



Surface Water Drainage Strategy for Planning

Prepared for:

Scratchings Ltd

Location:

Bacons Farm

Sloop Lane

Scaynes Hill

West Sussex

RH17 7NP

January 2024

Our reference:

92601-NFP-BcnsFrm_SUDS



Document Issue Record

Location:	Bacons Farm, Sloop Lane, Scaynes Hill, West Sussex RH17 7NP				
Application:	Construction of a barn				
Prepared for:	Scratchings Ltd				
Title:	Surface Water Drainage Strategy for Planning				
Project No.:	92601_SuDS	Date:	31 st January 2025	Issue No.:	1.0
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1. Introduction

- 1.1. This Surface Water Drainage Strategy has been prepared by Unda Consulting Limited on behalf of Scratchings Ltd, in support of a planning application for the construction of a barn at Bacons Farm, Sloop Lane, Scaynes Hill, West Sussex RH17 7NP. This report assesses surface water drainage arrangements for the proposed development.
- 1.2. The proposed application is for the construction of a barn. Post development the roof area of the proposed barn will cover approximately 467m².
- 1.3. In order to mitigate flood risk posed by post development runoff, adequate control measures will be required within the site. This will ensure that surface water runoff is dealt with at source and the flood risk off site is not increased.

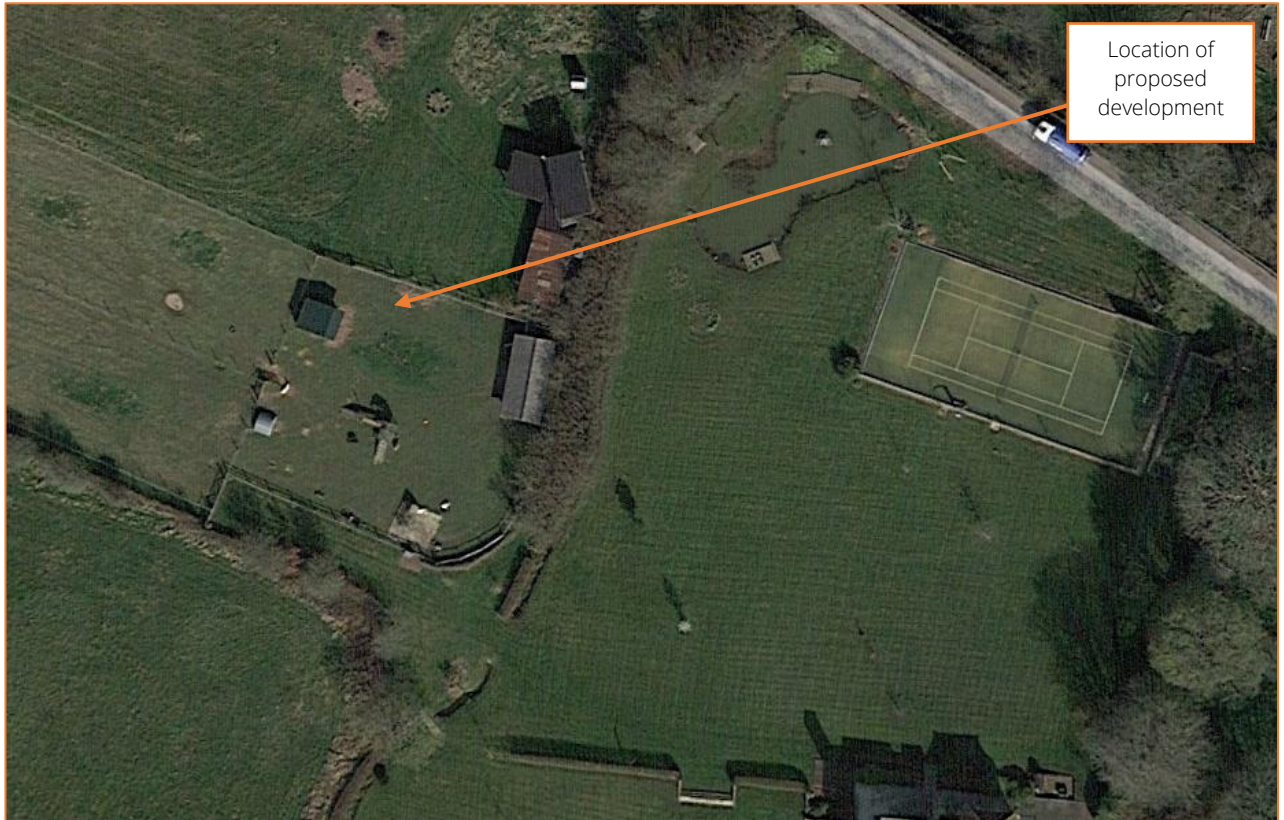


Figure 1: Aerial Imagery of the Site (Source: Google Earth)

Existing Ground Conditions:

- 2.5. The British Geological Survey (BGS) Map indicates that the bedrock underlying the site is Cuckfield Stone Bed – Sandstone, Calcareous.
- 2.6. The superficial geology underlying the site comprises of River Terrace Deposits, 1 – Sand and Gravel, and Alluvium – Clay, Silt, Sand and Gravel.
- 2.7. The soil type on site, taken from the UKSO data, is relatively deep soils from River Terrace Sand / Gravel soil parent material with a Sandy Loam soil texture and intermediate soils from Sandstone soil parent material with a Sand to Sandy Loam soil texture.
- 2.8. The published Environment Agency Groundwater Source Protection zone map shows the site is not located within a Source Protection Zone.

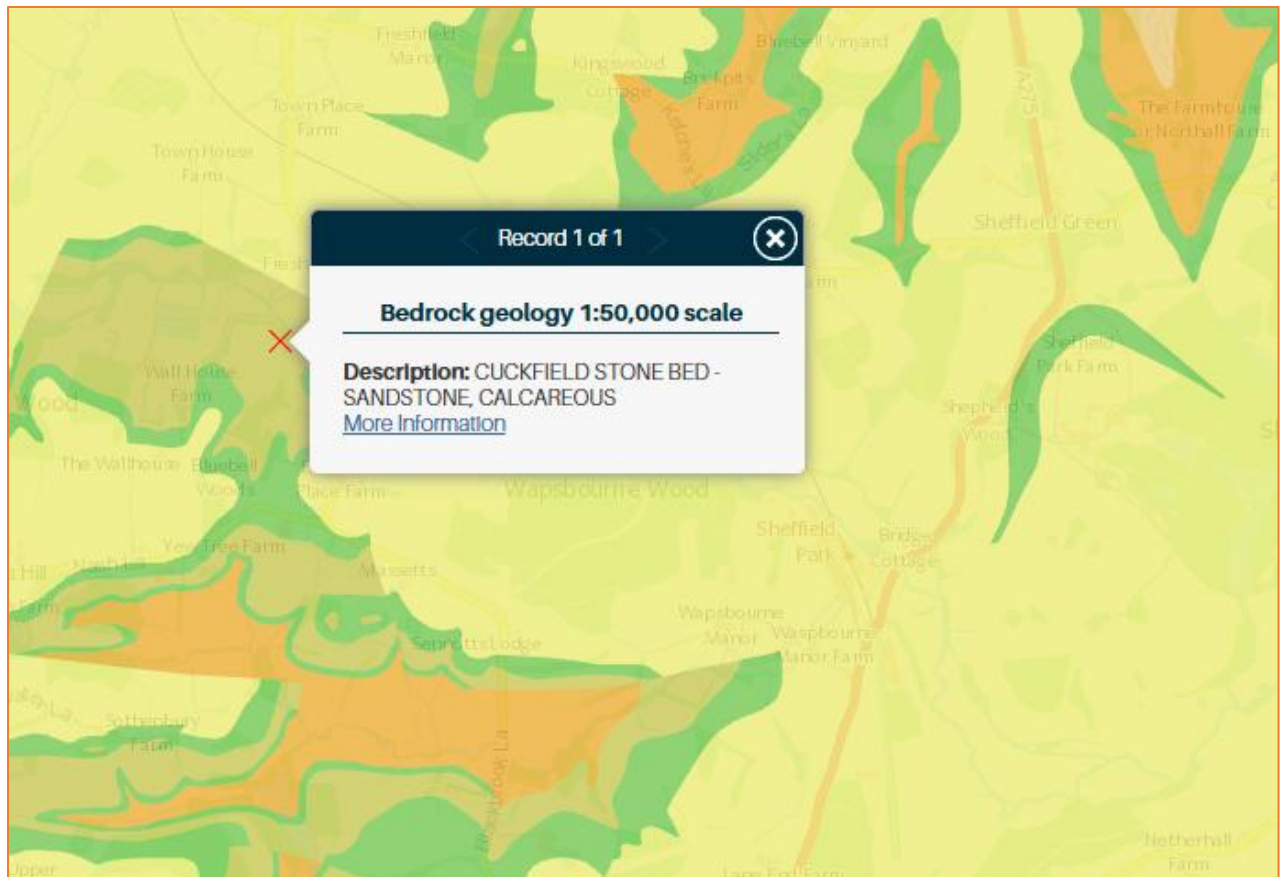
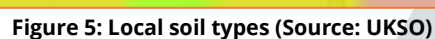


Figure 3: Bedrock Geology (Source: BGS)



Nearby Watercourses / Drainage Features:

- 2.9. The River Ouse (Old Canal / Canal Cut / Freshfield) is located approximately 55m to the north of the proposed barn.

3. Development Proposals:

Proposed Development:

- 3.1. The proposed application is for the construction of a barn. Post development the roof area of the proposed barn will cover approximately 467m².
- 3.2. The SuDS sizing within the strategy has been based on attenuating the proposed roof area.



Figure 6: Proposed Site Plan (Source: N Field Projects Ltd)

4. Surface Water Drainage Strategy:

- 4.1. In order to mitigate flood risk posed by post development runoff, adequate control measures will need to be considered within the site. This will ensure that surface water runoff is dealt with at source and flood risk is not increased elsewhere.

Drainage Hierarchy:

- 4.2. The drainage strategy for the site has been prepared according to the drainage discharge hierarchy from CIRIA C753 The SuDS Manual, as follows:
- Infiltration to the maximum extent that is practical;
 - Discharge to surface waters;
 - Discharge to surface water sewer;
 - Discharge to combined sewer.

Infiltration Potential:

- 4.3. The 1:50,000 BGS map shows the site to be located upon the bedrock of Cuckfield Stone Bed – Sandstone, Calcareous. Therefore, infiltration SuDS features are considered feasible at the site.
- 4.4. In the absence of in-situ testing, an assumed infiltration rate has been utilised based on the below coefficients. Table 25.1 of the CIRIA C753 The Suds Manual 2015 (Figure 7) provides typical infiltration coefficients based on soil texture.

Soil type/texture	ISO 14688-1 description (after Blake, 2010)	Typical infiltration coefficients (m/s)
Good infiltration media		
• gravel	Sandy GRAVEL	$3 \times 10^{-4} - 3 \times 10^{-2}$
• sand	Slightly silty slightly clayey SAND	$1 \times 10^{-5} - 5 \times 10^{-5}$
• loamy sand	Silty slightly clayey SAND	$1 \times 10^{-4} - 3 \times 10^{-5}$
• sandy loam	Silty clayey SAND	$1 \times 10^{-7} - 1 \times 10^{-5}$
Poor infiltration media		
• loam	Very silty clayey SAND	$1 \times 10^{-7} - 5 \times 10^{-6}$
• silt loam	Very sandy clayey SILT	$1 \times 10^{-7} - 1 \times 10^{-5}$
• chalk (structureless)	N/A	$3 \times 10^{-8} - 3 \times 10^{-6}$
• sandy clay loam	Very clayey silty SAND	$3 \times 10^{-10} - 3 \times 10^{-7}$
Very poor infiltration media		
• silty clay loam	–	$1 \times 10^{-8} - 1 \times 10^{-6}$
• clay	–	$< 3 \times 10^{-8}$
• till	Can be any texture of soil described above	$3 \times 10^{-9} - 3 \times 10^{-5}$
Other		
• rock* (note mass infiltration capacity will depend on the type of rock and the extent and nature of discontinuities and any infill)	N/A	$3 \times 10^{-9} - 3 \times 10^{-5}$

Figure 7: Typical Infiltration Coefficients Based on Soil Texture (Source: Table 25.1 of the CIRIA C753)

- 4.5. Given the underlying strata an assumed minimum infiltration rate of 1×10^{-5} m/s has been utilised for this assessment. However, given the underlying bedrock geology the true infiltration rate is likely to be greater than that used within this assessment.

Proposed Discharge Rate:

- 4.6. The greenfield runoff rates for the area of the site being attenuated has been calculated as 0.2 l/s for the 1:1 annual runoff event, 0.6 l/s for the 1:30 year event and 0.9 l/s for the 1:100 year event. Refer to calculations in appendix.
- 4.7. Runoff from the proposed building will discharge into a cellular storage soakaway.
- 4.8. The forecourt will drain using its existing drainage arrangements. All remaining ground surfaces will be of permeable construction or direct runoff to adjacent permeable areas.

Cellular Storage Soakaway:

- 4.9. The proposed area discharging into the cellular storage amounts to approximately 467m².
- 4.10. Preliminary calculations indicate that sufficient storage required to attenuate runoff from the proposed roof area arising from the critical 1:100 year + 45% climate change event can be provided by cellular storage of dimensions 67m² x 0.66m x 0.95 (voids).
- 4.11. Preliminary calculations indicated that some 42.01m³ of storage is required to attenuate the runoff for all storms up to and including the 1:100 year + 45% climate change event.
- 4.12. *Please note that the levels and locations of the cellular storage within the Causeway calculations are arbitrary for modelling purposes.*
- 4.13. All preliminary surface water drainage calculations have been undertaken using Causeway software. Refer to Appendix.

Water Use

- 4.14. Runoff from the new roof area will be collected and stored in a rainwater harvesting (RWH) tank.
- 4.15. If the RWH tank contains more water than required, the additional water will be discharged via the surface water management mechanisms detailed within the former sections.

Water Quality:

- 4.16. Water quality has been assessed in line with the Simple Index approach from Chapter 26 of CIRIA C753 The SuDS Manual:
 Step 1 – Allocate suitable pollution hazard indices for the proposed land use.
 Step 2 – Select SuDS with a total pollution mitigation index that equals or exceeds the pollution hazard index.
- 4.17. Runoff from roof areas is considered to be uncontaminated and does not warrant any form of treatment process to improve water quality. Nevertheless, it is suggested to include debris / sediment traps on any new drainage.

Design Exceedance:

- 4.18. Should the onsite drainage system fail under extreme rainfall events or blockage, flooding may occur within the site. In the event of the drainage system failure, the runoff flow can be managed through detailing the new external levels to direct water away from structures.

Adoption and Maintenance:

- 4.19. It is proposed that the cellular storage will be privately maintained by the end users.
- 4.20. A draft Maintenance Schedule is outlined in the Table below.

Cellular Storage

- 4.21. It is not envisaged that silt build up within the cellular crate systems will require a rigorous maintenance regime so long as silt is removed from upstream catch pits and inspection chambers on a regular basis. Notwithstanding this, a suitable maintenance regime for the systems will comprise of routine inspection and silt removal (as necessary). Inspection should be undertaken using CCTV equipment offered up the inspection tunnels located within the crate system. Camera access can be gained via inspection chambers and inlet pipework located at each end of the tunnels.
- 4.22. Silt removal can be achieved by jetting the inspection tunnels. Jetting should be undertaken in accordance with current jetting guidelines, in particular the Code of Practice for Sewer Jetting published by The Water Research Centre. Jetting at 150bar at 300l/min should be more than adequate in removing any build-up of material within the tunnel. The crate system will take higher pressures. However, unlike regular jetting which relies heavily on high pressure to remove hardened deposits on the inner bore of pipes, effective cleansing of a crate system relies more on the delivery flow rate to flush solids back through the system.
- 4.23. A standard jet head with rear facing nozzles should be used. The head should be fed to the far end of the crate tunnel via the nearest inspection chamber, activated and retracted. As the nozzle is removed, debris will be swept back into the inspection chamber where it can then be removed with the use of a standard gully sucker. This method will ensure the effective removal of gross solids (carrier bags, cans, leaf litter etc.) from the system. Whilst 100% removal cannot be guaranteed, it has been shown that this jetting method will also remove an element of finer material which would otherwise be 'lost' within the system.

Proposed Surface Water Drainage Pipework and Catchpits

- 4.24. It is not envisaged that silt build up within the pipework systems will require a rigorous maintenance regime so long as silt is removed from upstream catch pits on a regular basis. A suitable maintenance regime for the systems will comprise of routine inspection (every six months) and silt removal (as necessary).

Drainage Element	Maintenance Requirement	Frequency
Gutters & downpipes	Inspect and remove silt/ debris.	To be inspected every three months and silt/ debris removed as necessary.
Inspection Chambers and Catch Pits	Inspect and remove silt.	To be inspected every three months and silt/ debris removed as necessary. Flow control to be checked for blockages.
Cellular Storage	Inspect and remove debris.	CCTCV inspection following first storm event. Monthly CCTV inspections for first 3 months. 6 monthly CCTV inspections thereafter. Jetting to remove silt as necessary.

Table 1: Suggested Maintenance Regime for Elements of the Drainage Infrastructure

Note: In addition to the above maintenance requirements, it is recommended that all drainage elements are inspected:

- Following the first storm event;
- Monthly for the first 3 months following commissioning.

5. Discussion and Conclusions:

- 5.1. This Surface Water Drainage Strategy has been prepared by Unda Consulting Limited on behalf of Scratchings Ltd, in support of a planning application for the construction of a barn at Bacons Farm, Sloop Lane, Scaynes Hill, West Sussex RH17 7NP. This report assesses surface water drainage arrangements for the proposed development.
 - 5.2. The proposed application is for the construction of a barn. Post development the roof area of the proposed barn will cover approximately 467m².
 - 5.3. LiDAR remotely sensed digital elevation data suggests that the ground topography on the site in the location of the proposed barn ranges between approximately 24.30mAOD to 25.04mAOD.
 - 5.4. The British Geological Survey (BGS) Map indicates that the bedrock underlying the site is Cuckfield Stone Bed – Sandstone, Calcareous.
 - 5.5. The superficial geology underlying the site comprises of River Terrace Deposits, 1 – Sand and Gravel, and Alluvium – Clay, Silt, Sand and Gravel.
 - 5.6. The soil type on site, taken from the UKSO data, is relatively deep soils from River Terrace Sand / Gravel soil parent material with a Sandy Loam soil texture and intermediate soils from Sandstone soil parent material with a Sand to Sandy Loam soil texture.
 - 5.7. The SuDS sizing within the strategy has been based on attenuating the proposed roof area.
 - 5.8. Given the underlying strata an assumed minimum infiltration rate of 1×10^{-5} m/s has been utilised for this assessment. However, given the underlying bedrock geology the true infiltration rate is likely to be greater than that used within this assessment.
 - 5.9. The greenfield runoff rates for the area of the site being attenuated has been calculated as 0.2 l/s for the 1:1 annual runoff event, 0.6 l/s for the 1:30 year event and 0.9 l/s for the 1:100 year event. Refer to calculations in appendix.
 - 5.10. Runoff from the proposed building will discharge into a cellular storage soakaway.
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- Cellular Storage Soakaway:*
- 5.12. The proposed area discharging into the cellular storage amounts to approximately 467m².
 - 5.13. Preliminary calculations indicate that sufficient storage required to attenuate runoff from the proposed roof area arising from the critical 1:100 year + 45% climate change event can be provided by cellular storage of dimensions 67m² x 0.66m x 0.95 (voids).
 - 5.14. Preliminary calculations indicated that some 42.01m³ of storage is required to attenuate the runoff for all storms up to and including the 1:100 year + 45% climate change event.
 - 5.15. *Please note that the levels and locations of the cellular storage within the Causeway calculations are arbitrary for modelling purposes.*
 - 5.16. All preliminary surface water drainage calculations have been undertaken using Causeway software. Refer to Appendix.
 - 5.17. Runoff from roof areas is considered to be uncontaminated and does not warrant any form of treatment process to improve water quality. Nevertheless, it is suggested to include debris / sediment traps on any new drainage.
 - 5.18. Should the onsite drainage system fail under extreme rainfall events or blockage, flooding may occur within the site. In the event of the drainage system failure, the runoff flow can be managed through detailing the new external levels to direct water away from structures.
 - 5.19. This drainage strategy has been undertaken in accordance with the principles set out in NPPF. We can conclude that providing the development adheres to the conditions advised above, the said development proposals can be accommodated without increasing flood risk within the locality in accordance with objectives set by Central Government and the EA.

Unda Consulting Limited
January 2025

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6. Appendix

A – Development Plans:

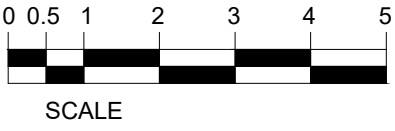
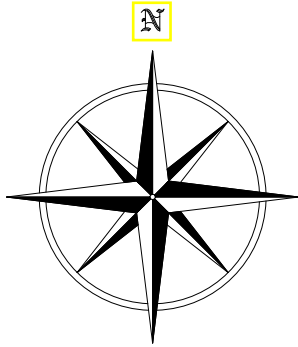
- Proposed Plan – N Field Projects Ltd.

B - Causeway Calculations:

- IH124 Pre-Development Greenfield Runoff Calculations for the area of the site being attenuated;
- Cellular Storage Soakaway (Depth/Area/Inf Area Storage Structure) Calculations.

C - Drainage Layout Plans:

- Proposed Drainage Layout.



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PROJECT TITLE
Bacons Farm, Sloop Lane, Scaynes Hill, RH17 7NP

DRAWING
Winery Site Plan

REV	DESCRIPTION	DATE	BY

SCALE 1:100 on A1	DRAWN NRF
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DATE 14/01/2025	DRAWING No. NFP194S004
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Design Settings

Rainfall Methodology	FEH-22	Minimum Velocity (m/s)	1.00
Return Period (years)	100	Connection Type	Level Soffits
Additional Flow (%)	0	Minimum Backdrop Height (m)	0.200
CV	1.000	Preferred Cover Depth (m)	1.200
Time of Entry (mins)	5.00	Include Intermediate Ground	✓
Maximum Time of Concentration (mins)	30.00	Enforce best practice design rules	✓
Maximum Rainfall (mm/hr)	50.0		

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Easting (m)	Northing (m)	Depth (m)
MH1	0.047	5.00	10.000	100.000	100.000	0.661

Simulation Settings

Rainfall Methodology	FEH-22	Skip Steady State	x	1 year (l/s)	0.2
Rainfall Events	Singular	Drain Down Time (mins)	240	30 year (l/s)	0.6
Summer CV	1.000	Additional Storage (m³/ha)	0.0	100 year (l/s)	0.9
Winter CV	1.000	Starting Level (m)		Check Discharge Volume	x
Analysis Speed	Normal	Check Discharge Rate(s)	✓		

Storm Durations

15	60	180	360	600	960	2160	4320	7200	10080
30	120	240	480	720	1440	2880	5760	8640	

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
100	45	0	0

Pre-development Discharge Rate

Site Makeup	Greenfield	Growth Factor 30 year	2.40
Greenfield Method	IH124	Growth Factor 100 year	3.19
Positively Drained Area (ha)	0.047	Betterment (%)	0
SAAR (mm)	813	QBar	0.3
Soil Index	4	Q 1 year (l/s)	0.2
SPR	0.47	Q 30 year (l/s)	0.6
Region	7	Q 100 year (l/s)	0.9
Growth Factor 1 year	0.85		

Node MH1 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.03600	Safety Factor	2.0	Invert Level (m)	9.339
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.95	Time to half empty (mins)	572

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	67.0	67.0	0.660	67.0	67.0	0.661	0.0	67.0

Results for 100 year +45% CC Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
960 minute winter	MH1	930	9.991	0.652	2.5	41.4900	0.0000	OK
Link Event (Upstream Depth)		US Node	Link	Outflow (l/s)				
960 minute winter		MH1	Infiltration	0.3				

Results for 100 year +45% CC 15 minute summer. 255 minute analysis at 1 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m ³)	Flood (m ³)	Status
15 minute summer	MH1	20	9.614	0.275	41.2	17.5016	0.0000	OK

Link Event	US Node	Link	Outflow (l/s)
15 minute summer	MH1	Infiltration	0.3

Results for 100 year +45% CC 15 minute winter. 255 minute analysis at 1 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	MH1	20	9.614	0.275	38.6	17.5105	0.0000	OK

Link Event	US Node	Link	Outflow (l/s)
15 minute winter	MH1	Infiltration	0.3

Results for 100 year +45% CC 30 minute summer. 270 minute analysis at 1 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m ³)	Flood (m ³)	Status
30 minute summer	MH1	35	9.708	0.369	38.0	23.4597	0.0000	OK

Link Event	US Node	Link	Outflow (l/s)
30 minute summer	MH1	Infiltration	0.3

Results for 100 year +45% CC 30 minute winter. 270 minute analysis at 1 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
30 minute winter	MH1	34	9.708	0.369	30.7	23.4695	0.0000	OK
Link Event	US Node	Link	Outflow (l/s)					
30 minute winter	MH1	Infiltration	0.3					

Results for 100 year +45% CC 60 minute summer. 300 minute analysis at 1 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute summer	MH1	64	9.808	0.469	29.2	29.8494	0.0000	OK

Link Event	US Node	Link	Outflow (l/s)
60 minute summer	MH1	Infiltration	0.3

Results for 100 year +45% CC 60 minute winter. 300 minute analysis at 1 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute winter	MH1	63	9.808	0.469	21.1	29.8498	0.0000	OK
Link Event	US Node	Link	Outflow (l/s)					
60 minute winter	MH1	Infiltration	0.3					

Results for 100 year +45% CC 120 minute summer. 360 minute analysis at 2 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m ³)	Flood (m ³)	Status
120 minute summer	MH1	124	9.874	0.535	18.2	34.0599	0.0000	OK

Link Event	US Node	Link	Outflow (l/s)
120 minute summer	MH1	Infiltration	0.3

Results for 100 year +45% CC 120 minute winter. 360 minute analysis at 2 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
120 minute winter	MH1	122	9.875	0.536	12.5	34.1346	0.0000	OK
Link Event	US Node	Link	Outflow (l/s)					
120 minute winter	MH1	Infiltration	0.3					

Results for 100 year +45% CC 180 minute summer. 420 minute analysis at 4 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m ³)	Flood (m ³)	Status
180 minute summer	MH1	184	9.910	0.571	13.3	36.3376	0.0000	OK

Link Event	US Node	Link	Outflow (l/s)
180 minute summer	MH1	Infiltration	0.3



Results for 100 year +45% CC 180 minute winter. 420 minute analysis at 4 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m ³)	Flood (m ³)	Status
180 minute winter	MH1	184	9.911	0.572	9.1	36.4045	0.0000	OK

Link Event	US Node	Link	Outflow (l/s)
180 minute winter	MH1	Infiltration	0.3

Results for 100 year +45% CC 240 minute summer. 480 minute analysis at 4 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
240 minute summer	MH1	244	9.934	0.595	11.1	37.8477	0.0000	OK

Link Event	US Node	Link	Outflow (l/s)
240 minute summer	MH1	Infiltration	0.3

Results for 100 year +45% CC 240 minute winter. 480 minute analysis at 4 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
240 minute winter	MH1	240	9.936	0.597	7.4	37.9675	0.0000	OK
Link Event	US Node	Link	Outflow (l/s)					
240 minute winter	MH1	Infiltration	0.3					

Results for 100 year +45% CC 360 minute summer. 600 minute analysis at 8 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
360 minute summer	MH1	368	9.960	0.621	8.3	39.5244	0.0000	OK
Link Event		US Node		Link	Outflow (l/s)			
360 minute summer		MH1		Infiltration	0.3			

Results for 100 year +45% CC 360 minute winter. 600 minute analysis at 8 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m ³)	Flood (m ³)	Status
360 minute winter	MH1	360	9.961	0.622	5.4	39.6121	0.0000	OK

Link Event	US Node	Link	Outflow (l/s)
360 minute winter	MH1	Infiltration	0.3

Results for 100 year +45% CC 480 minute summer. 720 minute analysis at 8 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m ³)	Flood (m ³)	Status
480 minute summer	MH1	480	9.972	0.633	6.4	40.3194	0.0000	OK

Link Event	US Node	Link	Outflow (l/s)
480 minute summer	MH1	Infiltration	0.3



Results for 100 year +45% CC 480 minute winter. 720 minute analysis at 8 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m ³)	Flood (m ³)	Status
480 minute winter	MH1	472	9.980	0.641	4.3	40.8120	0.0000	OK

Link Event	US Node	Link	Outflow (l/s)
480 minute winter	MH1	Infiltration	0.3

Results for 100 year +45% CC 600 minute summer. 840 minute analysis at 15 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
600 minute summer	MH1	600	9.976	0.637	5.2	40.5757	0.0000	OK
Link Event	US Node	Link	Outflow (l/s)					
600 minute summer	MH1	Infiltration	0.3					

Results for 100 year +45% CC 600 minute winter. 840 minute analysis at 15 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m ³)	Flood (m ³)	Status
600 minute winter	MH1	585	9.981	0.642	3.6	40.8703	0.0000	OK
Link Event	US Node	Link	Outflow (l/s)					
600 minute winter	MH1	Infiltration	0.3					

Results for 100 year +45% CC 720 minute summer. 960 minute analysis at 15 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
720 minute summer	MH1	720	9.979	0.640	4.7	40.7094	0.0000	OK
Link Event		US Node		Link	Outflow (l/s)			
720 minute summer		MH1		Infiltration	0.3			

Results for 100 year +45% CC 720 minute winter. 960 minute analysis at 15 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
720 minute winter	MH1	705	9.987	0.648	3.1	41.2550	0.0000	OK
Link Event	US Node	Link	Outflow (l/s)					
720 minute winter	MH1	Infiltration	0.3					

Results for 100 year +45% CC 960 minute summer. 1200 minute analysis at 15 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
960 minute summer	MH1	930	9.987	0.648	3.8	41.2425	0.0000	OK

Link Event	US Node	Link	Outflow (l/s)
960 minute summer	MH1	Infiltration	0.3



Results for 100 year +45% CC 960 minute winter. 1200 minute analysis at 15 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m ³)	Flood (m ³)	Status
960 minute winter	MH1	930	9.991	0.652	2.5	41.4900	0.0000	OK

Link Event	US Node	Link	Outflow (l/s)
960 minute winter	MH1	Infiltration	0.3



Results for 100 year +45% CC 1440 minute summer. 1680 minute analysis at 30 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m ³)	Flood (m ³)	Status
1440 minute summer	MH1	1170	9.969	0.630	2.8	40.1022	0.0000	OK

Link Event	US Node	Link	Outflow (l/s)
1440 minute summer	MH1	Infiltration	0.3



Results for 100 year +45% CC 1440 minute winter. 1680 minute analysis at 30 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m ³)	Flood (m ³)	Status
1440 minute winter	MH1	1200	9.977	0.638	1.9	40.6021	0.0000	OK

Link Event	US Node	Link	Outflow (l/s)
1440 minute winter	MH1	Infiltration	0.3



Results for 100 year +45% CC 2160 minute summer. 2400 minute analysis at 60 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m ³)	Flood (m ³)	Status
2160 minute summer	MH1	1620	9.949	0.610	2.0	38.7952	0.0000	OK

Link Event	US Node	Link	Outflow (l/s)
2160 minute summer	MH1	Infiltration	0.3



Results for 100 year +45% CC 2160 minute winter. 2400 minute analysis at 60 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m ³)	Flood (m ³)	Status
2160 minute winter	MH1	1680	9.945	0.606	1.4	38.5908	0.0000	OK

Link Event	US Node	Link	Outflow (l/s)
2160 minute winter	MH1	Infiltration	0.3

Results for 100 year +45% CC 2880 minute summer. 3120 minute analysis at 60 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
2880 minute summer	MH1	2040	9.945	0.606	1.7	38.5646	0.0000	OK

Link Event	US Node	Link	Outflow (l/s)
2880 minute summer	MH1	Infiltration	0.3

Results for 100 year +45% CC 2880 minute winter. 3120 minute analysis at 60 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
2880 minute winter	MH1	2160	9.924	0.585	1.1	37.2648	0.0000	OK

Link Event	US Node	Link	Outflow (l/s)
2880 minute winter	MH1	Infiltration	0.3



Results for 100 year +45% CC 4320 minute summer. 4560 minute analysis at 60 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m ³)	Flood (m ³)	Status
4320 minute summer	MH1	2820	9.884	0.545	1.3	34.7135	0.0000	OK

Link Event	US Node	Link	Outflow (l/s)
4320 minute summer	MH1	Infiltration	0.3



Results for 100 year +45% CC 4320 minute winter. 4560 minute analysis at 60 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m ³)	Flood (m ³)	Status
4320 minute winter	MH1	3000	9.839	0.500	0.9	31.7998	0.0000	OK

Link Event	US Node	Link	Outflow (l/s)
4320 minute winter	MH1	Infiltration	0.3

Results for 100 year +45% CC 5760 minute summer. 6000 minute analysis at 60 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
5760 minute summer	MH1	3660	9.854	0.515	1.1	32.7679	0.0000	OK

Link Event	US Node	Link	Outflow (l/s)
5760 minute summer	MH1	Infiltration	0.3

Results for 100 year +45% CC 5760 minute winter. 6000 minute analysis at 60 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
5760 minute winter	MH1	3840	9.763	0.424	0.7	27.0194	0.0000	OK

Link Event	US Node	Link	Outflow (l/s)
5760 minute winter	MH1	Infiltration	0.3



Results for 100 year +45% CC 7200 minute summer. 7440 minute analysis at 60 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m ³)	Flood (m ³)	Status
7200 minute summer	MH1	4440	9.783	0.444	0.9	28.2458	0.0000	OK

Link Event	US Node	Link	Outflow (l/s)
7200 minute summer	MH1	Infiltration	0.3



Results for 100 year +45% CC 7200 minute winter. 7440 minute analysis at 60 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m ³)	Flood (m ³)	Status
7200 minute winter	MH1	4620	9.681	0.342	0.6	21.7945	0.0000	OK

Link Event	US Node	Link	Outflow (l/s)
7200 minute winter	MH1	Infiltration	0.3

Results for 100 year +45% CC 8640 minute summer. 8880 minute analysis at 60 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m ³)	Flood (m ³)	Status
8640 minute summer	MH1	5220	9.745	0.406	0.8	25.8338	0.0000	OK
Link Event	US Node	Link	Outflow (l/s)					
8640 minute summer	MH1	Infiltration	0.3					



Results for 100 year +45% CC 8640 minute winter. 8880 minute analysis at 60 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m ³)	Flood (m ³)	Status
8640 minute winter	MH1	5340	9.603	0.264	0.5	16.7748	0.0000	OK

Link Event	US Node	Link	Outflow (l/s)
8640 minute winter	MH1	Infiltration	0.3

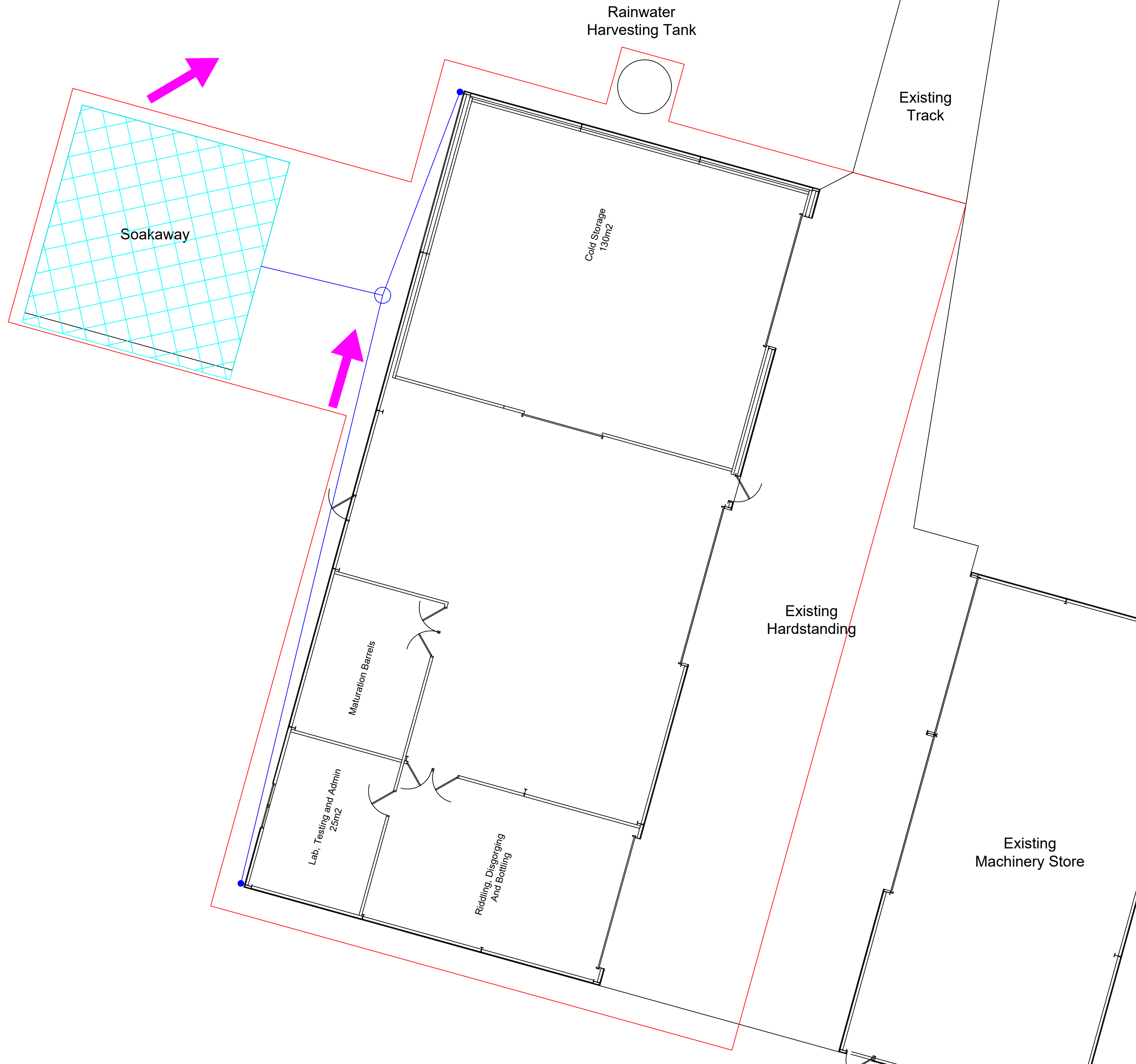
Results for 100 year +45% CC 10080 minute summer. 10320 minute analysis at 60 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
10080 minute summer	MH1	5940	9.701	0.362	0.7	23.0194	0.0000	OK

Link Event	US Node	Link	Outflow (l/s)
10080 minute summer	MH1	Infiltration	0.3

Results for 100 year +45% CC 10080 minute winter. 10320 minute analysis at 60 minute timestep. Mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
10080 minute winter	MH1	6060	9.558	0.219	0.5	13.9175	0.0000	OK
Link Event	US Node	Link	Outflow (l/s)					
10080 minute winter	MH1	Infiltration	0.3					



Notes:

1. Discharge of surface water via a cellular storage soakaway. Preliminary calculations indicate that sufficient storage required to attenuate runoff arising from the impermeable areas being attenuated, during the critical 1 in 100 year + 45% Climate Change event, can be provided within a cellular storage soakaway of dimensions 67m² x 0.66m deep x 0.95 (voids).

- Legend**
-  Proposed Cellular Storage Soakaway
 -  Proposed Surface Water Pipework
 -  Proposed Surface Water Downpipe
 -  Proposed Surface Water Manhole
 -  Design Exceedance Route



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Job Reference: 92601-NFP-BcnsFrm_SUDS	Date: 31/01/25
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Drawing Number: 92601-01	Revision: v1
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Designed by: AR	Drawn by: AR	Checked by: EB
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Scale: 1:100@A2	Disclaimer: The drawings provided are for planning purposes only.
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