SPR EA1N and EA2 PROJECTS

DEADLINE 9 – COMMENTS ON DEADLINE 8 FLOOD RISK SUBMISSIONS

Interested Party: SASES **PINS Refs:** 20024106 & 20024110

Date: 15 April 2021 **Issue:** 1

INTRODUCTION

1. Eleven documents of direct relevance to flood-risk arising from these projects were submitted at Deadline 8. These include:

   i. SPR updated Outline Operational Drainage Management Plan (OODMP) (tracked version) (REP8-065);

   ii. SPR updated Outline Code of Construction Practice (CoCP) (tracked version) (REP8-018);

   iii. SPR updated Landscape and Ecological Management Strategy (OLEMS) (REP8-020);

   iv. SPR Summary of their Oral Case to ISH11 (REP8-096);

   v. SPR Flood Risk and Drainage Clarification Note (REP8-038);

   vi. SPR update on Statement of Common Ground with SCC and ESC (REP8-114);

   vii. SPR Extension of National Grid Substation Appraisal (REP8-074);

   viii. SPR comments on Deadline 7 Submissions (REP8-045);

   ix. SCC submission on Drainage Lessons Learned from EA1 (REP8-173);

   x. ESC summary of their Oral Case to ISH11 (REP8-152);

   xi. SCC Deadline 8 Submission- Floods Comments (REP8-176).

2. Attached at Appendix 1 is a report from GWP consultants in respect of these documents.

APPENDIX 1

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SASES

GWP Report No: 210405

Our ref: mm110421
Your ref:

11 April 2021

Dear [redacted]

Flood Risk related responses to Deadline 8 submissions on Scottish Power Renewables proposed EA1N and EA2 onshore works near Friston

This letter constitutes a brief technical critique of the flood risk-related documentation placed on the Planning Inspectorate web-portal in response to the Deadline 8 Submissions following the ISH11 on Flood Risk. These responses to Deadline 8 submissions and the ISH11 have been made by Scottish Power Renewables (SPR) with respect to flood risk near Friston Village, with further comments also provided by Suffolk County Council as the Lead Local Flood Authority, and East Suffolk Council on landscaping matters. This work has been commissioned by Substation Action Save East Suffolk (SASES).

In providing this written response, the reader is specifically directed to the previous submission by GWP to SASES dated 25th March 2021 and entitled 'Post ISH11 Technical Submission by SASES on Flood Risk Matters in Friston due to the Scottish Power Renewables proposed EA1N and EA2 Works', which was submitted to the Examining Authority by SASES as Appendix 2 of SASES submission entitled 'Deadline 8 – Post Hearing Submissions (ISH11) Flood Risk and Drainage'. That report provides the SASES summary position on increased flood risk to Friston due to the proposed SPR development.

The critique below intentionally uses the same structure as Appendix 2 referred to above, and considers the extent to which the six technical areas therein have been addressed by these latest responses. For the sake of clarity, these six areas of critical concern are:

i. Site Location Selection
ii. Flood Risk Methodology
iii. Baseline Hydrological Assessment
iv. Construction Phase Impacts
v. Operation Phase Impact and Mitigation
vi. Post-Operation Phase

The below assessment does not re-visit and repeat previous GWP analysis nor the stated SASES position, except where to further strengthen the previous position statement by SASES.

Qualifications of Author

This letter has been prepared by [redacted]. [redacted] has a BSc (Hons) in Geology, an MSc in Hydrogeology and Groundwater Resources, is a Fellow of the Geological Society (FGS), Chartered

Geologist (C.Geol), Chartered Member of the Chartered Institute of Water and Environmental Management (C.WEM, CIWEM) and Associate Member of The Academy of Experts (AMAE). [redacted] has more than 30 years of post-graduate experience in water resources management, water hazard mapping and risk reduction, flood risk assessment, climate change vulnerability assessment, and disaster risk reduction, both in the United Kingdom and overseas.

Instructions

SASES instructed [redacted] in June 2019, to provide expert independent advice and review of the SPR environmental statement and related documentation, with respect to the flood risk impact on Friston Village, and to ascertain whether flood risk has been i) assessed in accordance with policy on site location; ii) adequately investigated; and iii) adequately mitigated.

Document Listing

GWP has identified 11 documents of direct relevance to flood-risk of the proposed development to Friston Village. These include:

- SPR updated Outline Operational Drainage Management Plan (OODMP) (tracked version); (REP8-065)
- SPR updated Outline Code of Construction Practice (CoCP) (tracked version) (REP8-018);
- SPR updated Landscape and Ecological Management Strategy (OLEMS) (REP8-020);
- SPR Summary of their Oral Case to ISH11 (REP8-096);
- SPR Flood Risk and Drainage Clarification Note (REP8-038);
- SPR update on Statement of Common Ground with SCC and ESC (REP8-114);
- SPR Extension of National Grid Substation Appraisal (REP8-074) ;
- SPR comments on Deadline 7 Submissions (REP8-045);
- SCC submission on Drainage Lessons Learned from EA1 (REP8-173);
- ESC summary of their Oral Case to ISH11 (REP8-152);
- SCC Deadline 8 Submission- Floods Comments (REP8-176).

This assessment focuses on primarily new responses and updates, rather than highlighting existing positions and previous statements.
The purpose of the response below is to highlight the extent to which the issues raised in ISH11 and the actions requested of the Applicant by the Examining Authority continue to not adequately address or mitigate the flood risk created by the proposed development to Friston Village.

Site Location Selection

The Applicant re-states the FRA follows national policy on flood risk, and states no Sequential Test for site location is required because the site is located in Flood Zone 1.
This statement is clearly inconsistent with both EN-1 (5.7.9, 5.7.13, 5.7.14) and NPPF as stated in SASES earlier submissions. To be clear, the NPPF states clearly (Clause 158) that the aim of the Sequential Test is to steer new development to areas with lowest risk of flooding, that development should not be permitted if there are reasonably available sites for the development in areas with lower risk of flooding, and that the sequential approach should be used in areas vulnerable from **any** form of flooding.

The Applicant continues to present its argument in terms of fluvial (river) flood risk only, despite knowing full well the site is located within a watershed which not only has high pluvial (run-off) flood risk to Friston village but has a very poorly evaluated groundwater flooding risk.
The Examining Authority is directed to also consider HM Governments' recent Flood and Coastal Erosion Risk Management Policy Statement (July 2020), which has 5 policy areas, one of which is better protecting communities including ensuring important infrastructure sites are better prepared to manage flood risk and another enabling more resilient places through catchment-based approaches, including upstream measures to reduce downstream risk.

Flood Risk Methodology

The Applicant re-iterates previous statements on their approach to the flood risk methodology being consistent with national flood risk policy (see GWP responses in the section above), as well as refers to compliance with East Suffolk Council (ESC) policies on flood risk (SCLP9.5) – as they consider they do not increase flood risk elsewhere - and SUDS (SCLP9.6) – in terms of integration with landscaping issues.

As stated previously by SASES, the Applicants' position is NOT compliant with national or local flood risk policies and therefore their flood risk methodology is inadequate. SCLP9.5 clearly states 'developments must not increase flood risk elsewhere' – yet the Applicant has failed to demonstrate adequate flood risk assessment and/or mitigation for all phases of the development for all flood risk types.

The Applicant continues to promote the use of QBAR to overcome concerns about not only peak but also TOTAL flows increasing flood risk in Friston. The Applicant has previously used this position to justify not identifying and assessing the vulnerability of flood risk receptors (eg residents, housing, businesses, community infrastructure) in Friston.

As previously stated by SASES, the watershed has been poorly characterised by the Applicant, residents consider the SCC flood model to underestimate observed flood risk, the Applicant has not proven whether QBAR flow rates will mitigate (or even increase) flood risk in Friston given flooding occurs at least every other year, nor whether flows can be restricted to QBAR for all phases of the development. The Applicant appears to start to recognise the inadequacy of the baseline hydrological assessment – a critical part of the flood risk methodology – which is discussed further below.

Baseline Hydrological Assessment

Both SASES and SCC made detailed representations on the on-going inadequacy of the Applicants' baseline hydrological assessment at ISH11.

The Applicant has previously confirmed the need for additional topographic surveying, ground infiltration testing and hydraulic modelling, but now also appears to recognise the requirement for groundwater monitoring – which could impact the efficacy of infiltration basins as well as groundwater flood risk to Friston – but again refuses to undertake this work at this time, relying instead on such data informing the final design.

As previously stated by SASES on multiple occasions including in ISH11, the lack of surface water and groundwater regime characterisation, including a complete lack of monitoring, prevents an accurate baseline hydrological assessment from being undertaken, and therefore prevents reliable flood risk impact assessment and mitigation measure development. The approach to characterising the Friston watershed is inconsistent with DEFRA guidance on small catchments, as previously stated by SASES, and is all the more unacceptable given the known existing flood risk to Friston Village.

The Applicant also questions the reliability of any hydraulic surface water model - given the lack of rainfall and stream flow monitoring to calibrate the model - but now uses the Friston hydraulic model to demonstrate a lack of flood risk to the proposed development site.

Notwithstanding the accuracy or otherwise of the Friston hydraulic model, the risk of flooding to the development itself is not of primary interest to SASES, the concern is the risk to Friston itself, which the Applicant chose not to consider further in their further interpretation of the Friston hydraulic model. There is no further assessment of the baseline hydrology by the Applicant. The surface water baseline characterisation remains wholly inadequate, the groundwater baseline has not been evaluated at all. The baseline upon which all flood risk impact assessment and mitigation has to be determined therefore remains not fit-for-purpose and this undermines the actual viability of the Applicants' flood risk management measures.

The inadequacy of the baseline in such a vulnerable flood risk watershed and downstream community remains unacceptable.

Construction Phase Impacts

The Applicant has submitted an updated CoCP. The only substantive update within it states that detailed evaluation of each onshore section will be undertaken prior to construction to inform design of the construction phase surface water management scheme.
Whilst the Applicant is now recognising the construction phase does have phase specific flood risk impacts (eg area and turbidity), the above statement does not provide any evidence the construction phase flood risk impacts have been properly assessed (given our on-going concerns about the inadequacy of the baseline flood risk assessment) nor whether adequate mitigation is actually viable.
The continuing position of the Applicant is all the more remarkable given the Suffolk County Council (SCC) comments during ISH11 and further evidenced in their Deadline 8 Submission on EA1 Drainage Lessons Learned, which clearly identified construction phase flood risk problems, a failure to understand the complexity of the temporary works drainage, a failure to consider and plan for entire site flood risk mitigation measures early enough, inadequate data (topography and geology) to inform risk and mitigation, inadequate management of land drains, additional treatment requirements eg pH correction, inadequate management along the cable corridors – all in a watershed much less vulnerable to flooding downstream communities.
The Applicant has failed to learn these lessons from EA1 and apply them to the planning stage of EA1N and EA2, all the more remarkable considering their own identification of EA1N and EA2 as a more flood vulnerable watershed given the presence of Friston Village.
The management of flood risk within the CoCP is almost entirely absent. This is completely unacceptable.

Operation Phase Impact and Mitigation

Consistent with previous submissions from the Applicant, they continue to focus on the assessment and mitigation of flood risk during the operational phase and the role and content of the OODMP.
The OODMP has been updated slightly since its previous version submitted at Deadline 7. It includes comments on further assessment of flood risk to the development (discussed in the baseline section above regarding interrogation of the Friston flood risk hydraulic model) and the importance of complying with ESC Policy on SCLP9.6 with respect to integration with landscaping and other requirements.

The Applicant continues to caveat the provided surface water management designs being contingent not only on the wider development design and ground investigations, but also 'landscaping requirements' and 'optimum use of land'.

We would direct the Examining Authority to the wording of ESC policy SCLP9.5 which clearly states '… developments **must** not increase flood risk elsewhere', whereas Policy SCLP9.6 states SUDS '**should**' be integrated. The primacy of SCLP 9.5 is self-evident – it is an absolute requirement, whereas as that of SCLP9.6 is guidance.

The main update to the OODMP by the Applicant is the addition of a third 'hybrid' drainage option, to the Infiltration Only option and Surface Water Discharge Only option provided before in earlier submissions. The Hybrid option is proposed by the Applicant because the Infiltration Only option cannot be demonstrated by them to be viable, and SCC refuses to accept the Surface Water Discharge Only option.

The Hybrid option (there are two hybrid basins proposed) proposes a single basin which allows water to infiltrate the ground through the base of the basin. Once the water depth in the basin reached 0.5m depth then it will start to overflow out of the basin at QBAR. Water levels in the basin will rise up to 1.5m depth.

GWP contend that whilst the Hybrid design does allow for infiltration and surface water discharge, the infiltration component is relatively minor, with effectively all water above 0.5m depth actually then flowing out of the basin to the surface water course. This design is NOT optimised to maximise infiltration, it is optimised to ensure it will fit within the site. The Applicant does not provide details of the flow hydrographs or volumes to enable comparison of the % of the flows which infiltrate into the ground compared to those which are discharged to the surface water course. It is therefore not possible to compare whether the TOTAL flow is more or less than the baseline scenario, which is a critical issue given uncertainty over both the QBAR estimate, and whether QBAR causes flooding in Friston.
If the Infiltration Basin was to maximise infiltration it would be designed to fill completely and then overflow (via a controlled mechanism) to a secondary attenuation pond for discharge to surface water. This current design self-evidently stores a much greater volume of run-off above the surface water discharge outlet pipe than below it.

The proposed Hybrid design does not meet the objectives of the stated SCC SUDS hierarchy requirements nor have the design parameters been demonstrated to be accurate. The design itself therefore has not been proven to be viable.

Notwithstanding the points raised above: the proposed storage design will retain 1.5m depth of water - which breaches SCC requirements; its design volume is <2% more than the required volume – which is unacceptably small and does not allow for design parameter inaccuracy or performance inefficiencies eg blockages; and the total storage including freeboard and landscaping is with 10% of the Reservoir Act, despite being immediately above a residential village and the design is without consideration of overflow structures, which is unacceptable.

The last update to the OODMP is an outline drawing of the outfall pipe from one of the storm water attenuation basins and its discharge into the Friston watercourse. The outlet pipe is proposed to be located along the farm track and discharge into a box culvert under the road before entering the existing ditch system passing through the village.

No dimensions or design details are provided to enable estimate of cover depth or material strength, nor details of traffic or vehicle loading assessment provided, especially for the pipeline section beneath the farm track. It is not therefore possible to comment on the structural integrity of the proposed design with respect to damage from vehicle loading.

The design does however appear to have failed to consider the farm track IS the watercourse north of the road and therefore is subject to storm erosion, sedimentation and flow inundation. The box culvert into which the pipe has an open-ended outlet will therefore during operating conditions be receiving turbid run-off water from the surrounding fields and is highly likely to be both full of water constrained by the current downstream ditch geometry and routinely filled or partially filled with sediment. The outlet pipe located as it is on the floor of the box culvert is highly likely to become blocked with time and its conveyance restricted. This appears to not have been considered. Clearly the consequence of a partially or fully blocked outlet pipe is water backing up in the basins and potentially overtopping the basin bunds. The design appears highly likely to become blocked and is considered unreliable.

There are no details provided of the outfall from the second basin.

<u>Post-Operational Phase (and Expansion)</u>

No further evidence has been provided by the Applicant on management of the drainage schemes should the site no longer become operational. There is no provision for decommissioning.

On the contrary the Applicant has now introduced a further document which allows for the expansion of the current operational area to the west and east of the proposed National Grid sub-station. The Applicant states this will not increase flood risk.

It is clear from the National Grid sub-station extension documentation provided that this will: i) increase the impermeable footprint of the operational area, increasing flow and volume of run-off; and ii) build over the northern infiltration/attenuation basin areas, reducing the area available for drainage management and flood risk mitigation measures.

Such an extension self-evidently increases flood risk whilst reducing opportunity for flood risk mitigation and therefore significantly, on two counts, reduces the viability of any flood management schemes, not that any viable schemes have been provided at all by the Applicant. This is unacceptable.

Yours sincerely

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Partner and Head of Water Resources