

Appendix 1

Observations on Hydrology and Hydrogeology: Environmental Statement Chapter 7 and Appendix 7

The applicant admits there is potential for significant effects on the hydrology during the construction if environmental mitigation measures are not applied. Mitigation includes a buffer zone of 250m of all groundwater sources. PWS 2-8 water sources were not considered at risk. This is totally inadequate.

The catchment area for PWS 1 shown on drawing Fig 3.1 is underestimated by a factor of at least 24. We estimate the catchment area to be 267Ha or thereby, see below. Groundwater sources 1,2,3,4 & 5 (Applicant's Figure 3.1) are potentially in danger from construction work to the north of them.

The assessment in 7.2.3 has been made using a "semi-quantitative approach." This is a risk analysis method for dealing with weak and incomplete information, implying deficiencies in the applicant's survey.

"Further survey work will be undertaken to prevent any detrimental impact to existing pipework."
What form of survey work?

In 7.6.7 new tracks could damage soil structure and adversely effect soil hydrology which could affect groundwater sources 1 to 5

In 7.6.11 the applicant admits that during the construction of tracks between T1 & T2 there is the potential to damage the water supply pipe for PWS 1. In order to protect this pipe they propose to duct it. How can one construct a concrete duct over an existing pipe? A duct by definition is put in the ground first then the pipe is passed through the duct in order to protect that pipe. A more sound solution would be to build a reinforced concrete raft over the water supply pipe. We disagree that PWS will not be disturbed or damaged during construction.

Decommissioning

Thousands of m³ of concrete foundations will remain in the ground, forming an impermeable layer, which will increase surface water runoff and could cause erosion around each of the foundations and thus affect the hydrology of the area.

Methodology

In 7.8.9: "The presence of numerous supply boreholes near the site suggests that there is potential for substitution." What is meant by this statement?

Assessment

In 7.9.3: How can field drains be diverted prior to construction when they have not yet been located?

What form of survey work will trace PWS 1 pipework? **The applicant should produce method statements for any rerouting of existing water supply pipes.**

In 7.9.11: Ponding from the borrow pit will infiltrate into the local groundwater. "However this is not anticipated to lead to significant effects on this receptor". **We disagree with this unsubstantiated statement.**

In Table 7.11 all effects are considered to be not significant. **However, the applicant clearly identifies potential catastrophes and then dismisses them without justification.**

It is admitted that there will be increased runoff from hard standing and access tracks and claim to contain it by sustainable drainage measures. **What are these measures, and do they comply with SUDS?**

In relation to Groundwater they claim disruption to PWS is "Unlikely". **We disagree.**

Receptor Sensitivity/Value they state as “High”. We agree.

Magnitude of Change they state as “Low”. **We disagree.**

Significance Level they claim is “Not Significant”. **We disagree.**

The applicant’s PWS assessment claims that none of the sources would be potentially affected.

PWS 1 to 5 could be affected and the risk to each is High.

Receptor and effects

Disruption or damage to drains or PWS is claimed to be “Unlikely”. **We disagree.**

Receptor Sensitivity/Value is Low to High. We agree.

Magnitude of Change they state as “Low”. **We disagree.**

Significance Level they claim is “No effect-Not Significant”. **We disagree.**

Mitigation measures are still to be discussed and agreed with supply users, who are still waiting to be approached.

Appendix 7B

In 2.2: Shallow groundwater *may* be locally important for domestic and agricultural purposes.

Groundwater provides Boreholes 3 to 8 and is clearly important to the users.

In Table 3.1: There is no borehole at the given coordinates (359510, 643550) for PWS 4.

None of the PWS except PWS 1 are considered for further assessment. PWS 2-8 should be examined.

A 250m buffer zone is too small.

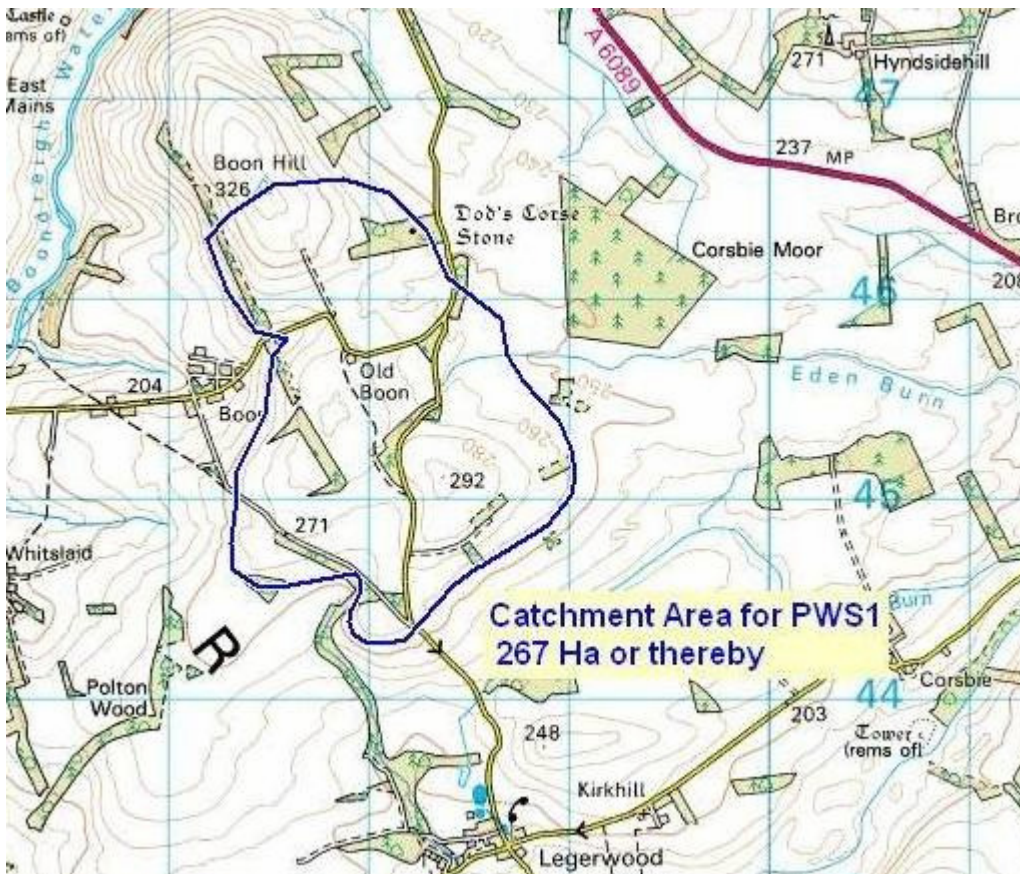
The applicant states that most of the PWS are on higher ground or beyond a likely groundwater divide.

This is not so. Turbine T3 is approximately 100m higher than the borehole PWS 4 and is not beyond the groundwater divide.

In 3.2: Kirkhill Farm Cottage does not have its own borehole.

Mr Roper did not say the water supply pipe is 32cm diameter. A pipe of this size is enough to supply a town.

PWS 1 has a catchment area of approximately 0.11km² ie 11ha. **This is underestimated by a factor of at least 24.** We estimate the catchment area for PWS 1 to be 267ha or thereby. (see map)



4.2.3 identifies potential effects to PWS 1 infrastructure and admits the supply could be contaminated if the pipe is in poor condition. It is probably more than 100 years old and until such time the pipe is located and surveyed its condition is unknown.

4.2.5 Risk Assessment Methodology. This seems reasonable

4.2.6 Risk Evaluation. We disagree that potential risk to the infrastructure of the water supply pipe as “Very Low” and would move it to “High”.

We *do not* consider it unlikely that significant volumes of sediment or contaminant could infiltrate into PWS 1 pipeline.

Table 5.1

Risk Evaluation for PWS 1 should be changed from “Low to Very Low” to “Medium”

Risk Evaluation for PWS 3,4 & 5 changed from “None” to “Medium”

In conclusion the assessment outlines the risks to the PWS as “Low to Very Low”. These should be changed to “Medium”

There are no contingency plans for the provision of water supplies if or when work interrupts or damages any of the PWS.

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