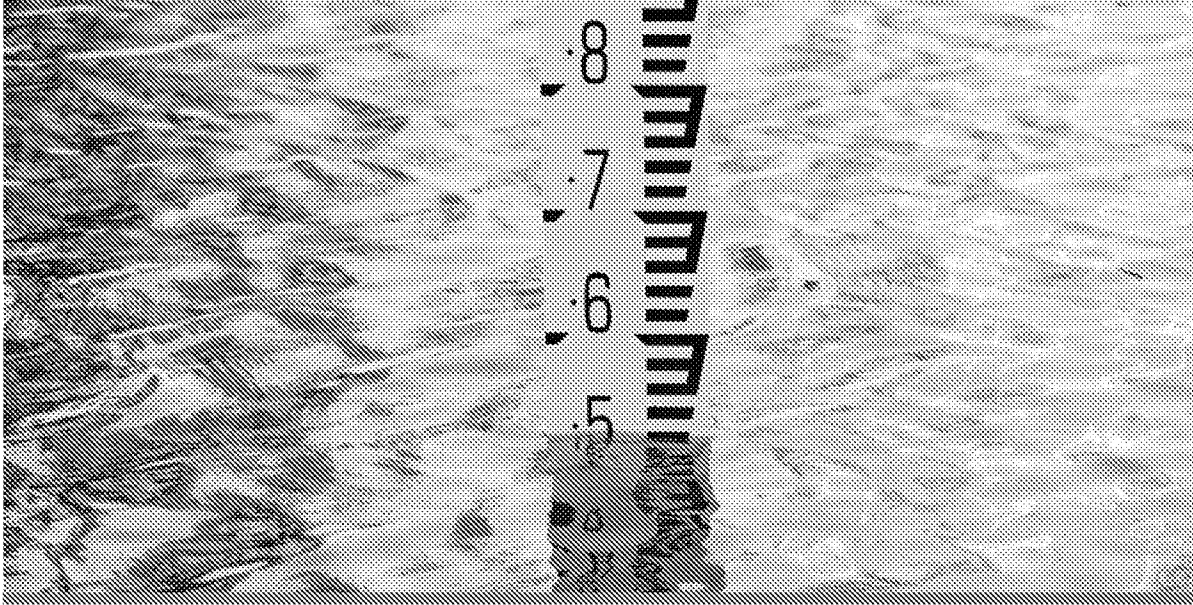




Flood Risk Assessment

1 Lineside Way, Wick, Littlehampton BN17 7EH

Client

Finecast Foundry Ltd
Unit 1 Lineside Way
Lineside Industrial Estate
Littlehampton BN17 7EH
Ref: 5168
Date: October 2017

Consulting Engineers

GTA Civils Ltd
Gloucester House
66a Church Walk
Burgess Hill
West Sussex RH15 9AS

Index

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2	Existing Site and Current Flood Conditions	3
3	Proposed Development & Flood Mitigation	5
4	Conclusion	6

Schedule of Appendices

- A Site Location Plan & Aerial View
- B Environment Agency Flood Data
- C Architect's Scheme Drawings
- D Micro Drainage Calculation
- E Flood Warning and Evacuation Plan

Issue	Issue date	Compiled	Checked
First Issue	26 November '13	CJ/JP	MR
Second Issue	20 October 2017	JP	MR

Report by: Catherine Jenkins BEng, MSc / John Pakenham BSc (Hons)

Checked by: Martin Roberts I Eng, ACIEM, MCIHT

1 Introduction

- 1.1 GTA Civils Ltd. was appointed by Finecast Foundry Ltd to provide a Flood Risk Assessment (FRA) to accompany the planning application as requested by Arun District Council, in order to achieve Planning Permission for the development of the property at 1 Lineside Way, Wick, Littlehampton BN17 7EH.
- 1.2 This report has been prepared for Finecast Foundry Ltd in relation to the proposed development at the above address and no responsibility is accepted to any third party for all or part of this study in connection with this or any other development.
- 1.3 This report will take the form of a formal Flood Risk Assessment in accordance with the 2012 National Planning Policy Framework (NPPF), the associated Technical Guidance document and the Practice Guide associated with PPS25. Although PPS25 has been superseded by the NPPF the associated Practice Guide provides much relevant guidance. The new guidance in the NPPF, although shorter, does not seek to overhaul the previous policy approach.

2 Existing Site and Current Flood Conditions

- 2.1 The application site is a factory building owned by Finecast Foundry Ltd, accessed from Lineside Way, Littlehampton. This area is administered by Arun District Council. The unit's use is industrial (B2), whose footprint area is 815m² on a site area of 0.35ha approximately. A site location map and aerial views are shown in Appendix A.
- 2.2 The application site lies approximately 460m east of the River Arun and 250m northeast of an unnamed stream (marked as a surface water drain on the OS map but designated as a main river by the EA). This discharges into the River Arun some 535m to the southwest of the site. The stream can be seen in the EA flood map in Appendix B.
- 2.3 The EA's flood map in Appendix B indicates that the site is in Flood Zone 3 (FZ3) at a high probability (0.5%) of tidal flooding from the River Arun. The site benefits from flood defences by way of a raised defence along the River Arun and a culverted channel drain. The standard of the defence is such that the site is not protected up to the '1 in 200 years + climate change' (0.5% +CC) level.
- 2.4 2D Modelling was carried out by the EA to examine the extent of flooding in two scenarios: defended and undefended from the flood source at various nodal points on the site. The EA's model data (see Appendix B) shows the flood depths at nodes closest to the site during a predicted storm event that takes place once every 200 years plus the predicted effects of climate change over the next 60 years (or 0.5% annual probability in 2073). For this storm event, the maximum undefended flood depth (at node #2) is 1.50m, and the defended flood depth is 1.20m. This means that, were the defences to fail, the *maximum* depth at this node would be 1.50m, possibly as low as 1.20m.
- 2.5 Historical flooding: There are no records of this site flooding according to the Arun District Council Strategic Flood Risk Assessment (SFRA) and the EA.
- 2.6 The bedrock geology of the site is made up of Lewes Nodular Chalk Formation, Seaford Chalk Formation, Newhaven Chalk Formation and Culver Chalk Formation. The superficial deposits are Raised Beach Deposits (Sand and Gravel). The EA's Groundwater Vulnerability Zone map (Appendix B) shows the site to be lying on a 'Major High Aquifer'. The soil is likely to be porous and infiltration methods for discharging surface water feasible.
- 2.7 There is no topographical survey for the site. It is not deemed to be necessary for this FRA as the EA's data-pack has supplied the predicted depths.

- 2.8 This unit's current use is B2. An industrial unit is classified as 'less vulnerable' and is considered appropriate for development in FZ3 according to the NPPF. Below is an Extract of Table 3 of the NPPF which confirms this:

Table 3: Flood risk vulnerability and flood zone 'compatibility'

Flood risk vulnerability classification (see table 2)		Essential infrastructure	Water compatible	Highly vulnerable	More vulnerable	Less vulnerable
Flood zone (see table 1)	Zone 1	✓	✓	✓	✓	✓
	Zone 2	✓	✓	Exception Test required	✓	✓
	Zone 3a	Exception Test required	✓	✗	Exception Test required	⊙
	Zone 3b functional floodplain	Exception Test required	✓	✗	✗	✗

Key: ✓ Development is appropriate.
 ✗ Development should not be permitted.

Proposed Development & Surface Water Drainage Strategy

- 3.1 The proposal is to extend the existing unit by approximately 525m², this being the nett increase in roofed area. The proposed plans are shown in Appendix C. The floor level will extend through at the current level over an area of existing hardstanding to the north of the unit.
- 3.2 Due to the large area being extended and the favourable geology of the site, a soakaway would be a sustainable drainage system. There is space for the soakaway at the southeast corner of the site on grassed area approximately 500m², downhill from the extension - see Appendix C. The surface water drainage system already in place for the existing building will remain and a new soakaway will serve the extended area only.
- 3.3 Micro Drainage: For an area of 525m², the soakaway has been designed as 3m x 12m x 0.8m deep, with a maximum flood depth of 0.807m, an estimated cover level of 5m AOD, and an assumed infiltration rate to the base and sides of 0.18m/hr. This holds the volume of the critical '1 in 100 years plus 40% climate change' storm event and so complies with the NPPG/ NPPF. Refer to Appendix E for the calculation sheets.
- 3.4 Treatment: the surface water from the roof will be routed via a 2m wide filter strip prior to it entering the soakaway structure. No additional surface water will be generated from external hardstandings.
- 3.5 The soakaway's calculation must be re-worked prior to finalising the scheme's design, once the soil's actual soakage rate has been determined. This shall be done by carrying out a soakage test in accordance with BRE Digest 365.

4 Flood Risk Mitigation & Conclusion

- 4.1 The site has a 0.5% probability of tidal flooding at a maximum depth of 1.50m, which would be life threatening, ie unduly hazardous at the peak of the flooding. There will be no safe access to dry land, ie flood zone 1. It is therefore best to travel as early as possible before the extreme extent of the flooding occurs northwards away from the coast and the River Arun.
- 4.2 It is proposed to offset this risk by two separate mitigation measures. Resilient materials and techniques will be incorporated into the design of the building. There will be waterproof flooring in the form of solid concrete and the walls will be of steel cladding.
- 4.3 The site shall draw up and implement a Flood Warning and Evacuation Plan, containing items such as the evacuation route and an explanation of the EA's flood warning service. See Appendix E for details of a standard industrial Plan.
- 4.4 Flood Warning and Evacuation: Due to the residual risks associated with a breach of the defences along the River Arun, it is recommended that Finecast Foundry Ltd registers with the free flood warning service provided by the Environment Agency (called 'Floodline'), in order to facilitate evacuation of the premises prior to floodwaters surrounding the site.
- 4.5 The (or a designated member of staff) should monitor any other developments as regards broadcast information. The TV news channels and local radio stations will augment the EA's warnings in their

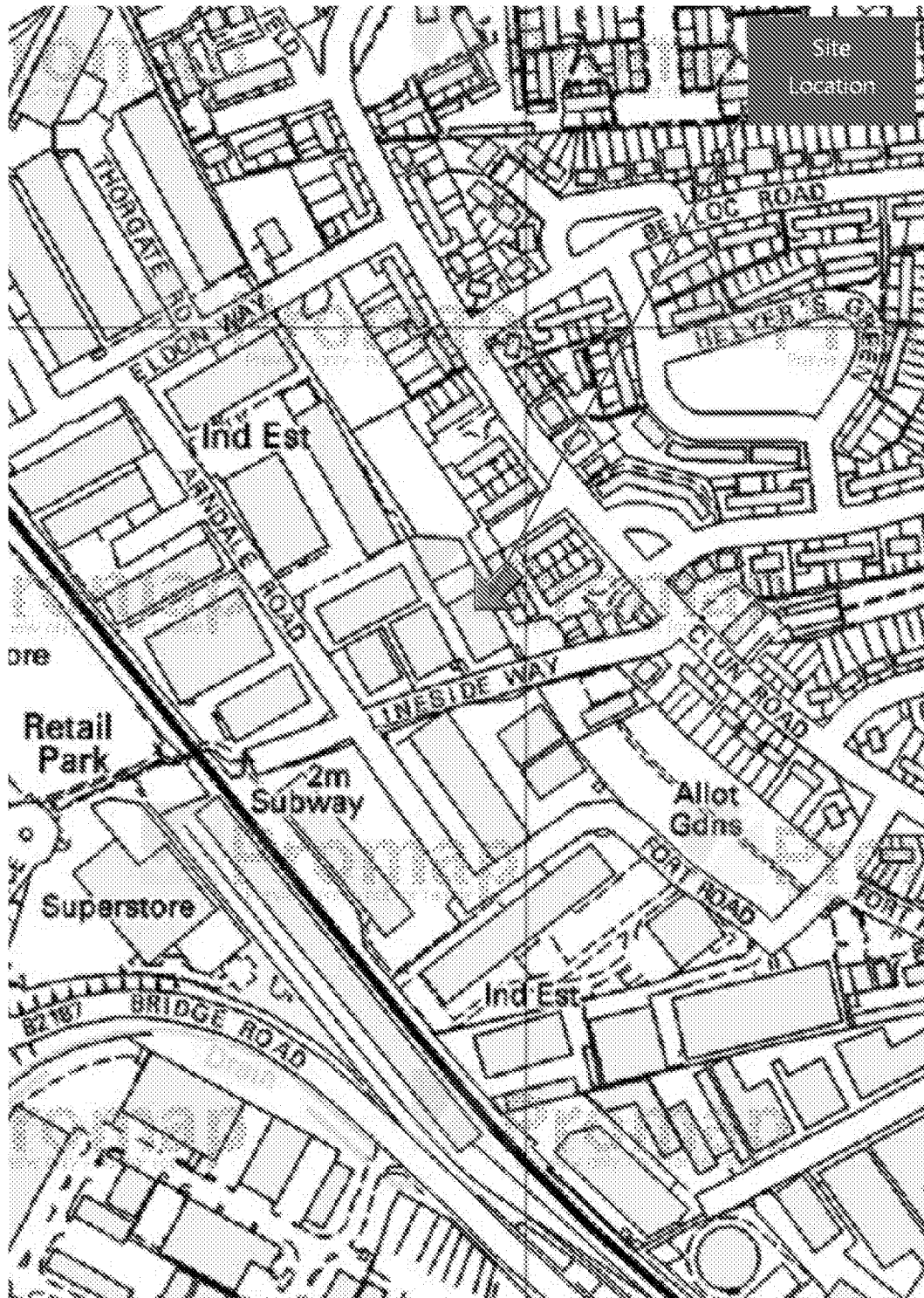
bulletins. There may be Local Authority Emergency Planning Department vehicles fitted with public address systems (loud hailers) issuing directions from the street.

- 4.6 It should also be noted that prior evacuation will not be possible if the site becomes rapidly inundated following a breach. The plan should also give details of a safe place of refuge above the predicted breach flood level (i.e. at first floor level) where employees can await rescue by the emergency services.
- 4.7 All staff members should be made familiar with the plan's contents that apply to them and what is expected of them.
- 4.8 The will switch off the building's electricity prior to evacuation/flooding.
- 4.9 Once these mitigation measures and soakaway are in place, the flood risk profile – both of this unit and of neighbouring sites - will be either reduced or at least not increased. It is therefore concluded that this development complies fully with the 2012 NPPF and 2015 NPPG.

- End of Report -

Appendix A

Site Location Map & Aerial Photo





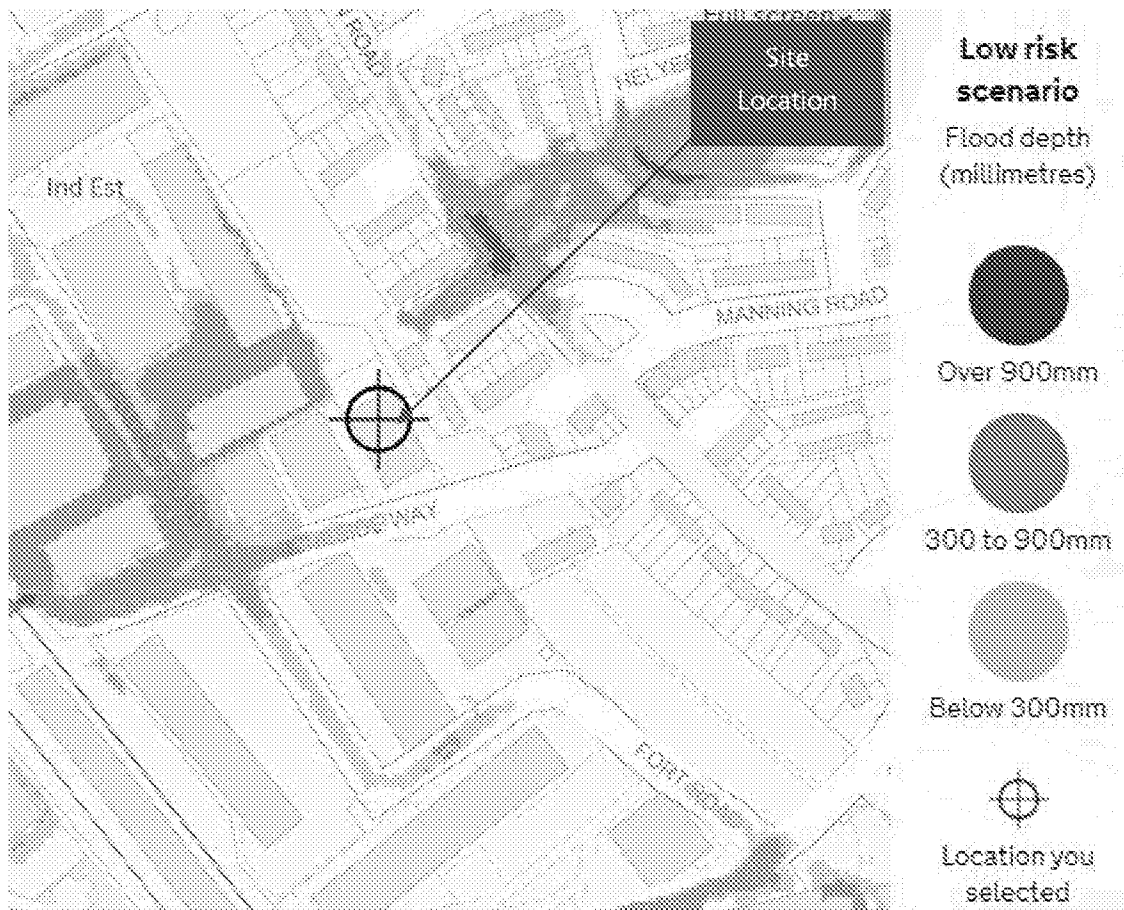
Appendix B

Environment Agency Flood Data



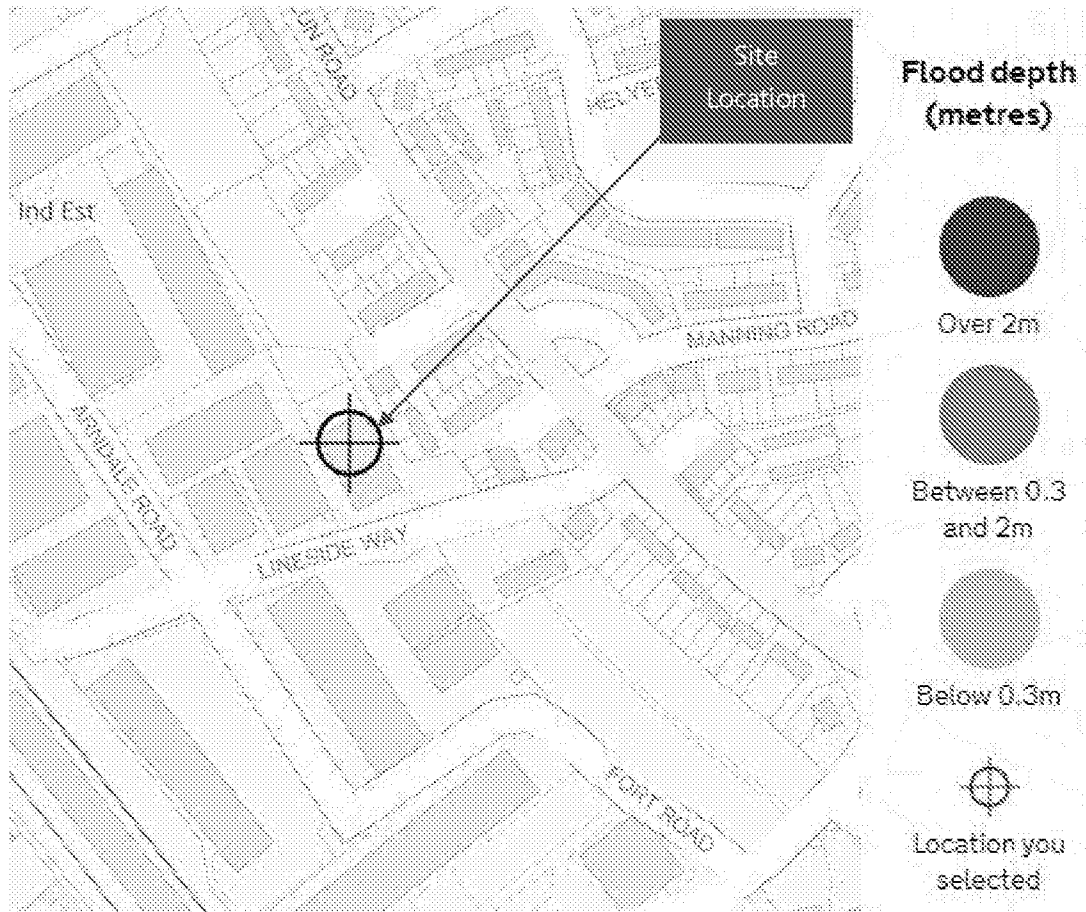
EA's Online Flood Map for Planning (Rivers and Seas)

The site is in tidal Flood Zone 3A



EA's Online Surface Water Flood Depth Map in the 'Low Risk Scenario'
(1 in 1000 years storm event)

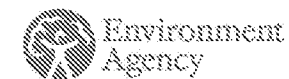
The site is clear of flooding in this extreme event



EA's Online 'Risk of Flooding from Reservoirs' Map

The site is removed from this source of flooding

Flood Map for Planning (Rivers and Sea). Centred on BN17 7EH. Created 12/10/17.



Scale 1: 10,000



Flood Map for Planning (Rivers & Sea)

- Sealed Main Rivers
- Defences
- Flood Storage Areas
- Areas benefiting from flood defences
- Flood Zone 3
- Flood Zone 2

Flood Map Areas (assuming no defences)

Flood Zone 3 shows the area that could be affected by flooding:

- from the sea with a 1 in 200 or greater chance of happening each year
- or from a river with a 1 in 100 or greater chance of happening each year.

Flood Zone 2 shows the extent of an extreme flood from rivers or the sea with up to a 1 in 1000 chance of occurring each year.

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Contact Us: National Customer Contact Centre, PO Box 544, Rotherham, S60 1BY. Tel: 03708 506 506 (Mon-Fri 8-6). Email: enquiries@environment-agency.gov.uk

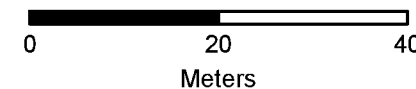
FRA Site Boundary & Node Points Map. Centred BN17 7EH. Created 12/10/2017.



Legend

-  Site Boundary
-  Site Nodes

Scale: 1:800



Product 4 Flood Risk Data Requested by: GTA Civils Ltd

Site: Finecast, 1 Lineside Way, Wick, Littlehampton BN17 7EH

Table 1: Water Levels: Tidal Undefended

Node Reference	NGR		Modelled Flood Levels in Metres				
	Eastings	Northings	Undefended Annual Exceedance Probability				
			5%	0.5%	0.5% (2070)	0.5% (2115)	0.1%
1	501972	102846	N/A	N/A	N/A	4.25	N/A
2	501960	102837	N/A	N/A	N/A	4.25	N/A
3	501973	102831	N/A	N/A	N/A	4.25	N/A
4	501986	102820	N/A	N/A	N/A	4.25	N/A
5	501975	102817	N/A	N/A	N/A	4.25	N/A

Table 2: Water Levels: Tidal Defended

Node Reference	NGR		Modelled Flood Levels in Metres				
	Eastings	Northings	Defended Annual Exceedance Probability				
			5%	0.5%	0.5% (2070)	0.5% (2115)	0.1%
1	501972	102846	N/A	N/A	N/A	3.95	N/A
2	501960	102837	N/A	N/A	N/A	3.95	N/A
3	501973	102831	N/A	N/A	N/A	3.95	N/A
4	501986	102820	N/A	N/A	N/A	3.95	N/A
5	501975	102817	N/A	N/A	N/A	3.95	N/A

Table 3: Water Depth: Tidal Undefended

Node Reference	NGR		Modelled Flood Depth in Metres				
	Eastings	Northings	Undefended Annual Exceedance Probability				
			5%	0.5%	0.5% (2070)	0.5% (2115)	0.1%
1	501972	102846	N/A	N/A	N/A	1.28	N/A
2	501960	102837	N/A	N/A	N/A	1.50	N/A
3	501973	102831	N/A	N/A	N/A	1.34	N/A
4	501986	102820	N/A	N/A	N/A	1.31	N/A
5	501975	102817	N/A	N/A	N/A	1.32	N/A

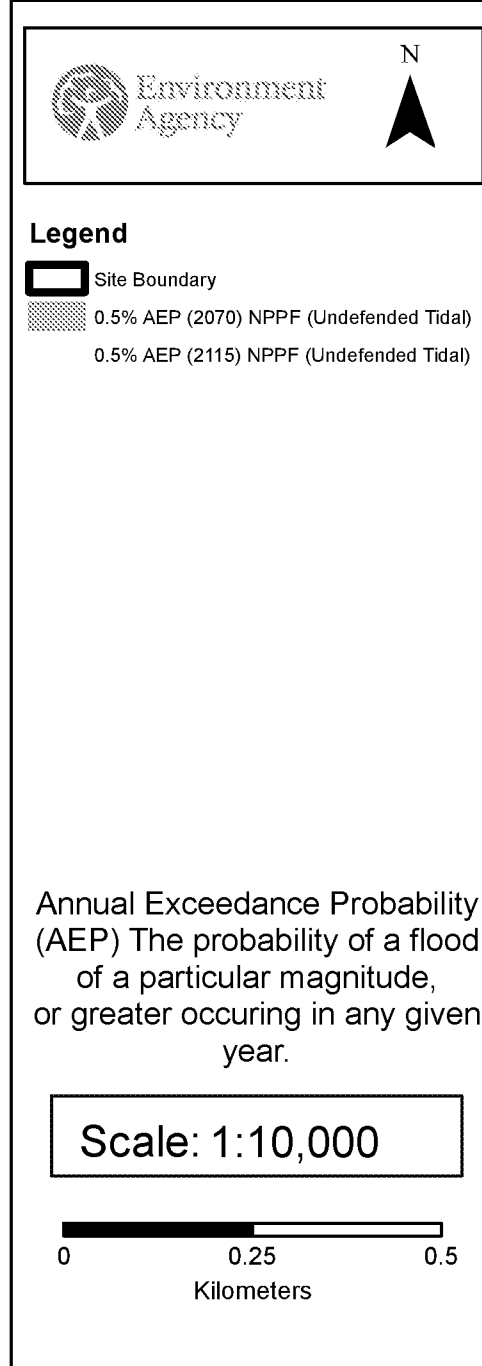
Table 4: Water Depth: Tidal Defended

Node Reference	NGR		Modelled Flood Depth in Metres				
			Defended Annual Exceedance Probability				
	Eastings	Northings	5%	0.5%	0.5% (2070)	0.5% (2115)	0.1%
1	501972	102846	N/A	N/A	N/A	0.99	N/A
2	501960	102837	N/A	N/A	N/A	1.20	N/A
3	501973	102831	N/A	N/A	N/A	1.04	N/A
4	501986	102820	N/A	N/A	N/A	1.01	N/A
5	501975	102817	N/A	N/A	N/A	1.02	N/A

All levels taken from: River Arun to East Head Model

There is no additional information or health warnings for these levels/depths or the model from which they have been produced.

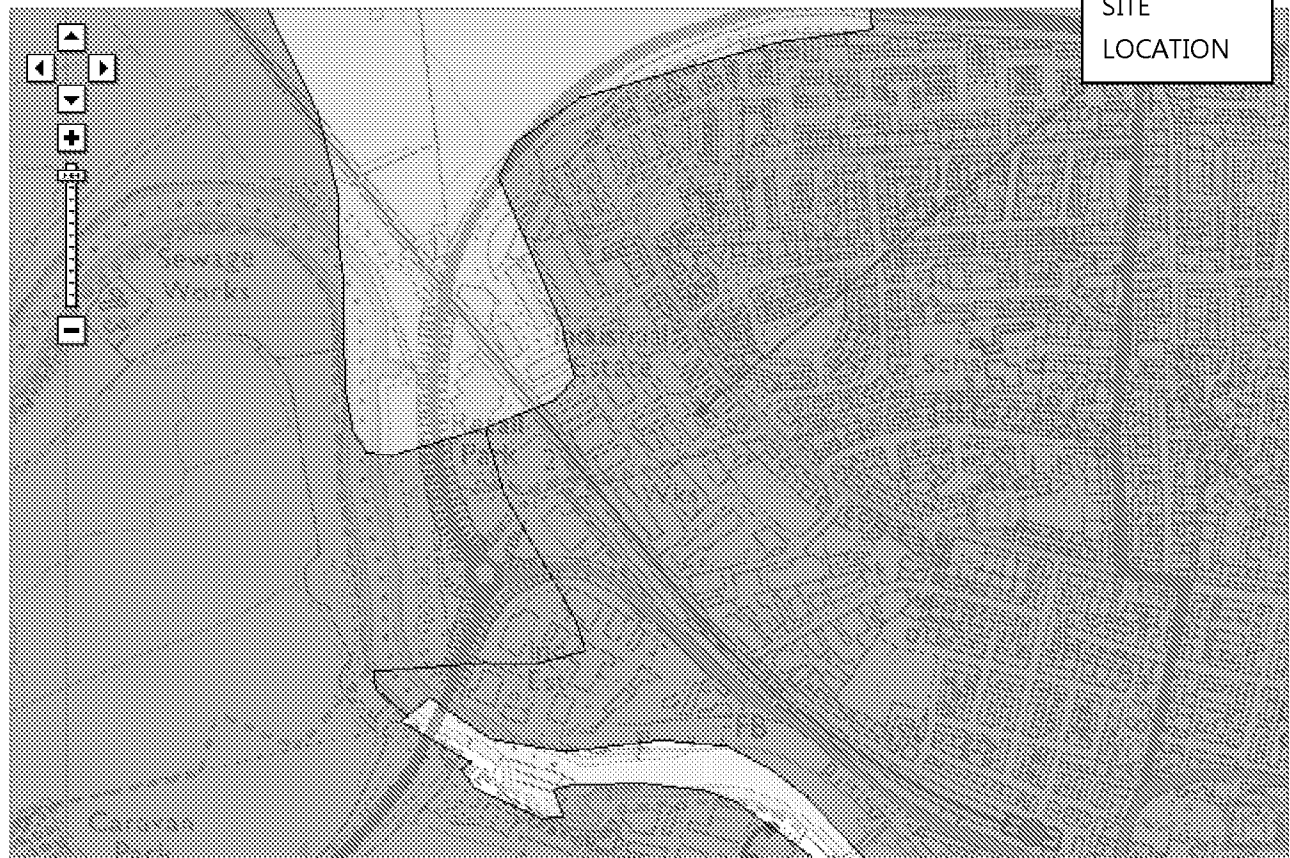
Produced on: 13/10/17



Map of BN17 7EH at scale 1:10,000

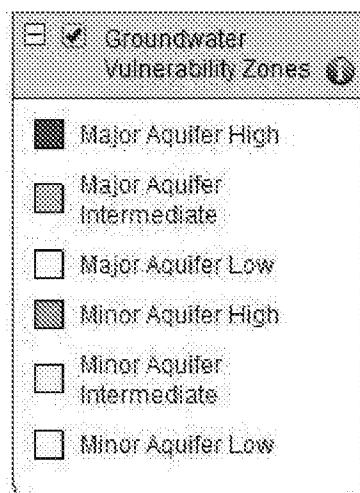
Data search

SITE
LOCATION



Customers in Wales - From 1 April 2013 Natural Resources Wales (NRW) will take over the responsibilities of the Environment Agency in Wales.
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Environment Agency's Online Groundwater Vulnerability Zones Map

The site lies over a 'Major Aquifer High'

Appendix C

Architect's Scheme Drawings



Site Plan - Scale 1:500



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Location Plan - Scale 1:1250

Planning Issue

A	Dimensions to boundaries added.	21/8/13
Rev	Change	Date



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West Sussex BN11 1QP
T: 01903 236599
F: 01903 208973
E: admin@marshallclark.co.uk
www.marshallclark.co.uk

Site: Finecast Foundry
1 Lineside Way,
Wick,
Littlehampton,
West Sussex,
BN17 7EH

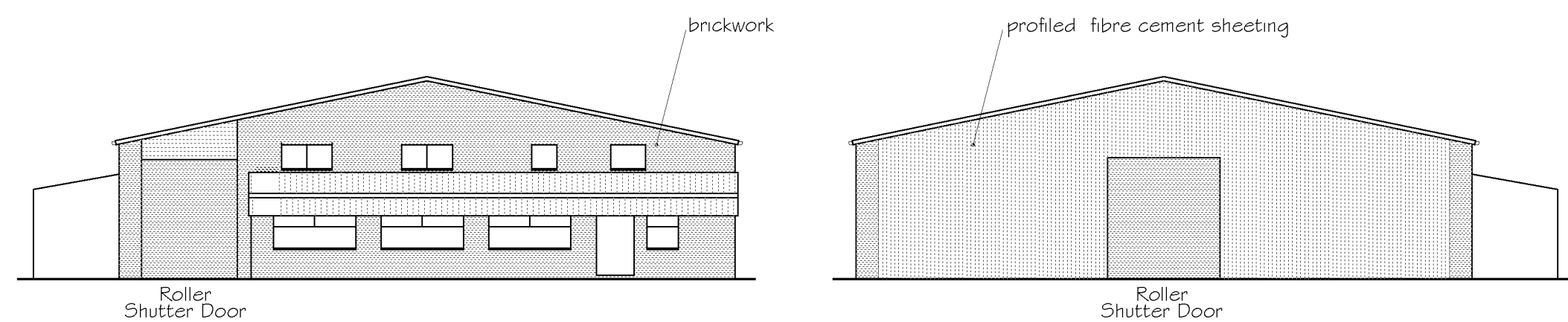
Project: Proposed Extension

Title: Site & Location Plans

Date	July 2013	Scales	1:500 & 1:1250
Site Size	A2	Dwg No	13-07-02
		Rev	A

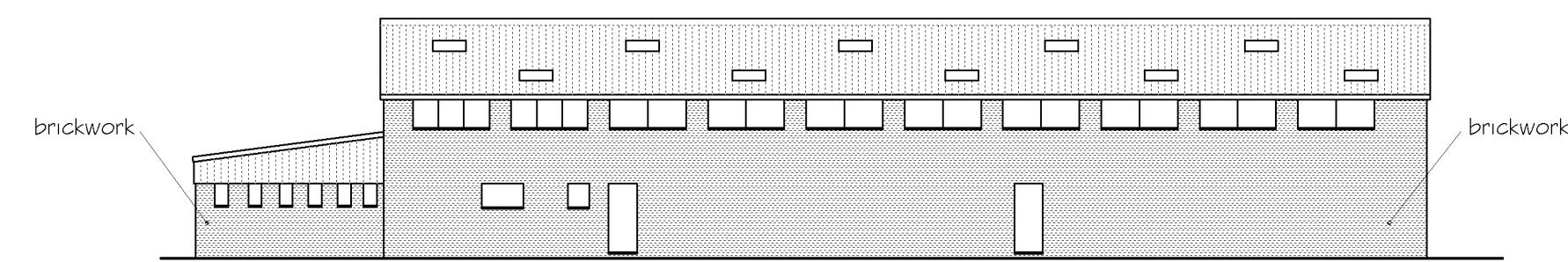
For Plans and Elevations - Existing & Proposed,
please refer to Drawing 13-07-01

Ground Floor Plan & Elevations - Existing

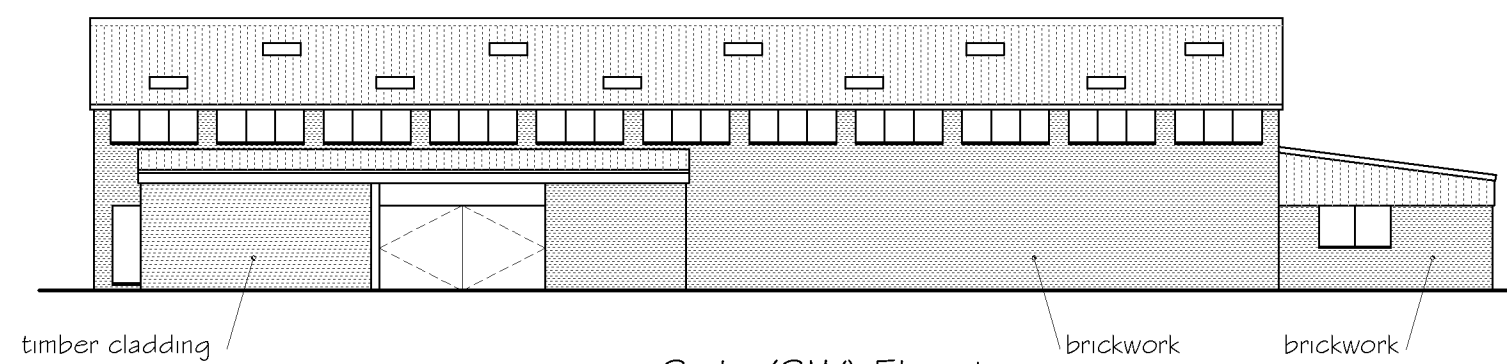


Front (SE) Elevation

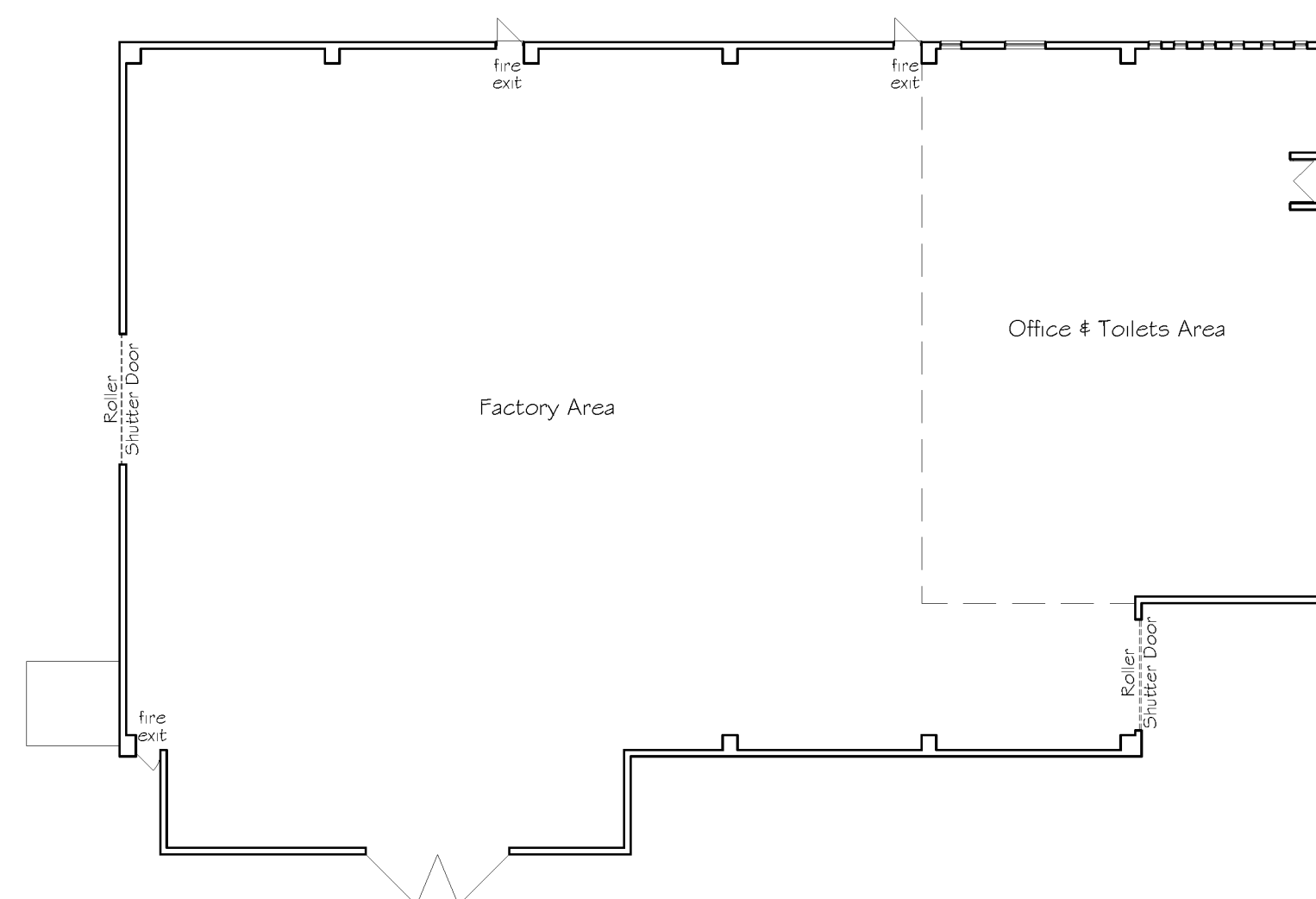
Rear (NW) Elevation



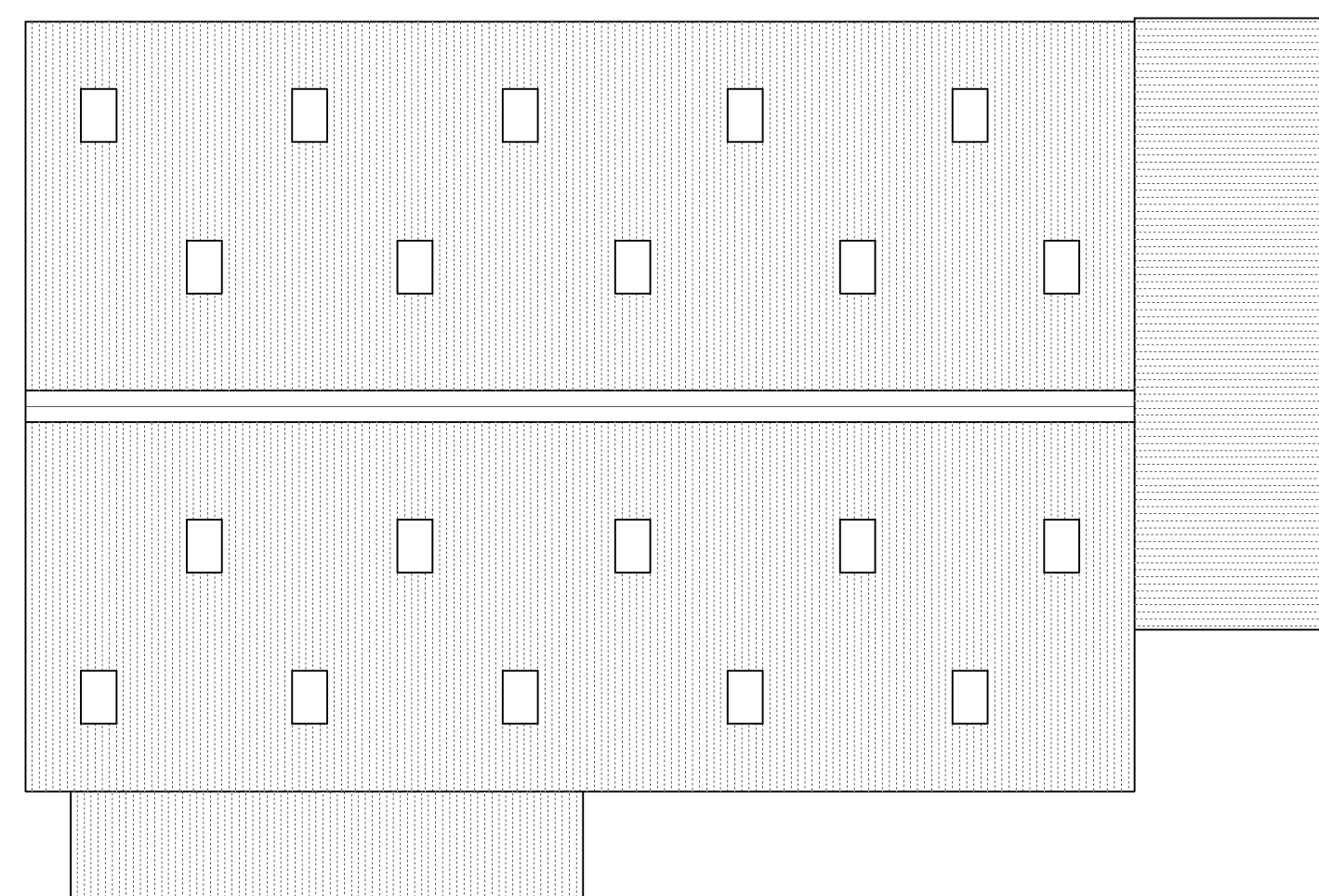
Side (NE) Elevation



Side (SW) Elevation

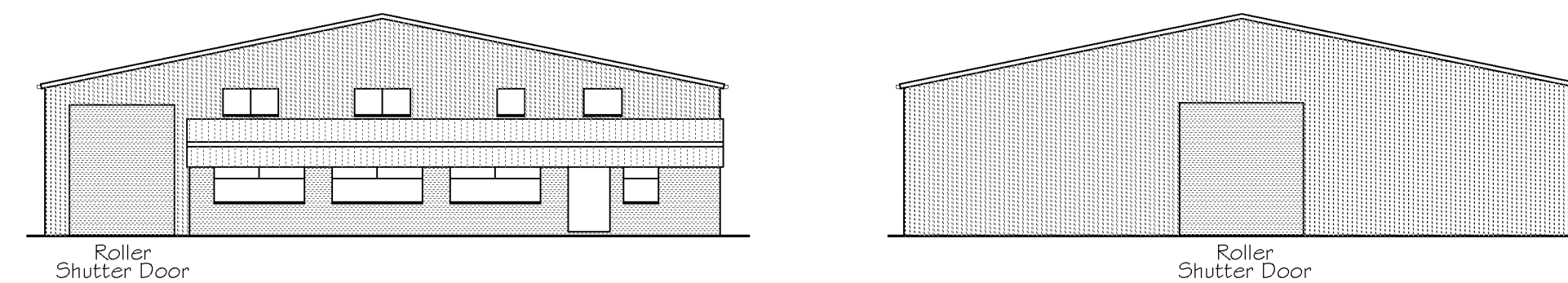


Ground Floor Plan



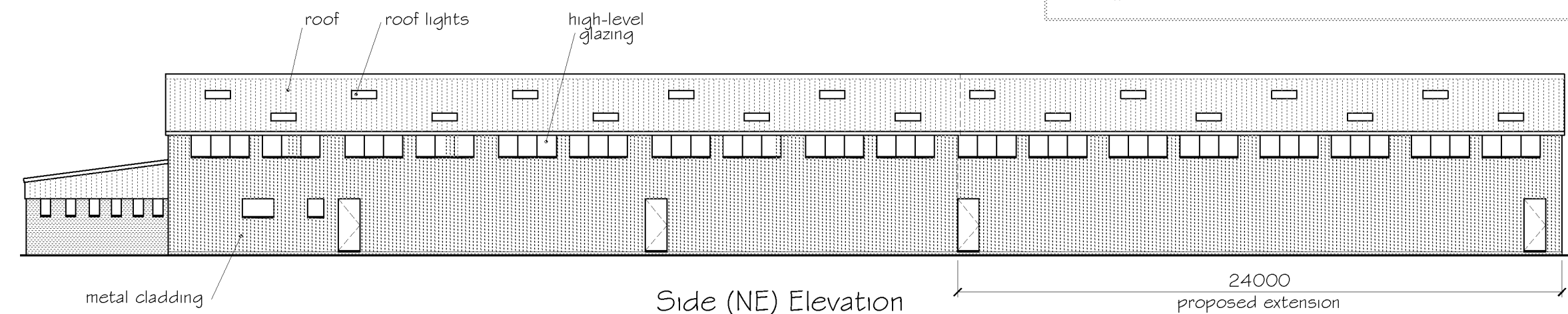
Roof Plan

Ground Floor Plan & Elevations - Proposed

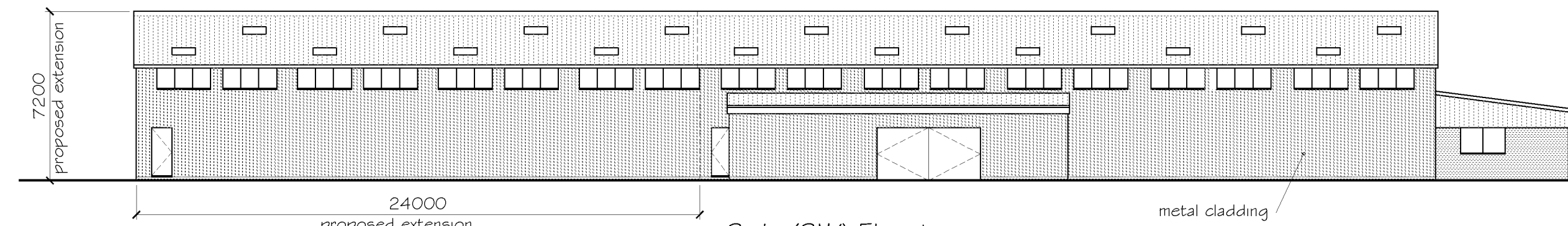


Front (SE) Elevation (no change)

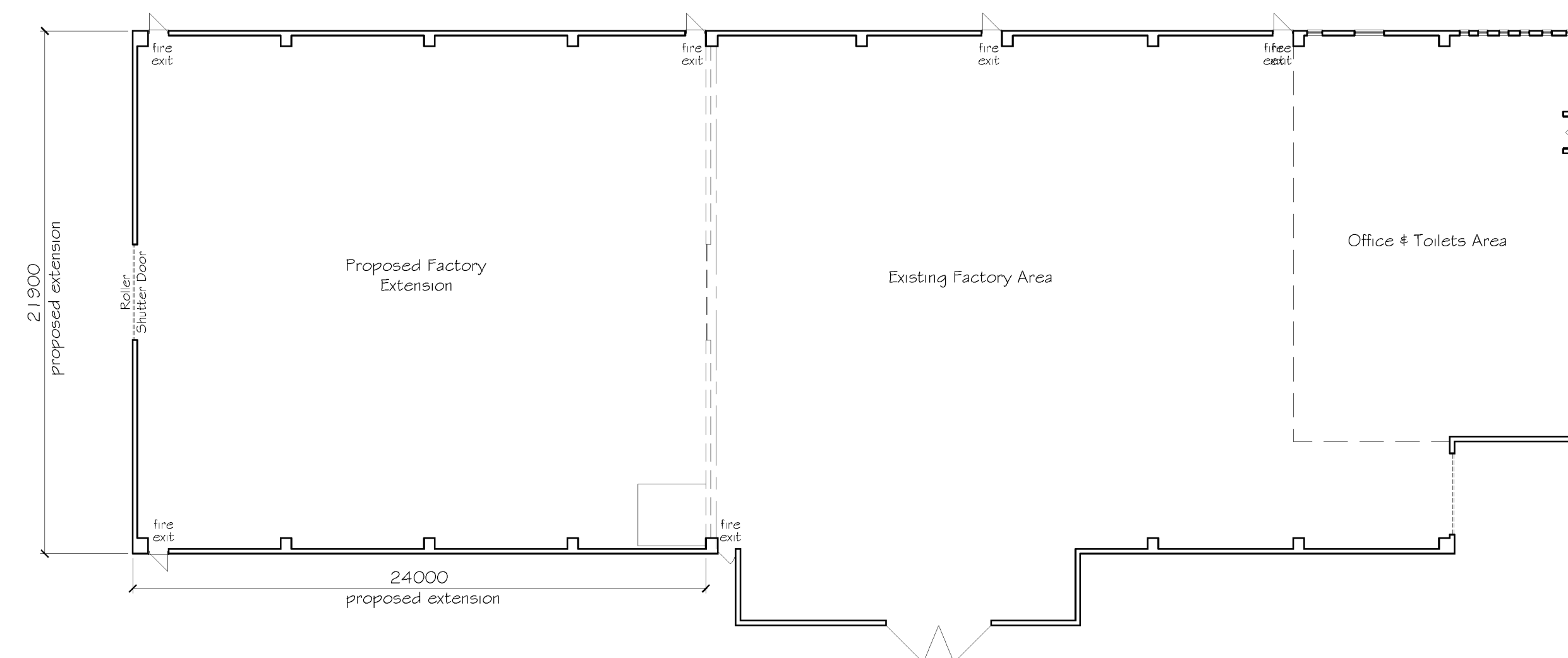
Rear (NW) Elevation



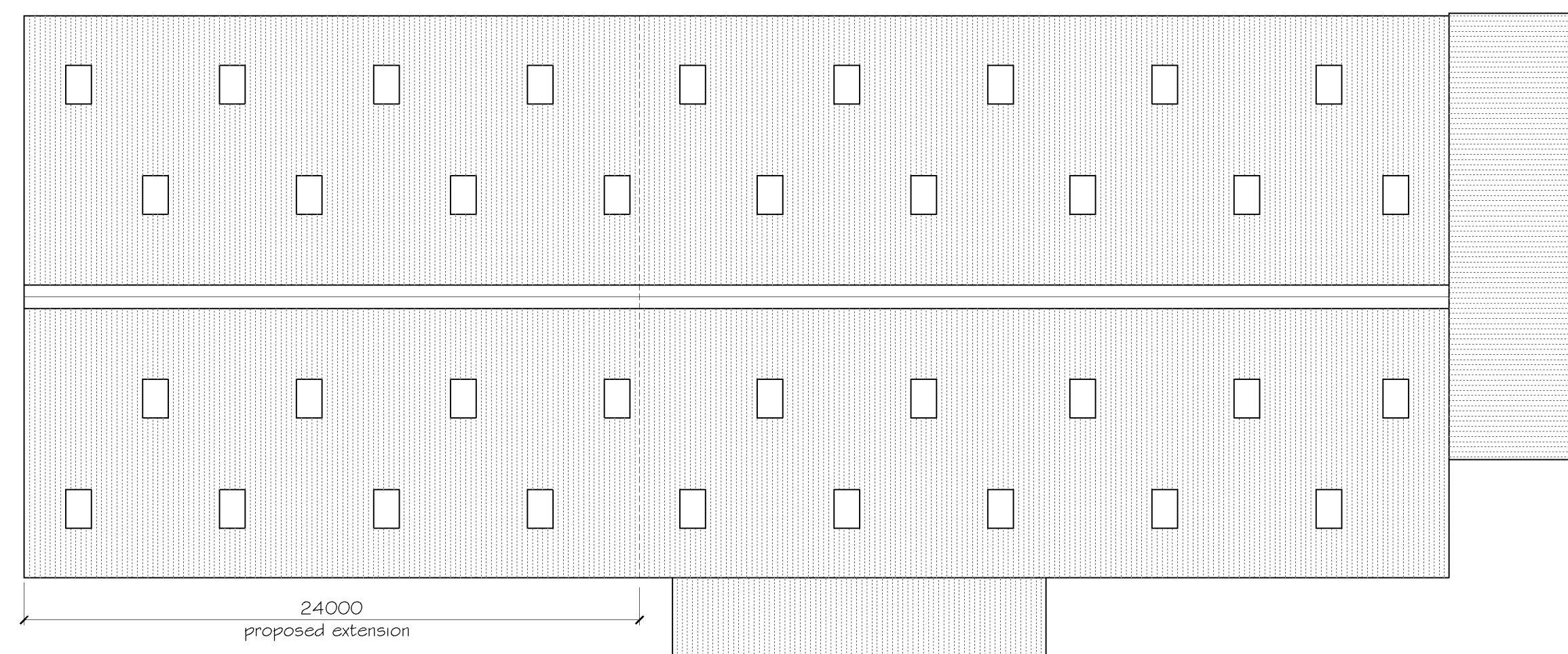
Side (NE) Elevation



Side (SW) Elevation



Ground Floor Plan



Roof Plan

Proposed Alterations to Existing Building:

1. Extend entire building rearwards by 24 metres.
2. Incorporate roof lights, high level glazing, roller shutter door and emergency egress doors to new extension.
3. Clad building in colour-coated composite steel cladding with contra-colour perimeter trims, flashings and rainwater goods.
4. Replace existing windows to match new in colour-coated aluminium.

Materials & Finishes

Roof:	Colour-coated steel to match composite cladding of extension
Walls:	Profiled colour-coated composite steel cladding
Windows	Colour-coated aluminium as contra colour items

A horizontal number line is shown with markings at 0, 5, 10, 15, 20, and 25. The segment between 10 and 15 is shaded with diagonal lines. The word "Metres" is written below the line.

Planning Issue

Rev	Change	Date
 MARSHALL CLARK CHARTERED SURVEYORS AND COMMERCIAL PROPERTY CONSULTANTS		
Marshall Clark LLP 24 Gratton Road, Worthing West Sussex BN11 1QP T: 01903 208839 F: 01903 208973 E: enquiries@marshallclark.co.uk www.marshallclark.co.uk		
Site	Finecast Foundry Lineside Way, Wick, Littlehampton, West Sussex, BN17 7EH	
Project	Proposed Extension	
Title	Plans and Elevations - Existing & Proposed	
Date	Scale	
July 2013	1:200	
	Dwg No	
Sheet Size: A1	(3..07..01)	

Appendix D

Micro Drainage Calculations

GTA Civils Ltd				Page 1																																																																																																																																																																																																																			
Gloucester House 66a Church Walk Burgess Hill RH15 9AS		1 Lineside Way Littlehampton soakaway 40% CC																																																																																																																																																																																																																					
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Micro Drainage		Source Control 2016.1.1																																																																																																																																																																																																																					
<u>Summary of Results for 200 year Return Period (+40%)</u> Half Drain Time : 191 minutes. <table><thead><tr><th>Storm Event</th><th>Max Level (m)</th><th>Max Depth (m)</th><th>Max Infiltration (l/s)</th><th>Max Volume (m³)</th><th>Status</th></tr></thead><tbody><tr><td>15 min Summer</td><td>3.993</td><td>0.393</td><td>1.1</td><td>13.5</td><td>O K</td></tr><tr><td>30 min Summer</td><td>4.115</td><td>0.515</td><td>1.2</td><td>17.6</td><td>O K</td></tr><tr><td>60 min Summer</td><td>4.225</td><td>0.625</td><td>1.3</td><td>21.4</td><td>O K</td></tr><tr><td>120 min Summer</td><td>4.290</td><td>0.690</td><td>1.3</td><td>23.6</td><td>O K</td></tr><tr><td>180 min Summer</td><td>4.293</td><td>0.693</td><td>1.3</td><td>23.7</td><td>O K</td></tr><tr><td>240 min Summer</td><td>4.282</td><td>0.682</td><td>1.3</td><td>23.3</td><td>O K</td></tr><tr><td>360 min Summer</td><td>4.252</td><td>0.652</td><td>1.3</td><td>22.3</td><td>O K</td></tr><tr><td>480 min Summer</td><td>4.220</td><td>0.620</td><td>1.3</td><td>21.2</td><td>O K</td></tr><tr><td>600 min Summer</td><td>4.189</td><td>0.589</td><td>1.3</td><td>20.2</td><td>O K</td></tr><tr><td>720 min Summer</td><td>4.159</td><td>0.559</td><td>1.2</td><td>19.1</td><td>O K</td></tr><tr><td>960 min Summer</td><td>4.100</td><td>0.500</td><td>1.2</td><td>17.1</td><td>O K</td></tr><tr><td>1440 min Summer</td><td>3.995</td><td>0.395</td><td>1.1</td><td>13.5</td><td>O K</td></tr><tr><td>2160 min Summer</td><td>3.868</td><td>0.268</td><td>1.1</td><td>9.2</td><td>O K</td></tr><tr><td>2880 min Summer</td><td>3.775</td><td>0.175</td><td>1.0</td><td>6.0</td><td>O K</td></tr><tr><td>4320 min Summer</td><td>3.668</td><td>0.068</td><td>0.9</td><td>2.3</td><td>O K</td></tr><tr><td>5760 min Summer</td><td>3.644</td><td>0.044</td><td>0.8</td><td>1.5</td><td>O K</td></tr><tr><td>7200 min Summer</td><td>3.637</td><td>0.037</td><td>0.7</td><td>1.3</td><td>O K</td></tr><tr><td>8640 min Summer</td><td>3.632</td><td>0.032</td><td>0.6</td><td>1.1</td><td>O K</td></tr><tr><td>10080 min Summer</td><td>3.628</td><td>0.028</td><td>0.5</td><td>1.0</td><td>O K</td></tr><tr><td>15 min Winter</td><td>4.043</td><td>0.443</td><td>1.2</td><td>15.2</td><td>O K</td></tr></tbody></table> <table><thead><tr><th>Storm Event</th><th>Rain (mm/hr)</th><th>Flooded Volume (m³)</th><th>Time-Peak (mins)</th></tr></thead><tbody><tr><td>15 min Summer</td><td>144.522</td><td>0.0</td><td>18</td></tr><tr><td>30 min Summer</td><td>97.708</td><td>0.0</td><td>33</td></tr><tr><td>60 min Summer</td><td>62.930</td><td>0.0</td><td>62</td></tr><tr><td>120 min Summer</td><td>39.024</td><td>0.0</td><td>120</td></tr><tr><td>180 min Summer</td><td>29.015</td><td>0.0</td><td>154</td></tr><tr><td>240 min Summer</td><td>23.317</td><td>0.0</td><td>186</td></tr><tr><td>360 min Summer</td><td>17.074</td><td>0.0</td><td>252</td></tr><tr><td>480 min Summer</td><td>13.684</td><td>0.0</td><td>322</td></tr><tr><td>600 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Summer	4.115	0.515	1.2	17.6	O K	60 min Summer	4.225	0.625	1.3	21.4	O K	120 min Summer	4.290	0.690	1.3	23.6	O K	180 min Summer	4.293	0.693	1.3	23.7	O K	240 min Summer	4.282	0.682	1.3	23.3	O K	360 min Summer	4.252	0.652	1.3	22.3	O K	480 min Summer	4.220	0.620	1.3	21.2	O K	600 min Summer	4.189	0.589	1.3	20.2	O K	720 min Summer	4.159	0.559	1.2	19.1	O K	960 min Summer	4.100	0.500	1.2	17.1	O K	1440 min Summer	3.995	0.395	1.1	13.5	O K	2160 min Summer	3.868	0.268	1.1	9.2	O K	2880 min Summer	3.775	0.175	1.0	6.0	O K	4320 min Summer	3.668	0.068	0.9	2.3	O K	5760 min Summer	3.644	0.044	0.8	1.5	O K	7200 min Summer	3.637	0.037	0.7	1.3	O K	8640 min Summer	3.632	0.032	0.6	1.1	O K	10080 min Summer	3.628	0.028	0.5	1.0	O K	15 min Winter	4.043	0.443	1.2	15.2	O K	Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)	15 min Summer	144.522	0.0	18	30 min Summer	97.708	0.0	33	60 min Summer	62.930	0.0	62	120 min Summer	39.024	0.0	120	180 min Summer	29.015	0.0	154	240 min Summer	23.317	0.0	186	360 min 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Micro Drainage		Source Control 2016.1.1			
<u>Summary of Results for 200 year Return Period (+40%)</u>					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
30 min Winter	4.183	0.583	1.2	19.9	O K
60 min Winter	4.311	0.711	1.3	24.3	O K
120 min Winter	4.397	0.797	1.4	27.3	O K
180 min Winter	4.407	0.807	1.4	27.6	O K
240 min Winter	4.390	0.790	1.4	27.0	O K
360 min Winter	4.350	0.750	1.4	25.7	O K
480 min Winter	4.305	0.705	1.3	24.1	O K
600 min Winter	4.259	0.659	1.3	22.5	O K
720 min Winter	4.212	0.612	1.3	20.9	O K
960 min Winter	4.124	0.524	1.2	17.9	O K
1440 min Winter	3.971	0.371	1.1	12.7	O K
2160 min Winter	3.796	0.196	1.0	6.7	O K
2880 min Winter	3.683	0.083	0.9	2.8	O K
4320 min Winter	3.641	0.041	0.8	1.4	O K
5760 min Winter	3.632	0.032	0.6	1.1	O K
7200 min Winter	3.627	0.027	0.5	0.9	O K
8640 min Winter	3.623	0.023	0.4	0.8	O K
10080 min Winter	3.621	0.021	0.4	0.7	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
30 min Winter	97.708	0.0	32		
60 min Winter	62.930	0.0	60		
120 min Winter	39.024	0.0	118		
180 min Winter	29.015	0.0	170		
240 min Winter	23.317	0.0	194		
360 min Winter	17.074	0.0	272		
480 min Winter	13.684	0.0	348		
600 min Winter	11.514	0.0	422		
720 min Winter	9.993	0.0	496		
960 min Winter	7.982	0.0	636		
1440 min Winter	5.803	0.0	908		
2160 min Winter	4.208	0.0	1272		
2880 min Winter	3.345	0.0	1584		
4320 min Winter	2.415	0.0	2172		
5760 min Winter	1.913	0.0	2896		
7200 min Winter	1.596	0.0	3672		
8640 min Winter	1.378	0.0	4384		
10080 min Winter	1.217	0.0	5056		
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<u>Model Details</u> Storage is Online Cover Level (m) 5.000 <u>Cellular Storage Structure</u> Invert Level (m) 3.600 Safety Factor 2.0 Infiltration Coefficient Base (m/hr) 0.18000 Porosity 0.95 Infiltration Coefficient Side (m/hr) 0.18000 <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Depth (m)</th> <th>Area (m²)</th> <th>Inf. Area (m²)</th> <th>Depth (m)</th> <th>Area (m²)</th> <th>Inf. Area (m²)</th> </tr> </thead> <tbody> <tr> <td>0.000</td> <td>36.0</td> <td>36.0</td> <td>0.900</td> <td>0.0</td> <td>56.4</td> </tr> <tr> <td>0.800</td> <td>36.0</td> <td>55.2</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>			Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)	0.000	36.0	36.0	0.900	0.0	56.4	0.800	36.0	55.2			
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Appendix E

Flood Warning and Evacuation Plan

1. Background

This building is liable to flood in the event of the River Arun's defences breaching or overtopping. It is possible that there would be only very little warning time given by the EA.

The probable maximum depth from a breach is 1.50m. This would be hazardous to all (categories of) users, ie whether fully able or elderly/disabled.

The emphasis in this Plan is on the of the building (currently Finecast) heeding the warnings issued by the Environment Agency and local media outlets, and taking appropriate action (and prompt evacuation of the unit as necessary) well in advance of the premises flooding.

This plan shall be part of the Manager's operational documents. It shall be reviewed on a regular basis, e.g. every 3 years until 2024 and then possibly extended to 5 year spans, depending on how much change is needed within the first 6 years.

Any staff acting temporarily as Duty Manager must be involved during the testing and review of this Plan and assume the responsibilities, albeit temporarily, as if they were the Manager whilst on duty.

2. Warning Arrangements

The Manager shall sign up to the Environment Agency's (free) flood warning system, 'Floodline Warnings Direct'. This is explained on the EA's website:

<https://www.gov.uk/sign-up-for-flood-warnings>.

The possibility of flooding to the property will trigger an automatic 24 warning message to the registered address contact. Although such flood warnings are intended to provide sufficient time to allow evacuation plans to be implemented, the risk here is greater due to breach failures being sudden events. There is a possibility that only approximately 4 hours' notice will be provided.

The registered contact for the site is [INSERT OCCUPIER'S NAME], and his contact number is

[INSERT OCCUPIER'S TELEPHONE NUMBER]. His email address is [INSERT OCCUPIER'S EMAIL ADDRESS]. The Manager is responsible for ensuring that the details in this section are completed with the correct occupant details at the beginning of tenancy/ownership. As soon as a new occupant takes up residency, their details should be recorded by the Manager; who will then update this FWEP accordingly.

In addition to the automated service, further information on the flooding can be obtained by consulting the Environment Agency website (www.environment-agency.gov.uk/flood) and phoning Floodline on 0345 988 1188, selecting option 1 and following further instructions. The site lies within an EA Flood Warning Area. Information given out on these telephone numbers is updated every 15 minutes.

For a local media outlet offering flood information use 1) BBC Radio Sussex broadcast on 95.3 FM, 104.5 FM and 104.8 FM, DAB digital (auto tune or manual tune) and online – or 2) local radio station SpiritFM 96.6 FM, 102.3 FM and 106.6 FM.

3. Flood Warning Codes

If flooding is forecast, warnings are issued using a set of four easily recognisable codes.

Each of the four codes indicates the level of danger associated with the warning. The EA *aims* to issue flood warnings up to 12 hours in advance. A Severe Flood Warning may be issued immediately, with no other warning code preceding it.

The Flood Warning Codes and their meanings are:



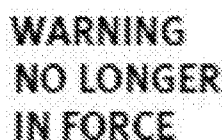
- What it means: Flooding is possible. Be prepared.
- When it's used: two hours to two days in advance of flooding.



- What it means: Flooding is expected. Immediate action required.
- When it's used: Half an hour to one day in advance of flooding.



- What it means: Severe flooding. Danger to life.
- When it's used: When flooding poses a significant threat to life.



- No further flooding is currently expected in your area.
- When it's used: When river and sea conditions return to normal.

4. Action to be Taken on Receipt of Flood Warnings



- What it means: Be prepared to act on your flood plan.
- Call Floodline on 0845 988 1188, select option 1 for up-to-date flooding information.
- Prepare a flood kit of essential items – refer to Section 6.0.
- Monitor local water levels and flood forecast on the EA website.

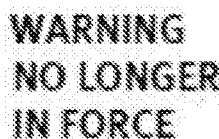


- What it means: Flooding is expected. Immediate action.
- Move valuables, pets to first floor level.
- Turn off gas, electricity and water supplies if safe to do so.



THE PROPERTY MUST BE EVACUATED IF SAFE TO DO SO.

- Co-operate with the emergency services. Call 999 if you are in immediate danger.
- If there are hazardous floodwaters surrounding the site, seek safe refuge at first floor level.



- Be careful. Floodwater may still be around for several days.
- If you've been flooded, ring your insurance company as soon as possible.

5. Preparation for a Flood Event

- Advice to the Manager and any appointed Deputies:
- Because of the probable lack of notice, it is essential that you are well prepared before a flood, as remote this possibility may seem at this time.
- Prepare a list of all your important contacts written in a notebook, and keep it to hand.
- Ensure you know *exactly* how to turn off electricity, gas and water.
- Prepare an Evacuation Action Checklist, this to contain all the items that must be actioned prior to evacuating - such as turning off the utilities and organising transport plus any other important items (people with special needs/medications). If any equipment has to be moved to a higher elevation this should be listed too. This should be part of the Overall Action Checklist, which includes the Recovery procedures.

6. Evacuation and Safe Refuge

The Manager should be able to assess from the EA's and Local Authority Emergency Services' warnings the likely flood warning time, ie how long there is before the factory is likely to be inundated. This is likely to be less than 4 hours but this depends on the severity of the defences' failure. Once this is known it will be clear how quickly the evacuation must be carried out.

Once the flood depth reaches and exceeds 0.3m (or 12" = 1 foot) there will be no safe route to dry ground (away from this property).

Well in advance of having to evacuate you are strongly advised to work out which routes would be suitable for you to travel – to the east along Manning Road and then north – away from the coast.

Once the decision has been made to evacuate, the Manager will shut and lock up the premises, once he/she is satisfied that any members of staff and visitors at that time are able to reach dry land.

A car (or other motor vehicle) that is capable of transporting wheel-chair bound people, shall be available to ferry up to 4 people to dry land. Note that this 'target site' must be identified in advance by the Manager. This is to be added to this Plan and thereby included into the review process.

7. When is it Safe to Return?

The responding organisations will be providing updates on the situation and notification when it is safe to return to your home. Follow their advice.

8. Recovery?

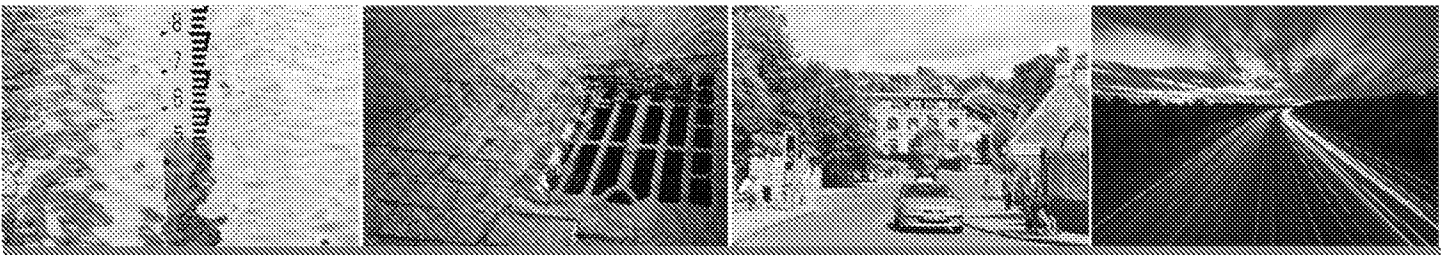
The Manager should consider this phase well in advance of a flood. The insurance company should be consulted and the factory organised with the threat of saline water flooding up to the critical depth (1.50m) in mind.

All other aspects of recovery and clean up should be listed by the Manager as part of the Overall Action Plan.

9. Awareness and Review

This plan shall be part of the Manager's operational documents and treated in a similar way to Fire Risk.

This Plan shall be reviewed on a regular basis, every 3 years between November 2017 and 2024. The target date of the first review is 1 November 2020. Thereafter each review should take place every 5 years. The site's flood risk profile should be assessed using the data available at that time - and the Plan updated to reflect the current standards and policies.



Drainage - Flood Risk - Highways - Transport

GTA Civils, Gloucester House, 66a Church Walk, Burgess Hill, West Sussex, RH15 9AS

