9.2. Laboratory Analysis

The laboratory analysis undertaken on the samples collected from the boreholes included for dissolved arsenic, boron, cadmium, copper, chromium, cyanide, lead, mercury, nickel, manganese and zinc, aliphatic and aromatic petroleum hydrocarbons, polycyclic aromatic hydrocarbons (PAH), methyl tert butyl ether (MTBE), benzene toluene ethylbenzene and toluene (BTEX), total phenols, pH, electrical conductivity, nitrate, chloride, sulphate, ammonia and potassium. The parameter range was based on the site history and the need to establish a comprehensive environmental baseline for the groundwater quality for the site.

The laboratory testing was competed by Element Materials Technology in the UK; EMT is a UKAS accredited laboratory. The full laboratory reports are included in Appendix 6. The analytical methodologies are all ISO/CEN approved or equivalent.

9.3. Laboratory Results

The full laboratory test report is presented in Appendix 6 and the results are summarised in Tables 3 to 5 The tables include Interim Guideline Values (IGV) published by the EPA and the Groundwater Threshold Values (GTV) set out in the European Communities Environmental Objectives (Groundwater) Regulations (S.I. 9 of 2010).

The IGVs are not statutory but were developed to assist in the assessment of impacts on groundwater quality. The IGVs are based on, but are more conservative than, the Drinking Water quality standards. GTVs have only been established for core indicator parameters. To ensure a comprehensive assessment of the groundwater quality, the IGVs are presented for parameters for which there are no GTV.

The level of manganese in all wells exceeded the IGV. The level of ammonia in BH-07 and BH-09 exceeded the GTV. The elevated levels of ammonia are likely linked to local urban wastewater infrastructure with the manganese likely to be naturally occurring.

Elevated levels of TPH were detected in BH-03. The laboratory has interpreted the source of the hydrocarbons to be related to Linear Alkylbenzenes. There was no evidence of hydrocarbon impact noted during water sampling.

Table 3 Groundwater Metals and Inorganics

Parameter	BH-02	BH-03	BH-07	BH-09	BH-11	LOD	Unit	EPA IGV[1]	GTV[2]
Dissolved Arsenic	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	ug/l	-	7.5
Dissolved Boron	34	35	32	51	30	<12	ug/l	-	750
Dissolved Cadmium	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	ug/l	-	3.75
Total Dissolved Chromium	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	ug/l	-	37.5
Dissolved Copper	<7	<7	<7	<7	<7	<7	ug/l	-	1;500

[1] EPA Report – Towards Setting Guideline Values for the Protection of Groundwater in Ireland, Interim Report, 2003.
[2] Groundwater Threshold Values as set out in S.I. 9 of 2010.

Parameter	BH-02	BH-03	BH-07	BH-09	BH-11	LOD	Unit	EPA IGV[1]	GTV[2]
Dissolved Lead	<5	<5	<5	<5	<5	<5	ug/l	-	18.75
Dissolved Manganese	200	190	999	861	55	<2	ug/l	50	ne[3]
Dissolved Mercury	<1	<1	<1	<1	<1	<1	ug/l	-	0.75
Dissolved Nickel	4	3	4	9	2	<2	ug/l	-	15
Dissolved Potassium	1.0	2.0	1.4	2.9	1.9	<0.1	mg/l	5	ne
Dissolved Zinc	<3	<3	<3	<3	<3	<3	ug/l	100	ne
Sulphate	101.6	47.6	9.4	67.2	126.6	<0.5	mg/l	-	187.5
Chloride	16.8	24.1	8.0	27.4	19.5	<0.3	mg/l	-	187.5
Nitrate as NO_3	0.9	<0.2	<0.2	<0.2	<0.2	<0.2	mg/l	-	37.5
Total Cyanide	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/l	-	0.0375
Ammoniacal Nitrogen as NH_3	<0.03	0.15	0.23	0.41	0.12	<0.03	mg/l	-	0.175
Electrical Conductivity @25C #	814	277	541	734	581	<2	µS/cm	1,000	1,875
pH	7.48	8.08	7.82	8.01	7.83	<0.01	pH units	≥ 6.5 - ≤ 9.5	ne

Table 4 Groundwater PAHs

Parameter	BH-02	BH-03	BH-07	BH-09	BH-11	LOD	Unit	EPA IGV	GTV
Naphthalene	<0.1	<0.1	<0.1	<0.1	<0.1	<0.013	µg/l	1	ne
Acenaphthylene	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	µg/l	ne	ne
Acenaphthene	<0.013	<0.013	<0.013	<0.013	<0.013	<0.014	µg/l	ne	ne
Fluorene	<0.014	<0.014	<0.014	<0.014	<0.014	<0.011	µg/l	ne	ne
Phenanthrene	<0.011	<0.011	<0.011	<0.011	<0.011	<0.013	µg/l	ne	ne
Anthracene	<0.013	<0.013	<0.013	<0.013	<0.013	<0.012	µg/l	10,000	ne
Fluoranthene	<0.012	<0.012	<0.012	<0.012	<0.012	<0.013	µg/l	1	ne
Pyrene	<0.013	<0.013	<0.013	<0.013	<0.013	<0.015	µg/l	ne	ne
Benzo(a)anthracene	<0.015	<0.015	<0.015	<0.015	<0.015	<0.011	µg/l	ne	ne
Chrysene	<0.011	<0.011	<0.011	<0.011	<0.011	<0.018	µg/l	ne	ne
Benzo(bk)fluoranthene	<0.018	<0.018	<0.018	<0.018	<0.018	<0.016	µg/l	ne	ne
Benzo(a)pyrene	<0.016	<0.016	<0.016	<0.016	<0.016	<0.011	µg/l	0.01	0.0075
Indeno(123cd)pyrene	<0.011	<0.011	<0.011	<0.011	<0.011	<0.01	µg/l	0.05	ne
Dibenzo(ah)anthracene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.011	µg/l	ne	ne
Benzo(ghi)perylene	<0.011	<0.011	<0.011	<0.011	<0.011	<0.195	µg/l	0.05	ne
PAH 16 Total	<0.195	<0.195	<0.195	<0.195	<0.195	<0.01	µg/l	ne	0.075
Benzo(b)fluoranthene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	µg/l	0.5	ne
Benzo(k)fluoranthene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	µg/l	0.05	ne

[3] ne – not established.

Table 5 Groundwater Hydrocarbons

Parameter	BH-02	BH-03	BH-07	BH-09	BH-11	LOD	Unit	EPA IGV	GTV
TPH CWG									
Aliphatics									
>C5-C6	<10	<10	<10	<10	<10	<10	µg/l	ne	ne
>C6-C8	<10	<10	<10	<10	<10	<10	µg/l	ne	ne
>C8-C10	<10	<10	<10	<10	<10	<10	µg/l	ne	ne
>C10-C12	<5	<5	<5	<5	<5	<5	µg/l	ne	ne
>C12-C16	<10	70	<10	<10	<10	<10	µg/l	ne	ne
>C16-C21	<10	560	<10	<10	<10	<10	µg/l	ne	ne
>C21-C35	<10	<10	<10	<10	<10	<10	µg/l	ne	ne
Total aliphatics C5-35	<10	630	<10	<10	<10	<10	µg/l	0.01	ne
Aromatics									
>C5-EC7	<10	<10	<10	<10	<10	<10	µg/l	ne	ne
>EC7-EC8	<10	<10	<10	<10	<10	<10	µg/l	ne	ne
>EC8-EC10	<10	<10	<10	<10	<10	<10	µg/l	ne	ne
>EC10-EC12	<5	<5	<5	<5	<5	<10	µg/l	ne	ne
>EC12-EC16	<10	330	<10	<10	<10	<10	µg/l	ne	ne
>EC16-EC21	<10	2500	<10	<10	<10	<10	µg/l	ne	ne
>EC21-EC35	<10	<10	<10	<10	<10	<10	µg/l	ne	ne
Total aromatics C5-35	<10	2830	<10	<10	<10	<10	µg/l	0.01	ne
Total aliphatics and aromatics(C5-35)	<10	3460	<10	<10	<10	<10	µg/l	0.01	ne
Total Phenols HPLC	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	mg/l	0.5	ne
MTBE	<5	<5	<5	<5	<5	<5	µg/l	30	ne
Benzene	<5	<5	<5	<5	<5	<5	µg/l	ne	0.75
Toluene	<5	<5	<5	<5	<5	<5	µg/l	10	ne
Ethylbenzene	<5	<5	<5	<5	<5	<5	µg/l	10	ne
m/p-Xylene	<5	<5	<5	<5	<5	<5	µg/l	10	ne
o-Xylene	<5	<5	<5	<5	<5	<5	µg/l	10	ne

10.0 Subsoil Laboratory Analysis

10.1. Analysis Suite

In order to assess materials, which may be excavated and removed from site, in terms of waste classification, a selection of samples collected were analysed for a suite of parameters which allows for the assessment of the soils in terms of total pollutant content for classification of materials as *hazardous* or *non-hazardous* (RILTA Suite). The suite also allows for the assessment of the soils in terms of suitability for placement at various categories of landfill. The parameter list for the RILTA suite includes analysis of the solid samples for arsenic, barium, cadmium, chromium, copper, cyanide, lead, nickel, mercury, zinc,

speciated aliphatic and aromatic petroleum hydrocarbons, pH, sulphate, sulphide, moisture content, soil organic matter and an asbestos screen.

The total pollutant content analysis also provides analytical data which can be used to assess the quality of the subsoils underlying the site and allow an assessment of their suitability for a range of proposed uses against generic assessment criteria.

The RILTA suite also includes those parameters specified in the EU Council Decision establishing criteria for the acceptance of waste at Landfills (Council Decision 2003/33/EC), which for the solid samples are pH, total organic carbon (TOC), speciated aliphatic and aromatic petroleum hydrocarbons, BTEX, phenol, polychlorinated biphenyls (PCB) and PAH.

In line with the requirement of Council Decision 2003/33/EC a leachate was generated from the solid samples which was in turn analysed for antimony, arsenic, barium, cadmium, chromium, copper, lead, mercury, molybdenum, nickel, selenium, zinc, chloride, fluoride, soluble sulphate, sulphide, phenols, dissolved organic carbon (DOC) and total dissolved solids (TDS). The suite was selected due to the unknown origin of the material underlying the site and no evidence of specific contaminants of concern highlighted in the site history. The laboratory testing was competed by Element Materials Technology (EMT) in the UK; EMT is a UKAS accredited laboratory. The full laboratory reports are included in Appendix 6.

10.2. Asbestos

Asbestos fibres were **not** detected in the samples. The laboratory did **not** identify asbestos containing materials (ACMs) in the sample.

11.0 Waste Classification

GII understands that any materials which may be excavated from site would meet the definition of waste under the Waste Framework Directive. This may not be the case at the time of excavation when all or some of the materials may have been declared a by-product in line with Article 27 of the European Communities (Waste Directive) Regulations 2011[4].

Excess soil and stone resulting from excavation works (the primary purpose of which is not the production of soil and stone) may be declared a by-product if all four by-product conditions are met.[5]

a) further use of the soil and stone is certain;

b) the soil and stone can be used directly without any further processing other than normal industrial practice;

c) the soil and stone is produced as an integral part of a production process; and

[4] S.I. No. 126/2011 - European Communities (Waste Directive) Regulations 2011 (Article 27).
[5] Irish EPA (June 2019), Guidance on Soil and Stone By-Products.

d) further use is lawful in that the soil and stone fulfils all relevant requirements for the specific use and will not lead to overall adverse environmental or human health impacts.

Due to the varying levels of anthropogenic materials encountered in the made ground there are potentially two sets of List of Waste (LoW)[6] codes with "mirror" entries which may be applied to excavated materials to be removed from site.

1. 17-05-03* (soil and stone containing dangerous substances, classified as hazardous) or 17-05-04 (soil and stone other than those mentioned in 17-05-03, not hazardous); or
2. 17-09-03* (other construction and demolition wastes (including mixed wastes) containing hazardous substances) or 17-09-04 (mixed construction and demolition wastes other than those mentioned in 17 09 01, 17 09 02 and 17 09 03).

Where waste is a mirror entry in the LoW, it can be classified via a process of analysis against standard criteria set out in the Waste Framework Directive. The assessment process is described in detail in guidance published by the Irish (EPA Waste Classification, List of Waste & Determining if Waste is Hazardous or Non-Hazardous, June 2015) and UK regulatory authorities (Guidance on the Classification and Assessment of Waste: Technical Guidance WM3, 2015). The assessment involves comparison of the concentration of various parameters against defined threshold values.

The specific LoW code which should be applied to the material at each sample location is summarised in Table 1 below. These codes are only applicable where the material is being removed for site as a waste.

GII use HazWasteOnline™, a web-based commercial waste classification software tool which assists in the classification of potentially hazardous materials. This tool was used to determine whether the materials sampled are classified as hazardous or non-hazardous. The use of the online tool is accepted by the EPA (EPA 2014).

The conclusions presented in the report are based on GII's professional opinion. **It should be noted that the environmental regulator (in this case the EPA) and the waste acceptor (in this case a landfill operator) shall decide whether a waste is hazardous or non-hazardous and suitable for disposal at their facility.**

11.1. HazWasteOnLineTM Results

In total, fifty-seven (57 No.) samples were assessed using the HazWasteOnLine™ Tool. All samples were classified as being not hazardous. The complete HazWasteOnLine™ reports for all samples are included in Appendix 7. The specific LoW code which should be applied to the material at each SI location is summarised in Table 7 below. The assigning of the LoW code is based on observations recorded in the trial pits, boreholes and window samples, an estimation of the % of anthropogenic material present and the results of the HazWasteOnline™ output. The final LoW codes applied at the time of disposal may vary due

[6] Formerly European Waste Catalogue Codes (EWC Codes)

to variations in % of anthropogenic material observed in the excavation phase. Where there is in excess of 2%[7] anthropogenic material observed the LoW code 17 09 04 may be applied.

11.2. Landfill Waste Acceptance Criteria

Waste Acceptance Criteria (WAC) have been agreed by the EU (Council Decision 2003/33/EC) and are only applicable to material if it is to be disposed of as a waste at a landfill facility. Each individual member state and licensed operators of landfills may apply more stringent WAC. WAC limits and the associated laboratory analysis are not suitable for use in the determination of whether a waste is hazardous or non-hazardous. The data have been compared to the WAC limits set out in Council Decision 2003/33/EC as well as the specific WAC which the EPA have applied to the Integrated Materials Solutions (IMS) Landfill in north County Dublin. The IMS landfill has higher limits for a range of parameters while still operating under an inert landfill licence. The WAC data considered in combination with the waste classification outlined in Section 12.0 allows the most suitable waste category to be applied to the material tested. The applicable waste categories are summarised in Table 6. A summary of the WAC data is presented in Appendix 8. The waste category assigned to each sample is summarised in Table 7.

Table 6 Waste Category for Disposal/Recovery

Waste Category	Classification Criteria
Category A Unlined Soil Recovery Facilities	Soil and Stone only which are free from[8] anthropogenic materials such as concrete, brock timber. Soil must be free from "contamination" e.g. PAHs, Hydrocarbons[9].
Category B1 Inert Landfill	Reported concentrations within inert waste limits, which are set out by the adopted EU Council Decision 2003/33/EC establishing criteria and procedures for the acceptance of waste at landfills pursuant to Article 16 and Annex II of Directive 1999/31/EC (2002). Results also found to be non-hazardous using the HWOL[10] application.
Category B2 Inert Landfill	Reported concentrations greater than Category B1 criteria but less than IMS Hollywood Landfill acceptance criteria, as set out in their Waste Licence W0129-02. Results also found to be non-hazardous using the HWOL application.
Category C Non-Haz Landfill	Reported concentrations greater than Category B2 criteria but within non-haz landfill waste acceptance limits set out by the adopted EU Council Decision 2003/33/EC establishing criteria and procedures for the acceptance of waste at landfills pursuant to Article 16 and Annex II of Directive 1999/31/EC (2002). Results also found to be non-hazardous using the HWOL application.

[7] EPA (2020) - Guidance on Waste Acceptance Criteria at Authorised Soil Recovery Facilities.
[8] Free from equates to less than 2%.
[9] Total BTEX 0.05mg/kg, Mineral Oil 50mg/kg, Total PAHs 1mg/kg, Total PCBs 0.05mg/kg and Asbestos No Asbestos Detected – EPA Guidance on Waste Acceptance Criteria at Authorised Soil Recovery Facilities, 2020.
[10] HazWasteOnLine™ Tool.

Category C 1 Non-Haz Landfill	As Category C but containing < 0.001% w/w asbestos fibres.
Category C 2 Non-Haz Landfill	As Category C but containing >0.001% and <0.01% w/w asbestos fibres
Category C 3 Non-Haz Landfill	As Category C but containing >0.01% and <0.1% w/w asbestos fibres.
Category D Hazardous Treatment	Results found to be hazardous using HWOL Application.
Category D 1 Hazardous Disposal	Results found to be hazardous due to the presence of asbestos (>0.1%).

11.3. Final Waste Categorisation

All samples were assessed in terms of waste classification using the HazWasteOnLine™ tool and also the WAC set out in Council Decision 2003/33/EC and the IMS specific WAC to give a final waste categorisation to determine the most appropriate disposal route for any waste generated. The final and most applicable waste category for each sample is summarised in Table 7. The samples of the black boulder clay at WS-08 and WS-14 and BH-04, 06, 07, 08, 09, 10 & 11 were classified as either Category B2 or C due to the presence of naturally occurring Selenium. The remainder of the material sampled can be considered to be inert and meet the Category A criteria.

Table 7 Individual Sample Waste Category

Sample ID	Sample Depth (m)	Material Type	Waste Category	LoW Code
CBR01	0.70	Clay	Category A	17 05 04
CBR02	0.70	Clay	Category A	17 05 04
CBR03	0.70	Clay	Category A	17 05 04
CBR04	0.70	Clay	Category A	17 05 04
CBR06	0.70	Clay	Category A	17 05 04
CBR07	0.70	Clay	Category A	17 05 04
CBR08	0.70	Clay	Category A	17 05 04
CBR09	0.70	Clay	Category A	17 05 04
CBR10	0.70	Clay	Category A	17 05 04
WS01	0.70	Clay	Category A	17 05 04
WS01	1.70	Clay	Category A	17 05 04
WS01	2.40	Clay	Category A	17 05 04
WS02	0.70	Clay	Category A	17 05 04
WS02	1.70	Clay	Category A	17 05 04
WS02	2.50	Clay	Category A	17 05 04
WS03	0.70	Clay	Category A	17 05 04
WS03	1.70	Clay	Category A	17 05 04
WS03	2.70	Clay	Category A	17 05 04
WS04	0.70	Clay	Category A	17 05 04
WS04	1.70	Clay	Category A	17 05 04
WS05	0.70	Clay	Category A	17 05 04
WS05	1.70	Clay	Category A	17 05 04

Sample ID	Sample Depth (m)	Material Type	Waste Category	LoW Code
WS06	0.70	Clay	Category A	17 05 04
WS06	1.70	Clay	Category A	17 05 04
WS07	0.70	Clay	Category A	17 05 04
WS07	1.70	Clay	Category A	17 05 04
WS07	2.60	Clay	Category A	17 05 04
WS08	0.70	Clay	Category A	17 05 04
WS08	1.70	Clay	Category A	17 05 04
WS08	2.60	Clay	Category B2	17 05 04
WS09	0.70	Clay	Category A	17 05 04
WS09	1.70	Clay	Category A	17 05 04
WS09	2.60	Clay	Category A	17 05 04
WS10	0.70	Clay	Category A	17 05 04
WS10	1.70	Clay	Category A	17 05 04
WS10	2.30	Clay	Category A	17 05 04
WS11	0.70	Clay	Category A	17 05 04
WS11	1.70	Clay	Category A	17 05 04
WS11	2.20	Clay	Category A	17 05 04
WS12	0.70	Clay	Category A	17 05 04
WS12	1.70	Clay	Category A	17 05 04
WS12	2.50	Clay	Category A	17 05 04
WS13	0.70	Clay	Category A	17 05 04
WS13	1.40	Clay	Category A	17 05 04
WS14	0.70	Clay	Category A	17 05 04
WS14	1.70	Clay	Category A	17 05 04
WS14	2.70	Clay	Category C	17 05 04
BH03	3.0	Clay	Category B2	17 05 04
BH04	3.0	Clay	Category B2	17 05 04
BH05	3.0	Clay	Category A	17 05 04
BH06	3.0	Clay	Category B2	17 05 04
BH07	3.0	Clay	Category B2	17 05 04
BH08	3.0	Clay	Category C	17 05 04
BH09	3.0	Clay	Category C	17 05 04
BH10	3.0	Clay	Category B2	17 05 04
BH11	3.0	Clay	Category C	17 05 04
BH12	3.0	Clay	Category A	17 05 04

12.0 Suitable for Use Assessment

GII assessed the soil data collected from the trial pits against the LQM/CIEH S4ULs for Human Health Risk Assessment (S4ULs)[11]. The S4ULs present soil assessment criteria for an extended range of 89 substances. For each substance, S4ULs have been derived for a range of generic land uses and Soil Organic Matter (%SOM) contents. All toxicological and physical-chemical inputs used in the derivation of the S4ULs are clearly identified and discussed. For each substance, S4ULs have been derived for six generic land uses (including the two Public Open Space land uses defined in C4SL guidance) and a range of Soil Organic Matter contents (organic contaminants only). All toxicological and physical-chemical data

[11] LQM/CIEH 'Suitable 4 Use Levels' (S4ULs). Copyright Land Quality Management Limited reproduced with permission; Publication Number S4UL3746. All rights reserved.

inputs used in the derivation of the S4ULs are presented and discussed in the publication. The proposed future use of the site is residential and as such the residential with homegrown produce S4UL criteria have been applied to the data.
The parameters tested for the samples analysed were within the residential with homegrown produce S4ULs. A full summary of the S4UL data is presented in Appendix 9.

13.0 Conclusions & Recommendations

The conclusions and recommendations given and opinions expressed in this report are based on the findings of the site investigation works and laboratory testing undertaken. Where any opinion is expressed on the classification of material between site investigations locations, this is for guidance only and no liability can be accepted for its accuracy. No responsibility can be accepted for conditions which have not been revealed by the findings at the site investigation locations.

13.1. Conclusions

13.1.1. Subsoil Quality

Based on the chemical analysis of the subsoil sampled collected across the site the site is free of contamination.

13.1.2. Waste Classification

Based on the results of the HazWasteOnLine™ tool the material sampled across the site can be classified as not hazardous.

13.1.3. Waste Categories

The most applicable waste category for each of the samples has been presented in Table 4. The black boulder clay underlying the site due to naturally occurring level of the metal selenium has been classified as either Category B2 or C if it is to be excavated and removed from site as waste material. This is not indicative of contamination of the material.

13.1.4. Groundwater

The groundwater analysis shows that the groundwater has been slightly impacted by nutrients potentially related to local urban wastewater infrastructure. Naturally elevated levels of manganese were also detected. Elevated levels of TPH related to linear alkylbenzenes were detected in BH-03. No evidence of

hydrocarbon impact was noted during sampling. Subsoil samples collected and analysed in BH-03 did not show any evidence of hydrocarbon impact. There is no known source of linear alkylbenzenes on site.

13.1.5. Asbestos

Asbestos was **not** detected in the soil samples.

13.1.6. By-Product Suitability

The material sampled is suitable for removal from site as a by-product which will *not lead to overall adverse environmental or human health impacts*.

13.2. Recommendations

13.2.1. Waste Transfer

In the event that material is excavated for removal from site, any firm engaged to transport waste material from site and the operator of any waste facility that will accept subsoils excavated from this site should be furnished with, at a minimum, copies of the **full unabridged** laboratory reports and HazWasteOnLine™ report for all samples presented in this report.

The material on site if excavated as a waste should be removed to the most appropriate facility under the waste categories and LoW codes identified in Table 4. Potential outlets for the various waste categories are presented in Appendix 10, this list is not exhaustive and applicable at the time of the writing this report.

The non-hazardous material across the site if excavated as a waste should be removed from site to an appropriate facility under either the LoW codes 17 05 04 or 17 09 04. Where during excavation there is noted to be in excess of 2% anthropogenic material the appropriate LoW code which should be applied is 17 09 04.

It is recommended that the natural subsoils, if excavated, are not removed from site as a waste product but rather as a by-product.

13.2.2. Removal of Material as a By-Product

The material sampled is suitable from an environmental impact perspective for removal from site as a by-product in line with Article 27 of the European Communities (Waste Directive) Regulations 2011. The material may only be declared a by-product if all four by-product conditions are met.

a) further use of the soil and stone is certain;

b) the soil and stone can be used directly without any further processing other than normal industrial practice;

c) the soil and stone is produced as an integral part of a production process; and

d) further use is lawful in that the soil and stone fulfils all relevant requirements for the specific use and will not lead to overall adverse environmental or human health impacts.

14.0 References

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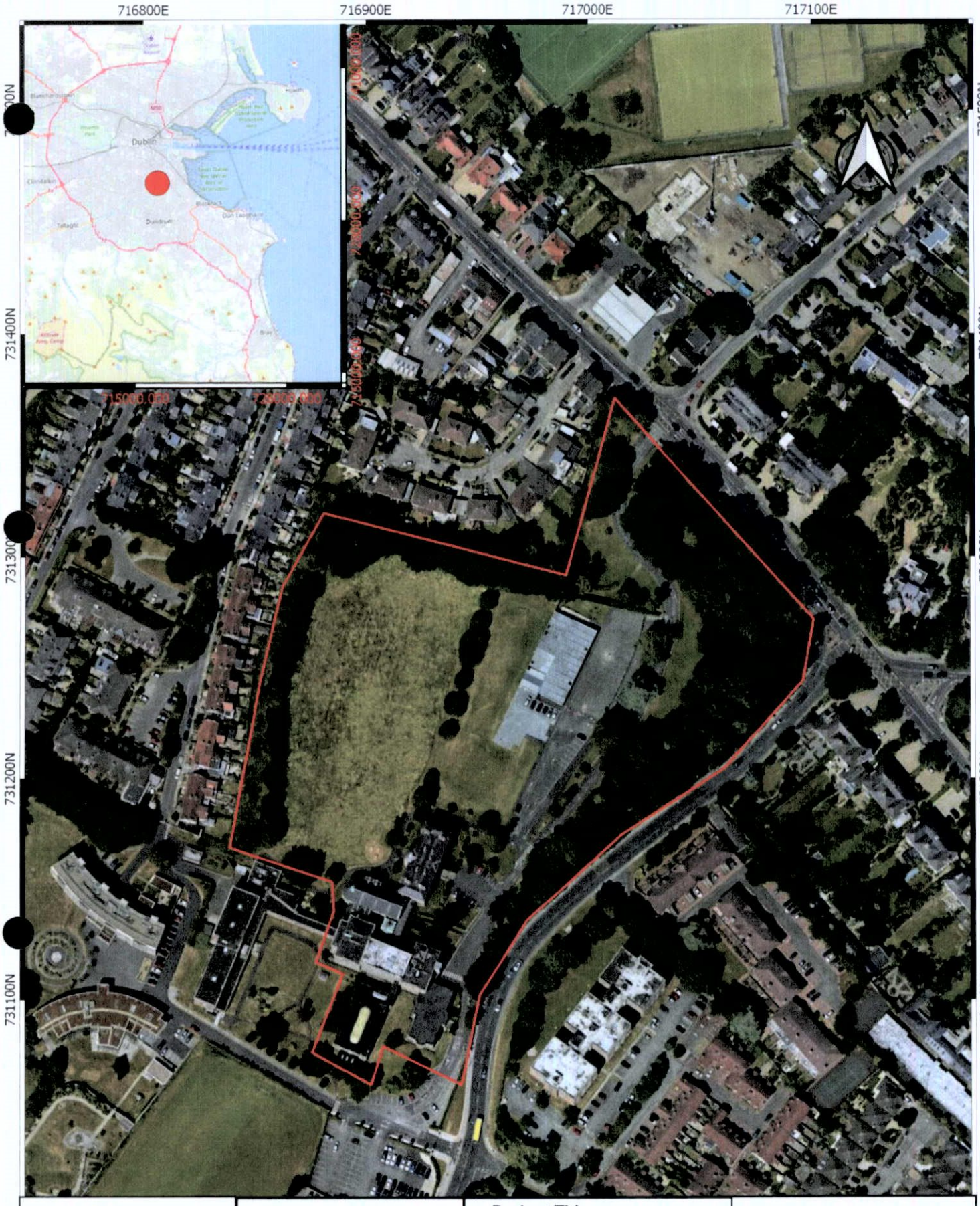
APPENDIX 1 - Figures



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Geotechnical & Environmental

Ground Investigations Ireland Ltd.
Butherinstown House,
Hazelhatch Road,
Newcastle, Co. Dublin
www.gii.ie 01-6015175/5176

Client:

Project Title:
Sandford Park

Drawing Title:
Figure 1 Site Location

GII Project Reference:
9338-12-19

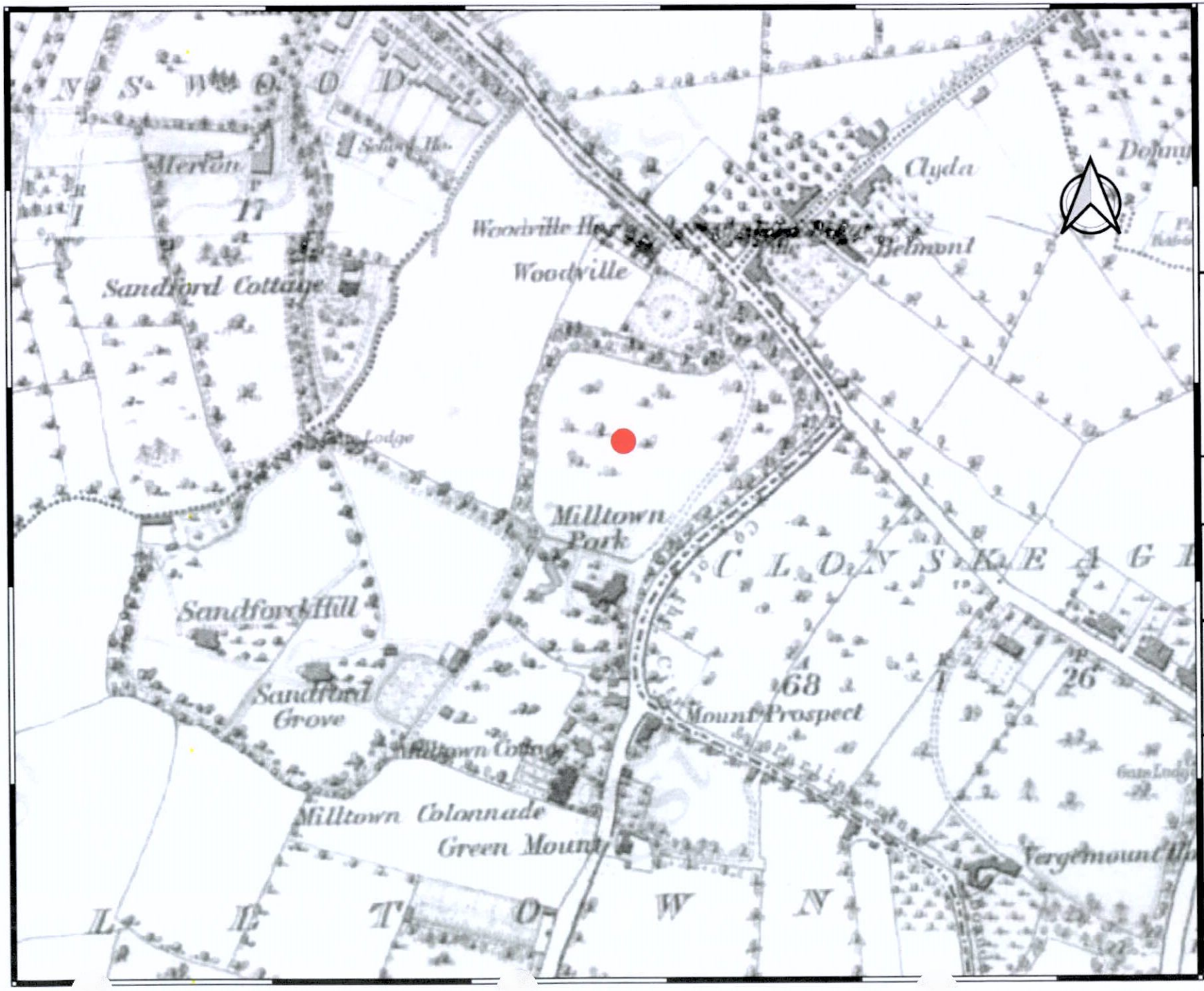
0 20 40 60 80 m

Drawn By:
BS

Date:
10/02/2020

Site Location

Indicative Site Boundary



Indicative Site Location

Client:

Project Code:
9338-12-19

Project Title:
Sandford Park

Drawing Title:
Figure 2 OSI 6-Inch Map

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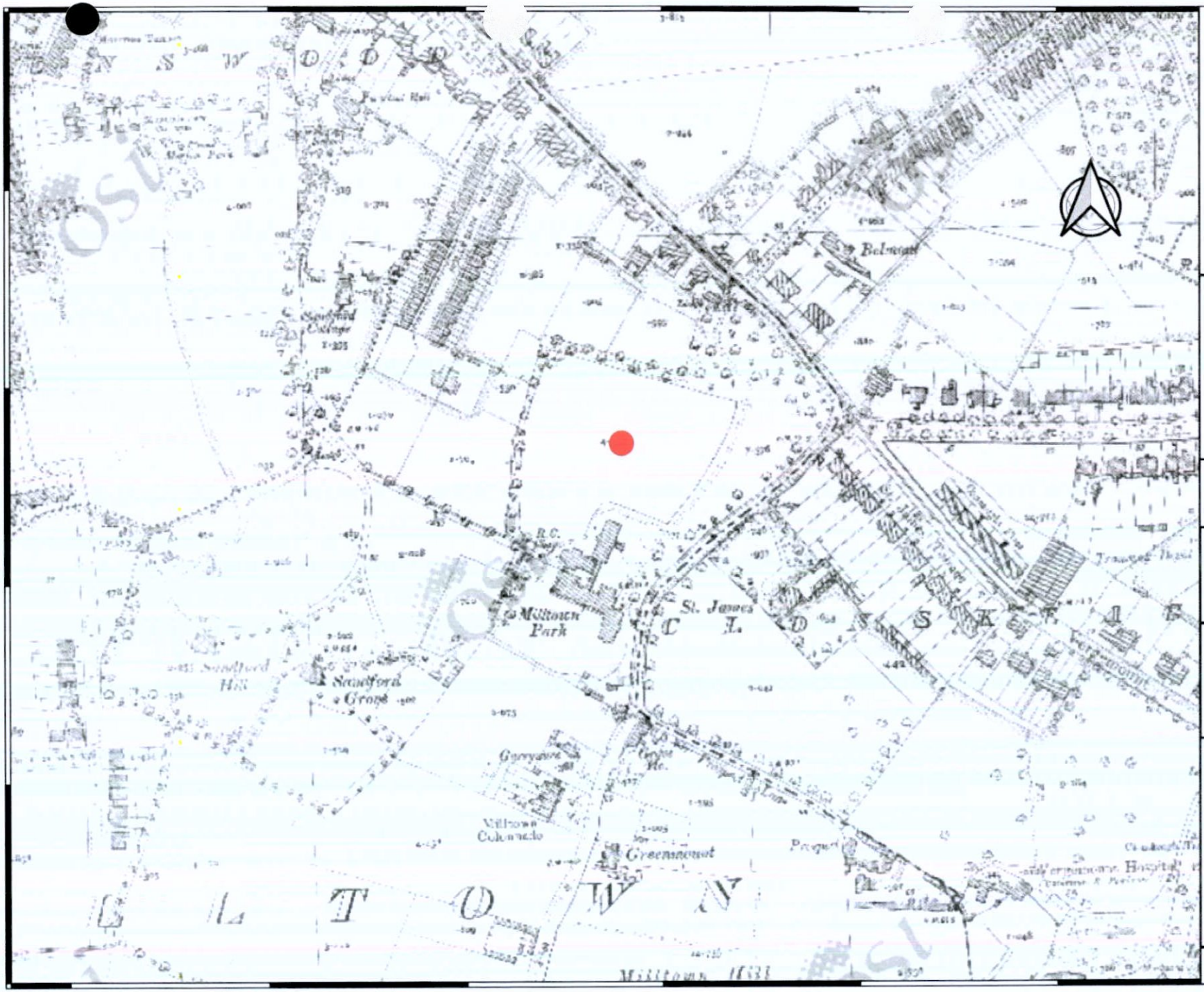
Drawn By:	Date:
BS	10/02/2020



Indicative Site Location

Client:

Project Code:
9338-12-19

Project Title:
Sandford Park

Drawing Title:
Figure 3 OSI 25-Inch Map

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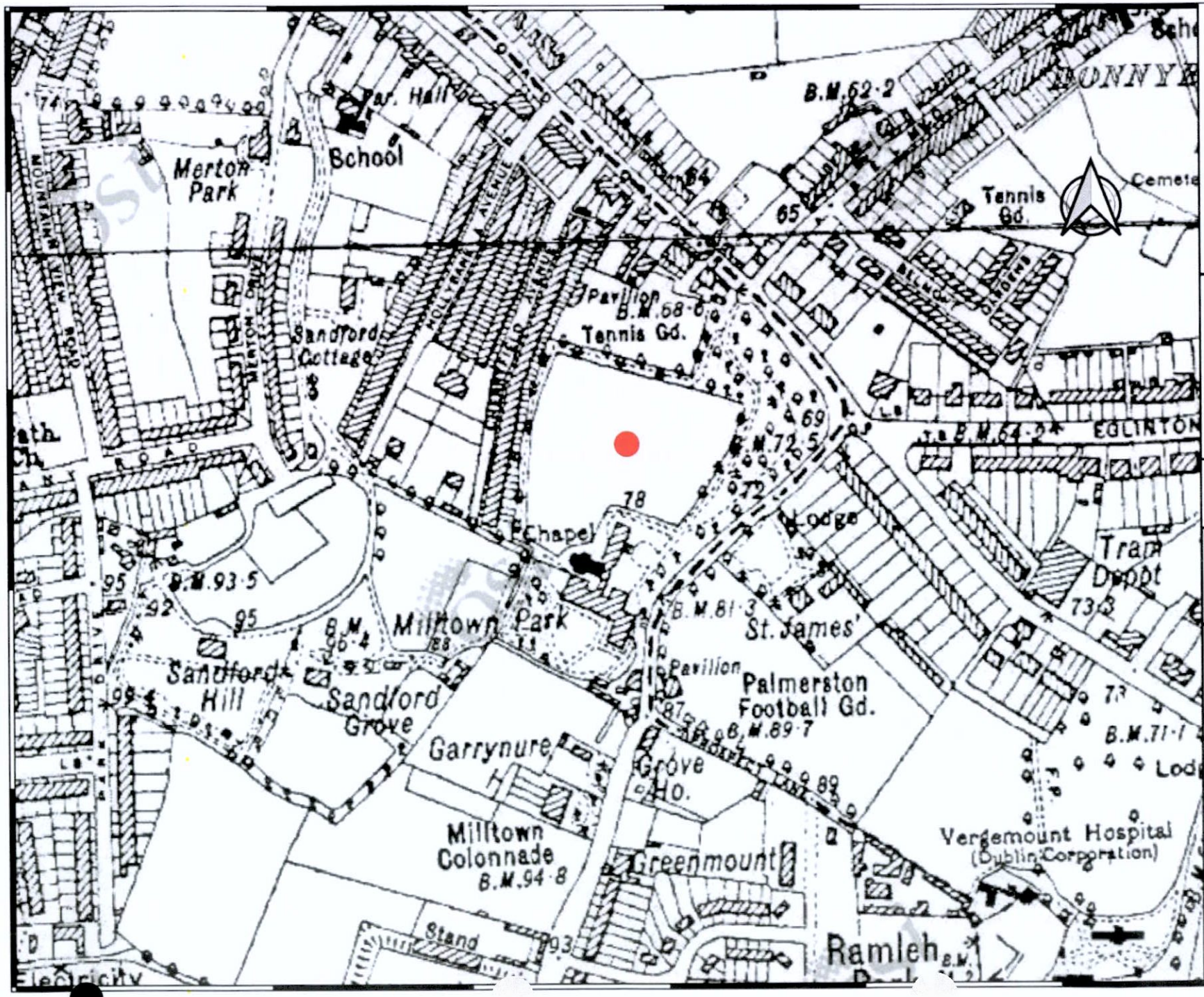
Drawn By:	Date:
BS	10/02/2020


Indicative Site Location
Merton Park
School
Sandford Cottage
Pavilion
Tennis Gd.
Chapel
Lodge
Milltown Park
Sandford Hill
Sandford Grove
Garrynure
Grove Ho.
Milltown Colonnade
B.M.94·8
Greenmount
Stand
Ramleh
Palmerston Football Gd.
St. James'
Vergemount Hospital
(Dublin Corporation)
Tram Depot
EGLINTON
B.M.62·2
B.M.68·6
B.M.72·5
B.M.64·2
B.M.93·5
B.M.81·3
B.M.89·7
B.M.71·1
Tennis Gd
Cemete
Client:
Project Code:
9338-12-19
Project Title:
Sandford Park
Drawing Title:
Figure 4 OSI Cassini
GROUND INVESTIGATIONS IRELAND
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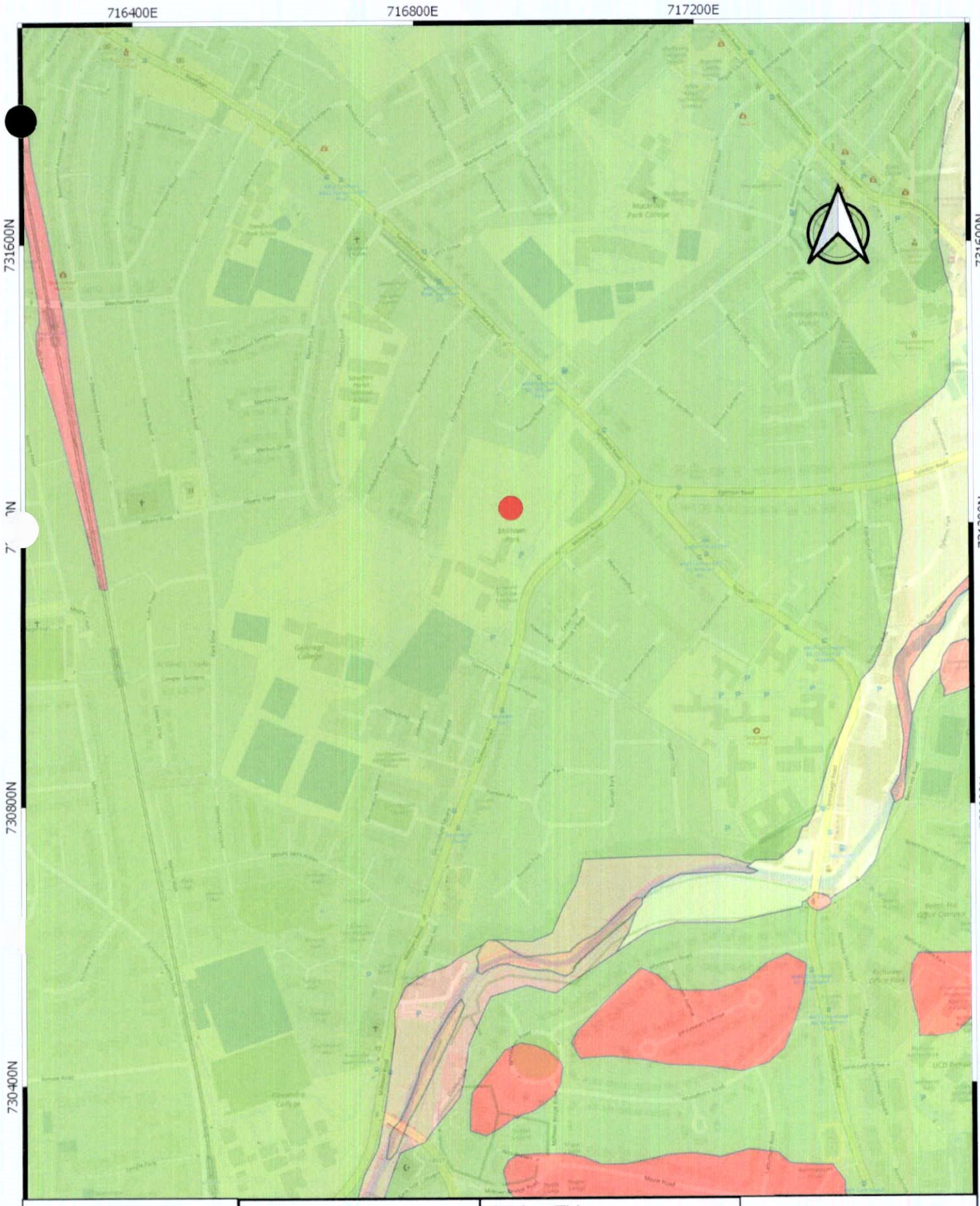
Drawn By:
BS
Date:
10/02/2020



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Client:

0 0.1 0.2 km

Project Title:
Sandford Park

Drawing Title:
Figure 5 Quaternary Geology

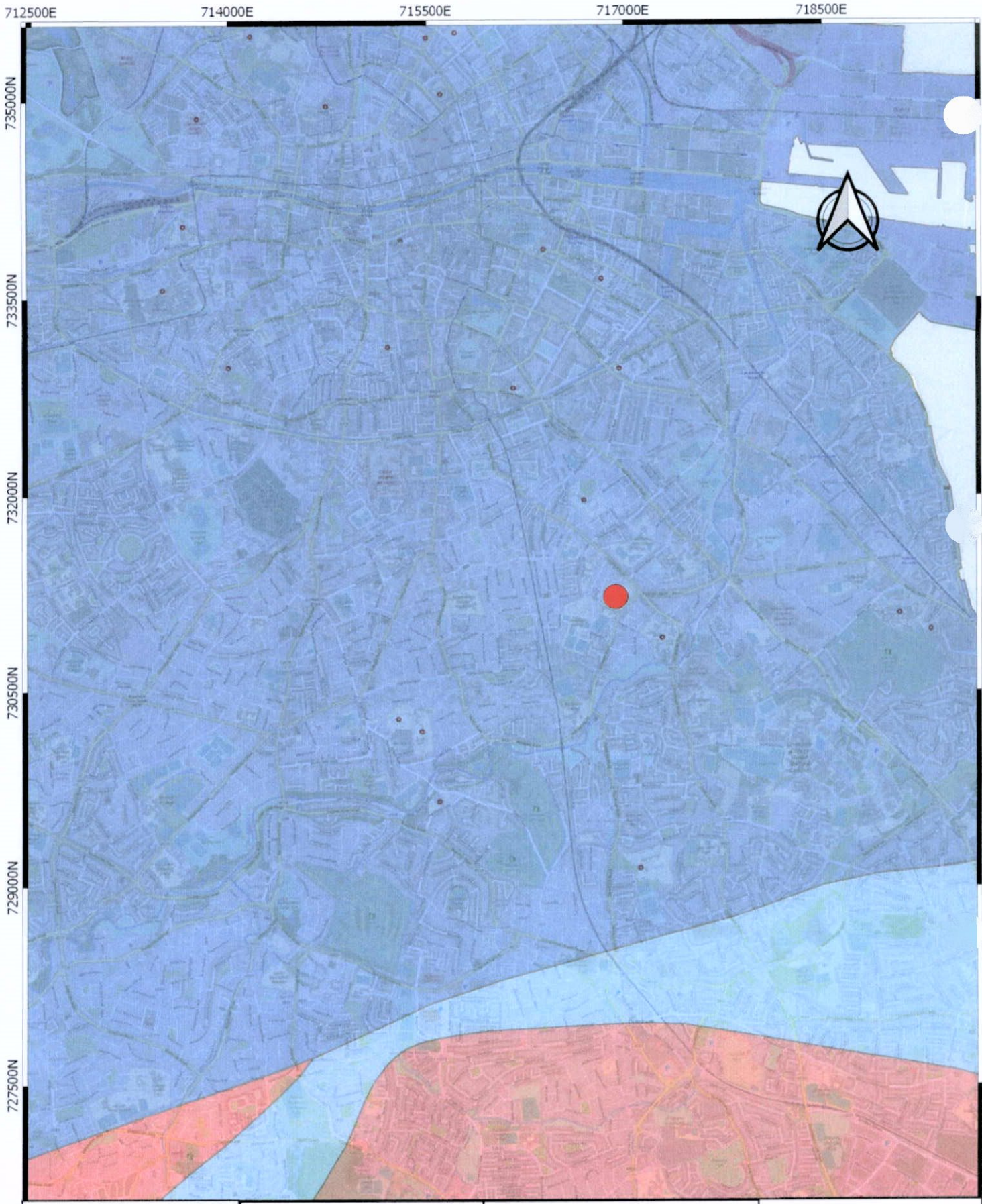
GII Project Reference:
9338-12-19

Drawn By: BS

Date: 10/02/2020

Site Location

SUBSOILS
- A
- Ag
- GLs
- Rck
- TLs
- Urban



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Client:

0 0.75 1.5 km

Project Title:
Sandford Park

Drawing Title:
Figure 6 Bedrock Geology

GII Project Reference:
9338-12-19

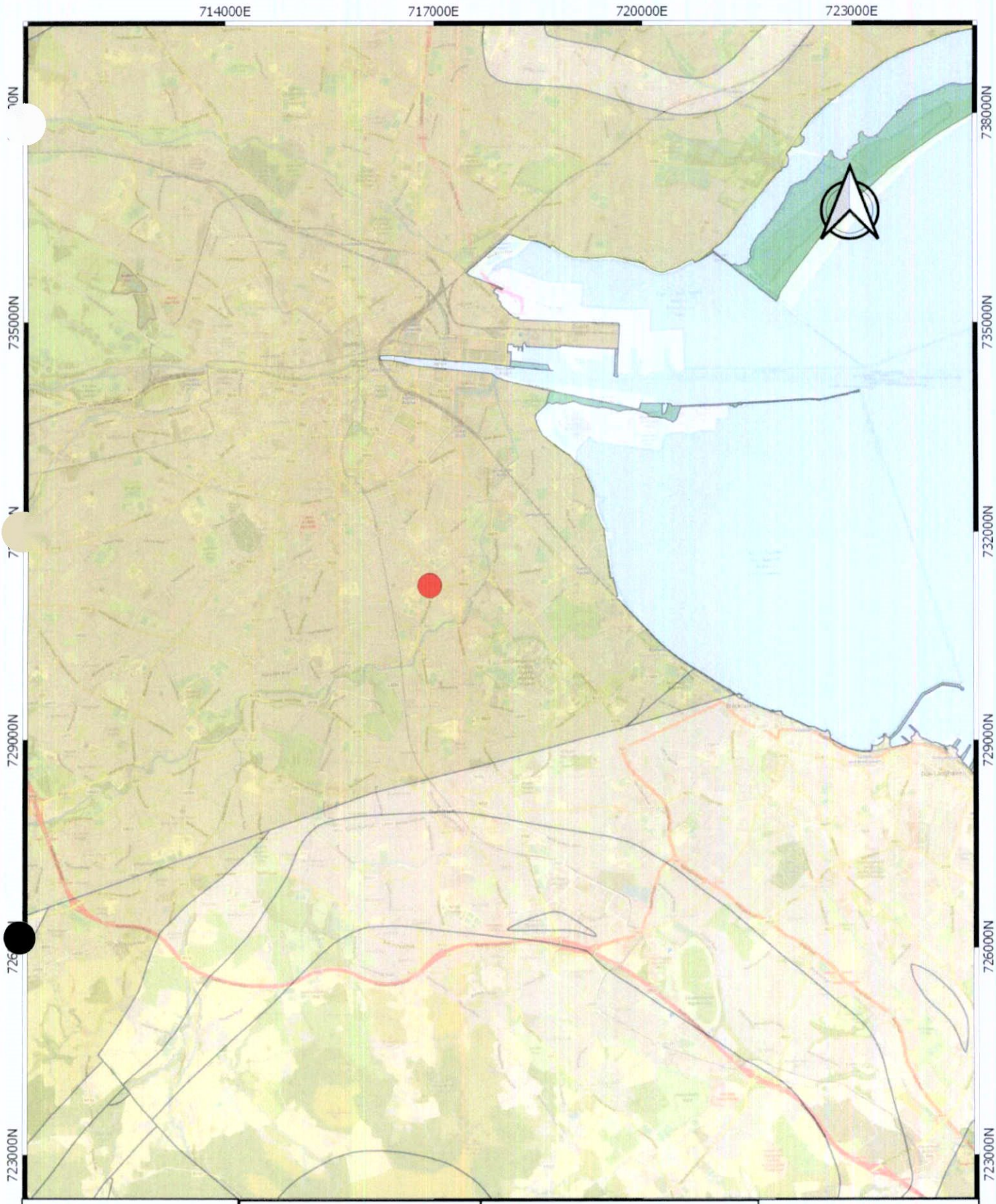
Drawn By: BS

Date: 10/02/2020

Site Location

Bedrock Geology

- Butter Mountain Fm
- Lucan Formation
- Type 2e equigranu.
- Type 2p microcline



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Client:

0 1 2 km

Project Title:
Sandford Park

Drawing Title:
Figure 7 Aquifer Category

GII Project Reference:
9338-12-19

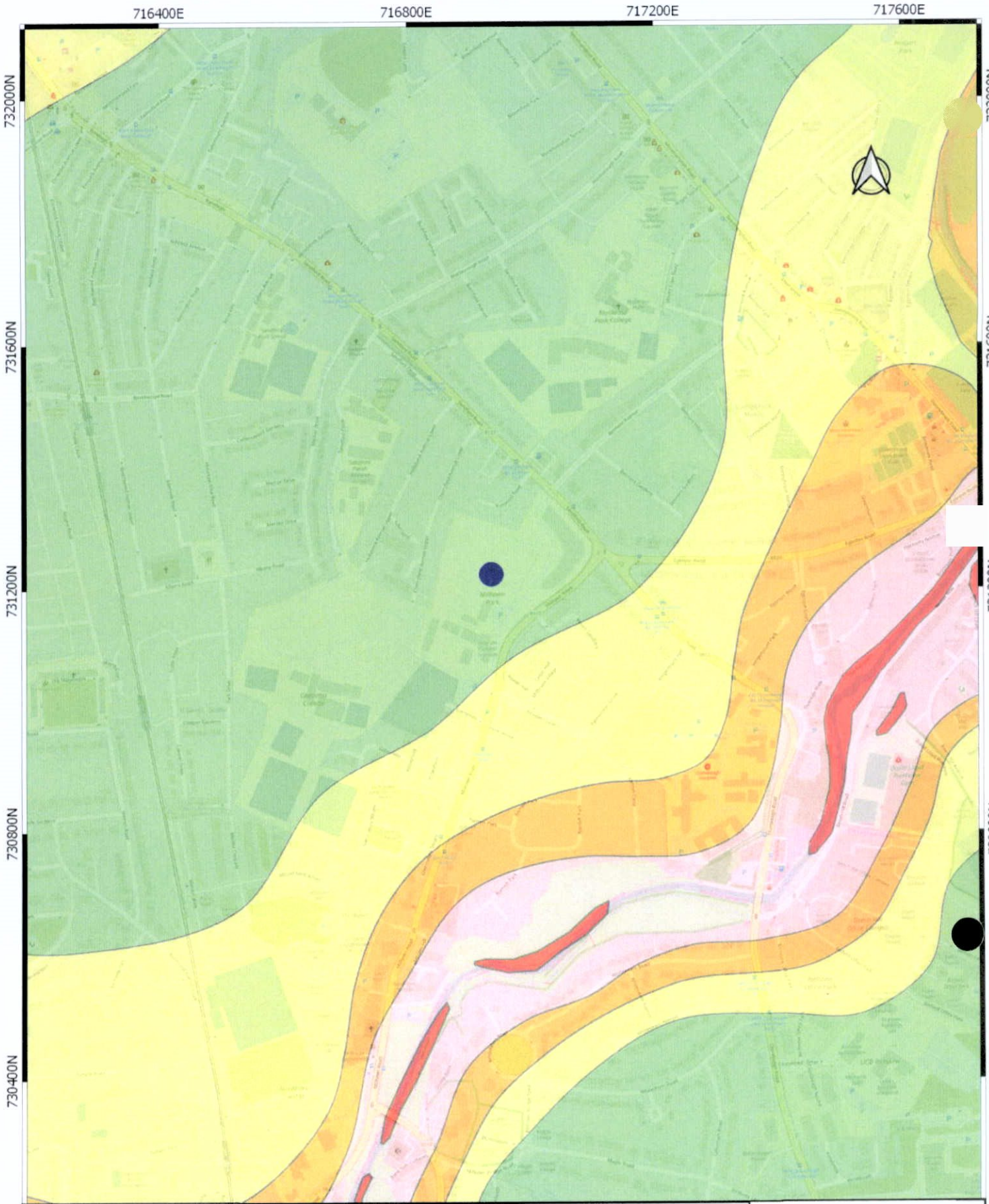
Drawn By:
BS

Date:
10/02/2020

Site Location

Bedrock Aquifer

- LI
- PI
- Unclas



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Client:

0 75 150 225 300 m

Project Title:
Sandford Park

Drawing Title:
Figure 8 Aquifer Vulnerability

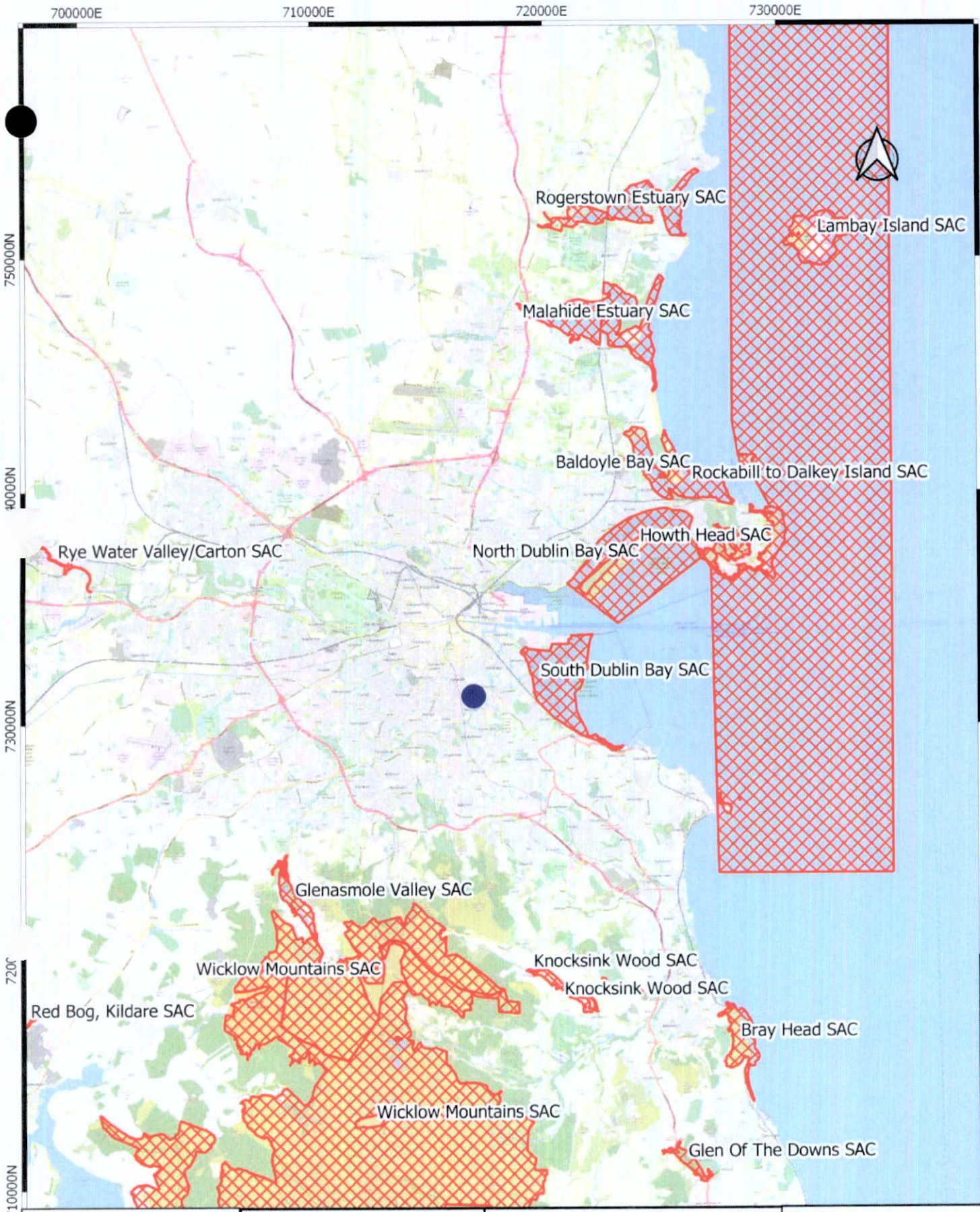
GII Project Reference:
9338-12-19

Drawn By: BS

Date: 10/02/2020

Site Location

Aquifer Vulnerability
- E
- H
- L
- M
- X



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Client:

Project Title:
Sandford Park

Drawing Title:
Figure 9 Special Area of Conservation

GII Project Reference:
9338-12-19

0 4 8 km

Drawn By:
BS

Date:
10/02/2020

Site Location
SAC

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Client:

Project Title:
Sandford Park

Drawing Title:
Figure 10 Special Protected

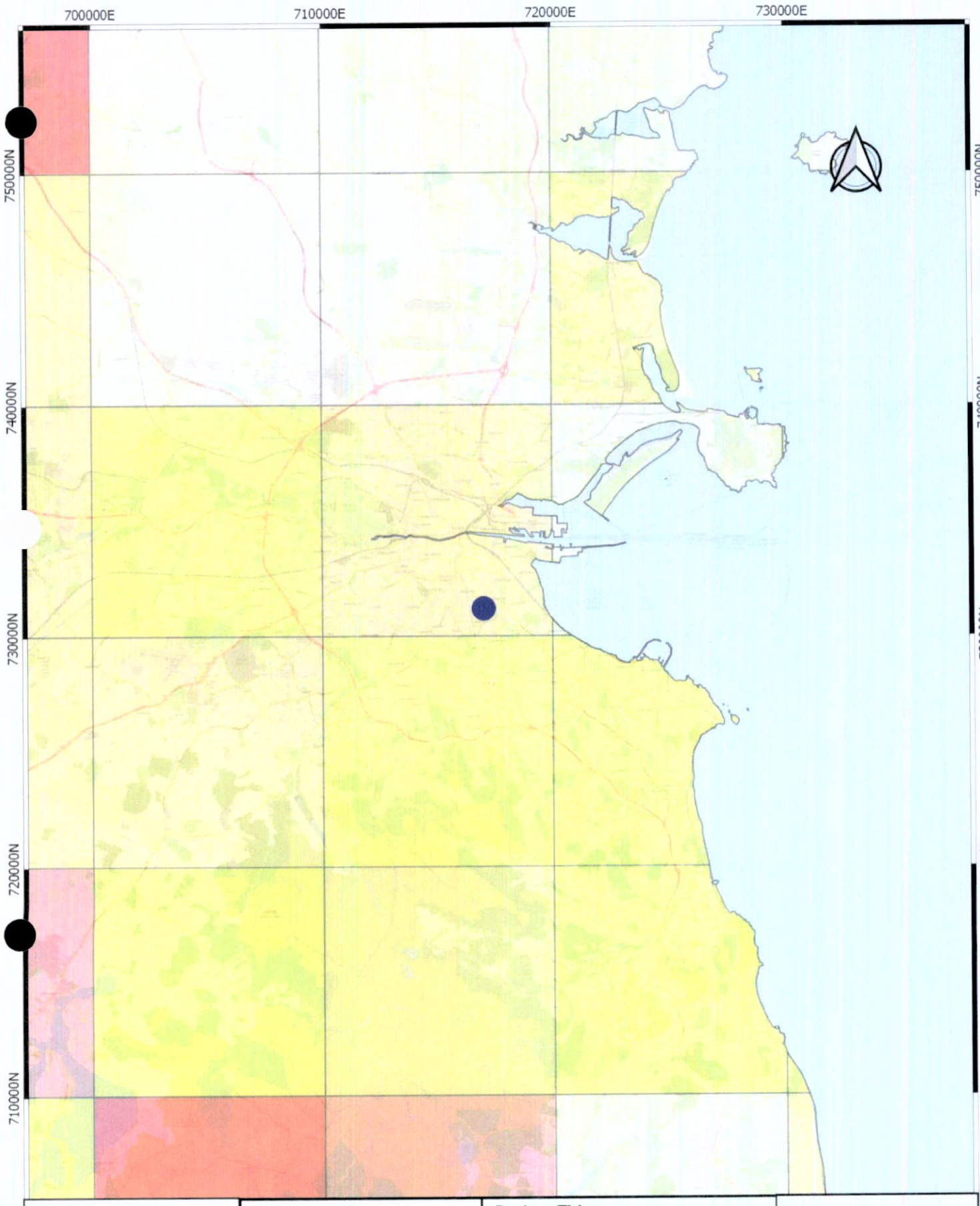
GII Project Reference:
9338-12-19

0 4 8 km

Drawn By:
BS

Date:
9338-12-19

Site Location
SPA



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Client:

0 2.5 5 7.5 km

Project Title:
Sandford Park

Drawing Title:
Figure 11 Radon

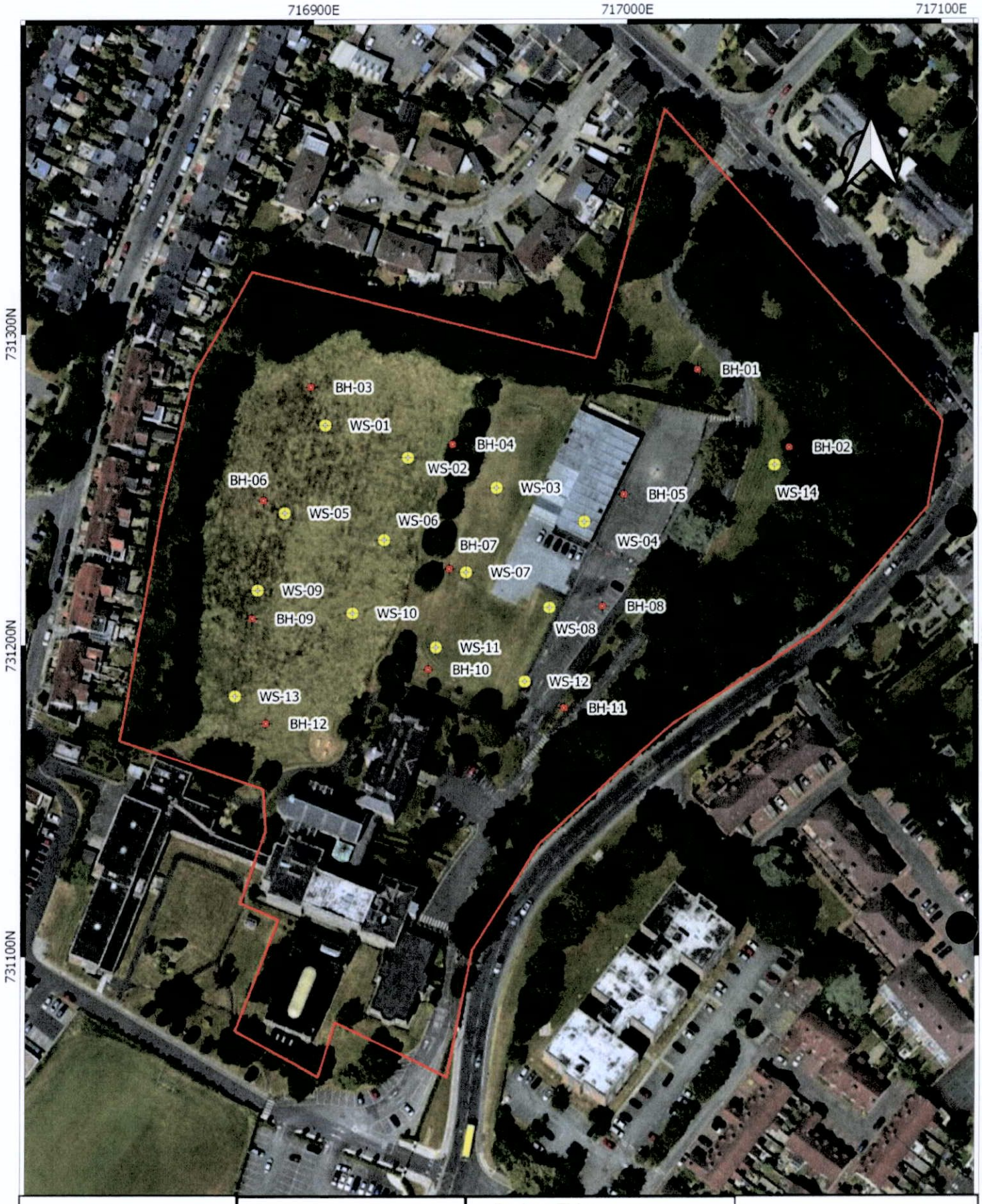
GII Project Reference:
9338-12-19

Drawn By:
BS

Date:
10/02/2020

Site Location

RADON
- <1%
- 1% - 5%
- 5% - 10%
- 10% - 20%
- >20%



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Geotechnical & Environmental

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Catherinstown House,
Hazelhatch Road,
Newcastle, Co. Dublin
www.gii.ie 01-6015175/5176

Client:

Project Title:
Sandford Park

Drawing Title:
Figure 12 SI Locations

GII Project Reference:
9338-12-19

0 15 30 45 60 m

Drawn By:
BS

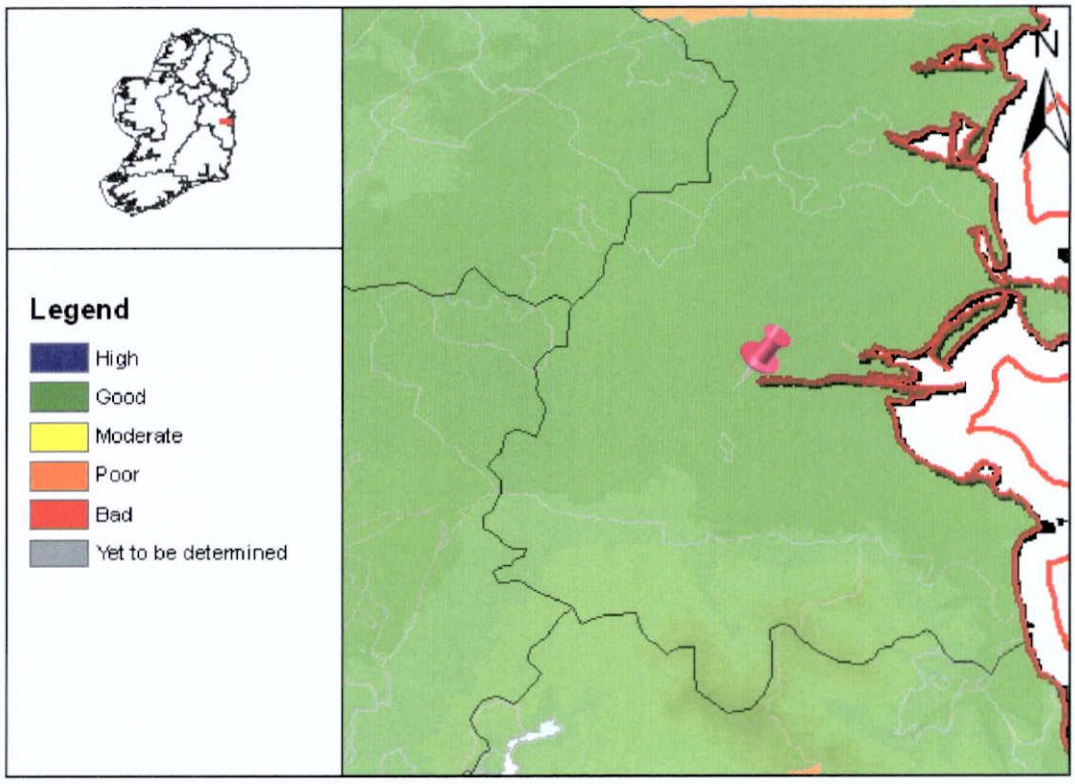
Date:
21/04/2020

Indicative Site Boundary
Borehole
Window Sample

APPENDIX 2 – Water Body Reports

water matters
'Our Plan'

Full Report for Waterbody Dublin Urban



River Basin Management Plans (RBMPs) have been published for all River Basin Districts in Ireland in accordance with the requirements of the Water Framework Directive. The WaterMaps viewer is an integral part of the River Basin Management Plan and provides access to information at individual waterbody level and at Water Management Unit level for all the River Basin Districts in Ireland.

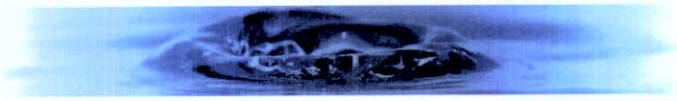
The following report provides summary plan information about the selected waterbody (indicated by the pin in the map above) relating to its status, risks, objectives, and measures proposed to retain status where this is adequate, or improve it where necessary. Waterbodies can relate to surface waters (these include rivers, lakes, estuaries [transitional waters], and coastal waters), or to groundwaters. Other relevant information not included in this report can be viewed using the WaterMaps viewer, including areas listed in the Register of Protected Areas.

You will find brief notes at the bottom of some of the individual report sheets that will help you in interpreting the information presented. More detailed information can be obtained in relation to all aspects of the RBMPs at www.wfdireland.ie.

Date Reported to Europe:July 2010

Date Report Created 10/02/2020

water matters
'our Plan'



Summary Information:

Water Management Unit:	N/A
WaterBody Category:	Groundwater Waterbody
WaterBody Name:	Dublin Urban
WaterBody Code:	IE_EA_G_005
Overall Status:	Good
Overall Objective:	Protect
Overall Risk:	1a At Risk
Heavily Modified:	No

Report data based upon final RBMP, 2009-2015.

The information provided above is a summary of the principal findings related to the selected waterbody. Further details and explanation of individual elements of the report are outlined in the following pages.

Date Reported to Europe:July 2010

Date Report Created 10/02/2020

water matters
'Our Plan'

Chemical and Quantitative Status Report

Water Management Unit:	N/A
WaterBody Category:	Groundwater Waterbody
WaterBody Name:	Dublin Urban
WaterBody Code:	IE_EA_G_005
Overall Status Result:	Good
Heavily Modified:	No

	Status Element Description	Result
	Status information	
INS	Status associated with saline intrusion into groundwater	N/A
DWS	Status associated with exceedances of water quality above specific standards	N/A
DS	Chemical status of groundwater due to pressure from diffuse sources of pollution	N/A
CLS	Chemical status of groundwater due to pressure from contaminated soil or land.	N/A
MS	Chemical status of groundwater due to pressure from mine sites (active or closed).	N/A
UAS	Chemical status of groundwater due to pressures from urban areas	N/A
GWS	General groundwater quality status	N/A
RPS	Status associated with MRP loading to rivers	N/A
TNS	Status associated with nitrate loading to transitional and coastal waters	N/A
SWS	Overall status associated with nutrient loadings to rivers and transitional and coastal waters	N/A
SQS	Status associated with dependant surface water quantitative status	N/A
GDS	Groundwater dependant terrestrial ecosystems status	N/A
QSO	Quantitative status overall	Good
CSO	Chemical status overall	Good
OS	Overall status	Good

GS -HC : Good status High Confidence
GS- LC : Good status Low Confidence
n/a - not assessed

Status
By 'Status' we mean the condition of the water in the waterbody. It is defined by its chemical status and quantitative status, whichever is worse. Groundwaters are ranked in one of 2 status classes: Good or Poor.

You can read more about status and how it is measured in our RBMP Document Library at www.wfdireland.ie (Directory 15 Status).

Date Reported to Europe:July 2010

Date Report Created 10/02/2020

water matters
'our Plan'

Risk Report

Water Management Unit: N/A

WaterBody Category: Groundwater Waterbody

WaterBody Name: Dublin Urban

WaterBody Code: IE_EA_G_005

Overall Risk Result: 1a At Risk

Heavily Modified: No

	Risk Test Description	Risk
	Groundwater Dependent Terrestrial Ecosystems	
TE	GWDTE Risk	N/A
	Groundwater Quality	
DIF	Diffuse Elements (General) Risk	N/A
DW	Drinking Waters Risk	N/A
INT	Intrusions Risk	N/A
WB	Water Balance Risk	N/A
	Groundwater Quality (General)	
GQ	General Groundwater Quality Risk	N/A
	Groundwater Quality (Point Risk)	
CL	Contaminated Land Risk	N/A
LF	Landfill Risk	N/A
MI	Mine Risk	N/A
QY	Quarry Risk	N/A
UR	Urban Risk	N/A
UW	UWWT Risk	N/A
	GW Diffuse Risk Sources	
WB3	Mobile Nutrients (NO3)	N/A
WB4	Mobile Chemicals	N/A
WB5	Clustered OSWTSs and leaking urban sewerage systems	N/A
	GW Hydrology	
WB1	Water balance - Abstraction	N/A
WB2	Abstraction - Intrusion	N/A

Date Reported to Europe:July 2010

Date Report Created 10/02/2020

water matters
'our Plan'

	GW Point Risk Sources		
WB10	Risk from Point sources of pollution - Contaminated Land		N/A
WB11	Risk from Point sources of pollution - Trade Effluent Discharges		N/A
WB12	Risk from Point sources of pollution - Urban Wastewater Discharges		N/A
WB6	Risk from Point sources of pollution - Mines		N/A
WB7	Risk from Point sources of pollution - Quarries		N/A
WB8	Risk from Point sources of pollution - Landfills		N/A
WB9	Risk from Point sources of pollution - Oil Industry Infrastructure		N/A
	Overall Risk		
RA	Groundwater Overall - Worst Case		N/A
	Risk information		
CLR	Contaminated land risk	1a	At Risk
DR	Risk of groundwater due to pressure from diffuse sources of pollution	2a	Probably Not At Risk
DWR	Risk associated with exceedances of water quality above specific standards		Not At Risk
GDR	Groundwater dependant terrestrial ecosystems risk	1b	Probably At Risk
GWR	General groundwater quality risk	1a	At Risk
INR	Risk associated with saline intrusion into groundwater		Not At Risk
LR	Risk due to landfills sites/old closed dump sites		Not At Risk
MR	Mines risk		Not At Risk
NULL	Diffuse nitrates from agriculture risk		N/A
QR	Risk due to quarries		Not At Risk
RA	Revised risk assessment	1a	At Risk
RPR	Risk associated with MRP loading to rivers		Not At Risk
SQR	Risk associated with dependant surface water quantitative status		Not At Risk
SWR	Overall risk associated with nutrient loadings to rivers and transitional and coastal waters	2a	Probably Not At Risk
TNR	Risk associated with nitrate loading to transitional and coastal waters	2a	Probably Not At Risk
UAR	Risk of groundwater due to pressures from urban areas	1a	At Risk
UWR	Risk due to direct discharges of urban wastewater		Not At Risk

Risk
By 'risk' we mean the risk that a waterbody will not achieve good ecological or good chemical status/potential at least by 2015. To examine risk the various pressures acting on the waterbody were identified along with any evidence of impact on water status. Depending on the extent of the pressure and its potential for impact, and the amount of information available, the risk to the water body was placed in one of four categories: 1a at risk; 1b probably at risk; 2a probably not at risk; 2b not at risk. Note that '2008' after the risk category means that the risk assessment was revised in 2008. All other risks were determined as part of an earlier risk assessment in 2005.

You can read more about risk assessment in our 'WFD Risk Assessment Update' document in the RBMP document library, and other documents at www.wfdireland.ie (Directory 31 Risk Assessments).

Date Reported to Europe:July 2010

Date Report Created 10/02/2020

water matters
'Our Plan'

Objectives Report

Water Management Unit: N/A

WaterBody Category: Groundwater Waterbody

WaterBody Name: Dublin Urban

WaterBody Code: IE_EA_G_005

Overall Objective: Protect

Heavily Modified: No

	Objectives Description	Result
	Objectives information	
OB1	Prevent deterioration objective	No Status
OB2	Restore at least good status objective	No Status
OB3	Reduce chemical pollution objective	No Status
OB4	Protected areas objective	Protect
OBO	Overall objectives - objective	Protect

Extended timescales
Extended timescales have been set for certain waters due to technical, economic, environmental or recovery constraints. Extended timescales are usually of one planning cycle (6 years, to 2021) but in some cases are two planning cycles (to 2027).

Objectives
In general, we are required to ensure that our waters achieve at least good status/potential by 2015, and that their status does not deteriorate. Having identified the status of waters (this is given earlier in this report), the next stage is to set objectives for waters. Objectives consider waters that require protection from deterioration as well as waters that require restoration and the timescales needed for recovery. Four default objectives have been set initially:-

Prevent Deterioration
Restore Good Status
Reduce Chemical Pollution
Achieve Protected Areas Objectives

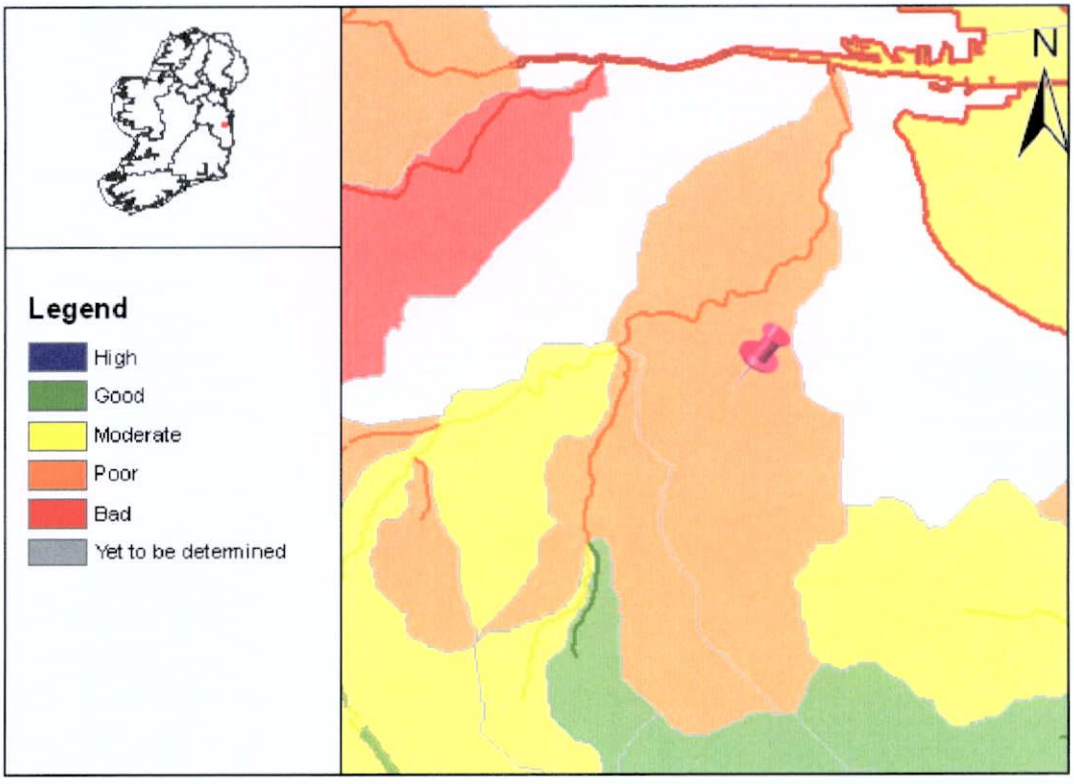
These objectives have been refined based on the measures available to achieve them, the latter's likely effectiveness, and consideration of cost-effective combinations of measures. Where it is considered necessary extended deadlines have been set for achieving objectives in 2021 or 2027.

Date Reported to Europe:July 2010

Date Report Created 10/02/2020

water matters
'our Plan'

Full Report for Waterbody Dodder Lower



River Basin Management Plans (RBMPs) have been published for all River Basin Districts in Ireland in accordance with the requirements of the Water Framework Directive. The WaterMaps viewer is an integral part of the River Basin Management Plan and provides access to information at individual waterbody level and at Water Management Unit level for all the River Basin Districts in Ireland.

The following report provides summary plan information about the selected waterbody (indicated by the pin in the map above) relating to its status, risks, objectives, and measures proposed to retain status where this is adequate, or improve it where necessary. Waterbodies can relate to surface waters (these include rivers, lakes, estuaries [transitional waters], and coastal waters), or to groundwaters. Other relevant information not included in this report can be viewed using the WaterMaps viewer, including areas listed in the Register of Protected Areas.

You will find brief notes at the bottom of some of the individual report sheets that will help you in interpreting the information presented. More detailed information can be obtained in relation to all aspects of the RBMPs at www.wfdireland.ie.

Date Reported to Europe:July 2010

Date Report Created 10/02/2020

water matters
'Our Plan'

Summary Information:

Water Management Unit:	IE_EA_Dodder
WaterBody Category:	River Waterbody
WaterBody Name:	Dodder Lower
WaterBody Code:	IE_EA_09_587
Overall Status:	Poor
Overall Objective:	Restore_2027
Overall Risk:	1a At Risk
Heavily Modified:	No

Report data based upon final RBMP, 2009-2015.

The information provided above is a summary of the principal findings related to the selected waterbody. Further details and explanation of individual elements of the report are outlined in the following pages.

Date Reported to Europe:July 2010

Date Report Created 10/02/2020

water matters
'our Plan'

Status Report

Water Management Unit:	IE_EA_Dodder
WaterBody Category:	River Waterbody
WaterBody Name:	Dodder Lower
WaterBody Code:	IE_EA_09_587
Overall Status Result:	Poor
Heavily Modified:	No

	Status Element Description	Result
	Status information	
Q	Macroinvertebrate status	Poor
PC	General physico-chemical status	Moderate
FPQ	Freshwater Pearl Mussel / Macroinvertebrate status	N/A
DIA	Diatoms status	Poor
HYM	Hydromorphology status	N/A
FIS	Fish status	Good
SP	Specific Pollutants status (SP)	High
ES	Overall ecological status	Poor
CS	Overall chemical status (PAS)	Pass
EXT	Extrapolated status	N/A
MON	Monitored water body	YES
DON	Donor water bodies	N/A

n/a - not assessed

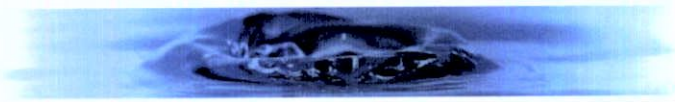
Status
By 'Status' we mean the condition of the water in the waterbody. It is defined by its chemical status and its ecological status, whichever is worse. Waters are ranked in one of 5 status classes: High, Good, Moderate, Poor, Bad. However, not all waterbodies have been monitored, and in such cases the status of a similar nearby waterbody has been used (extrapolated) to assign status. If this has been done the first line of the status report shows the code of the waterbody used to extrapolate.

You can read more about status and how it is measured in our RBMP Document Library at www.wfdireland.ie (Directory 15 Status).

Date Reported to Europe:July 2010

Date Report Created 10/02/2020

water matters
'Our Plan'



Risk Report

Water Management Unit: IE_EA_Dodder

WaterBody Category: River Waterbody

WaterBody Name: Dodder Lower

WaterBody Code: IE_EA_09_587

Overall Risk Result: 1a At Risk

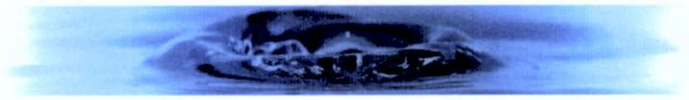
Heavily Modified: No

	Risk Test Description		Risk
	Diffuse Risk Sources		
RD1	EPA diffuse model (2008)	1a	At Risk
RD2a	Road Wash - Soluble Copper		Not At Risk
RD2b	Road Wash - Total Zinc		Not At Risk
RD2c	Road Wash - Total Hydrocarbons		Not At Risk
RD3	Railways		Not At Risk
RD4a	Forestry - Acidification (2008)	2a	Probably Not At Risk
RD4b	Forestry - Suspended Solids (2008)		Not At Risk
RD4c	Forestry - Eutrophication (2008)	2a	Probably Not At Risk
RD5	Overall Unsewered (2008)		Not At Risk
RD5a	Unsewered Areas - Pathogens (2008)	2a	Probably Not At Risk
RD5b	Unsewered Phosphorus (2008)		Not At Risk
RD6a	Arable		Not At Risk
RD6b	Sheep Dip		Not At Risk
RD6c	Forestry - Dangerous Substances		Not At Risk
RDO	Diffuse Overall -Worst Case (2008)	1a	At Risk
	Hydrology		
RHY1	Water balance - Abstraction	1a	At Risk
	Morphological Risk Sources		
RM1	Channelisation (2008)		Not At Risk
RM2	Embankments (2008)		Not At Risk
RM3	Impoundments		Not At Risk
RM4	Water Regulation		Not At Risk
RM5	Intensive Landuse		N/A
RMO	Morphology Overall - Worst Case (2008)		Not At Risk
	Overall Risk		
RA	Rivers Overall - Worst Case (2008)	1a	At Risk

Date Reported to Europe:July 2010

Date Report Created 10/02/2020

water matters
'Our Plan'



	Point Risk Sources		
RP1	WWTPs (2008)		Not At Risk
RP2	CSOs	1a	At Risk
RP3	IPPCs (2008)		Not At Risk
RP4	Section 4s (2008)		Not At Risk
RP5	WTPs/Mines/Quarries/Landfills		N/A
RPO	Overall Risk from Point Sources - Worst Case (2008)	1a	At Risk
	Q Value		
Q	EPA Q rating and Margaritifera Assessment		N/A
	Q/RDI or Point/Diffuse		
QPD	Q class/EPA Diffuse Model or worst case of Point and Diffuse (2008)	1a	At Risk
	Rivers Direct Impacts		
RDI1	Rivers Direct Impacts - Dangerous Substances		N/A

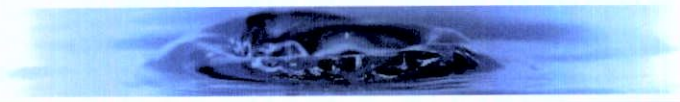
Risk
By 'risk' we mean the risk that a waterbody will not achieve good ecological or good chemical status/potential at least by 2015. To examine risk the various pressures acting on the waterbody were identified along with any evidence of impact on water status. Depending on the extent of the pressure and its potential for impact, and the amount of information available, the risk to the water body was placed in one of four categories: 1a at risk; 1b probably at risk; 2a probably not at risk; 2b not at risk. Note that '2008' after the risk category means that the risk assessment was revised in 2008. All other risks were determined as part of an earlier risk assessment in 2005.

You can read more about risk assessment in our 'WFD Risk Assessment Update' document in the RBMP document library, and other documents at www.wfdireland.ie (Directory 31 Risk Assessments).

Date Reported to Europe:July 2010

Date Report Created 10/02/2020

water matters
'Our Plan'



Objectives Report

Water Management Unit:	IE_EA_Dodder
WaterBody Category:	River Waterbody
WaterBody Name:	Dodder Lower
WaterBody Code:	IE_EA_09_587
Overall Objective:	Restore_2027
Heavily Modified:	No

	Objectives Description	Result
	Objectives information	
OB1	Prevent deterioration objective	No Status
OB2	Restore at least good status objective	Restore_2027
OB3	Reduce chemical pollution objective	Protect
OB4	Protected areas objective	No Status
OB5	Northern Ireland Environment Agency objective	No Status
OBO	Overall objectives	Restore_2027

Extended timescales
Extended timescales have been set for certain waters due to technical, economic, environmental or recovery constraints. Extended timescales are usually of one planning cycle (6 years, to 2021) but in some cases are two planning cycles (to 2027).

Objectives
In general, we are required to ensure that our waters achieve at least good status/potential by 2015, and that their status does not deteriorate. Having identified the status of waters (this is given earlier in this report), the next stage is to set objectives for waters. Objectives consider waters that require protection from deterioration as well as waters that require restoration and the timescales needed for recovery. Four default objectives have been set initially:-

Prevent Deterioration
Restore Good Status
Reduce Chemical Pollution
Achieve Protected Areas Objectives

These objectives have been refined based on the measures available to achieve them, the latter's likely effectiveness, and consideration of cost-effective combinations of measures. Where it is considered necessary extended deadlines have been set for achieving objectives in 2021 or 2027.

Date Reported to Europe:July 2010

Date Report Created 10/02/2020

APPENDIX 3 – Window Sample Records

Ground Investigations Ireland Ltd
www.gii.ie

Site: Sandford Park Milltown				Number: WS01
Machine : Geotech 10 Method : Drive-in Windowless Sampler	Dimensions: 88mm to 2.00m 68mm to 2.40m	Ground Level (mOD)	Client: DBFL	Job Number: 9338-12-19
	Location	Dates: 16/01/2020	Project Contractor: GII	Sheet: 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.30)	TOPSOIL.		
					0.30			
					(0.20)	MADE GROUND: Brown slightly sandy slightly gravelly Clay with redbrick mortar and charcoal fragments.		
					0.50			
0.70	EN				(1.05)	Firm light brown grey mottled slightly sandy slightly gravelly CLAY.		
					1.55			
1.70	EN				(0.85)	Stiff brown grey slightly sandy gravelly CLAY with occasional sub-angular to sub-rounded cobbles.		
2.40	EN				2.40	Complete at 2.40m		

Remarks
Refusal at 2.40m BGL due to obstruction, possible boulder.
Borehole backfilled upon completion.

Scale (approx)	Logged By
1:25	NM

Figure No.
9338-12-19.WS01

Ground Investigations Ireland Ltd
www.gii.ie

Site Sandford Park Milltown			**Number** WS02
Machine : Geotech 10 **Method :** Drive-in Windowless Sampler	**Dimensions** 88mm to 2.00m 68mm to 2.54m	**Ground Level (mOD)**	**Client** DBFL	**Job Number** 9338-12-19
	Location	**Dates** 16/01/2020	**Project Contractor** GII	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.40) 0.40	TOPSOIL.		
					(0.30) 0.70	Firm light brown slightly sandy slightly gravelly CLAY with one sub-angular cobble.		
0.70	EN				(0.30) 1.00	No recovery.		
1.70	EN				(1.20) 2.20	Firm to stiff light brown grey mottled slightly sandy slightly gravelly CLAY with occasional sub-angular to sub-rounded cobbles.		
2.50	EN				(0.34) 2.54	Stiff brown grey slightly sandy gravelly CLAY with occasional sub-angular to sub-rounded cobbles.		
						Complete at 2.54m		

Remarks
Refusal at 2.54m BGL due to obstruction, possible boulder.
Borehole backfilled upon completion.

Scale (approx)	Logged By
1:25	NM

Figure No. 9338-12-19.WS02

Ground Investigations Ireland Ltd
www.gii.ie

Site: Sandford Park Milltown				Number: WS03
Machine : Geotech 10 Method : Drive-in Windowless Sampler	Dimensions: 88mm to 2.00m, 68mm to 2.70m	Ground Level (mOD)	Client: DBFL	Job Number: 9338-12-19
	Location	Dates: 16/01/2020	Project Contractor: GII	Sheet: 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.15) 0.15	TOPSOIL.		
					(0.15) 0.30	POSSIBLE MADE GROUND: Brown slightly sandy slightly gravelly Clay.		
					(0.45)	Firm to stiff light brown grey mottled slightly sandy slightly gravelly CLAY with rare sub-angular to sub-rounded cobbles.		
0.70	EN				0.75 (0.25)	No recovery.		
					1.00	Stiff light brown grey mottled slightly sandy slightly gravelly CLAY with rare sub-angular to sub-rounded cobbles.		
1.70	EN				(1.10)			
					2.10 (0.60)	Brown dark grey slightly sandy gravelly CLAY with occasional sub-angular to sub-rounded cobbles.		
2.70	EN				2.70	Complete at 2.70m		

Remarks
Refusal at 2.70m BGL due to obstruction, possible boulder.
Borehole backfilled upon completion.

Scale (approx)	Logged By
1:25	NM

Figure No.
9338-12-19.WS03

Ground Investigations Ireland Ltd

www.gii.ie

Site: Sandford Park Milltown				Number: WS04
Machine : Geotech 10 Method : Drive-in Windowless Sampler	Dimensions: 88mm to 2.00m	Ground Level (mOD)	Client: DBFL	Job Number: 9338-12-19
	Location	Dates: 17/01/2020	Project Contractor: GII	Sheet: 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.08) 0.08	TARMACADAM		
					(0.32)	MADE GROUND: Grey angular Gravel.		
					0.40	Firm to stiff light brown grey mottled slightly sandy gravelly CLAY.		
0.70	EN				(1.30)			
1.70	EN				1.70	No recovery.		
					(0.30)			
					2.00	Complete at 2.00m		

Remarks
Refusal at 2.00m BGL due to obstruction, possible boulder.
Borehole backfilled upon completion.

Scale (approx)	Logged By
1:25	NM

Figure No.
9338-12-19.WS04

Ground Investigations Ireland Ltd

www.gii.ie

Site: Sandford Park Milltown			Number: WS05
Machine : Geotech 10 Method : Drive-in Windowless Sampler	Dimensions: 88mm to 2.00m	Ground Level (mOD)	Client: DBFL
	Location	Dates: 16/01/2020	Project Contractor: GII

Job Number: 9338-12-19

Sheet: 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.40)	TOPSOIL		
					0.40	Firm to stiff light brown grey mottled slightly sandy gravelly CLAY with occasional sub-rounded cobbles.		
0.70	EN				(1.60)			
1.70	EN				2.00	Complete at 2.00m		

Remarks
Refusal at 2.00m BGL due to obstruction, possible boulder.
Borehole backfilled upon completion.

Scale (approx)	Logged By
1:25	NM

Figure No.
9338-12-19.WS05

Ground Investigations Ireland Ltd

www.gii.ie

Site: Sandford Park Milltown			Number: WS06
Machine : Geotech 10 Method : Drive-in Windowless Sampler	Dimensions: 88mm to 2.00m	Ground Level (mOD)	Client: DBFL
	Location	Dates: 16/01/2020	Project Contractor: GII
			Job Number: 9338-12-19
			Sheet: 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.40)	TOPSOIL		
					0.40	Firm to stiff light brown grey mottled slightly sandy gravelly CLAY with occasional sub-rounded cobbles.		
0.70	EN				(1.60)			
1.70	EN				2.00	Complete at 2.00m		

Remarks
Refusal at 2.00m BGL due to obstruction, possible boulder.
Borehole backfilled upon completion.

Scale (approx)	Logged By
1:25	NM

Figure No.
9338-12-19.WS06

Ground Investigations Ireland Ltd

www.gii.ie

Site: Sandford Park Milltown			Number: WS07
Machine : Geotech 10 Method : Drive-in Windowless Sampler	Dimensions: 88mm to 2.00m, 68mm to 2.60m	Ground Level (mOD)	Client: DBFL	Job Number: 9338-12-19
	Location	Dates: 16/01/2020	Project Contractor: GII	Sheet: 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.40)	TOPSOIL		
					0.40	Firm to stiff light brown grey mottled slightly sandy gravelly CLAY.		
0.70	EN							
					(1.90)			
1.70	EN							
					2.30	Stiff grey slightly sandy gravelly CLAY.		
					(0.30)			
2.60	EN				2.60	Complete at 2.60m		

Remarks
Refusal at 2.60m BGL due to obstruction, possible boulder.
Borehole backfilled upon completion.

Scale (approx)	Logged By
1:25	NM

Figure No. 9338-12-19.WS07

Ground Investigations Ireland Ltd

www.gii.ie

Site: Sandford Park Milltown			Number: WS08
Machine : Geotech 10 Method : Drive-in Windowless Sampler	Dimensions: 88mm to 2.00m 68mm to 2.66m	Ground Level (mOD)	Client: DBFL
	Location	Dates: 17/01/2020	Project Contractor: GII
			Job Number: 9338-12-19
			Sheet: 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.08) 0.08	TARMACADAM.		
					(0.12) 0.20	MADE GROUND: Grey angular slightly clayey Gravel.		
					(0.25) 0.45	MADE GROUND: Dark brown slightly sandy slightly gravelly Clay with mortar redbrick and charcoal fragments.		
0.70	EN				(1.55)	Firm to stiff light brown slightly sandy gravelly CLAY.		
1.70	EN				2.00	Stiff dark grey slightly sandy gravelly CLAY.		
2.60	EN				(0.66) 2.66	Complete at 2.66m		

Remarks
Refusal at 2.66m BGL due to obstruction, possible boulder.
Borehole backfilled upon completion.

Scale (approx)	Logged By
1:25	NM

Figure No. 9338-12-19.WS08

Ground Investigations Ireland Ltd

www.gii.ie

Site: Sandford Park Milltown			Number: WS09
Machine : Geotech 10 Method : Drive-in Windowless Sampler	Dimensions: 88mm to 2.00m, 68mm to 2.60m	Ground Level (mOD)	Client: DBFL
	Location	Dates: 16/01/2020	Project Contractor: GII
			Job Number: 9338-12-19
			Sheet: 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.40)	TOPSOIL.		
					0.40 (0.10) 0.50	MADE GROUND: Dark brown slightly sandy slightly gravelly Clay with mortar and redbrick fragments.		
0.70	EN				(1.00)	Firm light brown slightly sandy gravelly CLAY with occasional sub-angular to sub-rounded cobbles.		
					1.50			
1.70	EN				(0.70)	Firm to stiff light brown grey slightly sandy gravelly CLAY.		
					2.20			
					(0.40)	Stiff dark grey slightly sandy gravelly CLAY.		
2.60	EN				2.60	Complete at 2.60m		

Remarks
Refusal at 2.60m BGL due to obstruction, possible boulder.
Borehole backfilled upon completion.

Scale (approx)	Logged By
1:25	NM

Figure No.
9338-12-19.WS09

Ground Investigations Ireland Ltd

www.gii.ie

Site: Sandford Park Milltown			Number: WS10
Machine : Geotech 10 Method : Drive-in Windowless Sampler	Dimensions: 88mm to 2.00m 68mm to 2.50m	Ground Level (mOD)	Client: DBFL
	Location	Dates: 16/01/2020	Project Contractor: GII
			Job Number: 9338-12-19
			Sheet: 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.35)	TOPSOIL.		
					0.35 (0.15)	MADE GROUND: Light brown slightly sandy slightly gravelly Clay with mortar and redbrick fragments.		
					0.50	Firm to stiff brown grey slightly sandy gravelly CLAY with occasional sub-angular to sub-rounded cobbles.		
0.70	EN							
					(1.80)			
1.70	EN							
					2.30			
2.30	EN				(0.20)	No recovery.		
					2.50	Complete at 2.50m		

Remarks
Refusal at 2.50m BGL due to obstruction, possible boulder.
Borehole backfilled upon completion.

Scale (approx)	Logged By
1:25	NM

Figure No.
9338-12-19.WS10

Ground Investigations Ireland Ltd

www.gii.ie

Site: Sandford Park Milltown			Number: WS11
Machine : Geotech 10 Method : Drive-in Windowless Sampler	Dimensions: 88mm to 2.00m, 68mm to 2.30m	Ground Level (mOD)	Client: DBFL	Job Number: 9338-12-19
	Location	Dates: 16/01/2020	Project Contractor: GII	Sheet: 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.40)	TOPSOIL.		
					0.40	MADE GROUND: Brown slightly sandy slightly gravelly Clay with mortar and redbrick fragments.		
0.70	EN				0.40	Firm to stiff brown grey slightly sandy gravelly CLAY with occasional sub-angular to sub-rounded cobbles.		
					(1.80)			
1.70	EN							
2.20	EN				2.20 (0.10) 2.30	No recovery.		
						Complete at 2.30m		

Remarks
Refusal at 2.30m BGL due to obstruction, possible boulder.
Borehole backfilled upon completion.

Scale (approx)	Logged By
1:25	NM

Figure No. 9338-12-19.WS11

Ground Investigations Ireland Ltd
www.gii.ie

Site Sandford Park Milltown			**Number** WS12
Machine : Geotech 10 **Method :** Drive-in Windowless Sampler	**Dimensions** 88mm to 2.00m 68mm to 2.57m	**Ground Level (mOD)**	**Client** DBFL	**Job Numb.** 9338-12-19
	Location	**Dates** 17/01/2020	**Project Contractor** GII	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.08) 0.08	TARMACADAM.		
					(0.27)	MADE GROUND: Grey angular slightly clayey Gravel.		
					0.35	Firm to stiff light brown slightly sandy slightly gravelly CLAY.		
0.70	EN				(0.85)			
					1.20	Stiff brown slightly sandy gravelly CLAY with occasional sub-angular to sub-rounded cobbles		
1.70	EN				(1.00)			
					2.20	Stiff to very stiff dark grey slightly sandy gravelly CLAY.		
					(0.37)			
2.50	EN				2.57	Complete at 2.57m		

Remarks
Refusal at 2.57m BGL due to obstruction, possible boulder.
Borehole backfilled upon completion.

Scale (approx)	Logged By
1:25	NM

Figure No. 9338-12-19.WS12

Ground Investigations Ireland Ltd

www.gii.ie

Site Sandford Park Milltown			**Number** WS13
achine : Geotech 10 **Method** : Drive-in Windowless Sampler	**Dimensions** 88mm to 1.50m	**Ground Level (mOD)**	**Client** DBFL	**Job Number** 9338-12-19
	Location	**Dates** 17/01/2020	**Project Contractor** GII	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.30) 0.30	TOPSOIL.		
					(0.20) 0.50	MADE GROUND: Brown slightly sandy slightly gravelly Clay with redbrick mortar and bone fragments.		
0.70	EN				(0.90)	Firm to stiff brown grey mottled slightly sandy gravelly CLAY.		
1.40	EN				(0.10) 1.40 1.50	No recovery.		
						Complete at 1.50m		

Remarks
Refusal at 1.50m BGL due to obstruction, possible boulder.
Borehole backfilled upon completion.

Scale (approx)	Logged By
1:25	NM

Figure No. 9338-12-19.WS13

Ground Investigations Ireland Ltd

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Site Sandford Park Milltown			**Number** WS14
Machine : Geotech 10 **Method :** Drive-in Windowless Sampler	**Dimensions** 88mm to 2.00m 68mm to 2.75m	**Ground Level (mOD)**	**Client** DBFL	**Job Numb.** 9338-12-19
	Location	**Dates** 17/01/2020	**Project Contractor** GII	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.30)	TOPSOIL.		
					0.30 (0.20)	MADE GROUND: Brown slightly sandy slightly gravelly Clay with redbrick and charcoal fragments.		
					0.50	Firm brown grey mottled slightly sandy gravelly CLAY with occasional sub-angular to sub-rounded cobbles.		
0.70	EN							
					(1.50)			
1.70	EN							
					2.00	Stiff to very stiff dark grey slightly sandy gravelly CLAY.		
					(0.75)			
2.70	EN				2.75	Complete at 2.75m		

Remarks
Refusal at 2.75m BGL due to obstruction, possible boulder.
Borehole backfilled upon completion.

Scale (approx)	Logged By
1:25	NM

Figure No. 9338-12-19.WS14

APPENDIX 4 – Trial Pit Records

Ground Investigations Ireland Ltd

www.gii.ie

Site: Sandford Park Milltown			Trial Pit Number: TP02
Machine : JCB 3CX Method : Trial Pit	Dimensions: 0.6m W x 1.2m L	Ground Level (mOD):	Client: DBFL	Job Numb.: 9338-12-19
	Location: 716845.6 E 731205.5 N	Dates: 17/01/2020	Project Contractor: GII	Sheet: 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.20) 0.20	TOPSOIL.		
					(0.55) 0.75	Firm light brown slightly sandy slightly gravelly CLAY.		
					(0.30) 1.05	Firm to stiff brown slightly sandy slightly gravelly CLAY with occasional sub-angular cobbles.		
						Complete at 1.05m		

Plan

Remarks

Groundwater not encountered during excavation.
Trial pit stable.
Trial pit terminated at 1.05m BGL on exposing the foundation and backfilled upon completion.

Scale (approx)	Logged By	Figure No.
1:25	NM	9338-12-19.TP02

Ground Investigations Ireland Ltd

www.gii.ie

Site: Sandford Park Milltown			Trial Pit Number: TP03
achine : JCB 3CX Method : Trial Pit	Dimensions: 0.6m W x 1.4m L	Ground Level (mOD):	Client: DBFL	Job Number: 9338-12-19
	Location: 716981.8 E 731146 N	Dates: 17/01/2020	Project Contractor: GII	Sheet: 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.30)	MADE GROUND: Topsoil with roots plastic redbrick and concrete fragments.		
					0.30	MADE GROUND: Brown slightly sandy slightly gravelly CLAY with root concrete and fragments.		
					(0.90)			
					1.20	Complete at 1.20m		

Plan

Remarks

Groundwater not encountered during excavation.
Trial pit stable.
Trial pit terminated at 1.20m BGL due to a concrete protection and backfilled upon completion.

Scale (approx)	Logged By	Figure No.
1:25	NM	9338-12-19.TP03

Ground Investigations Ireland Ltd

www.gii.ie

Site Sandford Park Milltown			**Trial Pit Number** TP04
Machine : JCB 3CX **Method :** Trial Pit	**Dimensions** 0.6m W x 1.5m L	**Ground Level (mOD)**	**Client** DBFL	**Job Number** 9338-12-19
	Location 717097.4 E 731276.8 N	**Dates** 17/01/2020	**Project Contractor** GII	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.20)	TOPSOIL with roots.		
					0.20	Firm dark brown slightly sandy slightly gravelly CLAY with root fragments.		
					(0.50)			
					0.70	Firm to stiff light brown slightly sandy slightly gravelly CLAY.		
					(0.70)			
					1.40	Complete at 1.40m		

Plan

Remarks

Groundwater not encountered during excavation.
Trial pit stable.
Trial pit terminated at 1.40m BGL on exposing the foundation and backfilled upon completion.

Scale (approx)	Logged By	Figure No.
1:25	NM	9338-12-19.TP04

Ground Investigations Ireland Ltd

www.gii.ie

Machine : JCB 3CX Method : Trial Pit	Dimensions 0.6m W x 1.5m L	Ground Level (mOD)	Client DBFL	Job Number 9338-12-19
	Location 717043.4 E 731334.3 N	Dates 17/01/2020	Project Contractor GII	Sheet 1/1

Site: Sandford Park Milltown

Trial Pit Number: **TP05**

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.70)	TOPSOIL with roots.		
					0.70	Firm to stiff brown slightly sandy slightly gravelly CLAY.		
					(0.80)			
					1.50	Complete at 1.50m		

Plan

Remarks

Groundwater not encountered during excavation.
Trial pit stable.
Trial pit terminated at 1.50m BGL on exposing the foundation and backfilled upon completion.

Scale (approx)	Logged By	Figure No.
1:25	NM	9338-12-19.TP05

Ground Investigations Ireland Ltd

www.gii.ie

Site: Sandford Park Milltown			Trial Pit Number: TP06
Machine : JCB 3CX Method : Trial Pit	Dimensions: 0.6m W x 1.2m L	Ground Level (mOD)	Client: DBFL	Job Number: 9338-12-19
	Location: 717005.1 E 731344 N	Dates: 17/01/2020	Project Contractor: GII	Sheet: 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.25)	TOPSOIL with small concrete and plastic fragments.		
					0.25	Firm dark brown slightly sandy slightly gravelly CLAY.		
					(0.75)			
					1.00	Complete at 1.00m		

Plan

Remarks

Groundwater not encountered during excavation.
Trial pit stable.
Trial pit terminated at 1.0m BGL on exposing the foundation and backfilled upon completion.

Scale (approx)	Logged By	Figure No.
1:25	NM	9338-12-19.TP06

Ground Investigations Ireland Ltd

www.gii.ie

Site: Sandford Park Milltown			Trial Pit Number: TP07
Machine : JCB 3CX Method : Trial Pit	Dimensions: 0.6m W x 1.3m L	Ground Level (mOD)	Client: DBFL Job Number: 9338-12-19
	Location: 716981.4 E 731292.7 N	Dates: 17/01/2020	Project Contractor: GII Sheet: 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.25)	TOPSOIL.		
					0.25	Firm to stiff light brown slightly sandy slightly gravelly CLAY.		
					(0.90)			
					1.15	Complete at 1.15m		

Plan

Remarks

Groundwater not encountered during excavation.
Trial pit stable.
Trial pit terminated at 1.15m BGL on exposing the foundation and backfilled upon completion.

Scale (approx)	Logged By	Figure No.
1:25	NM	9338-12-19.TP07

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Site Sandford Park Milltown			**Trial Pit Number** TP08
Machine : JCB 3CX **Method :** Trial Pit	**Dimensions** 0.6m W x 1.5m L	**Ground Level (mOD)**	**Client** DBFL	**Job Numbe** 9338-12-19
	Location 716888.6 E 731317.4 N	**Dates** 17/01/2020	**Project Contractor** GII	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.40)	MADE GROUND: Topsoil with roots plastic redbrick and concrete fragments.		
					0.40			
					(0.30)	Firm light brown grey slightly sandy slightly gravelly CLAY.		
					0.70			
					(0.50)	Firm to stiff light brown slightly sandy slightly gravelly CLAY.		
					1.20	Complete at 1.20m		

Plan

Remarks

Groundwater not encountered during excavation.
Trial pit stable.
Trial pit terminated at 1.20m BGL on exposing the foundation and backfilled upon completion.

Scale (approx)	Logged By	Figure No.
1:25	NM	9338-12-19.TP08

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Machine : 3T 360 Method : Trial Pit	Dimensions 0.6m W x 2.0m L	Ground Level (mOD) 20.90	Site Sandford Park Milltown
	Location (dGPS) 716894.6 E 731152.8 N	Dates 27/01/2020	Client DBFL
			Project Contractor GII

Trial Pit Number: **TP09**

Job Number: 9338-12-19

Sheet: 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.15)	Topsoil		
				20.75	0.15	Firm to stiff brown mottled grey slightly sandy slightly gravelly CLAY with occasional subangular cobbles. Gravel is angular to subrounded fine to coarse.		
					(0.45)			
0.50	B			20.30	0.60	Stiff greyish brown slightly sandy slightly gravelly CLAY with occasional subanugular cobbles and boulders. Gravel is angular to subrounded fine to coarse.		
1.00	B				(0.80)			
				19.50	1.40	Complete at 1.40m		

Plan

Remarks

Groundwater encountered at 1.40m
Trial pit stable.
Trial pit terminated at 1.40m BGL on exposing the foundation and backfilled upon completion.

Scale (approx)	Logged By	Figure No.
1:25	PC	9338-12-19.TP09

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Site Sandford Park Milltown			**Trial Pit Number** TP10
Machine : 3T 360 **Method :** Trial Pit	**Dimensions** 0.6m W x 1.1m L	**Ground Level (mOD)**	**Client** DBFL	**Job Numb.** 9338-12-19
	Location (Handheld GPS) 716916.4 E 731157.9 N	**Dates** 27/01/2020	**Project Contractor** GII	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.15) 0.15	Topsoil		
					(0.25) 0.40	MADE GROUND: Brown slightly gravelly sandy Clay with occassional fragments of metal and red brick.		
					(0.40) 0.80	Firm to stiff brown mottled grey slightly sandy slightly gravelly CLAY with occasional subangular cobbles. Gravel is angular to subrounded fine to coarse.		
					(0.40) 1.20	Stiff brown mottled grey slightly sandy slightly gravelly CLAY with occasional subanugular cobbles and boulders. Gravel is angular to subrounded fine to coarse.		
1.20	B					Complete at 1.20m		

Plan

Remarks

Groundwater not encountered during excavation.
Trial pit stable.
Trial pit terminated at 1.20m BGL on exposing the foundation and backfilled upon completion.

Scale (approx)	Logged By	Figure No.
1:25	PC	9338-12-19.TP10

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Site: Sandford Park Milltown				Trial Pit Number: TP11
Machine : 3T 360 Method : Trial Pit	Dimensions: 0.6m W x 1.6m L	Ground Level (mOD): 20.81	Client: DBFL	Job Number: 9338-12-19
	Location (dGPS): 716935.8 E 731174.6 N	Dates: 27/01/2020	Project Contractor: GII	Sheet: 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.15)	Topsoil		
				20.66	0.15			
					(0.15)	MADE GROUND: Brown slightly gravelly sandy Clay with occassional fragments of red brick.		
				20.51	0.30			
						Stiff brown mottled grey slightly sandy slightly gravelly CLAY with occasional subanugular cobbles and boulders. Gravel is angular to subrounded fine to coarse.		
					(0.70)			
0.80	B							
				19.81	1.00			
						Complete at 1.00m		

Plan

Remarks

Groundwater not encountered during excavation.
Trial pit stable.
Trial pit terminated at 1.00m BGL on exposing the foundation and backfilled upon completion.

Scale (approx)	Logged By	Figure No.
1:25	PC	9338-12-19.TP11

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Site Sandford Park Milltown			**Trial Pit Number** TP13
Machine : 3T 360 **Method :** Trial Pit	**Dimensions** 0.6m W x 1.0m L	**Ground Level (mOD)** 21.95	**Client** DBFL	**Job Numbe.** 9338-12-19
	Location (dGPS) 716905.1 E 731084.8 N	**Dates** 27/01/2020	**Project Contractor** GII	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.15)	Topsoil		
				21.80	0.15	MADE GROUND: Brown slightly gravelly sandy Clay with rootlets and occassional fragments of glass and red brick.		
					(0.45)			
0.50	B			21.35	0.60	Stiff brown mottled grey slightly sandy slightly gravelly CLAY with occasional subanugular cobbles. Gravel is angular to subrounded fine to coarse. Possible madeground.		
					(0.70)			
1.00	B							
				20.65	1.30	Complete at 1.30m		

Plan

Remarks

Groundwater not encountered during excavation.
Trial pit stable.
Trial pit terminated at 1.30m BGL on exposing the foundation and backfilled upon completion.

Scale (approx)	Logged By	Figure No.
1:25	PC	9338-12-19.TP13