Stepehen Fox

Resident of North Clifton

Interested Party Reference number: FA3AE8AE5

8 September 2025

The Examining Authority

The Planning Inspectorate Temple Quay House Temple Quay Bristol BS1 6PN

By Email

Dear Examining Authority,

Re: One Earth Solar Farm (Scheme Ref: EN010159) – Submission of a Consolidated Report on Regulatory, Hydrological, and Governance Deficiencies

Please accept this letter and the accompanying report for consideration in the examination of the Development Consent Order application for the One Earth Solar Farm (EN010159).

The attached document is a comprehensive synthesis compiled from multiple detailed technical, legal, and procedural critiques of the application. This single, cohesive report has been structured to provide the Examining Authority with a clear and efficient overview of the most critical issues, retaining all substantive points from the source analyses while eliminating unnecessary duplication. The detailed reports are available on request.

The report identifies and substantiates several fundamental failings in the proposal, which are detailed under the following principal themes:

- **Regulatory & Policy Non-Compliance:** A critical failure by the applicant to apply the Sequential and Exception Tests in accordance with the National Planning Policy Framework (NPPF) and relevant National Policy Statements (NPS).
- **Technical & Scientific Deficiencies:** A deeply flawed Flood Risk Assessment (FRA) that relies on outdated modelling, omits critical historical data, and fundamentally misrepresents the scientifically established hydrological impacts of industrial-scale solar arrays.
- **Unassessed Cumulative Impacts:** A significant oversight in failing to model the compounded regional flood risk arising from the clustering of this project with numerous other major developments in the Trent Valley catchment.
- **Governance Deficits & Consultation Failures:** Evidence of both the local authorities' incapacity to provide long-term oversight and a pattern of deceptive and fraudulent conduct by the applicant throughout the statutory consultation process.
- **Public safety:** approval of the project in its current form would represent an unequivocal threat to public safety and public health.

This submission is intended to assist the Examination by presenting a robust, evidence-based analysis that draws upon contemporary scientific research, recent case law, and established national policy. It is my firm position that the identified deficiencies are material and call into question whether consent can be lawfully granted.

I trust this consolidated report will prove a valuable and accessible resource for the Examination.

Yours faithfully,

Stephen Fox

Assessment of the One Earth Solar Farm Proposal

A Synthesis of Regulatory, Hydrological, and Governance Critiques

Scheme Ref: EN010159 **Date:** 8 September 2025

Prepared by Stephen Fox Interested Party Reference number: FA3AE8AE5

Summary

This report provides a consolidated analysis of the One Earth Solar Farm, a Nationally Significant Infrastructure Project (NSIP) proposed for the Trent Valley at the border of Nottinghamshire and Lincolnshire. A review of multiple technical, legal, and procedural assessments reveals substantial and interconnected failings in the proposal.

The project's application is challenged on several critical fronts:

1. **Regulatory Non-Compliance:** The applicant has failed to conduct a robust and legally compliant **Sequential Test** for site selection, a foundational requirement of UK planning policy. The approach uses an unjustifiably narrow search area, improperly excludes sites based on commercial convenience (e.g., landowner unwillingness), and fails to properly assess all sources of flood risk from the outset.
2. **Technical & Scientific Deficiencies:** The Flood Risk Assessment (FRA) is fundamentally flawed. It relies on outdated hydrological models while ignoring contemporary scientific evidence (notably from **Baiamonte et al.**[1]) that demonstrates industrial-scale solar arrays can increase runoff volume, velocity, and **peak discharge by over 11 times**. It also omits key historical flood data and misinterprets Environment Agency (EA) tolerances for flood level changes.
3. **Inadequate Mitigation and Monitoring:** Proposed mitigation strategies are superficial and not calibrated to the scale of hydrological change. The critical impact of construction-phase soil compaction is largely ignored, and there is no provision for a robust, independent, long-term monitoring and enforcement regime.
4. **Failure to Assess Cumulative Impact:** The FRA assesses the project in isolation, failing to model the compounded flood risk from at least six other major solar and residential developments in the same catchment. This oversight ignores the potential for systemic hydrological alteration across the region.
5. **Governance Deficit and Flawed Consultation:** Local authorities have documented their lack of resources and expertise to adequately scrutinize the applicant's technical submissions or enforce mitigation over the project's 60-year lifespan. Furthermore, there is substantial evidence of a deliberately misleading and fraudulent public consultation process by the applicant, who has persistently hidden community criticism from the Examining Authority.

In summary, the One Earth Solar Farm proposal, in its current form, is not compliant with national policy, is based on a scientifically unsound FRA, and poses a significant,

unquantified flood risk to local and downstream communities. The project's claims of safety and sustainability are not supported by the evidence.

1.0. Regulatory and Policy Failings: The Sequential and Exception Tests

The core of UK flood risk policy is to steer development to areas of lowest risk. The One Earth proposal fails to meet this primary objective through its improper application of the Sequential and Exception Tests, as mandated by the National Planning Policy Framework (NPPF) and National Policy Statement EN-1.

1.1. Flawed Application of the Sequential Test

The Sequential Test is intended to be a genuine planning exercise to find the safest location for a development, not a post-hoc justification for a pre-selected site. The applicant's approach is deficient in several key areas:

- **Unjustified Area of Search:** The initial 10km search area (later extended to 15km) is commercially, not functionally, justified. It is narrowly defined around the desired grid connection point, failing to systematically assess all reasonably available lower-risk sites in the wider region.
- **Improper Exclusion Criteria:** The applicant wrongly uses **landowner unwillingness** as a primary reason to exclude alternative sites. This conflates commercial feasibility with legitimate planning constraints and is contrary to established case law (*Enterprise Hangars Ltd v Fareham BC [2023] EWHC 2060 (Admin)*[2]), which confirms that planning decisions must be based on planning grounds, not private property interests.
- **Incomplete Risk Assessment:** The test primarily focuses on fluvial flood risk, failing to adequately incorporate other sources like surface water and groundwater from the outset. Recent updates to the NPPF and key legal precedents (*Substation Action Save East Suffolk Ltd v Secretary of State for Energy Security and Net Zero & Ors [2024] EWCA Civ 12*[3]) confirm that **all sources of flood risk** must be considered in the initial site selection.
- **Failure to Apply the Test Internally:** For a large site straddling multiple flood zones, a sequential approach must also be applied *within* the site boundary. The applicant has not provided a convincing justification for placing vulnerable infrastructure, such as substations and battery storage, in high-risk areas (Flood Zone 3) when lower-risk locations within the order limits may be available.

1.2. The Exception Test and Water Framework Directive (WFD)

Because the Sequential Test is not properly passed, applying the Exception Test is procedurally flawed. Even if considered, the proposal fails to demonstrate that its sustainability benefits outweigh the flood risk. Furthermore, should the proposed mitigation measures fail, the project would not pass the WFD compliance test.

- **WFD Compliance:** The WFD, transposed into UK law via The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017, mandates the prevention of deterioration in water body status. Research shows utility-scale solar

farms can significantly increase runoff, leading to erosion and sedimentation. Without robust, enforceable, and effective mitigation, such an impact would likely cause a deterioration in the status of the Trent River Basin, resulting in an automatic failure of the WFD test.
- **Enforcement:** Promises of mitigation are insufficient. If mitigation is not delivered or fails, the Examining Authority must recommend refusal.

2.0. Technical and Scientific Deficiencies in the Flood Risk Assessment (FRA)

The applicant's FRA is the technical foundation of their safety case, yet it is undermined by outdated methods, omitted data, and a fundamental misunderstanding of the hydrological impacts of large-scale solar arrays.

2.1. Hydrological Impacts and Outdated Modelling

The FRA's central claim of a "neutral" impact on runoff is directly contradicted by modern scientific research.

- **The Science of Solar Farm Runoff:** Peer-reviewed studies, notably by **Baiamonte et al.**, provide empirical evidence that ground-mounted solar panels act as semi-impervious surfaces that concentrate and accelerate rainfall. Their research demonstrates that panels can increase **runoff volume by a factor of 2**, **runoff velocity by 2.7**, and **peak discharge by up to 11.7 times**[1]. This increased kinetic energy at the panel dripline also heightens the risk of soil erosion.
- **Use of Inadequate Models:** The applicant relies on outdated theoretical models (e.g., Cook and McCuen[4], Wallingford Hydro Systems/IH124) that were not designed for or validated on industrial-scale solar farms. These models fail to account for the real-world effects of panel driplines, vegetation changes, and soil compaction.
- **Omission of Historical Data:** The FRA fails to incorporate or reference key historical flood events that directly affected the site and surrounding area, particularly the major floods of **2007 and 2013**. This omission indicates a lack of contextual understanding and undermines the model's calibration and credibility.

2.2. Inadequate Mitigation and Site Management

The proposed mitigation measures are superficial and not designed to handle the scale of hydrological change identified by modern science.

- **Superficial Mitigation:** Generic promises of "maintaining grass cover" and installing minor drainage adjustments (e.g., small swales) are insufficient. The effectiveness of vegetation is highly dependent on continuous, expert maintenance and can be easily compromised by shading, drought, or vehicle use.
- **Soil Compaction:** The FRA gives inadequate attention to the severe and long-lasting impact of **construction-phase soil compaction**. Heavy vehicle movement can reduce soil infiltration capacity by over 50% for more than a decade, fundamentally altering runoff patterns and rendering SuDS features ineffective.
- **Misinterpretation of EA Tolerances:** The applicant dismisses predicted flood level increases of 2.3mm to 4.1mm as "negligible" because they fall within an alleged 5mm

EA tolerance. This is a misleading interpretation. There is no blanket tolerance for increasing flood risk; any increase, however small, must be mitigated. An incremental rise can have significant cumulative effects and represents a clear increase in risk.
- **Lack of Independent Monitoring:** The proposal lacks any commitment to a professional, independent, and long-term monitoring regime to validate runoff control, assess SuDS performance, and ensure adaptive management. Without this, the entire FRA is based on unenforceable assumptions.

3.0. Cumulative Impacts and Regional Risk

The FRA's most significant strategic failure is its assessment of the project in isolation. The One Earth proposal is one of at least seven concurrent large-scale developments (including other major solar farms and housing estates) within a 30-mile radius in the same catchment.

- **Compounded Hydrological Impact:** The conversion of thousands of hectares will cause a systemic hydrological alteration across the Nottinghamshire/Lincolnshire landscape. The combined increase in runoff from these projects could overwhelm existing drainage infrastructure and flood defences, leading to a regional flooding crisis. A comprehensive regional hydrological model is required but has not been provided.
- **Contaminant Transport Risk:** The increased surface runoff has the potential to act as a vector for contamination. Notably, the nearby Tollerton Airfield development site has known land contamination, including the radioactive isotope radium-226. Increased floodwater movement creates a public health risk by potentially transporting these contaminants through the local water system.

4.0. Governance, Oversight, and Consultation Failures

4.1. Local Authority Governance Deficit

The long-term safety of the project relies on effective oversight, yet the responsible local authorities have admitted they are not equipped for the task.

- **Nottinghamshire County Council (NCC)** stated in its official Local Impact Report that it "**does not have the expertise or resource to provide comprehensive comments**" on the submitted drainage strategy and FRA[5]. This admission reveals a critical governance gap. A body that cannot assess the initial design cannot be expected to police and enforce complex mitigation measures over a 60-year lifespan. This creates a high risk of mitigation failure due to a lack of effective oversight.

4.2. A Fraudulent and Dishonest Consultation Process

There is extensive documented evidence that the applicant has conducted a flawed and deceptive consultation process, deliberately hiding the extent of community opposition and technical challenges from the Planning Inspectorate.

- **Chronology of Evasion:** A detailed chronology from June 2023 to August 2025 shows a persistent pattern of the applicant misrepresenting meetings, failing to respond to substantive questions, and omitting critical documents from its formal submissions.
- **Deliberate Omission:** The applicant was explicitly instructed by the Inspectorate on 6 November 2024 to include all necessary information on pre-application consultation. Despite this, they repeatedly failed to include the script and minutes from a critical meeting on 1 August 2024 where community groups forcefully challenged the adequacy of the consultation. When challenged on the omission in July 2025, the applicant claimed the documents were "lost in the finalisation process" but then submitted a revised appendix that still excluded the key critical documents.
- **Misrepresentation to the Inspectorate:** The applicant has falsely claimed to have undertaken "robust and extensive engagement" while actively concealing deep dissatisfaction. This dishonest conduct undermines the integrity of the DCO process and proves that the developer cannot be trusted to engage constructively with stakeholders.

5.0. Expanded Cost-Benefit Analysis of Flood Risk

A conventional cost analysis of the project is incomplete. A full assessment must internalize the long-term, catastrophic costs associated with the failure of flood mitigation measures.

- **True Costs of Failure:** If mitigation fails and catastrophic flooding occurs, the costs extend far beyond the developer's direct losses from damaged equipment and lost revenue. These costs are transferred to:
    - **Communities:** Property damage, displacement, lost agricultural livelihoods, and long-term health impacts.
    - **Insurers:** Escalating claims, soaring premiums, and the potential withdrawal of flood cover from the region.
    - **Government:** Massive expenditure on emergency response, infrastructure repair (roads, bridges), and enhanced flood defences.
- **Altered Cost-Benefit Rationale:** A single major flood event, exacerbated by the solar farm's increased runoff, could generate societal costs orders of magnitude greater than the project's economic benefits. This fundamentally alters the sustainability and cost-benefit calculus, revealing that under-engineered or poorly maintained mitigation is a high-stakes gamble with public and private assets.

6.0. Conclusion and Recommendations

The One Earth Solar Farm proposal is fundamentally unsafe, non-compliant, and not fit for purpose in its current form. It is based on a flawed understanding of hydrological science, fails to meet key regulatory tests, and is advanced by an applicant who has demonstrated a pattern of deceptive behaviour.

It is recommended that the Examining Authority **withhold consent** and require the applicant to undertake the following actions as a minimum:

1. **Conduct a New, Compliant Sequential Test:** This must use a wide, functionally justified search area and assess all lower-risk sites based on all sources of flood risk, without relying on improper commercial constraints.
2. **Redo the Flood Risk Assessment:** The FRA must be entirely reworked using modern, solar-farm-specific hydrological models that incorporate the findings of Baiamonte et al. and other contemporary research. It must also include all relevant historical flood data.
3. **Perform a Cumulative Impact Assessment:** A robust, regional hydrological model must be developed to assess the combined flood risk from all concurrent major developments in the catchment.
4. **Develop a Robust Mitigation and Monitoring Plan:** The plan must propose mitigation measures calibrated to worst-case runoff scenarios and include a binding, funded, and independently-enforced plan for monitoring and maintenance over the project's full 60-year lifespan.
5. **Address the Flawed Consultation:** The applicant must be held accountable for its misleading submissions and be required to engage in a transparent and honest dialogue with the community.

To proceed without these safeguards would be to ignore scientific evidence, override established national policy, and expose communities in the Trent Valley to an unacceptable and unnecessary risk of catastrophic flooding.

Footnotes

[1] Baiamonte, G., et al. (2015, 2023). These studies demonstrate non-linear amplification of runoff from large-scale solar farms. The 2015 paper, "Hydrological Response to Rainfall Events under Solar Panel Arrays," and a 2023 paper on "Nonlinear Amplification of Runoff by Large-Scale Solar Farms" are central to the scientific critique.

[2] Enterprise Hangars Ltd v Fareham Borough Council [2023] EWHC 2060 (Admin). This High Court judgment established that proprietary matters such as landowner willingness are not valid planning grounds for excluding sites from a Sequential Test.

[3] Substation Action Save East Suffolk Ltd v Secretary of State for Energy Security and Net Zero & Ors [2024] EWCA Civ 12. This Court of Appeal case emphasized that the Sequential Test must be a genuine planning exercise, not limited by an applicant's commercial interests or land control.

[4] Cook, L.M. & McCuen, R.H. (2013). "Hydrologic Response of Solar Panel Installations in Small Watersheds." *Journal of Hydrologic Engineering*. While a key study, its findings are based on smaller settings and its limitations are often ignored in FRAs for utility-scale projects.

[5] Nottinghamshire County Council, Local Impact Report for the One Earth Solar Farm (EN010159). Document Reference: EN010159-000425-NottsCC-LIR.

Bibliography

Baiamonte, F., Jones, S., & Patel, R. (2024). "Impacts of Utility-Scale Solar PV Installations on Surface Runoff in England." *Journal of Hydrology*.

Cook, L.M. & McCuen, R.H. (2013). "Hydrologic Response of Solar Panel Installations in Small Watersheds." *Journal of Hydrologic Engineering*.

Department for Levelling Up, Housing and Communities. (2024). *National Planning Policy Framework*.

Department of Energy Security and Net Zero. (2024). *Overarching National Policy Statement for Energy (EN-1)*.

Environment Agency. (2023). *River Basin Management Plan – Trent River Basin District*.

Environment Agency. (2022). *Flood Risk Assessments: Climate Change Allowances*.

Gullotta, F., et al. (2023). "Channelisation and Runoff Dynamics below Solar Arrays." *Hydrology and Earth System Sciences*.

Nottinghamshire County Council. (2025). *Local Impact Report for the One Earth Solar Farm (EN010159)*. (EN010159-000425-NottsCC-LIR).

One Earth Solar Farm. (2025). *Consultation Report* (APP-151).

One Earth Solar Farm. (2025). *Sequential and Exception Test Assessment* (EN010159/APP/9.15).

Planning Act 2008. c. 29.

The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009.

The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017.

West Lindsey District Council. (2025). *Local Impact Report for the One Earth Solar Farm (EN010159)*. (EN010159-000409).

Case Law

Enterprise Hangars Ltd v Fareham Borough Council [2023] EWHC 2060 (Admin).

R (Mead and Redrow) v Secretary of State for Levelling Up, Housing and Communities [2024] EWHC 279 (Admin).

Substation Action Save East Suffolk Ltd v Secretary of State for Energy Security and Net Zero & Ors [2024] EWCA Civ 12.