Waste Water
Maintenance Limited

# SITE CHARACTERISATION REPORT

**Ref:** **Henry O'Kelly**
**Beechlawn**
**Killakee**
**Rathfarnham**
**Dublin 16**

**DATE:** **27 April 2022**

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## Site Assessment Summary:

- Groundwater: Not Encountered at 2.1m
- Bedrock: Not Encountered at 2.1m
- Subsurface Value: 8
- Surface Value: N/A
- Well: >40m Upgradient

*Professional Waste Water Services*

PO Box 1014, Blessington Road, Naas, Co. Kildare Tel: 045-447585 email: info@wastewater.ie

Based on the findings of the site assessment the following is recommended:

**Recommended:**

1. Install a 6PE Tricel (En & SR66 certified) sewage treatment plant
2. Install 4 X 10m long subsurface percolation trenches
3. Install a distribution box
4. Install vent pipes at the end of the trenches

**Report & Recommendations prepared by: Waste Water Maintenance Ltd.**

# Site Pictures

Family Home, Site Views, Test location view & family business – Timber Trove / Sawmills

# Site Pictures

Subsurface tests & trail pit

# SITE CHARACTERISATION FORM
## COMPLETING THE FORM

**Note:** This form requires the latest version of Adobe Acrobat Reader

and on PC's Windows 7 or later. Windows XP produces errors in calculations

**Step 1:**

Goto Menu Item **File, Save As** and save the file under a reference relating to the client or the planning application reference if available.


Use the **Clear Form** button to clear all information fields.

**Notes:**

All calculations in this form are automatic.

Where possible information is presented in the form of drop down selection lists to eliminate potential errors.

Variable elements are recorded by tick boxes. In all cases only one tick box should be activated.

All time record fields must be entered in twenty four hour format as follows: HH:MM

All date formats are DD-MM-YYYY.

All other data fields are in text entry format.

This form can be printed out fully populated for submission with related documents and for your files. It can also be submitted by email.

**Section 3.2** In this section use an underline _____ across all six columns to indicate the depth at which changes in classification / characteristics occur.

**Section 3.4** Lists supporting documentation required.

**Section 4** Select the treatment systems suitable for this site and the discharge route.

**Section 5** Indicate the system type that it is proposed to install.

**Section 6** Provide details, as required, on the proposed treatment system.

# **APPENDIX A:** SITE CHARACTERISATION FORM

File Reference:

## 1.0 GENERAL DETAILS (From planning application)

Prefix: Mr First Name: Henry Surname: O'Kelly

Address: Beechlawn, Killakee, Rathfarnham, Dublin 16

Site Location and Townland: Same - proposed new on-site sewage system

Number of Bedrooms: 3 Maximum Number of Residents: 5

Comments on population equivalent

Proposed Water Supply:

Mains ☐ Private Well/Borehole ☑ Existing well on-site | Group Well/Borehole ☐

## 2.0 GENERAL DETAILS (From planning application)

Soil Type, (Specify Type): Brown Podzolics / Acid Brown Earths

Subsoil, (Specify Type): Granite & metamorphic till

Bedrock Type: Granites & other Igneous Intrusive Rocks / Ordovician Metasediments

Aquifer Category: Regionally Important | Locally Important LI | Poor

Vulnerability: Extreme ☑ High ☐ Moderate ☐ Low ☐

Groundwater Body: Kilcullen Status

Name of Public/Group Scheme Water Supply within 1 km:

Source Protection Area: ZOC ☐ SI ☐ SO ☐ Groundwater Protection Response:

Presence of Significant Sites (Archaeological, Natural & Historical): Massy's Estate Woods to the West & South

Past experience in the area: Areas of good soakage in often very sandy (granite) gravelly subsoils

Comments:

(Integrate the information above in order to comment on: the potential suitability of the site, potential targets at risk, and/or any potential site restrictions).

Ground water / aquifer are targets

**Note:** Only information available at the desk study stage should be used in this section.

## 3.0 ON-SITE ASSESSMENT

### 3.1 Visual Assessment

Landscape Position: Hilly

Slope: Steep (>1:5) ☐ Shallow (1:5-1:20) ☑ Relatively Flat (<1:20) ☐

Slope Comment: Gradual slope W to E

Surface Features within a minimum of 250m (Distance To Features Should Be Noted In Metres)

Houses:

Existing family home W 30m
Timber Trove (O'Kellys Sawmills) NW 80m
House to the SW >100m
Family Home SE >80m (Mother / Mother inlaw)
Houses N>200m

Existing Land Use:

Existing family home & gardens with agricultural fields to the East

Vegetation Indicators:

No soakage indicators noted

Groundwater Flow Direction: West to East

Ground Condition:

Firm underfoot on test days - dry sunny weather on both days

Site Boundaries:

Hedging on the E & N sides with wire fencing and open fields.

## 3.0 ON-SITE ASSESSMENT

### 3.1 Visual Assessment (contd.)

Roads:

Killakee Road passes the driveway entrance to the house

Outcrops (Bedrock And/Or Subsoil):

None

Surface Water Ponding:

None on test days

Lakes:

None within 250m

Beaches/Shellfish Areas:

None within 250m

Wetlands:

None within 250m

Karst Features:

None

Watercourses/Streams:*

>100m to the south

***Note and record** water level

## 3.0 ON-SITE ASSESSMENT

### 3.1 Visual Assessment (contd.)

Drainage Ditches:*

None

Springs:*

No springs noted

Wells:*

Well serving the family home upgradient >40m to the NW

Comments:

(Integrate the information above in order to comment on: the potential suitability of the site, potential targets at risk, the suitability of the site to treat the wastewater and the location of the proposed system within the site).

The family home is served by a very old septic tank located in the rear SW corner of the garden and drains into a soak-pit. The system is over 40 years old and there are no recorded issues and no visible signs of any soakage issues. However it is proposed to install a modern waste water system directly behind the house >10m from the wall of the house.

***Note and record** water level

**3.2 Trial Hole** (should be a minimum of 2.1m deep (3m for regionally important aquifers))

To avoid any accidental damage, a trial hole assessment or percolation tests should not be undertaken in areas which are at or adjacent to significant sites, (e.g. NHAs, SACs, SPAs, and/or Archaeological etc.), without prior advice from National Parks and Wildlife Service or the Heritage Service.

Depth of trial hole (m): 2.1

Depth from ground surface to bedrock (m) (if present):

Depth from ground surface to water table (m) (if present):

Depth of water ingress:

Rock type (if present): No rock or groundwater encountered at 2.1m

Date and time of excavation: 22-Apr-2022

Date and time of examination: 27-Apr-2022 09:30

| Depth of Surface and Subsurface Percolation Tests | Soil/Subsoil Texture & Classification** | Plasticity and dilatancy*** | Soil Structure | Density/ Compactness | Colour**** | Preferential flowpaths |
|---|---|---|---|---|---|---|
| 0.1 m | slightly sandy slightly gravelly SILT/CLAY 0-0.2m | Threads 5/3/3 Ribbons 85/60mm Dilates | Crumb | Firm | Brown | Rootlets |
| 0.2 m | | | | | | |
| 0.3 m | | | | | | |
| 0.4 m | | | | | | |
| 0.5 m | | | | | | |
| 0.6 m | very sandy gravelly SILT with occasional cobbles 0.2-1.3m | Threads 4/3/1 Ribbons 50/30mm Dilates | Blocky | Firm / Soft | Brown | Random |
| 0.7 m | | | | | | |
| 0.8 m | | | | | | |
| 0.9 m | | | | | | |
| 1.0 m | | | | | | |
| 1.1 m | | | | | | |
| 1.2 m | | | | | | |
| 1.3 m | | | | | | |
| 1.4 m | | | | | | |
| 1.5 m | sandy gravelly SILT/CLAY with occasional cobbles & boulders 1.3-2.1m | Threads 5/3/2 Ribbons 70/60mm Dilates | Blocky | Firm / Soft | Brown | Random |
| 1.6 m | | | | | | |
| 1.7 m | | | | | | |
| 1.8 m | | | | | | |
| 1.9 m | | | | | | |
| 2.0 m | | | | | | |
| 2.1 m | | | | | | |
| 2.2 m | END OF PIT AT 2.1M | | | | | |
| 2.3 m | | | | | | |
| 2.4 m | | | | | | |
| 2.5 m | | | | | | |
| 2.6 m | | | | | | |
| 2.7 m | | | | | | |
| 2.8 m | | | | | | |
| 2.9 m | | | | | | |
| 3.0 m | | | | | | |
| 3.1 m | | | | | | |
| 3.2 m | | | | | | |
| 3.3 m | | | | | | |
| 3.4 m | | | | | | |
| 3.5 m | | | | | | |

Likely Subsurface Percolation Value:

Likely Surface Percolation Value:

**Note:** *Depth of percolation test holes should be indicated on log above. ('Enter Surface or Subsurface at depths as appropriate).

** See Appendix E for BS 5930 classification.

*** 3 samples to be tested for each horizon and results should be entered above for each horizon.

**** All signs of mottling should be recorded.

**3.2 Trial Hole (contd.)** Evaluation:

No seepage or mottling noted in the pit walls.
Groundwater is not a target

**3.3(a) Subsurface Percolation Test for Subsoil**

**Step 1:** Test Hole Preparation

| **Percolation Test Hole** | 1 | 2 | 3 |
|---|---|---|---|
| Depth from ground surface to top of hole (mm) (A) | 800 | 800 | 800 |
| Depth from ground surface to base of hole (mm) (B) | 1,200 | 1,200 | 1,200 |
| Depth of hole (mm) [B - A] | 400 | 400 | 400 |
| Dimensions of hole [length x breadth (mm)] | 300 x 300 | 300 x 300 | 300 x 300 |

**Step 2:** Pre-Soaking Test Holes

| | | 1 | 2 | 3 |
|---|---|---|---|---|
| Pre-soak start | Date | 26-Apr-2022 | 26-Apr-2022 | 26-Apr-2022 |
| | Time | 09:34 | 09:37 | 09:40 |
| 2nd pre-soak start | Date | 26-Apr-2022 | 26-Apr-2022 | 26-Apr-2022 |
| | Time | 15:12 | 15:14 | 15:15 |

Each hole should be pre-soaked twice before the test is carried out.

**Step 3:** Measuring $T_{100}$

| **Percolation Test Hole No.** | 1 | 2 | 3 |
|---|---|---|---|
| Date of test | 27-04-2022 | 27-04-2022 | 27-04-2022 |
| Time filled to 400 mm | 09:33 | 09:34 | 09:34 |
| Time water level at 300 mm | 10:02 | 10:02 | 09:51 |
| Time (min.) to drop 100 mm ($T_{100}$) | 29.00 | 28.00 | 17.00 |
| Average $T_{100}$ | | | 24.67 |

If $T_{100}$ > 480 minutes then Subsurface Percolation value >120 – site unsuitable for discharge to ground
If $T_{100} \leq 210$ minutes then go to Step 4;
If $T_{100}$ > 210 minutes then go to Step 5;

**Step 4:** Standard Method (where $T_{100} \leq 210$ minutes)

| Percolation Test Hole | 1 | | | 2 | | | 3 | | |
|---|---|---|---|---|---|---|---|---|---|
| Fill no. | Start Time (at 300 mm) | Finish Time (at 200 mm) | Δt (min) | Start Time (at 300 mm) | Finish Time (at 200 mm) | Δt (min) | Start Time (at 300 mm) | Finish Time (at 200 mm) | Δt (min) |
| 1 | 10:02 | 10:34 | 32.00 | 10:02 | 10:32 | 30.00 | 09:51 | 10:11 | 20.00 |
| 2 | 10:34 | 11:07 | 33.00 | 10:32 | 11:09 | 37.00 | 10:11 | 10:35 | 24.00 |
| 3 | 11:04 | 11:40 | 36.00 | 11:09 | 11:53 | 44.00 | 10:35 | 11:02 | 27.00 |
| Average Δt Value | | | 33.67 | | | 37.00 | | | 23.67 |
| | Average Δt/4 = [Hole No.1] | | 8.42 ($t_1$) | Average Δt/4 = [Hole No.2] | | 9.25 ($t_2$) | Average Δt/4 = [Hole No.3] | | 5.92 ($t_3$) |

Result of Test: Subsurface Percolation Value = 7.86 (min/25 mm)

Comments:

Good soakage recorded in the tested subsoil. Subsoil is considered suitable for the treatment of effluent

**Step 5:** Modified Method (where $T_{100} > 210$ minutes)

Percolation Test Hole No. 1

| Fall of water in hole (mm) | Time Factor = $T_f$ | Start Time hh:mm | Finish Time hh:mm | Time of fall (mins) = $T_m$ | $K_{fs} = T_f / T_m$ | T – Value = 4.45 / $K_{fs}$ |
|---|---|---|---|---|---|---|
| 300 - 250 | 8.1 | | | 0.00 | | |
| 250 - 200 | 9.7 | | | 0.00 | | |
| 200 - 150 | 11.9 | | | 0.00 | | |
| 150 - 100 | 14.1 | | | 0.00 | | |
| Average | T- Value | | T- Value Hole 1 = ($T_1$) | | | 0.00 |

Percolation Test Hole No. 2

| Fall of water in hole (mm) | Time Factor = $T_f$ | Start Time hh:mm | Finish Time hh:mm | Time of fall (mins) = $T_m$ | $K_{fs} = T_f / T_m$ | T – Value = 4.45 / $K_{fs}$ |
|---|---|---|---|---|---|---|
| 300 - 250 | 8.1 | | | 0.00 | | |
| 250 - 200 | 9.7 | | | 0.00 | | |
| 200 - 150 | 11.9 | | | 0.00 | | |
| 150 - 100 | 14.1 | | | 0.00 | | |
| Average | T- Value | | T- Value Hole 2 = ($T_2$) | | | 0.00 |

Result of Test: Subsurface Percolation Value = 0.00 (min/25 mm)

Percolation Test Hole No. 3

| Fall of water in hole (mm) | Time Factor = $T_f$ | Start Time hh:mm | Finish Time hh:mm | Time of fall (mins) = $T_m$ | $K_{fs} = T_f / T_m$ | T – Value = 4.45 / $K_{fs}$ |
|---|---|---|---|---|---|---|
| 300 - 250 | 8.1 | | | 0.00 | | |
| 250 - 200 | 9.7 | | | 0.00 | | |
| 200 - 150 | 11.9 | | | 0.00 | | |
| 150 - 100 | 14.1 | | | 0.00 | | |
| Average | T- Value | | T- Value Hole 3 = ($T_2$) | | | 0.00 |

Comments:

### 3.3(b) Surface Percolation Test for Soil

**Step 1:** Test Hole Preparation

| Percolation Test Hole | 1 | 2 | 3 |
|---|---|---|---|
| Depth from ground surface to top of hole (mm) | 0 | 0 | 0 |
| Depth from ground surface to base of hole (mm) | | | |
| Depth of hole (mm) | 0 | 0 | 0 |
| Dimensions of hole [length x breadth (mm)] | x | x | x |

**Step 2:** Pre-Soaking Test Holes

| | | | | |
|---|---|---|---|---|
| Pre-soak start | Date | | | |
| | Time | | | |
| 2nd pre-soak start | Date | | | |
| | Time | | | |

Each hole should be pre-soaked twice before the test is carried out.

**Step 3:** Measuring $T_{100}$

| Percolation Test Hole No. | 1 | 2 | 3 |
|---|---|---|---|
| Date of test | | | |
| Time filled to 400 mm | | | |
| Time water level at 300 mm | | | |
| Time to drop 100 mm ($T_{100}$) | 0.00 | 0.00 | 0.00 |
| Average $T_{100}$ | | | 0.00 |

If $T_{100}$ > 480 minutes then Surface Percolation value >90 – site unsuitable for discharge to ground
If $T_{100} \leq 210$ minutes then go to Step 4;
If $T_{100}$ > 210 minutes then go to Step 5;

**Step 4:** Standard Method (where $T_{100} \leq 210$ minutes)

| Percolation Test Hole | 1 | | | 2 | | | 3 | | |
|---|---|---|---|---|---|---|---|---|---|
| Fill no. | Start Time (at 300 mm) | Finish Time (at 200 mm) | ΔT (min) | Start Time (at 300 mm) | Finish Time (at 200 mm) | ΔT (min) | Start Time (at 300 mm) | Finish Time (at 200 mm) | ΔT (min) |
| 1 | | | 0.00 | | | 0.00 | | | 0.00 |
| 2 | | | 0.00 | | | 0.00 | | | 0.00 |
| 3 | | | 0.00 | | | 0.00 | | | 0.00 |
| Average ΔT Value | | | 0.00 | | | 0.00 | | | 0.00 |

Average ΔT/4 = [Hole No.1] 0.00 ($T_1$)

Average ΔT/4 = [Hole No.2] 0.00 ($T_2$)

Average ΔT/4 = [Hole No.3] 0.00 ($T_3$)

Result of Test: Surface Percolation Value = 0.00 (min/25 mm)

Comments:

**Step 5:** Modified Method (where $T_{100} > 210$ minutes)

Percolation Test Hole No. 1

| Fall of water in hole (mm) | Time Factor = $T_f$ | Start Time hh:mm | Finish Time hh:mm | Time of fall (mins) = $T_m$ | $K_{fs} = T_f / T_m$ | T – Value = 4.45 / $K_{fs}$ |
|---|---|---|---|---|---|---|
| 300 - 250 | 8.1 | | | 0.00 | | |
| 250 - 200 | 9.7 | | | 0.00 | | |
| 200 - 150 | 11.9 | | | 0.00 | | |
| 150 - 100 | 14.1 | | | 0.00 | | |
| Average | T- Value | | T- Value Hole 1 = ($T_1$) | | | 0.00 |

Percolation Test Hole No. 2

| Fall of water in hole (mm) | Time Factor = $T_f$ | Start Time hh:mm | Finish Time hh:mm | Time of fall (mins) = $T_m$ | $K_{fs} = T_f / T_m$ | T – Value = 4.45 / $K_{fs}$ |
|---|---|---|---|---|---|---|
| 300 - 250 | 8.1 | | | 0.00 | | |
| 250 - 200 | 9.7 | | | 0.00 | | |
| 200 - 150 | 11.9 | | | 0.00 | | |
| 150 - 100 | 14.1 | | | 0.00 | | |
| Average | T- Value | | T- Value Hole 2 = ($T_2$) | | | 0.00 |

Result of Test: Surface Percolation Value = 0.00 (min/25 mm)

Percolation Test Hole No. 3

| Fall of water in hole (mm) | Time Factor = $T_f$ | Start Time hh:mm | Finish Time hh:mm | Time of fall (mins) = $T_m$ | $K_{fs} = T_f / T_m$ | T – Value = 4.45 / $K_{fs}$ |
|---|---|---|---|---|---|---|
| 300 - 250 | 8.1 | | | 0.00 | | |
| 250 - 200 | 9.7 | | | 0.00 | | |
| 200 - 150 | 11.9 | | | 0.00 | | |
| 150 - 100 | 14.1 | | | 0.00 | | |
| Average | T- Value | | T- Value Hole 3 = ($T_2$) | | | 0.00 |

Comments:

**3.4 The following associated Maps, Drawings and Photographs should be appended to this site characterisation form.**

1. Discovery Series 1:50,000 Map indicating overall drainage, groundwater flow direction and housing density in the area.
2. Supporting maps for vulnerability, aquifer classification, soil, subsoil, bedrock.
3. North point should always be included.
4. (a) Scaled sketch of site showing measurements to Trial Hole location and
   (b) Percolation Test Hole locations,
   (c) wells and
   (d) direction of groundwater flow (if known),
   (e) proposed house (incl. distances from boundaries)
   (f) adjacent houses,
   (g) watercourses,
   (h) significant sites
   (i) and other relevant features.
5. Site specific cross sectional drawing of the site and the proposed layout[1] should be submitted.
6. Photographs of the trial hole, test holes and site including landmarks (date and time referenced).
7. Pumped design must be designed by a suitably qualified person.

[1] The calculated percolation area or polishing filter area should be set out accurately on the site layout drawing in accordance with the code of practice's requirements.

## 4.0 CONCLUSION of SITE CHARACTERISATION

Integrate the information from the desk study and on-site assessment (i.e. visual assessment, trial hole and percolation tests) above and conclude the type of system(s) that is (are) appropriate. This information is also used to choose the optimum final disposal route of the treated wastewater.

Slope of proposed infiltration / treatment area: 1:200

Are all minimum separation distances met? ✓

Depth of unsaturated soil and/or subsoil beneath invert of gravel (or drip tubing in the case of drip dispersal system)

Percolation test result: Surface: Sub-surface: 8.00

**Not Suitable for Development** ☐ **Suitable for Development** ✓

**Identify all suitable options**

1. Septic tank system (septic tank and percolation area) **(Chapter 7)** — No
2. Secondary Treatment System **(Chapters 8 and 9)** and soil polishing filter **(Section 10.1)** — Yes
3. Tertiary Treatment System and Infiltration / treatment area **(Section 10.2)** — Yes

**Discharge Route** [1]

Proposed to install a sewage treatment plant and subsurface trench soil polishing filter with a final discharge to ground water.

## 5.0 SELECTED DWWTS

Propose to install: Secondary Treatment System and soil polishing filter

and discharge to: Ground Water

Invert level of the trench/bed gravel or drip tubing (m) 0.70

Site Specific Conditions (e.g. special works, site improvement works testing etc.

Based on the site assessment the site is considered suitable for an on-site sewage system. It is proposed to install a new sewage treatment plant in conjunction with a constructed subsurface trench soil polishing filter to replace the existing very old single chamber septic tank and soak-pit. Subject to approval by the County Council.

The system must be installed in accordance with the EPA CoP 2021.

Only foul and grey water to discharge to the sewage system.
Storm water must not be allowed into the sewage system.

NOTE:
The existing septic tank serving the existing house must be desludged and decommissioned appropriately. The tank must be desludged and washed down before dosing with lime, breaking the floor of the tank and filling in the tank with soil.

[1] A discharge of sewage effluent to "waters" (definition includes any or any part of any river, stream, lake, canal, reservoir, aquifer, pond, watercourse or other inland waters, whether natural or artificial) will require a licence under the Water Pollution Acts 1977-90. Refer to Section 2.4.

## 6.0 TREATMENT SYSTEM DETAILS

**SYSTEM TYPE: Septic Tank Systems (Chapter 7)**

| Tank Capacity ($m^3$) | | Percolation Area | | Mounded Percolation Area | |
|---|---|---|---|---|---|
| | | No. of Trenches | | No. of Trenches | |
| | | Length of Trenches (m) | | Length of Trenches (m) | |
| | | Invert Level (m) | | Invert Level (m) | |

**SYSTEM TYPE: Secondary Treatment System (Chapters 8 and 9) and polishing filter (Section 10.1)**

**Secondary Treatment Systems receiving septic tank effluent (Chapter 8)**

| Media Type | Area ($m^2$)* | Depth of Filter | Invert Level |
|---|---|---|---|
| Sand/Soil | | | |
| Soil | | | |
| Constructed Wetland | | | |
| Other | | | |

**Packaged Secondary Treatment Systems receiving raw wastewater (Chapter 9)**

Type: Tricel Treatment Plant

Capacity PE: 6

Sizing of Primary Compartment: ____ $m^3$

**Polishing Filter*: (Section 10.1)**

Surface Area ($m^2$)*:

Option 1 - Direct Discharge Surface area ($m^2$):

Option 2 - Pumped Discharge Surface area ($m^2$):

Option 3 - Gravity Discharge Trench length (m): 40.00

Option 4 - Low Pressure Pipe Distribution Trench length (m):

Option 5 - Drip Dispersal Surface area ($m^2$):

**SYSTEM TYPE: Tertiary Treatment System and infiltration / treatment area (Section 10.2)**

| Identify purpose of tertiary treatment | Provide performance information demonstrating system will provide required treatment levels | Provide design information |
|---|---|---|
| | Tricel STP En & SR66 Certified<br>BOD 95.9<br>SS 95.3<br>NH4-N 74.9 | Sewage Treatment Plant and a subsurface trench soil polishing filter with final discharge to ground water |

**DISCHARGE ROUTE:**

| | | | | | |
|---|---|---|---|---|---|
| Groundwater | ✓ | Hydraulic Loading Rate * ($l/m^2.d$) | 750.00 | Surface area ($m^2$) | |
| Surface Water ** | | Discharge Rate ($m^3/hr$) | 0.03 | | |

* Hydraulic loading rate is determined by the percolation rate of subsoil

** Water Pollution Act discharge licence required

## 6.0 TREATMENT SYSTEM DETAILS

**QUALITY ASSURANCE:**

Installation & Commissioning

The installation must be supervised by suitably qualified person with a Completion Report prepared to include photographic evidence on completion of works.

On-going Maintenance

The system must be desludged annual or in accordance with the manufacturers instructions and serviced at least once every year by a suitably qualified person.

## 7.0 SITE ASSESSOR DETAILS

Company: Waste Water Maintenance Limited

Prefix: Mr First Name: Aidan Surname: Comerford

Address: 149 Woodfield, Scholarstown Road, Rathfarnham, Dublin 16

Qualifications/Experience: EPA SIte Assessor, Dip. Environmental Impact & Strategic Impact Assessment

Date of Report: 27-Apr-2022

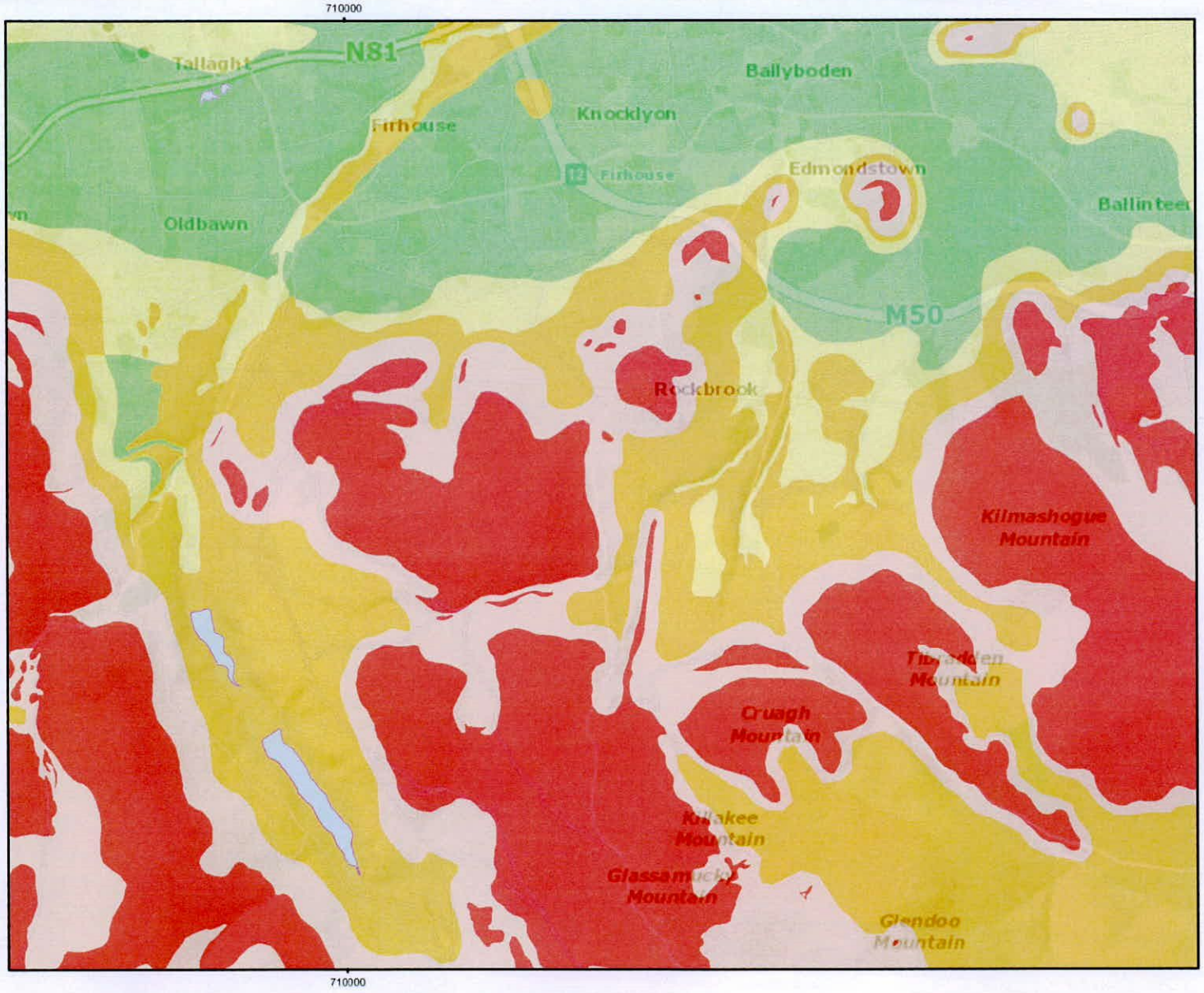
Phone: E-mail info@wastewater.ie

Indemnity Insurance Number: ARB PI/D/1256/20/1

Signature: 

Geological Survey
Suirbhéireacht Gheolaíochta
Ireland | Éireann

# Vulnerability Extreme




## Legend

**Groundwater_Vulnerability_40K_IE...**

- Rock at or near Surface or Karst
- Extreme
- High
- Moderate
- Low
- Water

Scale: 1:50,000

**Geological Survey Ireland**

N W E S

0 0.35 0.7 1.4 mi

0 0.5 1 2 km

Map Centre Coordinates (ITM) 712,072 724,019

4/27/2022, 4:21:10 PM

Geological Survey
Suirbhéireacht Gheolaíochta
Ireland | Éireann

# Aquifer Locally Important


Scale: 1:50,000

**Geological Survey Ireland**

N W E S

0 0.35 0.7 1.4 mi

0 0.5 1 2 km

Map Centre Coordinates (ITM) 712,072 724,019

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## Legend

— Bedrock Aquifer Faults

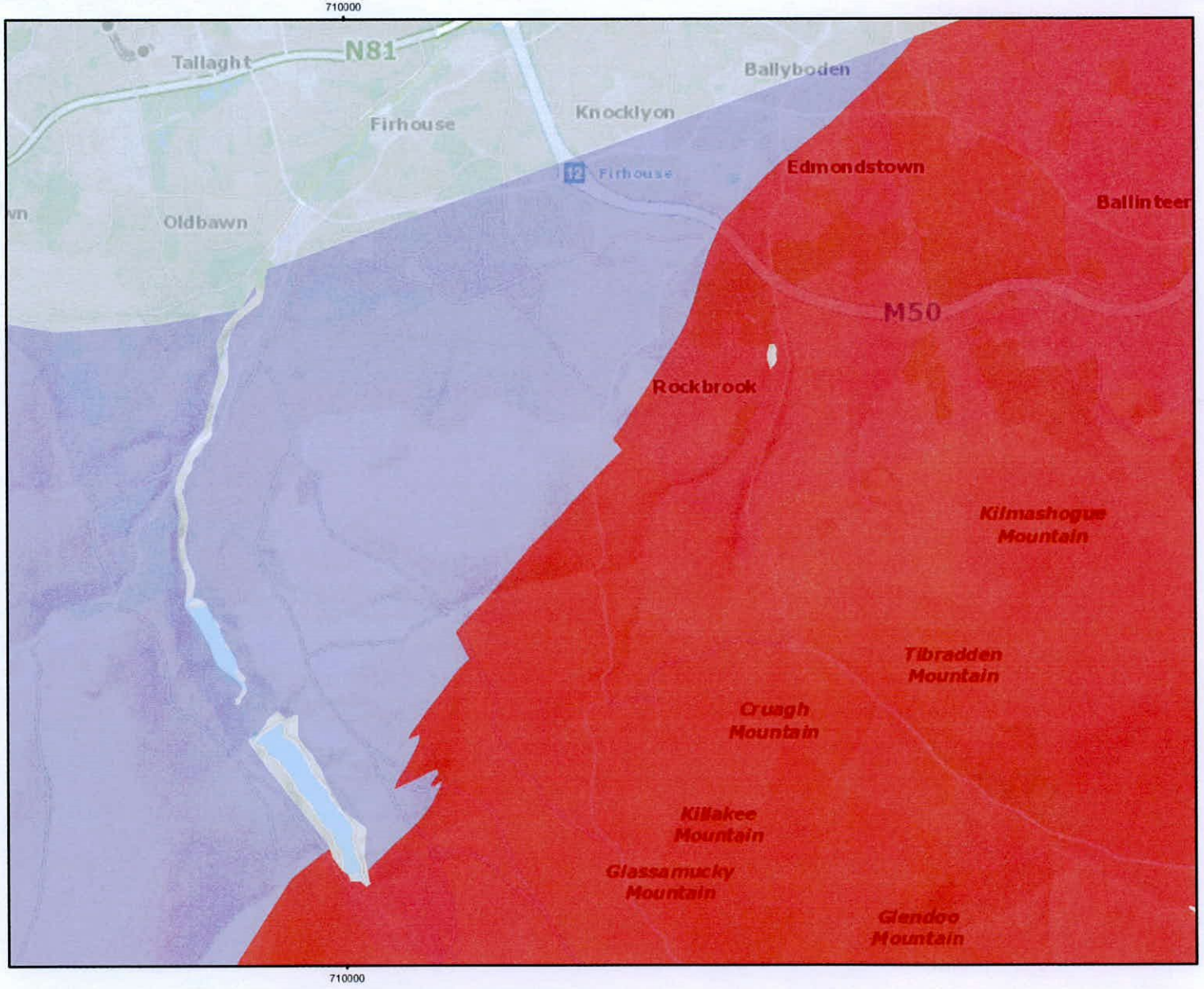
**Bedrock Aquifer**

LI - Locally Important Aquifer - Bedrock which is Moderately Productive only in Local Zones

Pl - Poor Aquifer - Bedrock which is Generally Unproductive except for Local Zones

Geological Survey
Suirbhéireacht Gheolaíochta
Ireland | Éireann

# Bedrock GII / OM




Scale: 1:50,000

**Geological Survey Ireland**

N W E S

0 0.35 0.7 1.4 mi

0 0.5 1 2 km

Map Centre Coordinates (ITM) 712,072 724,019

4/27/2022, 4:34:27 PM



## Legend

**Groundwater Rock Units**

- Dinantian Upper Impure Limestones
- Granites & other Igneous Intrusive rocks
- Ordovician Metasediments