

**Stonestreet Green Solar**  
**Environmental Statement**  
**Volume 4: Appendices**  
**Chapter 10: Water Environment**  
**Appendix 10.4: Aldington Flood Storage**  
**Area Risk Assessment**

PINS Ref: EN010135

Doc Ref. 5.4

Version 1

June 2024

APFP Regulation 5(2)(a)

Planning Act 2008

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



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- Annex A: Order limits and AFSA standoff (8m)**
- Annex B: Illustrative Landscape Drawing (Sheet 3 of 5) – within AFSA**



## 1.0 Introduction

- 1.1 This Aldington Flood Storage Area Risk Assessment ('AFSA Risk Assessment') has been prepared on behalf of EPL 001 Limited ('the Applicant') to identify potential risks on the function or efficacy of the Aldington Flood Storage Area ('AFSA') in relation to the Development Consent Order ('DCO') application for Stonestreet Green Solar ('the Project').
- 1.2 The Project comprises the construction, operation, maintenance, and decommissioning of solar photovoltaic ('PV') arrays and energy storage, together with associated infrastructure and an underground cable connection to the existing National Grid Sellindge Substation.
- 1.3 The Project will include a generating station (incorporating solar arrays) with a total capacity exceeding 50 megawatts ('MW'). The agreed grid connection for the Project will allow the export and import of up to 99.9 MW of electricity to the grid. The Project will connect to the existing National Grid Sellindge Substation via a new 132 kilovolt ('kV') substation constructed as part of the Project and cable connection under the Network Rail and High Speed 1 ('HS1') railway.
- 1.4 The location of the Project is shown on **ES Volume 3, Figure 1.1: Site Location Plan (Doc Ref. 5.3)**. The Project will be located within the Order limits (the land shown on the **Works Plans (Doc Ref. 2.3)** within which the Project can be carried out). The Order limits plan is provided as **ES Volume 3, Figure 1.2: Order limits (Doc Ref. 5.3)**. Land within the Order limits is known as the 'Site'.

## Baseline Description

### East Stour River

- 1.5 The East Stour River is an Environment Agency ('EA') main river<sup>1</sup> which flows from east to west through and away from the Site to join the Great Stour 5.7km north west of the Site in Ashford. Upstream of the Site, the East Stour River drains a catchment area<sup>2</sup> of approximately 33.7km<sup>2</sup>.

### East Stour River Catchment (Aldington Flood Storage Area)

- 1.6 As shown in **Annex A**, a flood barrier is located within the Site on the channel and across the floodplain of the East Stour River. The structure is owned and maintained by the EA.



- 1.7 The land upgradient (east) of this embankment is referred to as the 'AFSA'. The AFSA is designed to store (attenuate) fluvial flows from the East Stour River during periods of fluvial flooding to reduce the flood risk downstream. The extent of the AFSA is shown on **ES Volume 3, Figure 10.3: Local Hydrology (Doc Ref. 5.3)**.
- 1.8 The EA have advised through consultation that upstream of the embankment the AFSA provides approximately 1,280,000 m<sup>3</sup> of storage below the spillway crest level of 50.2mAOD covering an area of approximately 0.74 km<sup>2</sup>.
- 1.9 Fluvial flows are able to pass through the embankment along the channel of the East Stour via a fish pass that includes a 300mm diameter orifice. This restricts flows to a discharge rate of 0.34 m<sup>3</sup>s<sup>-1</sup>. When water levels are high enough, a proportion of the flow is diverted into a watercourse (Unnamed Tributary 3 – see **ES Volume 3, Figure 10.3: Local Hydrology (Doc Ref 5.3)**) via a side weir. Flows in this channel passing through the embankment are restricted to a maximum of 4 m<sup>3</sup>s<sup>-1</sup> by means of a vortex flow control device.
- 1.10 If flows entering the AFSA exceed the capacity of these two routes, then water backs up and floods the land within the AFSA. This typically happens on several occasions each year. In the event that the capacity of the AFSA is exceeded, water over tops the embankment via the spillway and rejoins the main channel of the river (and its floodplain) downstream.

## Background and Objectives

- 1.11 This report has been prepared to address the relevant EA S42 response to the PEIR (dated 28 November 2022) which states:

*“We would reiterate that the red line boundary includes land that is part of the Aldington Flood Storage Area (FSA). It is essential that that the development does not in any way compromise the function or efficacy of this flood risk management structure or our ability to undertake maintenance or improvements. Without additional details and an assessment of risk we are unable to confirm if any development within the FSA would be acceptable.”*

- 1.12 The assessment provided in this report was informed by a discussion with the EA on 2 August 2023. The objectives of this assessment are to:
- Identify and assess risk to the AFSA associated with the construction and decommissioning phases of the Project; and



- Identify and assess risk to the AFSA associated with the operation of the Project including the physical location of any proposed infrastructure.
- 1.13 To inform this assessment, Drawing reference 142-02-48-EA-01 is provided in **Annex A** which shows the extent of the Site and the proposed development in the area around the AFSA embankment. This drawing is based on the **Works Plans (Doc Ref. 2.3)** and shows how the Project interacts with a minimum 8m buffer that will be provided from the toe of the AFSA embankment structure as secured through the **Design Principles (Doc Ref. 7.5)** and shown in **Annex A**.
- 1.14 The **Design Principles (Doc Ref. 7.5)** state the following principles which are relevant to the AFSA embankment:
- Offsets from the Aldington Flood Storage Area (AFSA) - A minimum 8m buffer will be provided from the toe of the AFSA embankment as shown in **Annex A**.
  - No new physical infrastructure other than an approximately 40m section of the internal haulage road associated with Work No. 7 during the construction and decommissioning phases will be developed within this buffer.
  - The internal haulage road required for construction and decommissioning will be provided using a permeable surface. No below ground excavation works will be undertaken for the internal haulage road.
- 1.15 **Annex B** provides a relevant extract (Sheet 3 of 5 only) of the **Illustrative Landscape Drawings (Doc Ref. 2.7)** showing the illustrative landscape proposals within the wider extent of the AFSA.
- 1.16 A description of the Project is provided in **ES Volume 2, Chapter 2: Project Description (Doc Ref: 5.2)**.



## 2.0 Risk Assessment

- 2.1 Risk assessment tables are provided below for both construction and decommissioning phases (**Table 2-1**) and the operational phase (**Table 2-2**) of the Project. These set out specific activities and aspects of the Project that could theoretically result in adverse impact to the function of the AFSA. Tables 2-1 and Table 2-2 should be read in conjunction with Drawing reference 142-02-48-EA-01 in **Annex A** and the **Works Plans (Doc Ref. 2.3)** included within **Book 2: Plans**.
- 2.2 Consideration is given to whether this risk is significant in the light of proposed mitigation as secured through the design of the Project or for activities during the construction and decommissioning phases, along with other measures which would be secured through the **Outline CEMP (Doc Ref. 7.8)** and the **Outline DEMP (Doc Ref. 7.12)**.

**Table 2-1: Construction and Decommissioning Risk Assessment**

Activity	Consequence	Discussion	Risk
Development activities occurring in close proximity to the AFSA embankment	Damage to embankment and requirement for Flood Risk Activity Permit ('FRAP')	All permanent physical infrastructure will be located at least 8m from the toe of the AFSA embankment (as secured by the <b>Design Principles (Doc Ref. 7.5)</b> ).  The only temporary development within this buffer zone will be an approximately 40m section of the permeable internal haulage road, associated with Works No. 7, during the construction and decommissioning phases.  The internal haulage road required for construction and decommissioning will be provided using a permeable surface. No below ground excavation works will be undertaken for the internal haulage road.	Low
Major engineering activities in proximity to the AFSA embankment	Damage to embankment through subsidence and settling	As no permanent physical infrastructure is proposed there will be no significant engineering activities will be undertaken within 8m of the AFSA embankment during either the construction or decommissioning phases of the Project.	Low
Excavations in proximity to the AFSA embankment	Damage to embankment through	As shown on the <b>Works Plans (Doc Ref 5.3)</b> the PV panels and the cable trenches that wire them all together are deliberately located outside 16m from the	Low



Activity	Consequence	Discussion	Risk
	subsidence and settling	<p>toe of the AFSA embankment. On this basis no significant excavations are expected in close proximity to the AFSA embankment.</p> <p>The only excavation that may be required within 16m of the toe of the AFSA embankment will be shallow and associated with landscaping works or the construction of the security fence. Such works are highly unlikely to give risk to any subsidence or settling.</p> <p>As set out in <b>Schedule of Other Consents and Licenses (Doc Ref. 3.4)</b> these works will only be progressed subject to receipt of a FRAP from the EA.</p>	
Piling in proximity to the AFSA embankment (Project Substation)	Damage to embankment through vibrations	<p>The development platform level of the Project Substation will be no greater than 56m above ordnance datum (AOD) and no lower than 55m AOD. The development platform will contain retaining structures.</p> <p>The engineering design of the development platform is anticipated to comprise a 5m contiguous bored pile wall (to the north and west of the platform). These would be installed using the Continuous Flight Auger ('CFA') method. CFA piling has inherently low levels of vibration when compared to traditional piling (e.g. vibratory or percussive) methods. The installation of contiguous bored piles would be unlikely to give rise to significant vibration levels and this approach is typically suitable for vibration-sensitive applications.</p> <p>Contiguous bored piles are only expected to be required along the western and northern sides of the Project Substation and for the 132kV transformer foundations, and piling will be more than 8m from the AFSA embankment.</p>	Low
Piling in proximity to the AFSA embankment (foundations for PV)	Damage to embankment through vibrations	All permanent physical infrastructure will be located at least 8m from the toe of the AFSA embankment (as secured by the <b>Design Principles (Doc Ref. 7.5)</b> ). This includes the PV arrays and therefore	Low



Activity	Consequence	Discussion	Risk
panel mounting structures)		<p>piling for the PV mounting structures will not be required in direct proximity to the AFSA embankment.</p> <p>Mounting structures for PV panels will be supported on preformed metal piled foundations installed to a maximum depth of 3m below ground level ('BGL'). Alternatively, a non-intrusive mounting solution that uses pre-cast reinforced concrete blocks or similar, to provide ballast to support the PV panels would be used should piled foundations not be appropriate.</p>	
Restrictions on access for maintenance and improvements to AFSA embankment during construction	Embankment temporarily inaccessible for emergency repairs	<p>The <b>Outline CEMP (Doc Ref 7.8)</b> and <b>Outline DEMP (Doc Ref. 7.12)</b> secure measures to ensure access will be available at all times for the EA.</p> <p>A minimum 8m buffer will be provided from the toe of the AFSA embankment during the construction and decommissioning activities, within which there will be no new physical infrastructure other than a short section (approximately 40m) of the internal haulage road. This will ensure that the existing access route along both the western and eastern sides of the embankment, used by the EA, remains accessible at all times during both the construction and decommissioning phases.</p>	Low
Temporary infrastructure installed within close proximity of AFSA embankment	Restriction of access to embankment and requirement for FRAP	<p>As illustrated in <b>Annex A</b>, a short section of the internal haulage road (approximately 40m) will extend just within the 8m buffer from the AFSA embankment on the downstream side. The internal haulage road will comprise the laying of ground protection mats and no below ground excavation works will be undertaken. All other temporary infrastructure will be located outwith the 8m buffer zone.</p>	Low
Construction activities within AFSA	Additional debris or minor	Construction activities within the AFSA (upstream of the AFSA embankment) are restricted to the creation of landscape	Low





Activity	Consequence	Discussion	Risk
	temporary changes in flood storage capacity	<p>features, biodiversity improvement areas, a wetland area for final polishing (i.e. water quality control) of storm water discharge from the Project Substation and installation of the Grid Connection Cable (trenching and HDD). Temporary bridge crossings would also be installed within the AFSA as described in <b>ES Volume 4, Appendix 10.5: Schedule of Watercourse Crossings (Doc Ref. 5.4)</b>.</p> <p>The <b>Outline CEMP (Doc Ref. 7.8)</b> requires an Emergency Flood Response Plan ('EFRP') to be provided as part of the detailed CEMP(s). The <b>Outline CEMP (Doc Ref. 7.8)</b> also includes a commitment to avoid storage of materials and stockpiling within the AFSA. In the event of a period of elevated flood risk (as identified via the EA flood warning service or on-site observations), construction areas within the AFSA would be secured and cleared and the area evacuated.</p>	
Decommissioning	Damage to embankment and requirement for FRAP	Decommissioning works will be broadly similar in extent and disturbance to those relating to construction and, as already outlined, the same standoff (i.e. 8m) to the toe of the AFSA embankments will be applied. These works are therefore unlikely to give rise to additional impacts to the AFSA beyond those considered for construction.	Low



**Table 2-2: Operational Risk Assessment**

Activity	Consequence	Discussion	Risk
Infrastructure installed within close proximity of AFSA embankment	Restriction of access to embankment and requirement for FRAP	An 8m stand-off between the toe of the base of the AFSA embankment. No permanent physical infrastructure will be developed within this zone.	Low
Restriction on access to AFSA embankment during the operational phase.	Restriction of access to embankment for large plant	<p>The 8m buffer between the toe of the AFSA embankment and new physical infrastructure will ensure that the existing access route along both the western and eastern sides of the embankment remain accessible during the operational phase of the Project.</p> <p>Upgrades to the existing track surface around the entrance to the Project Substation, and ongoing maintenance by the Applicant, will help ensure access to the embankment and AFSA is not impaired over the lifetime of the Project.</p> <p>The detailed OMP will be required to include measures to allow the EA appropriate access to the AFSA (as secured by the <b>Outline OMP (Doc Ref. 7.11)</b>).</p>	Low
Changes in flood storage within the AFSA	Loss of capacity for flood attenuation	<p>No PV panels are proposed within the AFSA.</p> <p>The Project Substation (including all associated drainage management measures) will be located on land that is currently (and will remain) outside the extent of the maximum impoundment for the 0.1% AEP flood event. The development platform level of the Project Substation will be no greater than 56m above ordnance datum (AOD) and no lower than 55m AOD. The development platform will contain retaining structures.</p> <p>Above ground changes within the AFSA are restricted to improvements in landscape planting, and biodiversity enhancement areas and the creation of a wetland area for final polishing (i.e. water</p>	Low



Activity	Consequence	Discussion	Risk
		<p>quality control) of storm water discharge from the Project Substation.</p> <p>Electrical cables will be routed through the AFSA however, the ground level will be restored to existing levels in line with standard practice and therefore once completed there is no potential for impacts on storage capacity within the AFSA.</p> <p>Habitat scrapes / ecological depressions are proposed within the AFSA as part of the <b>Illustrative Landscape Drawings (Doc Ref. 2.7)</b> (extract presented in Annex B). A wetland area is also proposed within the AFSA, as described in the <b>Outline OSWDS (Doc Ref. 7.14)</b>, to provide pollution control for runoff from the Project Substation. These scrapes / depressions will increase the available flood storage within the AFSA and not adversely impact on flood risk.</p> <p>Therefore, the only changes in ground elevation within the AFSA will be shallow excavations which will contribute to increasing the capacity of the flood storage available.</p>	
Vegetation Management with AFSA	Creation of debris that could affect flow in the event of flooding	<p>The landscape proposals within the AFSA will not specifically encourage the creation and growth of trees and so there should be no change in the generation of woody debris.</p> <p>Landscape management measures secured through the <b>Outline LEMP (Doc Ref 7.10)</b> will include for the removal of cleared vegetation from the AFSA.</p>	Low



## **3.0 Conclusion**

- 3.1 This assessment concludes the construction, operation and decommissioning of the Project poses a low risk to the structure and operation of the AFSA. As such, the Project will not affect the function or efficacy of the AFSA or the AFSA embankment or the EA's ability to undertake maintenance or improvements now or in the future.



## 4.0 References

- 1 Environment Agency. (2023). Statutory Main River Map, Available at:  
[REDACTED]
- 2 UK Centre for Ecology and Hydrology. (2023). Flood Estimation Handbook  
Web Service. Available at: [REDACTED] Map. (Accessed February 2024).



# Annexes





# **Annex A: Overlap of Order Limits and AFSA standoff (8m)**

**Appendix 10-4: Aldington Flood Storage Area Risk Assessment**

**Stonestreet Green Solar**

June 2024



Primary Site Access

Project Substation

26

25

28

24

23

Inset A

AFSA Embankment

Fishing Lake

Lake

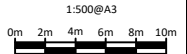
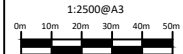
Woodleas Farm

Lake

Inset A 1:500@A3

FB

For information purposes only.  
Not for construction.



Notes:

Postcode: TN25 7HP W3W: paints.embodied.warp

Key:

- Order limits
- 8m Standoff from toe of AFSA embankment
- Internal Haulage Road
- SSG Security Fence



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Email: info@stonestreetgreensolar.co.uk  
www.stonestreetgreensolar.co.uk  
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Project Name:  
Stonestreet Green Solar

Drawing Title:  
Buffer From Toe Of  
Aldington Flood Storage  
Area Embankment

Document Reference #:  
142-02-48-EA-01

Scale: 1:2500@A3

Produced:	Checked:	Date:
RC	CM	June 2024



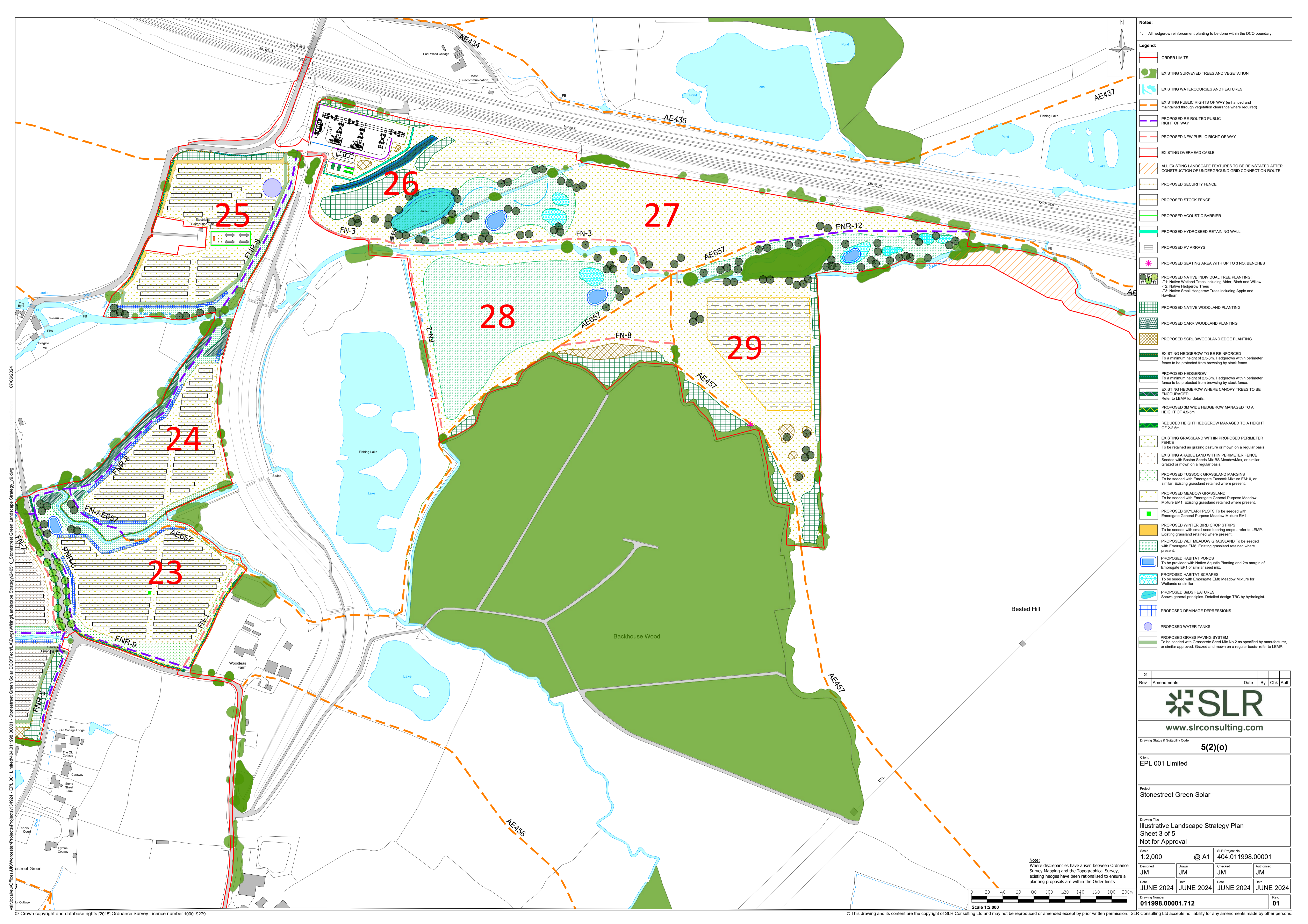


# **Annex B: Illustrative Landscape Drawing (Sheet 3 of 5) – within AFSA**

**Appendix 10-4: Aldington Flood Storage Area Risk  
Assessment**

**Stonestreet Green Solar**

June 2024



- Notes:**
- All hedgerow reinforcement planting to be done within the DCO boundary.
- Legend:**
- ORDER LIMITS
  - EXISTING SURVEYED TREES AND VEGETATION
  - EXISTING WATERCOURSES AND FEATURES
  - EXISTING PUBLIC RIGHTS OF WAY (enhanced and maintained through vegetation clearance where required)
  - PROPOSED RE-ROUTED PUBLIC RIGHT OF WAY
  - PROPOSED NEW PUBLIC RIGHT OF WAY
  - EXISTING OVERHEAD CABLE
  - ALL EXISTING LANDSCAPE FEATURES TO BE REINATED AFTER CONSTRUCTION OF UNDERGROUND GRID CONNECTION ROUTE
  - PROPOSED SECURITY FENCE
  - PROPOSED STOCK FENCE
  - PROPOSED ACOUSTIC BARRIER
  - PROPOSED HYDROSEED RETAINING WALL
  - PROPOSED PV ARRAYS
  - PROPOSED SEATING AREA WITH UP TO 3 NO. BENCHES
  - PROPOSED NATIVE INDIVIDUAL TREE PLANTING:
    - T1: Native Wetland Trees including Alder, Birch and Willow
    - T2: Native Hedgerow Trees
    - T3: Native Small Hedgerow Trees including Apple and Hawthorn
  - PROPOSED NATIVE WOODLAND PLANTING
  - PROPOSED CARR WOODLAND PLANTING
  - PROPOSED SCRUBWOODLAND EDGE PLANTING
  - EXISTING HEDGEROW TO BE REINFORCED  
To a minimum height of 2.5-3m. Hedgerows within perimeter fence to be protected from browsing by stock fence.
  - PROPOSED HEDGEROW  
To a minimum height of 2.5-3m. Hedgerows within perimeter fence to be protected from browsing by stock fence.
  - EXISTING HEDGEROW WHERE CANOPY TREES TO BE ENCOURAGED  
Refer to LEMP for details.
  - PROPOSED 3M WIDE HEDGEROW MANAGED TO A HEIGHT OF 4.5-5M
  - REDUCED HEIGHT HEDGEROW MANAGED TO A HEIGHT OF 2-2.5M
  - EXISTING GRASSLAND WITHIN PROPOSED PERIMETER FENCE  
To be retained as grazing pasture or mown on a regular basis.
  - EXISTING ARABLE LAND WITHIN PERIMETER FENCE  
Seeded with Boston Seeds Mix BS MeadowMax, or similar. Grazed or mown on a regular basis.
  - PROPOSED TUSsock GRASSLAND MARGINS  
To be seeded with Emorsgate Tussock Mixture EM10, or similar. Existing grassland retained where present.
  - PROPOSED MEADOW GRASSLAND  
To be seeded with Emorsgate General Purpose Meadow Mixture EM1. Existing grassland retained where present.
  - PROPOSED SKYLARK PLOTS to be seeded with Emorsgate General Purpose Meadow Mixture EM1.
  - PROPOSED WINTER BIRD CROP STRIPS  
To be seeded with small seed bearing crops - refer to LEMP. Existing grassland retained where present.
  - PROPOSED WET MEADOW GRASSLAND To be seeded with Emorsgate EM8. Existing grassland retained where present.
  - PROPOSED HABITAT PONDS  
To be provided with Native Aquatic Planting and 2m margin of Emorsgate EP1 or similar seed mix.
  - PROPOSED HABITAT SCRAPES  
To be seeded with Emorsgate EM8 Meadow Mixture for Wetlands or similar.
  - PROPOSED SUDS FEATURES  
Shows general principles. Detailed design TBC by hydrologist.
  - PROPOSED DRAINAGE DEPRESSIONS
  - PROPOSED WATER TANKS
  - PROPOSED GRASS PAVING SYSTEM  
To be seeded with Grasscrete Seed Mix No 2 as specified by manufacturer, or similar approved. Grazed and mown on a regular basis-refer to LEMP.

01	Rev	Amendments	Date	By	Chk	Auth



**5(2)(o)**

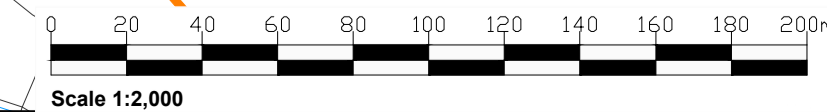
Client: EPL 001 Limited

Project: Stonestreet Green Solar

Drawing Title: Illustrative Landscape Strategy Plan  
Sheet 3 of 5  
Not for Approval

Scale: 1:2,000	@ A1	SLR Project No: 404.011998.00001
Designed: JM	Drawn: JM	Checked: JM
Date: JUNE 2024	Date: JUNE 2024	Date: JUNE 2024
Authorised: JM	Authorised: JM	Authorised: JM
Drawing Number: 011998.00001.712		Rev: 01

**Note:**  
Where discrepancies have arisen between Ordnance Survey Mapping and the Topographical Survey, existing hedges have been rationalised to ensure all planting proposals are within the Order limits.



07/06/2024

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