Lime Down
Solar Park

Firewater Containment and Drainage Strategy – Lime Down D Battery Energy Storage System

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Firewater Containment and Drainage Strategy – Lime Down D Battery Energy Storage System

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Contents

Appendices

1. Introduction and Purpose

1.1 Purpose of this document

1.1.1 This Standalone Firewater Containment and Drainage Strategy defines the approach to the containment, isolation, management and disposal of firefighting water, suppression water and associated incident runoff within the Battery Energy Storage System (BESS) Area at Lime Down D.

1.1.2 The document has been prepared to support the Development Consent Order application and has been developed following consultation with the Environment Agency, during which it was identified that there was potential for inconsistency between the Flood Risk Assessment and Drainage Strategy (**ES Volume 3, Appendix 11-6: Flood Risk Assessment and Drainage Strategy – Lime Down D BESS [APP-140]),** the **Outline Battery Safety Management Plan (BSMP) [APP-286]** and the **Outline Construction Environmental Management Plan (CEMP) [APP-277]** in respect of firewater management.

1.1.3 It was agreed that a standalone Firewater Containment and Drainage Strategy would provide a single, definitive point of reference for the approach to firewater containment, ensuring consistency across application documents as the Examination progresses and documents are updated.

1.1.4 This document therefore provides a clear and coherent statement of the firewater management approach for the BESS, sitting alongside and supporting the wider hydrology, flood risk, drainage and safety documentation, while allowing those documents to remain concise and avoiding duplication or divergence in approach.

1.1.5 A corresponding standalone Firewater Containment and Drainage Strategy has also been prepared for the substations, providing consistency of approach across the Scheme's principal electrical infrastructure, as described in **ES Volume 1, Chapter 3: The Scheme [APP-055].**

1.1.6 This Strategy should be read alongside:

- **ES Volume 1, Chapter 11: Hydrology, Flood Risk and Drainage [APP-063];**
- **ES Volume 3, Appendix 11-6: Flood Risk Assessment and Drainage Strategy – Lime Down D / BESS [APP-215]; and**
- **Outline Battery Safety Management Plan [APP-286].**

1.1.7 The Flood Risk Assessment and Drainage Strategy defines the drainage design and flood risk response for the BESS Area. The Outline Battery Safety Management Plan defines the operational and emergency response framework. This document provides the linking strategy which explains how firewater is contained and managed within the drainage system during an incident, whether through a single isolatable system or zoned, independently isolatable drainage areas, as determined at detailed design stage.

1.2 Document status and design approach

1.2.1 This Strategy is prepared at Development Consent Order stage and is therefore principle-led. It defines the design basis, performance requirements and operational logic for firewater management, rather than the detailed engineering design of drainage features or containment structures.

1.2.2 Detailed design will be undertaken post-consent. However, that design will be required to demonstrate compliance with the principles and requirements set out in this document, including full containment during an incident, system isolation, and provision for post-incident management.

1.2.3 At this stage, the Strategy does not prescribe a fixed drainage system configuration. The detailed design may comprise either a single isolatable drainage system or a series of zoned, independently isolatable drainage areas, provided that the overall performance requirements set out in this Strategy are met, including full containment of the defined design scenario.

1.3 Scheme context

1.3.1 The BESS forms part of the wider Scheme described in **ES Volume 1, Chapter 3: The Scheme [APP-055]** and is located within Flood Zone 1 in accordance with the sequential approach set out in **ES Volume 1, Chapter 11: Hydrology, Flood Risk and Drainage [APP-063]**. This ensures that the BESS is not subject to fluvial flood risk and that the firewater containment system is not required to operate under concurrent fluvial inundation conditions.

1.3.2 The BESS introduces a formal drainage system, as defined in **Appendix 11-6: Flood Risk Assessment and Drainage Strategy – Lime Down D / BESS [APP-215]**, which provides a controlled drainage environment capable of supporting a containment-based approach to firewater management.

2. Policy, Guidance and Design Basis

This section sets out the policy framework and technical guidance that inform the firewater management approach, together with the basis on which the design has been defined. It explains how relevant policy requirements translate into practical containment and operational measures for the BESS.

2.1 Planning and environmental protection policy

2.1.1 This subsection summarises the key planning and environmental protection requirements relevant to firewater management and explains how they inform the need for containment and control within the drainage design.

National Planning Policy Framework (NPPF)

2.1.2 The overarching policy position is that development must be safe for its lifetime, must not increase flood risk elsewhere, and must prevent unacceptable risks to the water environment. These requirements are reflected in **ES Volume 1, Chapter 11: Hydrology, Flood Risk and Drainage [APP-063]**, which confirms that both routine drainage and emergency scenarios must be considered within the design.

2.1.3 In the context of firewater management, this requires that the Scheme does not introduce pathways for polluted runoff to enter surface water or groundwater, and that appropriate containment and control measures are embedded within the design.

2.2 National policy for energy infrastructure

2.2.1 This subsection outlines the specific expectations for energy infrastructure, including BESS, and how these translate into embedded mitigation and incident management requirements.

National Policy Statements (NPS EN-1 and EN-3)

2.2.2 National Policy Statements for energy infrastructure require that applicants identify environmental risks associated with both construction and operation and demonstrate that those risks can be avoided, reduced or managed through embedded mitigation and design.

2.2.3 For battery energy storage systems, fire risk and associated firewater management are recognised as key operational considerations. The Strategy therefore forms part of the embedded mitigation for the Scheme, demonstrating that firewater is treated as a foreseeable operational scenario that has been designed for from the outset.

2.2.4 The approach aligns with these policy expectations by embedding containment, isolation and management within the core drainage design rather than relying on reactive or temporary measures. This ensures that the Scheme is resilient to incident conditions and that environmental protection is maintained throughout its operational life.

2.3 Technical and industry guidance

2.3.1 This subsection identifies the key industry guidance that informs the design approach and explains how it has been applied to develop a proportionate and operationally realistic containment strategy.

National Fire Chiefs Council (NFCC) Guidance

2.3.2 The firewater design basis has been informed by current National Fire Chiefs Council guidance for grid-scale battery energy storage systems[1] with further operational detail set out in the **Outline BSMP [APP-286]**. This guidance reflects the evolving understanding of lithium-ion battery behaviour and supports a defensive firefighting strategy, typically involving external cooling, exposure protection and controlled burn-down of affected units where necessary.

2.3.3 This is important as it defines the likely duration, intensity and spatial extent of firefighting water application, allowing the Strategy to adopt a realistic and evidence-based design scenario rather than an overly conservative assumption of full-site involvement.

CIRIA C753 SuDS Manual

2.3.4 The wider drainage design remains aligned with CIRIA C753[2], which underpins the surface water management approach across the Scheme and establishes the principles of conveyance, storage and controlled discharge that form the basis of the BESS drainage system.

CIRIA C736 Containment Systems for the Prevention of Pollution

2.3.5 CIRIA C736 has been considered in relation to firewater containment. The guidance promotes a risk-based approach and recognises that containment strategies should be proportionate to the nature of the site and the incident.

2.3.6 For the BESS, extended passive storage of firewater generated during a fire, over prolonged durations is not considered a credible or necessary design basis. Firewater will not remain unmanaged on site for such periods, and operational procedures provide for inspection, testing and removal or controlled release following the incident.

2.3.7 The Strategy therefore adopts a hybrid containment approach combining retention during the incident and active post-incident management, which aligns with the intent of CIRIA C736 while avoiding disproportionate over-design.

2.3.8 The Strategy therefore adopts a containment and active management approach, which is consistent with both CIRIA guidance and current regulatory expectations.

[1] https://nfcc.org.uk/our-services/position-statements/battery-energy-storage-systems/
[2] https://www.ciria.org/ItemDetail?iProductCode=C753F&Category=FREEPUBS

2.4 Relationship to application documents

2.4.1 This Strategy is intended to sit alongside the wider application documents relevant to drainage, flood risk and battery safety. The documents identified below each perform a distinct role within the submission, and this standalone Strategy should be read as the document that draws those roles together in the specific context of firewater containment and post-incident water management for the BESS.

2.4.2 **ES Volume 3, Appendix 11-6: Flood Risk Assessment and Drainage Strategy – Lime Down D / BESS [APP-215]** establishes the drainage framework for the BESS, including the use of attenuation storage, controlled discharge and the wider drainage envelope for the BESS platform. That document demonstrates that the BESS drainage system has sufficient capacity to manage design rainfall events and provides the physical drainage basis within which firewater containment is to be achieved.

2.4.3 This standalone Strategy does not replace that document and should not be read as redefining the routine drainage design. Instead, it explains how the same drainage system is intended to operate under incident conditions, when the routine discharge route, or relevant drainage zone, is isolated and firefighting water, suppression water and associated runoff must be retained on site.

Outline Battery Safety Management Plan [APP-286]

2.4.4 The **Outline BSMP [APP-286]** establishes the operational and emergency response framework for the BESS, including firefighting water provision, fire detection and alarm response, drainage isolation and post-incident management principles. It confirms that drainage systems will be isolated during an incident and that retained water will be subject to testing and controlled disposal.

2.4.5 This Strategy supports the Outline BSMP by providing the drainage and containment narrative that sits beneath those commitments. In particular, it explains how the drainage system transitions into containment mode during an incident and how retained water is managed following the event.

ES Volume 1, Chapter 11: Hydrology, Flood Risk and Drainage [APP-063]

2.4.6 **ES Volume 1, Chapter 11: Hydrology, Flood Risk and Drainage [APP-063]** provides the overarching assessment of hydrology, flood risk and drainage effects for the Scheme as a whole. It identifies the relevant receptors, the principal flood risk considerations and the wider drainage and environmental protection framework that the Scheme must satisfy.

2.4.7 This Strategy is a supporting document to that chapter and should be read as the more focused explanation of how one specific aspect of the drainage and environmental protection strategy, namely firewater containment for the BESS, will be achieved in practice. Read together, these documents provide a coherent description of both routine and incident drainage performance for the BESS Area.

3. Fire Scenario and Firewater Design Basis

This section defines the credible incident scenario used to establish the firewater management requirements and demonstrates how the design basis has been derived in a proportionate and evidence-led manner.

3.1 Assessment approach

3.1.1 This subsection explains the methodology used to define the design scenario and to ensure that the resulting containment approach is both credible and proportionate.

3.1.2 The firewater strategy is based on defining a credible and proportionate design scenario and ensuring that the drainage system is capable of managing that scenario without giving rise to uncontrolled discharge or environmental harm.

3.1.3 The approach distinguishes clearly between the design basis scenario, which is used to size and define the containment system, and extreme or hypothetical scenarios, which are not used to define drainage infrastructure but are instead managed through operational procedures and emergency response.

3.1.4 This distinction is important to ensure that the design remains proportionate and aligned with real-world operational conditions, while still providing a robust level of environmental protection.

3.2 Credible design scenario

3.2.1 The credible design scenario adopted for the BESS is a localised fire affecting a single BESS unit or enclosure, requiring emergency service attendance and the application of firefighting water for cooling and fire control, occurring concurrently with a 1 in 10 year rainfall event.

3.2.2 This is considered to be the appropriate credible design basis for the firewater management strategy. The fire scenario reflects current industry understanding of BESS incidents and is consistent with the scale of incident considered within the **Outline BSMP [APP-286],** where fires are typically managed at the level of an individual unit and are not expected to propagate across the wider installation. The rainfall component is included to ensure that the drainage system can contain and manage the combined water load arising from a realistic incident occurring during wet weather conditions, rather than considering firefighting water volumes in isolation.

3.2.3 The use of a 1 in 10 year rainfall event as the concurrent rainfall allowance provides a proportionate basis for design. It represents a credible rainfall condition that could reasonably coincide with an incident and ensures that the containment system is not based on dry-weather assumptions. CIRIA C736 is applied as relevant good practice to inform this approach, supporting a risk-based methodology based on a defined and credible scenario rather than a prescribed or extreme combination of events.

3.2.4 The scenario therefore assumes that the fire detection system activates, that the drainage system is isolated automatically, that firefighting water is applied over a defined duration, and that all resulting runoff, comprising firefighting water together with rainfall from a 1 in 10 year event, is retained within the site pending post-incident management.

3.2.5 By adopting this scenario, the Strategy ensures that the containment system is designed for a realistic and clearly defined event basis, consistent with the wider drainage strategy set out in **ES Volume 3, Appendix 11-6: Flood Risk Assessment and Drainage Strategy – Lime Down D / BESS [APP-215].**

3.3 Firewater volume basis

3.3.1 Firefighting water demand has been defined based on current industry practice and NFCC-aligned guidance. The design basis comprises a firefighting flow rate of 1,900 litres per minute applied over a minimum duration of two hours, equivalent to a reference firewater volume of 228 m^3.

3.3.2 It is noted that the 2026 NFCC guidance lowered the minimum flow rate from 1,900 l/min to 1,500 l/min. The Applicant has chosen to maintain the higher flow rate stipulated by the 2025 Draft Guidance in order to ensure an oversupply of water in the event of a BESS fire.

3.3.3 The design intent set out in the **Outline BSMP [APP-286]** provides for an enhanced firefighting water provision of approximately 456 m^3, based on the provision of two firefighting water storage units, representing a conservative allowance above the minimum reference case and reflecting a precautionary approach to incident management. At detailed design stage, the firefighting water requirement will be refined based on large-scale fire testing (LSFT) data for the selected BESS technology and consequence modelling of the final site layout, undertaken by an independent Fire Protection Engineer, with final storage volumes to be agreed with the Fire and Rescue Service. This may result in a lower required volume than the precautionary allowance set out at DCO stage.

3.3.4 When considered alongside the attenuation storage incorporated within the BESS drainage strategy in **ES Volume 3, Appendix 11-6: Flood Risk Assessment and Drainage Strategy – Lime Down D / BESS [APP-215]**, these volumes are comfortably accommodated within the existing drainage envelope. The drainage system has been sized to manage extreme rainfall events and therefore provides a substantial storage baseline into which firewater volumes can be integrated during an incident.

3.3.5 Accordingly, the design is not constrained by total firewater volume, but by the ability of the system to isolate effectively and retain water within controlled drainage features designed to prevent leakage during the incident. This confirms that the drainage strategy is capable of accommodating the defined firewater volumes without requiring disproportionate additional infrastructure, and that containment performance is governed by system control rather than storage exceedance.

3.4 Rainfall during the incident

3.4.1 Rainfall occurring during a fire event is explicitly accounted for within the credible design scenario set out in **Section 3.2**. The drainage system is therefore required to accommodate the combined loading of firefighting water and rainfall without reliance on discharge.

3.4.2 The attenuation storage and conveyance network defined in **ES Volume 3, Appendix 11-6: Flood Risk Assessment and Drainage Strategy – Lime Down D / BESS [APP-215]** has been designed to manage significant rainfall events and provides the available capacity within which this combined scenario can be contained. During an incident, isolation of the outfall ensures that this storage is fully available for containment purposes.

3.4.3 This demonstrates that the drainage design is inherently capable of accommodating rainfall contributions during an incident, and that firewater containment is achieved through utilisation of the existing drainage envelope rather than through the introduction of standalone storage sized for combined extreme events.

3.5 Relationship to CIRIA C736

3.5.1 The containment approach set out in this Strategy has been developed to align with the principles of CIRIA C736, which promotes a risk-based and proportionate approach to pollution containment.

3.5.2 The adopted design scenario, comprising a localised BESS fire combined with a 1 in 10 year rainfall event, represents a credible and defensible basis for defining containment requirements. Within this context, the Strategy does not rely on long-duration passive storage for highly unlikely combinations of extreme events but instead provides full containment during the incident followed by active post-incident management.

3.5.3 This hybrid approach, combining engineered containment with operational control and recovery, is consistent with the intent of CIRIA C736. It ensures that pollution pathways are effectively controlled during the incident while avoiding unnecessary over-design of storage volumes that would not materially improve environmental protection.

3.5.4 Accordingly, the Strategy demonstrates compliance with CIRIA C736 through a proportionate and operationally realistic containment solution.

4. Firewater Containment and Drainage Strategy

This section sets out how the BESS drainage system operates under incident conditions to achieve full containment, including the physical system, isolation measures and operational controls that together prevent any uncontrolled release.

4.1 Overall containment philosophy

4.1.1 This subsection introduces the overarching approach to containment and explains how the drainage system is designed to operate under both normal and incident conditions.

4.1.2 The containment strategy is based on integrating firewater management within the BESS drainage system, ensuring that the system functions as both a surface water drainage network and a containment system under different operating conditions. At detailed design stage, this may comprise either a single isolatable drainage system or a zoned system with multiple independently isolatable areas, depending on the final layout and design optimisation.

4.1.3 During normal operation, the system collects, conveys and attenuates surface water runoff before controlled discharge. During an incident, the system transitions to containment mode through automatic isolation of the outfall, or relevant drainage zone, ensuring that all water is retained within the drainage network.

4.1.4 This dual-function approach ensures that firewater management is embedded within the core design of the BESS and does not rely on separate containment infrastructure that may not be fully integrated or operationally reliable.

4.2 Design principles

4.2.1 The firewater containment strategy is defined by the following principles:

- All firefighting water and incident runoff is retained on site during an incident with no uncontrolled discharge.
- The drainage system transitions automatically to containment mode through isolation of outfalls on activation of the fire alarm, either at a site-wide level or within defined drainage zones, depending on the detailed design.
- Containment is achieved within engineered drainage and storage features designed to provide full containment forming part of the BESS drainage design.
- The system accommodates firefighting water volumes together with rainfall during the incident.
- The design does not rely on infiltration or uncontrolled overflow during incident conditions.
- Retained water is subject to inspection and testing prior to disposal.
- Provision is made for active management of retained water, including tanker removal where required.

4.2.2 These principles define the functional requirements of the containment system and provide a clear framework for detailed design.

Isolation and shut-off arrangements

4.2.3 Isolation of the drainage system is achieved through self-actuating shut-off arrangements linked to the fire detection and alarm system, as set out in the **Outline BSMP [APP-286].**

4.2.4 These arrangements ensure that the transition from normal operation to containment mode occurs automatically and reliably at the onset of an incident. The detailed configuration may incorporate zoned isolation to allow containment to be focused on the affected area, rather than requiring isolation of the entire drainage network. The relevant outfall or drainage zone is isolated, preventing discharge to the receiving environment and ensuring that all incident water within the affected area is retained on site.

4.2.5 Detailed design will ensure that isolation valves provide leak-tight shut-off under incident conditions, with seat tightness demonstrated in accordance with BS EN 12266-1 Leakage Rate A[3], or equivalent, such that no visually detectable leakage occurs. This requirement supports the overall containment objective of preventing any uncontrolled release of firewater from the system.

4.2.6 Isolation valves will be designed to operate on a failsafe basis, such that in the event of power loss, system fault or damage during an incident, the default position is closed to maintain containment. Power supply arrangements may include independent or solar-backed systems where appropriate, ensuring that valve operation is resilient and not reliant solely on the primary site power infrastructure.

4.2.7 Detailed design will also ensure that these systems are robust, maintainable and capable of being tested regularly to confirm their functionality.

Containment within the drainage system

4.2.8 Containment is achieved through the formal drainage sealed network serving the BESS, which provides a controlled pathway for the collection, conveyance and storage of runoff.

4.2.9 During an incident, isolation of the outfall or relevant drainage zone ensures that all water remains within the affected part of the system. The drainage network therefore functions as a contained system, with storage provided through attenuation features and associated infrastructure.

4.2.10 The drainage strategy set out in **ES Volume 3, Appendix 11-6: Flood Risk Assessment and Drainage Strategy – Lime Down D / BESS [APP-215]** demonstrates that a workable and robust drainage system is available at this stage of design, with sufficient attenuation and conveyance capacity to manage design rainfall events. By definition, this established drainage envelope provides available storage capacity that can be utilised during incident conditions.

[3] https://landingpage.bsigroup.com/LandingPage/Series?UPI=BS%20EN%2012266

4.2.11 Based on the current design information presented in **ES Volume 3, Appendix 11-6: Flood Risk Assessment and Drainage Strategy – Lime Down D / BESS [APP-215]**, the drainage system includes attenuation storage sized to accommodate significant rainfall events, which provides an inherent storage volume materially in excess of the defined firewater design volume of approximately 456 m^3 set out in **Section 3.3**. While detailed storage volumes will be refined at the detailed design stage, the current strategy demonstrates that the available attenuation capacity is sufficient to accommodate the credible design scenario comprising both firefighting water and a 1 in 10 year rainfall event.

4.2.12 This confirms that a workable containment concept is established at this stage, whereby the existing drainage infrastructure provides both the physical containment mechanism and the required storage envelope. The Strategy therefore relies on the utilisation of this available capacity within the drainage system, rather than requiring standalone containment infrastructure sized solely for firewater storage.

4.2.13 Detailed design will incorporate appropriate containment measures within drainage features and storage components to ensure a sealed and isolatable system, to prevent leakage, ensuring that retained water does not infiltrate to ground or migrate to surrounding receptors. The Strategy does not prescribe specific materials or configurations at this stage, allowing flexibility in detailed design while maintaining the requirement for a controlled and contained system.

4.3 Active management and recovery

4.3.1 This Strategy incorporates provision for active management of retained water following an incident. This includes the ability to remove water from the drainage system using tanker extraction.

4.3.2 This approach ensures that retained water can be managed in a timely manner and does not need to be stored on site for extended periods. It also allows flexibility in response, enabling water to be removed where contamination is present or released in a controlled manner where appropriate.

4.3.3 The inclusion of active management is a key component of the overall containment strategy and ensures alignment with both operational practice and regulatory expectations.

5. Operational Management, Residual Risk and Conclusions

This section describes how the system is operated during and after an incident, how retained water is managed, and how residual risks are controlled, before setting out the overall conclusions of the Strategy. These measures will be secured through the **Outline Operational Environmental Management Plan (OEMP) [APP-278]** the **Outline BSMP [APP-286]**.

5.1 Operational behaviour

5.1.1 This section sets out how the system behaves during normal operation and how it responds when an incident occurs, providing the basis for the subsequent management steps.

5.1.2 During normal operation, the BESS drainage system functions as part of the wider surface water management system, conveying and attenuating runoff before controlled discharge.

5.1.3 During an incident, activation of the fire detection system triggers automatic isolation of the drainage outfall or relevant drainage zone, converting the affected part of the system into a contained environment. All firefighting water, suppression water and rainfall are retained within the drainage network and storage features, with incident response actions implemented in accordance with the Emergency Response Plan set out in the **Outline BSMP [APP-286].**

5.1.4 Following the incident, the system remains isolated until retained water has been assessed and an appropriate management route has been implemented.

5.2 Post-incident management

5.2.1 Retained water will be subject to inspection and testing to determine its suitability for discharge, including appropriate sampling and analysis in accordance with an agreed post-incident management procedure. Where water quality is acceptable, it may be released in a controlled manner subject to agreement with the relevant regulator, including the Environment Agency where a discharge to the water environment is proposed, or the sewerage undertaker where discharge to foul sewer is considered, with further detail set out in the **Outline BSMP [APP-286]**.

5.2.2 Where contamination is identified, retained water will be classified and removed from site by tanker in accordance with the duty of care requirements, for treatment or disposal at an appropriately permitted facility. The management route will be agreed with the relevant regulator as necessary, based on the nature and extent of contamination.

5.2.3 This approach ensures that no contaminated water is discharged uncontrolled, that regulatory oversight is embedded within the decision-making process, and that a clear and practical pathway is provided for managing retained volumes following an incident.

5.3 Residual risk

5.3.1 Residual risks include the occurrence of a fire event itself, failure of isolation mechanisms, blockage within drainage pathways, or events exceeding the adopted design scenario. The credible design scenario adopted within this Strategy, namely a localised BESS fire occurring concurrently with a 1 in 10 year rainfall event, is itself a residual risk scenario in the sense that it represents a foreseeable but abnormal incident condition for which the drainage and containment system must be resilient.

5.3.2 However, the Strategy significantly reduces the consequences of that residual risk through the use of controlled drainage design, automatic isolation, available storage capacity and active management procedures. The location of the BESS in Flood Zone 1 further reduces the likelihood of compound risk arising from concurrent fluvial flooding, such that the principal residual risk requiring management is the combined fire and rainfall scenario for which this Strategy has been specifically developed.

5.3.3 Overall, while the occurrence of a fire incident, including one coinciding with rainfall, remains a residual risk, the associated firewater risk is considered low and capable of being managed appropriately through detailed design and operational controls.

5.4 Maintenance, inspection and management

5.4.1 The performance of the firewater containment system is dependent on the ongoing integrity and operability of the drainage network, isolation infrastructure and associated control systems. A maintenance and inspection regime will therefore be implemented to ensure that the system remains fully functional throughout the operational life of the BESS. This regime will be integrated with the wider maintenance of the BESS drainage system so that the firewater containment function is maintained as part of the overall drainage performance for the development over its lifetime.

5.4.2 Maintenance requirements will be defined at detailed design stage in the **Outline OEMP [APP-278]** in accordance with the specific components selected, including drainage features, valves, control systems and any associated containment infrastructure. These requirements will be aligned with manufacturer specifications and industry best practice, ensuring that all elements of the system are maintained in accordance with their intended performance criteria.

5.4.3 The maintenance regime is expected to include routine inspection of drainage pathways to confirm that they remain free from blockage, periodic testing of isolation valves to confirm leak-tight operation and failsafe functionality, and verification of control systems linking fire detection to drainage isolation. Inspection frequencies and testing procedures will be proportionate to the criticality of each component and informed by manufacturer guidance.

5.4.4 Records of inspection, maintenance and testing will be maintained as part of the operational management system for the BESS. This will provide a clear audit trail demonstrating that the containment system remains operational and capable of performing its intended function.

5.4.5 The maintenance strategy will be treated as a live document, implemented through the **Outline OEMP [APP-278]** and will be reviewed and updated as necessary throughout the operational life of the Scheme, reflecting operational experience, updates to guidance, and any changes to system components or configuration. In this way, firewater containment performance will be maintained through the same long-term management framework that governs the wider drainage system for the development.

5.5 Conclusions

5.5.1 This Strategy demonstrates that firewater management for the Lime Down D BESS has been considered in a robust and proportionate manner. A credible design scenario has been defined, firefighting water volumes have been established in line with NFCC guidance, and the drainage system has been designed to retain and manage incident water without uncontrolled discharge.

5.5.2 The approach integrates with **ES Volume 1, Appendix 11-6: Flood Risk Assessment and Drainage Strategy – Lime Down D / BESS [APP-215],** and the **Outline BSMP [APP-286],** ensuring a consistent and coordinated response to fire incidents.

5.5.3 The Strategy avoids unnecessary over-design while ensuring protection of surface water and groundwater receptors and provides a clear framework for detailed design.

5.5.4 Accordingly, the firewater containment and drainage strategy is considered appropriate for the Development Consent Order stage and capable of being secured through detailed design.

6. References

1. National Fire Chiefs Council (NFCC) (2025) Battery Energy Storage Systems (BESS) position statement. Available at: https://nfcc.org.uk/our-services/position-statements/battery-energy-storage-systems/ (Accessed: 1 April 2026).
2. CIRIA (2015) C753F: The SuDS Manual. London: Construction Industry Research and Information Association. Available at: https://www.ciria.org/ItemDetail?iProductCode=C753F (Accessed: 1 April 2026).
3. British Standards Institution (BSI) (2012) BS EN 12266: Industrial valves – Testing of valves. London: BSI. Available at: https://landingpage.bsigroup.com/LandingPage/Series?UPI=BS%20EN%2012266 (Accessed: 1 April 2026).

Appendix A- Limitations

Limitations

This report contains recommendations from Arthian, which are based on the information listed in the report and reflect the professional opinions of an experienced Environmental Consultant. Arthian obtained, reviewed, and evaluated information from the Client and others to prepare this report. The conclusions, opinions, and recommendations presented in this report are based on this information. However, Arthian does not guarantee the accuracy of the information provided and will not be held responsible for any opinions or conclusions reached based on information that is later proven to be inaccurate.

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