



Image supplied by Google Earth
on 15 July 2024



CLIENT:
PROJECT TITLE:
PROJECT NO:

DRAWING TITLE:
DRAWING NO:
SCALE:

MILLER HOMES
LAND AT NORTH COLWELL FARM, HAYWARDS HEATH
02.38

ILLUSTRATIVE MASTERPLAN
02.38(01)02
1:500 @ A0



APPENDIX H: West Sussex County Council SuDS Proforma

Surface Water Drainage Proforma

West Sussex County Council (WSCC) as Lead Local Flood Authority recommends this proforma is completed and submitted to support any planning application for a major development. The information contained in this form will be used by WSCC officers in their role as 'statutory consultee' on surface water drainage. The proforma should accompany the site-specific Flood Risk Assessment and Drainage Strategy submitted as part of the planning application.

1. Site Details

No.	Requirement	Answer	Application Type
1.1	Address including postcode	North Colwell Farm, Lewes Road, Haywards Heath, RH17 7TB	Outline & Full
1.2	OS grid reference (easting and northing)	E535304, N123280	Outline & Full
1.3	Planning application reference	n/a	Outline & Full
1.4	Total site area (hectares)	6.25	Outline & Full
1.5	Pre-development use	Greenfield	Outline & Full
1.6	Proposed design life	100yrs +	Outline & Full
1.7	Have agreements in principle for discharge been provided (where applicable)? (YES/NO)	No	Outline & Full
1.8	Topographic Survey Plan showing existing site layout, site levels and drainage system	Yes, Appendix D.	Outline & Full

2. Discharge Hierarchy/Methods of Discharge¹

No.	Requirement	Answer	Application Type
2.1	Store rainwater for later use (reuse) (YES/NO)		Full
2.2	Infiltration techniques such as soakaways, permeable paving, etc (YES/NO)	Yes	Outline & Full
2.3	Hybrid (YES/NO)	Yes, partial infiltration, partial discharge to an existing watercourse	Outline & Full

¹ Runoff may be discharged via one or multiple methods.

No.	Requirement	Answer	Application Type
2.4	Attenuation with restricted discharge to watercourse (YES/NO)	Yes, partial infiltration, partial restricted discharge to an existing watercourse	Outline & Full
2.5	Attenuation with restricted discharge to surface water sewer (YES/NO)	No	Outline & Full
2.6	Attenuation with restricted discharge to combined sewer (YES/NO)	No	Outline & Full

3. Calculation Inputs

No.	Requirement	Answer	Application Type
3.1	Area within site which is drained by SuDS ² (hectares)	1.735	Outline & Full
3.2	Impermeable area drained pre-development ³ (hectares)	0	Outline & Full
3.3	Impermeable area drained post-development ³ (hectares)	1.735	Outline & Full
3.4	Urban Creep (hectares)	0.042	Outline & Full
3.5	Climate change factor applied (1 in 30 and 1 in 100) (percentage)	40% & 45%	Outline & Full

4. Infiltration Feasibility/Ground Investigations

No.	Requirement	Answer	Application Type
4.1	Has winter groundwater monitoring and infiltration been undertaken? (YES/NO)	Yes	Outline & Full
4.2	Period of winter groundwater monitoring (from/to)	TBC	Outline & Full
4.3	Depth to highest recorded groundwater level (mAOD)		Full
4.4	Infiltration rate	1.25x10-6	Outline & Full

² Impermeable area should be measured pre and post development. Impermeable surfaces include roofs, pavements, driveways and paths, where runoff is conveyed to the drainage system.

³ 10% Urban Creep should be added to the volumes required for storage and not increase discharge rates.

No.	Requirement	Answer	Application Type
4.5	Depth of infiltration structure (mAOD)		Full
4.6	Safety factor used for sizing infiltration storage	2	Outline & Full

5. Calculation Outputs: Greenfield Runoff Rates⁴

No.	Requirement	Answer	Application Type
5.1	Qbar (l/s)	10.0	Outline & Full
5.2	1 in 1 year rainfall (l/s)	8.5	Outline & Full
5.3	1 in 30 year rainfall (l/s)	24.1	Outline & Full
5.4	1 in 100 year rainfall (l/s)	32.0	Outline & Full

6. Calculation Outputs: Brownfield Runoff Rates (including Urban Creep) (if applicable)

No.	Requirement	Answer	Application Type
6.1	1 in 1 year rainfall (l/s)	n/a	Outline & Full
6.2	1 in 30 year rainfall (l/s)	n/a	Outline & Full
6.3	1 in 100 year rainfall (l/s)	n/a	Outline & Full

7. Calculation Outputs: Volume Control/Infiltration Provision

No.	Requirement	Answer	Application Type
7.1	Infiltration (m ³)	Total Volume 3121m ³	Outline & Full
7.2	Attenuation (m ³)	Total Volume 3121m ³	Outline & Full
7.3	Separate volume designated as long-term storage ⁵ (m ³)		Full
7.4	Total volume control (sum of inputs for 7.1 to 7.3) (m ³)		Full

⁴ Flows within long term storage areas should be infiltrated to the ground or discharged at low flow rate of maximum 2 litres per second per hectare (l/s/ha).

⁵ In calculations and for the avoidance of doubt FEH shall be used FSR is not acceptable, and CV values must equal 1.

8. Calculation Outputs: Attenuation/Restricted Discharge

No.	Requirement		Answer	Application Type
8.1	Proposed discharge rate (critical storm)	1 in 1 (100%) AEP (m/s)	0l/s	Outline & Full
		1 in 30 (3.33%) AEP (m/s)	0/s	Outline & Full
		1 in 30 (3.33%) AEP plus climate change (m/s)	4.9l/s	Outline & Full
		1 in 100 (1%) AEP (m/s)	1.5l/s	Outline & Full
		1 in 100 (1%) AEP plus climate change (m/s)	10l/s	Outline & Full
8.2	Calculations show critical storm durations (both by max height and max discharge) for 1 in 1, 1 in 30, 1 in 30 plus climate change, 1 in 100 and 1 in 100 year plus climate change allowance can be accommodated on site (YES/NO)		Yes	Outline & Full
8.3	Has treatment of potential contaminants been considered? (YES/NO)		Yes, surface water treatment is provided in line with the CIRIA SuDS Manual via the basin and permeable paving.	Outline & Full
8.4	Demonstration of source control features with substantive evidence why these cannot be used if not (YES/NO)			Full
8.5	If discharging into a watercourse, piped system or the sea, has the proposed drainage network been modelled against predicted top water levels for the 1 in 100 year storm event plus climate change allowance, within the existing system? (YES/NO)			Full

9. Other Supporting Details

No.	Requirement	Answer	Application Type
9.1	Plan detailing location of groundwater monitoring and infiltration testing	Yes, Appendix E	Outline & Full
9.2	Detailed drainage design layout		Full
9.3	Maintenance strategy		Full

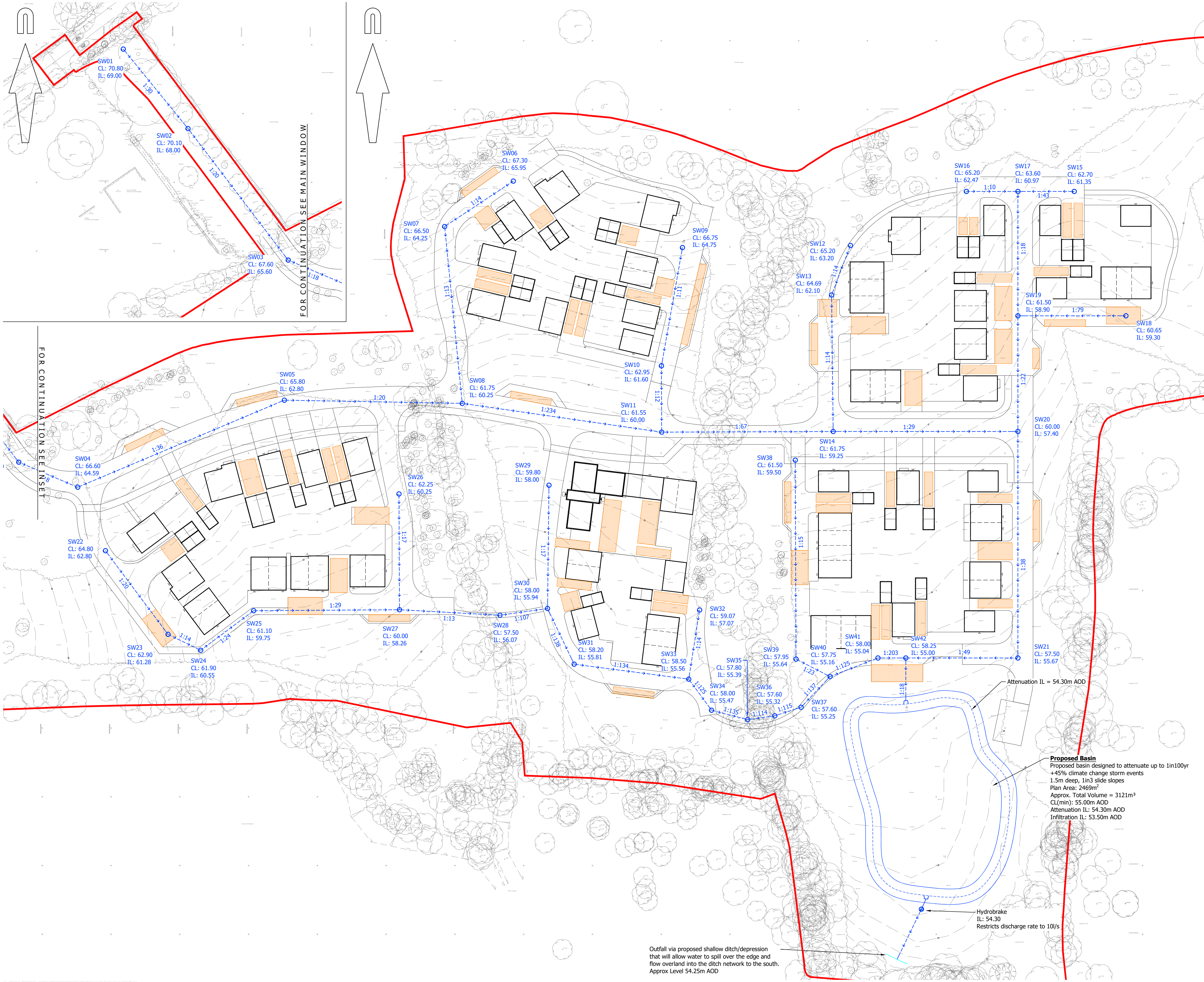
No.	Requirement	Answer	Application Type
9.4	Detailed development layout		Full
9.5	Impermeable area plan		Full
9.6	Phasing plan?		Full
9.7	If ground levels are being raised over 300mm above existing levels and is unavoidable, have detailed plans been provided, together with drainage proposals, to address any potential drainage related issues?		Full

The above form should be completed using evidence from information which should be appended to this form. The information being submitted should be proportionate to the site conditions, flood risks and magnitude of development. It should serve as a summary of the drainage proposals and should clearly show that the proposed discharge rate and volume as a result of development will not be increasing. Where there is an increase in discharge rate or volume, then the relevant section of this form must be completed with clear evidence demonstrating how the requirements will be met.

This form is completed using factual information and can be used as a summary of the surface water drainage strategy on this site.

Form completed by	Caroline Gower
Qualification of person responsible for signing off this proforma	BSc, GradCIWEM, GMICE
Company	Mayer Brown Ltd
On behalf of (client's details)	Miller Homes
Date	04/02/25

APPENDIX I: Proposed Drainage Strategy



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- KEY
- SITE BOUNDARY
 - PROPOSED SURFACE WATER SEWER AND MANHOLE
 - PROPOSED HYDROBRAKE
 - OUTFALL TRENCH
 - PROPOSED BASIN
 - PROPOSED HEADWALL
 - PROPOSED PERMEABLE PAVING

- NOTES:
- The proposed drainage strategy is indicative and is subject to detailed design.
 - This drawing is based on the topographic survey undertaken by Survey Solutions in December 2023.
 - This drawing is based on the proposed layout provided by The Core Design in February 2025.
 - CLS and ILS are based on the existing levels on the topographic survey and LiDAR and are subject to detailed design.
 - All infrastructure proposed has been positioned outside of the woodland buffer zone where possible.
 - The basin will be left unlined for infiltration, subject to further groundwater monitoring, which will be sufficient for most storm events. An overflow is provided at 0.8m above the invert level of the basin providing an overland flow outfall to the surrounding ditch network at greenfield run-off rates.
 - Ordinary watercourse consent and any other relevant permissions will be obtained at the detailed design stage where required.

PRELIMINARY
NOT FOR CONSTRUCTION

P3	Attenuation outfall updated (JC)	CG 06/02/2025
P2	Draft Watermark Removed (JC)	CG 08/01/2025
P1	Initial Issue (JC)	CG 18/12/2024

rev.	amendment	checked	date
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client
MILLER HOMES

project
LAND AT NORTH COLWELL FARM
HAYWARDS HEATH

scale 1:500	drawn by JC	checked by CG
date FEBRUARY 2025	cad file MASTER.DWG	
title		

SURFACE WATER DRAINAGE STRATEGY

Mayer Brown Limited Jobcode MHHAYWARDSHEATH.23	suitability -	revision P3
drawing number MHHAYWARDSHEATH.23/23		

APPENDIX J: Greenfield Run-off Calculations

Simulation Settings

Rainfall Methodology	FEH-22	Analysis Speed	Detailed	Starting Level (m)		100 year (l/s)	32.0
Rainfall Events	Singular	Skip Steady State	x	Check Discharge Rate(s)	✓	Check Discharge Volume	x
Summer CV	1.000	Drain Down Time (mins)	10000	1 year (l/s)	8.5		
Winter CV	1.000	Additional Storage (m³/ha)	0.0	30 year (l/s)	24.1		

Storm Durations

15 | 30 | 60 | 120 | 180 | 240 | 360 | 480 | 600 | 720 | 960 | 1440

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)	Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
2	0	0	0	100	0	0	0
30	0	0	0	100	45	0	0
30	40	0	0				

Pre-development Discharge Rate

Site Makeup	Greenfield	Soil Index	4	Growth Factor 30 year	2.40	Q 1 year (l/s)	8.5
Greenfield Method	IH124	SPR	0.47	Growth Factor 100 year	3.19	Q 30 year (l/s)	24.1
Positively Drained Area (ha)	1.736	Region	7	Betterment (%)	0	Q 100 year (l/s)	32.0
SAAR (mm)	817	Growth Factor 1 year	0.85	QBar	10.0		

APPENDIX K: Proposed Network Calculations

Design Settings

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

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Easting (m)	Northing (m)	Depth (m)
Storage Estimate	1.787	5.00	55.000	535368.290	123221.390	1.500
Outfall			54.000	535274.472	123238.855	1.000

Links (Input)

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
1.000	Storage Estimate	Outfall	95.430	0.600	53.500	53.000	0.500	190.9	525	5.98	50.0

Simulation Settings

Rainfall Methodology	FEH-22	Analysis Speed	Detailed	Starting Level (m)		100 year (l/s)	32.0
Rainfall Events	Singular	Skip Steady State	x	Check Discharge Rate(s)	✓	Check Discharge Volume	x
Summer CV	1.000	Drain Down Time (mins)	10000	1 year (l/s)	8.5		
Winter CV	1.000	Additional Storage (m³/ha)	0.0	30 year (l/s)	24.1		

Storm Durations

15	30	60	120	180	240	360	480	600	720	960	1440
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Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)	Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
1	0	0	0	100	0	0	0
30	0	0	0	100	45	0	0
30	40	0	0				

Pre-development Discharge Rate

Site Makeup	Greenfield	Soil Index	4	Growth Factor 30 year	2.40	Q 1 year (l/s)	8.5
Greenfield Method	IH124	SPR	0.47	Growth Factor 100 year	3.19	Q 30 year (l/s)	24.1
Positively Drained Area (ha)	1.736	Region	7	Betterment (%)	0	Q 100 year (l/s)	32.0
SAAR (mm)	817	Growth Factor 1 year	0.85	QBar	10.0		

Node Storage Estimate Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Downstream Link	1.000	Sump Available	✓
Replaces Downstream Link	✓	Product Number	CTL-SHE-0150-1000-0700-1000
Invert Level (m)	54.300	Min Outlet Diameter (m)	0.225
Design Depth (m)	0.700	Min Node Diameter (mm)	1200
Design Flow (l/s)	10.0		

Node Storage Estimate Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00450	Safety Factor	2.0	Invert Level (m)	53.500
Side Inf Coefficient (m/hr)	0.00450	Porosity	1.00	Time to half empty (mins)	8310

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	1687.0	1687.0	0.800	2088.0	2088.0	1.500	2469.0	2469.0

Results for 1 year Critical Storm Duration. Lowest mass balance: 99.99%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
1440 minute winter	Storage Estimate	1440	53.789	0.289	17.0	508.8387	0.0000	OK
15 minute summer	Outfall	1	53.000	0.000	0.0	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Discharge Vol (m³)
1440 minute winter	Storage Estimate	Hydro-Brake®	Outfall	0.0	0.0
1440 minute winter	Storage Estimate	Infiltration		1.1	

Results for 30 year Critical Storm Duration. Lowest mass balance: 99.99%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
1440 minute winter	Storage Estimate	1440	54.176	0.676	39.0	1254.0820	0.0000	SURCHARGED
15 minute summer	Outfall	1	53.000	0.000	0.0	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Discharge Vol (m³)
1440 minute winter	Storage Estimate	Hydro-Brake®	Outfall	0.0	0.0
1440 minute winter	Storage Estimate	Infiltration		1.3	

Results for 30 year +40% CC Critical Storm Duration. Lowest mass balance: 99.99%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
1440 minute winter	Storage Estimate	1410	54.394	0.894	54.7	1708.0610	0.0000	SURCHARGED
15 minute summer	Outfall	1	53.000	0.000	0.0	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Discharge Vol (m³)
1440 minute winter	Storage Estimate	Hydro-Brake®	Outfall	4.9	171.5
1440 minute winter	Storage Estimate	Infiltration		1.3	

Results for 100 year Critical Storm Duration. Lowest mass balance: 99.99%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
1440 minute winter	Storage Estimate	1440	54.348	0.848	49.9	1610.5320	0.0000	SURCHARGED
15 minute summer	Outfall	1	53.000	0.000	0.0	0.0000	0.0000	OK

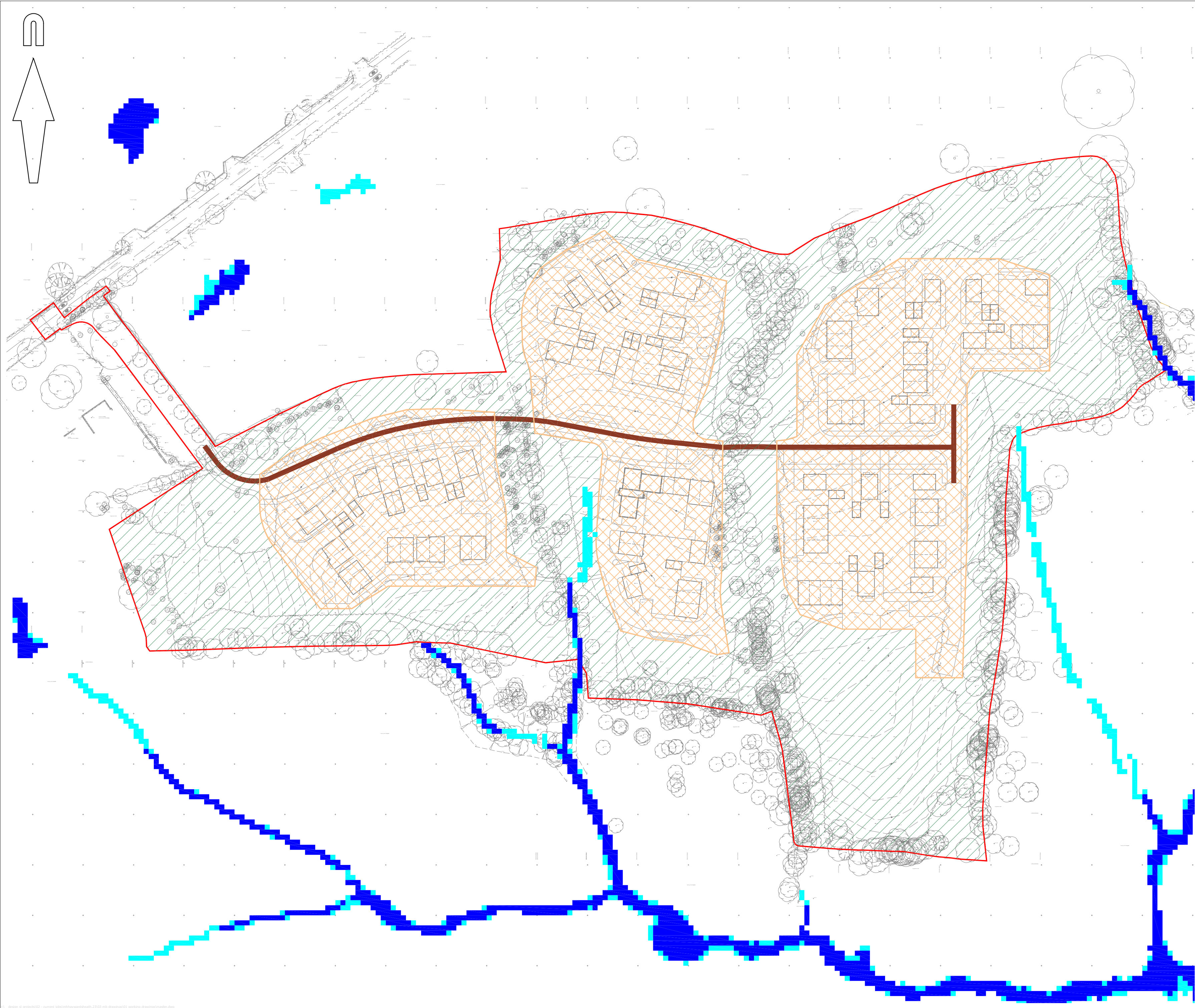
Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Discharge Vol (m³)
1440 minute winter	Storage Estimate	Hydro-Brake®	Outfall	1.5	37.4
1440 minute winter	Storage Estimate	Infiltration		1.3	

Results for 100 year +45% CC Critical Storm Duration. Lowest mass balance: 99.99%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
1440 minute winter	Storage Estimate	1350	54.558	1.058	72.3	2065.9900	0.0000	SURCHARGED
15 minute summer	Outfall	1	53.000	0.000	0.0	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Discharge Vol (m³)
1440 minute winter	Storage Estimate	Hydro-Brake®	Outfall	10.0	727.4
1440 minute winter	Storage Estimate	Infiltration		1.4	

APPENDIX L: Surface Water Extents & Developable Areas



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KEY

- SITE BOUNDARY
- 1 IN 30YR SURFACE WATER FLOOD EXTENT
- 1 IN 100YR SURFACE WATER FLOOD EXTENT
- RESIDENTIAL DEVELOPMENT INC. RESIDENTIAL USE, VEHICULAR ROUTES, PEDESTRIAN/CYCLE ROUTES, CAR PARKING, PRIVATE AMENITY SPACE AND ASSOCIATED LANDSCAPING
- SUPPORTING INFRASTRUCTURE INC. PUBLIC OPEN SPACE, PLAY AREAS, INFORMAL KICKABOUT AREA, STRATEGIC LANDSCAPING & SUSTAINABLE DRAINAGE
- PROPOSED TREE LINED STREET

NOTES:

- This drawing is based on the topographic survey undertaken by Survey Solutions in December 2023.
- This drawing is based on the Parameters Plan provided by The Core Design on 8th January 2025.
- The Surface Water Flood Extents show the yearly chance of flooding for between 2040 and 2060.

FOR INFORMATION
NOT FOR CONSTRUCTION

P2	Surface Water Flood extents updated. (JC)	CG	05/02/25
P1	Initial Issue (CG)	SL	08/01/25

rev.	amendment	checked	date
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client
MILLER HOMES

project
LAND AT NORTH COLWELL FARM
HAYWARDS HEATH

scale	drawn by	checked by
1:1000 @ A2	CG	SL

date	cad file
FEBRUARY 2025	MASTER

title
SURFACE WATER FLOOD EXTENTS & DEVELOPABLE
AREAS PLAN

Mayer Brown Limited jobcode	suitability	revision
SL/MHHAYWARDSHEATH.23		P2

drawing number
MHHAYWARDSHEATH.23/24

