

Water Abstraction – Rebuttal

Executive Summary

I lodge the attached Rebuttal to the Dalradian Gold Ltd AIL 2024/0008 - DAERA (PAC Ref: 2024/WHR01) & AIL 2024/0009 - DAERA (PAC Ref: 2024/WHR02) Rebuttal under the proviso that it be considered with all previous objections lodged regarding the same, and under some protest at the lack of a level playing field afforded to the local community and to local people in terms of public participation on this hugely important matter.

That we, as people in full-time employment, and with families and other responsibilities are given such a short window to attempt to sift through the deliberately mountainous volume of paperwork, undoubtedly designed to be as off-putting as possible, can in no way compare to the luxury afforded to the company who can afford to pay professionals to focus on specific aspects of the application and focus the entirety of their time to this issue. The horrific impact this company and this application has and continues to have on people's health and well-being, physical and mental, is seemingly being ratcheted up in the run up to the Public Inquiry.

That new information and new applications are being submitted by Dalradian, as part of this process, seems to run contrary and indeed in breach of normal planning process, and questions have to be asked about this also. It has been an impossible task to work through the volume of attachments and appendices presented, but all we can do is our best as this is what we need to for our very survival.

As the NIEA Statement of Case notes, “on the information currently available, the NIEA does not consider that it can lawfully or should on the merits grant the abstraction licences.” It is noted that NIEA’s “primary purpose is to protect and enhance Northern Ireland’s environment...NIEA is responsible for controlling and regulating activities which have the potential to impact on the environment”, and this is the only option available if they are to credibly live up to that guiding principle. “Article 38 of the Environment (Northern Ireland) Order 2002 imposes a duty on NIEA to take steps to further the conservation and enhancement of an Area of Special Scientific Interest” (p.12, 2.10).

NIEA Conservation Management Plan for the Owenkillew Catchment - [Owenkillew River SAC](#) – “Exploration associated with a prospective gold mine” is noted as a “High Scale” pressure and threat to the catchment area by NIEA (p.4), but notably also highlighted as Threats and Pressures in this document are ‘Abstraction for public and private water supply (agricultural, industrial or commercial)’ (p.5) and ‘Flooding’ (p.7), which are noted as ‘Medium’ & ‘High’ respectively, and this is without even considering the mining application!

“NIEA consulted with the Department of Communities, Historic Environment Division (HED) to seek views on the proposals potential to impact on points of historical interest see AIL14. HED have highlighted a concern that the abstractions may result in an impact on unknown archaeological remains in peat. HED have sought the carrying out of an assessment by an expert. **The Applicant provided information in the Gahan and Long Letter in January 2022 [AIL 1], however it is understood that this information fails to meet the requirements of HED. This point remains unresolved**” (p.20, 5.3).

p.21, 6.1 “In accordance with regulation 10(2)(a) of the 2006 Regulations, NIEA has had regard to all other abstractions within the area of the water environment likely to be effected by both Applications AIL 2024/0008 and AIL 2024/0009 [AIL 19].” – What is the cumulative impact of historical, on-going and future planned abstractions in this catchment area? Are they sustainable, and do they fall within the legal/legislative parameters?

The Water Undertaker advised that “it must be noted that the area under consideration for the development is within the drinking water catchment areas for a number of NI Water’s Water Treatment Works (WTWs) and drinking water abstraction points. These drinking water catchments have been designated as a Drinking Water Protected Area (DWPA) under Article 7 of the Water Framework Directive. Any development carried out within a DWPA must demonstrate measures to ensure water quality and quantity are protected. Therefore, it is essential that robust measures are put in place to ensure that the quality and quantity of the raw water that we abstract is protected at all times to ensure that there is no risk to either the quality or sufficiency of the public drinking water supply” – Precautionary Principle – poses a threat to people’s health as well as a threat to public water supply and waste treatment works! (p.22, 6.6,)

p.24, 7.3 “Based on the evidence, NIEA concluded that it could not be satisfied that the proposals would not have a likely significant effect on the selected features of the Owenkillew SAC both alone and in-combination.” Given the outstanding issues, and the findings to date, it seems that there is little option other than to refuse these applications as completely unsuited and potentially destructive to this specially designated area, the Precautionary Principle must be applied.

As the Conclusions at 11.1 lead to 11.2 “Whilst further information may be provided, on the information currently available the NIEA does not consider that it can lawfully or should on the merits grant the abstraction licence applications” (p.37/38).

There is no way to safely and competently mitigate for the applications made in relation to the abstraction and impoundment of the vast and significant volumes of water requested by Dalradian in their application, without serious and permanent impacts on the surrounding waterways, and as such these applications must be refused.

Notes:

NIEA SoC p.2 NIEA's "primary purpose is to protect and enhance Northern Ireland's environment...NIEA is responsible for controlling and regulating activities which have the potential to impact on the environment".

p.3 "The proposed surface water runoff management diverts the natural flows servicing the Pollanroe Burn and the unnamed stream"

Repeated use of the term "pond" – given the scale and volume of 'water' involved here, why is this not being treated as a reservoir (Dal, p.10 claim their 'clean water pond' will have a maximum capacity of 19,180 m³ & the West Pond will have "a capacity of 39,010 m³", p.11 Vs. Figure 3, p.13 'Clean Water Pond' "Storage Volume 40,260m³", West Water Pond "Storage Volume 38,855m³" & East Water Ponds "Storage Volume 62,843m³")?

"The proposed mine straddles two small catchments, which form part of the larger Owenkillew River Catchment [AIL 3]. The Owenkillew River is Designated as a Special Area of Conservation (SAC) to protect the Freshwater Pearl Mussel, Atlantic Salmon and related habitat. The SAC is currently in unfavourable condition." – This statement at Point 9 should be enough to warrant complete refusal of permissions on its own.

p.3/4 "It has been established [by both NIEA & Dalradian] that the surface water abstraction (Application Ref AIL 2024 0009) would result in a reduction of natural flows in the upper parts of the Pollanroe Burn and the unnamed stream."

Points 10-12 deal with the profoundly negative impact on natural flows of both the Pollanroe Burn and the "unnamed stream".

Point 14 lays out the reasons why at Point 15 "on the information currently available, the NIEA does not consider that it can lawfully or should on the merits grant the abstraction licences."

All of this detail conflicts with the polar opposite view expressed by Dalradian in their SoC, "The impacts to surface water flows and groundwater levels from the Project were assessed as not significant." (p.3) Dalradian also claim, "Archaeological impacts have been specifically considered following discussion with NIEA and are not significant".

Dal, p.6 "Access to the project is via ***a number of highways*** and local roads" – a highway is defined "an area of land which the public at large have the absolute right to use to 'Pass and Repass without let or hindrance' " – given the actions of Dalradian and their employees/sub-contractors, it could be argued that there are no highways in the area. Best roads here are B class, and in states of disrepair.

p.8 The North Western River Basin Management Plan "clearly states that the objective of the 2015 plan to have 70% of its water bodies at 'good or better' status by the end of the plan period was not met."

The Owenkillew Special Area of Conservation Management Plan notes the “conservation value is considered to be in an unfavourable condition”.

p.10 Despite “The application is for a maximum of 2,250 m³ /day”, Dalradian somehow claim the impact “which remains unchanged”??

p.11 “***Construction will involve activities that will disturb the natural ground surface, cover the headwaters of minor tributaries to the Pollanroe Burn and increase runoff rates in the proposed infrastructure site.*** Mitigation is embedded in the Construction Environmental Management Plan. The residual impact on flows in the Pollanroe Burn, Owenreagh River and downstream reaches of the Owenkillew and Lough Foyle tributaries is negligible with mitigation measures in place” – pure fantasy!

“During operations at the proposed infrastructure site (Owenreagh catchment), calculations indicate that even with the abstraction, the project will increase average annual flows and monthly flows (particularly during summer months and low flow conditions) and reduce flood peaks in the Pollanroe Burn. The increased flows are not expected to result in out of bank flows, bank erosion or deterioration of ecological habitats. The modified flow regime is therefore considered neutral.”

“The ES concluded the impact on surface waters (SW01) was neutral (neither positive nor negative) and not significant.”

“Abstracted water will be returned to watercourses within the surface water catchment of the Gortin groundwater body with the discharge volume exceeding the extracted volume. Therefore, following UKTAG and NIEA guidance the proposed abstractions are excluded from the Water Balance Test. As a result, there will be no impact on the status of the Gortin groundwater body.”

p.12 “The total maximum volume of abstracted mine water is predicted to be 1,700m³ /day”

p.13 Figure 3 – contrasting storage volumes noted? Duplicate/different figures given in bold and italicised fonts? 0.4/0.5m³ to evaporate per hour?

p.14 “dewatering will occur to a greater extent at depth than in shallow aquifer layers. This is due to mining occurring largely at depth, and to the effects of high rainfall recharge and higher permeability in the uppermost bedrock layer.” Ergo mining will cause dewatering to a greater extent.

“For private abstractions, two shallow abstractions near the underground mine development could be impacted by drawdown and may go dry. These abstractions will be monitored and, should losses occur due to mining activity DGL will offer replacement if requested by the landholder. Six other abstractions listed as “used” (i.e. active) are predicted to have water level drawdown but not go dry. Two of these are on DGL land and will be removed as part of the development. The remaining abstractions

will be monitored during mine operation and replacement supplies will be offered if required.” – do what they want, to hell with the consequences!

“When the mine is at its maximum depth, groundwater contributions to baseflow in the Curraghinalt Burn and Attagh Burn will reduce. As these contributions are small, the impact on flows in these burns is predicted to be negligible (Curraghinalt Burn) or minor (Attagh Burn) by the surface water assessment.” The impact of any change to flow to these waterways, as tributaries, cannot be over-stated, and is completely unacceptable.

“As most of the peatland comprises blanket bog habitat, which is supported by high rainfall as opposed to groundwater flow, no impacts are expected on peatland from mine dewatering.” – How can this be stated as fact, have Dalradian no concept of gravity?

“The Groundwater Impact Assessment (GW02) concluded the impact was negative and not significant.” – Negative, and therefore unacceptable. Precautionary Principle must apply, particularly when dealing with protected areas of conservation.

p.17 “use of the data from Lough Fea.”

p.18 “It is quite clear the Black Bog Ramsar site is some distance from any possible impacts, and this is addressed in the Ecology Technical Report.” – When the entire watercourse area is considered, as should be the case when dealing with such impacts, this is very much not the case.

“The geology of the Curraghinalt Project is not comparable to some regions where changes in groundwater levels in karstic systems can result in subsidence and sinkholes” – are they saying subsidence is impossible and should be ignored, as the lived experience of the people of this area would argue the events of August 2017¹.

p.19 While claiming that “there is no credible potential for transboundary impacts from the project” yet acknowledging that these works will “cover the headwaters” of tributaries to the Pollanroe Burn, they’re choosing to ignore that this in turn impacts the Owenkillem & Owenreagh flow, which ultimately feeds into the Foyle ASSI. They seem intent on dismissing the very real threat to these protected waterways, as led NIEA to conclude “that it can lawfully or should on the merits grant the abstraction licences.”

p.20 “all retained water will be below original ground level” – unacceptable threat to the protected land and watercourse in the event of flooding/heavy rainfall. Precautionary Principle must be applied here.

¹ [Dealing with the upland landslides in the Sperrins which occurred in August 2017 | Department of Agriculture, Environment and Rural Affairs](#)

p.21 “The impacts to surface water flow (SW01) and groundwater levels (GW02) from the Project were assessed as not significant.” – completely at odds with what they’ve noted during the course of their SoC, and with what NIEA has submitted.

p.26 G. Plunkett, QUB, “Consideration of potential risks of dewatering is here limited to stone monuments that might be found beneath the blanket peat, specifically igneous and metamorphic rock types, reflecting the local geology.”

“Lateral movement of acid water within the peat may have been an aggravating factor in the stones’ chemical weathering”

“Removal of peat at or near areas of archaeology poses a direct threat to stone monuments as it increases lateral water movement within the peat.”

“Vertical water-table fluctuations in blanket peat occur on inter-annual (seasonal) and multi-annual (climate) timescales...vertical flow in the catotelm above low permeability substrates was negligible relative to lateral flow.” This contradicts Dalradian’s assertions on p.14 where they claim, “no impacts are expected on peatland from mine dewatering”.

7.1 relies on confused SRK information which seems to acknowledge the potential for drawdown in one instance, but not in another, and talks of predictions rather than credible certainty. Without certainty, the Precautionary Principle must be adhered to.

7.2 the net impact is referenced by SRK in the notes as being 10-15 years, completely ignoring the immediate impact this will have on the health of the peatland in the here and now, in the midst of a climate emergency. The idea that this be sacrificed, in either the long or short term, for financial gain and the exploitation/extraction of a ‘valuable’ metal we already have copious amounts of aboveground is nonsensical.

p.27 we’re aware of what ‘Dalradian monitoring’ involves and has involved to date and this is an unacceptable risk to this area of conservation.

8.1 – “The proposed activity expects to have limited direct impact on the blanket peat hydrology in the area, with the exception of the portal location.” There is always an exception, and this has to be argued as an unacceptable sacrifice to be made.

“This prospect is reasonable under current climate conditions” – is the author aware that climate conditions are worsening every year?

8.2 “The impact of water flow on rocks within a saturated peat is therefore poorly understood. Overall, however, any impact on buried stone monuments will be minimised if the water table is maintained to prevent the peat becoming aerobic and degraded.” – this screams out for the Precautionary Principle to be followed!

9.1 “...provided water levels are maintained within the peat...” This caveat seems unlikely to be adhered to given the volumes quoted by Dalradian in their application.

NIEA p.11, 2.8 Article 6 (2) of the Habitats Directive requires not only the avoidance of ‘the deterioration of habitats and the habitats of species, but also ‘disturbance of the species for which the areas have been designated’

p.12, 2.10 “Article 38 of the Environment (Northern Ireland) Order 2002 imposes a duty on NIEA to take steps to further the conservation and enhancement of an Area of Special Scientific Interest.”

2.11 “NIEA is also required under section 1(1) of the Wildlife and Natural Environment Act (Northern Ireland) 2011 in exercising any functions, to further the conservation of biodiversity so far as is consistent with the proper exercise of those functions.”

p.14 3.4 “The Owenkillew River Special Area of Conservation (SAC) extends upstream of the existing mine exploration site and includes the lower reaches of the Curraghinalt Burn. ***The SAC is at unfavourable condition.***”

p.15, 3.6 “There is therefore a functional linkage between the waters of the Pollanroe Burn and the unnamed stream and the species for which the Owenkillew River SAC is designated.”

NIEA Conservation Management Plan for the Owenkillew Catchment - [Owenkillew River SAC](#) – “Exploration associated with a prospective gold mine” is noted as a “High Scale” pressure and threat to the catchment area by NIEA (p.4), but notably also highlighted as Threats and Pressures in this document are ‘Abstraction for public and private water supply (agricultural, industrial or commercial)’ (p.5) and ‘Flooding’ (p.7), which are noted as ‘Medium’ & ‘High’ respectively, without considering the mining application! (see attached NIEA Owenkillew River Pressures & Threats File).

3.2 “Drumlea and Mullan Woods ASSI is also within the Owenkillew SAC. However, whilst it is not identified as a water dependent feature, it is ***located on a potential superficial aquifer.*** [AIL 8 Drumlea and Mullan Woods ASSI Citation]”.

p.16, 4.2 “***River flow affects a range of habitat factors of importance to flora and fauna and is a key attribute used to assess the condition of a designated habitat.***

The natural flow regime of the river should be protected to secure the protection of the selected features within a designated site. Flows should not vary significantly from the natural flow.”

4.3 “The Owenkillew River Special Area of Conservation, Site Conservation Objectives [AIL 6] highlights water extraction as a key pressure on the River Habitats and Species.”

p.20, 5.3 “NIEA consulted with the Department of Communities, Historic Environment Division (HED) to seek views on the proposals potential to impact on points of historical interest see AIL14. HED have highlighted a concern that the abstractions may result in an impact on unknown archaeological remains in peat. HED have sought the carrying out of an assessment by an expert. ***The Applicant provided information in the Gahan***

and Long Letter in January 2022 [AIL 1], however it is understood that this information fails to meet the requirements of HED. This point remains unresolved.

5.4 “The Department for Infrastructure (Dfi) confirmed that the proposals did not present a risk of flooding. Dfi also confirmed that the Reservoir Act (Northern Ireland) 2015 did not apply to the ponds ***due to the below ground construction.***” How is this the case, and is it not, in fact, another appeasement to Dalradian by the Department that they refuse to consider the volumes stored in these tanks appropriately/as legally required?

p.21, 6.1 “In accordance with regulation 10(2)(a) of the 2006 Regulations, NIEA has had regard to all other abstractions within the area of the water environment likely to be effected by both Applications AIL 2024/0008 and AIL 2024/0009 [AIL 19].” – What is the cumulative impact of historical, on-going and future planned abstractions in this catchment area? Are they sustainable, and do they fall within the legal/legislative parameters?

p.22, 6.6, The Water Undertaker (NI Water?), advised that “it must be noted that the area under consideration for the development is within the drinking water catchment areas for a number of NI Water’s Water Treatment Works (WTWs) and drinking water abstraction points. These drinking water catchments have been designated as a Drinking Water Protected Area (DWPA) under Article 7 of the Water Framework Directive. Any development carried out within a DWPA must demonstrate measures to ensure water quality and quantity are protected. Therefore, it is essential that robust measures are put in place to ensure that the quality and quantity of the raw water that we abstract is protected at all times to ensure that there is no risk to either the quality or sufficiency of the public drinking water supply” – Precautionary Principle – poses a threat to people’s health as well as a threat to public water supply and waste treatment works!

6.7 & 6.8 note “that the regulation 10 (2) (a) assessment cannot be completed until the issues highlighted by NIEA in relation to the other groundwater users under the planning application have been addressed because the consideration of those issues will impact the regulation 10(2)(a) assessment.”

p.24, 7.3 “Based on the evidence, NIEA concluded that it could not be satisfied that the proposals would not have a likely significant effect on the selected features of the Owenkillew SAC both alone and in-combination.”

7.5 “It is important to note that NIEA have not assessed fully the potential impacts as a result of the decommissioning/ post pumping phase. The Groundwater Team have highlighted a number of concerns in regard to the proposed management and controls of the mine water rebound when the proposed mine ends and the groundwater levels would return to original levels. These points have been raised through the planning response to Dfi and are also outlined in AIL 11.”

p.25 7.9 “As explained in Paragraph 3.6, the Pollanroe Burn and the unnamed stream are functionally linked to the Owenkillew River SAC. As a result, and as set out in Section 4, the applicable standards for the surface water proposals are **10% variation from natural flow at flows greater than the Q95 and 5% for flows less than Q95**. The Pollanroe Burn would not meet these standards if the surface water abstraction were to proceed.” – 7.7 “NIEA estimates that the MDF in **the Pollanroe Burn may be reduced by up to 58% and the Q95 may be reduced by up to 26% against baseline flow conditions**. This is estimated to result in a dewatered stretch, a section of the river which has a reduced flow rate as a result of the proposed abstraction measures of 1550m.”

p.25, 7.13 “The in-combination of the abstraction and the return at the discharge location represent a significant change to the flow regime within the Pollanroe Burn”.

p.26, 7.15 “It has, therefore, been concluded that the surface water abstraction proposals would cause significant effect on the selected features of the Owenkillew River SAC. An Appropriate Assessment has not been completed as fundamental changes to the proposal would be required to bring the proposal into compliance with the appropriate standards.”

p.27, “NIEA disagree with the Applicant’s position. It is therefore NIEA’s view that the Applicant has not adequately considered the effect of the surface water abstraction for the mine and more specifically the changes in the flow regimes as a result of the mine operations on fish, and their range of habitat in the Pollanroe Burn and the unnamed stream.” – underhanded/dishonest tactics from Dalradian identified once again.

p.28, 7.23 “The NIEA assessment has highlighted functional linkages and potential adverse effect on the Owenkillew SAC and ASSI and the Drumlea and Mullan Woods ASSI as a result of the groundwater drawdown.”

7.24 “Specifically, NIEA has identified that the ecosystems within the Owenkillew River SAC may be supported by groundwater base flow from superficial or bedrock aquifer, as identified using GSNI Superficial Aquifers Map. NIEA concludes that the river ecosystem will be in hydraulic continuity with the proposed mine water abstraction due to its proximity. **The proposal is also assessed to be closer to the Owenkillew SAC ecosystems than presented in the application documents**. The abstraction application location is based on the mine portal area at the surface which is 2km. NIEA has assessed the distance to the SAC site to be c.280m from the deep mining area.” – further Dalradian dishonesty.

p.29, 7.26 “NIEA has therefore concluded that the deep mine operations are hydraulically linked to the SAC. Based on the information provided, NIEA are unable to rule out likely significant effect on the selected features as a result of the groundwater drawdown.”

7.29 “It is NIEA’s view that the Applicant has not adequately assessed the effect of the groundwater drawdown on the selected features present in the Owenkillew River, namely FWPM and Salmon.” – more Dalradian dishonesty.

7.30. “In addition, the proposals set out in AIL 2024/0008 for Mine Water Abstraction have also been assessed to have a potential adverse effect on the Drumlea and Mullan Woods. The hydrological properties of this designated site are unknown; however, the woodland is located on a potential superficial aquifer. It is c.350m from the deep mining area.”

p.30, 7.32 “The Applicant has not assessed the impact of the mine water abstraction on the affected tributaries of the Owenreagh ASSI.”

7.36 “On this basis NIEA assessed the mine water proposals and is unable to rule out likely significant effect. The SAC selected features are at unfavourable status. The Conservation Objectives for the Owenkillew River SAC state that river flow rates should be as natural as possible throughout the site for FWPM, Atlantic Salmon, and Ranunculus fluitans and Callitriche- Batrachion vegetation. In this case the ability of the Owenkillew River, and its tributaries to comply with the flow targets, listed above, during the lifetime of the proposal cannot be tested. **A precautionary approach is therefore applied, as likely significance effect cannot be ruled out.**”

p.31, 7.38 “The NIEA has therefore assessed that mine water abstraction proposals are likely to have significant effect due to the in-combination with the surface water abstraction proposals for the Pollanroe Burn.”

7.39 “NIEA has assessed that the mine water abstraction proposals are likely to have significant effect, as a result of the in-combination of the abstraction and discharge proposals significantly altering the flow regime of the Pollanroe Burn.”

p.33, 86 “There are a number of factors which remain unresolved/ unanswered” What are these, what remains outstanding??

p.34 Groundwater Dependant Terrestrial Ecosystems– despite NIEA finding “that this test is not applicable”, the Assessment Outcome states that “the groundwater flow may be diverted and have a direct/indirect implication on the designated feature” of Drumlea and Mullan Woods ASSIs.

p.35, Again, in relation to the Water balance Test, “NIEA deemed that this test is not applicable”, yet this is followed by “However it should be noted that whilst the abstracted mine water is returned to the environment, it is treated before it is pumped to the Pollanroe Burn. The volume of groundwater abstraction will have an impact on other groundwater users. The Applicant has predicted that multiple groundwater water supplies would be impacted by the proposed abstraction. The Drinking Water Inspectorate has highlighted areas requiring further clarification on the proposed

mitigation measures The Applicant has also highlighted risks associated with the post-pumping/ rebound period to groundwater in the Groundwater Impact Assessment. These matters are captured in NIEA's response as a statutory consultee to the planning application. The matters raised must be dealt with to assist in the determination of the AIL 2024/0008 Mine Water Abstraction application determination”.

p.36, 9.2 “As explained in Section 7, the proposed abstractions of both mine water and surface water and their return to the environment through discharge proposals TrC 81/20 would result in significant changes to the flow regime within the Pollanroe Burn.”

9.3.” The significant change in the Pollanroe Burn flow regime would result in significant changes to the natural ecosystems and thereby have the potential to impact the natural biodiversity dependent on that natural ecosystem”.

p.37/38 Conclusions at 11.1 lead to 11.2 “Whilst further information may be provided, on the information currently available the NIEA does not consider that it can lawfully or should on the merits grant the abstraction licence applications.”

Confusion then arises at 11.2 when NIEA seemingly begins to shirk its own responsibilities, attempts to transfer responsibility onto the PAC, and even seemingly queries what Dalradian can do to change the outcome of their conclusion. This is bizarre to say the least, and deeply concerning/worrying behaviour from NIEA.

Author: [REDACTED]

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Owenkillew River SAC Conservation Management Plan – Pressures & Threats

Pressures relate to an issue that is present and currently identified as causing a negative impact upon the condition of the special feature(s) of the site. Threats are issues present but not yet proven to be impacting on the condition of the features but considered likely of high risk. Pressures and threats may be at the whole site level or only occur at individual or within a group of units. Estimates have been made to the scale of the pressure or threat of the issues on this site, either through measurement or expert opinion.

Issue	Likely Cause	Scale
Agricultural Intensification	Current on site and off site actions	<p>High</p> <p>Land clearance, removal of scrub & extension of pasture <100m from channel edge; high risk of sediment and nutrient inputs, loss of natural and semi-natural habitats.</p> <p>Areas of grazing being converted to arable; risk of loss of semi-natural agricultural habitats into intensive production areas.</p> <p>Evidence of changes in management practices from the past to single crop production (primarily grassland).</p>
Livestock farming and animal breeding	Current on site and off site actions	<p>High</p> <p>Livestock access points to river with soil exposed; extensive trampling in riparian zone and channel river bank erosion and collapse. In the Owenkillew almost 4km of animal trampling, poaching and direct access was recorded.</p> <p>Use of Cypermethrin in Sheep dip. Failures noted in the Chemical Status under WFD in the Glennelly River catchment in particular.</p> <p>Further expansion of livestock farming and animal breeding is a threat.</p>
Cultivation	Current on site and off site actions	<p>High</p> <p>Silage cutting at rivers edge, no buffer. If undertaken during inappropriate conditions can result in rutting and soil damage, increase risk of sediment and nutrient run-off.</p> <p>Cultivation with limited buffer to edge of channel.</p>

Issue	Likely Cause	Scale
		<p>Slurry spreading providing diffuse nutrient sources.</p> <p>Chemical fertiliser application was also noted in areas throughout the catchment.</p> <p>Use of MCPA/Mecoprop for rush control, particularly in marginal agricultural lands in upper catchment.</p>
Aerial Nitrogen Deposition	Off Site Factors	<p>Oak and Bog Woodland Features - Very High</p> <p>Based on the Critical Level and Critical Load exceedance values from the Air Pollution Information System (APIS (February 2024)), the air pollution pressure for Owenkillew River SAC (woodland habitats) has been rated as high for ammonia and very high for nitrogen deposition. The Critical Level for ammonia concentrations to the river habitat are not exceeded. Critical Load values are not available for the river habitat. The three main sources of nitrogen pollution affecting this site are: Livestock (N. Ireland) (56.2%), NHx sources (Rep. of Ireland) (14.6%), International Shipping (4.9%).</p>
Agricultural Drainage	Current on site and off site actions	<p>Very High</p> <p>Evidence of substantial drainage works throughout the site including the maintenance of existing drains and the excavation of new drainage. Over 10kms of existing and new drainage was recorded across the site.</p>
Afforestation and forestry replanting	Current on site and off site actions	<p>Very High</p> <p>Both the Davagh and Creggan forest properties abut the SAC boundary and parts of these forest areas are within the site itself.</p> <p>Over 1350 hectares of timber production forestry has the potential to impact on the SAC, with more than double this area located within the water bodies associated with the SAC and providing a direct hydrological link.</p> <p>Afforestation of new sites and replanting of felled areas requires site preparation and may lead to some soil disturbance. Activities such as drainage or roading, mounding, windrowing and</p>

Issue	Likely Cause	Scale
		<p>associated soil preparation are very high risk in the Owenkilleg River SAC.</p> <p>Extent of site preparation is conditional upon site conditions and may involve minimal soil disturbance e.g. windrowing/brash raking.</p>
Felling (including thinning and removal of individual trees)	Current on site and off site actions	<p>Very High</p> <p>Clear felling of trees and thinning operations can be damaging to hydrologically linked aquatic features of the SAC through:</p> <ul style="list-style-type: none"> • sediment and nutrient release • changes to hydrology and flow regime • release of nutrients through the decay of foliage on harvesting, and in the period of decay afterwards. <p>Non Forest Service tree felling is subject to felling licence applications and (as with FS tree felling) compliance with UK Forestry Standard.</p>
Forestry roads	Current on site and off site actions	<p>Low</p> <p>Provision of necessary infrastructure e.g. new roads and road drainage can impact on flows, causing erosion and sedimentation in sensitive downstream habitats.</p>
Forest Drainage	Current on site and off site actions	<p>High</p> <p>Risks posed by drainage pathways can be influenced from the contributing catchment area (potential flow volume), an indication of gradient (velocity), the connectivity to the aquatic zone and the extent of the drainage pathway within the operational area which can impact the aquatic habitats through nutrient, sediment and flow alterations particularly at more critical stages in the life cycle of the forest.</p>
Extraction of Minerals	Current on site and off site actions	<p>Low</p> <p>Small-scale sand/gravel extraction from the riverbed has been an ongoing practice by farmers, particularly in the lower reaches of the river.</p>

Issue	Likely Cause	Scale
		<p>The Owenkillev catchment contains seven quarries which are licenced through NIEA Industrial Consents. Through catchment walkovers a number of other small sand & gravel pits were also recorded. Many of these were in close proximity or associated with the industrial consent facilities.</p> <p>Quarry dust, effluent or pollution incidents has established that sand wash from a number of commercial sandpits in the upper reaches of the river has resulted in siltation of the river bed.</p> <p>High</p> <p>Exploration associated with a prospective gold mine in the catchment has occurred in the past, any further exploration or extraction presents a risk to water quality from run-off and drilling associated with exploration site.</p>
Road infrastructure, laneways and fords	Current on site and off site actions	<p>High</p> <p>Active fords in river channel for livestock crossing are also common in the Owenkillev. There are a total of 22 locations where an animal or vehicle ford are present along the river, which represented almost 600 metres of river channel.</p>
Residential development	Current off site actions	<p>High</p> <p>On-site wastewater treatment systems and other small effluent systems can be significant sources of nutrients to rivers. Losses from such systems typically behave as diffuse nutrient sources, however, more serious leaks and inappropriate systems can cause point source pollution.</p> <p>High numbers of one off housing can be observed within the Owenkillev catchment in particular along the banks of the Owenkillev and Owenreagh Rivers.</p> <p>Across the entire catchment it is estimated that there are in excess of 1,200 properties that are not connected to a sewer network and that therefore have an onsite wastewater treatment system e.g. septic tank. The proximity of many</p>

Issue	Likely Cause	Scale
		of these houses to the river is of particular concern.
Diffuse urban run-off	Current off site actions	<p>Low</p> <p>Diffuse run-off from the village of Gortin is noted.</p>
Urban wastewater and industrial discharges	Current on site and off site actions	<p>Medium</p> <p>The Owenkillev catchment contains 8 Waste Water Treatment Plants of varying sizes.</p> <p>The SAC aquatic features require clean, fast flowing, well oxygenated rivers with little nutrient or organic content and a clean river bed. Deterioration in water quality is a key factor in the decline in species numbers and the loss of suitable habitat. Some of this deterioration in water quality can be directly correlated to poorly functioning WWTP or plants which require upgrade or improvement due to increase in population numbers or the age of the plant. Davagh, Greencastle and Rouskey WWTPs should be prioritised for investigations based on water quality information and proximity to features and habitat stretches in the Owenkillev River.</p>
Abstraction for public and private water supply (agricultural, industrial or commercial)	Current on site	<p>Medium</p> <p>There are a number of abstractions throughout the Owenkillev catchment, which are associated with quarrying/mineral washing. There are no abstractions for public water supply.</p> <p>These abstractions are from surface water and present a significant risk to the natural flow regime of the river. A natural flow regime is essential for the maintenance of many of the selection features. Proposals for water abstraction in the area will require very careful environmental assessment through the Abstraction and Impoundment Regulations where necessary. A review of existing Abstraction Licenses will be required to assess if they are having a negative impact on the SAC features. The hydrological condition of all water</p>

Issue	Likely Cause	Scale
		bodies associated with the Owenkillev River SAC is currently considered to be moderate and high.
Recreational fishing	Current on site	<p>Low</p> <p>Well established pathways have resulted in trampling and risk of erosion within the oak woodlands.</p>
Poaching	Current on site	<p>Low</p> <p>Poaching of trout, salmon and pearl fishing.</p> <p>Enforcement by the Loughs Agency ensures poaching is not common and pearl fishing is a practise that was prevalent in the past but which is not as extensive now.</p>
Fish farms	Off-site	<p>Low</p> <p>A fish farm existed on the Owenreagh river, but hasn't operated as an aquaculture farm for possibly more than 10 years. It still may operate for the processing of fish.</p>
Illegal dumping, fly tipping and burning	Current on site	<p>Medium</p> <p>Evidence of waste material on the banks and channel (particularly at bridges) and the woodland sites (including car). The build up of debris in the channel and woodland can damage habitats and encourage further fly tipping.</p>
Invasive species	Current on site and off site actions	<p>High</p> <p>Invasive non-native species are defined as those that have been introduced, either intentionally or unintentionally, outside of their natural range and that present a threat to biodiversity. They can have a wide range of impacts on ecology, the environment and the economy. Once established they can be extremely difficult to control and costly to eradicate.</p> <p>The following invasive species have been recorded within the SAC:</p> <ul style="list-style-type: none"> • Japanese Knotweed,

Issue	Likely Cause	Scale
		<ul style="list-style-type: none"> • Himalayan Balsam • Giant Hogweed, • Rhododendron, • Sitka spruce, • Snowberry, • Sycamore • Montbretia
Problematic native species	Current on site	<p>Low</p> <p>The woodland appears to be free from grazing pressure. Sturdy fences keep livestock out, and there were no indications of deer activity. Whilst bracken and brambles can be abundant in some areas, this is fairly localised and not beyond expected natural levels. There was evidence of oak regeneration in the form of both seedlings and saplings.</p>
Flooding	Off site and on site potential threat	<p>High</p> <p>The flooding that occurred in 2017 in the Glenelly catchment in particular was estimated to be a 1 in 3000 year event leading to extensive landslides affecting river habitat and aquatic species. Landslides of a similar scale will not happen again unless an event of greater magnitude occurs according to Kingston University research on the landslides that occurred in 2017. Nevertheless more frequent flooding can result in damage to river habitat and riparian zones that whilst should recover given time will be less resilient if frequency of such events increases with climate change.</p>
Climate change	Off site and on site potential threat	<p>Medium</p> <p>Increased water temperatures could impact on the structural diversity of the plant community with the proliferation of opportunistic species such as filamentous algae which may have an adverse impact on natural flora and fauna and river habitat.</p>

Issue	Likely Cause	Scale
		<p>River flow affects a range of habitat factors of critical importance to designated interest features, including current velocity, water depth, wetted area, substrate quality, dissolved oxygen levels and water temperature. The maintenance of flushing flows and baseflows, based on natural hydrological processes is vital. Drought conditions can impact on these hydrological process resulting in sub optimum conditions from those required for a healthy, naturally functioning river ecosystem.</p> <p>This is currently not a pressure but it may become a threat. Extended dry periods could impact on woodland ecosystem.</p>
Threats and pressures from outside the EU territory	Off-site	<p>Medium</p> <p>Pressures affecting the marine survival of Atlantic Salmon outside of the EU jurisdiction e.g. marine pollution, high seas fishing. Previous marine survival rate was 30% in late 1980's, which has seen a significant reduction in more recent times.</p>