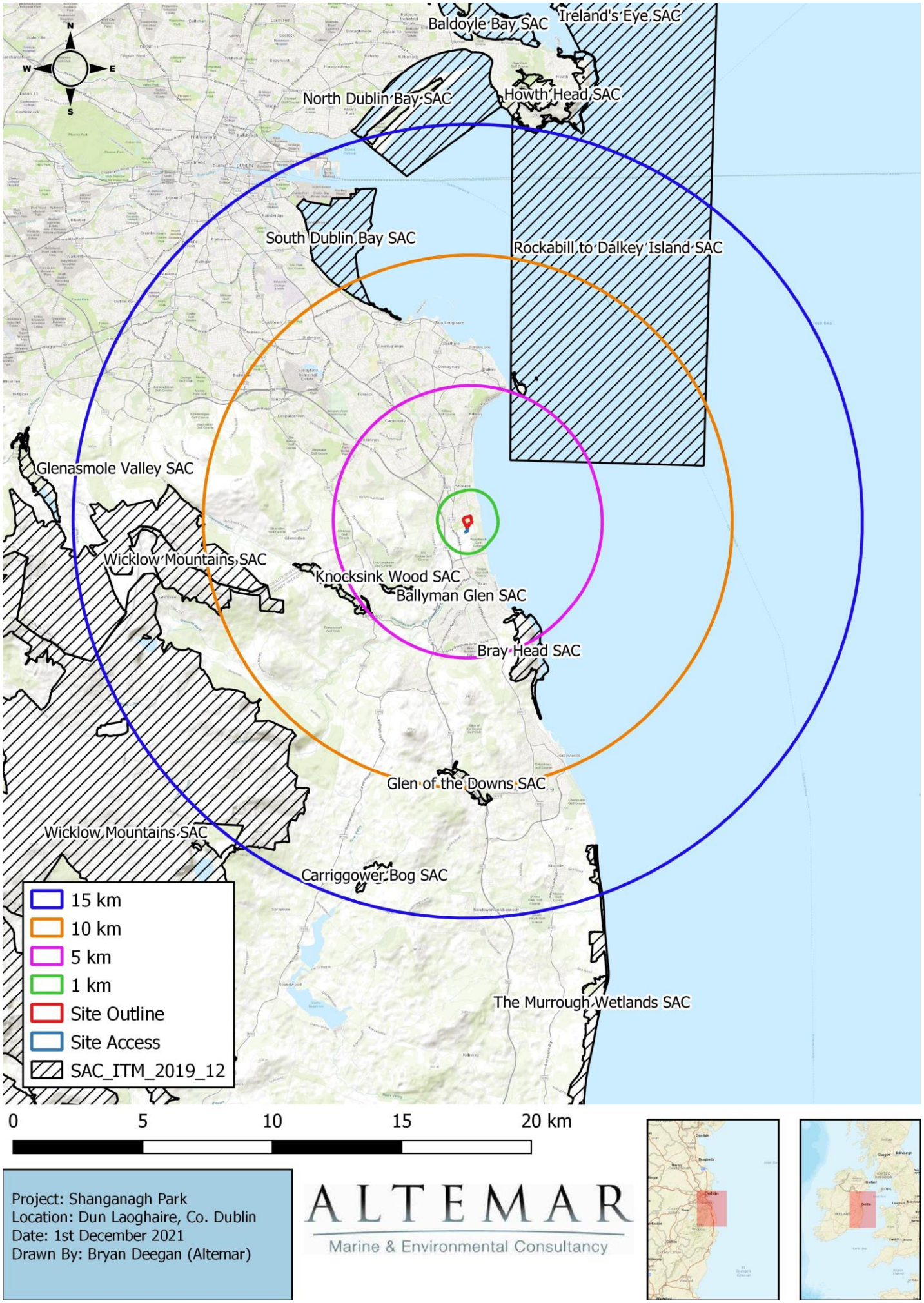

Figure 13. *Special Areas of Conservation (SAC) within 15km of proposed development*

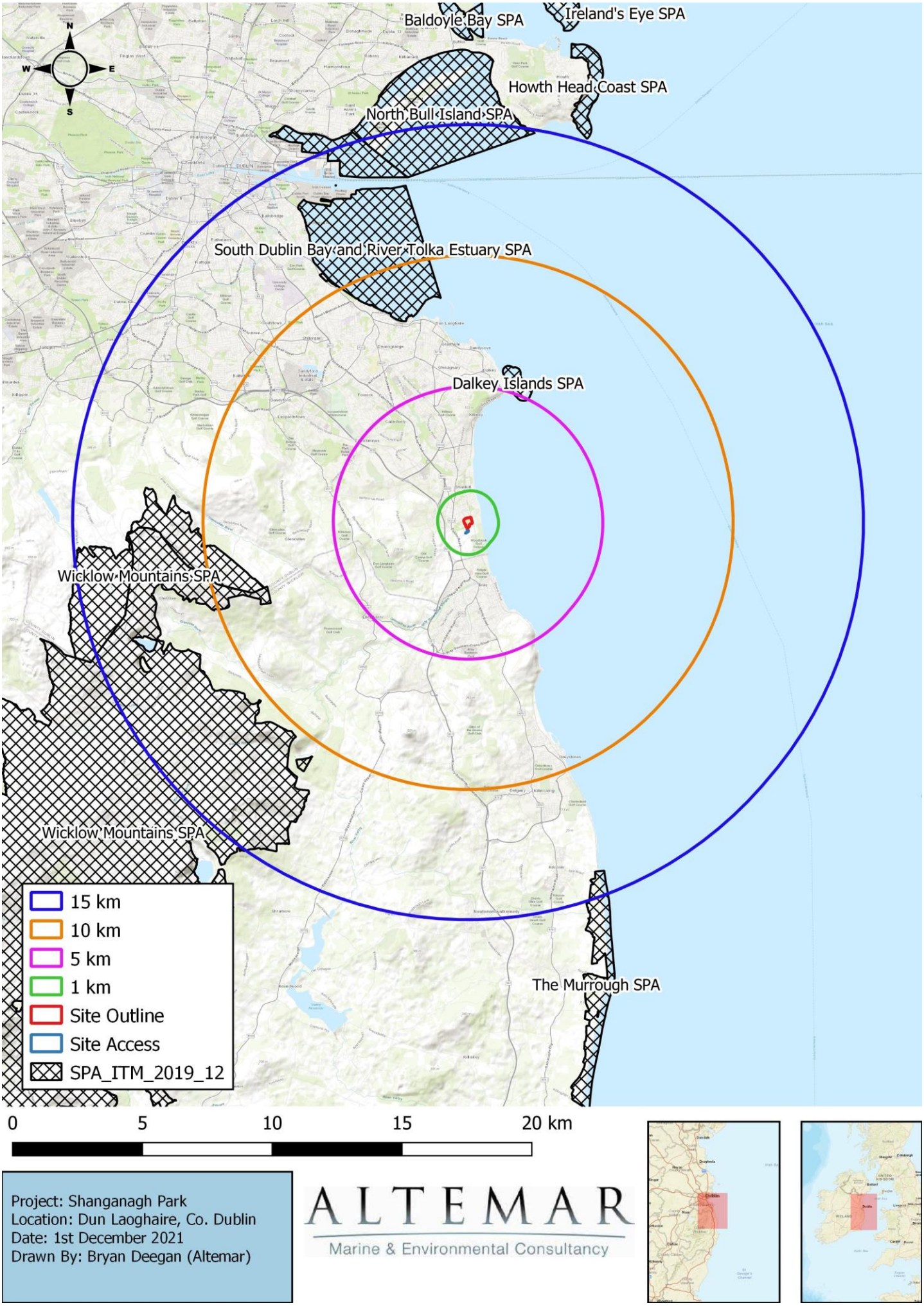

Figure 14. *Special Protection Areas (SPA) within 15km of proposed development*

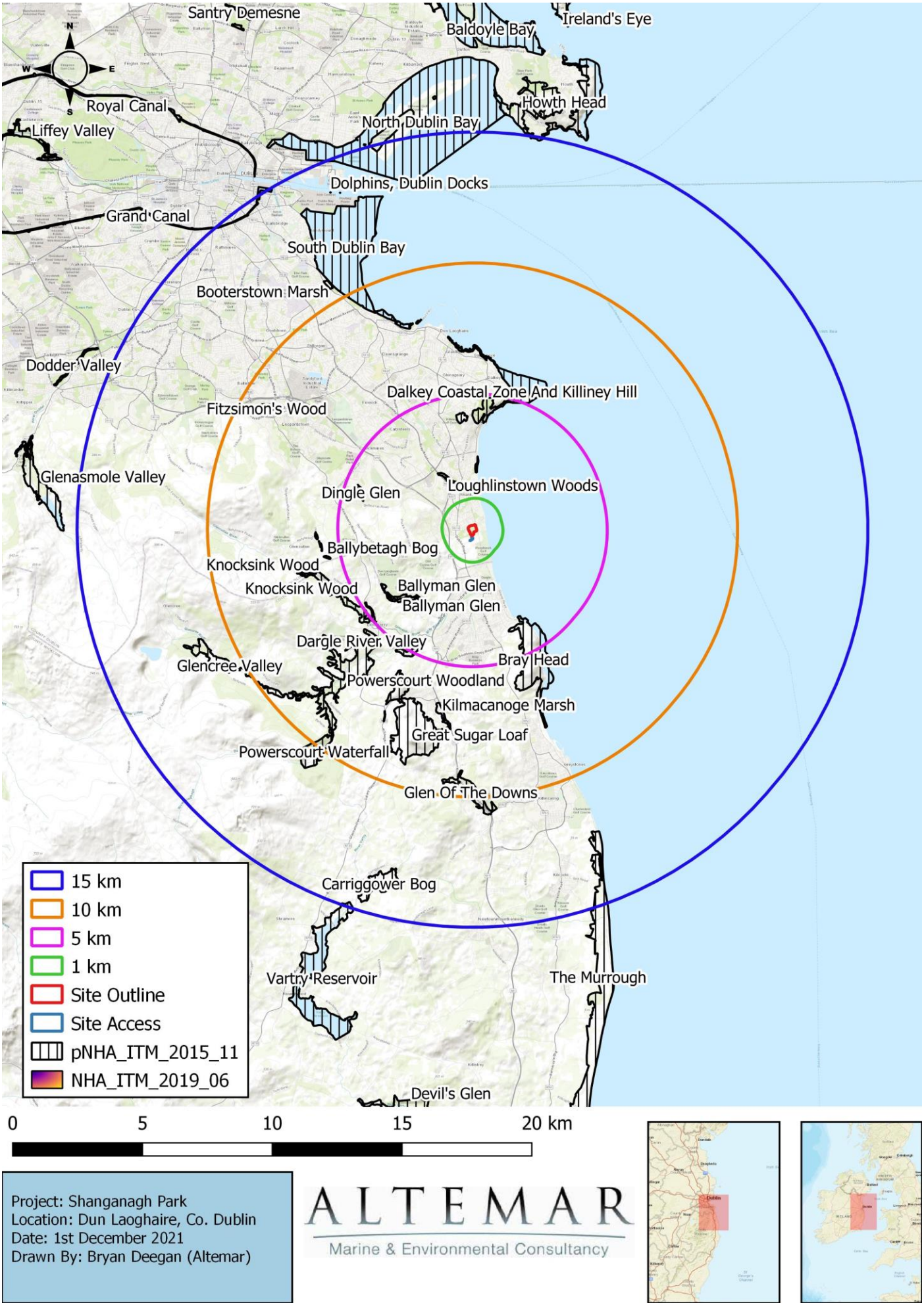

Figure 15. *Natural Heritage Areas (NHA) and proposed Natural Heritage Areas (pNHA) within 15km of proposed development*

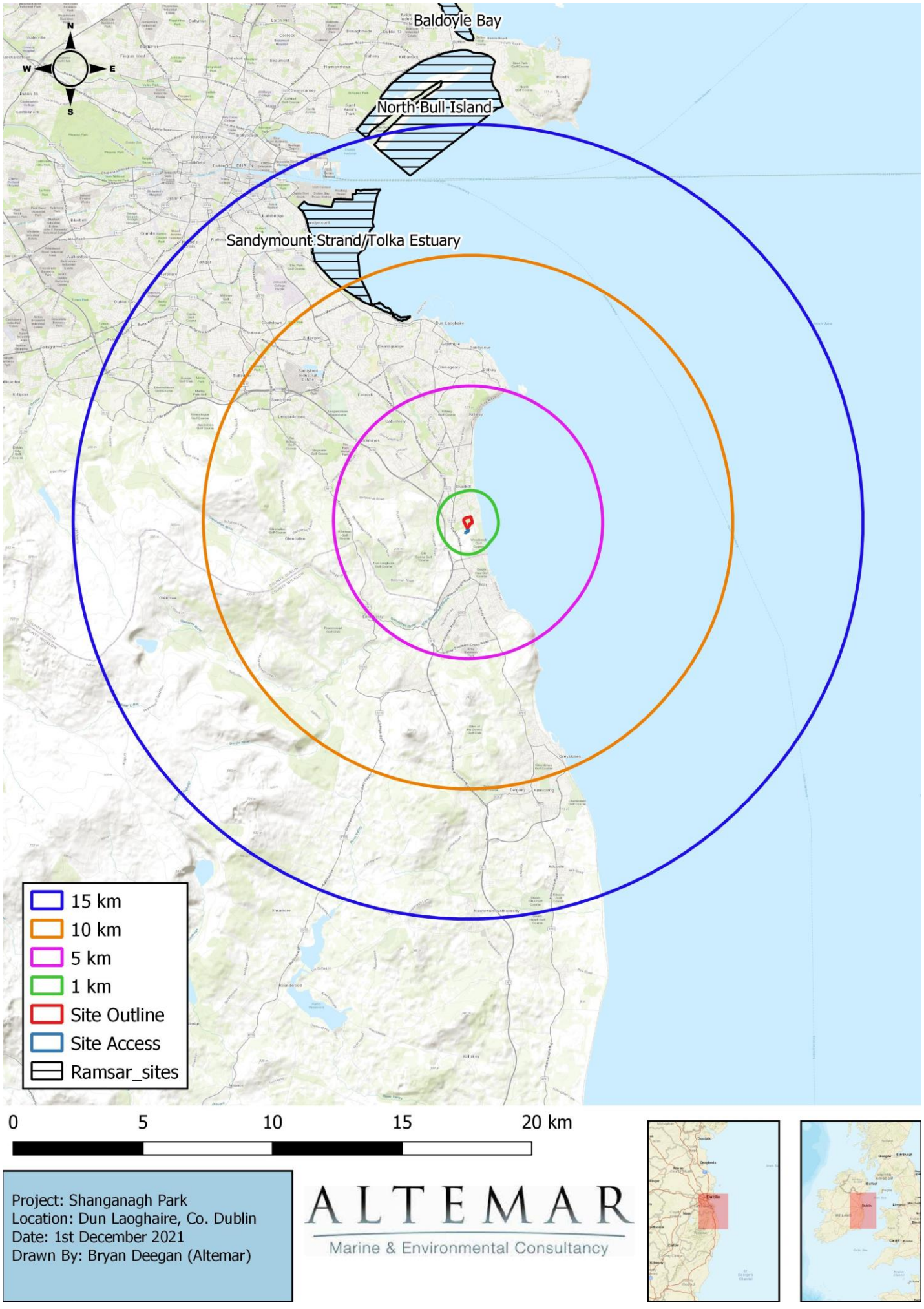

Figure 16. *Ramsar sites within 15km of proposed development*

Figure 17. *Watercourses within close proximity to proposed development*

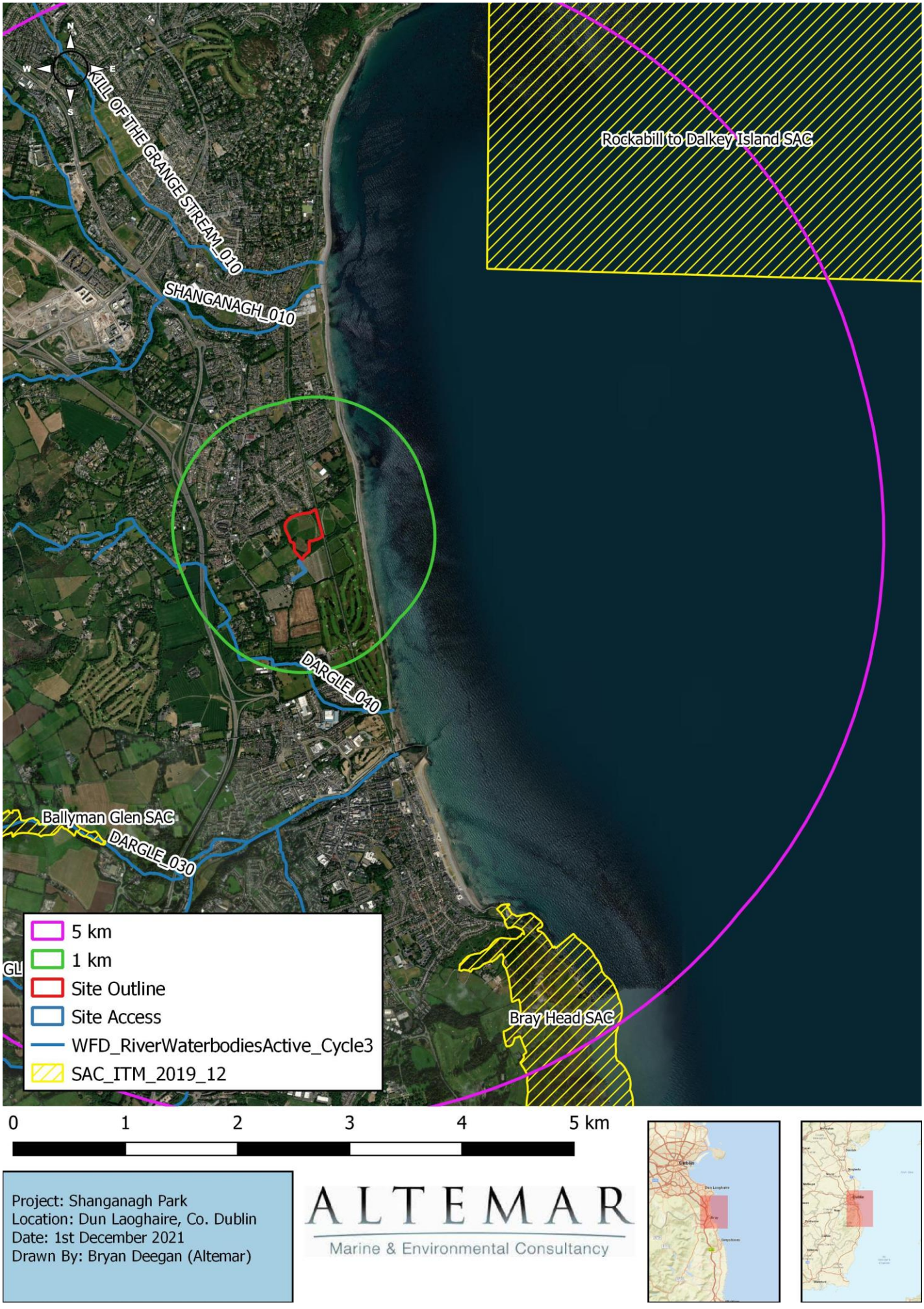

Figure 18. *Watercourses and SACs within 5km of the proposed development*

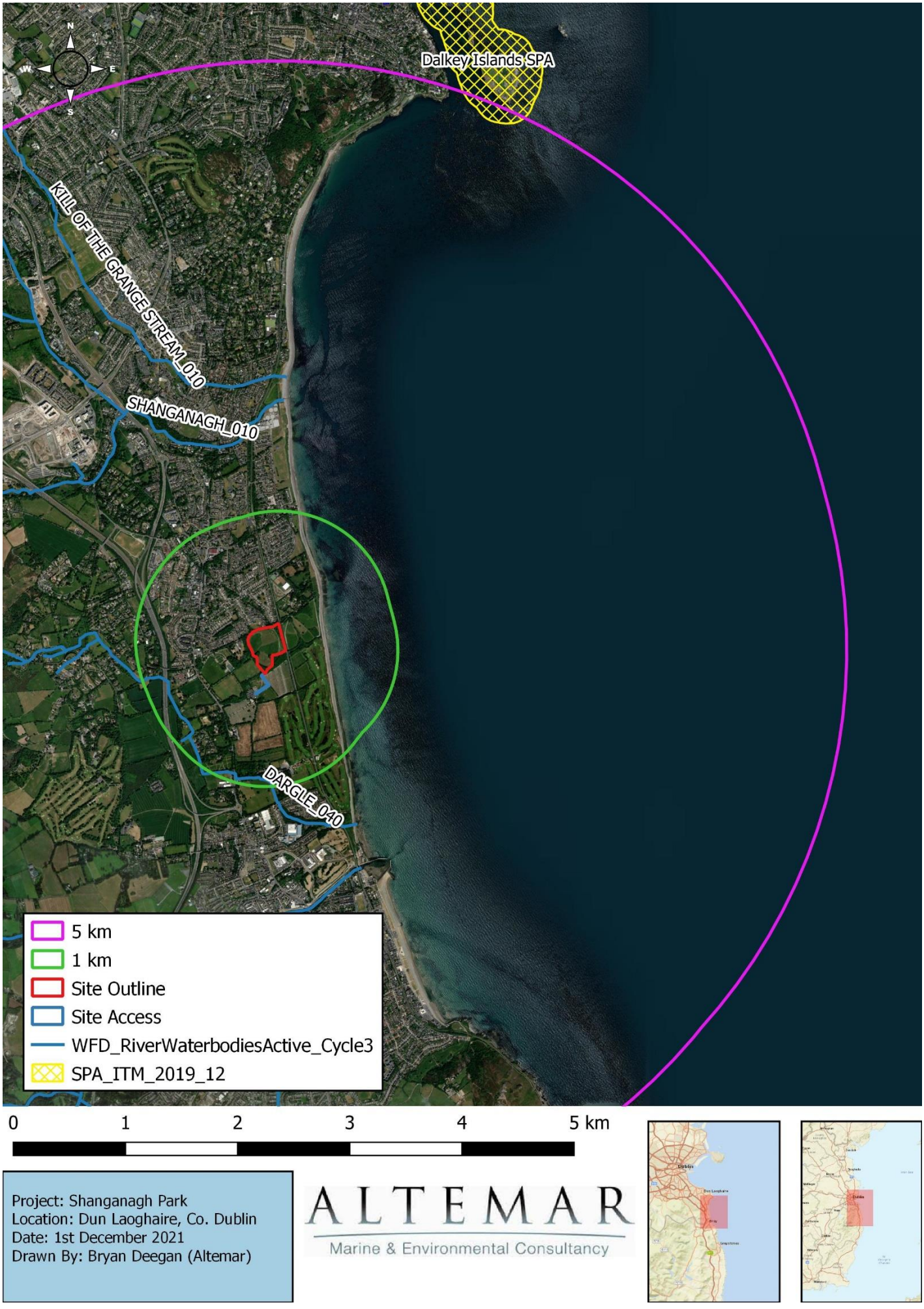

Figure 19. *Watercourses and SPAs within 5km of the proposed development*

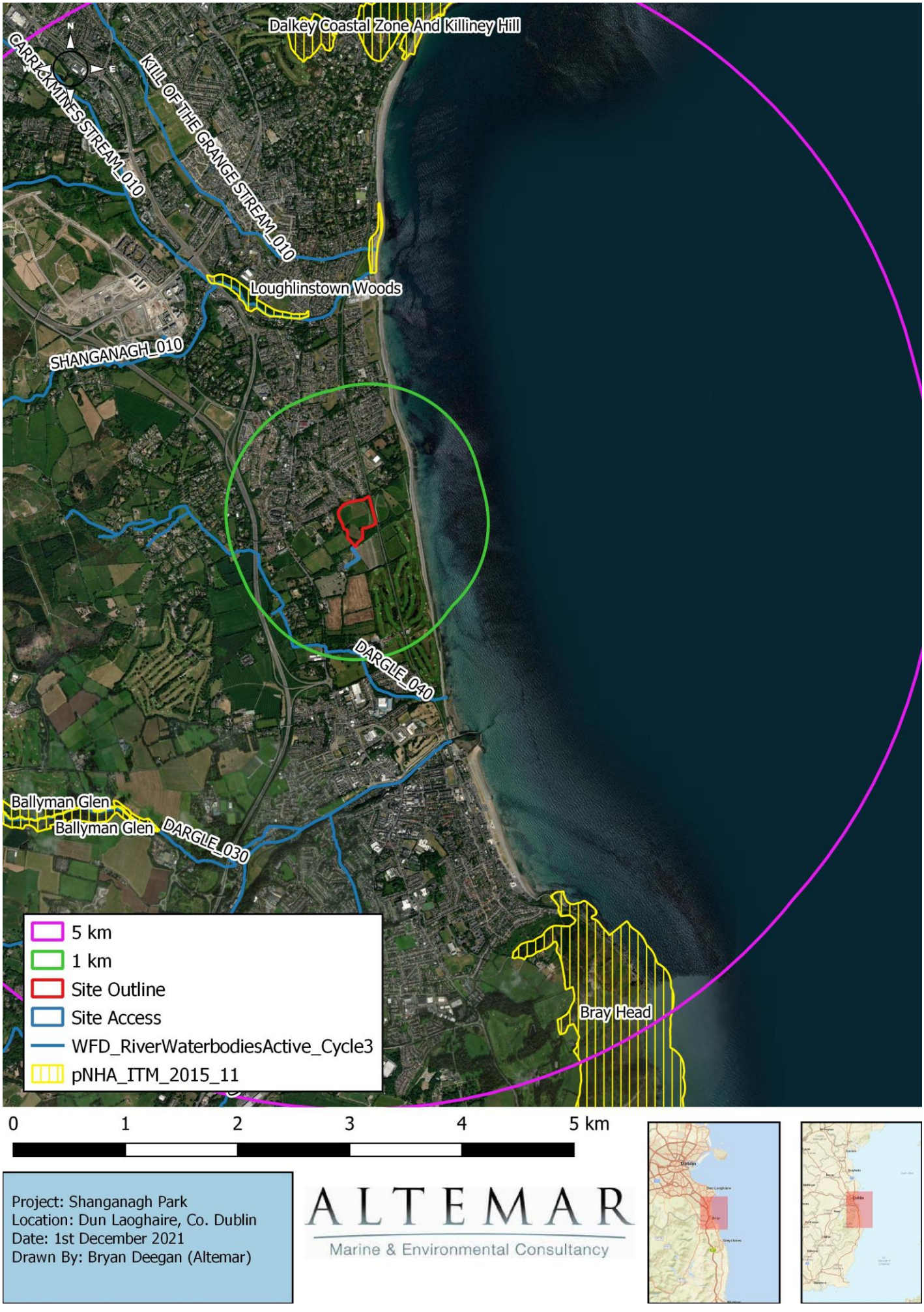

Figure 20. *Watercourses and pNHAs within 5km of proposed development*

Habitats and Species

A site assessment was carried out on the 3rd August 2021. Habitats within the proposed site were classified according to Fossitt (2000) (Figure 21).

Figure 21. *Habitats based on Fossitt Classification within the proposed development site*

GA2-Amenity grassland

Amenity grassland occupies approximately two thirds of the proposed site. The amenity grassland is well maintained and had a short sward. Biodiversity in this area was poor. Species within the amenity grassland included, creeping buttercup (*Ranunculus repens*), dandelion (*Taraxacum spp*.), docks (Rumex spp.), daisy (Bellis perennis), clover (*Trifolium repens*), plantains (*Plantago spp*.), thistles (*Cirsium vulgare*) and nettle (*Urtica dioica*). No flora or fauna of conservation importance were noted in these areas. A wintering bird assessment is ongoing to evaluate the importance of this habitat to wintering birds. This survey will be completed in March 2022.

Plate 1. GA2 Amenity grassland

GS2- Dry meadows and grassy verges

Two areas of Dry meadows and grassy verges are noted on site. These areas are managed with a long grass policy to promote biodiversity within the main grassland area. Species included buttercup (*Ranunculus repens*), white clover (*Trifolium repens*), red clover (*Trifolium pratense*), daisy (*Bellis perennis*), plantains (*Plantago spp*.), thistles (*Cirsium sp*.), docks (*Rumex spp*.), cat's-ear (*Hypochaeris radicata*), nettle (*Urtica dioica*), dandelion (T*araxacum spp.*), cow parsley (*Anthriscus sylvestris*), lesser trefoil (*Trifolium dubium*), germander speedwell (*Veronica chamaedrys*), Self-heal (Prunella vulgaris), upright hedge-parsley (*Torilis japonic*a), common ragwort (*Senecio jacobaea*), common knapweed (*Centaurea nigra*) and bush vetch (*Vicia sepium*). No flora or fauna of conservation importance were noted in these areas. A wintering bird assessment is ongoing to evaluate the importance of this habitat to wintering birds. This survey will be completed in March 2022.

Plate 2. GS2- Dry meadows and grassy verges

WD1 (Mixed) broadleaved woodland

As can be seen from figure 21 a portion of the proposed development site consists of an area of WD1 (Mixed) broadleaved woodland. The small woodland sections form part of the larger Shanganagh Park woodland. However, it is important to note that these areas of woodland are relatively young and densely planted. As a result of this species biodiversity within these areas is relatively low. Low light levels within these areas has resulted in a poorly developed underflora and the trees are overcrowded, resulting in tall slim specimens. Species within this area included ash (*Fraxinus excelsior*), sycamore (*Acer pseudoplatanus*), larch (*Larix decidua*), field maple (*Acer campestre*), cherry (*Prunus avium*), oak (*Quercus robur*), birch (*Betula pendula*), beech (*Fagus sylvatica*), hazel (*Corylus avellana*), horse chestnut (*Aesculus hippocastanum*), hawthorn (*Crataegus monogyna*) primarily with an ivy (*Hedera helix*) and/or bramble (*Rubus fruticosus*) under flora. Of note within the north eastern section of woodland are two freshly dug single entry burrows. Initial assessments appear to indicate that these are fox (*Vulpes vulpes*) burrows. However, further site visits and assessments are required.

Plate 3. WD1 (Mixed) broadleaved woodland

Evaluation of Habitats
No rare or protected habitats were noted.

Plant Species
The plant species encountered at the various locations on site are detailed above. No protected species were noted. No rare or threatened plant species were recorded in the vicinity of the proposed site. No invasive plant species were noted on site.

Mammals
No signs of mammals were noted on site. Hedgehogs have been recorded by NBDC within the 2km of the subject site. No hedgehogs were seen during the site visit. No evidence of badger activity was noted on site. However, two potential fox burrows are noted on site. Further site visits are required to definitively assess the species creating the two single entry burrows.

Amphibians
The common frog (*Rana temporaria*) or newts (*Triturus vulgaris*) were not observed on site. There are no watercourses or drainage ditches in the vicinity of the proposed works. Frogs have been recorded by the NBDC within the 2km square grid, but not at finer resolution. Newts are located within the Shanganagh Park, but not in the vicinity of the proposed works. Given the presence of Newts within the Shanganagh Park and the potential for dust and surface water impacts within the Park mitigation measures are required in relation to newts .

Bats
A bat survey was carried out. There are no buildings or trees of bat roosting potential on site. There was foraging activity on site (Appendix I) particularly along the treelines at a height just above the existing public lighting along the paths.

Birds
Birds noted on site included blackbird (*Turdus merula*), dunnock (*Prunella modularis*), chaffinch (*Fringilla coelebs*), song thrush (*Turdus philomelos*), wren (*Troglodytes troglodytes*), great tit (*Parus major*), robin (*Erithacus rubecula*), blue tit (*Cyanistes caeruleus*), hooded crow (*Corvus cornix*) and magpie (*Pica pica*).

This site is 7.9 km from South Dublin Bay and River Tolka SPA where the Light-bellied Brent Goose (*Branta bernicla hrota*) is a qualifying interest. This species is known to frequent terrestrial grassed sites near the SPA. During high

tide when *Zostera* sp. (and *Ulva intestinalis*) is not available to feed on due to the presence of overlying water, Brent geese move inland to feed in large managed greenfield sites. Brent geese have not been recorded by National Biodiversity Data Centre or NPWS Rare and protected species data on site. However, a wintering bird assessment is currently being carried out and will be completed in March 2022. The impact of the proposed development on birds is pending the completion of this series of surveys. However, it should be noted that as discussed with the ornithologist (Hugh Delaney) the park has a significant amount of pedestrian and canine (off lead) and ground nesting birds have not been recorded or would not be expected within the park.

Historic Records of Biodiversity

The National Biodiversity Data Centre's online viewer was consulted in order to determine the extent of biodiversity and/or species of interest in the area. First, an assessment of the site specific area was carried out. Species of interests recorded within the site area are outlined in the table below.

Table 3. Recorded species, associated designations and grid references

Date of Record	Species Name	Designation
16/12/2015	Barn Swallow (*Hirundo rustica)*	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
02/01/2016	Eastern Grey Squirrel (*Sciurus carolinensis)*	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> High Impact Invasive Species || Invasive Species: Invasive Species >> EU Regulation No. 1143/2014 || Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)

Following this, two 2km^2 reference grids (O22K & O22Q) were assessed. Two reference grids were assessed as the entire site outline is not encompassed within a singular reference grid. Table provides a list of all species recorded in both grid areas that possess a specific designation, such as Invasive Species or Protected Species.

Table 7. Recorded species, associated designations and grid references

Date of Record	Species Name	Designation
22/02/2020	Common Frog (*Rana temporaria)*	Protected Species: EU Habitats Directive || Protected Species: EU Habitats Directive >> Annex V || Protected Species: Wildlife Acts
21/05/2016	Smooth Newt *(Lissotriton vulgaris)*	Protected Species: Wildlife Acts
21/05/2016	Barn Swallow (*Hirundo rustica*)	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
31/12/2011	Black-headed Gull *(Larus ridibundus)*	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
31/12/2011	Common Kestrel (*Falco tinnunculus)*	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
31/12/2011	Common Linnet (*Carduelis cannabina)*	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
31/12/2011	Common Pheasant (*Phasianus colchicus)*	Protected Species: Wildlife Acts || Protected Species: EU Birds Directive || Protected Species: EU Birds Directive >> Annex II, Section I Bird Species || Protected Species: EU Birds Directive >> Annex III, Section I Bird Species
21/05/2016	Common Wood Pigeon (*Columba palumbus)*	Protected Species: Wildlife Acts || Protected Species: EU Birds Directive || Protected Species: EU Birds Directive >> Annex II, Section I Bird Species || Protected Species: EU Birds Directive >> Annex III, Section I Bird Species
31/12/2011	Eurasian Curlew (*Numenius arquata)*	Protected Species: Wildlife Acts || Protected Species: EU Birds Directive || Protected Species: EU Birds Directive >> Annex II, Section II Bird Species || Threatened Species: Birds of Conservation

Date of Record	Species Name	Designation
		Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
21/05/2016	Herring Gull (*Larus argentatus)*	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
21/05/2016	House Sparrow (*Passer domesticus)*	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
19/01/2016	Mallard (*Anas platyrhynchos)*	Protected Species: Wildlife Acts || Protected Species: EU Birds Directive || Protected Species: EU Birds Directive >> Annex II, Section I Bird Species || Protected Species: EU Birds Directive >> Annex III, Section I Bird Species
14/06/2019	Giant Hogweed (*Heracleum mantegazzianum)*	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> High Impact Invasive Species || Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)
22/04/2019	Three-cornered Garlic (*Allium triquetrum)*	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> Medium Impact Invasive Species || Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)
29/05/1922 29/05/1922	Andrena (Andrena) fucata Andrena (Melandrena) nigroaenea	Threatened Species: Near threatened Threatened Species: Vulnerable
29/05/1922	Andrena (Taeniandrena) wilkella	Threatened Species: Data deficient
29/05/1922	Great Yellow Bumble Bee (*Bombus (Subterraneobombus) distinguendus*)	Threatened Species: Endangered
23/03/2020	Large Red Tailed Bumble Bee (*Bombus (Melanobombus) lapidarius)*	Threatened Species: Near threatened
25/03/1928	Lasioglossum (*Lasioglossu*m) lativentre	Threatened Species: Critically Endangered
17/07/2015	Moss Carder-bee (Bombus (Thoracombus) muscorum)	Threatened Species: Near threatened
29/05/1922	Nomada striata	Threatened Species: Endangered
15/04/2018	Eastern Grey Squirrel (*Sciurus carolinensis)*	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> High Impact Invasive Species || Invasive Species: Invasive Species >> EU Regulation No. 1143/2014 || Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)
28/07/2017	Eurasian Badger (*Meles meles*)	Protected Species: Wildlife Acts
12/09/2018	European Otter (*Lutra lutra)*	Protected Species: EU Habitats Directive || Protected Species: EU Habitats Directive >> Annex II || Protected Species: EU Habitats Directive >> Annex IV || Protected Species: Wildlife Acts
22/10/2020	West European Hedgehog (*Erinaceus europaeus*)	Protected Species: Wildlife Acts
22/05/2016	Barn Swallow (*Hirundo rustica*)	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
21/07/2017	Black-headed Gull (*Larus ridibundus)*	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
31/12/2011	Common Redshank (*Tringa totanus)*	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
21/05/2016	Common Starling (*Sturnus vulgaris)*	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
21/05/2016	Common Wood Pigeon (*Columba palumbus)*	Protected Species: Wildlife Acts || Protected Species: EU Birds Directive || Protected Species: EU Birds Directive >> Annex II,

Date of Record	Species Name	Designation
		Section I Bird Species || Protected Species: EU Birds Directive >> Annex III, Section I Bird Species
31/12/2011	Eurasian Curlew (*Numenius arquata)*	Protected Species: Wildlife Acts || Protected Species: EU Birds Directive || Protected Species: EU Birds Directive >> Annex II, Section II Bird Species || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
02/11/2017	Eurasian Oystercatcher (*Haematopus ostralegus*)	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
02/11/2017	European Shag (*Phalacrocorax aristotelis)*	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
30/10/2017	Great Cormorant (*Phalacrocorax carbo)*	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
21/07/2017	Herring Gull (*Larus argentatus)*	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
06/04/2011	Northern Gannet (*Morus bassanus)*	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
21/07/2017	Ringed Plover (*Charadrius hiaticula)*	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
19/08/2017	Sand Martin (*Riparia riparia)*	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
20/09/2020	Butterfly-bush (*Buddleja davidii*)	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> Medium Impact Invasive Species
13/05/2017	Spanish Bluebell (*Hyacinthoides hispanica)*	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)
07/04/2021	Sycamore (*Acer pseudoplatanus*)	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> Medium Impact Invasive Species
07/04/2021	Three-cornered Garlic (*Allium triquetrum)*	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> Medium Impact Invasive Species || Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)
17/07/2015	Field Cuckoo Bee (Bombus (Psithyrus) campestris)	Threatened Species: Vulnerable
17/07/2015	Large Red Tailed Bumble Bee (*Bombus (Melanobombus) lapidarius)*	Threatened Species: Near threatened
17/07/2015	Moss Carder-bee (*Bombus (Thoracombus) muscorum*)	Threatened Species: Near threatened
08/05/2012	Bottle-nosed Dolphin (*Tursiops truncatus)*	Protected Species: EU Habitats Directive || Protected Species: EU Habitats Directive >> Annex II || Protected Species: EU Habitats Directive >> Annex IV || Protected Species: Wildlife Acts
26/07/2014	Common Porpoise (*Phocoena phocoena)*	Protected Species: EU Habitats Directive || Protected Species: EU Habitats Directive >> Annex II || Protected Species: EU Habitats Directive >> Annex IV || Protected Species: Wildlife Acts || Threatened Species: OSPAR Convention
12/05/2019	Grey Seal (*Halichoerus grypus*)	Protected Species: EU Habitats Directive || Protected Species: EU Habitats Directive >> Annex II || Protected Species: EU Habitats Directive >> Annex V || Protected Species: Wildlife Acts
16/04/1987	Leathery Turtle (*Dermochelys coriacea)*	Protected Species: EU Habitats Directive || Protected Species: EU Habitats Directive >> Annex IV || Protected Species: Wildlife Acts || Threatened Species: OSPAR Convention

Date of Record	Species Name	Designation
22/06/2017	Brown Rat (*Rattus norvegicus)*	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> High Impact Invasive Species || Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)
28/12/2018	Eastern Grey Squirrel (*Sciurus carolinensis)*	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> High Impact Invasive Species || Invasive Species: Invasive Species >> EU Regulation No. 1143/2014 || Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)
16/07/2007	Lesser Noctule (*Nyctalus leisleri*)	Protected Species: EU Habitats Directive || Protected Species: EU Habitats Directive >> Annex IV || Protected Species: Wildlife Acts
16/07/2007	Natterer's Bat (*Myotis nattereri*)	Protected Species: EU Habitats Directive || Protected Species: EU Habitats Directive >> Annex IV || Protected Species: Wildlife Acts
16/07/2007	Pipistrelle (*Pipistrellus pipistrellus sensu lato*)	Protected Species: EU Habitats Directive || Protected Species: EU Habitats Directive >> Annex IV || Protected Species: Wildlife Acts
16/07/2007	Soprano Pipistrelle (*Pipistrellus pygmaeus)*	Protected Species: EU Habitats Directive || Protected Species: EU Habitats Directive >> Annex IV || Protected Species: Wildlife Acts

An assessment of files received from the NPWS (Code No. 2020_185) which contain records of rare and protected species and grid references for sightings of these species was carried out as part of this EcIA. There has been a sighting of Common Frog (*Rana temporaria*) within a grid that encompasses a north-westerly portion of the subject site (Sample 20347 in the table below). Further, there are some records for grids that are in close proximity to the subject site. The following table provides a summary of the species identified, the year of identification, survey name and Grid Reference.

Table 8. Recorded species within NPWS Records

Sample ID	Species	Survey Name	Sample Year
20347	Common Frog (*Rana temporaria*)	Frog IPCC data from National Frog Survey 2011	2010
20509	Sharp-leaved Fluellen (*Kickxia elatine)*	NPWS Rare/Threatened and Scarce (Final) Plant Database	1989
6228	Otter (*Lutra lutra*)	Otter Survey of Ireland 1982 – Vincent Wildlife Trust	1980
1303	West European Hedgehog (*Erinaceus europaeus*)	AFF Mammals, Reptiles & Amphibians Distribution Atlas 1978 (II)	1972
13163	Eurasian Badger (*Meles meles*)	Animal Survey IBRC – Location Species List	1968
16846	Sika Deer (*Cervus nippon*)	Deer data Coillte	2004

Potential Impacts

This report has been prepared to outline the construction and operational phase measures in addition to detailing the potential impacts on sensitive receptors within the Zone of Influence (ZOI).

Construction Impacts

The overall development of the site is likely to have direct negative impacts upon the existing habitats, fauna and flora. Direct negative effects will be manifested in terms of the removal of the site's habitats during site clearance and reprofiling. This will result in the loss of areas of grassland and woodland that are relatively poor in biodiversity value. The removal of these habitats will result in a loss of species of low biodiversity importance. However, the perimeter woodland would be considered locally important and would provide nesting habitat for birds. The importance of the grassland areas to wintering birds is yet to be determined.

Designated Conservation sites within 15km

The proposed development is not within a designated conservation site. The nearest designated conservation site is the Loughlinstown Woods pNHA (1.6km). The nearest Natura 2000 site is Rockabill to Dalkey Island SAC (2.6 km). There is no direct hydrological pathway to any designated conservation site. There is no direct pathway to

designated sited during construction. The importance of the grassland areas to wintering birds including qualifying interests of SPAs is yet to be determined.

Impacts: To be determined upon completion of wintering bird surveys.

Terrestrial mammalian species

No protected terrestrial mammals were noted on site. Loss of habitat and habitat fragmentation may affect some common mammalian species. Further assessment is required in relation to the two burrows on the north east portion of the site.

Expected Impacts: Low adverse / site / Negative Impact / Not significant / short term. Mitigation is needed in the form of a pre-construction survey for terrestrial mammals of conservation importance.

Flora

No protected flora was noted on site. Site clearance will remove the flora species on site.

Impacts: Low adverse / local / Negative Impact / Not Significant / Short term. Mitigation is required to offset tree loss.

Bat Fauna

Three bat species were noted foraging on site. No bats were noted roosting on site. No bats were noted emerging from trees on site. Lighting during construction could impact on foraging activity.

Impacts: Low adverse / international / Negative Impact / Not significant / short term. Mitigation is needed in the form of control of light spill during construction.

Aquatic Biodiversity

Due to the lack of any watercourse or drainage ditch within the site boundary, and the lack of hydrological pathway to a watercourse, there is little potential for downstream impacts on biodiversity from silt or petrochemicals. Frogs were no observed on site, and given that there is no waterbody within the site boundaries, it is unlikely that there are any present. However, newts have been recorded within the Park and would be susceptible to dust and surface water impacts.

Impacts: Low adverse / local / Negative Impact / Slight Effects / short term. Mitigation is needed in the form of ecological supervision and the control of silt, petrochemical and dust during construction. A pre-construction survey should be carried out for newts and frogs.

Bird Fauna

A Wintering Bird Survey is currently underway at this site. Potential impacts on the bird species protected as qualifying interests of this SPA will be determined upon completion of this Survey. Tree or ground nesting birds may be in the vicinity of the proposed works during site clearance. As discussed with the ornithologist ground nesting birds would be unlikely dur the high levels of pedestrian and canine activity on site.

Impacts: To be determined upon completion of wintering bird surveys. However, mitigation is required to offset nesting resource loss and carry out a pre-construction assessment.

Operational Impacts

Designated Conservation sites within 15km

During operation, there is the potential for an indirect hydrological pathway to designated conservation sites located within the marine environment via surface water drainage. Overflow surface water will be directed to an existing surface water network within St. Anne's Park, located to the north of the subject site. This network ultimately discharges to the marine environment at Killiney Bay. Given the distance to the nearest conservation site along this network (2.6 km to Rockabill to Dalkey Island SAC), in the absence of mitigation, any silt or pollutants will settle, be dispersed or diluted within the watercourse and marine environment prior to reaching a designated conservation site. In the absence of mitigation, it is considered that significant impacts on designated conservation sites would be unlikely.

Impacts: To be determined upon completion of wintering bird surveys.

Biodiversity

Biodiversity value of the site will improve as landscaping matures. However, it should be noted that the landscaping on site is being carried out in consultation with Altemar and is designed to encourage biodiversity on site.

Terrestrial mammalian species

No protected terrestrial mammals were noted on site. Additional habitat will be created on site.

Impacts: Low adverse / site / Negative Impact / Not significant / short term.

Flora

No protected flora was noted on site. Landscaping will increase flora diversity on site.

Impacts: Negligible beneficial / site / Negative Impact / Not significant / long-term

Bat Fauna

The proposed development will change the local environment as new lights are to be erected and some of the existing vegetation will be removed. No bat roosts will be lost due to this development and the species expected to occur onsite should persist. Minor loss of foraging areas through the site (not at the perimeter) will be seen when lighting is on. However mitigation has been placed within the design and operation of the proposed lighting. Landscaping is provided to enhance bat foraging on site.

Impacts: Low adverse / International / Negative Impact / Not significant / long term.

Aquatic Biodiversity

Due to the lack of any watercourse or drainage ditch within the site boundary, and the lack of a direct hydrological pathway to a watercourse, there is little potential for downstream impacts on biodiversity from silt or petrochemicals. Standard controls will be in place.

Impacts: Neutral / local / Not significant / long term

Bird Fauna

A Wintering Bird Survey is currently underway at this site. Potential impacts on the bird species protected as qualifying interests of this SPA will be determined upon completion of this Survey.

Impacts: Low adverse / site / Negative Impact / Not significant / long term.

Mitigation Measures & Monitoring

Standard construction and operational controls will be incorporated into the proposed development project to minimise the potential negative impacts on the ecology within the Zone of Influence (ZoI) are outlined in Table 9.

Table 9. Sensitive Receptors/Impacts and mitigation measures.

Sensitive Receptors	Potential Impacts	Designed-in Mitigation
Local Biodiversity	• Habitat degradation • Dust deposition • Pollution • Silt ingress from site runoff • Downstream impacts • Negative impacts on aquatic and bird fauna	• Best available technology (BAT) mitigation measures will be monitored by an appointed project ecologist • Preconstruction surveys for mammals and amphibians will be carried out. • Staging of project to reduce risks to biodiversity • Local drains will be protected from dust, silt and surface water throughout the works. • Local silt traps established throughout site. • Mitigation measures on site include dust control, stockpiling away from drains • Stockpiling of loose materials will be kept to a minimum of 20m from drains. • Stockpiles and runoff areas following clearance will have suitable barriers to prevent runoff of fines into the drainage system and watercourses. • Fuel, oil and chemical storage will be sited within a bunded area. The bund will be at least 50m away from drains, excavations and other locations where it may cause pollution. • Bunds will be kept clean and spills within the bund area will be cleaned immediately to prevent groundwater contamination. Any water-filled excavations, including the attenuation tank during construction, that require pumping will not directly discharge to the stream. Prior to discharge of water from excavations adequate filtration will be provided to ensure no deterioration of water quality. • On-site inspections will be carried out by project ecologist who will be appointed at least 1 month prior to the commencement of any works on site. • A project ecologist must be appointed and be consulted in relation to all onsite drainage during construction works. Consultation with the project ecologist will not involve the formulation of new mitigation measures for the purposes of protecting any European Site, and relate only to the implementation of those mitigation measures already stated in the submission or the formulation of mitigation for other purposes. • Concrete trucks, cement mixers or drums/bins are only permitted to wash out in designated wash out area greater than 50m from sensitive receptors including drains and drainage ditches. • Abstraction of water from watercourses is not to be permitted. • Spill containment equipment shall be available for use in the event of an emergency. The spill containment equipment shall be replenished if used and shall be checked on a scheduled basis. • All site personnel will be trained in the importance of good environmental practices including reporting to the site manager when pollution, or the potential for pollution, is suspected. All persons working on-site will receive work specific induction in relation to surface water management and run off controls. Daily environmental toolbox talks / briefing sessions will be conducted to outline the relevant environmental control measures and to identify any environment risk areas/works. **Air & Dust** Dust may enter the drainage ditches via air or surface water or impact on biodiversity. Mitigation measures will be carried out reduce dust emissions to a level that avoids the possibility of adverse effects on biodiversity. The main activities that may give rise to dust emissions during construction include the following: • Excavation of material;

	• Materials handling and storage; • Movement of vehicles (particularly HGV's) and mobile plant. • Contaminated surface runoff *Mitigation measures to be in place:* • Consultation will be carried with an ecologist throughout the construction phase; • Trucks leaving the site with excavated material (if required) will be covered so as to avoid dust emissions along the haulage routes. • Speed limits on site (15kmh) to reduce dust generation and mobilisation. *Site Management* • Regular inspections of the site and boundary should be carried out to monitor dust, records and notes on these inspections should be logged. • Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken. • Make the complaints log available to the local authority when asked. • Record any exceptional incidents that cause dust and/or air emissions, either on- or offsite, and the action taken to resolve the situation in the log book. *Monitoring* • Undertake daily on-site and off-site inspection, where receptors are nearby, to monitor dust, record inspection results, and make the log available to the local authority when asked. This should include regular dust soiling checks of surfaces within 100 m of site boundary, integrity of the silt control measures, with cleaning and / or repair to be provided if necessary. *Preparing and Maintaining the Site* • Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible. • Fully enclose specific operations where there is a high potential for dust production and the site is active for an extensive period. • Avoid site runoff of water or mud. • Keep site fencing, barriers and scaffolding clean using wet methods. • Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on-site cover as described below. • Cover, seed or fence stockpiles to prevent wind whipping. • Any road that has the potential to give rise to fugitive dust will be regularly watered, as appropriate, during dry and/or windy conditions. • Maintain a vegetated strip and vehicle exclusion zone between the works and the Dawsons Demesne Stream in consultation with the project ecologist.

		Measures Specific to Earthworks • Re-vegetate earthworks and exposed areas/soil stockpiles/new pitches to stabilise surfaces as soon as practicable. • Use Hessian, mulches or trackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable. • Only remove the cover in small areas during work and not all at once. • During dry and windy periods, and when there is a likelihood of dust nuisance, a bowser will operate to ensure moisture content is high enough to increase the stability of the soil and thus suppress dust. • Due to the proximity of the watercourse an ecologist will oversee works in particular the excavation of material from the perimeter of the site. • The Contractor will be required to consult with an ecologist prior to the beginning of works to identify any additional measures that may be appropriate and/or required. *Storage/Use of Materials, Plant & Equipment* • Drip trays will be turned upside down if not in use to prevent the collection of rainwater; • Waters collected in drip trays must be assessed prior to discharge. If classified as contaminated, they shall be disposed by a permitted waste contractor in accordance with current waste management legal and regulatory requirements; • Plant and equipment to be used during works, will be in good working order, fit for purpose, regularly serviced/maintained and have no evidence of leaks or drips; • No plant used shall cause a public nuisance due to fumes, noise, and leakage or by causing an obstruction; • Re-fuelling of machinery, plant or equipment will be carried out in the site compound as per the appointed Construction Contractor re-fuelling controls;
Birds (National Protection)	• Removal nesting /foraging habitat. • Destruction and/or disturbance to nests (injury/death). • Predation .	• "Relevant guidelines and legislation (Section 40 of the Wildlife Acts, 1976 to 2012) Should this not be possible, a pre-works check by a qualified ecologist should be undertaken to ensure nesting birds are absent. • A Preconstruction assessment will be carried out by an ecologist for ground breeding/ or tree nesting birds. • The landscape strategy has been prepared in consultation with Altemar to provide significant nesting and foraging resources for birds and insects. This will be followed and assessed. Additional consultation will be carried out in relation to biodiversity enhancement measures with the DLR biodiversity officer. • Additional mitigation may be required following the completion of the wintering bird assessment.
Bats (international Protection)	• Removal roosting/foraging habitat. • Lighting Impacts	• Pre Construction survey for bats • Lighting at all stages should be done sensitively on site with no direct lighting of hedgerows and treelines. All lighting during construction and operation will be carried out to the satisfaction of the project ecologist. • A post construction light spill and bat foraging assessment will be carried out by a bat specialist to confirm lighting has been constructed.
Amphibians	• Death/injury	• A pre-construction survey of the ponds on site should be carried out.

Adverse Effects likely to occur from the project (post mitigation)

With the successful implementation of standard mitigation measures to limit lighting, dust, surface water impacts, and including biodiversity mitigation/supervision, no significant impacts are foreseen from the construction or operation of the proposed project on terrestrial or aquatic ecology. Residual impacts of the proposed project will be localised to the immediate vicinity of the proposed works. In relation to bird species there will be a short term loss of nesting habitat until landscaping matures. The residual impact on wintering birds is pending the completion of the Wintering bird assessment.

The construction and operational mitigation proposed for the development satisfactorily addresses the mitigation of potential impacts on terrestrial and aquatic biodiversity through the application of the standard construction and operational phase controls as outlined above.

Cumulative Impacts

A review of the online planning system (www.myplan.ie) was carried out. It was found that the majority of approved planning permissions located within the area of the subject site relate to small-scale residential developments, such as single-storey extensions to residential units and attic conversions. The table below outlines a number of planning applications located within and in close proximity to the subject site that are of note.

Table 10. Developments proximate to the subject site.

Ref. No.	Address	Proposal
D20A/0744	Woodbrook Dart Station Iarnród Eireann/CIE lands just south of the masonry over Rail Bridge OBR 134, Shanganagh Cemetery, Townland of Cork Little and Shanganagh, Woodbrook, Shankill, Co. Dublin.	Permission for a new DÁRT/Railway Station. The site for the station is in a partial embankment cutting with local grade being some 1.9 m above platform level. The station will include two 174 m platforms with 8 m end ramps, platform shelters, seating, lighting, Overhead line equipment (OHLE), CCTV, ticket vending machines and validators, commercial advertising, driver operating monitors, public address, customer information signage, directional and station signage, including a totem pole, as well as a telecoms equipment room (TER) building and permanent way vehicular access route on the western (Up) side. The station platforms will be accessed via ramps and steps integrated into an in-situ concrete retaining wall structure. There will be a continuous paladin fence at the top of the embankment with sliding gates at the station entrance. Above the station will be a public realm structure comprising of two sets of staircases, ramps and a footbridge. These will serve both the station and a future cycleway planned by DLRCC. The overall superstructure design will be an open and transparent steel structure with stainless steel mesh balustrade.
ABP30584419	Townland of Corke Little, Woodbrook, Shankill, Co. Dublin.	Permission for a Strategic Housing Development consisting of a residential-led development comprising 685no. residential units and 1 no. childcare facility in buildings ranging from 2 to 8-storeys. The breakdown of residential accommodation is as follows: - 207no. own door detached, semi-detached, terraced and end of terrace houses, including: - 134no. 3-bed 2-storey houses (House Type 01, 02, 03, 08, 10) - (House Type 01 are provided with optional ground floor extensions and/or attic conversions, House Type 03 are provided with optional ground floor extensions); 48no. 4-bed 2 - 3-storey houses (House Type 04, 05, 07) - (House Type 05 are provided with optional ground floor extensions); 25no. 5-bed 3-storey houses (House Type 06). 48no. duplexes (33no. own door), in 3 to 4-storey buildings, including: - Old Dublin Road Blocks accommodating 16no. 2-bed duplex and 17 no. 3-bed duplex; Park Edge Block accommodating 6no. 2-bed duplex 6no. 3-bed duplex; Block A accommodating 3no. duplexes (3no. 2-beds). 430no. apartment units accommodated in 6no. 3 to 8-storey buildings, including : - Block A accommodating 66no. apartments (14no. 1-beds and 52no. 2-beds) and Tenant Amenity area (c. 93 sq. m gross floor area); Block B

		accommodating 151no. apartments (47no. 1-beds and 104no. 2-beds) and Tenant Amenity area (c. 203 sq. m gross floor area); Block C accommodating 151no. apartments (47no. 1-beds and 104no. 2-beds) and Tenant Amenity area (c. 203 sq. m gross floor area); Block D accommodating 36no. apartments (13no. 1-beds, 18no. 2-beds and 5no. 3-bed); Block E accommodating 21no. apartments (7no. 1-beds, 13no. 2-beds and 1 no. 3-bed); Old Dublin Road Block accommodating 5no. apartments (2no. 1-beds and 3no. 2beds). Private rear gardens are provided for all houses. Private patios/ terraces and balconies are provided for all duplex and apartment units at ground floor. Balconies are proposed on elevations to all upper levels of duplex and apartment buildings. The proposed development includes 1 no. childcare facility (c. 429 sq. m gross floor area).And, all associated and ancillary site development and infrastructural works (including plant), hard and soft landscaping and boundary treatment works (including temporary hoarding to un-developed lands), including : - Provision of Woodbrook Distributor Road/ Woodbrook Avenue from the Old Dublin Road (R119) to the future Woodbrook DART Station, including the provision of a temporary surface car park (164no. parking spaces including set down areas and ancillary bicycle parking and storage) adjacent to the future Woodbrook DART Station in northeast of site on lands currently forming part of Woodbrook Golf Course; New vehicular access provided from the Old Dublin Road (R119) opposite Woodbrook Downs entrance including new junction arrangements and associated road re-alignment; Provision of emergency access to Shanganagh Cemetery access road; Provision of internal road network including pedestrian and cycle links; Provision of a series of linear parks and green links (Coastal Park and Corridor Park), including 2no. pedestrian/ cycle links to Shanganagh Public Park to allow full north/ south connection, supplemented by smaller pocket parks; Provision of SuDS infrastructure and connection to existing surface water culvert on Old Dublin Road (R119); Provision of waste water infrastructure (pumping station including 2.4m fencing to perimeters, 24 hour emergency storage and rising foul main through Shanganagh Public Park to tie-in to existing services at St. Anne's Park Residential Estate) and the extension of and connection to public watermain on Old Dublin Road (R119); 844no. car parking spaces; 1,305no. long and short-term bicycle parking spaces; Bin store and bicycle storage for all terraced houses, duplex/ apartment and apartment blocks; 2no. ESB Unit Sub- stations; Provision of 2no. replacement golf holes in lands to the east of the rail line (northeast of the future DART Station) and associated 2m paladin fence to western and northern perimeter. All on a total site area of approximately 21.9 Ha.
D17A/0065	The Aske House, Dublin Road, Bray, Co. Dublin	Permission for the development of a Specialist Hospital for 56 no. in-patients, out-patient care and teaching unit, including works to Protected Structures. The works comprise: A. Change of Use of The Aske House, stables and out buildings, a part single and part two storey Protected Structure, from existing residential use to Educational use associated with the Specialist Hospital and incorporating internal alterations and refurbishment works to provide 10 single bed en-suite bedrooms, seminar rooms, library/reading rooms, administration offices, dining area, kitchen, staff changing and ancillary accommodation. B. Change of Use of existing single storey Gate Lodge, a Protected Structure, from residential use to Transitionary Accommodation Unit associated with the Specialist Hospital incorporating alterations and refurbishment works, with existing structure requiring part demolition of rear single storey extension and new single storey extension to rear for kitchen and shower room. C. New single storey Specialist Hospital in-patient and out-patient Treatment and Therapy building incorporating main reception/admissions and waiting area, treatment rooms (for both group treatment and individual therapy),

		hydrotherapy pool, gym, consulting rooms, offices, kitchen and dining rooms, laundry and ancillary stores and accommodation. D. Specialist Hospital adult in-patients accommodation for 48 no. single patient bedrooms within 6 no. 2 storey inter-linked blocks, each unit comprising 2 no. 4 bedroom living clusters and incorporating nursing office, living areas, treatment rooms, family bedrooms and ancillary accommodation. E. Two storey Specialist Hospital in-patients accommodation for care of persons under nineteen years of age, with 8 no. single patient bedrooms in 4 bedroom clusters, incorporating nursing office and living areas, treatment rooms, family bedrooms and ancillary accommodation. F. Single storey garden pavilion incorporating garden maintenance equipment shed and pump house. G. Demolition of existing single storey garage. H. Modification/widening of existing site entrance, a Protected Structure, onto Dublin Road. I. Remedial works to existing Crinken Woodbrook stream. J. 84 no. car parking spaces and 3 no. covered cycle parking units. K. Landscaping works to include management of existing trees and all ancillary site works and site services.

In relation to Planning Ref. **ABP30584419**, an Information for Screening for Appropriate Assessment was prepared by Brady Shipman Martin (BSM) to accompany this application. This report concludes with the following:

'*This report concludes on the best scientific evidence that it can be clearly demonstrated that no elements of the project will result in any likely significant impact on any relevant European site, either on their own or in-combination with other plans or projects, in light of their conservation objectives. Based on these conclusions a Stage 2 Natura Impact Statement is not required for the proposed development.*

As such no mitigation measures are required for the protection of any European sites.

It is considered that this report provides sufficient relevant information to allow the Competent Authority (An Bord Pleanála) to carry out an AA Screening, and reach a determination that the proposed development will not have any likely significant effects on European sites under Article 6 of the Habitats Directive (92/43/EEC) in light of their conservation objectives.'

In relation to Planning Ref. **D20A/0744**, a Screening for Appropriate Assessment was prepared by Irish Rail to accompany this planning application. This report concludes with the following:

'*Further to the assessment, it is concluded that there will be no significant effects on Natura 2000 sites.*

Therefore, on the basis of this Screening Exercise, it is submitted that a Stage 2 Appropriate Assessment is not required.'

No significant projects are proposed or currently under construction that could potentially cause in combination effects on designated conservation sites.

Given this, it is considered that in combination effects with other existing and proposed developments in proximity to the application area would be unlikely, neutral, not significant and localised. It is concluded that no significant effects on designated conservation sites will be seen as a result of the proposed development alone or combination with other projects.

No significant effects are likely from in combination effects

Residual Impacts and Conclusion

The construction and operational mitigation proposed for the development satisfactorily addresses the mitigation of potential impacts on the terrestrial, mammalian and aquatic sensitive receptors through the application the standard construction and operational phase controls. However, the final residual impact of the project is pending the completion of the Wintering bird assessment but prior to formal approval of the Part 8.

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ALTEMAR
Marine & Environmental Consultancy

Appendix I. Bat fauna impact assessment for the proposed development of Shanganagh Park – Phase 1, Shankill, Co. Dublin.

2nd December 2021

Prepared by: Bryan Deegan (MCIEEM) of Altemar Ltd.
On behalf of: Dún Laoghaire Rathdown County Council.

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Document Control Sheet			
Client	Dún Laoghaire Rathdown County Council		
Project	Bat fauna impact assessment for the proposed development of Shanganagh Park, Shankill, Co. Dublin.		
Report	Bat Fauna Assessment		
Date	2nd December 2021		
Version	Author	Reviewed	Date
Draft 01	Bryan Deegan	Jack Doyle	2nd December 2021

SUMMARY

Structure:	None; the proposed development site is a greenfield site.
Location:	Shankill, Co. Dublin.
Bat species present:	None Roosting. Common pipistrelle (Pipistrellus pipistrellus), Soprano pipistrelle (P. pygmaeus) and Leisler's bat (*Nyctalus leisleri*) foraging noted on site
Proposed work:	Development of a recreation zone with floodlighting.
Impact on bats:	No impact on roosting. Extensive measures have been implemented to limit light spill from flood lights including lighting design and timing of lights. Essentially timing of lights are restricted during the active bat season. Landscaping has been developed to enhance bat foraging. The residual impact is considered to be minor adverse/not significant in the short term and neutral in the long term.
Survey by:	Bryan Deegan MCIEEM
Survey date:	25th August 2021 and 16th September 2021

Introduction

Dún Laoghaire Rathdown County Council intend to apply for planning permission for the proposed development of Shanganagh Park – Phase 1, Shankill, Co. Dublin.

The development will consist of:

The Shanganagh Park Masterplan identifies an intense active recreation zone towards the rear of the park. Currently DLR clubs are renting grass and all-weather pitches outside of the county for training and matches. Given the proposed significant increase in population as a result of the Woodbrook Shanganagh Local Area Plan, the development of this facility is a priority for Shanganagh Park Masterplan. The development of these facilities will increase active participation in the county through a multiple of different sports including GAA. Soccer, Baseball, Cricket, Athletics, etc. It strongly aligns with Space to Play, DLR Sports Facilities Strategy 2017-2022. The provision of these facilities ensures access to high quality active recreation facilities for the community.

The proposed site outline and location is demonstrated in Figure 1.

Arborist

A Condition Assessment of Trees within the site area at 'Shanganagh Park', Shankill, Co. Dublin has been prepared by Arborist Associates Ltd. to accompany this planning application. This report outlines the following:

'Findings

The site area is irregularly square in shape and is bordered by private residencies to the north, by the railway line to its east and by the grounds of 'Shanganagh Park' to its south and west. Metal fencing makes up the boundaries on the north and east side and the tree belts make up the boundaries on the south and west sides. There is a large open grass area in the middle of the site with a public footpath around its perimeter and tree belts and hedges outside of these paths. This area has also been rejuvenated with young tree planting over the last few years.

The following gives a brief summary of the vegetation within the site area.

***Tree Belt No.1** extends east to west across the northern boundary and it is a prominent group of trees with a good mix of young to early- mature trees with diverse species such as Ash, Poplar, Field Maple, Hazel and Larch, to name but a few.*

***Tree Group No.1** is located at the western end of 'Tree Belt No.1' and they are a prominent group of trees within this area. It is an early -mature group of trees consisting of Ash, Sycamore and Willow.*

***Tree Group No.2 and Tree Group No.3** are growing in the north-east corner of the site area on either side of the pedestrian footpath/ bridge that extends over the railway line. They are semi-mature trees with good potential for the long-term tree cover in this area and they contain mixed species such as Ash, Alder and Larch.*

***Tree Nos.0301-0309** are located to the south of the above tree belts and groups and consists of a mix of tree species generally of a semi-mature to early-mature age class establishing well with some having the potential to provide good quality tree cover for the future.*

***Hedge No.1** extends north to south along the eastern boundary with the railway line and it is a broad scrubby hedge consisting predominantly of Bramble with some Hawthorn, Holly and Elder in places. Within Hedge No.1 is **Tree Group No.4** and **Tree Nos.0311 & 0321** all Ash of a semi-mature to early-mature age class and some, in particular Tree Group No.4 are of prominence within this hedge. This hedge and the trees within have value as screening in this area and act as a buffer between 'Shanganagh Park' and the railway line to the east.*

***Tree Nos.0312-0320, 0322 & 0323** are located west of 'Hedge No.1' and consists of a mix of tree species planted either side of the perimeter path. These are of a young age class having been planted in recent years and most of them are establishing well with good potential to form part of the long-term tree cover.*

***Woodland Block No.1** is located in the south-west corner of the site area and it is a large prominent group of mixed species of varying age-classes. The most predominant species is Ash and Sycamore with a lot of Field Maple in the lower canopy and seedling trees developing throughout the undergrowth. Pedestrian footpaths break up this woodland block into sub-compartments and the crowns of these trees*

overhang these paths. On either side of the pedestrian path on the north side of this woodland block is ***Tree Group No.5*** *which consists of a group of young mixed-Pine trees with good potential for the long-term tree cover in this area and it adds to the species diversification of 'Woodland Block No.1'.*

Tree Belt No.2 *extends east to west across the southern boundary and the crowns of these trees overhang the public footpaths in this area. It consists of mixed species of predominantly early-mature trees and as a tree belt; they are of prominence within the treescape of the area. It is comprised of mainly Ash with some Beech and Horse Chestnut in places.*

Tree Nos. 0324 – 1337 *are located on the northern side of the public footpath out from 'Tree Belt No.2' and consists of a mix of tree species. These are of a young to semi- mature age class having been planted in recent years and most are establishing well with potential to form part of the long-term tree cover.*

Tree Belt No.3 *is located north of 'Tree Belt No.2' and it protrudes out into the open grass area. It is a prominent tree belt in this area consisting of mixed species such as Ash and Sycamore throughout the upper-canopy and Field-Maple and Rowan within the lower canopy. This tree group is made up of mainly early-mature trees.*

Tree Belt No.4 *extends north to south along the western boundary and it is a prominent tree belt in this area. This tree belt consists of mostly early-mature trees with self-seeded trees, such as Sycamore developing throughout the lower canopy. It is comprised mainly of Ash and Sycamore trees with some Poplar towering above the rest of the upper-canopy at the southern end. Hazel and Alder can be found within the lower canopy and the crowns of these trees overhang the public footpath at the southern end of this tree belt.*

Tree Nos.1338-1341 *are located on the eastern side of the public pathway out from the northern end of 'Tree Belt No.4' and consists of a mix of tree species. These are of a young age class having been planted in recent years and most are establishing well with good potential to form part of the long-term tree cover.*

Within the site area, 41Nol trees have been tagged with one woodland block, five tree groups, four tree belts and one hedge numbered numerically.

The following table gives a breakdown of the category grading allocation as per the cascade chart in BS5837 2012:

Category Grade	No. of trees
Category U **0 Trees**	**Tree Nos.** No Trees
Category A **1 Tree** **+ 2 Tree Belts** **+ 1 Tree Group** **+ 1 Woodland Block**	**Tree Nos.** 1304 **Tree Belt Nos.** 1 & 4 **Tree Group No.** 1 **Woodland Block No.** 1
Category B **8 Trees** **+ 1 Tree Belt** **+ 3 Tree Groups** **+ 1 Hedge**	**Tree Nos.** 1303, 1306, 1307, 1308, 1309, 1310, 1311 & 1321 **Tree Belt No.** 3 **Tree Group Nos.** 2, 3 & 4 **Hedge No.**1
Category C **32 Trees** **+ 1 Tree Group**	**Tree Nos.** 1301, 1302, 1305, 1312, 1313, 1314, 1315, 1316, 1317, 1318, 1319, 1320, 1322, 1323, 1324, 1325, 1326, 1327, 1328, 1329, 1330, 1331, 1332, 1333, 1334, 1335, 1336, 1337, 1338, 1339, 1340 & 1341 **Tree Group No.** 5
Total	**41 Trees + 4 Tree Belts + 5 Tree Groups + 1 Woodland Block + 1 Hedge**

Management

All tree and hedge vegetation being retained within the development of this site area will require their root protection areas enclosed by fencing to the recommendations of BS5837 2012 and this will need to be retained in place for the duration of the development works on this site area.

The tree and hedge vegetation being retained will need to be reviewed once the site layout has been completed and the necessary remedial tree surgery works have been carried out to promote safety to the end users of this area. All tree works both felling and pruning are to be carried out to the specifications of BS 3998:2010 by a competent tree surgery firm with adequate insurance.'

An Arboricultural Impact Assessment (including the markup provided by DLR Consulting) is demonstrated in Figure 2.

Lighting

A lighting plan has been prepared by to accompany this planning application. Details of the proposed lighting plan for the development at Shanganagh Park are demonstrated in Figures 3-6.

Competency of Assessor

This report has been prepared by Bryan Deegan MSc, BSc (MCIEEM). Bryan has over 26 years of experience providing ecological consultancy services in Ireland. He has extensive experience in carrying out a wide range of bat surveys including dusk emergence, dawn re-entry and static detector surveys. He also has extensive experience reducing the potential impact of projects that involve external lighting on Bats. Bryan trained with Conor Kelleher author of the Bat Mitigation Guidelines for Ireland (Kelleher and Marnell (2007)) and Bryan is currently providing bat ecology (impact assessment and enhancement) services to Dun Laoghaire Rathdown County Council primarily on the Shanganagh Park Masterplan. The desk and field surveys were carried out having regard to the guidance: Bat Surveys for Professional Ecologists – Good Practice Guidelines 3rd Edition (Collins, J. (Ed.) 2016) and Kelleher and Marnell (2007), Bat Mitigation Guidelines for Ireland.

Legislative Context

Wildlife (Amendment) Act 2000.

Bats in Ireland are protected by the Wildlife (Amendment) Act 2000. Based on this legislation it is an offence to wilfully interfere with or destroy the breeding or resting place of any species of bat. Under this legislation it is an offence to "*Intentionally kill, injure or take a bat, possess or control any live or dead specimen or anything derived from a bat, wilfully interfere with any structure or place used for breeding or resting by a bat, wilfully interfere with a bat while it is occupying a structure or place which it uses for that purpose. "*

Habitats Directive- Council Directive 92/43/EEC 1992 on the conservation of natural habitats and of wild fauna and flora transposed into Irish Law i.e. European Communities (Natural Habitats) Regulations, 1997 (SI No. 64/1997).

Annex II of the Council Directive 92/43/EEC 1992 on the conservation of natural habitats and of wild fauna and flora (EC Habitats Directive) lists animal and plant species of Community interest, the conservation of which requires the designation of Special Areas of Conservation (SACs); Annex IV lists animal and plant species of Community interest in need of strict protection. All bat species in Ireland are listed on Annex IV of the Directive, while the Lesser Horseshoe Bat (*Rhinolophus hipposideros*) is protected under Annex II which related to the designation of Special Areas of Conservation for a species.

Under section 23 of SI No. 64/1997 all bats are listed under the first schedule of Section 23 which makes it an offence to:

- deliberately capture a bat
- deliberately disturb a bat,
- damage or destroy a breeding site or resting place of a bat.

Survey methodology

At dusk, a bat detector survey was carried out onsite using an echo meter touch 2 pro bat detector to determine bat activity. Bats were identified by their ultrasonic calls coupled with behavioural and flight observations. Surveys were carried out having regard to the following guidelines:

- Bat Surveys for Professional Ecologists: Good Practice Guidelines (Collins, 2016);
- Bat Mitigation Guidelines for Ireland (NPWS, 2006); and,
- Best Practice Guidelines for the Conservation of Bats in the Planning of National Road Schemes (NRA, 2006).

Bat survey

This report presents the results of site visits by Bryan Deegan (MCIEEM) on the 25th August 2021 and 16th September 2021. Bat emergent survey were also carried out. No trees of bat roosting potential are on site. There are no buildings on site or features of bat roosting potential. I

Survey constraints

The detector survey was undertaken during the active bat season in June. Weather conditions were good with mild temperatures of >10^{c}C after sunset. Winds were light and there was no rainfall.

Figure 1: *Site outline. Common pipistrelle (yellow), Soprano pipistrelle (orange) an Leisler's bat(white) foraging.*

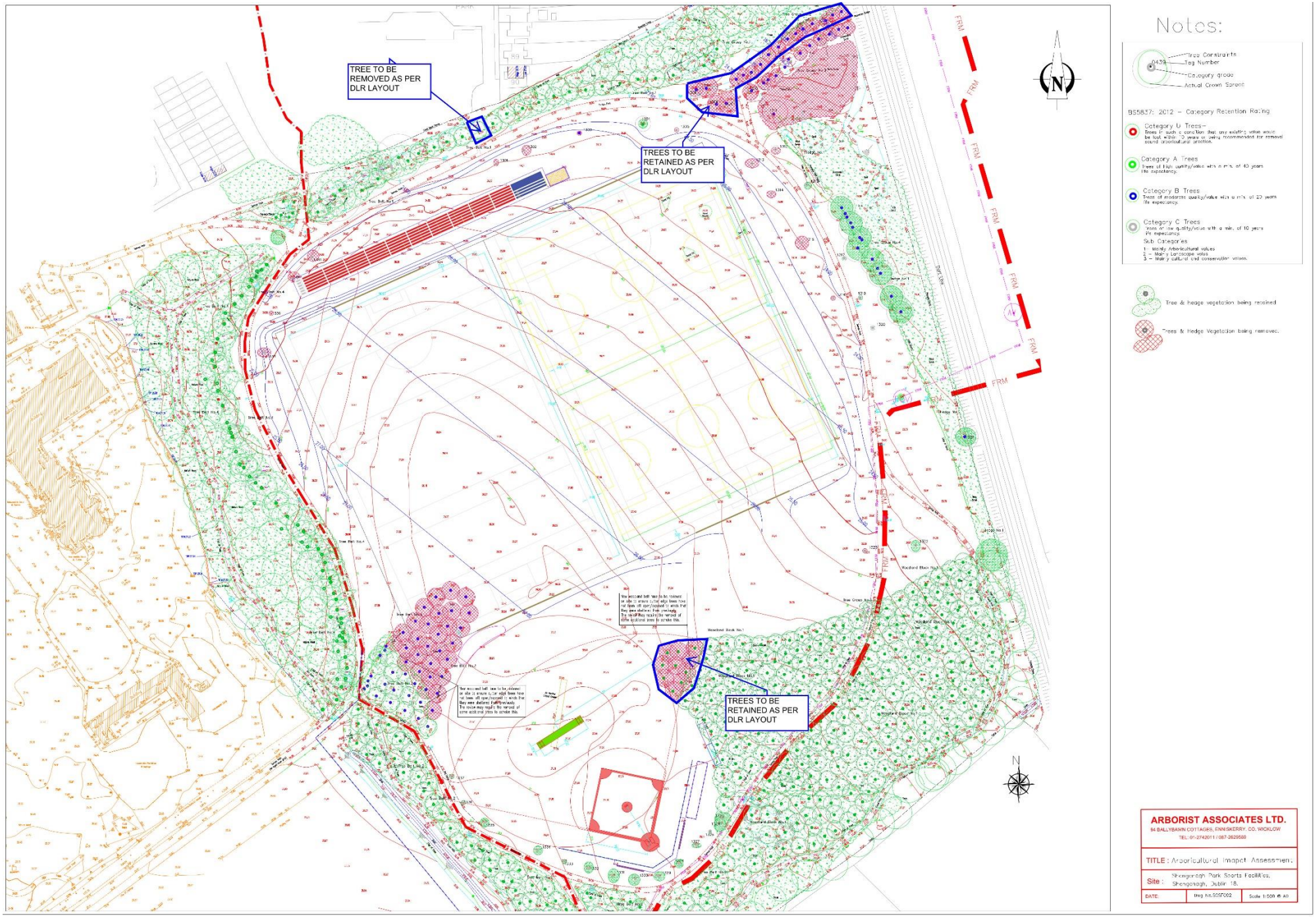

Figure 2. *Arboricultural impact assessment (incl. DLR markup)*

Shanganagh Park Phase 1

Dublin,Leinster

Lighting System

Pole / Fixture Summary

Pole ID	Pole Height	Mtg Height	Fixture Qty	Luminaire Type	Load	Circuit
P1	24.4	24.4	5	TLC-LED-1500	7.15 kW	B
		24.4	4	TLC-LED-900	3.56 kW	B
P2	24.4	24.4	6	TLC-LED-1500	8.58 kW	B
		24.4	6	TLC-LED-1500	8.58 kW	C
		18.3	1	TLC-LED-1500	1.43 kW	B
		18.3	1	TLC-LED-1500	1.43 kW	C
P3	24.4	24.4	4	TLC-LED-1500	5.72 kW	C
		24.4	5	TLC-LED-900	4.45 kW	C
P4	24.4	24.4	9	TLC-LED-1500	12.87 kW	C
		24.4	9	TLC-LED-1500	12.87 kW	A
P5	24.4	24.4	10	TLC-LED-1500	14.30 kW	A
		24.4	6	TLC-LED-1500	8.58 kW	C
		24.4	6	TLC-LED-1500	8.58 kW	B
		24.4	1	TLC-LED-900	0.89 kW	A
		18.3	1	TLC-LED-1500	1.43 kW	C
		18.3	1	TLC-LED-1500	1.43 kW	B
P6	24.4	24.4	9	TLC-LED-1500	12.87 kW	A
		24.4	9	TLC-LED-1500	12.87 kW	B
P7, P9	24.4	24.4	5	TLC-LED-1500	7.15 kW	A
		24.4	5	TLC-LED-900	4.45 kW	A
P8	24.4	24.4	6	TLC-LED-1500	8.58 kW	A
		24.4	5	TLC-LED-900	4.45 kW	A
P10	15.2	15.2	4	TLC-LED-900	3.56 kW	D
P11	15.2	15.2	3	TLC-LED-900	2.67 kW	D
11			***131***		***170.05 kW***	

Circuit Summary

Circuit	Description	Load	Fixture Qty
A	Pitch 1	77.16 kW	60
B	Football 1 / Pitch 2	43.6 kW	32
C	Football 2 / Pitch 2	43.06 kW	32
D	Track	6.23 kW	7

Fixture Type Summary

Type	Source	Wattage	Lumens	L90	L80	L70	Quantity
TLC-LED-900	LED 4000K - 70 CRI	890W	89,600	>120,000	>120,000	>120,000	32
TLC-LED-1500	LED 4000K - 70 CRI	1430W	160,000	>120,000	>120,000	>120,000	99

Light Level Summary

Calculation Grid Summary

Grid Name	Calculation Metric	Illumination					Circuits	Fixture Qty
		Ave	Min	Max	Min/Max	Min/Ave		
Football 1	Horizontal Illuminance	516	376	734	0.51	0.73	B	32
Football 2	Horizontal Illuminance	508	364	771	0.47	0.72	C	32
GAA Pitch 1	Horizontal Illuminance	503	367	701	0.52	0.73	A	60
GAA Pitch 2	Horizontal Illuminance	543	386	775	0.50	0.71	B,C	64
Spill Blanket	Horizontal	269	0	926	0.00	0.00	A,B,C,D	131
Spill line	Horizontal	1.11	0	2.98	0.00	0.00	A,B,C,D	131
Spill line	Max Candela (by Fixture)	7148	27.3	43144	0.00	0.00	A,B,C,D	131
Track	Horizontal Illuminance	242	121	373	0.33	0.50	D	7

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ENGINEERED DESIGN By: Carlos Castañeda Ortiz · File #214399C · 16-Sep-21

PROJECT SUMMARY

Figure 3. *Proposed lighting – project summary*

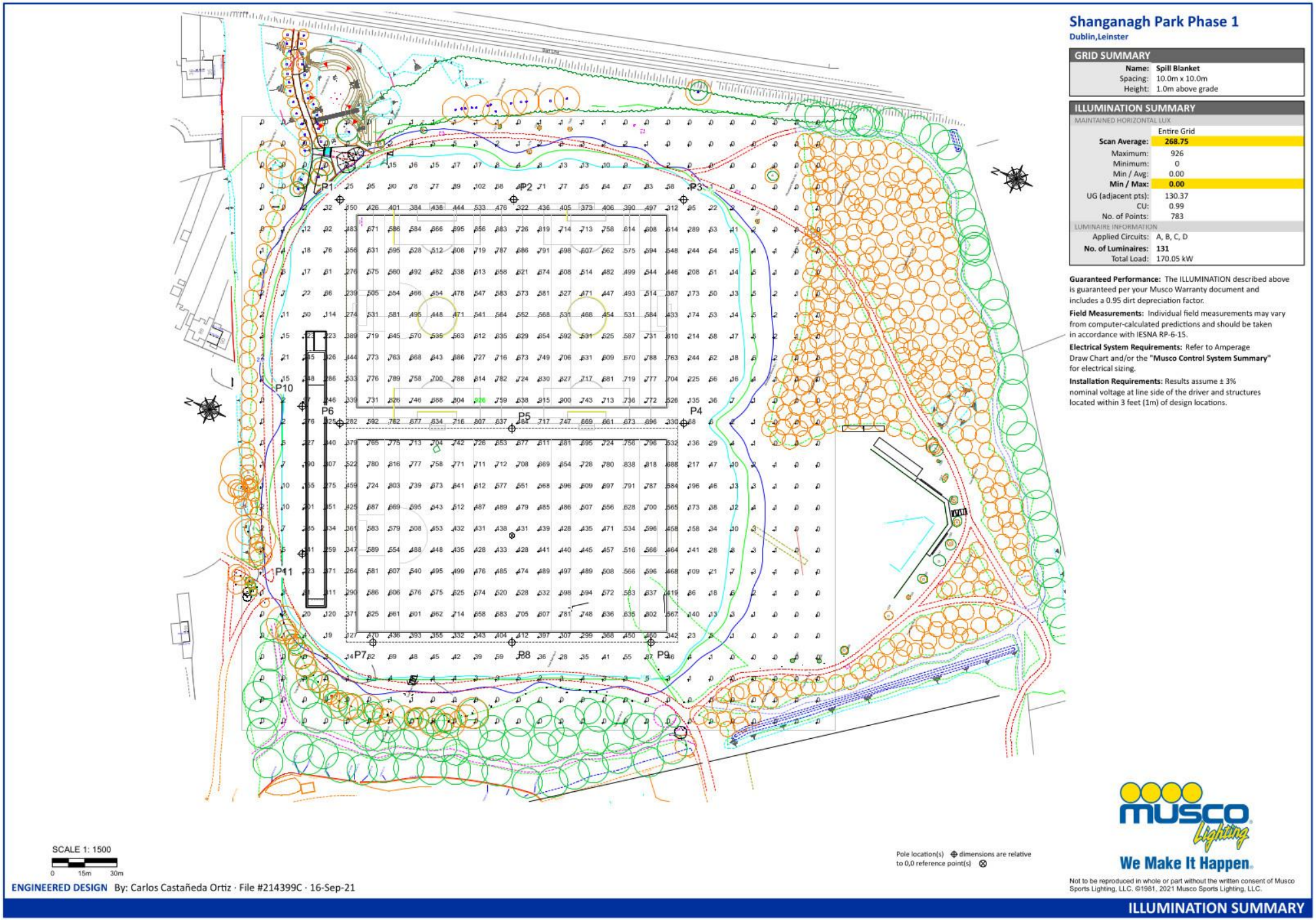

Figure 4. *Proposed lighting – spill blanket*

Shanganagh Park Phase 1

Dublin,Leinster

GRID SUMMARY

Name:	**Spill line**
Spacing:	10.0m
Height:	1.0m above grade

ILLUMINATION SUMMARY

HORIZONTAL LUX

	Entire Grid
Scan Average:	1.1053
Maximum:	2.98
Minimum:	0.00
No. of Points:	102

LUMINAIRE INFORMATION

Applied Circuits:	A, B, C, D
No. of Luminaires:	**131**
Total Load:	170.05 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

SCALE 1: 2000

0 20m 40m

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗

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musco Lighting

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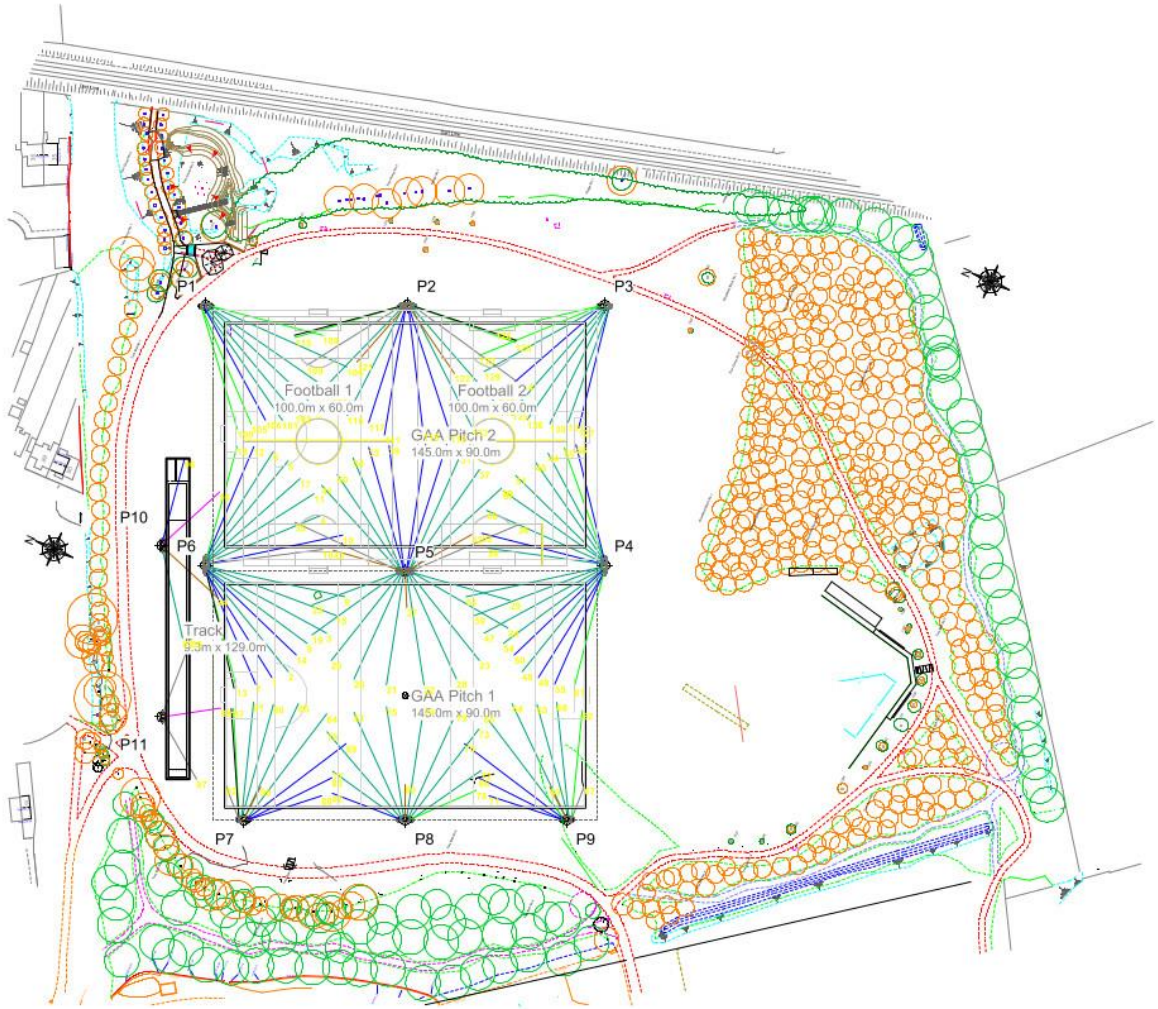
ILLUMINATION SUMMARY

Figure 5. *Proposed lighting – spill line*



Shanganagh Park Phase 1

Dublin,Leinster

EQUIPMENT LAYOUT

INCLUDES:

- Football 1
- Football 2
- GAA Pitch 1
- GAA Pitch 2
- Track

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires		
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE
1	P1	24.38m	-	24.38m	TLC-LED-1500	5
				24.38m	TLC-LED-900	4
1	P2	24.38m	-	18.29m	TLC-LED-1500	2
				24.38m	TLC-LED-1500	12
1	P3	24.38m	-	24.38m	TLC-LED-1500	4
				24.38m	TLC-LED-900	5
2	P4, P6	24.38m	-	24.38m	TLC-LED-1500	18
1	P5	24.38m	-	24.38m	TLC-LED-1500	10/12*
				18.29m	TLC-LED-1500	2
				24.38m	TLC-LED-900	1
2	P7, P9	24.38m	-	24.38m	TLC-LED-1500	5
				24.38m	TLC-LED-900	5
1	P8	24.38m	-	24.38m	TLC-LED-1500	6
				24.38m	TLC-LED-900	5
1	P10	15.24m	-	15.24m	TLC-LED-900	4
1	P11	15.24m	-	15.24m	TLC-LED-900	3
11			TOTALS			131

* This structure utilizes a back-to-back mounting configuration

SINGLE LUMINAIRE AMPERAGE DRAW CHART

Ballast Specifications (.90 min power factor)	Line Amperage Per Luminaire (max draw)					
	220 (50)	230 (50)	240 (50)	380 (50)	400 (50)	415 (50)
Single Phase Voltage						
TLC-LED-900	5.0	4.8	4.6	2.9	2.8	2.7
TLC-LED-1500	8.1	7.7	7.4	4.7	4.4	4.3

SCALE 1: 2000

0 20m 40m

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗

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EQUIPMENT LAYOUT

Figure 6. *Proposed lighting – equipment layout*

Bat assessment findings

Review of local bat records

The review of existing bat records (sourced from *Bat Conservation Ireland's* National Bat Records Database) within 2km^2 grids (Reference grids O22K & O22Q) encompassing the study area reveals that four of the nine known Irish species have been observed locally (Table 1). The National Biodiversity Data Centre's online viewer was consulted in order to determine whether there have been recorded bat sightings in the wider area. This is visually represented in Figures 7-9. The following species were noted in the wider area: Brown Long-eared Bat (*Plecotus auritus*), Soprano Pipistrelle (*Pipistrellus pygmaeus*), Daubenton's Bat (*Myotis daubentonii),* Natterer's Bat (*Myotis nattereri*), and Pipistrelle (*Pipistrellus pipstrellus sensu lato*) (Figures 7-9).

Table 1: *Status of bat species within two 2km^2 grid encompassing the subject site (Reference nos. O22K & O22Q))*

Species name	Record count	Date of last record	Note
Lesser Noctule (*Nyctalus leisleri*)	1	16/07/2007	National Bat Database of Ireland
Natterer's Bat (*Myotis nattereri*)	1	16/07/2007	National Bat Database of Ireland
Pipistrelle (*Pipistrellus pipistrellus sensu lato)*	2	16/07/2007	National Bat Database of Ireland
Soprano Pipistrelle (*Pipistrellus pygmaeus)*	2	16/07/2007	National Bat Database of Ireland

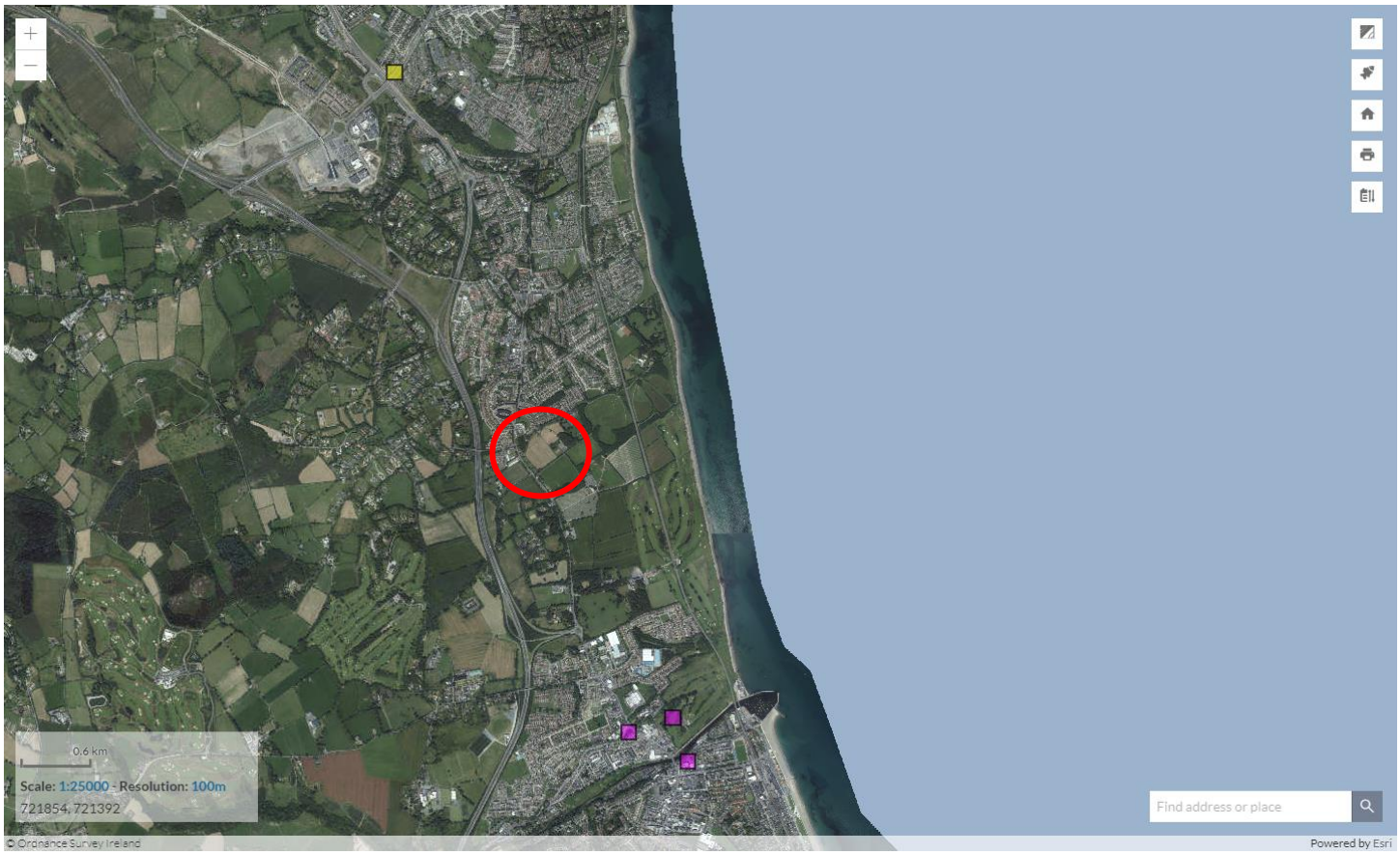

Figure 7. Brown Long-eared Bat (*Plecotus auritus*) (yellow) and Daubenton's Bat (*Myotis daubentonii*) (purple) (Source NBDC) (Site – red circle)

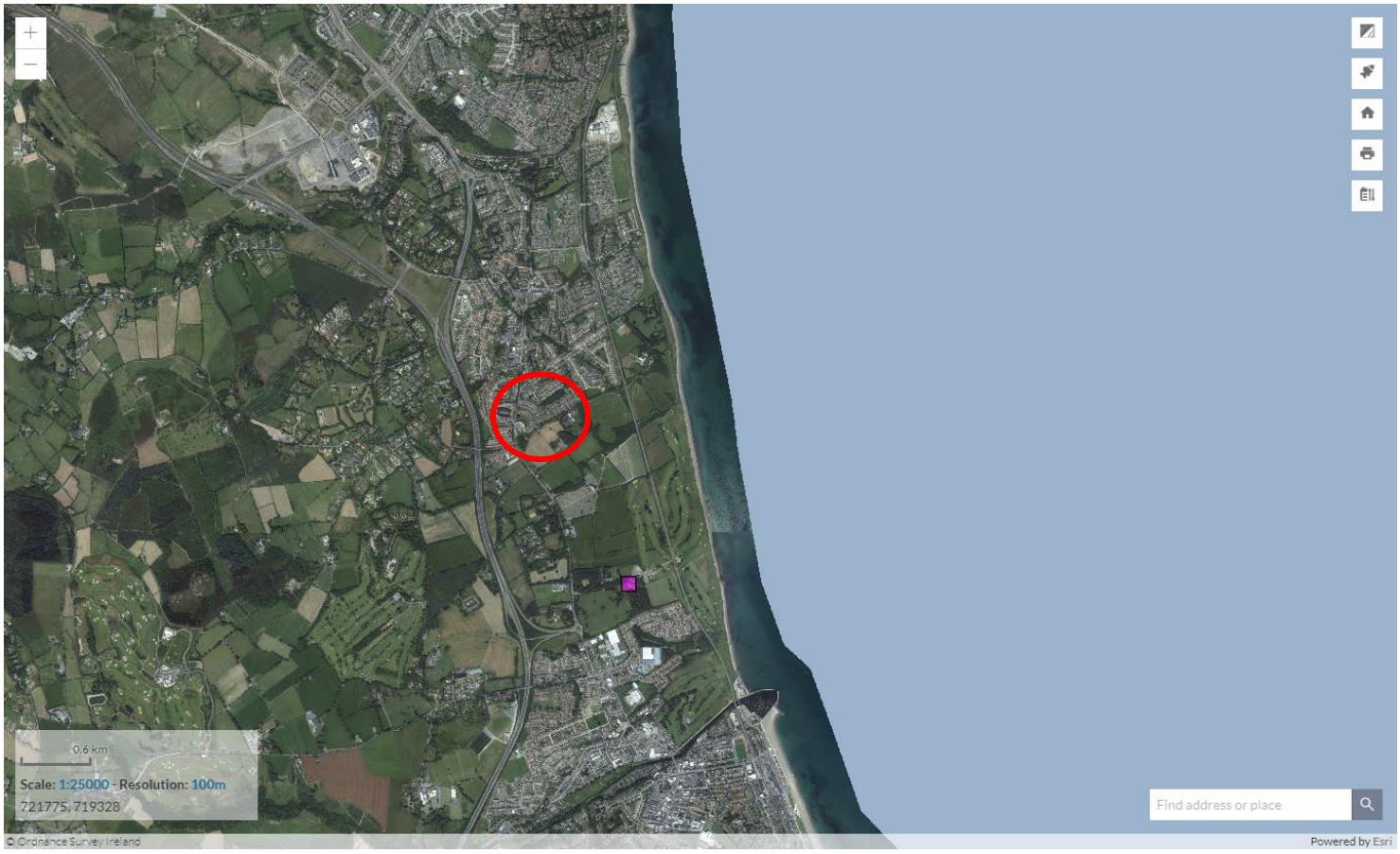

Figure 8. Natterer's Bat (*Myotis nattereri*) (purple) (Source NBDC) (Site – red circle)

Figure 9. Pipistrelle (*Pipistrellus pipistrellus sensu lato*) (purple) (Species aggregate), Soprano Pipistrelle (*Pipistrellus pygmaeus*) (yellow), and both Pipistrelle and Soprano Pipistrelle (orange) (Source NBDC) (Site – red circle)

Specifically, NBDC records show sightings of a bat species in a location that encompasses a portion of the subject site:

1. Soprano Pipistrelle (*Pipistrellus pygmaeus*) in grid reference O260210, encompassing a portion of the subject site. Recorded on 01/09/2004.

Detector survey

Foraging activity on site was relatively high on site with three soprano pipistrelle (*Pipistrellus pygmaeus*) a common pipistrelle (*Pipistrellus pipistrellus*) and Leisler's bat (*Nyctalus leisleri*) foraging over the site. Pipistrelle activity was primarily concentrated along the edges of the woodland while Leisler's bats were observed in more open areas.

Potential impacts of proposed redevelopment on bats

No roosts bats were on site. Lighting during construction and operation has the potential to impact on foraging of bats on site. Discussions took place between Altemar and Musco Lighting consultants to ensure that the proposed floodlighting did not significantly impact on foraging bat activity within the park and introduce excessive light spill into the surrounding environment. Several iterations of the lighting strategy were prepared and assessed for potential negative impact on bats. The strategy proposed represent the final version of this consultation process. As seen in Figure 4 the ground light levels in the vicinity of the surrounding woodland is primarily < 1 lux (blue contour) and would therefore not prohibit bats from using existing foraging corridors.

Mitigation measures

As no evidence of a bat roost was noted in any of the onsite structures, no mitigation measures in regard to these animals are needed during the proposed works. There is also no requirement for a *National Parks and Wildlife Service* derogation licence application to allow the planned works. However, as a precaution lighting at all stages should be done sensitively on site in consultation with a project ecologist, with no direct lighting of woodlands.

In discussion with Altemar a lighting strategy was prepared to further limit the potential impact of lighting on bats. The floodlighting will be operational, when required, potentially from 7am until 22:00, 7 days a week from October 15th to March 31st, during the main bat hibernation period. From April 1st to October 14th should lights be deemed necessary they will cease operation at civil twilight (rounded hour) e.g. 8pm in April, 9pm in May, 9pm in August and 8pm in September, in order to further protect bat foraging activity. This in effect reduces the potential lighting times i.e. cease lighting before 10pm for only 4 months of the year as seen (Table 1.)

Table 1. Proposed lighting times

	Time ON Civil Twilight 1st of each month	**Time OFF Mon to Thu**
Jan	16:15	22:00
Feb	17:07	22:00
Mar	18:02	22:00
Apr	19:59	20.00
May	20:53	21.00
Jun	21:42	22.00 (Not used)
Jul	21:56	22.00 (Not used)
Aug	21:20	21.00
Sep	20:15	20.00
Oct	19:02	22:00
Nov	16:53	22:00
Dec	16:10	22:00

A post construction light spill and bat foraging assessment will be carried out by a bat specialist to confirm lighting has been constructed.

Predicted and residual impact of the proposal

The proposed development will change the local environment as new lights are to be erected and some of the existing vegetation will be removed. No bat roosts will be lost due to this development and the species expected to occur onsite should persist. Minor loss of foraging areas through the site (not at the perimeter) will be seen when lighting is on. However mitigation has been placed within the design and operation of the proposed lighting. Landscaping is provided to enhance bat foraging on site.

Legal status and conservation issues – bats

All Irish bat species are protected under the Wildlife Act (1976) and Wildlife Amendment Acts (2000 and 2010). Also, the EC Directive on The Conservation of Natural habitats and of Wild Fauna and Flora (Habitats Directive 1992), seeks to protect rare species, including bats, and their habitats and requires that appropriate monitoring of populations be undertaken. All Irish bats are listed in Annex IV of the Habitats Directive and the lesser horseshoe bat *Rhinolophus hipposideros* is further listed under Annex II. Across Europe, they are further protected under the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention 1982), which, in relation to bats, exists to conserve all species and their habitats. The Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention 1979, enacted 1983) was instigated to protect migrant species across all European boundaries. The Irish government has ratified both these conventions.

All Irish bats are listed in Annex IV of the Habitats Directive and the lesser horseshoe bat is further listed under Annex II.

The current status and legal protection of the known bat species occurring in Ireland is given in the following table.

Common and scientific name	Wildlife Act 1976 & Wildlife (Amendment) Acts 2000/2010	Irish Red List status	Habitats Directive	Bern & Bonn Conventions
Common pipistrelle *Pipistrellus pipistrellus*	Yes	Least Concern	Annex IV	Appendix II
Soprano pipistrelle *P. pygmaeus*	Yes	Least Concern	Annex IV	Appendix II
Nathusius pipistrelle *P. nathusii*	Yes	Not referenced	Annex IV	Appendix II
Leisler's bat *Nyctalus leisleri*	Yes	Near Threatened	Annex IV	Appendix II
Brown long-eared bat *Plecotus auritus*	Yes	Least Concern	Annex IV	Appendix II
Lesser horseshoe bat *Rhinolophus hipposideros*	Yes	Least Concern	Annex II Annex IV	Appendix II
Daubenton's bat *Myotis daubentonii*	Yes	Least Concern	Annex IV	Appendix II
Natterer's bat *M. nattereri*	Yes	Least Concern	Annex IV	Appendix II
Whiskered bat *M. mystacinus*	Yes	Least Concern	Annex IV	Appendix II
Brandt's bat *M. brandtii*	Yes	Data Deficient	Annex IV	Appendix II

Also, under existing legislation, the destruction, alteration or evacuation of a known bat roost is a notifiable action and a derogation licence has to be obtained from the *National Parks and Wildlife Service* before works can commence.

It should also be noted that any works interfering with bats and especially their roosts, including for instance, the installation of lighting in the vicinity of the latter, may only be carried out under a licence to derogate from Regulation 23 of the Habitats Regulations 1997, (which transposed the EU Habitats

Directive into Irish law) issued by NPWS. The details with regards to appropriate assessments, the strict parameters within which derogation licences may be issued and the procedures by which and the order in relation to the planning and development regulations such licences should be obtained, are set out in Circular Letter NPWS 2/07 "*Guidance on Compliance with Regulation 23 of the Habitats Regulations 1997 - strict protection of certain species/applications for derogation licences*" issued on behalf of the Minister of the Environment, Heritage and Local Government on the 16th of May 2007.

Furthermore, on 21st September 2011, the Irish Government published the European Communities (Birds and Natural Habitats) Regulations 2011 which include the protection of the Irish bat fauna and further outline derogation licensing requirements re: European Protected Species.

References

Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention) 1982

Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention) 1979

EC Directive on The Conservation of Natural habitats and of Wild Fauna and Flora (Habitats Directive) 1992

European Communities (Birds and Natural Habitats) Regulations 2011 Government of Ireland, Dublin

Kelleher, C. and Marnell, F. 2007 *Bat Mitigation Guidelines for Ireland – Irish Wildlife Manuals No. 25*. National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government, Dublin

Marnell, F., Kingston, N. and Looney, D. 2009 *Ireland Red List No. 3: Terrestrial Mammals.* National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government, Dublin

Wildlife Act 1976 and Wildlife Amendment Acts 2000 and 2010. Government of Ireland

Bat Surveys for Professional Ecologists: Good Practice Guidelines (Collins, 2016)
https://cdn.bats.org.uk/pdf/Resources/Bat_Survey_Guidelines_2016_NON_PRINTABLE.pdf?mtime=20181115113931&focal=none

Bat Mitigation Guidelines for Ireland (NPWS, 2006)
https://www.npws.ie/sites/default/files/publications/pdf/IWM25.pdf

Best Practice Guidelines for the Conservation of Bats in the Planning of National Road Schemes (NRA, 2006).

https://www.tii.ie/technical-services/environment/planning/Best_Practice_Guidelines_for_the_Conservation_of_Bats_in_the_Planning_of_National_Road_Schemes.pdf