

Appendix 9-1: Flood Risk Assessment and Drainage Strategy Part 2 of 5

May-July 2025



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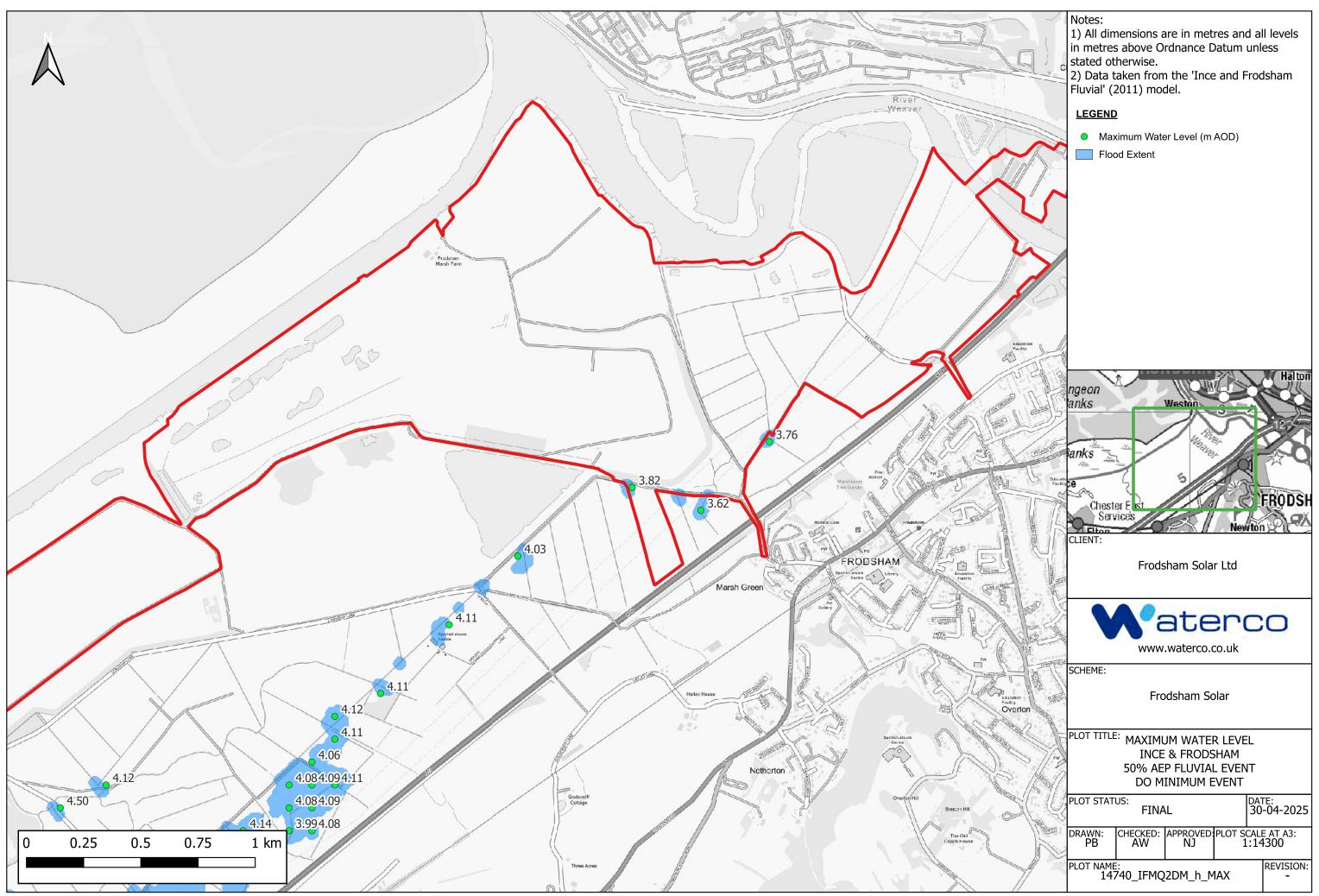
Planning Act 2008; and Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations Regulation 5(2)(e)

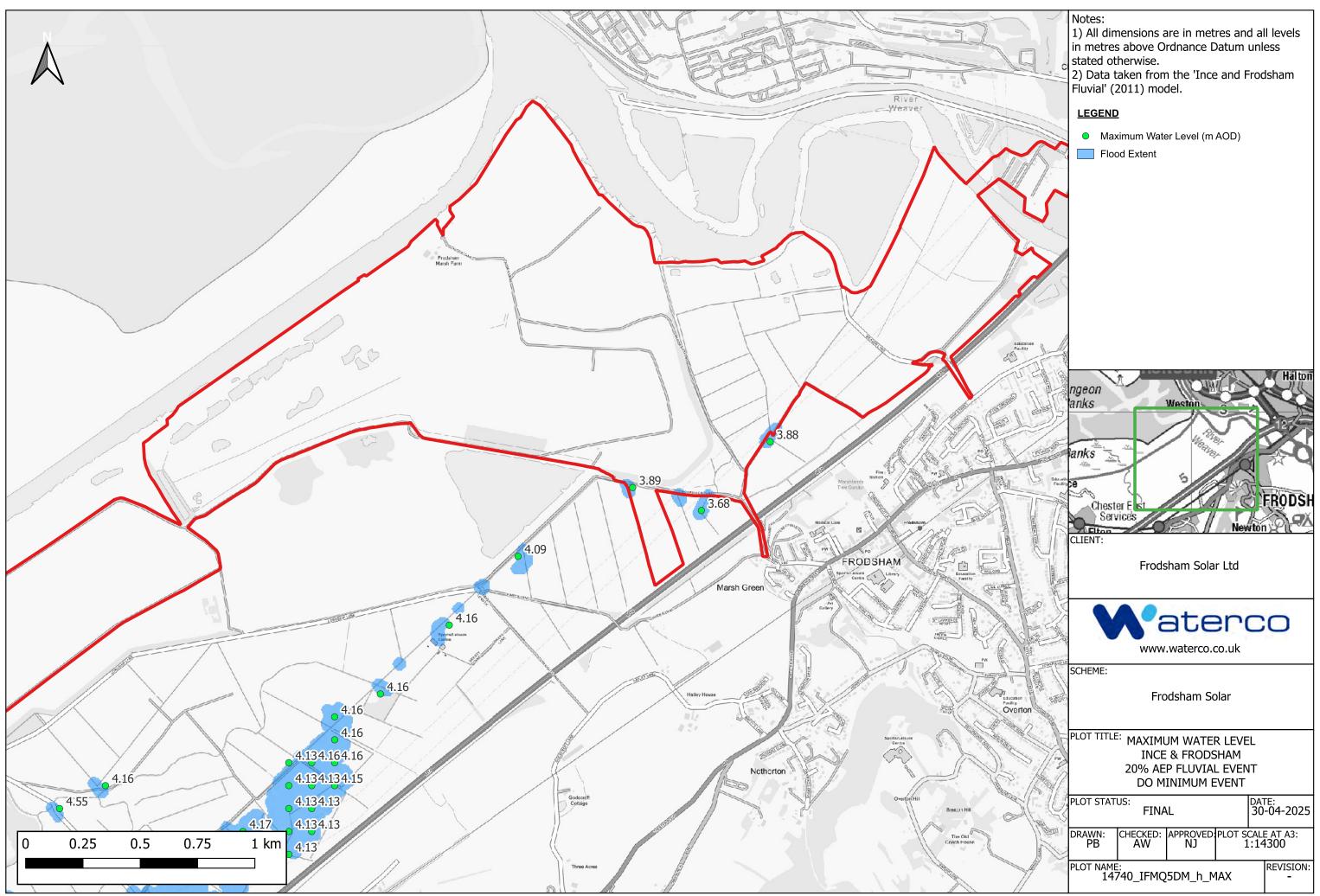
Appendix K Modelled Output Mapping

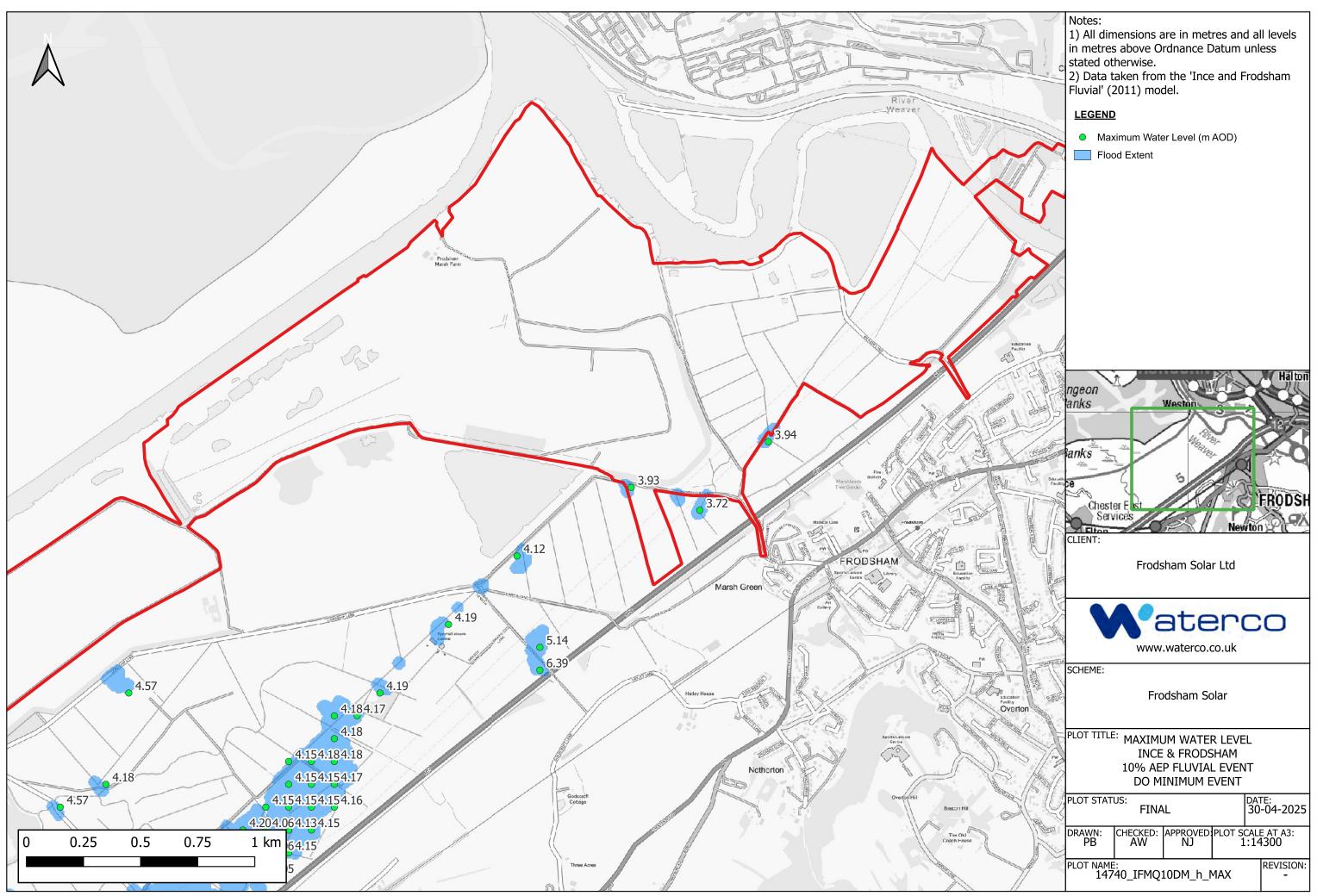


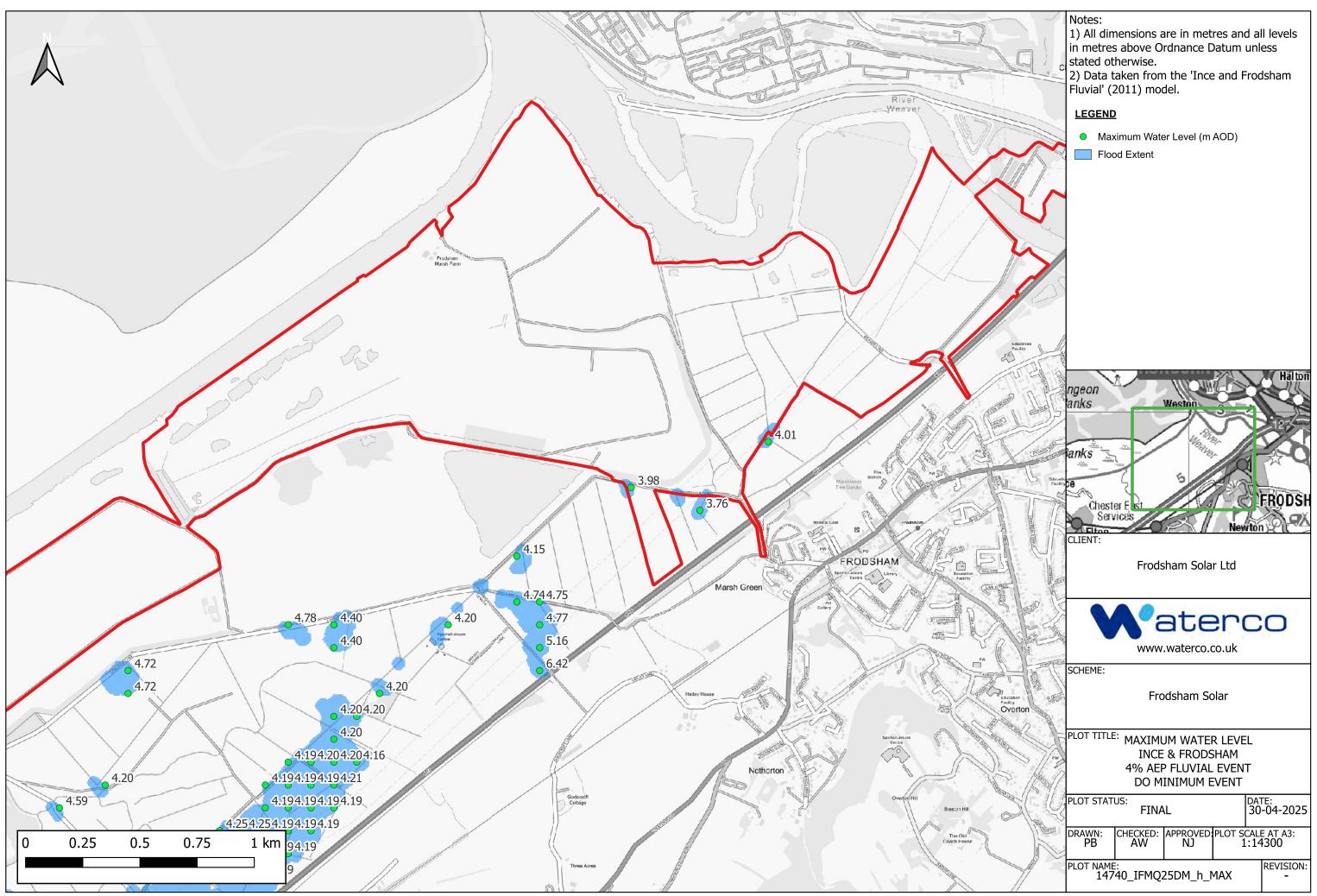
Ince and Frodsham

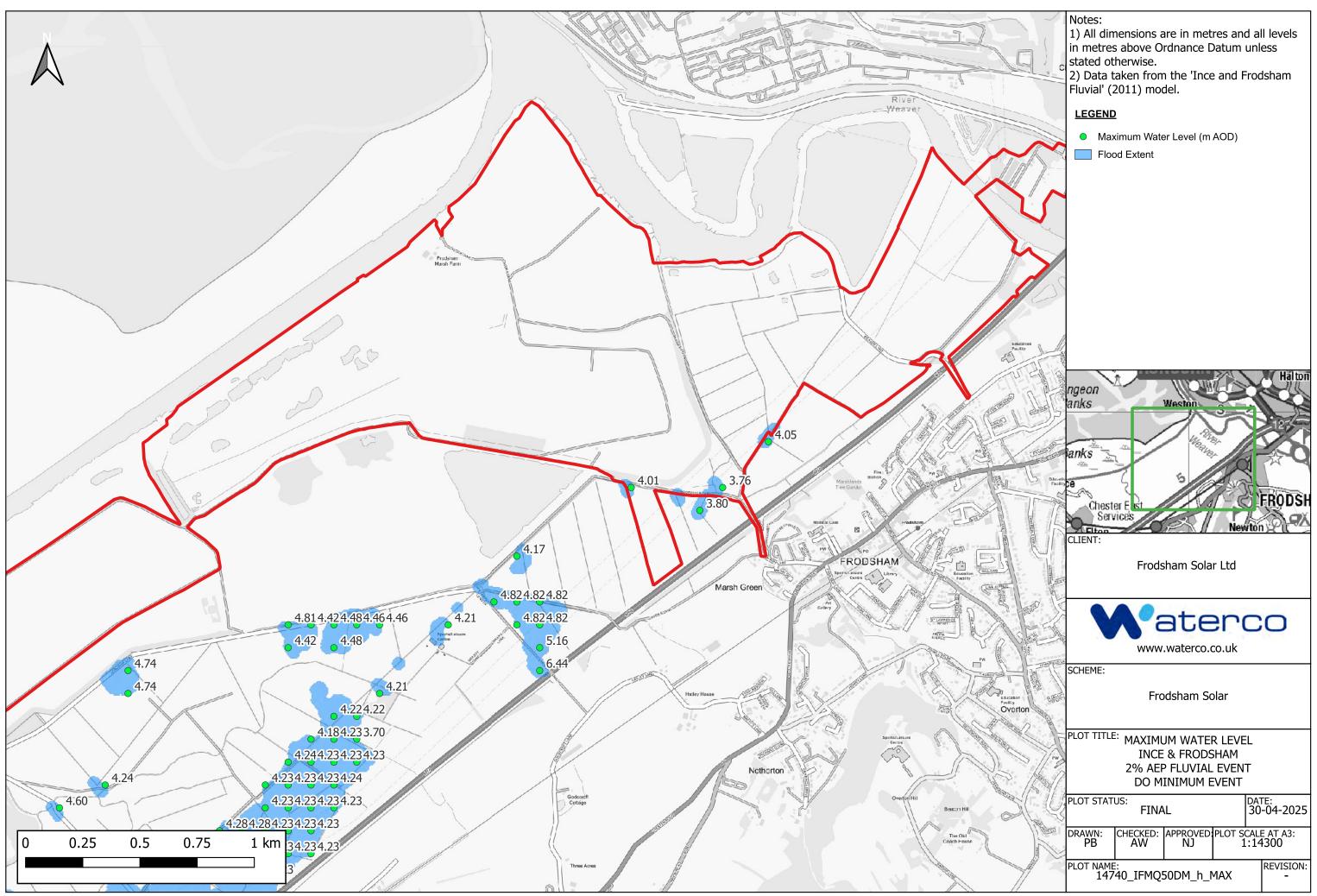


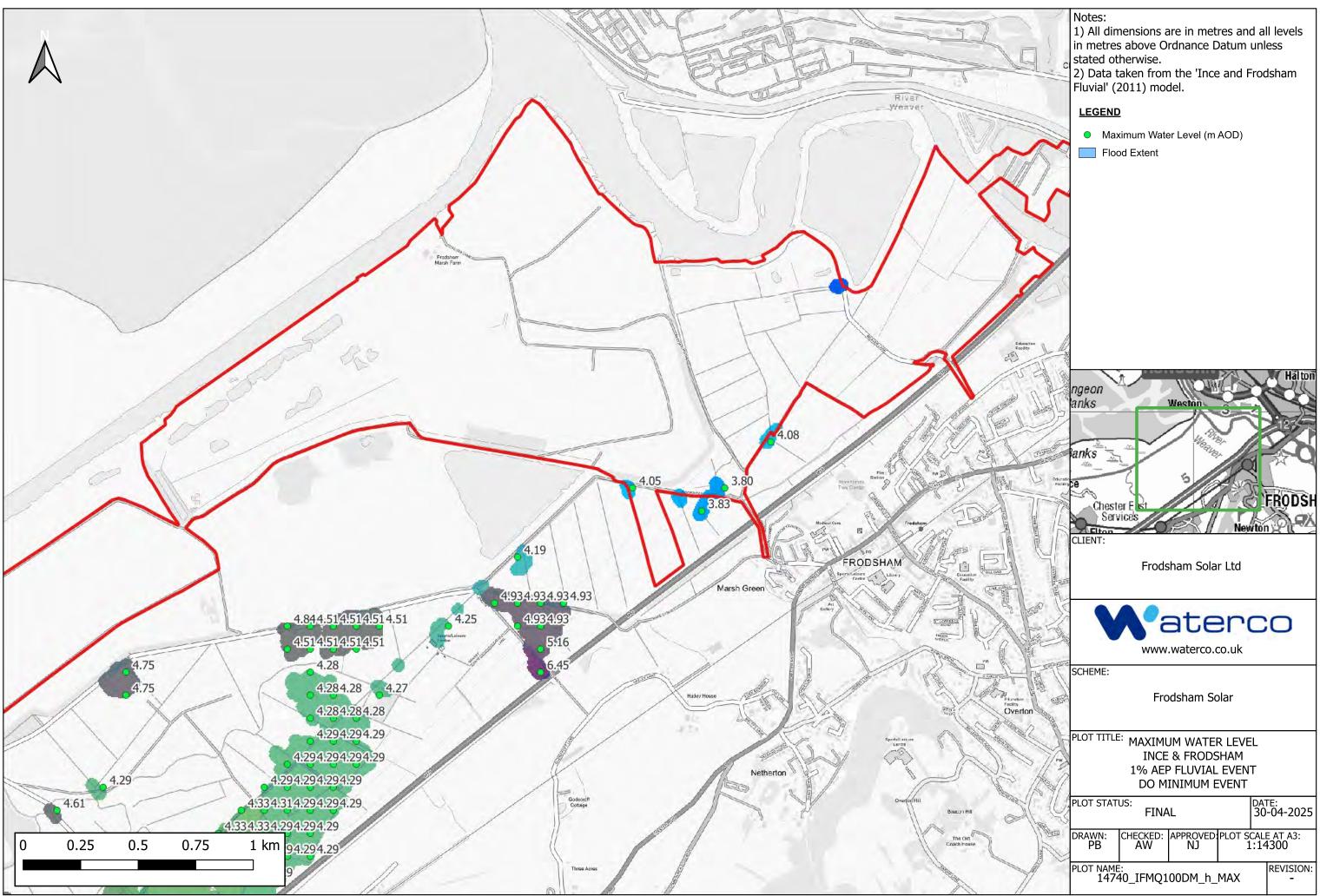












Manchester Ship Canal



29/09/23 GMMC328147JM

| | | | | | Normal Operation | | | | | | | | | Latchford 1 Gate | Latchford 3 Gates Closed | | | |
|---------------|-------------------------|---------|----------|-------------------------------|------------------------|-------------------------|------------------------|------------------------|---------------------------|-------------------------|--|--|--|---------------------------|----------------------------|-------------------------|-------------------------|----------------------------|
| Map Reference | Model Node Reference | Easting | Northing | Data | 20 % AEP (1 in 5 year) | 10 % AEP (1 in 10 year) | 4 % AEP (1 in 25 year) | 2 % AEP (1 in 50 year) | 1.33 % AEP (1 in 75 year) | 1 % AEP (1 in 100 year) | 1 % AEP (1 in 100 year) + 30% increase in flow | 1 % AEP (1 in 100 year) + 35% increase in flow | 1 % AEP (1 in 100 year) + 70% increase in flow | 0.5 % AEP (1 in 200 year) | 0.1 % AEP (1 in 1000 year) | 1 % AEP (1 in 100 year) | 1 % AEP (1 in 100 year) | 0.1 % AEP (1 in 1000 year) |
| 1 | ea013_0251_EAS_14123 | 348933 | 378712 | Modelled Water Level (m aodN) | 5.53 | 5.59 | 5.75 | 5.83 | 5.85 | 5.88 | 6.07 | 6.04 | 6.02 | 5.96 | 6.02 | 5.88 | 5.63 | 6.05 |
| | | | | Modelled Flow (cumecs) | 248.31 | 256.08 | 328.55 | 321.54 | 329.40 | 338.29 | 362.01 | 368.72 | 353.17 | 338.14 | 335.84 | 335.95 | 278.49 | 347.34 |
| 2 | ea013_0251_EAS_15648dj | 350026 | 379725 | Modelled Water Level (m aodN) | 5.52 | 5.58 | 5.74 | 5.82 | 5.84 | 5.87 | 6.06 | 6.04 | 6.02 | 5.95 | 6.01 | 5.87 | 5.62 | 6.04 |
| 2 | | | | Modelled Flow (cumecs) | 263.51 | 269.64 | 366.78 | 367.18 | 369.99 | 373.98 | 407.06 | 411.89 | 391.12 | 380.56 | 368.55 | 373.49 | 301.31 | 388.63 |
| 2 | ea013_0251_EAS_13087 | 348076 | 378116 | Modelled Water Level (m aodN) | 5.53 | 5.60 | 5.75 | 5.83 | 5.85 | 5.88 | 6.07 | 6.04 | 6.03 | 5.96 | 6.03 | 5.88 | 5.63 | 6.05 |
| 3 | | | | Modelled Flow (cumecs) | 237.76 | 238.51 | 298.92 | 294.36 | 305.02 | 308.74 | 331.34 | 342.12 | 327.25 | 308.70 | 309.30 | 311.89 | 261.69 | 317.77 |
| 1 | ea013_0251_WEAN01_0438u | 350491 | 379582 | Modelled Water Level (m aodN) | 5.52 | 5.59 | 5.74 | 5.83 | 5.84 | 5.88 | 6.07 | 6.04 | 6.03 | 5.95 | 6.03 | 5.88 | 5.63 | 6.05 |
| 4 | | | | Modelled Flow (cumecs) | 262.03 | 277.88 | 290.72 | 297.55 | 304.18 | 308.65 | 341.36 | 346.25 | 345.06 | 317.13 | 371.23 | 308.50 | 308.26 | 393.37 |
| 5 | ea013_0251_EAS_16247 | 349758 | 380543 | Modelled Water Level (m aodN) | 5.52 | 5.58 | 5.74 | 5.83 | 5.84 | 5.88 | 6.08 | 6.05 | 6.05 | 5.96 | 6.05 | 5.88 | 5.62 | 6.05 |
| | | | | Modelled Flow (cumecs) | 581.69 | 623.85 | 632.35 | 656.08 | 671.68 | 683.70 | 710.76 | 704.05 | 705.12 | 702.72 | 704.86 | 608.08 | 454.13 | 579.97 |
| 6 | ea013_0251_EAS_15035 | 349666 | 379238 | Modelled Water Level (m aodN) | 5.52 | 5.59 | 5.74 | 5.82 | 5.84 | 5.87 | 6.06 | 6.03 | 6.01 | 5.95 | 6.02 | 5.87 | 5.62 | 6.04 |
| | | | | Modelled Flow (cumecs) | 257.30 | 262.61 | 351.98 | 350.08 | 353.50 | 359.80 | 388.06 | 394.40 | 376.91 | 362.00 | 355.63 | 357.09 | 291.96 | 370.44 |
| 7 | ea013_0251_EAS_15648uj | 350161 | 380006 | Modelled Water Level (m aodN) | 5.52 | 5.58 | 5.74 | 5.82 | 5.84 | 5.87 | 6.06 | 6.04 | 6.02 | 5.95 | 6.01 | 5.87 | 5.62 | 6.04 |
| , | | | | Modelled Flow (cumecs) | 270.63 | 324.52 | 364.64 | 373.43 | 407.96 | 436.14 | 458.73 | 453.58 | 426.41 | 449.49 | 422.05 | 373.75 | 229.92 | 301.92 |

Model data taken from Manchester Ship Canal 2018

AEP - Annual Exceedence Probability

m aodN - metres above ordnance datum Newlyn

cumecs - cubic metres per second

*Climate Change Scenario - 30%, 35% and 70% increases in flow calculated for the 2080's (2070 - 2115). Please see https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances for more information regarding the new climate change guidance. The location of the site and the type (vulnerability) of development determine the climate change allowances to consider in any flood risk assessment.

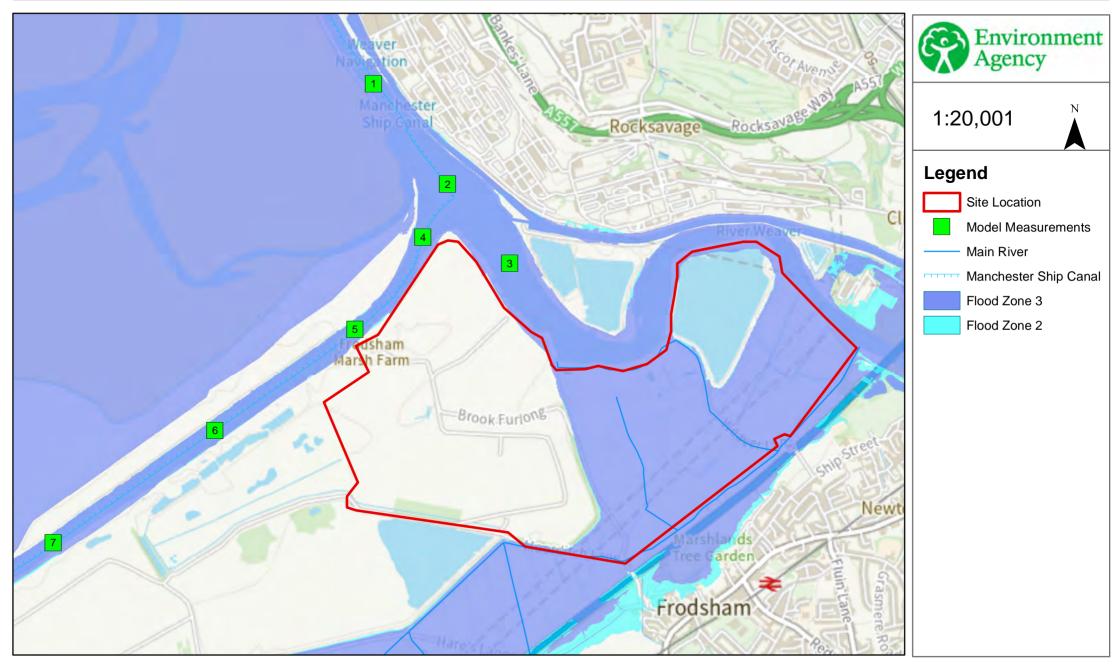
For the Manchester Ship Canal Model, we provide the following three scenarios:

1. Normal Operation: All sluice gates operate automatically to maintain a navigable pounded water level upstream of each set of sluice gates. During times of high flow the gates are opened automatically to allow excess water pass downstream. During extreme conditions the sluice gates can be manually overridden to extend the opening heights.

2. Latchford 1 Gate Closed Scenario: This scenario represents a single operational sluice gate at Latchford Locks fixed in the closed position.

3. Latchford 3 Gates Closed Scenario: This scenario has been defined as the removal of operational rules at all three sluice gates at Latchford Locks, thus, all gates are fixed in the closed position resulting in no regulation of upstream water levels. The model setup removes each of the gates from PID controller setup and an IED file is used to define sluice gates fixed in the closed position.

Detailed Flood Map Centred on Land adjacent to M56, Frodsham, WA6 7BQ. Created 29/09/2023 [GMMC328147JM]



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River Weaver



