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FLOOD RISK RELATED COMMENTS ON DEADLINE 2 SUBMISSIONS IN RESPECT OF SCOTTISH POWER RENEWABLES EA1N AND EA2 PROJECT ONSHORE WORKS NEAR FRISTON

**For
SASES**

December 2020

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FLOOD RISK RELATED COMMENTS ON DEADLINE 2 SUBMISSIONS IN RESPECT OF SCOTTISH POWER RENEWABLES EA1N AND EA2 PROJECT ONSHORE WORKS NEAR FRISTON

1. INTRODUCTION

GWP Consultants has been commissioned by SASES to undertake an independent review of the Deadline 2 submissions with respect to flood risk, forming part of the DCO process for the SPR application for on-shore power generation infrastructure near the village of Friston.

Of the six documents reviewed three relate to the Applicants' responses to third party submissions, one a technical note by the applicant on infiltration, one the submission by SASES and one a submission by SCC.

In addition, comments are made on photographs of storm water run-off during a rainfall event dated 5th December 2020, provided by a local resident, which demonstrate the regular flood risk to Friston village.

2. COMMENTS ON SCC DEADLINE 2 SUBMISSIONS

SCC has submitted an 8 page response, which includes comments on SASES' Written Submission, comments on SOCG, and comments on the EXAs Written Questions.

Of the 7 comments made on the SASES Deadline 2 submission, 4 specifically state the SASES response supports the SCC Local Impact Report on:

- Inadequate assessment of existing flood risk to Friston village;
- Unproven viability of operational phase drainage scheme and failure to consider construction phase drainage;
- Inadequate assessment of increase in flood risk to Friston village due to the proposed development; and
- Failure to consider larger disturbed areas and greater turbidity generated during construction period.

In addition, SCC i) agrees with SASES that the Applicant has not provided sufficient information on management of TOTAL flows, and ii) states the development will increase storm run-off volume.

SCC also re-iterates that they have not agreed to the Applicant discharging to the Friston Watercourse.

SCC makes further comments on the Applicant assuming they can discharge to a Main River, whereas SCC require prioritisation of infiltration, raises concerns in who will manage the drainage structures, and criticises the Applicant's disingenuous description of the development area not being responsible for Oct 2019 flooding event.

Other than questioning SASES' challenge to the accuracy of the hydraulic model commissioned by SCC – it remains clear that observed flooding was worse than predicted by the model, and the model has failed to include known local retention of run-off water in the upper watershed – the SCC comments fully support the SASES position that flood risk will increase due to the development.

3. COMMENTS ON SASES DEADLINE 2 SUBMISSIONS

SASES reiterates two points in their Deadline 2 submissions. The first is a challenge that a worst-case infiltration rate of 10mm/hr (ie 10⁻⁶m/s) is acceptable, the second is the failure of the Applicant to consider the turbidity of the run-off water.

These two points are fundamental to the sizing of any drainage infrastructure and whether it is viable that the infrastructure can actually be constructed within the boundary of the site.

The Applicant has previously stated that SCC consider 10mm/hr to be a reasonable worst case infiltration rate to enable infiltration to be a credible option for run-off discharge. This infiltration rate is referring to the SSC SUDS Guidance (2018), which states that infiltration rates need to be of at

least this quantum for infiltration to be considered a viable option. Whilst certainly an infiltration rate lower than this is unlikely to allow run-off water infiltration, this does not mean the Applicant has proven that: i) an infiltration rate of 10mm/hr actually physically exists of sufficient area of the site – indeed they have undertaken no infiltration testing on the site; and ii) that even if the ground can enable an infiltration rate of 10^{-6} m/s, that this will be achievable given the storm water will be turbid (ie contain suspended fine sediment and detritus) when entering the infiltration basins.

In short, the efficacy and effectiveness of the drainage schemes has not been proven, and as such the Applicant has again failed to demonstrate that removal of the increased flood risk from the operational development, and during its construction phase, is actually possible.

4. COMMENTS ON SPR DEADLINE 2 SUBMISSIONS

As stated in the Introduction, the Applicant has submitted comments on 3rd party Written Representations, responses to the ExA Written Questions, on the Local Impact Report and provides a further technical note on ground infiltration.

4.1 Applicant comments on 3rd party Written Representations

The Applicant makes no comments on the Environment Agency (EA) submission. This is not unexpected, as the EA only refers to the Main River of the Friston Watercourse, and it has no mandate on pluvial (surface water) run-off from the site into Friston village.

In response to SASES concerns, the Applicant states all matters will be dealt with in the Outline Operational Drainage Management Plan (OODMP) – a document to be submitted at Deadline 3. This response is considered inadequate. It avoids addressing SASES concerns and requires all parties to accept SPR will adequately address legitimate concerns at a later date. SPR use this response on no less than 7 occasions.

In response to SCC and ESC comments, the Applicant provides a single one row response, referring to the OODMP. This despite the extensive submissions provided by SCC and ESC, including a 138 page history of flooding in Friston village. The Applicant response appears to be an attempt to down-play and avoid highlighting the flood risk concerns at Friston.

4.2 Applicant comments on 3rd party responses to ExA Written Questions

SCC raises concerns on the inadequacy of the Applicants submission (1.7.10), the inadequacy of the CoCP and LEMS (1.7.11), concerns over SUDS management (1.7.13) and the flood risk in Friston (1.7.16).

Other than confirming they the Applicant will maintain the infiltration basins (we note there is no mention of duration or the other parts of the drainage scheme), the Applicant refers to the OODMP which will apparently be provided in Deadline 3.

The Applicant is avoiding responding to concerns raised by SCC regarding flood risk caused by the development and the resulting increase in flood risk in Friston.

4.3 Applicant comments on Local Impact Report

SCC raises concerns over surface water flooding in Friston, the adequacy of the application, and further work they consider needs to be undertaken in its submission for Deadline 2.

In response the Applicant refers on all 3 points, to the OODMP or the final CoCP, which will be prepared as part of their Deadline 3 submission.

This is a wholly inadequate response. The Applicant continues to fail to demonstrate the operational phase drainage scheme is viable and continues to fail to address construction phase drainage.

4.4 Applicants' Infiltration Technical Note

The Applicant has provided a 32 page report entitled SUDS Infiltration Note. The Note assumes that an infiltration rate of 10 mm/hr (10^{-6} m/s) is possible. All calculations assume this infiltration rate is achievable on site and can be sustained during storm events and storm seasons despite the likelihood of turbid run-off being generated from the site.

The Applicant has provided no evidence the infiltration rate is possible on the site, nor explained how turbid run-off will be managed to ensure efficacy of the infiltration basins.

The Applicant identifies that 50% of the site is impermeable and assumes no run-off from the permeable half of the site. For these critically large design storm period Return Periods, assuming no run-off for large storm events from any strata is erroneous, and an unacceptably optimistic.

The Applicant states however that the current design assumes discharge to the Friston Watercourse, which is inconsistent with the infiltration approach, SUDS generally, and SCC policy. Any drainage scheme which does not use infiltration will result in increase in TOTAL flows leaving the site and will result in an increase in flood risk to Friston.

The Applicant then provides a series of MicroDrainage hydraulic model outputs. Each of these modelled scenarios shows 'Flood Risk' warnings due to the infiltration basin overflowing. No comment is provided by the Applicant on these results, but presumably the consequence is uncontrolled overflow of the basins, with turbid unattenuated flood flows, which will arrive in the village.

The Applicant's own modelling would appear to suggest the infiltration basins cannot contain and dispose of the required volumes and flows of generated site run-off, thus confirming they cannot perform as required and that the downstream flood risk is not mitigated.

The drawing in the Note also clearly shows that current depressions within the footprint of the site which are known to store and possibly infiltrate run-off water, will be infilled and lost under the hardstanding constructed. In contrast the Project Update Note submitted by Scottish Power sets out a proposal to reduce the size of the Scottish Power substations so that one of these depressions will remain. However the Project Update Note does not address the location of one of the construction consolidation sites (CCS) which is intended to be on the western side of the western substation and it is unclear whether this will be constructed over this depression. In any event any depression being infilled will result in current run-off being increased more than currently estimated.

5. DECEMBER 2020 RAINFALL EVENT OBSERVATIONS

A recent rainfall event in Friston village occurred on 4-5 December 2020. Photographs taken by local residents show the temporary ponding of water within depressions on the proposed site area, as well as overland flows down into the village and through the village.

Whilst not described as a flood event, this relatively small rainfall event confirms the current vulnerability of Friston village to overland flows after intense rainfall, with clear evidence of limited ditch conveyance capacity, proximity of current overland flows to residential properties, retention of field drainage within depressions (one or more of which will be infilled by the development), and the turbid quality of the run-off within the upper watershed.

GWP CONSULTANTS
DECEMBER 2020

Friston – location map of photographs taken on 5 December 2020 after heavy rain





Photograph 1: Wooded Pit



Photograph 2: Land drain in Wooded Pit from Substation Site



Photographs 3 and 4: Depressions at north-west corner of site near pylons/FP17





Above: Photograph 5: ditch adjacent to FP17

Below: Photograph 6: end of ditch overflowing behind Friston House Wood





Photographs 7 & 8: behind Friston House Wood





Photograph 9: by Woodside Farm



Photograph 10: ford in Church Road/beginning of Friston Watercourse

Photograph 11: northern end of Church Path



Photograph 12: southern end of Church Path at Grove Road

