APPLICANT: MR. GARY McKEON

EXISTING DEVELOPMENT AT GLASSAMUCKY,
BOHERNABREENA, DUBLIN 24

SURFACE WATER DRAINAGE REPORT

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CONSULTING ENGINEERS

2 PROSPECT GROVE

STOCKING LANE,

RATHFARNHAM,

DUBLIN 16.

JANUARY 2023

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APPLICANT: MR. GARY McKEON

EXISTING DEVELOPMENT AT GLASSAMUCKY,
BOHERNABREENA, DUBLIN 24

SURFACE WATER DRAINAGE REPORT

Introduction:

The relevant development consists of the following at Glassamucky, Bohernabreena, Dublin 24:

(1) Retention of the existing Building (A1) with new direct link to the existing family home (A) providing extra living accommodation
(2) Retention and completion of existing Building (B) for use as private family gym and general store
(3) Retention of single storey Shed (E) in side garden for storage of equipment used by the applicant in relation to his work
(4) Retention and completion of Building (F) to accommodate the storage of vintage cars owned by the applicant together with required storage of associated materials.

The existing dwelling-house is a detached bungalow with a converted attic area. The dwelling-house appears to have been constructed circa 40 years ago and contains three bedrooms. The existing Buildings (A1) and (B) were constructed prior to 2011 while the other buildings have been constructed more recently.

Existing Surface Water Drainage System:

I have visited the site on a number of occasions in respect of the preparation of the planning application and the requested Additional Information documentation.

The rainwater run-off from the existing dwelling-house and the other buildings discharges to various stone filled soakaways located on the site.

Details of the existing surface water drainage features and the approximate locations of the existing soakaways are shown on Drawing No. EX-22-03: Existing Drainage Plan.

The rainwater run-off from the roof of the adjoining Chalet (D) discharges to a stone filled soakaway located where shown on Drawing No. EX-22-03.

I understand from the applicant that he is not aware of any issue with the existing surface water drainage arrangements. However, based on visual inspection and consultations with the applicant, only limited information is available on the actual sizes and construction of the existing soakaways.

Proposed Surface Water Drainage System:

The site of the proposed development is located in an area which is considered environmentally sensitive. Having regard to same and the limited information available on the existing soakaways, I recommend that all the existing soakaways should be replaced with new soakaways designed and constructed in accordance with the requirements of BRE Digest 365. All surface water run-off generated from structures or hard surfaces within the site shall be disposed off within the site and there shall be no run-off to watercourses from the structures or hard surfaces on the site.

I advise that the proposed surface water drainage system should incorporate, where practical, green infrastructure measures to mitigate and compensate for the impact of the proposed development on the existing site. The measures should include additional landscaping features together with SUDS measures such as permeable paving, water butts for water recycling and grass swale.

Details of the proposed surface water drainage arrangements for the development are shown on Drawing No. PP-22-02: Proposed Drainage Layout Plan.

Details of the landscaping measures are provided on the Landscape Architect's Drawings and Landscape Specification. It is proposed to replace the existing gravel surface to the north of Shed E with reinforced grass system to continue to provide occasional vehicular access to the Shed and to provide a green permeable surface.

It is proposed to incorporate 3 No. 200 litre water butts, for rainwater recycling, where shown on Drawing No. PP-22-02. Water butts shall be provided beside the dwelling-house, Shed E and Shed F.

Rainwater runoff from the roofs of all the buildings shall be disposed off to new stone filled soakaways as shown on Drawing No. PP-22-02. The stone filled soakaways shall be designed and constructed in accordance with the requirements of BRE Digest 365.

All of the surface water run-off from the existing tarmac driveway together with the proposed tarmac surface to the front (west Side) of Shed F shall be diverted through a Class 1 By-Pass Petrol/Oil Inceptor Unit and shall discharge to the proposed Grass Swale located where shown on Drawing No. PP-22-02.

It is proposed that Shed F will be used for the storage of vintage cars owner by the applicant. All car washings in the Shed shall be stored in an underground tank and same shall be disposed off site in approved facilities. The underground storage tank shall have adequate capacity and shall be designed, constructed and certified to EN 12566-3:2017 and SR66:2015.

There is an existing Oil Tank located beside Shed B as shown on Drawing No. PP-22-02. It is proposed that Oil Tank shall be incorporated in a bunded structure and covered with a canopy. The oil tank bund shall be designed and constructed to BS EN 1992-3 and BS EN 1992-1-1 + A1.

Proposed Soakaways Infiltration Rate:

The applicant excavated 2 No. trial pits on the site. I visited the site and I carried out soil infiltration tests in accordance with the requirements of BRE Digest 365. There was no ground water present in either of the 2 No. trial pits. The lower soil infiltration rate in the trial pits was determined to be 1.6×10^{-5} m/s.

Soakaway Contributing Areas:

The rainwater runoff from the roofs of all the buildings shall be disposed off to new stone filled soakaways as shown on Drawing No. PP-22-02. A run-off coefficient of 0.9 has been assumed in the calculations. The following are the contributing areas for the proposed soakaways:

Soakaway No. 1:	Dwelling-house (Part):	204 m2
	Shed F:	133 m2
	Concreted Area:	50 m2
		---
		387 m2

Contributing Area (Soakaway No. 1): 387 m2 x 0.9 = 348.3 m2 (say 350 m2)

Soakaway No. 2	Shed E:	85 m2

Contributing Area (Soakaway No. 2): 85 m2 x 0.9 = 76.5 m2 (say 77 m2)

Soakaway No. 3:	Dwelling-house (Part):	38 m2
	Shed B:	37 m2
	Concrete Area:	52 m2
		---
		127 m2

Contributing Area (Soakaway No. 3): 127 m2 x 0.9 = 114.3 m2 (say 115 m2)

The soakaways shall be constructed strictly in accordance with the requirements of BRE Digest 365.

Proposed Soakaway No. 1:

Refer to BRE Digest 365 in respect of design of the soakaway.

Design soakaway with contributing area of 350 m2.

The soil infiltration rate has been calculated at 1.60×10^{-5} m/s.

The return period rainfall depths for the site were obtained from Met Eireann Model – refer copy attached.

A 15% allowance for climate change factor was added to the rainfall depths as shown.

Assume soakaway with plan area of 50.0 m2 and with 1.35 m effective depth and containing 30% free volume.

The internal surface area of the soakaway to 50% of storage depth excluding base = 19.75 m2.

Effective volume of the proposed soakaway = 20.25 m3

Storm Duration (Mins)	Rainfall (mm)	Rainfall +15% (min)	Total Quantity (m3)	Outflow Quantity (m3)	Storage Quantity (m3)
5	9.1	10.5	3.68	0.09	3.59
10	12.7	14.6	5.11	0.19	4.92
15	14.9	17.1	5.99	0.28	5.71
30	20.3	23.3	8.16	0.57	7.59
60	27.5	31.6	11.06	1.14	9.92
120	37.4	43.0	15.05	2.28	12.77
180	44.8	51.5	18.03	3.41	14.62
240	50.8	58.4	20.44	4.55	15.89
360	60.9	70.0	24.50	6.83	17.67
540	72.8	83.7	29.30	10.24	19.06
720	82.8	95.2	33.32	13.65	19.67 *
1440	112.6	129.5	45.33	27.30	18.03
2880	131.4	151.1	52.89	54.60	----

Maximum storage required = 19.67 m3 (i.e. less than the effective volume of the soakaway of 20.25 m3).

Hence, soakaway with plan area of 50.0 m2 with 1.35 m effective depth and containing 30% free volume is satisfactory.

Proposed Soakaway No. 2:

Refer to BRE Digest 365 in respect of design of the soakaway.

Design soakaway with contributing area of 77 m2.

The soil infiltration rate has been calculated at 1.60×10^{-5} m/s.

The return period rainfall depths for the site were obtained from Met Eireann Model – refer copy attached.

A 15% allowance for climate change factor was added to the rainfall depths as shown.

Assume soakaway with plan dimensions of 4.0 m x 3.0 m and with 0.90 m effective depth and containing 30% free volume.

The internal surface area of the soakaway to 50% of storage depth excluding base = 6.30 m2.

Effective volume of the proposed soakaway = 3.24 m3

Storm Duration (Mins)	Rainfall (mm)	Rainfall +15% (min)	Total Quantity (m3)	Outflow Quantity (m3)	Storage Quantity (m3)
5	9.1	10.5	0.81	0.03	0.78
10	12.7	14.6	1.12	0.06	1.06
15	14.9	17.1	1.32	0.09	1.23
30	20.3	23.3	1.79	0.18	1.61
60	27.5	31.6	2.43	0.36	2.07
120	37.4	43.0	3.31	0.73	2.58
180	44.8	51.5	3.97	1.09	2.88
240	50.8	58.4	4.50	1.45	3.05
360	60.9	70.0	5.39	2.18	3.21 *
540	72.8	83.7	6.44	3.27	3.17
720	82.8	95.2	7.33	4.35	2.98
1440	112.6	129.5	9.97	8.71	1.26
2880	131.4	151.1	11.63	17.42	----

Maximum storage required = 3.21 m3 (i.e. less than the effective volume of the soakaway of 3.24 m3).

Hence, soakaway with plan dimensions of 4.0 x 3.0 m with 0.90 m effective depth and containing 30% free volume is satisfactory.

Proposed Soakaway No. 3:

Refer to BRE Digest 365 in respect of design of the soakaway.

Design soakaway with contributing area of 115 m2.

The soil infiltration rate has been calculated at 1.60×10^{-5} m/s.

The return period rainfall depths for the site were obtained from Met Eireann Model – refer copy attached.

A 15% allowance for climate change factor was added to the rainfall depths as shown.

Assume soakaway with plan dimensions of 8.0 m x 3.5 m and with 0.70 m effective depth and containing 30% free volume.

The internal surface area of the soakaway to 50% of storage depth excluding base = 8.05 m2.

Effective volume of the proposed soakaway = 5.88 m3

Storm Duration (Mins)	Rainfall (mm)	Rainfall +15% (min)	Total Quantity (m3)	Outflow Quantity (m3)	Storage Quantity (m3)	
5	9.1	10.5	1.21	0.04	1.17	
10	12.7	14.6	1.68	0.08	1.60	
15	14.9	17.1	1.97	0.12	1.85	
30	20.3	23.3	2.68	0.23	2.45	
60	27.5	31.6	3.63	0.46	3.17	
120	37.4	43.0	4.95	0.93	4.02	
180	44.8	51.5	5.92	1.39	4.53	
240	50.8	58.4	6.72	1.85	4.87	
360	60.9	70.0	8.05	2.78	5.27	
540	72.8	83.7	9.63	4.17	5.46	*
720	82.8	95.2	10.95	5.56	5.39	
1440	112.6	129.5	14.89	11.12	3.77	
2880	131.4	151.1	17.38	22.26	----	

Maximum storage required = 5.46 m3 (i.e. less than the effective volume of the soakaway of 5.88 m3).

Hence, soakaway with plan dimensions of 8.0 m x 3.5 m with 0.70 m effective depth and containing 30% free volume is satisfactory.

The minimum distance from the soakaway to the dwelling-house will be 2.2 metres. Hence, it is proposed to use a shallower depth stone filled soakaway at this location. The invert level of the proposed soakaway shall not be lower than the invert level of the dwelling-house foundation.

Soakaways - General:

The soakaways shall be constructed strictly in accordance with the requirements of BRE Digest 365. A geotextile membrane shall be fitted around the sides and top of the granular fill in the soakaways. An inspection well with suitable access cover shall be incorporated into each soakaway.

The soakaways shall be located where shown on Drawing No. PP-22-02: Proposed Drainage Layout Plan. The following are the minimum distances from the proposed soakaways to the site boundaries:

Soakaway No. 1:	11.25 metres
Soakaway No. 2:	8.50 metres
Soakaway No. 3:	5.50 metres

Soakaway Nos. 1 and 2 shall be a minimum of 5.0 metres from the nearest building. Soakaway No. 1 shall also be located a minimum of 5.0 metres from the proposed Domestic Sewage Treatment Plant and from the proposed Sand Polishing Filter.

Soakaway No. 3, which shall be a shallow soakaway, shall be located a minimum distance of 2.2 metres from the existing dwelling-house. The invert level of the proposed soakaway shall not be lower than the invert level of the dwelling-house foundation. The excavated soakaway must be inspected by a qualified person prior to the filling of the soakaway with stone i.e. to ensure that the soakaway will not cause any damage to the dwelling-house.

The location and plan details of the soakaways are shown on Drawing No. PP-22-02 while section and details of the soakaways are shown on Drawing No. PP-22-10.

Grass Swale:

All of the surface water run-off from the existing tarmac driveway together with the proposed tarmac surface to the front (west Side) of Shed F shall be diverted through an Oil Inceptor Unit and shall discharge to the proposed Grass Swale located where shown on Drawing No. PP-22-02

A run-off coefficient of 0.9 has been assumed in the calculation of the surface water runoff from the tarmac surfaces.

Existing Driveway:	300 m2
Proposed Area to front of Shed F:	110 m2
	---
	410 m2

Contributing Area: 410 m2 x 0.9 = 369 m2 (say 370 m2)

The Class 1 By-Pass Petrol/Oil Interceptor Unit shall be designed to cater for contributing area of 370 m2.

Design Grass Swale for Contributing Area of 450 m2.

Allow for outflow through base of grass swale area = 45 m2.

The soil infiltration rate in the grass swale has been taken as 1.60×10^{-5} m/s (conservative).

Storm Duration (Mins)	Rainfall (mm)	Rainfall +15% (min)	Total Quantity (m3)	Outflow Quantity (m3)	Storage Quantity (m3)	
5	9.1	10.5	4.73	0.22	4.51	
10	12.7	14.6	6.57	0.43	6.14	
15	14.9	17.1	7.70	0.65	7.05	
30	20.3	23.3	10.49	1.30	9.19	
60	27.5	31.6	14.22	2.59	11.63	
120	37.4	43.0	19.35	5.18	14.17	
180	44.8	51.5	23.18	7.78	15.40	
240	50.8	58.4	26.28	10.37	15.91	
360	60.9	70.0	31.50	15.55	15.95	*
540	72.8	83.7	37.67	23.33	14.34	
720	82.8	95.2	42.84	31.10	11.74	
1440	112.6	129.5	58.28	62.21	------	

Hence, storage capacity required in Grass Swale = 15.95 m3.

Grass Swale shall have minimum storage capacity of 17.00 m3.

Top water level in Grass Swale: 190.30 mOD.

The Grass Swale shall be located where shown on Drawing No. PP-22-02: Proposed Drainage Layout Plan. Details of the Grass Swale are incorporated in the Landscape Architect's Drawings and Landscape Specification.

SuDS Management Plan:

As outlined above, the proposed surface water drainage system shall incorporate, where practical, green infrastructure measures to mitigate and compensate for the impact of the proposed development on the existing site. The measures should include additional landscaping features together with SUDS measures such as permeable paving, water butts for water recycling and grass swale.

Details of the proposed surface water drainage arrangements for the development, including green infrastructure and SuDS measures, are shown on Drawing No. PP-22-02: Proposed Drainage Layout Plan. Details of the landscaping measures are provided on the Landscape Architect's Drawings and Landscape Specification.

The applicant shall have prepared and implement a comprehensive maintenance plan in respect of the surface water system including maintenance of the soakaways and grass swale.

Signed: Patrick Joyce
Patrick C. Joyce
Patrick Joyce Associates

Date: 16th January 2023

APPLICANT: MR. GARY McKEON

EXISTING DEVELOPMENT AT GLASSAMUCKY, BOHERNABREENA, D.24

Met Eireann
Return Period Rainfall Depths for sliding Durations
Irish Grid: Easting: 309438, Northing: 223406,

	Interval		Years												
DURATION	6months,	1year,	2,	3,	4,	5,	10,	20,	30,	50,	75,	100,	150,	200,	250,	500,
5 mins	2.9,	4.2,	4.9,	5.9,	6.7,	7.2,	9.1,	11.2,	12.7,	14.7,	16.5,	18.0,	20.2,	21.9,	23.4,	N/A ,
10 mins	4.0,	5.8,	6.8,	8.3,	9.3,	10.1,	12.7,	15.7,	17.7,	20.5,	23.1,	25.0,	28.1,	30.5,	32.5,	N/A ,
15 mins	4.7,	6.8,	8.0,	9.7,	10.9,	11.8,	14.9,	18.4,	20.8,	24.1,	27.1,	29.5,	33.1,	35.9,	38.3,	N/A ,
30 mins	6.4,	9.3,	10.9,	13.2,	14.8,	16.1,	20.3,	25.0,	28.2,	32.8,	36.9,	40.0,	45.0,	48.8,	52.0,	N/A ,
1 hours	8.8,	12.6,	14.7,	18.0,	20.1,	21.9,	27.5,	34.0,	38.4,	44.5,	50.1,	54.4,	61.1,	66.3,	70.7,	N/A ,
2 hours	11.9,	17.2,	20.0,	24.4,	27.4,	29.7,	37.4,	46.3,	52.2,	60.5,	68.0,	73.9,	83.0,	90.1,	96.0,	N/A ,
3 hours	14.3,	20.5,	24.0,	29.2,	32.8,	35.6,	44.8,	55.3,	62.4,	72.4,	81.4,	88.5,	99.3,	107.8,	114.9,	N/A ,
4 hours	16.2,	23.3,	27.2,	33.2,	37.2,	40.4,	50.8,	62.9,	70.9,	82.3,	92.5,	100.5,	112.8,	122.5,	130.6,	N/A ,
6 hours	19.4,	27.9,	32.6,	39.7,	44.5,	48.3,	60.9,	75.2,	84.8,	98.5,	110.7,	120.3,	135.1,	146.6,	156.3,	N/A ,
9 hours	23.2,	33.4,	39.0,	47.5,	53.3,	57.9,	72.8,	90.1,	101.6,	117.9,	132.5,	143.9,	161.7,	175.5,	187.0,	N/A ,
12 hours	26.3,	38.0,	44.3,	54.0,	60.6,	65.7,	82.8,	102.3,	115.4,	133.9,	150.5,	163.5,	183.7,	199.4,	212.5,	N/A ,
18 hours	31.5,	45.5,	53.1,	64.6,	72.5,	78.7,	99.1,	122.5,	138.1,	160.3,	180.2,	195.8,	219.9,	238.7,	254.4,	N/A ,
24 hours	35.8,	51.7,	60.3,	73.4,	82.4,	89.4,	112.6,	139.2,	156.9,	182.1,	204.8,	222.4,	249.8,	271.2,	289.0,	352.1,
2 days	46.2,	64.6,	74.4,	89.0,	98.8,	106.5,	131.4,	159.4,	177.9,	203.8,	226.8,	244.5,	271.9,	293.0,	310.5,	371.8,
3 days	54.7,	75.0,	85.6,	101.5,	112.0,	120.2,	146.6,	176.0,	195.1,	221.8,	245.3,	263.4,	291.1,	312.5,	330.1,	391.2,
4 days	62.2,	84.1,	95.5,	112.3,	123.5,	132.1,	159.8,	190.3,	210.1,	237.6,	261.7,	280.1,	308.3,	329.9,	347.6,	409.1,
6 days	75.3,	100.0,	112.7,	131.2,	143.4,	152.8,	182.6,	215.1,	236.0,	264.9,	290.0,	309.1,	338.1,	360.3,	378.5,	440.9,
8 days	87.1,	114.0,	127.8,	147.7,	160.8,	170.8,	202.4,	236.7,	258.5,	288.5,	314.5,	334.3,	364.1,	386.9,	405.5,	468.9,
10 days	97.9,	126.9,	141.6,	162.8,	176.6,	187.2,	220.3,	256.1,	278.8,	309.9,	336.7,	357.0,	387.6,	410.8,	429.8,	494.3,
12 days	108.1,	138.9,	154.4,	176.8,	191.3,	202.3,	236.9,	274.0,	297.5,	329.5,	357.0,	377.8,	409.1,	432.8,	452.1,	517.7,
16 days	127.1,	161.2,	178.2,	202.5,	218.2,	230.1,	267.2,	306.6,	331.5,	365.1,	393.9,	415.6,	448.2,	472.7,	492.7,	560.0,
20 days	144.8,	181.7,	200.0,	226.0,	242.8,	255.4,	294.7,	336.2,	362.2,	397.3,	427.3,	449.7,	483.4,	508.7,	529.2,	598.2,
25 days	165.7,	205.8,	225.5,	253.4,	271.3,	284.8,	326.4,	370.2,	397.5,	434.2,	465.4,	488.7,	523.5,	549.7,	570.8,	641.6,

NOTES:
N/A Data not available
These values are derived from a Depth Duration Frequency (DDF) Model
For details refer to:
'Fitzgerald D. L. (2007), Estimates of Point Rainfall Frequencies, Technical Note No. 61, Met Eireann, Dublin',
Available for download at www.met.ie/climate/dataproducts/Estimation-of-Point-Rainfall-Frequencies_TN61.pdf

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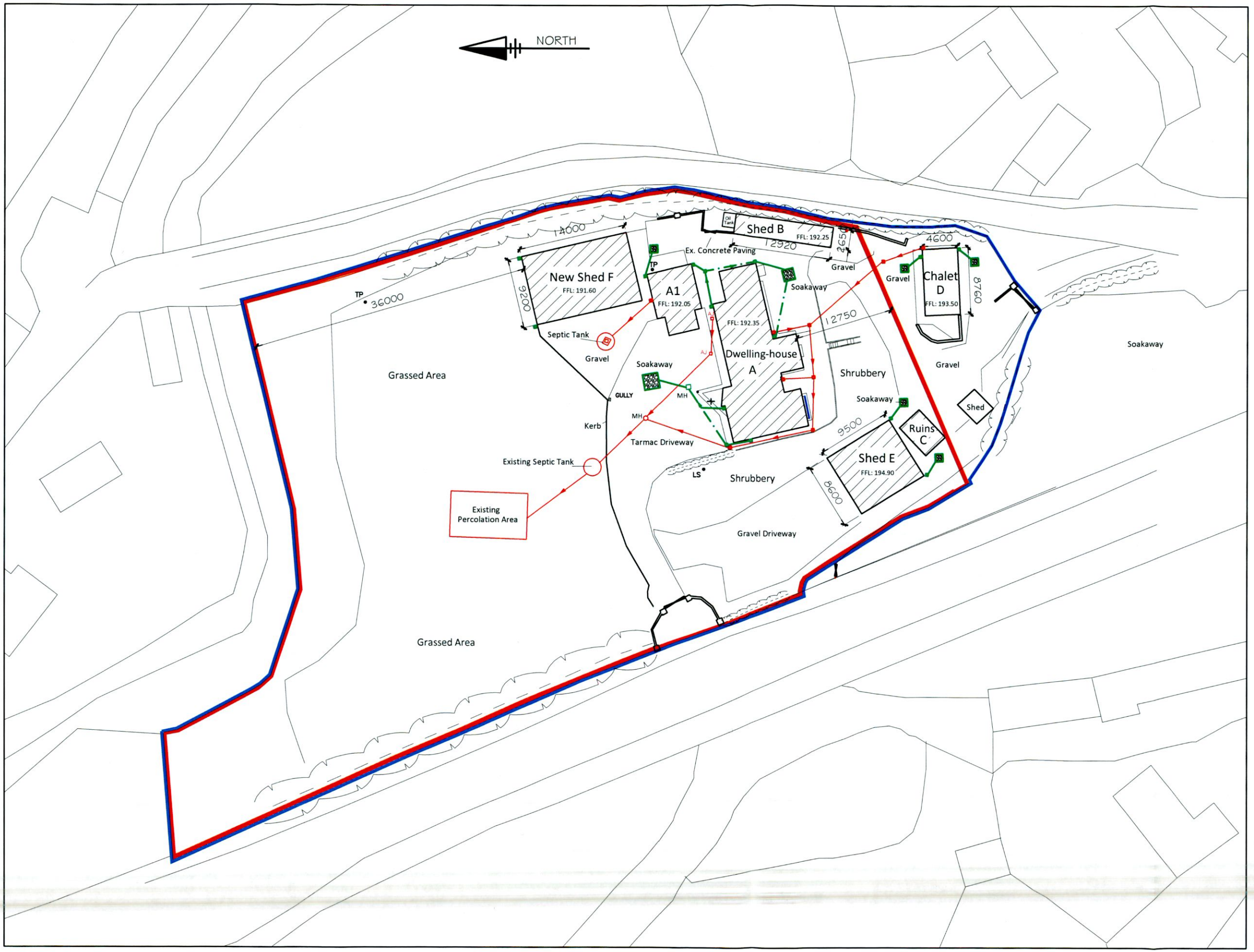

EXISTING SITE LAYOUT PLAN SCALE 1:500 (A3)

ISSUED FOR PLANNING PERMISSION PURPOSES ONLY

NOTES:

The two existing septic tanks shall be decommissioned and replaced with new sewerage treatment plant and sand polishing filter

Existing foul drain from the Building (A1) shall be disconnected

Existing foul drain from the Chalet (D) shall be disconnected

MCGILLEN DESIGN SERVICES
PLANNING AND PROJECT MANAGEMENT

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BLESSINGTON, M: (087) 646 9079
CO. WICKLOW. E: petermcgillen@hotmail.com

REV	DESCRIPTION	BY	APPR	DATE
F	ISSUED FOR ADDITIONAL INFORMATION PURPOSES	P.J.	P.J.	14.01.23
E	ISSUED FOR PLANNING PERMISSION PURPOSES	P.J.	P.J.	26.05.22
D	ISSUED FOR PLANNING PERMISSION PURPOSES	P.J.	P.J.	07.03.22
C	ISSUED FOR APPROVAL	P.J.	P.J.	10.02.22
B	LEVELS ADDED	P.J.	P.J.	01.10.21
A	PRELIMINARY	P.J.	P.J.	26.07.21

CLIENT
MR. GARY McKEON

PROJECT
EXISTING DEVELOPMENT AT GLASSAMUCKY, BOHERNABREENA, DUBLIN 24

TITLE
EXISTING DRAINAGE LAYOUT PLAN

PATRICK JOYCE ASSOCIATES
CONSULTING ENGINEERS

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Stocking Lane
Rathfarnham
Dublin 16

Telephone: (01) 494 6745
E-Mail: patrickjoyceassociates@gmail.com

DESIGNED:	CHECKED:	APPRD:
P.J.	P.J.	P.J.
DRAWN:	DATE:	SCALE:
P.J.	JULY–2021	1:500

DRG. No. EX/22/03 REV. F

SOAKAWAY NO. 1 :
50.0 m2 plan x 1.35 m effective depth

SOAKAWAY NO. 2:
4.0 m x 3.0 m x 0.90 m effective depth

SOAKAWAY NO. 3:
8.0 m x 3.5 m x 0.70 m effective depth

MCGILLEN DESIGN SERVICES
PLANNING AND PROJECT MANAGEMENT

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BLESSINGTON, M: (087) 646 9079
CO. WICKLOW. E: petermcgillen@hotmail.com

REV	DESCRIPTION	BY	APPR.	DATE
G	ISSUED FOR ADDITIONAL INFORMATION PURPOSES	P.J.	P.J.	14.01.23
F	ISSUED FOR APPROVAL	P.J.	P.J.	16.12.22
E	ISSUED FOR PLANNING PERMISSION PURPOSES	P.J.	P.J.	26.05.22
D	ISSUED FOR PLANNING PERMISSION PURPOSES	P.J.	P.J.	07.03.22
C	ISSUED FOR APPROVAL	P.J.	P.J.	10.02.22
B	LEVELS ADDED	P.J.	P.J.	01.10.21
A	PRELIMINARY	P.J.	P.J.	26.07.21

CLIENT
MR. GARY McKEON

PROJECT
EXISTING DEVELOPMENT AT GLASSAMUCKY, BOHERNABREENA, DUBLIN 24

TITLE
PROPOSED DRAINAGE LAYOUT PLAN

PATRICK JOYCE ASSOCIATES
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DESIGNED:	CHECKED:	APPR'D:
P.J.	P.J.	P.J.
DRAWN:	DATE:	SCALE:
P.J.	JULY-2021	1:500(A3)

DRG.No. PP/22/02 REV. G

RPOSES ONLY

APPLICANT: MR. GARY McKEON

EXISTING DEVELOPMENT AT GLASSAMUCKY,
BOHERNABREENA, DUBLIN 24

SURFACE WATER SOAKAWAY INFILTRATION RATE

The applicant arranged for the excavation of 2 No. trial pits on the above site at the locations shown on the attached Location Plan.

As requested, I carried out soil infiltration tests in accordance with the requirements of BRE Digest 365 – refer attached photographs.

There was no ground water present in either of the trial pits.

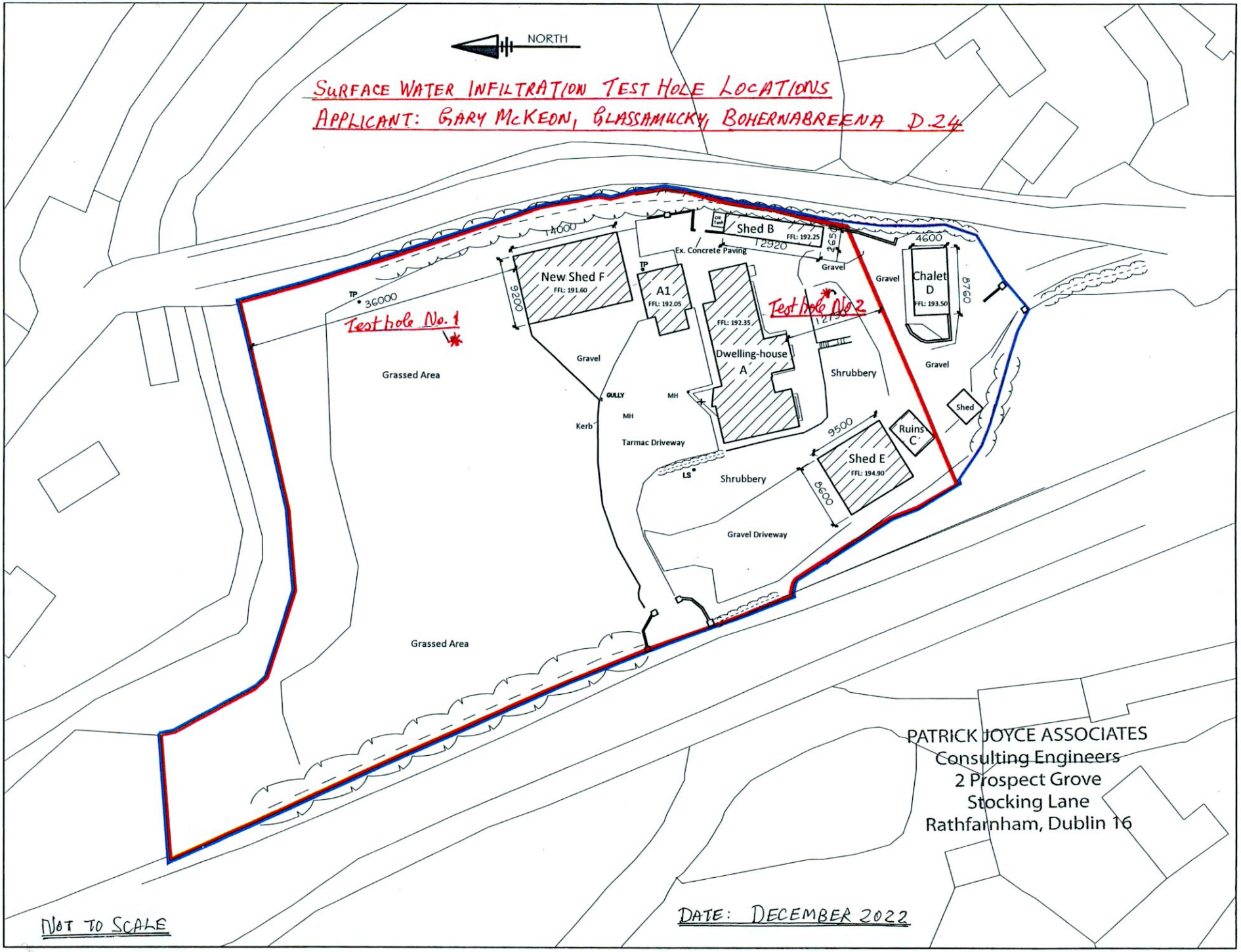
The soil infiltration rates were calculated as follows in respect of the trial pits:

Trial Pit No. 1: 1.90×10^{-5} m/s.

Trial Pit No. 2: 1.60×10^{-5} m/s.

It is proposed to use the lower soil infiltration rate in the proposed soakaway design calculations.

Design Soil Infiltration Rate: 1.60×10^{-5} m/s.


NORTH
SURFACE WATER INFILTRATION TEST HOLE LOCATIONS
APPLICANT: GARY McKEON, GLASSAMUCKY, BOHERNABREENA D.24
Test hole No. 1
Test hole No 2
New Shed F
FFL: 191.60
A1
FFL: 192.05
Shed B
FFL: 192.25
Ex. Concrete Paving
Gravel
Chalet D
FFL: 193.50
Dwelling-house A
FFL: 192.35
Shrubbery
Shed
Ruins C
Shed E
FFL: 194.90
Grassed Area
Tarmac Driveway
Kerb
GULLY
MH
LS
Gravel Driveway
4000
2920
4600
9200
8760
9500
8600
PATRICK JOYCE ASSOCIATES
Consulting Engineers
2 Prospect Grove
Stocking Lane
Rathfarnham, Dublin 16
NOT TO SCALE
DATE: DECEMBER 2022

PHOTOGRAPH NO. 1 - TRIAL PIT NO. 1

PHOTOGRAPH NO. 2 - TRIAL PIT NO. 2