EcoPower Suffolk Solar

Draft Outline Battery Safety Management Plan

June 2026

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1 INTRODUCTION

1.1 Overview

EcoPower Suffolk Limited ('the Applicant') has commissioned Greenfire Solutions to provide an Outline Battery Safety Management Plan for the proposed Battery Energy Storage System (BESS) element of the EcoPower Suffolk Solar Farm (the 'Proposed Development') — a co-located solar photovoltaic (PV) and battery energy storage scheme with a generating capacity over 100 MW. The rated power and energy capacity of the BESS element will be confirmed at the detailed design and procurement stage.

The Proposed Development includes approximately 900 hectares of land for solar development, BESS, environmental enhancement and new planting within the following five main Areas which together form the 'Principal Area':

- Area 1 Stuston: Land south of Stuston;
- Area 2 Eye: Land north of Eye;
- Area 3 Gislingham: Land north of Gislingham;
- Area 4 Occold: Land north of Occold; and
- Area 5 Thrandeston and Mellis: Land south of Thrandeston and north of Mellis.

These five Areas will be connected by new underground cabling. A high voltage electrical grid connection will also be required to connect the Principal Area via underground cabling to the Yaxley 400kV National Grid Substation (the 'National Grid Substation'). This connection will allow the Proposed Development to export electricity to the transmission network. The potential routes for the new underground cabling and grid connection are located within corridors referred to as the 'Draft Cable Corridors'.

The maximum area of land that will be required for the construction, operation, maintenance and decommissioning of the Proposed Development (comprising the Principal Area and Draft Cable Corridors) is referred to as the 'Draft Order Limits'. The precise BESS power rating (MW), storage duration, individual site addresses and grid references will be confirmed at the detailed design and procurement stage. The proposed centralised BESS compound is centered on approximately National Grid Reference TM 10555 75416; the centralised BESS remains subject to the grant of development consent and the number of battery containers within it has not yet been determined.

As the Proposed Development forms part of a scheme with a generating capacity over 100 MW, it exceeds the threshold for solar generating stations in England and is therefore classified as a Nationally Significant Infrastructure Project (NSIP) under the Planning Act 2008. Development consent is accordingly sought through a Development Consent Order (DCO) application, which will be examined by the Planning Inspectorate, with the final decision taken by the Secretary of State for Energy Security and Net Zero (DESNZ). Babergh and Mid Suffolk District Council and Suffolk County Council are the host local authorities and will be statutory consultees in the examination process. This OBSMP is prepared to support the DCO application and the associated fire and rescue service consultation.

Key details of the Proposed Development:

- A Battery Energy Storage System using lithium iron phosphate (LFP) battery technology, with the final power rating (MW) and storage capacity (MWh) to be confirmed at detailed design and procurement stage

— Consisting of:

— Multiple containerised BESS units, anticipated to be arranged both as distributed groups within the solar array areas (currently indicated as approximately four 5 MWh containers per solar station block, DC-coupled to the solar panels through a single inverter) and within a centralised BESS area close to the point of connection at the Yaxley substation. The centralised BESS remains subject to the grant of development consent, and the number of containers within it has not yet been determined. The final number of units will be confirmed at detailed design stage

— Associated power conversion and electrical infrastructure, comprising DC-DC converters, power conversion systems (PCS) / inverters and transformers

— An electricity substation compound and associated grid connection infrastructure, including switch and control room(s)

— Emergency firefighting water provision: the developer is currently considering fire hydrant locations, and a static water supply of approximately 180,000 litres is anticipated at the centralised BESS compound, with the final type, number and capacity to be agreed with Suffolk Fire and Rescue Service (SFRS).

1.2 Purpose of the OBSMP

The primary OBSMP purpose is to set out a number of high-level objectives — covering principal fire and safety aspects — to establish mechanisms to ensure fire and safety compliance of the Proposed Development. It is anticipated that this OBSMP will ultimately be developed into a Detailed Battery Safety Management Plan (DBSMP) to ensure the ongoing consideration of the fire and safety compliance of the Proposed Development while supporting the UK's transition to renewable energy, protecting all stakeholders and the surrounding environment. This OBSMP has been prepared with reference to the NFCC Grid Scale Battery Energy Storage System Planning Guidance for Fire and Rescue Services (February 2026) ('NFCC V2 BESS Guidance'), the DESNZ Health and Safety Guidance for Grid Scale Electrical Energy Storage Systems, and the Planning Practice Guidance (PPG) for renewable and low carbon energy published by the Ministry of Housing, Communities and Local Government (MHCLG), which together set out the applicable framework for BESS developments in England and Wales and provide guidance on how applicants can demonstrate that relevant guidance and legislation have been taken into account at the planning application stage.

This OBSMP has additionally been reviewed against the Environment Agency internal guidance document "Guidance for responding to planning consultations for Battery Energy Storage Systems", Version 2, dated 06 May 2026 (the "EA BESS Guidance"). That document is advisory internal guidance directed to Environment Agency officers responding to BESS planning consultations and pre-application enquiries; it does not constitute a policy position of the Environment Agency and is expressly subordinate to government policy and guidance where any conflict arises. Notwithstanding its advisory status, the EA BESS Guidance is a material indicator of the matters the Environment Agency is likely to raise when consulted on BESS proposals, encompassing flood risk and vulnerability classification, firewater containment, surface-water and groundwater pollution risk, land contamination, end-of-life battery management, and emergency incident reporting arrangements. The OBSMP has been prepared to ensure that each of these topics is addressed at the appropriate level of detail for this outline stage, with commitments to provide the further information identified by the EA BESS Guidance as part of the DBSMP process.

1.3 Greenfire Solutions

Greenfire Solutions (GS) is led by former Senior Officers from the UK Fire and Rescue Service. We work with fire and rescue services across the UK, Local Authorities and private sector applicants. We pride ourselves on providing a wide range of high-quality, bespoke, and ethically sound advice and support including:

- Operational Advice and Assurance;
- Fire Safety Strategies, including Protection and Prevention;
- Legal Advice in Relation to UK Fire Legislation;
- Liaison with Local Authority Fire and Rescue Services on behalf of Third Parties;
- Liaison with Parish, District and County Councils, including Elected Members and Officers on behalf of Third Parties; and,
- Liaison with Insurers and Investors

Since the launch of GS, we have enjoyed considerable growth, built upon the foundations of a solid reputation for delivering high quality outcomes. We work with multiple energy companies, helping to shape projects from inception through to delivery on the ground. Our extensive strategic, operational experience of the fire sector and local authorities enables GS to support developers and planners by:

- In respect of planning applications, reviewing designs and plans to prepare for fire service consultation in line with:
- In England, the requirements of the Planning Practice Guidance (PPG) which reference the NFCC V2 Guidance, the new Health and Safety Guidance for Grid Scale BESS;
- In Scotland, the Town and Country Planning (Scotland) Act 1997 and Section 36 of the Electricity Act 1989, the National Planning Framework 4, the Scottish Government's Planning Guidance: Battery Energy Storage Systems (March 2026), the Fire (Scotland) Act 2005 and Fire Safety (Scotland) Regulations 2006;
- In Wales, Planning Policy Wales and Future Wales: The National Plan 2040;
- In Northern Ireland, The Planning (Development Management) Regulations (Northern Ireland) 2015; and,
- In the Republic of Ireland, the Electrical Storage Policy Framework for Ireland;
- Creating site-specific fire risk assessments and environmental fire risk assessments;
- Creating Outline and Detailed Battery Safety Management Plans, including bespoke Fire Risk and Emergency Response Plans;
- Supporting the creation of bespoke Integrated Fire Risk Management Strategies (IFRMS);
- Where required, creating bespoke Environmental Impact Assessment input in compliance with relevant requirements (for the EcoPower Suffolk Solar Farm, the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017);
- Working with Scientific Advisors (who provide advice to UK Fire and Rescue Services) to provide Smoke Plume Analysis Reports (SPAR);
- Generating solutions for site-specific challenges through working alongside developers, engineers and planners when in discussions with third parties such as Fire and Rescue Services;
- Supporting liaison during engagement with Fire and Rescue Services to create a positive and open collaborative approach;

- Providing feedback, and updates to future design, from any lessons learned emerging from national and international incidents;
- Supporting local Fire and Rescue Services to obtain and gather Site Specific Risk Information (SSRI) and pre-incident planning information, consistent with the duties and operational responsibilities of fire and rescue authorities in England and Wales under the Fire and Rescue Services Act 2004 and the National Operational Guidance framework;
- Supporting liaison with Local Resilience Forums;
- Providing ongoing support to energy companies and local Fire and Rescue Services through the regular testing of procedures and stimulated exercises; and,
- Working with other professional institutions and associations such as the NFCC, Institute of Fire Engineers and the Fire Industry Association.

Our experience shows that to work effectively with Fire and Rescue Services and local planning authorities; a collaborative and cohesive approach works best. As a company, our approach is to work alongside our Applicants' engineers and planners when in discussions with third parties to enable an evidence-based decision-making process where a consensus can be achieved in an efficient and expedient manner. Our focus is to build trusting relationships with our clients to become their preferred partner of choice into the future.

1.4 Author

The author of this document is David Pemberton, a former strategic manager in the UK Fire & Rescue Service (FRS). David has 30 years' experience as a risk management and leadership professional and delivering community safety and resilience in challenging and complex environments. David has a reputation for forming powerful collaborative relationships and delivering excellence.

2 OBSMP OBJECTIVES

2.1 Overview

As previously noted, the primary OBSMP purpose is to set out a number of high-level development objectives – covering principal fire and safety aspects – to establish mechanisms to ensure fire and safety compliance of the Proposed Development.

However, reflecting the current conceptual phase, the secondary OBSMP purpose is to also set out a number of additional objectives so that this OBSMP continues to act as a live document allowed to evolve throughout further phases to provide a means to ensure ongoing fire and safety compliance of the Proposed Development, to be ultimately developed into a Detailed Battery Safety Management Plan (DBSMP).

The overall safety aim of the risk management approach is that the levels of risk of accident, death or injury to personnel or other parties, and risks to the environment arising from the construction, operation, maintenance, and decommissioning of the Proposed Development, are to be as low as reasonably practicable (ALARP) in accordance with the Health and Safety Executive guidance document Reducing Risk, Protecting People (R2P2). This will be evidenced through the Hazard Log to be developed as part of the DBSMP process (see Section 5).

This Section provides a summary of these objectives.

2.2 Summary of Objectives

The objectives are to:

Establish mechanisms to ensure Fire and Safety Compliance of the Proposed Development

Requiring:

- Consideration of existing safety standards and guidance relating to BESS;
- Identification of potential fire and safety risks associated with the Proposed Development;
- Consideration of proposed risk management measures;
- A review of the compliance of the Proposed Development; and,
- Processes for the integration of best practices.
- Define a Strategy to ensure Effective Development of this OBSMP to a DBSMP

Requiring:

- Identification of information requirements to develop this OBSMP into a DBSMP;
- Identification of the processes / responsible parties for developing and providing this information;
- An outline of the documentation / evidence / mechanisms (e.g. compliance matrices against relevant standards and guidance) to be used for future compliance reviews; and,
- An outline of the regular review and update procedures to consider any evolving best practices.

Potential future considerations include: identification of competency and training requirements for operational staff; and an outline of the regular inspection and maintenance protocols. However, these are not specifically discussed in this OBSMP.

Develop a Framework for Stakeholder Engagement

Requiring:

- Identification of the key Stakeholders related to fire / safety;
- Outline of potential information requirements for each Stakeholder to allow for effective approvals / collaboration / engagement; and,
- Outline indicative timescales for engagement.

3 THE PROPOSED DEVELOPMENT AND OVERARCHING PRINCIPLES

3.1 Overview

This Section provides a description of the Proposed Development, in particular the Proposed Development characteristics and the Application Site Location. This Section then also provides several overarching principles which have been adopted and will continue to be adopted throughout further phases.

3.2 Proposed Development Characteristics

The EcoPower Suffolk Solar comprises a co-located solar photovoltaic generating station with a generating capacity of over 100 MW and an associated Battery Energy Storage System; the rated power and energy capacity of the BESS element will be confirmed at the detailed design and procurement stage. The BESS element, which is the subject of this OBSMP, will comprise the construction and operation of:

- Civil engineering works, including cut and fill earthworks and other site preparation works, to provide suitable topography for development purposes;
- Energy storage and associated infrastructure including:
- The energy storage modules, and associated platform(s);
- Power conversion / inverter systems (including medium- / low-voltage switchgear and transformers);
- Control and protection equipment (including: cooling equipment; heating, ventilation and air conditioning (HVAC) equipment; and fire detection, protection and suppression equipment); and,
- Metering equipment;
- Electrical cabling connections between the main energy storage modules and the electrical substation;
- Welfare facilities (including: office areas; kitchen facilities; and changing / toilet facilities);
- Site security (including: fencing and gating; operational (intermittent) lighting columns; and Closed-Circuit Television (CCTV) / security cameras);
- Site access from the adopted road, internal access / circulation roads and car parking;
- Drainage infrastructure; and,
- Ecological enhancement and landscape planting measures.

The above elements will be required to some extent regardless of the energy storage technology supplier selected, and final design solution implemented. These components will allow for operation in either ‘energy charge’, ‘energy storage’ or ‘energy discharge’ modes (or else providing ancillary (support) services to the National Grid). Between each mode, there will be no material differences in operational characteristics.

3.3 Draft Order Limits Location

EcoPower Suffolk Solar comprises a Principal Area of approximately 900 hectares, predominantly agricultural land, arranged across five main areas situated around the National Grid Yaxley 400 kV substation. The development areas are situated within a broadly 6 km radius of the National Grid Substation, on separate land parcels in the vicinity of settlements at Yaxley, Stuston, Brome and Oakley, Eye, Occold, Gislingham, Mellis and Thrandeston. Area 5, closest to the National Grid Substation, is anticipated to accommodate the centralised BESS and associated

infrastructure, with further distributed BESS units co-located within the solar array areas. The proportion of land developed for built infrastructure, and the extent of landscaping and screening to exterior areas, will be defined through the detailed design process informed by ongoing environmental surveys, site assessments and public consultation. The Site is located within the Mid Suffolk District; the receiving landscape is predominantly rural and agricultural in character.

There are no statutory landscape designations (i.e. National Parks or National Landscapes) within the Study Area. No local landscape designations have been identified. Ecological and heritage designations, which may contribute to the value attached to the landscape, will be recognised and assessed within the relevant sections of the Environmental Statement (ES) accompanying the DCO application. A review of Natural England's designated sites dataset confirms that no Sites of Special Scientific Interest (SSSIs) are present within 1 km of the Draft Order Limits. The Environmental Impact Assessment (EIA) will assess potential impacts on natural and historic heritage designations and will set out the mitigation measures secured through the ES. Confirmation of relevant designations and the associated consultee positions (for example Natural England and Historic England) will be reflected in the development of this OBSMP into a DBSMP.

The overarching principles which have been adopted (and will continue to be adopted throughout further phases) comprise:

- The adoption of evolving guidance and best practice for fire and safety as these emerge globally and within the UK, including compliance with the NFCC V2 BESS Guidance and the DESNZ Health and Safety Guidance for Grid Scale Electrical Energy Storage Systems, as applicable in England and Wales.
- The procurement of equipment and plant from reputable manufacturers with demonstrated safety credentials, selected to meet project specifications and applicable regulatory standards, including UL 9540A at cell, module, and unit level.
- Compliance with the Construction (Design and Management) Regulations 2015 (CDM 2015), including the appointment of a Principal Designer and Principal Contractor, and the preparation and sharing of Pre-Construction Information with SFRS prior to commencement of construction works
- Early engagement with the Environment Agency (EA) in respect of flood risk, surface water drainage, and firewater containment system design (PPG18: Managing Fire Water and Major Spillages), consistent with the EA's role as statutory environmental regulator and consultee, and the requirements of the Environmental Permitting (England and Wales) Regulations 2016 and/or the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 as applicable.
- Acknowledgement of the NFCC BESS Policy Position Statement (October 2025), which calls for a UK-wide framework for the safe deployment of BESS and for BESS to be brought within the Environmental Permitting (England and Wales) Regulations 2016, and a commitment to engaging with the Environment Agency on equivalent environmental management requirements pending such regulations.
- The final BESS layout and safety case shall be reviewed against the Flood Risk Assessment (FRA) submitted in support of the DCO application and any DCO requirements relating to flood risk. For each BESS compound or distributed BESS block within the Draft Order Limits, the DBSMP shall confirm the relevant Flood Zone classification, proximity to main rivers and ordinary watercourses, adopted design flood levels, applicable climate-change allowances and assumed operational lifetime for flood risk assessment purposes. The Applicant notes that the Environment Agency's current guidance treats co-located solar and grid-connected BESS facilities as reasonably capable of classification as "essential infrastructure" for flood-risk planning purposes, pending clearer national vulnerability classification guidance. On that basis, the BESS design shall

be assessed against the requirements applicable to essential infrastructure, including the Sequential Test, the Exception Test where relevant, and the higher central climate-change allowance, unless an alternative justified classification is adopted in the FRA and agreed with the Environment Agency.

- Where BESS compounds or blocks are located within Flood Zone 2, Flood Zone 3a or the functional floodplain, the design shall demonstrate that safety-critical equipment — including fire detection systems, the Battery Management System, electrical isolation devices, emergency communications and supporting auxiliary power — remains safe and resilient during the design flood event, or that an agreed pre-emptive safe shutdown and isolation strategy removes the relevant fire and pollution risk in sufficient time before inundation can occur. The DBSMP shall address residual flood scenarios, including flood defence failure and events with limited advance warning, and shall specify flood warning reception, pre-flood shutdown, automated floodwater detection and safe isolation procedures as appropriate to the final site-specific flood-risk assessment.
- The DBSMP will also assess the interaction between flood risk, fire risk and controlled-waters pollution risk, recognising that a flooding event could cause, exacerbate or hinder the emergency response to a BESS fire or contaminated run-off incident. This interface assessment shall inform the Risk Management Plan and the Environmental Impact Plan.

4 REVIEW: CURRENT FIRE AND SAFETY COMPLIANCE

4.1 Overview

The primary OBSMP purpose is to review the current fire and safety compliance of the Proposed Development and the commitments that the Applicant is making in order to comply with the relevant Legislation, Codes and Guidance.

As such, this Section provides a summary of the:

- Existing safety standards and guidance relating to BESS;
- Identified potential fire and safety risks associated with the Proposed Development, including:
- Thermal runaway risks;
- Electrical fire hazards;
- Fire propagation pathways between BESS units; and,
- Toxic gas emissions and deflagration risks;
- Proposed risk management measures, including:
- Active system design and construction (e.g. battery management system, thermal management systems, fire detection and suppression, etc);
- Deflagration systems and explosion protection;
- Containment and isolation mechanisms;
- Passive system design and construction (e.g. site layout / separation distances, BESS unit spacing, site context of electrical equipment (e.g. fire-resistant materials, etc));
- Emergency response infrastructure (e.g. site access, water availability / supply, fire-fighting infrastructure, etc); and,
- Associated Plans;
- A review of the compliance of the Proposed Development against the NFCC BESS Guidance 2026, together with the requirements of the DESNZ Health and Safety Guidance for Grid Scale Electrical Energy Storage Systems and the NFCC BESS Policy Position Statement (October 2025 and March 2026), as applicable in England and Wales

4.2 Safety Standards and Guidance relating to BESS

Appendix 2 presents a summary of the safety standards and guidance relating to BESS, which also includes several pieces of statutory Health and Safety, electrical and fire safety legislation. The register has been updated to include the NFCC BESS Guidance 2026, the NFCC Policy Position Statement on Planning (March 2026), the NFCC BESS Policy Position Statement (October 2025), the Environment Agency / Natural Resources Wales PPG18 (Managing Fire Water and Major Spillages), the DESNZ Health and Safety Guidance for Grid Scale Electrical Energy Storage Systems, the National Guidance Document on the Provision of Water for Firefighting (Water UK, 2025), the Approved Document B: Fire Safety (Volume 2: Buildings other than dwellinghouses, as amended March 2025 for England), and CIRIA C736 (Containment Systems for the Prevention of Pollution, 2014). It is noted that these are non-exhaustive and are based on experience from other projects of a similar nature

4.3 Potential Fire and Safety Risks Associated with the Proposed Development

The identified potential fire and safety risks associated with the Proposed Development comprise:

- Thermal runaway risks (associated with LFP technologies);
- Electrical fire hazards;
- Fire propagation pathways between BESS units; and,
- Burnt and unburnt products of combustion and deflagration risks.

4.4 Technology Description: Indicative Containerised BESS System (Technology-Agnostic)

At this outline stage the BESS technology has not been procured and the design remains technology-agnostic. As a broad statement of intent, the indicative layout is based on Lithium Iron Phosphate (LiFePO4 / LFP) cell chemistry housed within standard containerised DC battery systems, indicatively supporting in the order of 5 MWh to 8 MWh of usable capacity within a standard 20-foot container. The specific manufacturer, cell format and container configuration will be confirmed at the detailed design and procurement stage.

The National Fire Chiefs Council (NFCC) Guidance for the Safe Design, Installation and Operation of Battery Energy Storage Systems does not require detailed manufacturer-specific technical data at the planning application stage; it expressly recognises that technology selection and detailed design typically follow planning consent, and that a high-level fire safety strategy prepared on the basis of the proposed chemistry is an appropriate and sufficient basis for assessment at this stage. This OBSMP has been prepared in that context. The Applicant commits to ensuring that the BESS system ultimately procured and installed will comply with, and where appropriate exceed, all relevant standards including BS EN IEC 62933, UL 9540, UL 9540A and applicable editions of NFPA 855, and that any deviation from the design intent described herein will be subject to formal review and re-assessment prior to implementation.

The cells used within the BESS containers will incorporate construction features designed to prevent thermal propagation in the event of a thermal runaway event, including thermal insulation design and appropriately rated pressure-relief or venting mechanisms, the precise specification of which will be confirmed at the detailed design and procurement stage.

4.5 Proposed Risk Management Measures

4.5.1 Active Systems

The containerised BESS system is anticipated to comprise a standard 6m x 2.5m x 3m containerised DC battery system housing the battery racks, battery packs, battery junction box, liquid cooling system, fire protection system, DC combiner panel, AC/DC power distribution panel, and local EMS / control equipment, all within a self-contained enclosure intended for installation as a complete unit.

Indicatively, each containerised system is expected to provide in the order of 5 MWh of usable capacity using LFP prismatic cells, with integrated liquid cooling, fire protection, and embedded monitoring and control systems to support safety, reliability, and performance. The final ratings, cell format and supplier will be confirmed at the detailed design and procurement stage.

The procured containerised system will demonstrate compliance or design reference to the relevant standards, anticipated to include UL 9540A, UL 1973, IEC 62933, IEC 62619, IEC 63056, IEC 62477, IEC 61000-6-2, IEC 61000-6-4, UN 38.3, UKCA, CE, and NFPA 855:2026; active ventilation and deflagration venting will be designed to NFPA 69 and NFPA 68 respectively.

The fire protection system incorporated within the BESS container shall include active ventilation designed and sized in accordance with NFPA 69 (Standard on Explosion Prevention Systems) and deflagration venting designed in accordance with NFPA 68 (Standard on Explosion Protection by Deflagration Venting).

At the pack and cell level, the selected system shall incorporate thermal runaway propagation inhibition measures, which may include, but are not limited to, high thermal resistance inter-cell isolation materials, intumescent or passive fire-resistant barriers between battery modules, and pack-level fire suppression. The specific arrangement shall be confirmed at the detailed design stage and documented within the DBSMP. The system supplier shall provide evidence of UL 9540A testing at cell, module and/or system level, as required to support the fire safety strategy and satisfy the requirements of the relevant Fire and Rescue Service.

4.5.2 Battery Management Systems

The containerised BESS is anticipated to be equipped with an integrated multi-level Battery Management System (for example battery management unit, battery control unit and battery array/aggregation layers) together with network switches, supporting coordinated monitoring and control across pack, rack, and system levels.

The BMS is understood to perform real-time collection of essential physical signals including voltage, current, and temperature, detects potential faults, and calculates state information including SOC, SOP, SOE, and SOH; at pack level, the BMU acquires cell voltage and temperature, at rack level the BCU aggregates data and can isolate a rack where pack conditions are abnormal, and at system level the BAU communicates with the PCS controller for status reporting and dispatch control.

The specific BMS implementation — including layered hardware architecture, communication protocols and software platform — shall be confirmed through the procurement process. The procured BMS shall, as a minimum, comply with IEC 62619 and IEC 63056, and its functional performance shall be validated as part of the Factory Acceptance Testing (FAT) and commissioning programme prior to energisation.

4.5.3 Thermal Management Systems

The containerised BESS system is anticipated to use a liquid-cooled thermal management system comprising chillers, pipework, and pack cold plates, with each battery pack provided with a separate cooling channel.

The liquid cooling design is intended to maintain suitable operating temperatures and temperature consistency across the container; under the modelled 0.5P operating condition, the highest cell temperature did not exceed 37°C and the maximum temperature difference did not exceed 3.3°C.

The thermal management system includes real-time coolant leak detection by monitoring the pressure of cooling water pipes, with alarms sent to SCADA / EMS, and also includes an 8 L automatic refill tank to compensate for coolant loss during long-term operation.

4.5.4 Fire Detection and Suppression

The fire protection system for the containerised BESS will be required to detect, alarm, and suppress thermal runaway events at an early stage, with a design approach based on prevention, detection, suppression, and containment.

Each container is anticipated to be equipped with smoke, heat, carbon monoxide, and hydrogen detection to identify battery or electrical fire risks, with fire alarm logic anticipated to use two alarm levels: Level 1 triggered by a single smoke, heat, or combustible gas detection event, and Level 2 triggered by simultaneous smoke and heat detection in the battery compartment.

Typical fire protection arrangements for containerised BESS of this type comprise smoke sensors, a heat sensor, carbon monoxide and hydrogen sensors, an alarm bell, a horn strobe, electrically actuated ventilation louvers, explosion-proof fans, aerosol or equivalent suppression, a fire alarm control panel, backup power supply, and, where provided, deflagration panels and a water-based suppression system. The final arrangement will be confirmed at the procurement stage.

The active ventilation will be linked to the hydrogen and carbon monoxide detectors and will start when gas concentrations exceed pre-set thresholds, while any aerosol suppression is anticipated to initiate under Level 2 alarm logic; deflagration venting, where provided, will be designed to NFPA 68 and active ventilation to NFPA 69 Power Conversion and Electrical Systems

The AC/DC power distribution panel distributes auxiliary power to critical components including the thermal management system, uninterruptible power supply (UPS), fire protection system, BMS, and local controller, and requires a 400 Vac three-phase supply.

To support continuity of safety-critical functions, a UPS is provided in the power distribution panel to ensure uninterrupted operation of critical circuits for no less than two hours following loss of auxiliary power supply.

The electrical safety design implements four levels of protection distributed among the battery module, battery junction box, DC combiner panel, and PCS; the electrical safety study also states that the selected PCS-side and battery junction box DC fuses have up to 250 kA breaking capacity, while the rack-level circuit breaker provides electrical isolation and overload protection.

4.5.5 Power Conversion and Electrical Systems

The AC/DC power distribution panel within each BESS container shall distribute auxiliary power to all safety-critical and operational loads, including the thermal management system, UPS, fire protection system, BMS and local EMS/controller equipment. The system shall be designed for connection to a 400 Vac three-phase supply, with the precise auxiliary supply arrangement confirmed at the detailed electrical design stage.

To ensure continuity of safety-critical functions following any loss of auxiliary supply, the power distribution panel shall incorporate an integrated UPS capable of maintaining uninterrupted operation of critical circuits — including fire detection, BMS and alarm systems — for a minimum of two hours following supply interruption. The UPS duration requirement shall be reviewed at detailed design stage against the site-specific emergency response and evacuation strategy.

The electrical safety design shall implement coordinated multi-level protection distributed across the battery module, battery junction box, DC combiner panel and Power Conversion System (PCS) interface. Protection measures shall include, as a minimum:

- Module-level overcurrent protection within each battery pack;
- DC fusing at junction box and PCS interface, rated to provide adequate breaking capacity for the maximum prospective fault current at each protection point — as a performance benchmark, DC fuses shall be specified with a breaking capacity of no less than 250 kA at the relevant voltage;
- Rack-level circuit breakers providing electrical isolation and overload protection to enable safe maintenance and fault containment; and,
- System-level disconnection capability at the DC combiner panel and PCS interface.

The specific protection devices, ratings and coordination study shall be confirmed at the detailed design stage and shall comply with IEC 62477, IEC 60947 (relevant parts) and any applicable requirements of the Distribution Network Operator (DNO) and NFPA 855 as referenced in the project standards suite.

4.5.6 Deflagration Systems and Explosion Protection

As noted in the preceding section, the active ventilation and deflagration venting systems incorporated within each BESS container will be designed in accordance with NFPA 69 and NFPA 68 respectively. The Applicant has confirmed that the procured BESS system shall comply with NFPA 855:2026, and accordingly deflagration panels and compliant deflagration venting shall be mandatory project requirements for all containerised BESS units deployed on this Site.

Deflagration panels will be installed on the top surface of each container enclosure and will be designed to passively open when the internal enclosure pressure exceeds the static opening pressure threshold, in order to relieve overpressure and reduce the risk of structural damage to the container. As a design benchmark, the static opening pressure threshold will be in the region of 0.1 bar, with the precise specification confirmed by the system supplier in accordance with the deflagration venting calculations required under NFPA 68 for the specific enclosure geometry and gas hazard profile.

The passive deflagration venting system forms part of the broader, integrated explosion prevention and fire risk control strategy described in the preceding fire protection section, which also encompasses combustible gas detection, interlocked active ventilation, multi-level alarm logic, aerosol suppression, backup power supply and fire alarm control functions. The passive and active systems are designed to operate in a complementary and coordinated manner: active ventilation and gas detection provide preventive and early-response functions, while deflagration panels provide a last-resort pressure relief mechanism in the event of a deflagration event within the enclosure.

The detailed design of the deflagration venting arrangement — including panel sizing, vent area calculations and discharge orientation — will be confirmed at the detailed design stage, documented in the DBSMP, and agreed with SFRS prior to installation.

4.6 Passive Systems

4.6.1 Site Layout

As noted previously, the BESS units (plus any associated equipment / infrastructure) will be engineered and fabricated by manufacturers adhering to latest industry standards and best practices. For BESS units, the current industry standard is NFPA 855:2026, the Standard for the Installation of Stationary Energy Storage Systems, which ensures robust and reliable construction.

NFPA 855:2026 recommends that BESS units should be separated by a minimum 3 m (10 ft) from the following exposures:

- Site boundaries;
- Public rights of way;
- Buildings;
- Stored combustible materials;
- Hazardous materials;
- High-piled stock; and / or
- Other exposure hazards not associated with electrical grid infrastructure.

Further to the above, the NFCC V2 BESS Guidance recommends that BESS units should be separated from site boundaries / occupied buildings by an initial minimum distance of 30 m (noting a reduction of minimum distance may be possible in areas of lower risk where risk-based justification and mitigation are provided), and also recommends that BESS units should be separated from combustible vegetation by a minimum distance of 3 m. It is important to note that the minimum 30 m separation from occupied buildings is a distinct and separate design requirement from the reduced inter-container spacing of 0.914 m that may be achieved under NFPA 855:2026 subject to UL 9540A test evidence. Both requirements apply concurrently and are non-interchangeable.

The Proposed Development layout has been designed with this distinction in mind, and compliance will be confirmed at detailed design stage. Separately, The NFCC V2 BESS Guidance represents the appropriate benchmark for assessing fire safety at BESS developments within the planning system in England and Wales. The DESNZ Health and Safety Guidance for Grid Scale BESS further sets out the applicable operational health and safety requirements. For projects in England, the Planning Practice Guidance (PPG) on renewable and low carbon energy directs local planning authorities to consult local fire and rescue services as part of the planning process; in Wales, equivalent guidance is provided by Planning Policy Wales and the Technical Advice Note (TAN) 8 renewable energy framework.

4.6.2 BESS Unit Spacing

The Proposed Development will be broken into discrete groups consisting of BESS units, inverters and transformers. Each group will be appropriately separated from the next. This separation will limit any fire that is not able to be contained to the affected group and allow emergency access in case of an intervention.

The separation requirements will comply with the minimum requirements of NFPA 855:2026 and the existing NFCC BESS Guidance 2026.

To comply with NFPA 855:2026, it is expected that fire protection will be provided between the cabinets in the BESS unit to limit thermal runaway and fire spread. Additionally, the outer steel enclosure of each BESS unit will be designed within a thermal barrier to mitigate fire spread to and from neighbouring BESS units.

The NFCC V2 BESS Guidance states that the emergency response plan should assume that the fire will not spread beyond the BESS container of origin. Fire and rescue operations should be limited to boundary cooling of surrounding BESS and monitoring the BESS involved in the thermal event.

This outcome can be achieved through a number of different routes, including:

- Adequate separation between the BESS enclosure/cabinet to ensure that the radiant heat from a thermal event in one BESS enclosure/cabinet will not trigger a secondary event, and
- Provision of fire-resistant materials that will prevent direct flame impingement or radiated heat affecting adjacent BESS and prevent the incident developing beyond BESS of origin.

As previously discussed, the BESS containers will have been tested to UL 9540A and that this shows that propagation does not occur between BESS cabinets/enclosures. It is therefore possible to reduce separation to a minimum of 3ft or 0.914m. Any further reductions in distance should only be made based on technical advice from a competent person.

It should be noted that any reduction to 3 ft (0.914 m) is predicated on requirements under NFPA 855:2026 which are that testing must demonstrate that:

- A fire involving one ESS unit will not propagate to an adjacent unit;
- Complete UL 9540A test reports (including cell, module, and unit level testing) are provided to the Authority Having Jurisdiction; and,
- Testing evaluates thermal runaway propagation potential, heat and gas release rates, radiant heat flux measurements, and potential for deflagration or re-ignition.

The indicative layout drawings prepared for the Proposed Development show distributed BESS ‘solar station’ blocks, each currently indicated as approximately four 5 MWh BESS containers arranged with associated DC-DC converters, a power conversion system (PCS) and a transformer, DC-coupled to the solar panels, together with a centralised BESS area near the point of connection. The indicative arrangement shows separation distances between containers and equipment within each block (for example side-to-side gaps in the order of 3.5 m and gaps to the PCS and transformer in the order of 1–3 m). These dimensions are indicative only at this outline stage and will be confirmed at detailed design stage following procurement, and demonstrated to comply with NFPA 855:2026 and the NFCC BESS Guidance 2026.

The separation distances between BESS blocks and arrays will be confirmed at detailed design stage. The final separation distances will comply with both the relevant NFPA codes and the NFCC BESS Guidance 2026, and any reduction in inter-container spacing towards the NFPA 855:2026 minimum of 0.914 m (3 ft) will be justified by UL 9540A test reports supported, where appropriate, by Large Scale Fire Test (LSFT) results. At detailed design stage, the final layout will be confirmed following a procurement exercise when the BESS supplier is confirmed, and will conform to the latest guidance and codes.

For a planning decision-maker, the key point is that LSFT turns general assurances about safety into specific, evidence-based performance. The results of large-scale testing are used to set separation distances between units, to decide whether fire-rated walls or other barriers are needed, and to define how far the installation should be

from boundaries, public roads, and neighbouring uses. This means that the site layout submitted with an application can be justified with quantitative data from full-scale testing of the actual type of system proposed, rather than relying on broad rules of thumb or worst-case assumptions that may be either overly cautious or not cautious enough. It is expected that this information will be required in a DBSMP.

It is expected that the equipment will sit on concrete rafts or similar foundations, with the apron around the equipment constructed from compacted stone giving a semi-permeable surface. These areas, where possible, will be constructed to shed water to any adjacent permeable areas.

4.6.3 Site Context of Electrical Equipment (e.g. Fire-Resistant Materials)

As noted previously, the BESS units (plus any associated equipment / infrastructure) will be engineered and fabricated by manufacturers adhering to latest industry standards and best practices. For BESS units, the current industry standard is NFPA 855:2026, the Standard for the Installation of Stationary Energy Storage Systems, which ensures robust and reliable construction.

To maintain safety and prevent unauthorised access, the BESS units will be equipped with locking mechanisms. In addition, where necessary, they will incorporate fire-resistant design. The concept design for these containers aims for a minimum of an E60 fire rating, as specified by ISO 13501-2. The 'E' stands for the integrity of the component, meaning that this integrity can withstand fire exposure for 60 minutes.

Ultimately, this means that in the unlikely event that all the system design mitigations and preventative measures fail and a fire should occur, it should be limited to the part of the system that is on fire. That is, the overall size of the Proposed Development is inconsequential to the outcome. An event should therefore be limited in size to only that equipment within a group, whether there are one or any number of groups. This is in line with the assumptions within the existing NFCC V2 BESS Guidance that the fire will not spread beyond the BESS container of origin.

4.7 Emergency Response Infrastructure

4.7.1 Site Access, including Site Signage

Given the scale of the Proposed Development and its distribution across multiple land parcels around the Yaxley substation, Site access will be achieved via new and/or upgraded access points connecting to the local and strategic road network. The detailed access strategy, including the location of main and internal construction and operational access points, will be developed through the DCO process and the accompanying Transport Assessment, and will be confirmed at detailed design stage. As a broad statement of intent, each BESS area will be served by access arrangements that provide a clear and unobstructed approach for fire and rescue service appliances, with internal loop-type roads around BESS compounds wherever practicable to allow appliances to approach from more than one direction.

The Site access points and internal access tracks are approximately 4 m wide, meeting the minimum requirement of 3.7 m with passing places as set out in the NFCC BESS Guidance 2026. Consistent with the NFCC V2 BESS Guidance requirement for vapour cloud mitigation, the centralised BESS compound incorporates a loop-road vehicle access arrangement, and the solar elements are served by access tracks of a minimum 3.7 m width, both enabling emergency service vehicles to approach from multiple directions. This ensures that in the event of a thermal runaway incident with associated gas cloud release, emergency responders are not required to enter through any vapour cloud to access the Site.

The adequacy of these arrangements will be confirmed in detailed discussions with SFRS during the DBSMP development phase. Access road dimensions will be designed to comply with the relevant fire service vehicle access requirements of Approved Document B: Fire Safety, Volume 2 (Buildings other than dwellinghouses), as amended (England), as set out in Table 1 below. These access points connect to internal Site tracks and loop roads within the BESS and solar infrastructure areas, enabling vehicles to circulate throughout the Site. This arrangement allows access to multiple areas of the Site which the Applicant considers will not present an operational challenge to SFRS.

Access points, and Site signage, will be designed such that emergency services are able to access the Site easily with internal Site roads being clearly laid out and signed in accordance with the relevant British Standard. Turning facilities will be provided in any dead-end access route that is longer than 20 m. Table 1 presents the access route requirements for fire service vehicles contained within Approved Document B: Fire Safety, Volume 2 (England).

Appliance Type	Min. Width between Kerbs	Min. Width of Gateways	Min. Turning Circle between Kerbs	Min. Turning Circle between Walls	Min. Clearance Height	Min. Carrying Capacity
Pumping Appliance	3.7 m	3.5 m	16.8 m	19.2 m	3.7 m	18 T

Table 1: Access Route Requirements for Fire Service Vehicles from Approved Document B: Volume 2 (Fire Safety), as amended (England)

4.7.2 Water Availability / Supply

The current NFCC V2 BESS Guidance states that if it can be confirmed that the manufacturer's recommended firefighting tactic for the BESS cabinet/enclosure is to defensively firefight and boundary cool whilst allowing the BESS cabinet/enclosure to consume itself without spreading to neighbouring cabinets, this may reduce the water requirements – and thus the drainage / environmental protection requirements – significantly.

The Applicant has confirmed that the operational response strategy for the BESS infrastructure will be informed by manufacturer guidance. In the unlikely event of an incident involving a BESS container, the response approach will include controlled burn and / or boundary cooling of adjacent containers, to ensure safe management of the incident and to prevent any escalation to adjacent infrastructure.

Water requirements will vary depending on the layout, design and number of BESS cabinets on the Site. The number of elevations that would need to be cooled to prevent fire spread will be considered in discussions between the Applicant and SFRS.

Given the spatial arrangement of the BESS units across the Site, the potential for fire spread between installations is expected to be inherently limited by the separation distances between infrastructure areas. Each BESS enclosure will operate as an individual compartment, and the Site layout allows for separation between infrastructure areas and surrounding land uses. The need for firefighting water supply infrastructure will therefore be informed through detailed design and consultation with SFRS.

The exact water strategy to be adopted for the Proposed Development will be developed through ongoing engagement with SFRS and will likely be secured and discharged through the preparation of the DBSMP and associated operational documentation. Any required firefighting infrastructure e.g. emergency water supply or private fire hydrants will be designed in accordance with BS 9990 and 3251 and will be set out within the DBSMP.

The firewater containment strategy shall be underpinned by a site-specific controlled-waters risk assessment, to be developed as part of the DBSMP process in consultation with the Environment Agency. The assessment shall adopt a source–pathway–receptor framework and shall identify: (a) the credible sources of contamination arising from a BESS fire or spill event, including battery electrolyte constituents, combustion products, dissolved metals, particulates, aerosol or other suppression media residues, firefighting water, boundary cooling water and rainfall entering damaged or burnt-out containers prior to their removal or covering; (b) the pathways by which contaminated water could reach surface water, groundwater, drainage systems, land drains, ditches, watercourses, aquifers, wells, boreholes or springs; and (c) the sensitivity of those receptors, including their Flood Zone and Source Protection Zone status, Water Framework Directive classification and River Basin Management Plan status.

The firewater containment system shall be sized on the basis of the anticipated water application rates agreed with SFRS, the discharge rate of any water-based fixed suppression system where provided, estimated rainfall accumulation during and for a reasonable period following the incident, applicable freeboard, isolation valve and penstock closure times, pump failure assumptions and the proposed contaminated water disposal arrangements. The sizing calculation shall be documented in the DBSMP and agreed with the Environment Agency prior to detailed design freeze.

The DBSMP shall include a failure-mode review for the firewater containment system. The review shall assess the credible failure scenarios, including but not limited to: structural damage to containment bunds or isolation tanks caused by fire exposure or elevated thermal flux; mechanical damage from fire service or plant operations; loss of auxiliary power to electrically actuated isolation valves or penstocks; valve or penstock jamming or blockage due to debris; overtopping of containment structures during a large-volume firefighting operation; floodwater inundation of the containment system during a concurrent or sequential flood event; and operational error during isolation. Where a failure scenario is assessed as credible, the DBSMP shall specify residual mitigation measures, including secondary containment, environmental monitoring points and emergency Environment Agency notification procedures.

The current NFCC V2 BESS Guidance sets out revised requirements for the provision of emergency water supplies. Private fire hydrant supplies should be capable of delivering a flow rate of no less than 25 litres per second (1,500 litres per minute) for a minimum duration of 120 minutes. If this hydrant flow rate cannot be achieved from the mains supply, as is common on rural or remotely located sites, an equivalent static water supply of approximately 180,000 litres will be provided on Site to sustain firefighting operations for the same 120-minute period.

As a broad statement of intent at this outline stage, emergency firefighting water will be provided in accordance with the NFCC V2 BESS Guidance and the Water UK National Guidance Document on the Provision of Water for Firefighting (2025). The Applicant's intention is to provide a fire hydrant supply capable of delivering no less than 25 litres per second (1,500 litres per minute) for a minimum duration of 120 minutes; where this flow rate cannot be achieved from the mains supply — as is common on rural sites — an equivalent static water supply of approximately 180,000 litres will be provided to sustain firefighting operations for the same 120-minute period. Any static water storage will be located a minimum of 10 metres from any BESS container or cabinet, clearly signed, and readily accessible to SFRS vehicles, with outlet connections and hard suction points agreed with SFRS in advance. The final water strategy will be agreed with SFRS and secured by the DBSMP, which will be secured by a DCO requirement.

In accordance with the NFCC V2 BESS Guidance and the Environment Agency's / Natural Resources Wales's guidance on Managing Fire Water and Major Spillages (PPG18), the Proposed Development will incorporate a

firewater containment system designed to prevent contaminated firewater run-off from entering watercourses or groundwater. The firewater containment system will be designed as a dual-purpose facility, forming an integral part of the overall Site drainage design in accordance with the CIRIA SuDS Manual (C753) and CIRIA C736 (Containment Systems for the Prevention of Pollution, 2014), as well as serving the emergency containment function.

The specific containment measures, which may include isolation tanks, bunded lagoons, isolation valves, penstocks, interceptors and drainage cut-offs, will be confirmed at detailed design stage in consultation with EA, and the agreed measures will be set out in the DBSMP.

In accordance with the NFCC BESS Guidance 2026, a comprehensive incident impact assessment will be prepared as part of the DBSMP process. This assessment will identify all sensitive receptors within a 1 km radius of the Application Site, including residential properties, commercial and agricultural premises, ecological designations, and any other receptors relevant to business continuity or public safety planning. The assessment will evaluate the potential impact of a credible worst-case incident on these receptors, including whether a Smoke Plume Analysis Report (SPAR) should be prepared with input from specialist scientific advisors. The findings of the incident impact assessment will inform the Emergency Response Plan (ERP), the Risk Management Plan (RMP), and SFRS pre-incident planning.

Fire and Rescue Service Guidance that deals with energy sites, such as power plants, substations, etc., stipulates that in all cases involving electrical apparatus, it is essential to ensure, on arrival, that the apparatus is electrically isolated and safe to approach. This should be carried out by the operator at the Site concerned. The Guidance also strongly advises that electrical (or associated equipment) should not be touched or even approached unless it is confirmed to be isolated and safe.

However, at energy storage sites, whilst the embedded management systems ensure the control units and transformers serving the batteries will be automatically electrically isolated if a fire is detected within a container, the batteries within the containers will still hold charge in the event of a fire, even after the control units and transformers are electrically isolated. Therefore, it may not be possible to confirm that there is no residual risk from the batteries within the containers.

This will inform the strategy for firefighting, which will be set out in the associated plans (including a Risk Management Plan (RMP) and an Emergency Response Plan (ERP)). It is anticipated that the associated plans will be jointly developed with SFRS.

4.8 Risk Management Plan

The RMP will provide advice in relation to potential emergency response implications, and will consider:

- The hazards and risks at and to the Proposed Development, and their proposed management e.g. thermal runaway risks, electrical fire hazards, fire propagation pathways between BESS units, fumes from any BESS affected by fire and deflagration risks, etc;
- The adequacy of proposed fire detection and suppression systems e.g. water supply, etc on-site;
- Safe access to and within the Site for emergency vehicles and responders, including to key Site infrastructure and fire protection systems;
- Built / natural infrastructure and on-site processes that may impact or delay an effective emergency response; and,

- Any other potential issues / safety considerations for firefighters responding to emergencies at the Site.
- The interaction between flood risk, fire risk and controlled-waters pollution risk, including the possibility that a flooding event could cause, exacerbate or hinder an effective emergency response to a BESS fire or contaminated run-off incident; and the measures to be taken to maintain safe shutdown capability and containment effectiveness under concurrent flood and fire scenarios.
- A controlled-waters incident scenario covering contaminated firefighting water and rainfall run-off from damaged or burnt-out containers, including drainage isolation procedures, containment activation, water sampling protocols, arrangements for disposal or recovery of contaminated water, and the notification procedure for the Environment Agency.

4.9 Emergency Response Plan

The ERP will facilitate an effective and safe emergency response, and will consider / include:

- How the fire and rescue service will be alerted;
- Site characteristics (e.g. infrastructure details, operations / operating hours, number of personnel);
- A Site plan depicting key infrastructure (e.g. site access points and internal roads, firefighting facilities (water tanks, pumps, booster systems, fire hydrants, fire hose reels etc.), drainage and neighbouring properties);
- Details of emergency resources (e.g. fire detection and suppression systems and equipment, gas detection, emergency eyewash and shower facilities, spill containment systems and equipment, emergency warning systems, communication systems, personal protective equipment and first aid);
- Up-to-date contact details for facility personnel, and any relevant off-site personnel that could provide technical support during an emergency;
- A list of dangerous goods stored on-site;
- Site evacuation procedures; and,
- Emergency procedures for all credible hazards and risks, including building, infrastructure and vehicle fire, grassfire and bushfire.
- Procedures for the prompt notification of environmental incidents — including contaminated run-off, spills and any uncontrolled release to controlled waters — to the Environment Agency via the EA Incident Hotline on 0800 80 70 60 (24-hour service), with defined notification timescales, the information to be communicated and the responsible post-holder.
- Where the FRA identifies a residual flood risk to any BESS compound or block: procedures for receiving and acting upon Environment Agency Flood Warnings; pre-emptive safe shutdown and isolation sequences to be completed in advance of predicted inundation; automated floodwater detection and safe isolation interlocks where provided; and safe re-entry and recommissioning procedures following a flood event.
- Post-incident procedures for inspection of the firewater containment system, sampling and characterisation of retained contaminated water, arrangement of licensed removal and disposal or recovery, completion of waste transfer documentation, and reporting to the Environment Agency.

4.10 Other Plans

In addition to the RMP and the ERP, other plans are likely to include:

- An Environmental Impact Plan, potentially including a smoke plume analysis report (to ensure that the potential for indirect environmental risks (e.g. through other emissions / leakages, etc) are understood and mitigated);
- A (Post Incident) Recovery Plan; and,
- A Site-Specific Risk Information (SSRI) Pack.

In particular, the SSRI Pack will be jointly developed with SFRS to contain immediate information for attending fire and rescue resources. Ultimately, the SSRI Pack will be housed in a Secure Information Box (SIB) at any vehicular access point. The type and format will be agreed with SFRS, consistent with their standard operational requirements and the National Operational Guidance framework.

4.11 Integration of Best Practices

Processes for the integration of best practices will be through the development of a detailed safety strategy and specifications, considering:

- A hierarchical risk control approach;
- Compliance with relevant safety standards and guidance; and,
- Specifications for appropriate risk management measures.

Further, and as noted previously, one of the overarching principles that has been adopted (and will continue to be adopted throughout further phases) include the ongoing consideration and adoption of evolving / new guidance and best practice for fire and safety as these emerge both globally and within the UK. This will allow for the continued integration of best practices to provide an ongoing reduction in risks to:

- Life, including personnel safety protections through the maintenance and update of emergency procedures and fumes from any BESS affected by fire;
- Property, including asset protections through the maintenance and update of fire protection and suppression systems; and,
- Environment, including environmental protections through the maintenance and update of gas emissions control and contaminated water management.

5 STRATEGY: DEVELOPMENT OF THIS OBSMP TO A DBSMP

5.1 Overview / OBSMP Additional Objective Summary

Reflecting the current conceptual phase of the Proposed Development, a secondary purpose of this OBSMP is to act as a live document, capable of evolving throughout further phases to provide a continuing measure of fire and safety compliance. It establishes the safety objectives, compliance framework, and information requirements against which the Detailed Battery Safety Management Plan (DBSMP) will subsequently be assessed.

It is anticipated that this OBSMP will ultimately be developed into a DBSMP following procurement and detailed design, to cover the specific requirements for the construction, operation, maintenance, and eventual decommissioning phases of the Proposed Development. This progressive development, from outline safety intent to confirmed, supplier-specific technical evidence, reflects the recognised three-phase safety lifecycle for grid-scale BESS.

The DBSMP is the post-consent, pre-construction safety document produced once a technology supplier has been selected and detailed design information is confirmed. It replaces the conceptual safety intent of this OBSMP with confirmed, supplier-specific technical evidence across every dimension of the installation's safety case. The document will encompass: the confirmed detailed design of the BESS including battery chemistry, manufacturer specifications, Battery Management System architecture, thermal management, fire detection and suppression system design, and deflagration venting arrangements; a fully populated and validated Hazard Log with ALARP-evidenced residual risk assessments; a detailed Environmental Risk Assessment covering contaminated firewater run-off, plume modelling, and containment volume calculations; an incident impact assessment identifying all sensitive receptors within a 1 km radius; a formalised Safety Management Structure with named roles, defined governance, operational procedures, staff competence requirements, and an OEM-referenced maintenance programme; and a fully developed Emergency Response Plan (ERP) produced in direct consultation with the SFRS.

In England and Wales, the MHCLG Planning Practice Guidance (PPG) on renewable and low carbon energy encourages local planning authorities to consult local fire and rescue services and to consider fire safety issues as part of the planning determination process. Planning authorities may impose planning conditions / requirements requiring the submission and approval of a DBSMP prior to commencement of operation. Notwithstanding whether a planning condition / requirement is imposed, the DBSMP remains a legal requirement under health and safety law by virtue of obligations under the Health and Safety at Work etc. Act 1974, the Dangerous Substances and Explosive Atmospheres Regulations 2002 (DSEAR), the Regulatory Reform (Fire Safety) Order 2005 ('the Fire Safety Order'), and associated duties to maintain a current and proportionate safety case for a hazardous installation. The regulatory driver for the DBSMP is therefore the statutory health and safety framework enforced by the Health and Safety Executive (HSE) and SFRS, in its capacity as the enforcing authority for the Fire Safety Order in respect of non-domestic premises in England and Wales.

This section provides a summary of the:

- Identification of information requirements to develop this OBSMP into a DBSMP;
- Identification of the processes and responsible parties for developing and providing that information;
- Outline of the documentation, evidence, and mechanisms (e.g. compliance matrices against relevant standards and guidance) to be used for future compliance reviews; and

— Outline of the regular review and update procedures to consider an evolving best practice.

5.2 Information Requirements

A review of the current compliance of the Proposed Development against the existing NFCC V2 BESS Guidance, (published in February 2026) has identified the information required to develop this OBSMP into a DBSMP, and (where these are able to be identified) the processes / responsible parties for developing and providing the information requirements.

The information requirements include (but are not limited to):

— Consideration of the overall compliance of the Proposed Development with all applicable legislation;

— Details of the procured/selected BESS type, battery chemistry, battery form factor, number of BESS units and BESS unit size/capacity;

— Details of the selected battery management systems, temperature management systems, ventilation/exhaust systems, fire detection and suppression systems, and a statement on those fire detection and suppression systems;

— Detailed Operational Environmental Management Plan (OEMP), including a proactive maintenance programme and details on operational procedures and training requirements;

— Detailed Risk Management Plan (RMP) and Detailed Emergency Response Plan (ERP), developed in consultation with SFRS;

— Detailed Environmental Impact Plan (including, if required, a smoke plume analysis report in accordance with NFCC V2 requirements for a 1 km receptor study); and

— Detailed Post-Incident Recovery Plan.

— A controlled-waters preliminary risk assessment and conceptual site model (CSM) covering source–pathway–receptor linkages for both groundwater and surface water. The CSM shall identify SPZ status and aquifer sensitivity, groundwater levels and seasonal variation, known potable abstractions, wells, boreholes and springs within a relevant study area, surface watercourses and land drainage pathways, WFD and River Basin Management Plan water body classification, and significant data gaps requiring further investigation.

— A site-specific firewater containment strategy document, incorporating containment capacity calculations in accordance with CIRIA C736 and PPG18, design drawings, isolation philosophy and valve schedule, containment failure-mode assessment, contaminated water sampling protocol, disposal and recovery arrangements, and confirmation of liaison with Suffolk Fire and Rescue Service and the Environment Agency.

— A flood-risk interface statement confirming flood vulnerability classification adopted for the BESS, applicable climate-change allowances and design flood levels, freeboard provision, safe access and egress assumptions during design flood events, flood warning reception and pre-flood shutdown procedures, and any automated floodwater detection and isolation measures provided in the final design.

— A land contamination screening assessment addressing previous contaminating uses, former landfill, made ground and high-risk contamination scenarios within the Draft Order Limits. Where medium or high contamination risk is identified, a preliminary risk assessment shall assess the potential mobilisation of contaminants to controlled waters during construction, normal operation and during firefighting or floodwater events, with appropriate remediation or monitoring conditions identified.

- A battery end-of-life and damaged/failed battery management plan, setting out the arrangements for reuse, repurposing, recycling, recovery, hazardous waste classification, temporary on-site storage (including containment and ventilation requirements), transport classification, approved treatment and export routes, and duty-of-care documentation in accordance with the Waste Batteries and Accumulators Regulations 2009 and the Environmental Protection Act 1990.
- Confirmation that, where boreholes are proposed as a source of emergency firefighting water, any necessary groundwater investigation consent required under Section 199 of the Water Industry Act 1991 or equivalent will be obtained prior to drilling, and that the hydrogeological impact of emergency abstraction volumes on local groundwater levels and dependent features has been assessed.

Provision of the above information will demonstrate that all the considerations and requirements set out in this OBSMP have been addressed, and that the Proposed Development will be safe and appropriately monitored 24/7 to enable immediate action on the detection of a fault or abnormal signal or reading.

5.3 Decommissioning, Restoration, and Financial Guarantee

The Proposed Development will be subject to decommissioning and site restoration obligations. The DBSMP will include a Site Decommissioning, Restoration and Aftercare Plan (DRAP) setting out the arrangements for the safe removal of all BESS infrastructure at the end of the operational life of the Proposed Development and the restoration of the Site to an agreed condition. The fire and safety implications of the decommissioning phase will be addressed specifically within the DRAP, including the management of residual stored energy within battery modules and the engagement of SFRS in decommissioning risk assessment and emergency planning.

The DRAP will include a battery end-of-life management procedure consistent with the obligations imposed by the Waste Batteries and Accumulators Regulations 2009, UK producer responsibility requirements for industrial batteries, the Environmental Protection Act 1990 duty of care for controlled waste, applicable hazardous waste requirements under the Hazardous Waste (England and Wales) Regulations 2005, and any subsequent waste legislation in force at the time of decommissioning. Batteries shall not be disposed of to landfill or by incineration without energy recovery. All battery modules — whether at planned end-of-life, failed, damaged or fire-affected — shall be consigned only to appropriately authorised battery treatment, recycling, recovery or export operations. The DRAP shall address the safe isolation of residual stored energy, temporary on-site storage arrangements (including containment and ventilation), transport classification under ADR, and emergency arrangements for the removal and disposal of modules with compromised structural or electrochemical integrity.

5.4 Review and Update Procedures

One of the overarching principles adopted throughout this OBSMP, and to be carried forward into the DBSMP, is the ongoing consideration and where appropriate adoption of evolving guidance and best practice for fire and safety as these emerge both globally and within the UK. This is particularly material in the current period, during which NFCC V2 BESS Guidance February 2026 has replaced V1, this is particularly material in the current period, during which the NFCC Policy Position Statement has called for significant changes to the regulatory framework applicable across England and Wales.

Frequent reviews will be undertaken to establish any changes in safety standards and guidance that need to be considered when proposing, designing, installing, and maintaining the Site. Where material changes are made, these will be shared with the relevant authorities, including SFRS and, where applicable, Babergh and Mid Suffolk District Council and the Environment Agency .

6 FRAMEWORK: STAKEHOLDER ENGAGEMENT

6.1 Overview / OBSMP Additional Objective Summary

One of the overarching principles that has been adopted (and will continue to be adopted throughout further phases) includes a commitment to early and ongoing engagement with key stakeholders related to fire and safety, including the SFRS.

This Section provides a summary of the:

- Identified key Stakeholders related to fire / safety;
- Potential information requirements for each Stakeholder to allow for effective approvals / collaboration / engagement; and,
- Indicative timescales for engagement.

6.2 Key Stakeholders

Key stakeholders related to fire / safety include:

- SFRS, in its capacity as an enforcement authority for the Regulatory Reform (Fire Safety) Order 2005 and as a statutory consultee for BESS planning applications (consistent with the NFCC V2 BESS Guidance and the MHCLG PPG on renewable and low carbon energy), with whom the Applicant commits to proactive early engagement as recommended in the NFCC BESS Guidance 2026.
- Babergh and Mid Suffolk District Council, as the host local authority, and ultimately the Secretary of State for Energy Security and Net Zero on the recommendation of the Planning Inspectorate, for this NSIP.
- The Health and Safety Executive (HSE), as the primary enforcement authority for DSEAR 2002 and the Management of Health and Safety at Work Regulations 1999 in respect of the construction, operational and decommissioning phases of the Proposed Development.
- The Environment Agency, as statutory environmental body in relation to flood risk, surface water drainage, firewater containment system design (PPG18), operational run-off authorisation, and environmental impact during construction, operation and decommissioning.
- National Grid Electricity Transmission, as the transmission owner for the point of connection at the Yaxley 400 kV substation, in respect of grid connection safety and emergency isolation procedures.
- The Suffolk Resilience Forum, established under the Civil Contingencies Act 2004, in respect of emergency planning, community risk registers, and multi-agency emergency response coordination.
- Historic England, where heritage assets are present within or near the Draft Order Limits, to be consulted on any CDM-related pre-construction investigations or heritage settings considerations.
- Site Neighbours and the Local Community, in respect of fire and safety reassurance, community information sharing, and emergency planning awareness.

6.3 Potential Information Requirements

For each of the above identified key stakeholders, the Table below set out their potential information requirements.

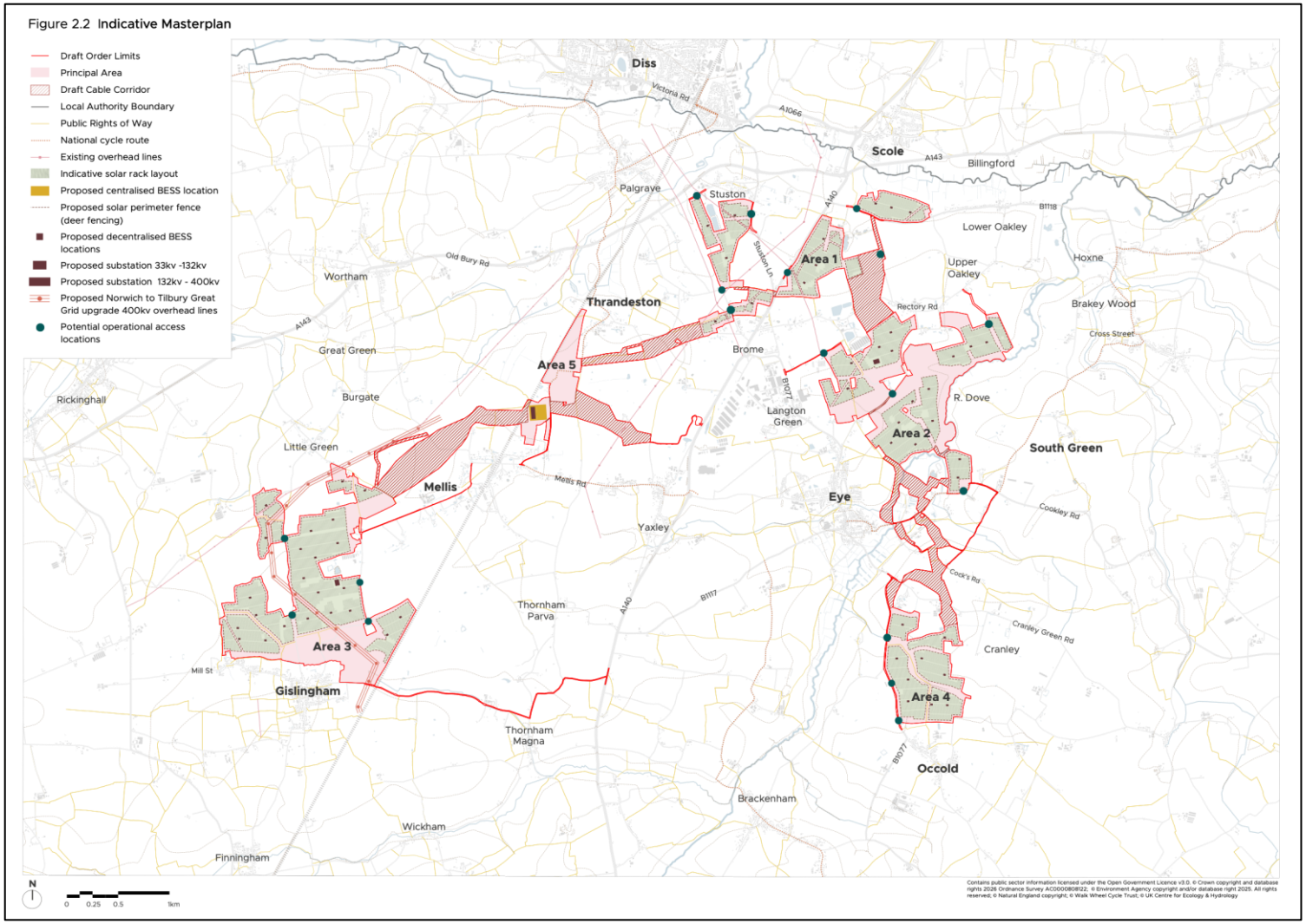
Stakeholder	Potential Information Requirement
Suffolk Fire and Rescue Service	Emergency Plans, including the RMP, ERP and SSRI/PIB Pack
	Site Access arrangements and access road specifications
	Water availability / emergency water supply details
	Confirmation of compliance with NFCC BESS Guidance 2026
	Detailed Battery Safety Management Plan (DBSMP)
Environment Agency	Pre-application EIA scoping — flood risk and drainage Flood Zone and main river screening for each BESS compound and block location Source Protection Zone, aquifer sensitivity, groundwater level, potable abstraction, well, borehole and spring screening for each BESS location Controlled-waters preliminary risk assessment and conceptual site model (CSM) Firewater containment system design (PPG18 / CIRIA C736), including capacity calculations, design drawings and isolation philosophy Surface-water drainage risk assessment, receptor and pathway mapping, and WFD/RBMP implications Flood-risk interface statement, including flood vulnerability classification, design flood levels, climate-change allowances and flood shutdown/isolation procedures Land contamination screening and, where required, preliminary risk assessment Contaminated water sampling protocol, disposal/recovery arrangements and waste transfer documentation Environment Agency incident notification procedures (EA Incident Hotline 0800 80 70 60) Construction Environmental Management Plan (CEMP) / Pollution Prevention Plan Environmental Permit application (where required under EPR 2016 for water discharge activities or waste management) Battery end-of-life management plan, consistent with Waste Batteries and Accumulators Regulations 2009 Decommissioning and site restoration plan
Health and Safety Executive (HSE)	DSEAR Hazardous Zone Assessment
	Principal Designer and Principal Contractor CDM notification (F10)
Local Planning Authority / Planning Inspectorate	Development Consent Order documentation
	Scoping Opinion (EIA)
	Draft DCO requirements including DBSMP trigger condition

Stakeholder	Potential Information Requirement
Local Resilience Forum	Engagement with Community Risk Register
	Draft Emergency Response Plan for LRF awareness
Site Neighbours / Local Community	DCO application information
	Reassurance regarding potential risk and management of BESS

Table 2: Potential Stakeholder Information Requirements

7 APPENDIX 1 – INDICATIVE MASTER PLAN

Figure 2.2 Indicative Masterplan



8 APPENDIX 2 – SAFETY STANDARDS AND GUIDANCE RELATING TO BESS

8.1 A – UK Fire and Rescue — National Guidance and Position Statements

Ref	Document	Publisher	Date	Notes
A1	Grid Scale Battery Energy Storage System Planning — Guidance for Fire and Rescue Services	National Fire Chiefs Council (NFCC)	February 2026	Formally published February 2026 (approved December 2025). Supersedes the 2023 version. Substantially expanded to 20 dedicated sections. Key new provisions include: comprehensive incident impact assessment requirement (1 km receptor radius); vapour cloud access loop requirement; revised water supply requirements cross-referenced to Water UK National Guidance 2025; detailed FRS organisational requirements; and a requirement for a comprehensive risk management process (develop, implement, maintain, review) leading to a robust OBSMP and ERP developed in conjunction with the local FRS.
A2	NFCC Policy Position Statement: Planning	National Fire Chiefs Council (NFCC)	March 2026	Sets out the NFCC's position on embedding fire safety within the planning process from the outset of all development. Key provisions directly applicable to this Proposed Development: (i) no phase of development to be occupied until adequate firefighting water provision is confirmed; (ii) developer responsibility for funding all fire hydrant infrastructure identified through planning; (iii) call for mandatory pre-application FRS consultation on nationally significant infrastructure projects.
A3	NFCC BESS Policy Position Statement	National Fire Chiefs Council (NFCC)	October 2025	Sets out the NFCC's policy position on the safe deployment and operation of BESS at national level. Calls for: a UK-wide framework and technical

Ref	Document	Publisher	Date	Notes
				standard for BESS; inclusion of BESS within the Environmental Permitting (England and Wales) Regulations 2016 and development of equivalent regulations for Scotland and Northern Ireland; FRS concerns to be formally addressed in planning decisions; and a programme of continuous research on firefighting tactics for BESS.
A4	Fire and Rescue National Framework for England	Home Office	2018	The national framework governing fire and rescue authorities in England, including Suffolk Fire and Rescue Service. It sets out the operational response and site-specific risk information (SSRI) expectations under which the SSRI Pack and Secure Information Box / Premises Information Box (PIB) for the Proposed Development will be developed, consistent with the National Operational Guidance framework.

8.2 B – England and Wales Fire Safety Legislation

Ref	Document	Publisher	Date	Notes
B1	Regulatory Reform (Fire Safety) Order 2005 (SI 2005/1541)	UK Parliament	2005 (as amended)	Primary fire safety legislation in England and Wales. Applies to all non-domestic premises including BESS sites. Establishes the duty of the Responsible Person to carry out fire risk assessments and implement appropriate fire safety measures. Enforced by the relevant local Fire and Rescue Service.
B2	Fire Safety Act 2021	UK Parliament	2021	Amends the Fire Safety Order to clarify its application to multi-occupied residential buildings. Relevant to any welfare/office facilities forming part of the BESS development.

Ref	Document	Publisher	Date	Notes
B3	Fire Safety (England) Regulations 2022 (SI 2022/547)	MHCLG	2022	Regulations made under the Fire Safety Order applicable in England. Imposes additional duties on Responsible Persons in residential buildings above 11m.
B4	Fire and Rescue Services Act 2004	UK Parliament	2004	Primary legislation establishing fire and rescue authorities in England and Wales, their duties, and powers. Provides the framework for FRS operational response, pre-incident planning, and engagement with developers.

8.3 C – England and Wales Building Standards

Ref	Document	Publisher	Date	Notes
C1	Building Regulations 2010 (SI 2010/2214) — Approved Document B: Fire Safety, Volume 2 (Buildings other than dwellinghouses)	MHCLG / BSR	Amended March 2025 (England)	Current applicable guidance governing fire safety design of non-domestic buildings and external areas in England. Provides emergency vehicle access route requirements applicable to the Proposed Development. References BS EN 13501 (replacing BS 476) as the fire resistance classification standard from March 2025.
C2	Technical Guidance for Building Regulations in Wales	Welsh Government	Current edition	Not applicable to this Proposed Development, which is located in England. Retained in this register for completeness; Approved Document B (England) applies.

8.4 D– England and Wales Planning and Consenting Legislation

Ref	Document	Publisher	Date	Notes
D1	Town and Country Planning Act 1990 (as amended)	UK Parliament	1990	General planning law framework in England and Wales. The primary consenting route for BESS developments below the NSIP

Ref	Document	Publisher	Date	Notes
				threshold. Section 73 provides the mechanism for applying to vary or remove planning conditions. Section 106 provides the planning obligation mechanism for securing decommissioning and restoration obligations.
D2	Planning Act 2008 (as amended)	UK Parliament	2008	NSIP regime. BESS developments in England above 50 MW (where not otherwise exempted) may be subject to this regime and require a Development Consent Order (DCO) determined by the Planning Inspectorate.
D3	The Electricity Storage Facilities (Exemption) (England and Wales and Offshore) Regulations 2020 (SI 2020/1217)	UK Parliament	2020	Removes standalone electricity storage facilities from the NSIP regime in England and Wales, meaning all BESS projects (regardless of capacity) are now subject to LPA determination under the Town and Country Planning Act 1990.
D4	Construction (Design and Management) Regulations 2015 (CDM 2015) (SI 2015/51)	HSE	2015	Applicable to the construction phase of the Proposed Development. Requires appointment of Principal Designer and Principal Contractor, preparation of Pre-Construction Information (to be shared with Suffolk Fire and Rescue Service), and a Construction Phase Plan.
D5	Infrastructure Planning (Environmental Impact Assessment) Regulations 2017	UK Parliament	2017	EIA regulations applicable to NSIP/DCO applications processed under the Planning Act 2008 in England and Wales.
D6	Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (SI 2017/571)	MHCLG	2017	EIA regulations applicable to planning applications determined by the LPA under the Town and Country Planning Act 1990.

8.5 E – England and Wales Environmental Regulation

Ref	Document	Publisher	Date	Notes
E1	PPG18: Managing Fire Water and Major Spillages	Environment Agency	Current edition	The applicable standard for firewater containment system design in England and Wales. Equivalent to SEPA GPP18 in Scotland. The firewater containment system for the Proposed Development will be designed as a dual-purpose facility integrating routine surface water drainage and emergency containment.
E2	Environmental Permitting (England and Wales) Regulations 2016 (EPR 2016)	DEFRA / EA	2016	Primary environmental permitting framework for England and Wales. May be applicable to the Proposed Development in respect of water discharge activities, waste management, and environmental impact. The NFCC Policy Position Statement (October 2025) calls for BESS to be brought within the EPR framework.
E3	CIRIA C736: Containment Systems for the Prevention of Pollution	CIRIA	2014	Applicable UK-wide standard for the design of containment systems to prevent pollution in the event of fire or spillage. Directly applicable to the firewater containment system design for the Proposed Development.
E4	CIRIA SuDS Manual (C753)	CIRIA	2015	Applicable standard for sustainable urban drainage system (SuDS) design. Relevant to the combined surface water drainage and firewater containment system design for the Proposed Development.
E5	Water Environment (Water Framework Directive) (England and Wales) Regulations 2017	DEFRA	2017	UK implementation of the Water Framework Directive. Applicable to the assessment of impacts on watercourses arising from the construction and operation of the Proposed Development, including firewater run-off scenarios.

Ref	Document	Publisher	Date	Notes
E6	Guidance for responding to planning consultations for Battery Energy Storage Systems, Version 2	Environment Agency	06 May 2026	Internal advisory guidance for Environment Agency officers responding to BESS planning consultations and pre-application enquiries. Not a policy document; subordinate to government policy and guidance. Relevant topics include: flood risk vulnerability classification (essential infrastructure); firewater containment sizing; groundwater and surface-water pollution risk; conceptual site model requirements; land contamination; borehole investigation consents; end-of-life battery waste legislation (Waste Batteries and Accumulators Regulations 2009); emergency incident reporting (EA Hotline 0800 80 70 60); and EA standard paragraphs/informatives (NGW O09/O10/C14; SWQ O06/C04; WST I10; NMF I07/I08).

8.6 F – UK Health and Safety Legislation

Ref	Document	Publisher	Date	Notes
F1	Health and Safety at Work etc. Act 1974	UK Parliament	1974 (as amended)	Primary health and safety legislation applying to all workplaces, including energy storage facilities.
F2	Management of Health and Safety at Work Regulations 1999	HSE	1999	Requires employers to conduct and record suitable and sufficient risk assessments, establish emergency procedures, and appoint competent persons. Applicable to the operational phase.
F3	Dangerous Substances and Explosive Atmospheres Regulations 2002 (DSEAR)	HSE	2002	Applicable where flammable gases or vapours may be released from battery cells during thermal runaway. Requires assessment and classification of hazardous zones and

Ref	Document	Publisher	Date	Notes
				implementation of explosion protection measures.
F4	Health and Safety Guidance for Grid Scale Electrical Energy Storage Systems	Department for Energy Security and Net Zero (DESNZ)	Current edition	Referenced by the Planning Practice Guidance (PPG) on renewable and low carbon energy as a key technical reference for grid-scale BESS in England. Sets out operational health and safety requirements for grid-scale BESS installations.

8.7 G – International and UK BESS Installation Standards

Ref	Document	Publisher	Date	Notes
G1	NFPA 855: Standard for the Installation of Stationary Energy Storage Systems	NFPA	2026 edition	Current primary installation standard for BESS. Sets minimum separation distances (3 m from exposures not associated with electrical grid infrastructure), fire suppression system requirements, and inter-container spacing rules. Spacing may be reduced to 0.914 m (3 ft) where UL 9540A testing demonstrates no propagation between units (see H9 below).
G2	BS EN IEC 62933-5-2: 2020	BSI / IEC	2020	Electrical energy storage (EES) systems — Safety requirements for grid-integrated EES systems. Electrochemical based systems.
G3	BS EN 62485 (series)	BSI / IEC	Current	Safety requirements for secondary batteries and battery installations.
G4	BS EN IEC 62619: 2022	BSI / IEC	2022	Secondary cells and batteries containing alkaline or other non-acid electrolytes. Safety requirements for secondary lithium cells and batteries, for use in industrial applications.
G5	BS 7671	BSI	Current edition	Requirements for Electrical Installations (IET Wiring Regulations). Applicable to all electrical installations forming part of the Proposed Development.
G6	BS EN 60529: 1992+A2:2013	BSI	2013	Degrees of protection provided by enclosures (IP classification).
G7	IEC 61936-1: 2021	IEC	2021	Power installations exceeding 1 kV AC and 1.5 kV DC — Part 1: AC.
G8	DNVGL-RP-0043	DNV GL	Revised 10/2021	Safety, operation and performance of grid-connected energy storage systems.

8.8 H – Battery Testing Standards

Ref	Document	Publisher	Date	Notes
H1	UL 9540: Standard for Energy Storage System Requirements	UL	Current edition	System-level safety standard for energy storage systems. All BESS units for the Proposed Development will be tested to this standard.
H2	UL 9540A: Test Method for Evaluating Thermal Runaway Fire Propagation in Battery Energy Storage Systems	UL	2025 edition	Cell, module, and unit level testing standard for thermal runaway propagation. Under NFPA 855:2026, full UL 9540A test reports at all three levels must be provided to the Authority Having Jurisdiction (Suffolk Fire and Rescue Service) to justify any reduction in inter-container spacing to 0.914 m. Complete test reports will be provided to Suffolk Fire and Rescue Service, Mid Suffolk District Council and the Planning Inspectorate as part of the DBSMP.
H3	FM Global Data Sheet 5-33	FM Global	2024	Lithium-Ion Battery Energy Storage Systems. Provides factory mutual requirements and guidance for installation and protection of Li-ion BESS.

8.9 I – Explosion Prevention and Protection

Ref	Document	Publisher	Date	Notes
I1	NFPA 69: Standard on Explosion Prevention Systems	NFPA	Current edition	Active explosion prevention is employed as the primary means of control. Design must demonstrate combustible gas concentrations remain below 25% of the lower explosive limit.
I2	NFPA 68: Standard on Explosion Protection by Deflagration Venting	NFPA	Current edition	Deflagration venting is provided as supplementary protection only, consistent with the explosion control principles in NFPA 855:2026.

Ref	Document	Publisher	Date	Notes
I3	BS EN 60079-29-3: 2014	BSI / IEC	2014	Explosive atmosphere — Gas detectors: Guidance on functional safety of fixed gas detection systems.

8.10 J – Fire Resistance and Construction Standards

Ref	Document	Publisher	Date	Notes
J1	ISO 13501-2	ISO	Current edition	Fire classification of construction products and building elements — classification using data from fire resistance tests. The concept design for BESS containers targets a minimum E60 fire rating under this standard (integrity maintained for 60 minutes). Cross-referenced with UL 263 and ASTM E119 for test method purposes.
J2	ASTM E119	ASTM	Current edition	Standard Test Methods for Fire Tests of Building Construction and Materials. Referenced as a cross-check test method for the E60 fire rating specified under ISO 13501-2.
J3	UL 263	UL	Current edition	Fire Tests of Building Material and Construction. Referenced as a cross-check test method for the E60 fire rating specified under ISO 13501-2.

8.11 K – Fire Detection and Protection Systems

Ref	Document	Publisher	Date	Notes
K1	BS EN 54 (series)	BSI	Current	Fire detection and alarm systems.
K2	BS 6266: 2011	BSI	2011	Fire protection for electronic equipment installations — Code of practice.
K3	BS 5306-0: 2020	BSI	2020	Fire protection installations and equipment on premises — Guide for selection, use and application of fixed

Ref	Document	Publisher	Date	Notes
				firefighting systems and other types of fire equipment.
K4	BS EN 14972-1: 2020+A1:2025	BSI / CEN	2025	Fixed firefighting systems — Water mist systems — Design, installation, inspection and maintenance.
K5	BS 5839-1: 2017	BSI	2017	Fire detection and fire alarm systems for buildings — Code of practice for design, installation, commissioning and maintenance of systems in non-domestic premises.
K6	BC EN 12845: 2015+A1:2019	BSI / CEN	2019	Fixed firefighting systems — Automatic sprinkler systems — Design, installation and maintenance.
K7	NG TS 3.01.03: Limitation of Fire Risk in Substations	National Grid	Current edition	Technical guide for fire risk limitation in substations. Applicable to the grid connection substation forming part of the Proposed Development.
K8	Engineering Design Standard 07-0116: Fire Protection Standard for UK Power Networks Operational Sites	UK Power Networks (UKPN)	Version 5, December 2024	Applicable to grid connection infrastructure.

8.12 L – Firefighting Water Supply

Ref	Document	Publisher	Date	Notes
L1	National Guidance Document on the Provision of Water for Firefighting	Water UK	2025	The primary source reference for fire hydrant and static water supply requirements cited in the NFCC V2 BESS Guidance(B1). Applicable minimum standard: private fire hydrant supplies capable of delivering no less than 25 litres per second (1,500 litres per minute) for a minimum duration of 120 minutes; or equivalent static water supply of approximately 180,000 litres where mains supply is insufficient.

Ref	Document	Publisher	Date	Notes
L2	BS 9990: 2015	BSI	2015	Non-automatic fire-fighting systems in buildings — Code of practice. Any required firefighting infrastructure for the Proposed Development (including private fire hydrants and hose reels) will be designed in accordance with this standard.
L3	BS 3251	BSI	Current edition	Indicator plates for fire hydrants and emergency water supplies. All static water storage tanks and fire hydrant marker plates will comply with this standard.

8.13 M – Other Guidance and Technical References

Ref	Document	Publisher	Date	Notes
M1	RC62: Recommendations for Fire Safety with PV Panel Installations	Fire Protection Association / RISC Authority	2023	Applicable to the solar PV element of the Proposed Development.
M2	RC61: Secondary Batteries — Fire and Associated Hazards	Fire Protection Association / RISC Authority	2024	Applicable to the BESS element of the Proposed Development.
M3	McMicken Battery Energy Storage System Event Technical Analysis and Recommendations (10209302-HOU-R-01)	DNV GL	2020	Post-incident analysis of the 2019 McMicken BESS fire in Arizona (USA). A key lessons-learned reference for BESS thermal runaway and explosion risk management.