HELIOS RENEWABLE ENERGY PROJECT

PINS Document Number:
EN010140/APP/7.5

Flood Risk Assessment

February 2025

HELIOS RENEWABLE ENERGY PROJECT

FLOOD RISK ASSESSMENT

ENSO GREEN HOLDINGS D LIMITED

DOCUMENT REFERENCE NUMBER: 7.7

PART 5 OF 6

APPENDICES 19 - 25

PFA Document Reference: E216-DOC01-FRA-ISSUE 2

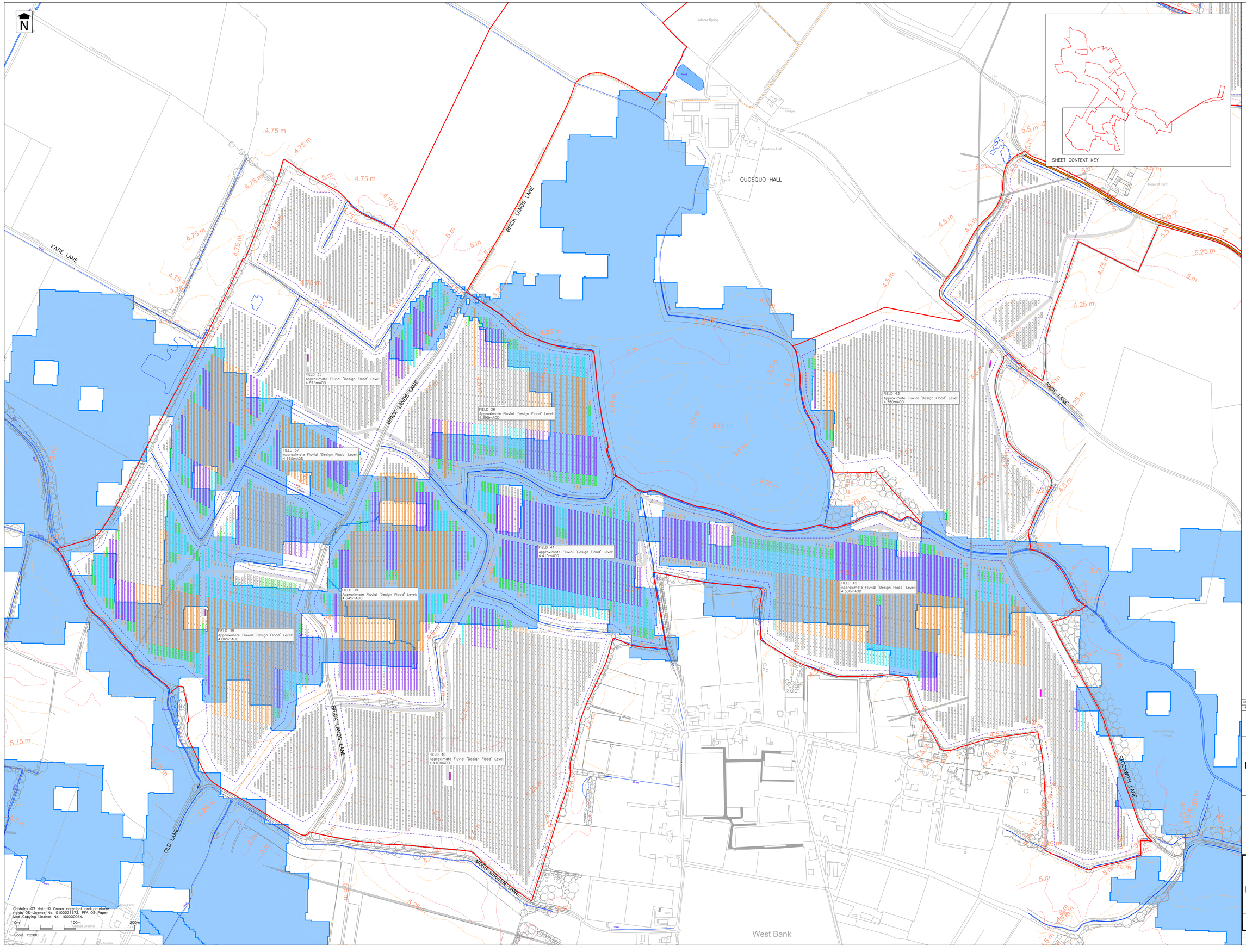
FEBRUARY 2025

PFA Consulting
Stratton Park House
Wanborough Road
Swindon
SN3 4HG

Tel: 01793 828000
Fax: 01793 835500
Email: admin@pfaplc.com
Web: www.pfaplc.com

engineering the future

Appendix 19



PFA consulting

Stratton Park House, Wanborough Road
Swindon, SN3 4HG

Telephone
01793 828000

Website
www.pfaplc.com

For Planning
This drawing is produced for the purposes of supporting a planning application and should not be relied upon for tender, pricing, or construction purposes.

NOTES

1. Site Boundary based upon Order Limits Location Plan, Enso Energy Drawing No. DX-01-P01 Rev 11, dated 15/02/24.
2. Drawing based upon Indicative Design, Enso Energy Drawing No. DX-01-P47 Rev 08, dated 15/04/24.
3. Flood risk data based on the results from the site-specific flood model produced by Aegaea. Details contained in Hydraulic Model Technical Note (Document Ref: AEG0851_YG8_EnsoEnergy_03 Rev B dated 25/06/24.
4. Drawing should be read in conjunction with Flood Risk Assessment produced by PFA Consulting (Document Ref: E216-DOC01-FRA-Issue 1, June 2024) and Water Environment Supplementary Assessment produced by PFA Consulting (Document Ref: E216-DOC02-Issue 1, January 2024)
5. Contains public sector information licensed under the Open Government Licence v3.0.
6. Contains OS data © Crown copyright and database right 2022
7. Contains third party information.
8. Minimum equipment levels subject to detailed design and will be informed by the Environment Agency approved site-specific flood model produced by Aegaea.
9. Minimum equipment levels rounded to nearest 0.005m.

Key

- Site Boundary
- Solar Farm Zone
- Watercourse
- Contours

FLUVIAL DESIGN FLOOD EXTENTS

- 1% AEP (1 in 100 RP) Fluvial Defended + Climate Change (Higher Central)

Ref: AEG0851_ENSO_BAS_SCENA_Q0100_CC_HIGHER_051_h_Max-CLIPPED

SOLAR ARRAYS AFFECTED BY FLUVIAL DESIGN FLOOD

- 1P60@55DEG F TR ID1 PVBlock
- 1P120@55DEG F TR ID2 PVBlock
- 1P270@55DEG F TR ID4 PVBlock
- 1P540@55DEG F TR ID4 PVBlock
- 1P810@55DEG F TR ID4 PVBlock

Rev	Date	Description	Drawn	Check
#	20/12/24	First Issue.	BF	MWS

Status
FOR PLANNING

Client
Enso Green Holdings D Ltd

Project
Helios Renewable Energy Project

Drawing Title
Preliminary Solar Array Support Flood Volume Displacement Assessment Array Assessment

Drawing No.
E216/165

Date: December 2024 | Scale: 1:2000 @ A0

E-Mail: bfox@pfaplc.com

Appendix 20

E216: Helios Renewable Energy Project

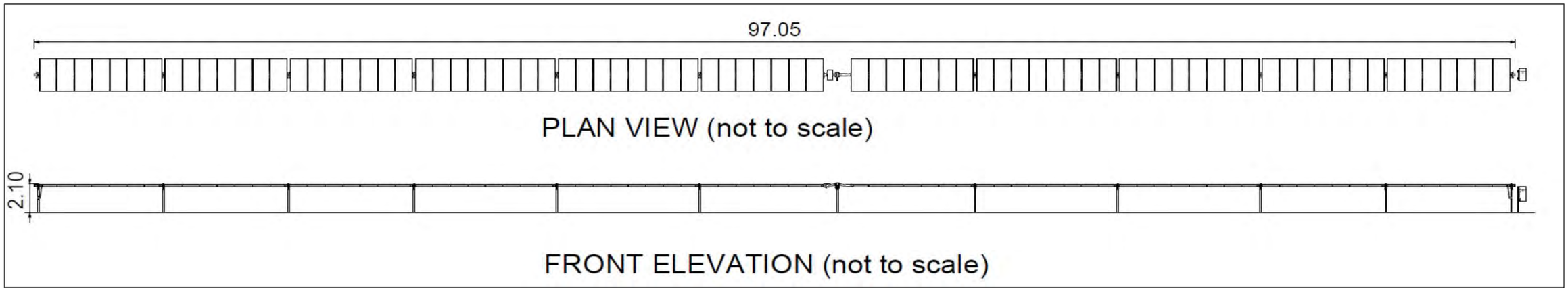
Preliminary Solar Array Flood Volume Displacement

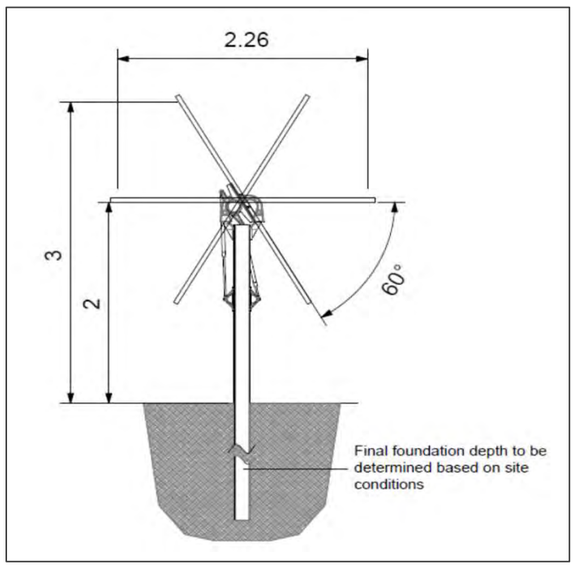
Date:	23.12.24
Layout Ref:	Figure 3.3 Indicative Design Drawing No. DX-01-P47 Rev08 Dated 15/04/2024
Notes:	
Calculations to be read in conjunction with:	Water Environment Supplementary Assessment Ref: E216-DOC02-DRAFT 1 Drawing Nos:

E216/164	Preliminary Solar Array Support Flood Displacement Assessment - Flood Extents
E216/165	Preliminary Solar Array Support Flood Displacement Assessment - Array Assessment

Assumptions

Typical Detail for Solar Array
PV Elevations Drawing No. DX-01-P03 Rev 01 dated 09/01/2024
Extracts below





Typical Detail for Array Supports

Supplier: Gerdau

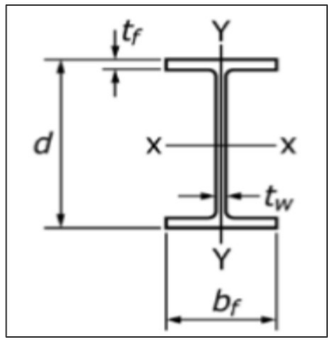
Details: Subject to detailed design

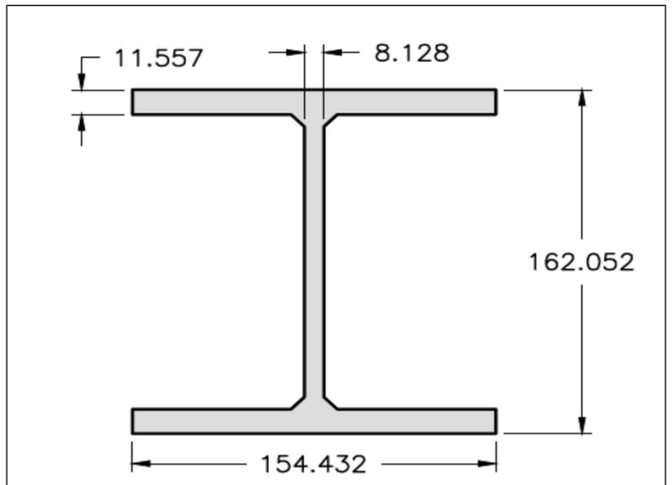
Multiple pile sizes between W6x7 and W6x25. Most of the standard posts will be W6x7, increasing up to W6x9 for edge trackers. Posts at the motor of each tracker will be higher from W6x15 to W6x25

As a precaution W6x25 utilised in calculation (largest cross sectional area)

Typical cross section below (Note: table based on manufacturers specification in square inches(

	Dimensions					
Shape Depth x Linear Weight	**Cross-Section Area (A)** in.²	**Depth (d)** in.	**Flange**		**Web Thickness (t_w)** in.	**Surface Area,** in²/ft
			Width (b_f) in.	**Thickness (t_f)** in.		
W6x7*	2.07	5.79	3.905	0.160	0.135	316.98
W6x7.75*	2.29	5.82	3.921	0.177	0.151	318.18
W6x8.5	2.52	5.83	3.940	0.195	0.170	318.78
W6x9	2.68	5.90	3.940	0.215	0.170	320.46
W6x10.4*	3.13	5.96	3.970	0.247	0.200	322.72
W6x12	3.55	6.03	4.000	0.280	0.230	325.02
W6x15	4.43	5.99	5.990	0.260	0.230	419.58
W6x16	4.74	6.28	4.030	0.405	0.260	331.74
W6x20	5.87	6.20	6.020	0.365	0.260	425.34
W6x25	7.34	6.38	6.080	0.455	0.320	431.10





Vertical Array Support Cross-Sectional Area	0.0048	m2
Vertical Pile Volume per 0.2m slice	0.00096	m3

Solar Array Reference	**No. of supports/posts per array**
1P6@55DEG F TR ID1 PVBlock	3
1P12@55DEG F TR ID2 PVBlock	3
1P14@55DEG F TR ID1 PVBlock	N/A
1P27@55DEG F TR ID4 PVBlock	6
1P54@55DEG F TR ID4 PVBlock	9
1P81@55DEG F TR ID4 PVBlock	12

Field 35		
Max Fluvial 'Design Flood' Level	4.695	mAOD
Lowest Ground Level	4.163	mAOD
Max Flood Depth	0.532	m

Array Type	**Number of Arrays**	**Number of Supports**
1P6@55DEG F TR ID1 PVBlock	32	96
1P12@55DEG F TR ID2 PVBlock	39	117
1P27@55DEG F TR ID4 PVBlock	34	204
1P54@55DEG F TR ID4 PVBlock	29	261
1P81@55DEG F TR ID4 PVBlock	27	324
	Total	1002

Calculation Slice Meters Above Ground Level (0.2m increments) (m)	**Calculation Slice Height Above Ground Level (0.2m increments) (mAOD)**	**Number of Supports**	**Volume of Floodwaters Displaced per 0.2m Slice (m3)**
0.0 - 0.2	4.1-4.3	1002	0.962
0.2 - 0.4	4.3-4.5	1002	0.962
0.4 - 0.6	4.5-4.7	1002	0.962
		Total Volume of Floodwaters Displaced (m3)	2.89

Field 36		
Max Fluvial 'Design Flood' Level	4.395	mAOD
Lowest Ground Level	3.744	mAOD
Max Flood Depth	0.651	m

Array Type	**Number of Arrays**	**Number of Supports**
1P6@55DEG F TR ID1 PVBlock	30	90
1P12@55DEG F TR ID2 PVBlock	50	150
1P27@55DEG F TR ID4 PVBlock	42	252
1P54@55DEG F TR ID4 PVBlock	46	414
1P81@55DEG F TR ID4 PVBlock	23	276
	Total	1182

Calculation Slice Meters Above Ground Level (0.2m increments) (m)	**Calculation Slice Height Above Ground Level (0.2m increments) (mAOD)**	**Number of Supports**	**Volume of Floodwaters Displaced per 0.2m Slice (m3)**
0.0 - 0.2	3.7-3.9	1182	1.135
0.2 - 0.4	3.9-4.1	1182	1.135
0.4 - 0.6	4.1-4.3	1182	1.135
0.6-0.8	4.3-4.5	1182	1.135
		Total Volume of Floodwaters Displaced (m3)	4.54

Field 37		
Max Fluvial 'Design Flood' Level	4.660	mAOD
Lowest Ground Level	4.284	mAOD
Max Flood Depth	0.376	m

Array Type	**Number of Arrays**	**Number of Supports**
1P6@55DEG F TR ID1 PVBlock	24	72
1P12@55DEG F TR ID2 PVBlock	13	39
1P27@55DEG F TR ID4 PVBlock	5	30
1P54@55DEG F TR ID4 PVBlock	9	81
1P81@55DEG F TR ID4 PVBlock	15	180
	Total	402

Calculation Slice Meters Above Ground Level (0.2m increments) (m)	**Calculation Slice Height Above Ground Level (0.2m increments) (mAOD)**	**Number of Supports**	**Volume of Floodwaters Displaced per 0.2m Slice (m3)**
0.0 - 0.2	4.1-4.3	402	0.386
0.2 - 0.4	4.3-4.5	402	0.386
0.4 - 0.6	4.5-4.7	402	0.386
		Total Volume of Floodwaters Displaced (m3)	1.16

Field 38		
Max Fluvial 'Design Flood' Level	4.865	mAOD
Lowest Ground Level	4.303	mAOD
Max Flood Depth	0.562	m

Array Type	**Number of Arrays**	**Number of Supports**
1P6@55DEG F TR ID1 PVBlock	63	189
1P12@55DEG F TR ID2 PVBlock	79	237
1P27@55DEG F TR ID4 PVBlock	78	468
1P54@55DEG F TR ID4 PVBlock	30	270
1P81@55DEG F TR ID4 PVBlock	91	1092
	Total	2256

Calculation Slice Meters Above Ground Level (0.2m increments) (m)	**Calculation Slice Height Above Ground Level (0.2m increments) (mAOD)**	**Number of Supports**	**Volume of Floodwaters Displaced per 0.2m Slice (m3)**
0.0 - 0.2	4.3-4.5	2256	2.166
0.2 - 0.4	4.5-4.7	2256	2.166
0.4 - 0.6	4.7-4.9	2256	2.166
		Total Volume of Floodwaters Displaced (m3)	6.50

Field 39		
Max Fluvial 'Design Flood' Level	4.645	mAOD
Lowest Ground Level	4.198	mAOD
Max Flood Depth	0.447	m

Array Type	**Number of Arrays**	**Number of Supports**
1P6@55DEG F TR ID1 PVBlock	26	78
1P12@55DEG F TR ID2 PVBlock	32	96
1P27@55DEG F TR ID4 PVBlock	23	138
1P54@55DEG F TR ID4 PVBlock	48	432
1P81@55DEG F TR ID4 PVBlock	72	864
	Total	1608

Calculation Slice Meters Above Ground Level (0.2m increments) (m)	**Calculation Slice Height Above Ground Level (0.2m increments) (mAOD)**	**Number of Supports**	**Volume of Floodwaters Displaced per 0.2m Slice (m3)**
0.0 - 0.2	4.1-4.3	1608	1.544
0.2 - 0.4	4.3-4.5	1608	1.544
0.4 - 0.6	4.5-4.7	1608	1.544
		Total Volume of Floodwaters Displaced (m3)	4.63

Field 40		
Max Fluvial 'Design Flood' Level	4.410	mAOD
Lowest Ground Level	4.236	mAOD
Max Flood Depth	0.174	m

Array Type	**Number of Arrays**	**Number of Supports**
1P6@55DEG F TR ID1 PVBlock	8	24
1P12@55DEG F TR ID2 PVBlock	6	18
1P27@55DEG F TR ID4 PVBlock	1	6
1P54@55DEG F TR ID4 PVBlock	9	81
1P81@55DEG F TR ID4 PVBlock	0	0
	Total	129

Calculation Slice Meters Above Ground Level (0.2m increments) (m)	**Calculation Slice Height Above Ground Level (0.2m increments) (mAOD)**	**Number of Supports**	**Volume of Floodwaters Displaced per 0.2m Slice (m3)**
0.0 - 0.2	4.1-4.3	129	0.124
0.2 - 0.4	4.3-4.5	129	0.124
		Total Volume of Floodwaters Displaced (m3)	0.25

Field 41		
Max Fluvial 'Design Flood' Level	4.410	mAOD
Lowest Ground Level	3.985	mAOD
Max Flood Depth	0.425	m

Array Type	**Number of Arrays**	**Number of Supports**
1P6@55DEG F TR ID1 PVBlock	26	78
1P12@55DEG F TR ID2 PVBlock	44	132
1P27@55DEG F TR ID4 PVBlock	58	348
1P54@55DEG F TR ID4 PVBlock	94	846
1P81@55DEG F TR ID4 PVBlock	0	0
	Total	1404

Calculation Slice Meters Above Ground Level (0.2m increments) (m)	**Calculation Slice Height Above Ground Level (0.2m increments) (mAOD)**	**Number of Supports**	**Volume of Floodwaters Displaced per 0.2m Slice (m3)**
0.0 - 0.2	3.9-4.1	1404	1.348
0.2 - 0.4	4.1-4.3	1404	1.348
0.4 - 0.6	4.3-4.5	1404	1.348
0.6 - 0.8	4.5-4.7	1404	1.348
		Total Volume of Floodwaters Displaced (m3)	5.39

Field 42		
Max Fluvial 'Design Flood' Level	4.380	mAOD
Lowest Ground Level	3.923	mAOD
Max Flood Depth	0.457	m

Array Type	**Number of Arrays**	**Number of Supports**
1P6@55DEG F TR ID1 PVBlock	79	237
1P12@55DEG F TR ID2 PVBlock	75	225
1P27@55DEG F TR ID4 PVBlock	69	414
1P54@55DEG F TR ID4 PVBlock	77	693
1P81@55DEG F TR ID4 PVBlock	79	948
	Total	2517

Calculation Slice Meters Above Ground Level (0.2m increments) (m)	**Calculation Slice Height Above Ground Level (0.2m increments) (mAOD)**	**Number of Supports**	**Volume of Floodwaters Displaced per 0.2m Slice (m3)**
0.0 - 0.2	3.9-4.1	2517	2.416
0.2 - 0.4	4.1-4.3	2517	2.416
0.4 - 0.6	4.3-4.5	2517	2.416
		Total Volume of Floodwaters Displaced (m3)	7.25

Field 43		
Max Fluvial 'Design Flood' Level	4.380	mAOD
Lowest Ground Level	4.332	mAOD
Max Flood Depth	0.048	m

Array Type	**Number of Arrays**	**Number of Supports**
1P6@55DEG F TR ID1 PVBlock	3	9
1P12@55DEG F TR ID2 PVBlock	7	21
1P27@55DEG F TR ID4 PVBlock	3	18
1P54@55DEG F TR ID4 PVBlock	1	9
1P81@55DEG F TR ID4 PVBlock	5	60
	Total	117

Calculation Slice Meters Above Ground Level (0.2m increments) (m)	**Calculation Slice Height Above Ground Level (0.2m increments) (mAOD)**	**Number of Supports**	**Volume of Floodwaters Displaced per 0.2m Slice (m3)**
0.0 - 0.2	4.3-4.5	117	0.112
		Total Volume of Floodwaters Displaced (m3)	0.11

Check number of Solar Arrays in flood risk area

Array Type	**Number of Arrays in Calculations**	**Number of Arrays from AutoCAD**
1P6@55DEG F TR ID1 PVBlock	291	291
1P12@55DEG F TR ID2 PVBlock	345	345
1P27@55DEG F TR ID4 PVBlock	313	313
1P54@55DEG F TR ID4 PVBlock	343	343
1P81@55DEG F TR ID4 PVBlock	312	312
Total	1604	1604

Check for Total Flood Volume Displaced

	Volume of Floodwaters Displaced per Field (m3)
Field 35	2.886
Field 36	4.539
Field 37	1.158
Field 38	6.497
Field 39	4.631
Field 40	0.248
Field 41	5.391
Field 42	7.249
Field 43	0.112
Total	32.711

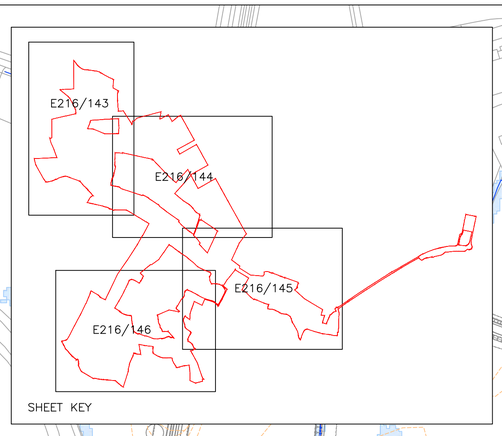
Summary	
Calculation Slice Height Above Ground Level (0.2m increments) (mAOD)	**Flood Volume Displaced (m3)**
3.7-3.9	1.135
3.9-4.1	4.899
4.1-4.3	7.914
4.3-4.5	10.192
4.5-4.7	6.405
4.7-4.9	2.166
Total	**32.711**

Operational area of the site affected by the fluvial design flood	
356963.50	m2
35.696	Ha

Note: Operational area = area within security fence

Change in flood level in operational area of the site (m)	
Flood Depth (m) = Flood Volume Displaced (m3) / Operational area of the site affected by the fluvial design flood (m2)	
0.00009164	m
0.09	mm

Appendix 21



N

PFA consulting

Stratton Park House, Wanborough Road
Swindon, SN3 4HG

Telephone
01793 828000

Website
www.pfaplc.com

For Planning
This drawing is produced for the purposes of supporting a planning application and should not be relied upon for tender, pricing, or construction purposes.

NOTES

1. Site Boundary based upon Order Limits Location Plan, Enso Energy Drawing No. DX-01-P01 Rev 11, dated 15/02/24.
2. Drawing based upon Parameter Plan, Enso Energy Drawing No. DX-01-P02 Rev 11, dated 15/04/24.
3. Flood risk data based on the results from the site-specific flood model produced by Aegaea. Details contained in Hydraulic Model Technical Note (Document Ref: AEG0851_YO8_EnsoEnergy_03 Rev A dated 16/05/24.
4. Drawing should be read in conjunction with Flood Risk Assessment produced by PFA Consulting (Document Ref; E216-DOC01-FRA-Issue 1, June 2024).
5. Low risk of surface water flooding is the extent of flooding from surface water that could result from a flood with a 0.1% chance of happening in any given year. Based on the Risk of Flooding from Surface Water (RoFSW) dataset.
6. Fluvial 'Design Flood' is the 1% AEP (1 in 100 RP) Fluvial Defended + Climate Change (Higher Central) flood event (Ref:AEG0851_ENSO_BAS_SCENA_Q0100_CC_HIGHER_051_d_Max-CLIPPED).
7. Fluvial 'Credible Maximum Scenario Sensitivity Test' 1% AEP (1 in 100 RP) Fluvial Defended + Climate Change (Upper End) flood event Ref: AEG0851_ENSO_BAS_SCENA_Q0100_CC_UPPER_051_d_Max-CLIPPED).
8. Environment Agency© copyright and/or database right 2015. All rights reserved.
9. Some features of this information are based on digital spatial data licensed from the Centre for Ecology & Hydrology ©NERC (CEH). Defra, Met Office and DARD Rivers Agency ©Crown copyright. © Cranfield University. ©James Hutton Institute. Contains OS data ©Crown copyright and database right 2015. Land & Property Services ©Crown copyright and database right.
10. Contains public sector information licensed under the Open Government Licence v3.0.
11. Contains OS data ©Crown copyright and database right 2022
12. Contains third party information.

Summary of Flood Mitigation Measures

The Proposed Development extends into areas of elevated flood risk from the fluvial 'design flood'. The Proposed Development would be designed to appropriately safe in the fluvial 'design flood' without increasing flood risk elsewhere. The Proposed Development would be designed to be resilient to the fluvial 'credible maximum scenario sensitivity test' flood event with the implementation of adaptation measures where necessary at the appropriate time.

The following design flood mitigation and adaptation measures are proposed:

- A flood warning and evacuation plan for the relevant phase of the Proposed Development would be contained in the detailed CEMP, OEMP or DEMP and the construction contractor and operating staff would register to receive flood alerts / warnings from the EA and follow site evacuation procedures during periods of elevated flood risk;
- During times of elevated tidal and fluvial flood risk the solar arrays within the areas of elevated flood risk would be rotated to the horizontal stow position which would be a minimum of a 0.3m above the fluvial 'design flood' level or the stow position set above the fluvial 'credible maximum scenario sensitivity test' level, whichever is greater;
- Panel supports and security fencing in flood risk areas would be securely piled into the ground and designed to allow for the effect of flowing water pressures and to be resistant to inundation during a flood event;
- Security fencing mesh size in flood risk areas (fluvial 'design flood') would be increased to 0.15m square to minimise the risk of it collecting debris;
- Ancillary control equipment will be preferentially located in areas of very low surface water flood risk and very low fluvial flood risk in the fluvial 'design flood' and in areas affected by flood depths <0.6m in the fluvial 'credible maximum scenario sensitivity test' flood event.
- Substation and BESS Compound will be preferentially located in areas of very low surface water flood risk and very low fluvial flood risk in the fluvial 'design flood'.
- The level of ancillary control equipment will be raised at least 0.3m (and up to 0.6m) above existing ground level to manage residual risk.
- As an adaptation measures the Substation and BESS Compound would be protected by a suitably designed earth flood defence bund. The height of the proposed earth flood defence bund would be raised at least +0.6m above the fluvial 'credible maximum scenario sensitivity test' flood level to protect the equipment from inundation;
- The Flood Management Strategy for the Site will keep under review the need to implement a level for level floodplain compensation scheme for the Substation and BESS Compound to mitigate the effect of the earth flood defence bund. A preliminary floodplain compensation scheme within the DCO limits has been shown to be feasible;
- Onsite watercourses are retained and existing watercourse crossings are utilised where possible within the Proposed Development;
- Where possible all development (including security fencing) is at least 7m from the onsite ordinary watercourses in accordance with Selby Area IDB byelaws. Additional consents may be required for watercourse crossings (site access or services) and landscape planting where this is not achieved.

Key

- Site Boundary
- Solar Farm Zone
- Substation and BESS Compound
- Watercourse
- Contours

Onsite Flood Hazards

- Low Risk Surface Water Flood Extents
- Fluvial 'Design Flood' Extents
- Flood Depths >0.6m Fluvial 'Credible Maximum Scenario Sensitivity Test'

NOTE: Ancillary control equipment will be preferentially located in areas of very low surface water flood risk and very low fluvial flood risk in the fluvial 'design flood' and in areas affected by flood depths <0.6m in the fluvial 'credible maximum scenario sensitivity test' flood event.

Rev	Date	Description	Drawn	Check
#	04/06/24	First Issue.	BF	SAM

Status
FOR PLANNING

Client
Enso Green Holdings D Ltd

Project
Helios Renewable Energy Project

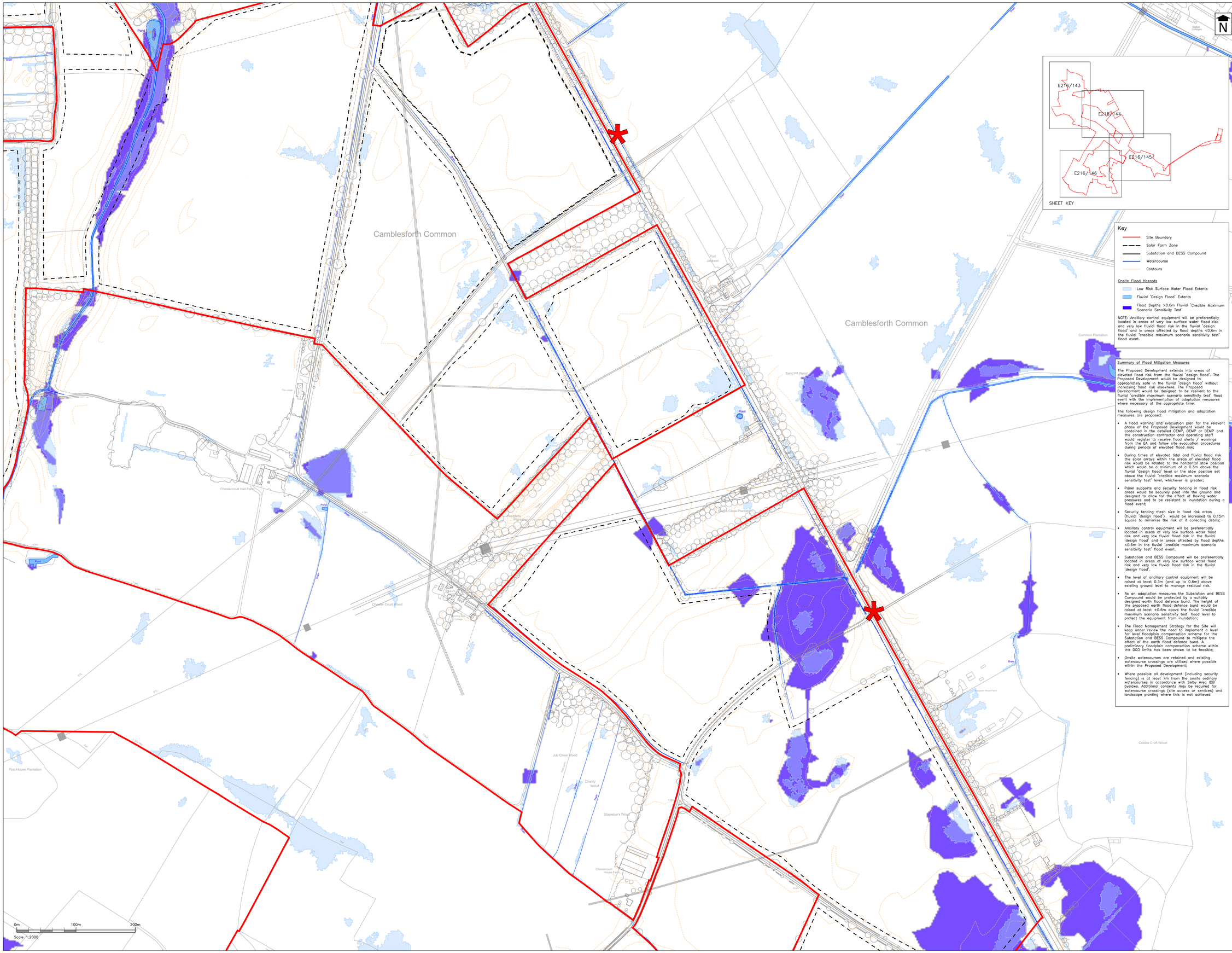
Drawing Title
Onsite Flood Hazards Sheet 1 of 4

Drawing No.
E216/143

Date: June 2024 | Scale: 1:2000 @ A0

E-Mail: bfox@pfaplc.com

0m 100m 200m
Scale 1:2000



SHEET KEY

Key

- Site Boundary
- Solar Farm Zone
- Substation and BESS Compound
- Watercourse
- Contours

Onsite Flood Hazards

- Low Risk Surface Water Flood Extents
- Fluvial 'Design Flood' Extents
- Flood Depths >0.6m Fluvial 'Credible Maximum Scenario Sensitivity Test'

NOTE: Ancillary control equipment will be preferentially located in areas of very low surface water flood risk and very low fluvial flood risk in the fluvial 'design flood' and in areas affected by flood depths <0.6m in the fluvial 'credible maximum scenario sensitivity test' flood event.

Summary of Flood Mitigation Measures

The Proposed Development extends into areas of elevated flood risk from the fluvial 'design flood'. The Proposed Development would be designed to appropriately safe in the fluvial 'design flood' without increasing flood risk elsewhere. The Proposed Development would be designed to be resilient to the fluvial 'credible maximum scenario sensitivity test' flood event with the implementation of adaptation measures where necessary at the appropriate time.

The following design flood mitigation and adaptation measures are proposed:

- A flood warning and evacuation plan for the relevant phase of the Proposed Development would be contained in the detailed CEMP, OEMP or DEMP and the construction contractor and operating staff would register to receive flood alerts / warnings from the EA and follow site evacuation procedures during periods of elevated flood risk;
- During times of elevated tidal and fluvial flood risk the solar arrays within the areas of elevated flood risk would be rotated to the horizontal stow position which would be a minimum of a 0.3m above the fluvial 'design flood' level or the stow position set above the fluvial 'credible maximum scenario sensitivity test' level, whichever is greater;
- Panel supports and security fencing in flood risk areas would be securely piled into the ground and designed to allow for the effect of flowing water pressures and to be resistant to inundation during a flood event;
- Security fencing mesh size in flood risk areas (fluvial 'design flood') would be increased to 0.15m square to minimise the risk of it collecting debris;
- Ancillary control equipment will be preferentially located in areas of very low surface water flood risk and very low fluvial flood risk in the fluvial 'design flood' and in areas affected by flood depths <0.6m in the fluvial 'credible maximum scenario sensitivity test' flood event.
- Substation and BESS Compound will be preferentially located in areas of very low surface water flood risk and very low fluvial flood risk in the fluvial 'design flood'.
- The level of ancillary control equipment will be raised at least 0.3m (and up to 0.6m) above existing ground level to manage residual risk.
- As an adaptation measures the Substation and BESS Compound would be protected by a suitably designed earth flood defence bund. The height of the proposed earth flood defence bund would be raised at least +0.6m above the fluvial 'credible maximum scenario sensitivity test' flood level to protect the equipment from inundation;
- The Flood Management Strategy for the Site will keep under review the need to implement a level for level floodplain compensation scheme for the Substation and BESS Compound to mitigate the effect of the earth flood defence bund. A preliminary floodplain compensation scheme within the DCO limits has been shown to be feasible;
- Onsite watercourses are retained and existing watercourse crossings are utilised where possible within the Proposed Development;
- Where possible all development (including security fencing) is at least 7m from the onsite ordinary watercourses in accordance with Selby Area IDB byelaws. Additional consents may be required for watercourse crossings (site access or services) and landscape planting where this is not achieved.

PFA consulting

Stratton Park House, Wanborough Road
Swindon, SN3 4HG

Telephone
01793 828000

Website
www.pfaplc.com

For Planning
This drawing is produced for the purposes of supporting a planning application and should not be relied upon for tender, pricing, or construction purposes.

NOTES

1. Site Boundary based upon Order Limits Location Plan, Enso Energy Drawing No. DX-01-P01 Rev 11, dated 15/02/24.
2. Drawing based upon Parameter Plan, Enso Energy Drawing No. DX-01-P02 Rev 11, dated 15/04/24.
3. Flood risk data based on the results from the site-specific flood model produced by Aegaea. Details contained in Hydraulic Model Technical Note (Document Ref: AEG0851_Y08_EnsoEnergy_03 Rev A dated 16/05/24.
4. Drawing should be read in conjunction with Flood Risk Assessment produced by PFA Consulting (Document Ref: E216-DOC01-FRA-Issue 1, June 2024).
5. Low risk of surface water flooding is the extent of flooding from surface water that could result from a flood with a 0.1% chance of happening in any given year. Based on the Risk of Flooding from Surface Water (RoFSW) dataset.
6. Fluvial 'Design Flood' is the 1% AEP (1 in 100 RP) Fluvial Defended + Climate Change (Higher Central) flood event (RefAEG0851_ENSO_BAS_SCENA_00100_CC_HIGHER_051_d_Max-CLIPPED).
7. Fluvial 'Credible Maximum Scenario Sensitivity Test' 1% AEP (1 in 100 RP) Fluvial Defended + Climate Change (Upper End) flood event Ref: AEG0851_ENSO_BAS_SCENA_00100_CC_UPPER_051_d_Max-CLIPPED).
8. Environment Agency© copyright and/or database right 2015. All rights reserved.
9. Some features of this information are based on digital spatial data licensed from the Centre for Ecology & Hydrology ©NERC (CEH). Defra, Met Office and DARD Rivers Agency ©Crown copyright. © Cranfield University. ©James Hutton Institute. Contains OS data ©Crown copyright and database right 2015. Land & Property Services ©Crown copyright and database right.
10. Contains public sector information licensed under the Open Government Licence v3.0.
11. Contains OS data ©Crown copyright and database right 2022
12. Contains third party information.

Rev	Date	Description	Drawn	Check
#	04/06/24	First Issue.	BF	SAM

Status
FOR PLANNING

Client
Enso Green Holdings D Ltd

Project
Helios Renewable Energy Project

Drawing Title
Onsite Flood Hazards Sheet 2 of 4

Drawing No.
E216/144

Date: June 2024 | Scale: 1:2000 @ A0

E-Mail: bfox@pfaplc.com