3 Flood risk, groundwater and contaminated land

3.1 Background

Time constraints did not allow FFF to make further representations and raise questions on this matter.

The village of Sturton le Steeple and its neighbours is built on underlying clay with only a shallow (up to 12 inches) of topsoil covering it. The clay acts as an impermeable layer, preventing water from soaking into the ground quickly. In addition, in the area to the East, the water-table is noted as being high.

The land to the East of the proposed development is being quarried to remove sand which will further compound the issue by removing a large area of highly permeable land which currently assist with water management.

The surface water flows from the surface of the solar array to the areas in between the rows with an increased kinetic energy. This leads to an increased concentration of surface water and erosion in these areas and has the potential to create channelised flows, eroding the soil further and increasing the volumes and rates of surface water discharge. This can be further exacerbated by the lack of maintenance and further erosion/compaction from vehicles such as maintenance vehicles.

The impacts of the above are a compounded flood risk from run-off leading to rapid onset or flash flooding and prolonged waterlogging, all of which has, is and continues to be experienced in the villages (refer the Parrish Council, BDC and NCC reports).

3.2 Flood Capability and Authority

There is little flood risk capability with Bassetlaw District Council following a re-structure, that given, Nottinghamshire County Council are the Local Lead Flood Authority and FFF seek confirmation that they are able to represent residents' concerns given major flood events in the area since 2000 and adequately manage this project post DCO.

3.3 Cumulative Impact

The Flood Risk Assessment does not include other projects and so does not adequately assess the worst-case scenario. A number of projects have and propose the use of attenuation ponds as mitigation, there is no clear plan on how the release from these cumulative schemes will work together or their release be controlled.

3.4 Water-Run Off

This is an area of concern for many residents and an event that happens within the wider community regularly.

Due to the nature of the soils in the villages, there is a known high risk of surface water (pluvial) flooding. The current drainage system within the villages cannot cope with high volumes of surface water run-off and there are no plans to remediate this issue within the DCO documentation, merely the addition of attenuations ponds.

There is no evidence to show that the solar panels will not interrupt current natural drainage patterns and so could potentially reduce the amount of rainfall absorbed by the ground leading to further increased run-off.

The applicant's Construction Environmental management Plan (CEMP) includes wheel washing as a mitigation measure, yet there does not appear to be provision for the consequences of this in the flood risk assessment.

The mitigation focuses on protection of equipment rather than the community.

3.5 Altered Flow Paths

Solar panels can disrupt overland flow routes, leading to potential concentration of water and increasing flow velocities in certain areas leading to erosion and/or localised flooding. FFF cannot see where this has been assessed.

3.6 Changes in Soil Moisture

The presence of solar panels can alter soil moisture patterns, potentially impacting the rate and volume of runoff, again FFF cannot see where this risk has been assessed.

3.7 Land Management

The applicant will be responsible for land management and will be the riparian owner of a number of watercourses. Proper land and watercourse management practices, including maintaining ground cover and avoiding significant changes to the existing drainage network are crucial in mitigating flood risk, we cannot see this has been included.

3.8 Land Contamination

The Applicant's conclusion that no intrusive investigation is needed before DCO consent is granted and is based on a Desk Study and leaves unknown unkowns. A Phase 2 intrusive investigation involving taking soil and water samples for

laboratory analysis is essential to confirm the low-risk assumption and provide greater certainty, and over the wider site.

3.9 Conclusion

Whilst the applicant's consultants (Pegasus Group) are accredited under the IEMA 'Quality Mark' scheme, which demonstrates their competence in managing the EIA process, this is an accreditation of process, not a specific audit of the final FRA document by an independent external firm. Given the concerns raised on this subject matter this requires independent audit.

The Applicant's hydrological modelling fails to account for the unique local conditions of heavy clay, shallow topsoil, and high water tables. While the EA approved the fluvial model for main rivers, concerns remain that the FRA lacks sufficient detailed hydraulic modelling for minor watercourses and ditches that bisect the site. The failure to adequately model these local systems, which are crucial in clay areas with high water tables, is a policy breach of the NPPF's requirement to identify and assess risks from *all* forms of flooding.

The FRA proposes SuDS and other mitigation, relying on these measures to remain effective for a 60-year lifespan. There is as a policy shortfall in so far as the applicant has not demonstrated how long-term maintenance and policing / enforcement will be guaranteed for such a long period, a failure that could expose the local community to a greater flood risk over time.