RFI, Q9 – EIAR, Chapter 4, Human Beings

In respect of the EIAR and impacts upon Human Health it is noted and identified that a number of submissions referenced an incomplete assessment of nearby and neighbouring residential dwellings. The applicants are requested to review this section of the report and to identify all known residential dwellings within the vicinity of the proposed quarry and to assess the impact on the same.

The assessment shall include a review of all the private wells and seek to gain access in order to assess the wells within the area and their risk of impacts from the proposed development.

Response

In response to this question an assessment of all nearby and neighbouring residential dwellings was carried out and an up-to-date aerial photograph showing the location of houses in close proximity to the proposed development are shown on the figure 9.1 below.

Fig 1 - Location of all dwellings adjacent to and in close proximity to the development.

Noise Impact

The area was reassessed for noise impacts of the proposed development, and this was evaluated in relation each dwelling. Predictions of noise impact have already been made for dwelling locations N1 to N9. Following concerns expressed by the planning authority, predictions are made for additional receptors (N10 to N27 incl..) which surround the proposed development. Based on the existing levels on the nearby working quarry and based on the worst-case scenario, the predicted maximum cumulative noise levels from extraction, manufacturing and drilling ar given in Table 9.1 below

Table 1: Predicted maximum cumulative noise levels from extraction, manufacturing and drilling

Receptor	Extraction noise levels	Manufacturing noise levels	Drilling shot holes noise levels	Res ultant cumulative noise level
N10	37.9	39.3	41	**44.4**
N11	39	40.6	42.1	**45.5**
N12	40.1	41.9	43.2	**45.7**
N13	38	41.7	41.1	**45.3**
N14	37.9	40	41	**44.6**
N15	36.6	43.6	39.7	**45.7**
N16	36.2	43.1	39.3	**45.2**
N17	42.2	35	38.3	**44.3**
N18	41.9	34.3	38	**43.9**
N19	41.4	33.1	37.5	**43.3**
N20	41.8	37.5	37.9	**44.3**
N21	41.6	46.8	44.7	**49.6**
N22	37.9	44.1	41	**46.5**
N23	36	42.6	39.1	**44.8**
N24	36.5	38.9	39.6	**43.3**
N25	35.6	38.5	38.7	**42.6**
N26	37.9	40.3	41	**44.7**
N27	38.6	40.4	41.7	**45.2**

The predicted noise levels are below the recommended daytime level of 50 db.

Using the Environmental Protection Agency criteria for description of effects, the potential worst-case associated with the operational effects at the nearest noise sensitive receptors are described in Table 9.2 below

Table 2: Operational Noise Effects

Quality	Significance	Probability	Duration
Negative	Not significant	Likely	Long term effects

Water Impact

The location of all wells and ground water sources were assessed and these are shown in figure 2 below. This is a copy of the figure 7.2 (water features) which is shown in Appendix 7.1 of the EIAR.

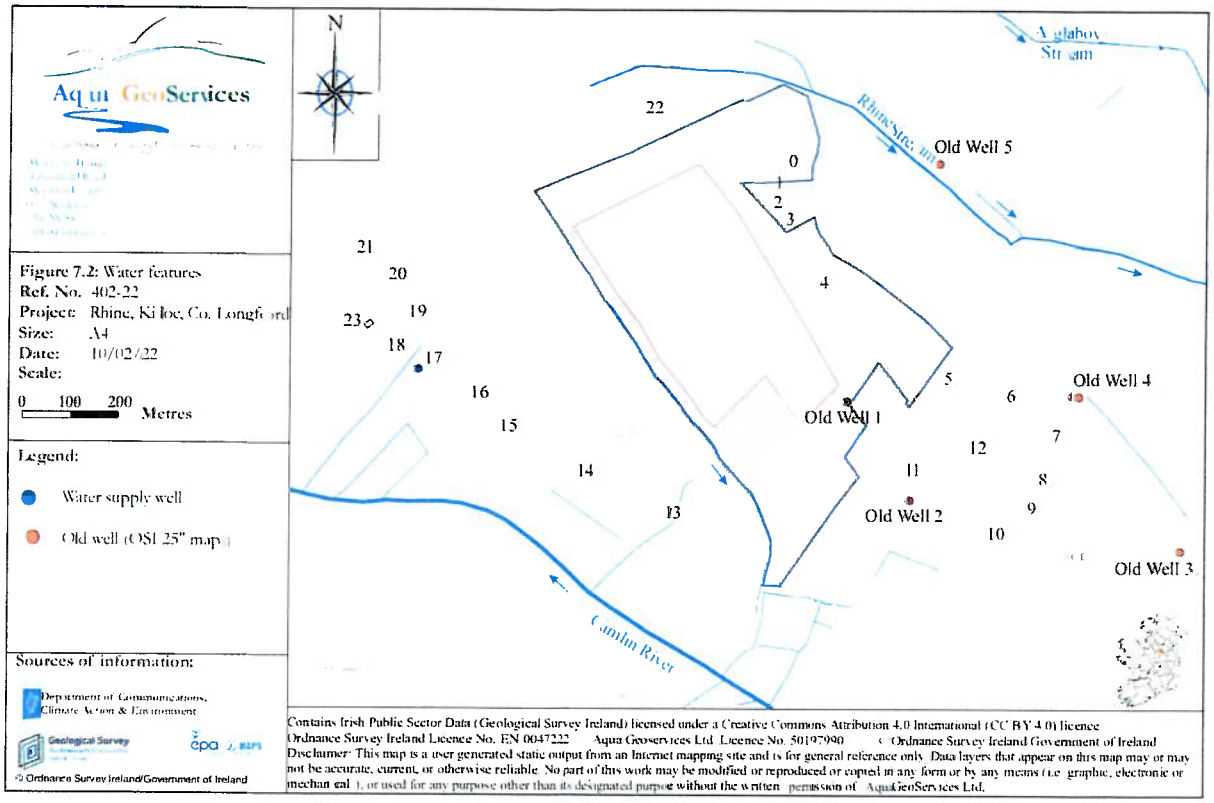

Figure 2 – Location of exis ting wells in relation to the proposed development

The GSI national well database (www.gsi.ie) does not show the presence of any private wells in the vicinity of the quarry compound. The site is not located within any EPA / GSI delineated public or private groundwater supply source protection zones.

Notwithstanding the results of the above, a walkover well survey covering a radius of 350m around the boundaries of the proposed site was carried out by the AGS hydrogeologist and the locations of all wells including the old wells, which were shown on the historical OSI 25" maps were assessed, where possible.

The results of the well survey are summarised in Table 2 below, and these should be read in conjunction with Figurer 2, (Figure 7.2 in Appendix 7.1 of the EIAR).

In addition, Letters were left in the mailbox of landowners if not met during the survey indicating the purpose of the survey and requesting a phone call, should they be relying on a private supply well for the provision of water: no response was received at that time.

Table 2: Survey of the water sources within a 350m radius from the proposed quarry.

Ref No.	ITM Coordinates	Type of supply	Use	Distance to proposed site boundary of extraction area	Comments
Old Well 1	619141.7E – 779352.1N	Assumed dug well	No longer in use	c. 90m to the SE (no gradient).	Covered and no longer in use (source: farmer)
Old Well 2	619565.0E – 779381.9N	Assumed dug well	Likely farming	c. 310m to the SE (no gradient).	The farm is derelict. The well would be too far at no gradient to be impacted by proposed development.
Old Well 3	620101.4E – 779295.9N	Assumed dug well	Domestic / farming	c. 810m to the ESE (no gradient).	Assuming this well still exist, it would not be impacted by the proposed development.
Old Well No. 4	619893.1E – 779590.3N	Assumed dug well	Farming	c. 515m to the ENE (upgradient).	This well belongs to the owners of house 7, which is on the main. It is reportedly covered up and currently not in use. It is too far upgradient to be adversely impacted by the proposed development.
House No. 17	618558.6E – 779639.6N +/- 25m	Assumed to be a borehole*	Domestic	c. 350m to the SW (downgradient).	Although the well was not accessed during the survey, it is deemed as too far from the proposed excavation to be impacted.

* Access to the well was not authorised by landowner at the time of survey.

The proposed application area is not located within a zone of contribution or source protection zone for any public or private groundwater supplies. The GSI national well data base does not show any private wells in the immediate vicinity of the quarry. The results of a walkover/well survey carried highlighted the presence of one private drinking water supply well located over 350m away downgradient from the proposed quarry boundary. As it is

anticipated that the bulk of the cone of drawdown will be limited to 250m, the potential impact on this supply is likely to be insignificant.

Consideration of groundwater hydrogeology and surface water hydrology of the proposed development and the receiving environment indicates that there is potential for local impacts during the operational phase of the proposed quarry extension.

The proposed quarry will result in the loss of approximately 0.15% of the catchment area of the Camlin River at the point of discharge from the proposed quarry, which cannot be mitigated. Most of the water drained within the proposed quarry, will however discharge back to the Camlin River via an existing drainage ditch. The overall water budget of the receiving water from the Camlin River will therefore not be affected.

The bulk of the cone of drawdown induced by the quarry is likely to occur within 250m from the quarry boundaries. Beyond this distance, the drawdown would likely remain within the order of the natural fluctuation of the water table. One water supply well has been identified c. 350m downgradient from the proposed quarry boundary, which is beyond the 250m distance. As a result, this well should not be adversely impacted by the proposed quarry activities.

Pollution control and other preventative measures have been incorporated into the project design to minimise any adverse impacts to water quality. Mitigation drainage designs will be in place, so that no residual significant impacts will occur on the water environment or on sensitive downstream aquatic receptors.

After the operational phase ceases, the water table will recover and form a "quarry lake". There will therefore be an increase in the potential risk to groundwater water quality then. The restoration plan for the quarry will address the issue of groundwater quality and include measures to ensure that groundwater quality is maintained in a satisfactory condition.

Using the Environmental Protection Agency criteria for description of effects, the potential worst-case associated with the operational effects on the ground water at the nearest receptors will be: -

Post-mitigation Impact (residual): Indirect, imperceptible, brief, low probability impact on groundwater body.

Significance of Effects: No significant residual impacts on groundwater quality are anticipated.

Air Quality Impact

Air dispersion modelling of operational activities at the site was undertaken to assess the impact of the development with reference to EU ambient air quality standards which are based on the protection of human health. As demonstrated by the model ingress, in chapter 9 of the Environmental Impact Assessment Report, emissions of PM_{10} and PM_{25} as a result of

the development are compliant with all National and EU ambient air quality limit values (see Table 9-1) and, therefore, will not result in a significant impact on human health.

Cumulative effects have been assessed for the proposed development. Conservative background concentrations have been included in the modelling study for dust deposition and EPA data for PM_{10} and $PM_{2.5}$.

There are a number of mitigation measures proposed to be put in place on site to prevent significant dust emissions from on-site activities. These measures include:

- A wheel wash will be on site which trucks must pass through prior to exiting onto the public road.
- A water bowser will be used during dry periods to dampen site roads.
- Speed restrictions will be in place for on-site roads.
- Stockpiles will be dampened during dry periods.

These measures have been incorporated into the modelling assessment to determine the impact of the site on levels of dust deposition and ambient levels of particulate matter (PM_{10} / $PM_{2.5}$). The modelling assessment found that there was an imperceptible impact on the ambient air quality environment as a result of the development

It is not anticipated that there will be an adverse impact on air quality and climate in the vicinity of the proposed development. Modelled emissions from the site lead to ambient concentrations which are within the relevant ambient air quality standards for dust, PM_{10} and $PM_{2.5}$. Thus, the impact on air quality and climate as a result of the proposed development is not significant and thus no residual impact is anticipated.

In respect of the EIAR and impacts upon Human Health, following a number of submissions referenced an incomplete assessment of nearby and neighbouring residential dwellings. We have review this section of the report, identify all known residential dwellings within the vicinity of the proposed quarry and reviewed the impact in relation to noise, water and air quality. Access, in order to assess the wells within the area and their risk of impacts from the proposed development, was denied. However it is clear from our assessment that there is just one active well within the the area of the proposed development and as this well is outside the zone of draw down and is downstream of the site it was concluded that the impact on this well is negligible.