March 2025

Glen Earrach Pumped Storage Hydro

Environmental Impact Assessment Report

Volume 5: Appendices
Appendix 10.2: Private Water Supplies Assessment

Glen Earrach Energy Ltd

Glen Earrach AECOM

Quality information

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1 Introduction

1.1 This appendix provides details of any known Private Water Supplies (PWS) in the Study Area (as defined in **Volume 2: Main Report, Chapter 10 Water Environment**) and then presents a qualitative impact assessment of whether they may be impacted by the Glen Earrach Pumped Hydro-Storage (PSH) Scheme (the 'Proposed Development').

1.2 The potential risks to PWS during construction include:

- Spillages of fuel, hydraulic fluids, solvents, grouts, paints and detergents and other potentially polluting substances which will be stored and/or used on site.
- Sediment laden runoff from construction activity.
- Material left over from tree felling causing acidification (through the breakdown of organic material) of groundwater and surface water sources.
- Impacts to supply from dewatering activities.
- Changes to aquifer recharge zones due to more impermeable surfaces.
- In general, operational risks are thought to be minor in comparison to construction risks.

1.3 This appendix is to support **Chapter 10 Water Environment (Volume 2: Main Report)** and should be read in conjunction with the chapter. **Figure 10.3 Private Water Supplies (Volume 3: Figures)** displays the locations of each of the PWS.

1.4 This document also summarises a supply response plan for application in the event of a contamination or supply incident to a PWS.

2 Private Water Supplies

2.1 In Scotland, PWS are defined as potable supplies that are not provided by the mains water provider Scottish Water. They may be surface water abstractions, or abstractions from groundwater via wells, boreholes and springs. As private supplies the only treatment of the supply will be by any facilities put in and maintained by the owner of the supply or those that benefit from the supply.

2.2 The Water Intended for Human Consumption (Private Supplies) (Scotland) Regulations 20171 aim to protect human health from the adverse effects of any contamination of water intended for human consumption by ensuring that the water meets water quality standards. There are two types of PWS defined in the regulations: Type A (listed as FA1 in The Highland Council online database) and Type B (listed a FB1 on The Highland Council online database). Type A PWS are larger supplies (providing 10 or more cubic metres of water per day or serving 50 or more persons) or supplies that have a commercial or public activities usage irrespective of size. These are regulated by the Water Intended for Human Consumption (Private Supplies) (Scotland) 2017). Type B PWS locations are those serving less than 50 persons and are regulated by Private Water Supplies (Scotland) Regulations 2006[2].

2.3 Under this legislation requires that all PWS within the Highland area must be registered with The Highland Council. PWS are registered with The Highland Council by filling out an online application.

[1] Scottish Statutory Instruments. 2017. The Water Intended for Human Consumption (Private Supplies) (Scotland) Regulations 2017 The Water Intended for Human Consumption (Private Supplies) (Scotland) Regulations 2017 (legislation.gov.uk).
Scottish Parliament, 2006. The Private Water Supplies (Scotland) Regulations 2006. Available Online: https://www.legislation.gov.uk/ssi/2006/209/contents

3 Risk Assessment Methodology

3.1 Introduction

3.1.1 A PWS survey and assessment was carried out in two phases using a 1 km Study Area from the Red Line Boundary. The PWS were also divided into five areas for discussion purposes. The areas are listed below, and these plus the location of each PWS (the receptor not the source), can be viewed on **Figure 10.3 Private Water Supplies (Volume 3: Figures)**:

- Allt Saigh.
- Primrose Bay.
- Grotaig Burn.
- Divach Burn.
- River Enrick.

3.2 Phase 1 Information Gathering

Data Sources

3.2.1 To carry out this assessment, online sources were used to find an initial list of PWS data. This was then supplemented with a site visit. The Highland Council (THC) website makes all the PWS information available online[3]. A total of 51 properties served by a PWS were identified within the 1 km Study Area. These are listed within **Annex A: The Highland Council Data.**

3.2.2 **Public Consultations, Letter Drops and Online Surveys** – **Annex B: Copy of the Questionnaire Template** displays the letter, paper questionnaire and online questionnaire used for the online and physical survey. The aim of the survey was to identify other PWS not known to THC and to gather more detailed information on PWS which could potentially be at risk.

3.2.3 The online survey was made available by the following methods:

- A QR code which would lead to the online survey was made available at the following four public consultation events:
    - Wednesday 23rd October, Craigmonie Centre Glen Urquhart High School, Drumnadrochit, IV63 6XA.
    - Thursday 24th October, Wildside Centre, Foyers, IV2 6UN.
    - Thursday 7th November, Glenmoriston Millenium Hall, Invermoriston, Inverness, IV63 7YA.
    - Friday 8th November, Balnain Hall, Balnain, Drumnadrochit, IV63 6UG.
- A letter drop to 115 properties was also carried out in October 2024 from which there were 19 responses by the 23rd of December 2024. The properties were identified as they were within the 1 km Study Area and within the same surface water or groundwater area as the proposed construction works. One property called ‘Garden Cottage’ (area Grotaig Burn) was not delivered to due to the property being inaccessible. There is no record of the property having a PWS on THC’s website, therefore it is assumed to not have a PWS.

3.2.4 **Site Visit –** To supplement the information from the online survey and the letter drops undertaken in October 2024, a site visit was carried out on the 12th of November 2024. During the site visit additional information on potentially affected PWS was gathered for the Grotaig Burn, Divach Burn and River Enrick areas. **Annex C: Results from Online Survey0** displays the results from the site visit and lists the baseline data set of PWS which are used for the assessment.

[3] The Highland Council. [Online] Available: https://map-highland.opendata.arcgis.com/datasets/ded172bbade24650bb2c1baec5e0d318/explore

3.3 Phase 2 Risk Assessment

3.3.1 A risk assessment was carried out by using a source-pathway-receptor approach and using guidance outlined in a SEPA guidance document, '*Guidance on Assessing the Impacts of Developments on Groundwater Abstractions*'[4]. This guidance is only limited to groundwater abstractions. A general a source-pathway-receptor approach has been used for the surface water receptors

3.3.2 The risk assessment is separated into three steps: Step 1: Identify any Existing PWS, Step 2: Qualitative Risk Assessment and Step 3: Quantitative Risk Assessment. This assessment only progresses to Step 2 as no PWS are deemed to be at high risk when considering mitigation.

Step 1: Identify any Existing PWS

3.3.3 Step 1 includes screening out any data points which are not required to be assessed as there is no known risk (i.e. no impact pathway or outside of the Study Area).

3.3.4 The following list of criteria was used to screen in and out PWS identified from The Highland Council website and the survey:

- SEPA guidance suggests buffer zones for groundwater abstractions. These buffer zones prevent abstractions within 100 m radius of any excavations and less than 1 m deep, and groundwater abstractions within 250 m of any abstractions of any excavations and deeper than 1 m, which could otherwise be at risk of contamination[5]. This guidance also recommends a 10 m buffer for all other activities. For this assessment, all PWS within 250 m of the Proposed Development have been screened into the assessment.
- Any surface water sources which are directly downstream of the Proposed Development were screened into the assessment and within the Study Area.

3.3.5 Before assessing the source-pathway-receptor impact in Step 2, each of the PWS are then given a general risk rating based on the distance from the Proposed Development (see **Table 1 Risk factors**). If a PWS is deemed to be a moderate or high risk it has been taken forward into Step 2: Qualitative Risk Assessment.

Table 1 Risk factors

Groundwater Criteria	Surface Water Criteria	Risk Factor	Justification
Within 100 m of an excavation less than 1 m. Or within 10 m of any works	Less than 1,000 m downstream of any surface level construction works	High	Travel time between source and receptor would be quick and likely to be less barriers to block any pathway for contamination to reach receptor
Between 100 m to 250 m of any excavation greater than 1 m	Between 1,000 m and 3,000 m downstream of any surface level construction works	Moderate	There will be a bit more time for source to travel to receptor. There would also be a higher likelihood for there to be barriers that block any pathway for contamination to reach the receptor.
More than 250 m away from any works	Over 3,000 m downstream from any surface level construction works	Low	The larger distance between the source and receptor will allow for longer travel time and a large dispersion effect. There will also be less direct flow paths and potentially barriers that block any pathway for contamination to reach the receptor.

Step 2: Qualitative Risk Assessment

3.3.6 A groundwater conceptual model has been developed within **Chapter 10 Water Environment (Volume 2: Main Report)** of the Environmental Impact Assessment Report. Using this model a qualitative risk assessment has been carried out using a source-pathway-receptor approach.

[4] SEPA.2024. Guidance on Assessing the Impacts of Developments on Groundwater Abstractions. Available online: Guidance and advice notes | Scottish Environment Protection Agency (SEPA)
[5] SEPA.2024. Guidance on Assessing the Impacts of Developments on Groundwater Abstractions. Available online: Guidance and advice notes | Scottish Environment Protection Agency (SEPA)

3.3.7 The potential contaminant flow pathways have also been assessed for the surface water supplied PWS.

3.3.8 If it is found that without suitable mitigation and monitoring measures there would be a significant risk to any of the PWS, they are then taken onto Step 3: Quantitative Risk Assessment.

Step 3: Quantitative Risk Assessment

3.3.9 If any of the PWS are deemed to potentially have any significant effects a quantitative risk assessment would be required. However, as none of the PWS are considered to have a medium or major impact, no quantitative risk assessment has been carried out.

3.4 Limitations and Assumptions

3.4.1 With this assessment there is a number of limitations and assumptions. These are listed below:

- This assessment was carried in November 2024 and so can only be used to represent the PWS that were recorded at that time. However, we do not expect any new ones, there will be pre- Pre-construction and Enabling phase baseline review undertaken. Additionally, the surveys are limited to those who were contacted with questionnaires and those who responded to them online and/or in person.
- It has been assumed that any PWS recorded on The Highland Council website are active where there is no survey data to supplement the data provided.
- There is very little groundwater information available for the Proposed Development Site. There is no freely available groundwater level or flow data. Therefore, the nature and character of the Old Red Sandstone is unknown. Reasonable assumptions have been made to build up a baseline and conceptual site model which is detailed within **Chapter 10: Water Environment (Volume 2: Main Report)** using freely available sources.
- Loch Ness Hostel (PWS-02) was called and emailed on the 13th of March 2024 to ascertain whether they currently used a PWS as they did not respond to the survey. However, they are not open during the winter season and so no confirmation was received. Therefore, until confirmation is received it is assumed that the information provided on THC's website is correct ie.that the source is used for water supply.

4 Results

4.1 Phase 1 Information Gathering

4.1.1 A total of 30 PWS have been identified within the Study Area from the THC website, the online surveys and site visit. The number reduced from 51 initially identified from THC records as it was found that there was several PWS which had been duplicated. It was also found that one PWS supplies multiple properties, but each property owner responded to the online survey. **Annex D: Final List of PWS** lists the PWS considered for this assessment.

4.1.2 Each PWS Area is summarised as:

- **Allt Saigh** –there are a total of two PWS (PWS-01 and PWS-02) which have been screened into the assessment.
- **Primrose Bay** –there is one PWS (PWS-03) which supplies two properties which has been screened into the assessment.
- **Grotaig Burn** – There were seventeen PWS which were identified within the Grotaig Burn area.
- **Divach Burn** – There were seven PWS which were identified within the Divach Burn area.
- **River Enrick** – There were three PWS (PWS-28, PWS-29 and PWS-30) that were recorded by The Highland Council north of the A831 and the River Enrick. Two (PWS-28 and PWS-29) have been screened out of the assessment as they are within a separate catchment from the Proposed Development Site. PWS-30 was visited on the 12th of November and the occupiers confirmed that their properties and the surrounding properties were now on mains supply. However, they do own a PWS,

but it is currently not in use and there are no plans to use it. Therefore, it has also been screened out. This phase of the assessment reduced the number of PWSs for further consideration down to 27.

4.2 Phase 2 Risk Assessment

Step 1: Identify any Existing PWS

4.2.1 Overall, from assessing the distances between the PWS and the Proposed Development Site there are only two PWS which are within the buffer zones. Therefore, only PWS-01 and PWS-02 are screened into Step 2 of the assessment.

Table 2 Step 1 Results

ID	Area	Name	NGR	Source of supply	Closest Works			Responded to online Survey
					Enabling Works	Construction Works	Operations	
PWS-01	Allt Saigh	Briarbank	NH 45600 19300	Surface Watercourse	3800 m from Main Access Tunnel (Option A)*	2500 m from Upper Control Works but these works are substantial and do pose a risk to quality of downstream watercourses if not managed accordingly.	5 m from existing track	Yes
PWS-02	Allt Saigh	Loch Ness Youth Hostel	NH 45717 18999	Borehole	3800 m from Main Access Tunnel (Option A)	As above	95 m from existing track	No (found on The Highland Council Website) Email confirmation from PWS owners on the 5th of December 2024 confirming it is in use
PWS-03	Primrose Bay	Primrose Bay	NH 47094 20523	Spring	2300 m from Main Access Tunnel (Option A)	1,000 m from Lower Control Works		Yes
PWS-04	Grotaig Burn	Inchillich	NH 48235 23434	Surface Watercourse or spring (later assumed	1700 m from Main Access Tunnel (Option A)	1300 m from Waterways (Option B)		No (found on THC Website)
PWS-05	Grotaig Burn	Goshem	NH 48907 23535	Spring	1600 m from Main Access Tunnel (Option A)	1800 m from Waterways (Option B)		No (found on THC Website)
PWS-06	Grotaig Burn	Loch Ness Clay Works	NH 49107 23683	Well	2600 m from Main Access Tunnel (Option A)	2100 m from Waterways (Option B)		Yes
PWS-07	Grotaig Burn	Acorn lodge	NH 49156 23813	Borehole	2700 m from Main Access Tunnel (Option A)	2200 m from Waterways (Option B)		Yes
PWS-08	Grotaig Burn	Grotaig	NH 49153 23880	Unknown	2700 m from Main Access Tunnel (Option A)	2200 m from Waterways (Option B)		No

ID	Area	Name	NGR	Source of supply	Closest Works			Responded to online Survey
					Enabling Works	Construction Works	Operations	
PWS-09	Grotaig Burn	2 Balbeg	NH 49039 24155	Spring	2600 m from Main Access Tunnel (Option A)	2300 m from Waterways (Option B)		Yes
PWS-10	Grotaig Burn	3 Balbeg	NH 49105 24206	Spring	2700 m from Main Access Tunnel (Option A)	2500 m from Waterways (Option B)		No (found on THC Website)
PWS-11	Grotaig Burn	JJays	NH 49167 24389	Borehole	3,000 m from Main Access Tunnel (Option A)	2800 m from Waterways (Option B)		No (found on THC Website)
PWS-12	Grotaig Burn	Inchonchar	NH 49359 24447	Spring	3,000 m from Main Access Tunnel (Option A)	2800 m from Waterways (Option B)		Yes
PWS-13	Grotaig Burn	Tigh Ban	NH 49425 24673	Surface Watercourse	3100 m from Main Access Tunnel (Option A)	3,000 m from Waterways (Option B)		No (found on THC Website)
PWS-14	Grotaig Burn	Tigh Ban	NH 49425 24673	Borehole	3100 m from Main Access Tunnel (Option A)	3,000 m from Waterways (Option B)		No (found on THC Website)
PWS-15	Grotaig Burn	Tynaherrick	NH 49921 24755	Unknown	3600 m from Main Access Tunnel (Option A)	3400 m from Waterways (Option B)		No (found on THC Website)
PWS-16	Grotaig Burn	Bunloit House	NH 49345 25066	Borehole	3100 m from Main Access Tunnel (Option A)	3250 m from Waterways (Option B)		Yes
PWS-17	Grotaig Burn	Ancarraig House	NH 49331 25041	Borehole	3100 m from Main Access Tunnel (Option A)	3250 m from Waterways (Option B)		Yes
PWS-18	Grotaig Burn	Rowans	NH 49804 25453	Borehole	3600 m from Main Access Tunnel (Option A)	3800 m from Waterways (Option B)		Yes
PWS-19	Grotaig Burn	Dun Ban	NH 49859 25603	Borehole	3700 m from Main Access Tunnel (Option A)	4,000 m from Waterways (Option B)		Yes
PWS-20	Grotaig Burn	Gealach	NH 49773 25592	Well	3700 m from Main Access Tunnel (Option A)	4,000 m from Waterways (Option B)		No (found on THC Website)
PWS-21	Divach Burn	Clunemore Cottage	NH 49640 27551	Borehole	1100 m from existing access track			Yes
PWS-22	Divach Burn	Clunemore Steadings	NH 49656 27611	Borehole	1075 m from existing access track			Yes
PWS-23	Divach Burn	Clunemore Farmhouse	NH 49641 27697	Borehole	1,000 m from existing access track			Yes – in person confirmation
PWS-24	Divach Burn	Divach Lodge	NH 49312 27340	Borehole	1125 m from existing access track			Yes – in person confirmation

ID	Area	Name	NGR	Source of supply	Closest Works			Responded to online Survey
					Enabling Works	Construction Works	Operations	
PWS-25	Divach Burn	Coiltie House	NH 49262 27177	Spring	1250 m from existing access track			Yes – in person confirmation
PWS-26	Divach Burn	Berryfield House	NH 48611 26842	Surface Watercourse	1300 m from existing access track**			Yes – in person confirmation
PWS-27	Divach Burn	Mill of Divach	NH 48667 27223	Surface Watercourse	1025 m from existing access track**			Yes – in person confirmation

***Option A refers to the UCW which is nearest to the PWS ie. a worst case scenario **Coloured as amber until more information is known.

Step 2: Qualitative Impact Assessment

4.2.2 There are two PWS which are deemed to be at either a moderate or high risk (PWS-01 and PWS-02). Both of these PWS are qualitatively assessed below.

4.2.3 **PWS-01 Assessment -** PWS-01 is a surface water PWS which sources its supply from Allt Saigh and supplies three properties.

4.2.4 The potential works that are a risk to PWS-01 will be associated with an upgrade to a nearby access track as well as more significant works associated with the Upper Control Works but which are further upstream.

4.2.5 *Construction* - There will be a significant level of excavations, earthworks and intrusive construction works directly to the catchment of the Allt Loch an t-Sionnaich which drains into the Allt Saigh. This includes the construction of Main Dam 1 and parts of the Headpond. There will be at times large slopes and areas of bare earth that may create significant volumes of sediment-laden runoff. There is also a risk of chemical spillages. However, there are existing dams on Allt Loch an t-Sionnaich and Allt Saigh such as at NH 43890 21618, which will help to capture any fine sediment that may be released during the works. Mitigation measures and monitoring during construction are also proposed as discussed below and outlined within the oWMP (**Appendix 10.4 oWMP(Volume 5: Appendices)**) and the oCEMP (See **Appendix 3.1 oCEMP(Volume 5: Appendices)**). This will assist in managing the risk of any water pollution, and therefore adverse impact on the surface water PWS-01. This impact will only be temporary during the construction. It will also be localised to the Allt Saigh PWS area and will not impact any other PWS. No further assessment is therefore required for this risk due to the mitigation measures which will be in place.

4.2.6 *Operation* - The access track will likely only be used during the operation of the Proposed Development for access to the Valve House located at NH 44485 21945. Therefore, this access track could have the potential to introduce small amounts of sediment into the channel increasing turbidity (which may impact the efficient operation of any UV filters that are in use in properties served by this supply) or could result in a small chemical spillage (e.g. fuel). However, no upgrade works are planned, and this track will not be heavily trafficked, thus limiting the risk of pollution. The track usage will also be at a similar level to the current use. The extent of this risk is limited to the Allt Saigh and impact will only be applicable during the Operational Phase when the access track is being used. There may be cumulative effects from other users of the track. However, there is unlikely to be any risk to the existing PWS-01 and so no further assessment is required for this risk due to the mitigation measures which will be in place before this phase.

4.2.7 *Operation* - One of Allt Saigh's tributaries, Allt Loch an t-Sionnaich, will be dammed by the Main Dam and therefore blocking water flow. However, the Proposed Development will ensure that water flow to Allt Loch an t-Sionnaich will continue through a compensation flow scheme. Flow into the catchment from further upstream will be effectively passed forward to maintain downstream flows and the existing flow regime as far as practically possible. A Valve House will be located at NH 44485 21945 and will be a permanent structure throughout the operation of the Proposed Development. Therefore, there should not be any change to the quantity of water to PWS-01. In addition, as already mentioned, there are already existing dams on the watercourse and so the flows are already altered. This impact will be permanent throughout the entire operation of the Proposed Development. No further assessment is required for this risk.

4.2.8 **PWS-02 Assessment** - PWS-02 is a groundwater borehole which supplies the Loch Ness Youth Hostel. It is sourced from the Lower Old Red Sandstone (LORS). There is no information on the depth of the borehole or groundwater levels.

4.2.9 *Conceptual Model of the Lower Old Red Sandstone* - The LORS aquifer is recharged from rainfall and runoff upgradient around Loch nam Brea Dearga in locations where there are thin permeable layers of superficial material. Groundwater moves through fractures, which will likely be concentrated around fault lines and the upper weathered zones of the aquifer. With depth, the bedrock becomes more compacted with less fractures, allowing for less groundwater movement. There may be areas of perched groundwater features zones and areas which are very compacted which is impermeable.

4.2.10 There is not enough data available to accurately predict the overall direction of groundwater flow within the LORS. However, it can be assumed that groundwater flows along bedding plans, along fractures and fault lines. Groundwater within the upper weathered zone will also likely flow downgradient with the topography.

4.2.11 There will likely be some hydrogeological connection between the aquifer and the major surface water features such as Loch Ness. Around these locations, it could be assumed groundwater levels to be similar to the loch's water level. Some boreholes for PWS are up to 150 m deep (See **Annex D Final List of PWS** for details), this suggests that there could be deep groundwater at a similar elevation to Loch Ness and potentially a relatively large unsaturated zone. However, without groundwater investigation details this cannot be confirmed. More information can be found within **Chapter 10 Water Environment (Volume 2: Main Report).**

4.2.12 *Construction* - There will be a significant level of excavations, earthworks and intrusive construction works directly to the catchment of the Allt Loch an t-Sionnaich which drains into the Allt Saigh. This includes the construction of Main Dam 1 and parts of the Headpond. There will be at times large slopes and areas of bare earth that may create significant volumes of sediment-laden runoff. There is also a risk of chemical spillages. This has the potential to filter into the LORS and contaminate the aquifer. A pollution event could lead to the catchment area and underlying aquifers contaminated. However, there are existing dams on Allt Loch an t-Sionnaich and Allt Saigh such as at NH 43890 21618, which will help to capture any fine sediment that may be released during the works. Mitigation measures and monitoring during construction are also proposed as discussed below and outlined within the oWMP (**Appendix 10.4 oWMP**) and the oCEMP (See **Appendix 3.1 oCEMP**) **(Volume 5: Appendices)**. This will assist in managing the risk of any water pollution, and therefore adverse impact to PWS-02. This impact will only be temporary during the construction. It will also be localised to the Allt Saigh PWS area and will not impact any other PWS. No further assessment is therefore required for this risk.

4.2.13 *Operation* - Similar to PWS-01, PWS-02 could be impacted by contaminants associated with access track. Contaminants such as grit and chemicals associated to accidental spillages of fuels could leach and infiltrate into the aquifer and thus impact the quality of water within PWS-02. However, as mentioned this track will only be used during operation and will not be heavily used and so there will be limited sources of pollution. Additionally, there are no intrusive works being carried out within 250 m of the PWS. The extent of this risk is limited to the Allt Saigh and impact will only be applicable during the Operational Phase when the access track is being used. There may be cumulative effects from other users of the track. However, there is unlikely to be any risk to the existing PWS-02 and so no further assessment is required for this risk.

4.2.14 *Operation* - The hydraulic continuity between Loch Ness and the LORS aquifer is unknown. However, as discussed within the conceptual model within **Chapter 10 Water Environment (Volume 2: Main Report)**, it is likely that there is some continuity between the two. Loch Ness' water level is around 16 m above Ordnance Datum (AOD), therefore it is likely that the LORS water table is at a similar elevation. During the operation of the Proposed Development, the water levels within Loch Ness are likely to vary. However, it is embedded in the design the Loch Ness should remain within its natural water level variation during operation. Additionally, any changes within the water levels in Loch Ness would be delayed to the LORS. PWS-02 is situated right on the banks of Loch Ness and therefore could be vulnerable to changing loch levels. However, as described within **Chapter 11 Water Resources (Volume 2: Main Report)** during operation Loch Ness will remain within its level natural variation. Therefore, there is unlikely to be any risk to the supply of PWS-02. However, as a precautionary measure, groundwater level monitoring should be carried out during operation at PWS-02. No further assessment is required at this time.

5 Mitigation, Monitoring and Response Plan

5.1 Introduction

5.1.1 The sections below provide an overview of the monitoring, mitigation and actions in the event of incident to a PWS (Response Plan). The PWS Response Plan will be implemented in the event that the quality and quantity of the supply to any of the PWS was impacted during construction.

5.1.2 The precise definition of what 'impact' would require a response will be determined in consultation with the THC's Environmental Health Officer (EHO) and SEPA but it is expected that the response plan will have a hierarchy of actions. The most significant response would be where the supply is contaminated and is no longer wholesome or the flow is significantly disrupted.

5.1.3 Overall, the PWS Response Plan will cover how local PWS users can raise a concern with their supply, how the incident will be investigated, and what temporary and/or permanent water supply solutions need to be implemented.

5.2 Monitoring

5.2.1 PWS are an important drinking water receptor and if impacted have the potential to risk human health and safety. Monitoring will help identify any deterioration that might be a consequence of the construction works so that appropriate action can be taken. As stated, it is recommended the project commits for PWS-01 and PWS-02, to these sources being monitored in advance of any works to gather baseline data and then during all temporary works (i.e. Pre-construction and Enabling and Construction Phases).

5.2.2 We would commit to applying Appendix B of the '*Guidance on Assessing the impacts of development on groundwater abstractions*'[5] and the recommended 12 months of monitoring before construction, fortnightly during construction and for 12 months post construction. Additional sampling may be required in the event of an investigation of an incident as described below.

5.2.3 The following suite of parameters is also recommended for monitoring groundwater PWS. It is likely that this suite will also be suitable for surface water PWS as well.

- pH, electrical conductivity, dissolved oxygen, redox potential, temperature.
- Chloride, alkalinity, sulphate.
- Sodium, potassium, calcium, magnesium.
- Ammoniacal nitrogen, nitrate, nitrite, orthophosphate.
- Biochemical oxygen demand, chemical oxygen demand.
- Iron, manganese (total and dissolved).
- Total suspended solids.
- Dissolved organic carbon.
- Colour, turbidity, taste and odour.
- Hydrocarbons.
- Metals.

5.2.4 As well as quality monitoring, it is also recommended that there is groundwater level monitoring carried out at PWS-02 during operation (if practical, this will be committed too). Groundwater surrounding Loch Ness may have some hydrogeological linkage with the loch. Therefore, fluctuations in loch levels during operation could impact PWS-02. PWS-02 will also require at least 12 months of water level monitoring prior to Pre-construction and Enabling.

5.3 Mitigation

5.3.1 To avoid any impacts to the quality and quantity of PWS, mitigation measures will be implemented during the construction works. Standard mitigation methods and environmental practices can avoid most pollution incidents. At a minimum, construction works will adhere to guidance laid out by SEPA. Including Guidance for Pollution Prevention (GPP)[6], key CIRIA documents[7], Planning Advice Notes (PANs)[8] and supporting documents for the Water Environment (Controlled Activities) (Scotland) Regulations 2011[9].

5.3.2 Further mitigation details will be set out in the full oWMP (**Appendix 10.4 oWMP**) and the oCEMP (See **Appendix 3.1 oCEMP) (Volume 5: Appendices).** This will include details of the mitigation to avoid any incidents which could impact local PWS. However, if in the unlikely event an incident were to occur, the final WMP will include an Emergency Response Plan describing what action will be taken, when it will be taken, and who else would need to be consulted during the incident but also retrospectively.

5.4 Responding to an Incident

Notification of an Incident

5.4.1 There will be several ways in which the contractor can be notified of an incident to the quality or quantity of water for each PWS.

5.4.2 As outlined within this document, there will be monthly quality monitoring carried out for selected PWS during the baseline (12 months), construction and post-construction period, which is in accordance with SEPA guidance. During construction, if there are any material exceedances of parameters from the baseline or environmental quality standards (WFD standards[10], Drinking Water Standards[11] and PWS Regs[12]) action will be triggered. This may be considered as a self-notification of an incident. The definition of material exceedance will be set out in the plan.

5.4.3 Additionally, before Pre-construction and Enabling phase, all PWS owners and/or users will be provided with relevant information including details of what to do and whom to contact if they themselves notice a problem with their PWS. For instance, if PWS users observe a change in colour, pressure, temperature or taste there will be a telephone number and mailbox email address they can contact. This will also be considered as a third-party notification of a possible incident (in the same way as if the Project had been alerted of an incident).

Investigation of an Incident

5.4.4 If there has been a notification of a change in water quality and quantity from either the monitoring work or from the owner/user of the PWS, there will be immediate action by the contractor. An initial triage of the incident will be required to assess the severity of the event and critically whether the water in the supply is no longer wholesome.

5.4.5 Post initial triage the event will be investigated to try and determine the cause of the impact, and whether it is or may be connected to any construction works that are ongoing. Investigation measures will vary depending on which PWS is affected and the type of impact. However, investigation measures could include the following:

- A visit to review the PWS and collect additional water quality samples. If groundwater level monitoring occurs at this PWS then manual dip readings will be collected also. Data collected will confirm whether an incident has actually occurred. It is anticipated that this visit will take place within a few days of the impact being notified.

[6] NetRegs. Guidance for Pollution Prevention (GPP). Available Online: https://www.netregs.org.uk/environmental-topics/guidance-for-pollution-prevention-gpp-documents/
[7] CIRIA. All Publications. Available Online: https://www.ciria.org/CIRIA/CIRIA/Store_Home.aspx?hkey=4a041b49-608b-4f48-9a46-51681945f4c0
[8] Scottish Government. Planning Advice Notes and Guidance. Available Online: https://www.gov.scot/collections/planning-advice-notes-pans/
[9] Scottish Parliament, 2011. The Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended) (CAR) ('the CAR Regulations'). Available online: https://www.legislation.gov.uk/ssi/2011/209/contents/made
[10] SEPA. https://www.sepa.org.uk/media/152957/wat-sg-53-environmental-quality-standards-for-discharges-to-surface-waters.pdf
[11] Drinking Water Quality Regulator for Scotland https://dwqr.scot/public-water-supply/national-water-quality/.
[12] Scottish Parliament, 2006. The Private Water Supplies (Scotland) Regulations 2006. Available Online: https://www.legislation.gov.uk/ssi/2006/209/contents

- The PWS owner could be consulted to better determine the exact details of the impact as well as whether there could be other causes not related to the construction works. Questions asked during the interview would be related to the timings, frequency and exact 'symptoms' of the incident.
- The works being conducted will be investigated as well as the mitigation being used to avoid contamination/pollution. Contaminant pathways from the works being carried out at the Proposed Development to the PWS would be investigated to determine whether any exist.
- The THC's EHO (and potentially SEPA) will be notified of the incident within 24 hours of the notification being received so that they may support the investigation and actions to mitigate the impact and disruption to the affected users.

Actions in the event of supply disruption

5.4.6 In the event of an incident, there will be immediate action from the notification of an incident to investigate the cause as described above. However, whilst the outcome of an investigation is pending there will be a need to temporarily provide an alternative water supply, as well as advice to those affected, in collaboration with the EHO.

5.4.7 The response will differ depending on the cause of the incident and the PWS set up. The sections below outline the potential temporary and permanent steps which could be carried out, although the final response plan to be included in the final WMP and the CEMP may not be limited to this.

5.4.8 *Temporary Solutions* - While the incident is being investigated a temporary source of potable water may be required for the PWS. There are several options of temporary water supply. The options used will depend on the type of incident and the PWS effected. For instance, the water may be safe for activities apart from drinking, washing food/utensils etc. and clothes and therefore only drinking water will need to be supplied.

5.4.9 A temporary solution will be used for as long as necessary. Solutions could include the delivery of bottles of water, crates of water, small tanks or bowser delivered direct to properties door. However, it should be noted that temporary water supply solutions are not limited to this list. Sufficient supplies of potable water will be provided as soon as reasonably possible.

5.4.10 *Permanent Solutions* - The temporary solutions described above should only be used until a permanent solution is found. There are several options for a permanent solution. If the source of the problem is identified and it can be removed or mitigated, the PWS will go back to the original supply. Monitoring will continue to be carried out to confirm the supply is safe to drink. In the unlikely event it is found that the source of the problem cannot be removed or mitigated then a new, permanent supply will need to be provided. This could involve a new treatment process for the supply, a new borehole it may be possible to connect the property to the mains supply in some instances. The contractor will discuss with the owner of the affected property a suitable solution.

6 Summary

6.1 Overall, there are twenty-seven PWS situated within 1 km of the Red Line Boundary (excluding three duplicates). Of those twenty-seven, only two PWS are situated with 250 m of any planned works. Both PWS-01 and PWS-02 are situated within the Allt Saigh area.

6.2 PWS-01 is sourced directly from Allt Saigh and therefore could be at potential risk from contamination from the Headpond area construction works including the excavation of the Headpond and earthworks associated with Main Dam and other Embankments, as well as other ancillary works including multiple access track crossings. Mitigation measures and monitoring during Pre-construction and Enabling phase and Construction phase are outlined within the oWMP (**Appendix 10.4 oWMP**) and the oCEMP (See **Appendix 3.1 oCEMP)(Volume 5: Appendices).** It is recommended that PWS-01 is incorporated into the monitoring plan.

6.3 PWS-02 is situated on the banks of Loch Ness. During the operation of Glen Earrach PSH it is possible that changes in Loch Ness water levels could impact the water levels within LORS (localised around LORS) and thus PWS-02. However, it is planned that Glen Earrach PSH will only operate within the natural water level variation of Loch Ness. Therefore, changes in water levels within Loch Ness should not impact PWS-02. Although, as a precautionary measure it is recommended that PWS-02 is incorporated into monitoring plans including water level monitoring during the baseline and operation to better understand the connectivity between LORS aquifer and Loch Ness. It is unlikely that PWS-02 will have much groundwater contamination risks, however, as it is still within the Allt Saigh area it is recommended that quality monitoring is also conducted at this PWS.

6.4 This PWS assessment is based on the information available and known at the point of submission. Should further information on PWS be received from respondents to questionnaires, then addendums may need to be made to this PWS assessment by the project team (during planning stage) and by the contractor (if at that stage). .

Annex A: The Highland Council Data

Name	Address	ID	Headref	Linkstat	Tlcode	Population	No. properties	Usage	Type-a-reason	easting	northing
PWS Dark Deer Croft	Lochletter House, Balnain, Drumnadrochit, Inverness, Highland, IV63 6TJ	39741	FA1SPABALN/1	Header	S Groundwater - Borehole [GB]	12	2	FA1 PWS Commercial < 100m2	Workplace / Kitchen	244178	830059
PWS An Carraig Lodges	Bunloit Holiday Chalets, Bunloit, Drumnadrochit, Inverness-shire, IV63 6XG	28746	FA1SPABUNL/1	Header	S Groundwater - Borehole [GB]	50	13	FA1 PWS Commercial < 100m2	12 x holiday chalets	249300	824900
PWS An Carraig	Ancarraig House, Bunloit, Drumnadrochit, Inverness, Highland, IV63 6XG	22080	FA1SPADRUM/2	Header	S Groundwater - Borehole [GB]	22	4	FA1 PWS Commercial < 100m2	Holiday let	249354	825195
PWS Loch Ness Shores Caravan Site	Foyers, Inverness, IV2 6YG	42767	FA1SPAFOYE/1	Header	S Groundwater - Borehole [GB]	100	1	FA1 PWS Commercial < 100m2	Caravan Site	249248	821066
PWS The Lochside Hostel	Invermoriston, Inverness-shire, IV63 7YD	28737	FA1SPAINVE/2	Header	S Groundwater - Borehole [GB]	45	1	FA1 PWS Commercial < 100m2	Youth Hostel Accommodation	245717	818999
PWS Clunemore Steading	Lewiston, Drumnadrochit, Highland	36228	FA1SPALEWI/1	Header	S Groundwater - Borehole [GB]	8	1	FA1 PWS Commercial < 100m2	holiday let	249658	827600
PWS Briarbank	Alltsigh, Invermoriston, Inverness - shire, IV63 7YD	36885	FA1WPAALTS/1	Header	W Surface - Watercourse [SB]	25	4	FA1 PWS Commercial < 100m2	Holiday Let & B&B	245528	819187

Name	Address	ID	Headref	Linkstat	Tlcode	Population	No. properties	Usage	Type-a-reason	easting	northing
PWS Cottage in the Garden	Bunloit, Drumnadrochit, Inverness, IV63 6XG	37072	FA1XPABUNL/2	Header	X Groundwater - Spring [GS]	18	4	FA1 PWS Commercial < 100m2	1 x holiday let	249441	825206
PWS Loch Ness Clay Works	Bunloit, Drumnadrochit, Inverness-shire, IV63 6XH	42777	FA1XPABUNL/3	Header	X Groundwater - Spring [GS]	6	2	FA1 PWS Commercial < 100m2	Tea Room	249107	823683
<Null>	Goshem Cabin, Drumnadrochit, Inverness, Highland, IV63 6XH	43144	FA1XPABUNL/3	Linked	<Null>	<Null>	<Null>	FW2 Tenant	<Null>	248907	823535
PWS Balbeg	Bunloit, Drumnadrochit, Inverness, IV63 6XQ	29618	FA1XPABUNL/4	Header	X Groundwater - Spring [GS]	12	3	FA1 PWS Commercial < 100m2	rented properties	249035	824078
PWS Torshee	Rychraggan, Drumnadrochit, Inverness, IV63 6XT	29941	FA1XPADRUM/1	Header	X Groundwater - Spring [GS]	2	1	FA1 PWS Commercial < 100m2	rented property	246913	830423
PWS Grotaig	1 Grotaig, Drumnadrochit, Inverness, IV63 6XH	29610	FB1SPA1GRO/1	Header	S Groundwater - Borehole [GB]	6	2	FB1 PWS Domestic < 50 Persons	<Null>	249153	823880
PWS Balbeg Heights	Bunloit, Drumnadrochit, Inverness, IV63 6XQ	30758	FB1SPABUNL/1	Header	S Groundwater - Borehole [GB]	2	0	FB1 PWS Domestic < 50 Persons	<Null>	249035	824078
PWS Divach Lodge	Drumnadrochit, Inverness, IV63 6XW	29733	FB1SPADRUM/3	Header	S Groundwater - Borehole [GB]	7	3	FB1 PWS Domestic < 50 Persons	<Null>	249312	827340

Name	Address	ID	Headref	Linkstat	Tlcode	Population	No. properties	Usage	Type-a-reason	easting	northing
PWS JJays	J Jays, Balbeg, Drumnadrochit, Highland, IV63 6XQ	49391	FB1SPADRUM/5	Header	S Groundwater - Borehole [GB]	4	1	FB1 PWS Domestic < 50 Persons	<Null>	249167	824389
Shedfield Cottage	Shedfield Cottage, Balbeg, Drumnadrochit, Inverness, Highland, IV63 6XQ	49392	FB1SPADRUM/5	Linked	<Null>	<Null>	<Null>	FPA premises attached to private water supply	<Null>	249139	824209
PWS Delshangie	Drumnadrochit, Inverness, IV63 6XT	29784	FB1VPADRUM/4	Header	V Surface - Watercourse [SB]	5	2	FB1 PWS Domestic < 50 Persons	<Null>	247110	830115
PWS Rowans	Rowans, Bunloit, Drumnadrochit, Inverness, Highland, IV63 6XG	42101	FB1XPADRUM/1	Header	X Groundwater - Spring [GS]	5	1	FB1 PWS Domestic < 50 Persons	<Null>	249804	825453
PWS Tigh Ban	Tigh Ban, Bunloit, Drumnadrochit, Inverness, Highland, IV63 6XG	45783	FB1XPADRUM/1	Header	X Groundwater - Spring [GS]	2	1	FB1 PWS Domestic < 50 Persons	<Null>	249425	824673
PWS Tynaherrick	Drumnadrochit, Inverness, IV63 6XG	29570	FB1XPADRUM/1	Header	X Groundwater - Spring [GS]	10	3	FB1 PWS Domestic < 50 Persons	<Null>	249921	824755
Tigh Ban	Tigh Ban, Bunloit, Drumnadrochit, Inverness, Highland, IV63 6XG	45781	FB1XPADRUM/1	Linked	X Groundwater - Spring [GS]	<Null>	<Null>	FPA premises attached to private water supply	<Null>	249425	824673

Name	Address	ID	Headref	Linkstat	Tlcode	Population	No. properties	Usage	Type-a-reason	easting	northing
PWS Inchanchar	Drumnadrochit, Inverness, IV63 6XG	29606	FB1XPADRUM/3	Header	X Groundwater - Spring [GS]	2	1	FB1 PWS Domestic < 50 Persons	<Null>	249359	824447
PWS Goshem	Goshem Cabin, Drumnadrochit, Inverness, Highland, IV63 6XH	29615	FB1XPADRUM/7	Header	X Groundwater - Spring [GS]	2	0	FB1 PWS Domestic < 50 Persons	<Null>	248907	823535
PWS Inchtellach	Inchtellach, Bunloit, Drumnadrochit, Inverness, Highland, IV63 6XG	40556	FB1XPADRUM/8	Header	X Groundwater - Spring [GS]	10	0	FB1 PWS Domestic < 50 Persons	<Null>	248235	823434
PWS Berryfield House	Drumnadrochit, Inverness, IV63 6XW	29793	FB1YPADRUM/3	Header	Y Surface - Watercourse [SB]	5	2	FB1 PWS Domestic < 50 Persons	<Null>	248894	827342
PWS Mill Of Divach	Drumnadrochit, Inverness, IV63 6XW	29723	FB1YPADRUM/4	Header	Y Surface - Watercourse [SB]	6	1	FB1 PWS Domestic < 50 Persons	<Null>	248860	827522
PWS Inchillich	Inchtellach, Bunloit, Drumnadrochit, Inverness, Highland, IV63 6XG	29601	FB1YPADRUM/6	Header	Y Surface - Watercourse [SB]	2	1	FB1 PWS Domestic < 50 Persons	<Null>	248235	823434
PWS Primrose Bay	Glenmoriston, Inverness, IV63 7YD	30164	FB1YPAGLEN/4	Header	Y Surface - Watercourse [SB]	10	2	FB1 PWS Domestic < 50 Persons	<Null>	247094	820523
PWS Clunemore Farmhouse	Drumnadrochit, Inverness, IV63 6XW	29160	FB1YPBDRUM/1	Header	Y Surface - Watercourse [SB]	2	0	FB1 PWS Domestic < 50 Persons	<Null>	249641	827697

Name	Address	ID	Headref	Linkstat	Tlcode	Population	No. properties	Usage	Type-a-reason	easting	northing
PWS Foyers Mains	Foyers, Inverness, IV2 6YG	30108	FB1YPBFOYE/1	Header	Y Surface - Watercourse [SB]	6	3	FB1 PWS Domestic < 50 Persons	<Null>	249314	820578
PWS Gealach	Gealach, Bunloit, Drumnadrochit, Inverness, Highland, IV63 6XG	29726	FB1ZPADRUM/1	Header	Z Groundwater - Well [GW]	2	1	FB1 PWS Domestic < 50 Persons	<Null>	249773	825592
PWS Balnadrach	Upperton, Balnain, Drumnadrochit, Inverness, IV63 6TJ	29992	FB1ZPAUPPE/1	Header	Z Groundwater - Well [GW]	2	1	FB1 PWS Domestic < 50 Persons	<Null>	244683	830325
PWS Clunemore Cottage	Clunemore Cottage, Lewiston Road, Drumnadrochit, Highland, IV63 6XW	36227	<Null>	None	S Groundwater - Borehole [GB]	2	1	FB1 PWS Domestic < 50 Persons	<Null>	249640	827564
PWS Tigh Ban	Tigh Ban, Bunloit, Drumnadrochit, Inverness, Highland, IV63 6XG	51540	<Null>	None	V Surface - Watercourse [SB]	4	1	FB1 PWS Domestic < 50 Persons	<Null>	249425	824673
PWS Tynaherrick	Tynaherrick, Bunloit, Drumnadrochit, Inverness, Highland, IV63 6XG	50299	<Null>	None	<Null>	2	1	FB1 PWS Domestic < 50 Persons	<Null>	249921	824755
PWS Bunloit Estate Cottages	Bunloit, Drumnadrochit, Inverness shire, IV63 6XG	22084	FA1XPABUNL/1	Header	X Groundwater - Spring [GS]	6	2	FA1 PWS Commercial < 100m2	2 Holiday Lets	250611	825532

Name	Address	ID	Headref	Linkstat	Tlcode	Population	No. properties	Usage	Type-a-reason	easting	northing
PWS Clunebeg House	Lewiston, Drumnadrochit, Inverness-shire, IV63 6US	28926	FA1YPALEWI/1	Header	Y Surface - Watercourse [SB]	44	2	FA1 PWS Commercial < 100m2	1 Holiday Let	250452	828305
Clunebeg Lodge B&B (hotel)	Clunebeg Lodge, Lewiston, Drumnadrochit, Inverness, Highland, IV63 6US	28928	FA1YPALEWI/1	Linked	K Food Premises	<Null>	<Null>	C99 Catering Services (Other)	<Null>	250400	828317
PWS Old School House	Drumnadrochit, Inverness, IV63 6XG	29591	FB1SPADRUM/1	Header	S Groundwater - Borehole [GB]	4	1	FB1 PWS Domestic < 50 Persons	<Null>	250178	825309
PWS The Wagons	Drumnadrochit, Inverness, IV63 6XG	29586	FB1VPADRUM/1	Header	V Surface - Watercourse [SB]	2	1	FB1 PWS Domestic < 50 Persons	<Null>	251277	828591
PWS Grainan	Easter Upper Lenie, Drumnadrochit, Inverness, Highland, IV63 6XJ	29729	FB1VPADRUM/2	Header	V Surface - Watercourse [SB]	2	0	FB1 PWS Domestic < 50 Persons	<Null>	251470	827207
Grainan	Easter Upper Lenie, Drumnadrochit, Inverness, Highland, IV63 6XJ	29731	FB1VPADRUM/2	Linked	<Null>	<Null>	<Null>	FW1 Domestic House (Private)	<Null>	251470	827207
PWS Wooden	Bunloit, Drumnadrochit, Inverness, IV63 6XF	29567	FB1XPABUNL/1	Header	X Groundwater - Spring [GS]	2	1	FB1 PWS Domestic < 50 Persons	<Null>	250953	827631

Name	Address	ID	Headref	Linkstat	Tlcode	Population	No. properties	Usage	Type-a-reason	easting	northing
PWS Tornabrack	Drumnadrochit, Inverness, IV63 6XF	29580	FB1XPADRUM/2	Header	X Groundwater - Spring [GS]	2	1	FB1 PWS Domestic < 50 Persons	<Null>	251180	828362
PWS No. 1 Croft	Easter Upper Lenie, Drumnadrochit, Inverness, Highland, IV63 6XJ	29791	FB1XPADRUM/6	Header	X Groundwater - Spring [GS]	2	1	FB1 PWS Domestic < 50 Persons	<Null>	251470	827207
No. 1 Croft	Easter Upper Lenie, Drumnadrochit, Inverness, Highland, IV63 6XJ	29792	FB1XPADRUM/6	Linked	X Groundwater - Spring [GS]	<Null>	<Null>	FW1 Domestic House (Private)	<Null>	251470	827207
PWS Taigh Geal	Bunloit Hill, Drumnadrochit, Inverness-shire, IV63 6XG	42644	FB1YPABUNL/2	Header	Y Surface - Watercourse [SB]	7	1	FB1 PWS Domestic < 50 Persons	<Null>	251065	828027
PWS Tor-Nam-Breac	Drumnadrochit, Inverness, IV63 6XG	29575	FB1YPADRUM/1	Header	Y Surface - Watercourse [SB]	7	1	FB1 PWS Domestic < 50 Persons	<Null>	251069	828216
PWS Lower Tornabrack	Drumnadrochit, Inverness, IV63 6XF	29592	FB1YPADRUM/2	Header	Y Surface - Watercourse [SB]	4	1	FB1 PWS Domestic < 50 Persons	<Null>	251233	828498
PWS Ardachy	Ardachy, Upper Lennie, Drumnadrochit, Inverness, Highland, IV63 6XF	52941	<Null>	None	S Groundwater - Borehole [GB]	8	1	FA2 PWS Domestic > 50 Persons	<Null>	251223	826919

Annex B: Copy of the Questionnaire Template

AECOM Limited
1 Tanfield
Edinburgh EH3 5DA
United Kingdom

T: +44 (0)131 301 8600
aecom.com

12 November 2024

Our Reference
Glen Earrach Hydro Project

Private Water Supply Questionnaire – Glen Earrach Pumped Storage Hydro (PSH) Project

Dear Property Owner / Occupier,

AECOM is supporting Glen Earrach Energy in the preparation of an Environmental Impact Assessment Report (EIAR) for the Glen Earrach PSH project. As part of the EIAR, a Private Water Supply Risk Assessment will be undertaken.

A Private Water Supply is a water supply which is not provided by Scottish Water. They can originate from lochs, boreholes, springs and streams.

The aim of the Private Water Supply Risk Assessment is to identify any unlicenced local potable water supplies that could potentially be impacted from the proposed development. This can then be used to ensure that appropriate mitigation measures are identified.

The first stage in this process is to identify all the Private Water Supplies which could be impacted by the scheme.

If you have a Private Water Supply, please complete the online questionnaire at (https://forms.microsoft.com/r/jBeyGR23JX) or by scanning the QR code below with your phone camera:

Alternatively, you can request a word version of the questionnaire from GlenEarrachPWS@aecom.com

If you have any queries about the questionnaire, please contact me on the number or email provided below.

This questionnaire is about Private Water Supplies only. If you want to give feedback on the consultation or you have any questions about the project in general, go to the website www.glenearrach.energy or email info@glenearrach.energy.

Yours sincerely,

Ruth Carter
Consultant Hydrogeologist
AECOM Limited
M: 07436379438
E: ruth.carter@aecom.com

Private Water Supply Survey Questionnaire

The purpose of this Questionnaire is to support the preparation of an Environmental Impact Assessment Report (EIAR) to secure Private Water Supplies to properties in proximity to the Glen Earrach Pumped Storage Hydro site.

A Private Water Supply is a water supply which is not provided by Scottish Water. They can originate from lochs, boreholes, springs and streams.

The aim of the Private Water Supply Risk Assessment is to identify any unlicenced local potable water supplies that could potentially be at risk from the proposed development. This can then be used to ensure that appropriate mitigation measures are identified.

The first stage in this process is to identify all of the Private Water Supplies within 1 km of the Development.

Please complete the survey before the **30th of November** for your results to be considered in our assessment.

If you would like to receive a copy of the Questionnaire electronically, or have any other queries, please contact Ruth Carter at AECOM by telephone on 07436379438 or by e-mail at: GlenEarrachPWS@aecom.com

Alternatively, a digital version of the questionnaire can be accessed via the QR code below:

Before completing this form please provide the following contact information:

Contact Name:	
Address:	
Post Code:	
Telephone number:	
E-mail:	
By signing this form you give permission to AECOM to store and use your data for the purposes of the PWS Risk Assessment associated with the Glen Earrach PSH proposed development only. All data will be stored and used in accordance with the General Data Protection Regulation (GDPR) and the Data Protection Act 2018, as they apply in Scotland.	

Signed	
Date	

Instructions

This Questionnaire has been broken up into **four sections**:

- Section 1: General Information on your Supply
- Section 2: Questions on the use of your supply
- Section 3: Questions on the quality of your supply
- Section 4: Borehole Information (only complete if you have a borehole)

Can you please complete each question as fully as possible. Please return this by:

1. Email Ruth Carter at GlenEarrachPWS@aecom.com
2. Or, send to the following address:

   Ruth Carter
   AECOM
   Tanfield
   Inverleith Row
   Edinburgh
   EH3 5DA
3. Or, fill the form out online at https://forms.microsoft.com/r/jBeyGR23JX

Where options have been provided for a question please tick the relevant box (s). If you do not use water from a Private Water Supply please complete Question 1 only.

Should you require additional space to complete your answer to any of the following questions, please use the space provided at the end of the questionnaire.

Glen Earrach Energy is committed to respecting your privacy and will comply with all applicable data protection and privacy laws. We are consulting you to get information on Private Water Supplies in the vicinity of the proposed Glen Earrach Pumped Hydro Storage and which may need to be considered as part of the impact assessment. We may need to share information of the supply with certain other bodies for the purposes of the consultation and for creating reports. These include The Highland Council, SEPA, Scottish Power Group companies; third party service providers, contractors or advisors who provide services to us; relevant planning authorities.

Further details of our Privacy Policy can be found here: Privacy Policy | Glen Earrach Energy

Section 1: General Information on your Supply

These questions are designed to understand where the source of your supply is located as well as other general information. Understanding where your source is located, will help us determine whether your supply is at risk from the proposed development.

Q1 Please describe your water supply?

Mains Supply	Y	N

If Yes, please tick and return to address on page 1

Private Supply	Y	N

If yes, continue to Q2

Both	Y	N

If Yes, continue to Q2

Q2 To the best of your knowledge, how old is your private water supply?

……

Q3 Please tick the source type of the Private Water Supply

Spring		Stream or River	
Well		Lake/Pond	
Borehole		Other surface water source	

Q4 Do you know the name of the source (if it has one)?

……

Q5 Please provide details on the location of the point of abstraction (e.g. ideally please provide a national grid reference, indicate on the map below or provide a separate map in your response). You can get grid references from https://gridreferencefinder.com/ by finding the location and clicking on the aerial map.

……

Q6 Please provide details of how the source is conveyed to the house/field reservoir if known?

……

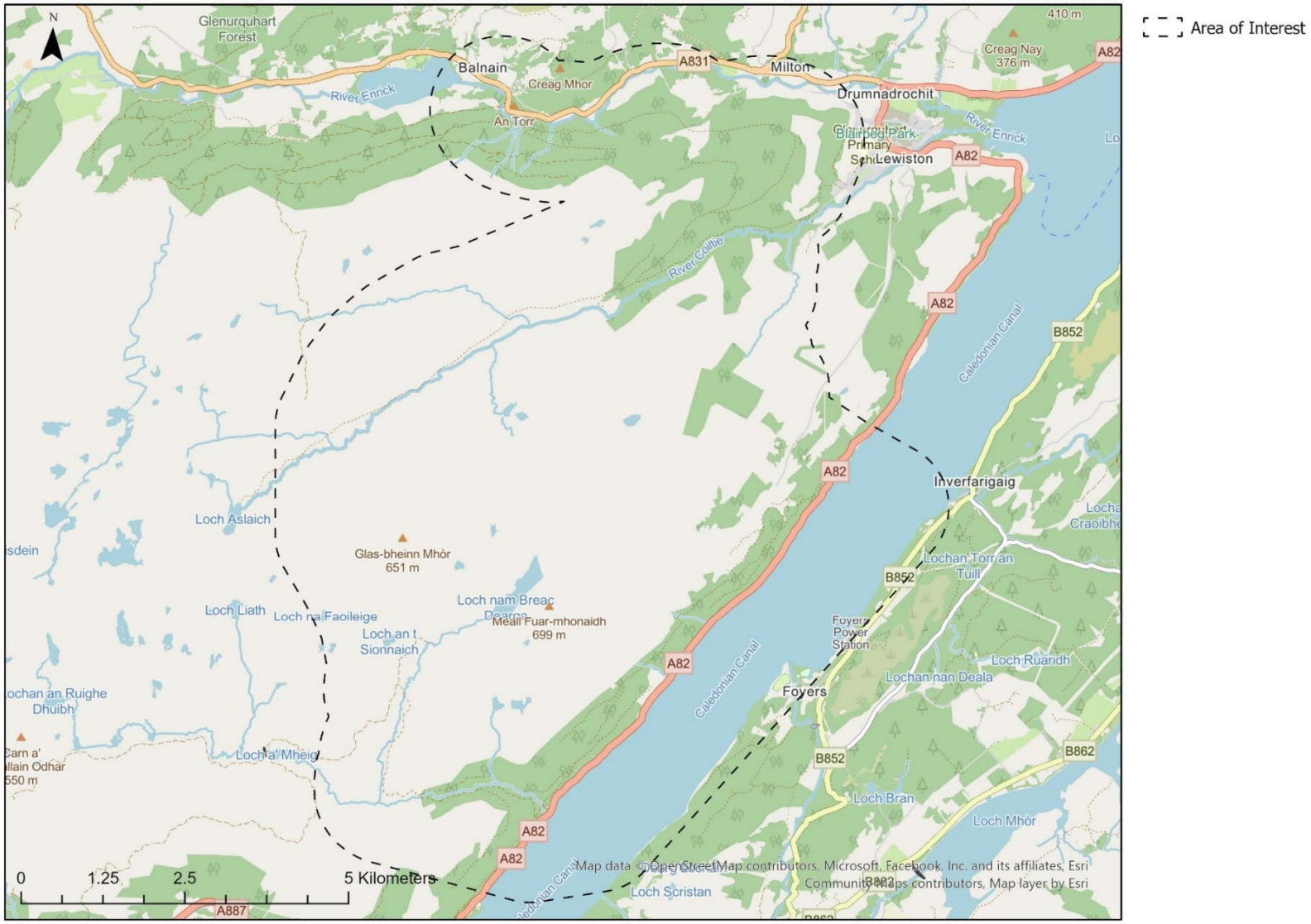
Q7 Does your supply ever run out in dry periods or fluctuate at certain times of the year or seasons? (if yes, please give details):

……

Q8 Do you know of any other Private Water Supplies in your area and if so are you able to provide details such as location or an address/contact details?

……

Please Annotate Location of PWS on the Map Below


N
Glenurquhart Forest
Balnain
Creag Mhor
River Enrick
An Torr
A831
Milton
Drumnadrochit
410 m
Creag Nay 376 m
A82
Blairbeg Park Primary Sch.
Lewiston
River Enrick
River Coiltie
A82
B852
Caledonian Canal
A82
Inverfarigaig
Loch Aslaich
Glas-bheinn Mhòr 651 m
Loch nam Breac Dearga
Meall Fuar-mhonaidh 699 m
Loch Liath
Loch na Faoileige
Loch an t-Sionnaich
Lochan Torr an Tuill
B852
Foyers Power Station
Loch Ruaridh
Lochan nan Deala
A82
Caledonian Canal
Foyers
B852
B862
Loch Bran
Loch Mhòr
Carn a' Mhaim 550 m
Loch a' Mheig
A82
A82
Loch Scristan
A887
0
1.25
2.5
5 Kilometers
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Area of Interest

Section 2: Questions on the use of your supply

These questions will help us understand what your supply is used for and how often it is used. This information is essential for the risk assessment. Understanding how your Private Water Supply is used will help us to understand the magnitude of impact if it is deemed at risk.

Q9 Please provide details of how water from the Private Water Supply is used (i.e. by yourself or any other persons/business/user of the supply)

Drinking water		Crop irrigation	
Washing		Livestock supply (e.g. cattle, sheep, etc.)	
Grey water (WCs/toilet flushing)		Other (please state below)	

……

……

Q10 Please provide an estimation of (1) the number of persons supplied with water for domestic purposes; (2) the number of dwelling served by the supply; and (3) the average daily volume of water abstracted (if known):

(1)	The number of persons supplied with water for domestic purposes	
(2)	The number of dwellings served by the supply	
(3)	The average daily volume of water abstracted (m^3/day)	

Q11 How often do you abstract/use water from a Private Water Supply (i.e. daily, weekly, monthly, and seasonally)? For instance, is your supply only used occasionally for a holiday home/bothy? Or is your supply used on a daily basis?

……

……

Section 3: Quality of your supply

Do you have any information on the quality of your supply please answer the questions below.

Having information on the quality will help us to understand the magnitude of impact if it is deemed your supply is at risk.

Q12 In your opinion how good is the quality of the water supply?

……

……

Q13 Do you have any treatment measures on your supply (e.g. UV filters)?

……

……

Q14 Is your supply infrastructure serviced annually and has water quality analysis ever been undertaken, and if so, may AECOM see the results?

……

……

Section 4: Borehole Information

If you have a **borehole or well (i.e. abstraction from groundwater)** please answer the following questions to the best of your knowledge.

This information will support the risk assessment of your supply.

Q15 If your Private Water Supply comes from a borehole or well can you please provide an estimation of how deep it is?

……

Q16 Please state the geological strata (e.g. limestone/sandstone) the borehole or well is situated in (if known)

……

……

Q17 Do you have any groundwater level information from your borehole or well? If yes, could you supply that information to AECOM?

……

Thank you for your assistance

Please use the space provided to continue your answer to any of the questions above stating clearly which question you are referring too. Alternatively, please use this space to add any further information relating that you feel is relevant.

Annex C: Results from online survey

ID	Age of Supply	Source	Name of Source	Grid Reference /Location	Source conveyed to Property	Any Fluctuations in supply	Information on other private water supplies in the area?	Use of Supply	(1) the number of persons supplied with water for domestic purposes; (2) the number of dwelling served by the supply; and (3) the average daily volume of water	How often do you abstract/use water	Quality	Treatment currently used	Depth of Borehole	Please state the geological strata of Borehole	Do you have any groundwater level information
Survey 1	Over 12 years	Borehole	Not named. Situated on land belonging to Ardnish House	sourcing.pothole.rips	Underground pipes from borehole to the four properties served	No, but occasionally has more sediment (pre-filtration)	No	Drinking Water	Approx. 13 people. Currently four dwellings supplied from this borehole. Volume not known.	Daily.	Generally excellent	UV filter. Sediment 'string' filter. pH vessel for acidity. Carbon vessel as a precaution for heavy metals.	80 metres	Don't know	None known
Survey 2	Over 100 years	Well	none known	50m from the Clay Works	pipe	Some brief summer dry periods	No.	All domestic uses	Between 4 and 12	Only water supply	Passes authority testing.	Filtration and UV		sedimentary rock and sand	
Survey 3	Unknown	Borehole		57.291043, -4.5016855	Pump	No		Drinking Water	1) 13 people 2) 4 households 3) unknown	Constantly	Fine	Yes	80m	Unknown	No
Survey 4	Not sure	Spring	No	It's in the great glen way above the cottage	Through blue water pipes	Yes, it can dry out during dry spells	No	Drinking Water	2 persons at 3 Primrose and	Daily	Good as far as I know	UV filters	N/a	N/a	N/a

ID	Age of Supply	Source	Name of Source	Grid Reference /Location	Source conveyed to Property	Any Fluctuations in supply	Information on other private water supplies in the area?	Use of Supply	(1) the number of persons supplied with water for domestic purposes; (2) the number of dwelling served by the supply; and (3) the average daily volume of water	How often do you abstract/use water	Quality	Treatment currently used	Depth of Borehole	Please state the geological strata of Borehole	Do you have any groundwater level information
				sign posted					household 1-2						
Survey 5	Unknown	Unknown	No		Pipe?	No	Believe ours is shared with next door	Drinking Water	2 people here, think it's 2 properties, unknown volume	Daily		Unknown	Unknown	Unknown	No
Survey 6	1860	Spring	Loch nam Breac Dearga	NH 47299 34583	Natural spring to tank then pipe to house	Yes in dry spells any time of year	All neighbours are on private sources	Drinking Water	4 1 x property it's our main domestic supply so used constantly for all purposes	Hourly it's our only water supply	Good	UV and mesh filtration system			

ID	Age of Supply	Source	Name of Source	Grid Reference /Location	Source conveyed to Property	Any Fluctuations in supply	Information on other private water supplies in the area?	Use of Supply	(1) the number of persons supplied with water for domestic purposes; (2) the number of dwelling served by the supply; and (3) the average daily volume of water	How often do you abstract/use water	Quality	Treatment currently used	Depth of Borehole	Please state the geological strata of Borehole	Do you have any groundwater level information
Survey 7	15 years old	Borehole		NH 49156 23813		No	No	Drinking Water	4 persons 1 dwelling	Daily as main dwelling	Good	UV light and carbon filters	150 meters	Sandstone	
Survey 8	100 years plus	Spring	It comes off the common grazing		Aquifer. Through to spring.	Yes sometimes. If any work has been done on common grazing we are affected	Yes they are all from the common grazing	Agriculture (Cattle, sheep, etc.)	5 people and one dwelling house. With one caravan	No	It's good quality water	No	Springs	Sand stone	No

ID	Age of Supply	Source	Name of Source	Grid Reference /Location	Source conveyed to Property	Any Fluctuations in supply	Information on other private water supplies in the area?	Use of Supply	(1) the number of persons supplied with water for domestic purposes; (2) the number of dwelling served by the supply; and (3) the average daily volume of water	How often do you abstract/use water	Quality	Treatment currently used	Depth of Borehole	Please state the geological strata of Borehole	Do you have any groundwater level information
Survey 9	>20 years	Borehole		NH 49640 27551	underground pipe from the borehole to the house.	No, but only been resident for 3 years.	Every home in this glen has a private water supply.	Drinking Water	2 people. 1 dwelling, a lot, drinking, bathing, washing, grey water, standard domestic use.	daily. its our only source of water.	pretty good. hard water, needs a lot of filtration	UV Filters, manganese filters, iron filters and sulphate filters. 5 and 3 micron filters on the drinking tap. Serviced twice per year.	125m	unknown	I do not.

ID	Age of Supply	Source	Name of Source	Grid Reference /Location	Source conveyed to Property	Any Fluctuations in supply	Information on other private water supplies in the area?	Use of Supply	(1) the number of persons supplied with water for domestic purposes; (2) the number of dwelling served by the supply; and (3) the average daily volume of water	How often do you abstract/use water	Quality	Treatment currently used	Depth of Borehole	Please state the geological strata of Borehole	Do you have any groundwater level information
Survey 10	100+ years	Spring	It has no name. It comes from two springs. We have permission to use a second water supply called Allt Ghiubhais below Lon na Fala close to the site of the pump.	4621	Pipe	Yes, it has during summer.	No	Drinking Water	Two properties, four full time adults and two dogs, regular family visits at weekends and holidays. I have no idea how much water we use. We shower daily, wash clothes and bedding 2-3 times a week, cook and drink, etc	All the time	Excellent	We have a UV filter in the house.	n/a	n/a	n/a

ID	Age of Supply	Source	Name of Source	Grid Reference /Location	Source conveyed to Property	Any Fluctuations in supply	Information on other private water supplies in the area?	Use of Supply	(1) the number of persons supplied with water for domestic purposes; (2) the number of dwelling served by the supply; and (3) the average daily volume of water	How often do you abstract/use water	Quality	Treatment currently used	Depth of Borehole	Please state the geological strata of Borehole	Do you have any groundwater level information
Survey 11	12 years	Borehole	Not named	Doesn't work	In a pipe?	Never		Drinking Water	The household	Daily	Excellent	Yes	65 metres	Scotland	No
Survey 12	12 years	Borehole	Ancarraig Borehole	NH 49859 25603	Borehole pump and 25mm pipeline	Not run out as yet	Ancarraig Lodges and Tigh Ban house	Drinking Water	4 bed house, plus Borehole has potential to supply approx. 6 other 3 bed house	Daily, we live here	Drinking quality	Yes, resin filter, bonechar and UV filter	I have no idea	I have no idea	I have no idea
Survey 13	60 + years	Stream	Allt Saigh river	456 193	Yes	Yes when river is spate. Never runs dry	Yes	Drinking Water	3 households with at least 6 residents. Unsure of daily volume used.	Daily	Good	No			

ID	Age of Supply	Source	Name of Source	Grid Reference /Location	Source conveyed to Property	Any Fluctuations in supply	Information on other private water supplies in the area?	Use of Supply	(1) the number of persons supplied with water for domestic purposes; (2) the number of dwelling served by the supply; and (3) the average daily volume of water	How often do you abstract/use water	Quality	Treatment currently used	Depth of Borehole	Please state the geological strata of Borehole	Do you have any groundwater level information
Survey 14	12 years old, pump new a couple of months ago	Borehole		NH 49656 27611	Borehole pump	No	Yes - both neighbours have boreholes within a close proximity	Drinking Water	12PE - 1800l/day	All day every day	Very good - tested recently	Filters and UV	Over 100m	Unknown	Unknown
Survey 15	Generations old	Spring		NH490392 4155	Yes	Less flow in very dry summers		Drinking Water	1) 8 people 2) 4 dwellings 3) unknown	Daily	Very good	Yes, UV, sediment filters, pH filters			
Survey 16	100+ years	Stream	Allt Saigh	NH 45678 19095	Pump	No	Three properties share this source	Drinking Water	2 at my property. No idea	Daily- constant supply on demand	Unsure	No		Sandstone mainly	
Survey 17	Ancient 100's of years	Spring	None	NH 49105 24206	From the source to the house by plastic pipe	Yes, now often dry during June-August but hasn't run out yet	From the start of Bunloit Hill to Grotaig everyone is on private	All of the above other than grey water	2 people, 1 dwelling, no idea I'm afraid	Daily, it is our only supply of water	Potable	UV and particle filter		Sandstone	

ID	Age of Supply	Source	Name of Source	Grid Reference /Location	Source conveyed to Property	Any Fluctuations in supply	Information on other private water supplies in the area?	Use of Supply	(1) the number of persons supplied with water for domestic purposes; (2) the number of dwelling served by the supply; and (3) the average daily volume of water	How often do you abstract/use water	Quality	Treatment currently used	Depth of Borehole	Please state the geological strata of Borehole	Do you have any groundwater level information
							water supply								
Survey 18	Well over 100 years	Spring and surface		NH513827 68	collection tanks pipes and filter tanks	Never runs out but fluctuates depending on rain fall and underground conditions	Every house on Bunloit (43?) is supplied via private sources	Drinking Water	5 People for domestic purposes. A Kennels and cattery business which can board up to 42 dogs & 20 cats	24 hours a day 7 days a week	Very	Yes	Not applicable	Not applicable	Not applicable
Survey 19	10 years	Borehole		What three words ‘iron.plantings.powers’		No	No	Drinking Water	1. 11 people 2. 4 residential homes 3. Don’t know	Daily	Very good but we filter it ourselves	UV filter, string filter, pH equaliser	Don’t know		

Annex D: Final List of PWS

Area	ID	Survey ID	THC ID	Presumed Grid ref	Name	Source
Allt Saigh	PWS-01	Survey 13 or 16	36885	NH 45600 19300	Briarbank	Surface Watercourse
Allt Saigh	PWS-02		28737	NH 45717 18999	Loch Ness Youth Hostel	Borehole
Primrose Bay	PWS-03	Survey 4 and 10	1000	NH 47094 20523	Primrose Bay	Spring
Grotaig Burn	PWS-04		29601 or 4556	NH 48235 23434	Inchillich	Surface Watercourse or spring
Grotaig Burn	PWS-05		29615	NH 48907 23535	Goshem	Spring
Grotaig Burn	PWS-06	Survey 2	42777	NH 49107 23683	Loch Ness Clay Works	Well
Grotaig Burn	PWS-07	Survey 7		NH 49156 23813	Acorn lodge	Borehole
Grotaig Burn	PWS-08		29610	NH 49153 23880	Grotaig	Unknown
Grotaig Burn	PWS-09	Survey 15 or 17	29618 or 20758	NH 49039 24155	2 Balbeg	Spring
Grotaig Burn	PWS-10		29618 or 20758	NH 49105 24206	3 Balbeg	Spring
Grotaig Burn	PWS-11		49391	NH 49167 24389	JJays	Borehole
Grotaig Burn	PWS-12	Survey 8	29606	NH 49359 24447	Inchonchar	Spring
Grotaig Burn	PWS-13		51540	NH 49425 24673	Tigh Ban	Surface Watercourse
Grotaig Burn	PWS-14		45783	NH 49425 24673	Tigh Ban	Borehole
Grotaig Burn	PWS-15		50299 or 29570	NH 49921 24755	Tynaherrick	Unknown
Grotaig Burn	PWS-16	Survey 1		NH 49345 25066	Bunloit House	Borehole
Grotaig Burn	PWS-17	Survey 3 and 19	22080	NH 49331 25041	Ancarraig House	Borehole
Grotaig Burn	PWS-18	Survey 11	42101	NH 49804 25453	Rowans	Borehole
Grotaig Burn	PWS-19	Survey 12		NH 49859 25603	Dun Ban	Borehole
Grotaig Burn	PWS-20		29726	NH 49773 25592	Gealach	Well
Divach Burn	PWS-21	Survey 9	36227	NH 49640 27551	Clunemore Cottage	Borehole

Area	ID	Survey ID	THC ID	Presumed Grid ref	Name	Source
Divach Burn	PWS-22	Survey 14	36228	NH 49656 27611	Clunemore Steadings	Borehole
Divach Burn	PWS-23	Spoke to owner - confirmation borehole exists	29160	NH 49641 27697	Clunemore Farmhouse	Borehole
Divach Burn	PWS-24	Confirmed on survey that the PWS exists	29733	NH 49312 27340	Divach Lodge	Borehole
Divach Burn	PWS-25	Spoke to owner who confirmed is existed but did not get accurate location		NH 49262 27177	Coiltie House	Spring
Divach Burn	PWS-26	Owner confirmed it existed and gave rough location	29793	NH 48611 26842	Berryfield House	Surface Watercourse
Divach Burn	PWS-27	Owner confirmed it existed and gave rough location	29723	NH 48667 27223	Mill of Divach	Surface Watercourse
River Enrick	PWS-28 (screened out)		29992	NH 44683 30325	Balnadrach	Unknown
River Enrick	PWS-29 (Screened out)		29941	NH 46913 30423	Torshee	Unknown
River Enrick	PWS-30 (Screened out)	Owner confirmed they and surrounding properties were on the mains	29784	NH 47110 30115	Delshangie	Unknown

Glen Earrach AECOM