
Technical Note

Project:	Finchwood, Parcel 13	SMA Ref:	7292.TN01
Subject:	Parcel 13 Drainage Strategy	Revised:	23.07.2025
Prepared by:	Aiden Simmons	Date:	14.02.2025
Checked by:	Kate Marshall	Date:	14.02.2025

INTRODUCTION

This Technical Note (TN) has been prepared by Stuart Michael Associates Limited (SMA) on behalf of Countryside Properties (UK) Ltd to support the reserved matters planning application for Parcel 13 of the Finchwood Development. This is related to planning application ref: 181194 under a section 73 agreement for the erection of up to 56no. dwellings and connection to the existing associated accesses, with all other matters reserved. This is in relation to one of the parcels that sit as part of the wider development which benefits from outline planning permission.

The TN confirms the compliance of the proposed surface water drainage strategy for Parcel 13 with the approved drainage strategy as part of the flood risk assessment (Ref C85672-R001A prepared by JNP group) submitted as part of the outline planning application 140764, permitted in January 2017.

For ease of reference, drawing: 'C85672-SK-204 rev B' from the outline strategy is included in appendix I.

ICOSA have obtained a NAV agreement for the entirety of the Finchwood development. As such, Parcel 13 has been designed in accordance with ICOSA's requirements and the Design and Construction Guidance for foul and surface water drainage systems, published by Water UK.

DRAINAGE STRATEGY SUMMARY:

Finchwood parcel 13 contains an overall 56 dwellings split between parcel 13A and 13B by 43 and 13 respectively. The surface water drainage for these areas is separated due to a proposed underground diversion of a HV electrical line creating a circa 17m easement through the middle of the parcel (which is to be clear of any structures or drainage features). As-built information has now been received for the surrounding drainage (drawing ref: WMHP-PBA-NMRE-DR-DD-0508,0510,0517 & 0519), in turn the outfalls are based on these details.

The foul water strategy is also split, between 13A and 13B, with 13A discharging into the existing network contained within the NMRE to the west and 13B discharging south out of the parcel to another existing network also contained within the NMRE. As originally proposed in the foul drainage strategy, parcel 13B's foul drainage will run through parcels 11 & 12 to the south and eventually connect to 'Foul Pump Station 2' located at the south of parcel 11.

SURFACE WATER DRAINAGE:

To confirm the strategy approved to date that parcel 13 follows, the surface water runoff from the site has been separated into 2 networks.

- A. One network serving surface water runoff for 46 plots (parcel 13A) and associated roads, discharging west into an existing surface water manhole constructed within the existing parcel access road.
- B. A second network serving surface water runoff for 13 plots (within parcel 13B) and associated roads. This discharges south out of the parcel into an existing surface water sewer within the Nine Mile Road Extension.

The reserved matters surface water drainage strategy follows the principles and details set out during the outline application with a slight deviation to parcel 13b's strategy to split the networks.

Network A is comprised of SuDS features for storage & treatment such as porous pavements and attenuation crates before discharging at an agreed restricted rate of 5l/s into the existing sewer. Network B is also comprised of porous pavements and attenuation crates and discharges at 5l/s. The networks have been designed to allow for storage of the surface water for all storm events up to and including the 1:100 year plus 40% climate change.

The table below shows the comparison between the discharge rates and storage volumes estimated during the outline strategy and calculated in detail for this reserved matter strategy.

Item	Outline Strategy	Reserved Matters Strategy
Impermeable Area	0.697ha	0.511ha
Catchment Discharge Rate	5.0 l/s	5.0 l/s
Storage provided with Porous Paving	N/A	173m ³
Storage provided with Attenuation Crates	N/A	297m ³
Total Storage	Min 410m ³	470m ³

Comparison of discharge rates and volumes for **Network A** (P13A)

Item	Outline Strategy	Reserved Matters Strategy
Impermeable Area	0.250ha	0.222ha
Catchment Discharge Rate	5.0 l/s	5.0 l/s
Storage provided with Attenuation Crates	N/A	112m ³
Storage provided with Porous Paving	N/A	252.2m ³
Total Storage	Min 110m ³	364.2 m ³

Comparison of discharge rates and volumes for **Network B** (P13B)

KEY DESIGN INPUTS:

The overall Finchwood Development greenfield run-off rates are as follows:

QBAR Discharge Rate = 2.04l/s/ha

Q1 Discharge Rate = 1.74l/s/ha

Q30 Discharge Rate = 4.7l/s/ha

Q100 Discharge Rate = 6.52l/s/ha

An extract of the impermeable area plan, to exhibit the contributing areas to each network, is presented below as figure 1 and as **Appendix F**.

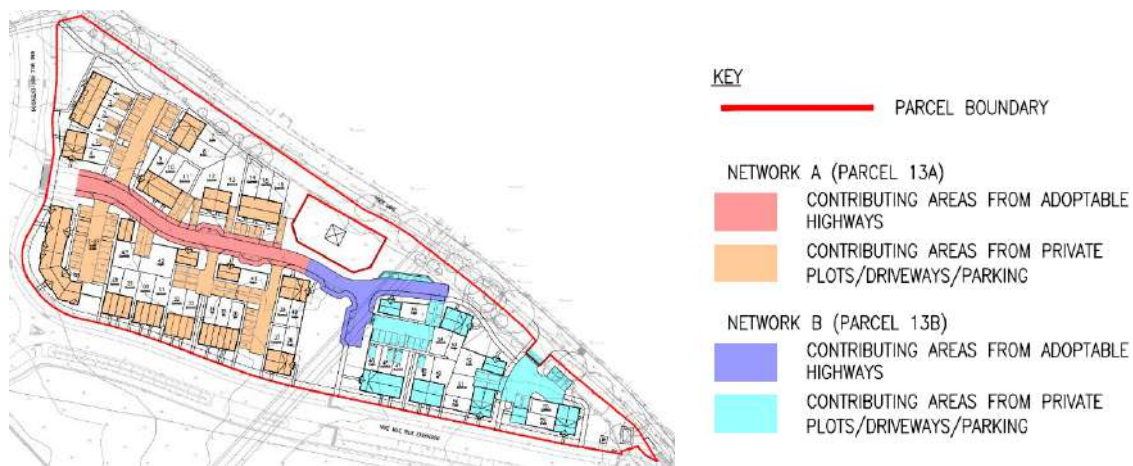


Figure 1 - Extract from Impermeable Areas plan (Appendix F) drawing 7292.028

CAUSEWAY FLOW CALCULATIONS:

The detailed Causeway Flow calculations for this parcel showing the maximum discharge rate and storage volume compliance are presented as **Appendix B & C**. Flow calculations for the foul networks are also presented within **Appendix D & E**. FEH22 model characteristics have been used throughout the modelling process.

EXCEEDANCE ROUTING:

All storms up to and including the 100-year + 40% climate change storm event are contained within the drainage system and there is no flooding which negates the requirement for an exceedance routing plan.

SURFACE WATER DISCHARGE QUALITY:

The quality of surface water collected and discharged to the surrounding environment, by direct discharge to watercourses or by infiltration into the ground water, should be managed such that the receiving bodies are protected from pollution. ICOSA also encourage the reduction of hydrocarbons prior to the outfall into their network. The implementation and installation of suitable SuDS features within the overall surface water drainage network can improve water quality through the removal of pollutants.

'The SuDS Manual' (CIRIA 753) has been developed which includes details of the pollution hazard indices for various land uses. The types of pollution hazards assessed include Total Suspended Solids (TSS), Metals and Hydrocarbons. The pollution indices range between 0 (no pollution) and 1 (high pollution) and are included in Table 26.2 of the SuDS Manual.

The various SuDS features available have been assessed for their suitability and effectiveness for the removal of pollutants from surface water discharge. These pollution mitigation indices are included in Table 26.3 of the SuDS Manual.

To deliver suitable treatment, the proposed SuDS features should provide total pollution mitigation index equal to or that exceed the pollution hazard indices for each contaminant type. (The pollution mitigation and pollution indices should always be assessed for each contaminant type).

The proposed development site has been assessed, and the relevant pollution hazard indices present on the developed site have been shown below in the table below, which is an extract from Table 26.2 of the SuDS Manual.

Land use	Pollution Hazard Level	Total Suspended Solids (TSS)	Metals	Hydrocarbons HCs
Residential Roofs	Very Low	0.2	0.2	0.05
Individual property highways, car parks, low traffic roads.	Low	0.5	0.4	0.4

Pollution Hazard Indices for **Network A & B**

To deliver adequate treatment, the selected SuDS components should have a total pollution mitigation index (for each contaminant type) that equals or exceeds the pollution hazard indices (for each contaminant type):

$$\text{Total SuDS mitigation indices (for each contaminant type)} \geq \text{Pollution hazard indices (for each contaminant type)}$$

The proposed SuDS features to be included in the surface water drainage strategy have been shown below in the table below. (This table is an extract from Table 26.3 of the SuDS Manual).

Type of SuDS Component	Mitigation Indices 1		
	TSS	Metals	Hydrocarbons HCs
Permeable Pavement	0.7	0.6	0.7

Indicative SuDS Mitigation Indices for **Network A & B**

The total pollution hazard indices for **Network A & B** are low, so the permeable pavement alone provides sufficient treatment for the surface water prior to discharge into the wider network.

The SuDS management train provides a total pollution mitigation index that exceeds the pollution hazard indices for each contaminant; therefore, the proposed surface water drainage system is considered suitable and sufficient to allow for the discharge to the environment.

Furthermore, the wider development surface water drainage system drains south through other parcels which include other SuDS components such as attenuation basins and swales. As Parcel 13 is at the head of run, the discharged surface water will also benefit from all downstream treatment trains before exiting the overall development.

SuDS MAINTENANCE:

It is anticipated that the Client will seek to have the surface water infrastructure adopted and therefore maintained by ICOSA.

The long-term management of surface water drainage assets, including any SuDS components, is essential to ensure they continue to function to their design standard. As such, a management and maintenance plan will need to be developed to ensure the systems continue to work effectively. A summary of the maintenance requirements is summarised in the table below.

Feature	Schedule	Required Action	Frequency
Permeable Pavements <i>Intended to be covered by Management company</i>	Regular maintenance	Brushing and vacuuming (standard cosmetic sweep over whole surface)	Once a year, after autumn leaf fall, or reduced frequency as required, based on site-specific observations of clogging or manufacturer's recommendations – pay particular attention to areas where water runs onto pervious surface from adjacent impermeable areas as this area is most likely to collect the most sediment
	Occasional maintenance	Stabilise and mow contributing and adjacent areas	As required
		Removal of weeds or management using glyphosate applied directly into the weeds by an applicator rather than spraying	As required – once per year on less frequently used pavements
	Remedial actions	Remediate any landscaping which, through vegetation maintenance or soil slip, has been raised to within 50 mm of the level of the paving	As required

		Remedial work to any depressions, rutting and cracked or broken blocks considered detrimental to the structural performance or a hazard to users, and replace lost jointing material	As required
		Rehabilitation of surface and upper substructure by remedial sweeping	Every 10 to 15 years or as required (if infiltration performance is reduced due to significant clogging)
	Monitoring	Initial inspection	Monthly for three months after installation
		Inspect for evidence of poor operation and/or weed growth – if required, take remedial action	Three-monthly, 48 h after large storms in first six months
		Inspect silt accumulation rates and establish appropriate brushing frequencies	Annually
		Monitor inspection chambers	Annually
Attenuation storage tanks <i>Intended to be covered by ICOSA under S104</i>	Regular maintenance	Inspect and identify any areas that are not operating correctly. If required, take remedial action	Monthly for 3 months, then annually
		Remove debris from the catchment surface (where it may cause risks to performance)	Monthly
		For systems where rainfall infiltrates into the tank from above, check surface of filter for blockage by sediment, algae or other matter; remove and replace surface infiltration medium as necessary.	Annually
		Remove sediment from pre-treatment structures and/ or internal forebays	Annually, or as required
	Remedial actions	Repair/rehabilitate inlets, outlet, overflows and vents	As required
	Monitoring	Inspect/check all inlets, outlets, vents and overflows to ensure that they are in good condition and operating as designed	Annually
		Survey inside of tank for sediment build-up and remove if necessary	Every 5 years or as required
Hydrobrake flow control Chamber <i>Intended to be covered by ICOSA under S104</i>	Regular maintenance	Inspect and identify any areas that are not operating correctly. If required, take remedial action.	Six-monthly
		Remove sediment and debris from flow control chamber.	Annually (or as required after heavy rainfall events).
	Remedial actions	Repair/rehabilitation of inlets.	As required.
	Monitoring	Inspect inlets for blockages, and clear if required. If faults persist jetting an CCTV survey may be required.	Monthly and after large storms.

Summary of SuDS Maintenance Requirements.

SUMMARY

The attached reserved matters drainage strategy for parcel 13 and accompanying calculations show that the proposed development can be drained effectively and complies with the overall approved outline application strategy.

The surface water discharge rate from the proposed parcel will be controlled by hydrobrakes at a restricted flow rate of 5.0 l/s for parcel 13A and 5.0 l/s parcel 13B, during all events up to the 1 in 100 year plus 40% climate change in accordance with the SuDS manual CIRIA C753.

For all networks, during the 1 in 30-year storm event, there is no flooding.

For all networks, during the 100-year plus 40% climate change storm event, there is no flooding.

For return periods greater than the 100-year plus 40% climate change, the finished levels have been designed to direct the surface water toward the NMRE which will eventually flow to the wider development swales and basins.

Permeable paving alone provides sufficient treatment for the surface water discharge of Networks A & B as the total mitigation indices exceed the pollution hazard indices for each contaminant; therefore, the proposed surface water drainage system is considered suitable and sufficient to allow for the discharge to the environment.

The foul water will be collected by gravity via a proposed piped foul network and will discharge to pump stations contained within the wider development.

It is assumed no section 106 applications will likely be required for discharge connections to existing sewers.

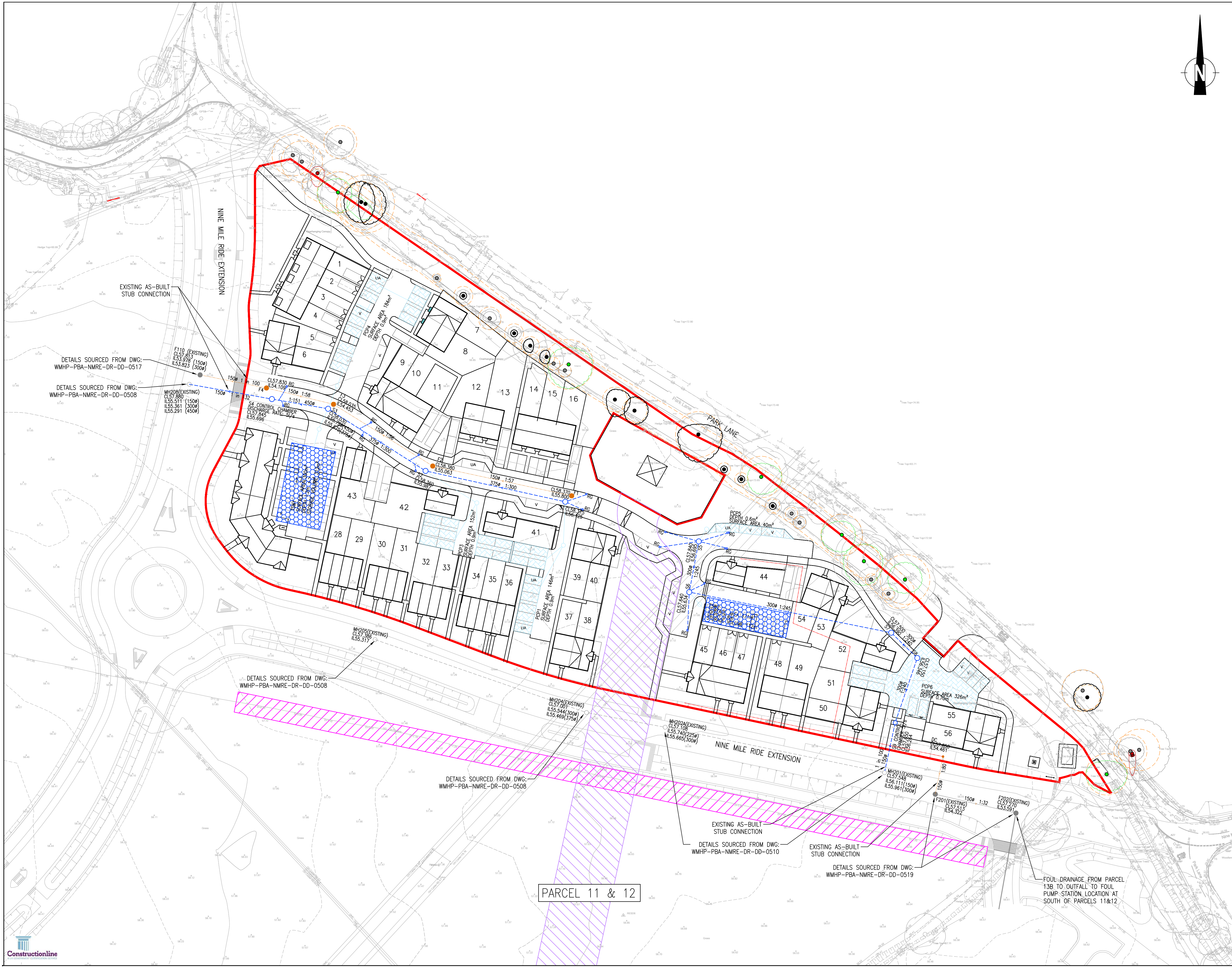
This drainage strategy together with accompanying appendices complies with the SuDS manual and the planning conditions.

The pre-development consultation recommendations from Wokingham Borough Council (dated 28.01.25) can be found in appendix G, have been understood and responded throughout the technical note.

Further to discussions with Wokingham Borough Council, the request for SuDS features and drainage integration within landscaping areas has been reviewed thoroughly. Parcel 13 is a relatively small parcel of land compared to the parcels that the surface water drainage connects into, meaning space to incorporate above ground/visible SuDS features is limited. The parcel has a few short sections of verge proposed that could be utilised as raingardens but would only be able to take small catchments of highway drainage and in the interest of a consistent drainage strategy for ease of maintenance the highway drainage has been left as gully pots. Permeable paving is incorporated where possible in car park areas, shared driveways and laybys. Locations of trees where integrated perforated pipes could be used are either adjacent to permeable paving so adding additional SuDS features in these areas would provide minimal benefit and incur unnecessary cost or are in open landscape areas which would have a detrimental impact to the surrounding landscape proposal. In turn, as proposed within the original planning application, SuDS features will be incorporated into the wider downstream network to improve both the storage and treatment of surface water runoff. There will be ample treatment to any surface water runoff as a whole site. At detailed design stage, the potential for small on-plot SuDS is to be reviewed and incorporated if possible - features such as water butts and rain gardens may provide significant additional benefit when capturing rainwater at its source.

Appendix A

DRAINAGE STRATEGY DRAWINGS



- NOTES:
1. DO NOT SCALE FROM THIS DRAWING.
 2. ALL DIMENSIONS ARE IN METRES, UNLESS STATED OTHERWISE.
 3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT SCHEME DRAWINGS AND SPECIFICATIONS.
 4. AS-BUILT NMRE LEVELS AND LAYOUT BASED ON DRAWINGS: 'WMHP-PBA-NMRE-DR-HI-0118-0120' DRAWN BY STANTEC.
 5. AS-BUILT EASTERN TURNING HEAD LEVELS AND LAYOUT BASED ON DRAWINGS: 'WMHP-PBA-NMRE-DR-HI-0160-0161' DRAWN BY STANTEC.
 6. TREE CONSTRAINTS BASED ON DRAWINGS: '5287_701-704' DRAWN BY RPS.
 7. DRAWING BASED ON TOPOGRAPHICAL SURVEY TITLED 'XREF 18215-Hogwood Farm 2D 21.12.17' RECEIVED ON 25.10.2024.
 8. DRAWING BASED ON AS-BUILT DRAINAGE PLANS REF: WMHP-PBA-NMRE-DR-DD-0508, 0510, 0517 & 0519.

- KEY
- PARCEL BOUNDARY
 - UNDERGROUND DIVERSION EASEMENT OF EXISTING OVERHEAD ELECTRIC CABLE
 - EXISTING OIL MAIN EASEMENT
 - PROPOSED PERMEABLE PAVING
 - PROPOSED ATTENUATION TANK
 - PROPOSED INDICATIVE ROAD GULLY
 - PROPOSED SW SEWER
 - PROPOSED FW SEWER
 - ESTIMATED EXISTING SW SEWER POSITION
 - ESTIMATED EXISTING FW SEWER POSITION
 - INDICATIVE TANKING/PERMEABLE PAVING CONNECTION DRAIN
 - TREE ROOT PROTECTION AREA
 - SCHEMATIC PRIVATE FW DRAIN

SO	POS	UPDATED TO SUIT LATEST SITE LAYOUT AND WBC COMMENTS	TV	TA	23.07.25
SO	POS	UPDATED TO SUIT LATEST SITE LAYOUT AND WBC COMMENTS	TV	TA	11.07.25
SO	POS	SITE LAYOUT UPDATED, EASTERN FW DRAINAGE STRATEGY UPDATED	AS	TA	28.02.25
SO	POS	SITE LAYOUT UPDATED	AS	TA	14.02.25
ST	Rev	Description	Dm	Chk	Date
REVISIONS					
Preliminary Issue	✓	Submitted for S104			
Planning Issue	✓	Issued for Tender			
Submitted for S38		Issued for Construction			
Submitted for S278		As Built			
DRAWING STATUS					

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FINCHWOOD PARCELS 11, 12 & 13

PARCEL 13
PROPOSED DRAINAGE

DATE	DRAWN	CHECKED	SCALE	SHEET
FEB 2025	AS	KJM	1:500	0A1
7292.026				P05 SO

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Appendix B

CAUSEWAY FLOW CALCULATIONS FOR PARCEL 13A SW Network

Design Settings

Rainfall Methodology	FEH-22	Minimum Velocity (m/s)	1.00
Return Period (years)	100	Connection Type	Level Soffits
Additional Flow (%)	10	Minimum Backdrop Height (m)	0.200
CV	0.750	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	x
Maximum Rainfall (mm/hr)	50.0		

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
1	0.143	5.00	58.375	1500	477561.798	164600.082	2.250
2	0.112	5.00	58.360	1500	477521.348	164609.017	2.373
3	0.226	5.00	58.030	1500	477493.130	164627.007	2.234
4	0.030	5.00	57.845	1500	477476.867	164629.818	2.149
MH208			57.810		477452.891	164634.083	2.299

Links

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	1	2	41.425	0.600	56.125	55.987	0.138	300.0	375	5.66	50.0
1.001	2	3	33.465	0.600	55.987	55.875	0.112	300.0	375	6.20	50.0
1.002	3	4	16.504	0.600	55.796	55.696	0.100	165.0	450	6.37	50.0
1.003	4	MH208	24.352	0.600	55.696	55.511	0.185	131.6	150	6.84	50.0

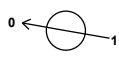
Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
1.000	1.041	114.9	21.3	1.875	1.998	0.143	0.0	109	0.801
1.001	1.041	114.9	38.0	1.998	1.780	0.255	0.0	148	0.938
1.002	1.579	251.2	71.7	1.784	1.699	0.481	0.0	164	1.370
1.003	0.874	15.4	76.2	1.999	2.149	0.511	0.0	150	0.890

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.000	41.425	300.0	375	Circular_Default Sewer Type	58.375	56.125	1.875	58.360	55.987	1.998
1.001	33.465	300.0	375	Circular_Default Sewer Type	58.360	55.987	1.998	58.030	55.875	1.780
1.002	16.504	165.0	450	Circular_Default Sewer Type	58.030	55.796	1.784	57.845	55.696	1.699
1.003	24.352	131.6	150	Circular_Default Sewer Type	57.845	55.696	1.999	57.810	55.511	2.149

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.000	1	1500	Manhole	Adoptable	2	1500	Manhole	Adoptable
1.001	2	1500	Manhole	Adoptable	3	1500	Manhole	Adoptable
1.002	3	1500	Manhole	Adoptable	4	1500	Manhole	Adoptable
1.003	4	1500	Manhole	Adoptable	MH208		Junction	

**Manhole Schedule**

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
1	477561.798	164600.082	58.375	2.250	1500		0	1.000	56.125	375
2	477521.348	164609.017	58.360	2.373	1500		1	1.000	55.987	375
3	477493.130	164627.007	58.030	2.234	1500		1	1.001	55.987	375
4	477476.867	164629.818	57.845	2.149	1500		0	1.002	55.796	450
MH208	477452.891	164634.083	57.810	2.299			1	1.003	55.696	150

Simulation Settings

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

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 %)
2	0	10	0
30	0	10	0
100	40	10	0

Node 4 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	x	Sump Available	✓
Invert Level (m)	55.696	Product Number	CTL-SHE-0090-5000-2149-5000
Design Depth (m)	2.149	Min Outlet Diameter (m)	0.150
Design Flow (l/s)	5.0	Min Node Diameter (mm)	1200

Node 1 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	56.125	Slope (1:X)	500.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Depth (m)	0.900
Safety Factor	2.0	Width (m)	14.600	Inf Depth (m)	
Porosity	0.30	Length (m)	10.000		

Node 3 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	55.796
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.95	Time to half empty (mins)	

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	300.0	0.0	1.200	300.0	0.0	1.201	0.0	0.0

Node 3 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	55.796	Slope (1:X)	500.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Depth (m)	0.900
Safety Factor	2.0	Width (m)	18.400	Inf Depth (m)	
Porosity	0.30	Length (m)	10.000		

Node 2 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	55.987	Slope (1:X)	500.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Depth (m)	0.900
Safety Factor	2.0	Width (m)	15.200	Inf Depth (m)	
Porosity	0.30	Length (m)	10.000		

Results for 2 year +10% A Critical Storm Duration. Lowest mass balance: 99.03%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	1	12	56.235	0.110	27.6	4.5610	0.0000	OK
30 minute summer	2	21	56.122	0.135	37.5	5.9403	0.0000	OK
360 minute summer	3	272	56.035	0.239	22.5	81.2603	0.0000	OK
240 minute winter	4	228	56.044	0.348	11.2	0.6141	0.0000	SURCHARGED
360 minute summer	MH208	272	55.562	0.051	3.9	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	1	1.000	2	21.6	0.728	0.188	1.2459	
30 minute summer	2	1.001	3	30.4	0.897	0.265	1.1341	
360 minute summer	3	1.002	4	11.0	0.260	0.044	1.7867	
240 minute winter	4	1.003	MH208	3.9	0.730	0.253	0.1305	92.4

Results for 30 year +10% A Critical Storm Duration. Lowest mass balance: 99.03%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
240 minute winter	1	236	56.384	0.259	14.0	11.3567	0.0000	OK
240 minute winter	2	240	56.384	0.397	24.9	18.3438	0.0000	SURCHARGED
240 minute winter	3	240	56.384	0.588	44.4	200.5213	0.0000	SURCHARGED
240 minute winter	4	240	56.384	0.688	8.7	1.2156	0.0000	SURCHARGED
30 minute summer	MH208	119	55.563	0.052	4.0	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
240 minute winter	1	1.000	2	13.9	0.575	0.121	3.9649	
240 minute winter	2	1.001	3	22.6	0.753	0.196	3.6911	
240 minute winter	3	1.002	4	6.0	0.125	0.024	2.6150	
240 minute winter	4	1.003	MH208	4.0	0.734	0.257	0.1320	100.7

Results for 100 year +40% CC +10% A Critical Storm Duration. Lowest mass balance: 99.03%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
480 minute winter	1	472	56.950	0.825	13.9	37.1614	0.0000	SURCHARGED
480 minute winter	2	472	56.950	0.963	20.0	42.3097	0.0000	SURCHARGED
480 minute winter	3	472	56.950	1.154	36.3	380.1306	0.0000	SURCHARGED
480 minute winter	4	472	56.950	1.254	10.4	2.2160	0.0000	SURCHARGED
2880 minute winter	MH208	3120	55.563	0.052	4.0	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
480 minute winter	1	1.000	2	11.1	0.503	0.097	4.5691	
480 minute winter	2	1.001	3	14.6	0.601	0.127	3.6911	
480 minute winter	3	1.002	4	9.5	0.199	0.038	2.6150	
480 minute winter	4	1.003	MH208	4.0	0.734	0.257	0.1320	147.7

Appendix C

CAUSEWAY FLOW CALCULATIONS FOR PARCEL 13B SW Network

Design Settings

Rainfall Methodology	FEH-22	Minimum Velocity (m/s)	1.00
Return Period (years)	100	Connection Type	Level Soffits
Additional Flow (%)	10	Minimum Backdrop Height (m)	0.200
CV	0.750	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	x
Maximum Rainfall (mm/hr)	50.0		

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
9	0.073	5.00	57.650	1500	477657.346	164536.107	1.386
MH201			57.540	1200	477654.133	164521.287	1.429
5	0.047	5.00	57.840	1500	477600.452	164588.610	1.145
6	0.084	5.00	57.640	1500	477597.701	164573.935	1.006
7	0.017	5.00	57.500	1500	477656.172	164562.171	1.110
8			57.150	1500	477663.712	164554.838	0.804

Links

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	9	MH201	15.164	0.600	56.264	56.111	0.153	99.1	150	6.99	50.0
1.000_1	5	6	14.931	0.600	56.695	56.634	0.061	244.8	300	5.25	50.0
1.001	6	7	59.643	0.600	56.634	56.390	0.244	244.4	300	6.24	50.0
1.002	7	8	10.518	0.600	56.390	56.346	0.044	239.0	300	6.42	50.0
1.003	8	9	19.783	0.600	56.346	56.264	0.082	241.3	300	6.74	50.0

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
1.000	1.009	17.8	32.9	1.236	1.279	0.221	0.0	150	1.028
1.000_1	1.000	70.7	7.0	0.845	0.706	0.047	0.0	64	0.644
1.001	1.001	70.8	19.5	0.706	0.810	0.131	0.0	108	0.859
1.002	1.012	71.6	22.1	0.810	0.504	0.148	0.0	114	0.894
1.003	1.008	71.2	22.1	0.504	1.086	0.148	0.0	115	0.892

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.000	15.164	99.1	150	Circular_Default Sewer Type	57.650	56.264	1.236	57.540	56.111	1.279
1.000_1	14.931	244.8	300	Circular_Default Sewer Type	57.840	56.695	0.845	57.640	56.634	0.706
1.001	59.643	244.4	300	Circular_Default Sewer Type	57.640	56.634	0.706	57.500	56.390	0.810
1.002	10.518	239.0	300	Circular_Default Sewer Type	57.500	56.390	0.810	57.150	56.346	0.504

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.000	9	1500	Manhole	Adoptable	MH201	1200	Manhole	Adoptable
1.000_1	5	1500	Manhole	Adoptable	6	1500	Manhole	Adoptable
1.001	6	1500	Manhole	Adoptable	7	1500	Manhole	Adoptable
1.002	7	1500	Manhole	Adoptable	8	1500	Manhole	Adoptable

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.003	19.783	241.3	300	Circular_Default Sewer Type	57.150	56.346	0.504	57.650	56.264	1.086
Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type		
1.003	8	1500	Manhole	Adoptable	9	1500	Manhole	Adoptable		

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
9	477657.346	164536.107	57.650	1.386	1500		1	1.003	56.264 300
MH201	477654.133	164521.287	57.540	1.429	1200		1	1.000	56.264 150
5	477600.452	164588.610	57.840	1.145	1500		0	1.000_1	56.695 300
6	477597.701	164573.935	57.640	1.006	1500		1	1.000_1	56.634 300
7	477656.172	164562.171	57.500	1.110	1500		0	1.001	56.634 300
8	477663.712	164554.838	57.150	0.804	1500		1	1.001	56.390 300
							0	1.002	56.390 300
							1	1.002	56.346 300
							0	1.003	56.346 300

Simulation Settings

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

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 %)
2	0	10	0
30	0	10	0
100	40	10	0

Node 9 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	✓	Sump Available	✓
Invert Level (m)	56.264	Product Number	CTL-SHE-0100-5000-1384-5000
Design Depth (m)	1.384	Min Outlet Diameter (m)	0.150
Design Flow (l/s)	5.0	Min Node Diameter (mm)	1200

Node 9 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	56.264	Slope (1:X)	500.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Depth (m)	0.700
Safety Factor	2.0	Width (m)	41.500	Inf Depth (m)	
Porosity	0.30	Length (m)	10.000		

Node 6 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	56.634
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.95	Time to half empty (mins)	196

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	171.0	0.0	0.400	171.0	0.0	0.401	0.0	0.0

Node 5 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	56.695	Slope (1:X)	500.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	160	Depth (m)	0.600
Safety Factor	2.0	Width (m)	4.000	Inf Depth (m)	
Porosity	0.30	Length (m)	10.000		

Results for 2 year +10% A Critical Storm Duration. Lowest mass balance: 98.82%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
240 minute summer	9	168	56.444	0.180	11.1	21.5199	0.0000	SURCHARGED
15 minute summer	MH201	1	56.111	0.000	2.5	0.0000	0.0000	OK
15 minute summer	5	11	56.769	0.074	9.1	0.8961	0.0000	OK
120 minute summer	6	72	56.699	0.065	12.3	10.6625	0.0000	OK
120 minute summer	7	72	56.463	0.073	8.4	0.1281	0.0000	OK
240 minute summer	8	168	56.445	0.099	7.2	0.1743	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
240 minute summer	9	Hydro-Brake®	MH201	4.5				52.0
15 minute summer	5	1.000_1	6	8.7	1.045	0.123	0.1379	
120 minute summer	6	1.001	7	7.4	0.612	0.105	0.7246	
120 minute summer	7	1.002	8	8.4	0.663	0.117	0.1327	
240 minute summer	8	1.003	9	7.2	0.393	0.101	0.6366	

Results for 30 year +10% A Critical Storm Duration. Lowest mass balance: 98.82%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
180 minute summer	9	144	56.737	0.473	30.1	58.4359	0.0000	SURCHARGED
15 minute summer	MH201	1	56.111	0.000	4.9	0.0000	0.0000	OK
15 minute summer	5	11	56.820	0.125	26.2	1.6033	0.0000	OK
30 minute summer	6	22	56.769	0.135	64.1	22.1438	0.0000	OK
180 minute summer	7	144	56.737	0.347	21.7	0.6130	0.0000	SURCHARGED
180 minute summer	8	144	56.737	0.391	19.5	0.6906	0.0000	SURCHARGED

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
180 minute summer	9	Hydro-Brake®	MH201	5.0				103.0
15 minute summer	5	1.000_1	6	25.1	1.282	0.355	0.3765	
30 minute summer	6	1.001	7	30.1	0.855	0.426	2.2615	
180 minute summer	7	1.002	8	19.5	0.709	0.272	0.7407	
180 minute summer	8	1.003	9	18.4	0.435	0.259	1.3931	

Results for 100 year +40% CC +10% A Critical Storm Duration. Lowest mass balance: 98.82%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
180 minute winter	9	180	57.035	0.771	40.0	87.3314	0.0000	SURCHARGED
15 minute summer	MH201	1	56.111	0.000	5.0	0.0000	0.0000	OK
180 minute winter	5	176	57.034	0.339	10.1	4.5484	0.0000	SURCHARGED
180 minute winter	6	180	57.034	0.400	28.0	65.7030	0.0000	SURCHARGED
180 minute winter	7	180	57.035	0.645	25.7	1.1399	0.0000	SURCHARGED
180 minute winter	8	180	57.035	0.689	24.6	1.2179	0.0000	FLOOD RISK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
180 minute winter	9	Hydro-Brake®	MH201	5.0				106.9
180 minute winter	5	1.000_1	6	9.9	0.635	0.141	1.0514	
180 minute winter	6	1.001	7	22.2	0.667	0.314	4.2000	
180 minute winter	7	1.002	8	24.6	0.694	0.344	0.7407	
180 minute winter	8	1.003	9	24.3	0.413	0.341	1.3931	

Appendix D

CAUSEWAY FLOW CALCULATIONS FOR PARCEL 13A FW Network

**Design Settings**

Frequency of use (kDU)	0.00	Minimum Velocity (m/s)	0.75
Flow per dwelling per day (l/day)	4000	Connection Type	Level Soffits
Domestic Flow (l/s/ha)	9.9	Minimum Backdrop Height (m)	0.200
Industrial Flow (l/s/ha)	0.0	Preferred Cover Depth (m)	1.200
Additional Flow (%)	0	Include Intermediate Ground	✓

Nodes

Name	Dwellings	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
1	4	58.370	1200	477563.659	164601.811	2.570
2	13	58.380	1200	477523.435	164610.425	3.302
3	6	58.030	1200	477494.713	164628.311	3.577
4	20	57.830	1200	477475.290	164633.024	3.721
110		57.813		477455.980	164636.836	3.835

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)
1.000	1	2	41.136	1.500	55.800	55.078	0.722	57.0	150
1.001	2	3	33.836	1.500	55.078	54.474	0.604	56.0	150
1.002	3	4	19.987	1.500	54.453	54.109	0.344	58.1	150
1.003	4	110	19.683	1.500	54.109	53.978	0.131	150.2	150

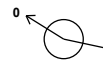
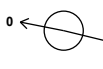
Name	Pro Vel @ 1/3 Q (m/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Dwellings (ha)	Σ Units (ha)	Σ Add Inflow (ha)	Pro Depth (mm)	Pro Velocity (m/s)
1.000	0.233	1.162	20.5	0.2	2.420	3.152	0.000	4	0.0	0.0	10	0.341
1.001	0.386	1.172	20.7	0.8	3.152	3.406	0.000	17	0.0	0.0	20	0.552
1.002	0.429	1.150	20.3	1.1	3.427	3.571	0.000	23	0.0	0.0	24	0.602
1.003	0.372	0.713	12.6	2.0	3.571	3.685	0.000	43	0.0	0.0	41	0.520

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.000	41.136	57.0	150	Circular_Default Sewer Type	58.370	55.800	2.420	58.380	55.078	3.152
1.001	33.836	56.0	150	Circular_Default Sewer Type	58.380	55.078	3.152	58.030	54.474	3.406
1.002	19.987	58.1	150	Circular_Default Sewer Type	58.030	54.453	3.427	57.830	54.109	3.571
1.003	19.683	150.2	150	Circular_Default Sewer Type	57.830	54.109	3.571	57.813	53.978	3.685

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.000	1	1200	Manhole	Adoptable	2	1200	Manhole	Adoptable
1.001	2	1200	Manhole	Adoptable	3	1200	Manhole	Adoptable
1.002	3	1200	Manhole	Adoptable	4	1200	Manhole	Adoptable
1.003	4	1200	Manhole	Adoptable	110		Junction	

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
1	477563.659	164601.811	58.370	2.570	1200		0	1.000	55.800	150
2	477523.435	164610.425	58.380	3.302	1200		1	1.000	55.078	150
3	477494.713	164628.311	58.030	3.577	1200		1	1.001	54.474	150
4	477475.290	164633.024	57.830	3.721	1200		1	1.002	54.109	150
110	477455.980	164636.836	57.813	3.835			1	1.003	53.978	150

Appendix E

CAUSEWAY FLOW CALCULATIONS FOR PARCEL 13B FW Network

Design Settings

Frequency of use (kDU)	0.00	Minimum Velocity (m/s)	0.75
Flow per dwelling per day (l/day)	4000	Connection Type	Level Soffits
Domestic Flow (l/s/ha)	9.9	Minimum Backdrop Height (m)	0.200
Industrial Flow (l/s/ha)	0.0	Preferred Cover Depth (m)	1.200
Additional Flow (%)	0	Include Intermediate Ground	✓

Nodes

Name	Dwellings	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
201	13	57.513	1200	477668.868	164515.567	3.191
202		57.270		477692.111	164510.101	3.679

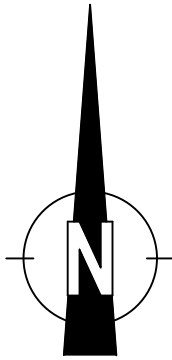
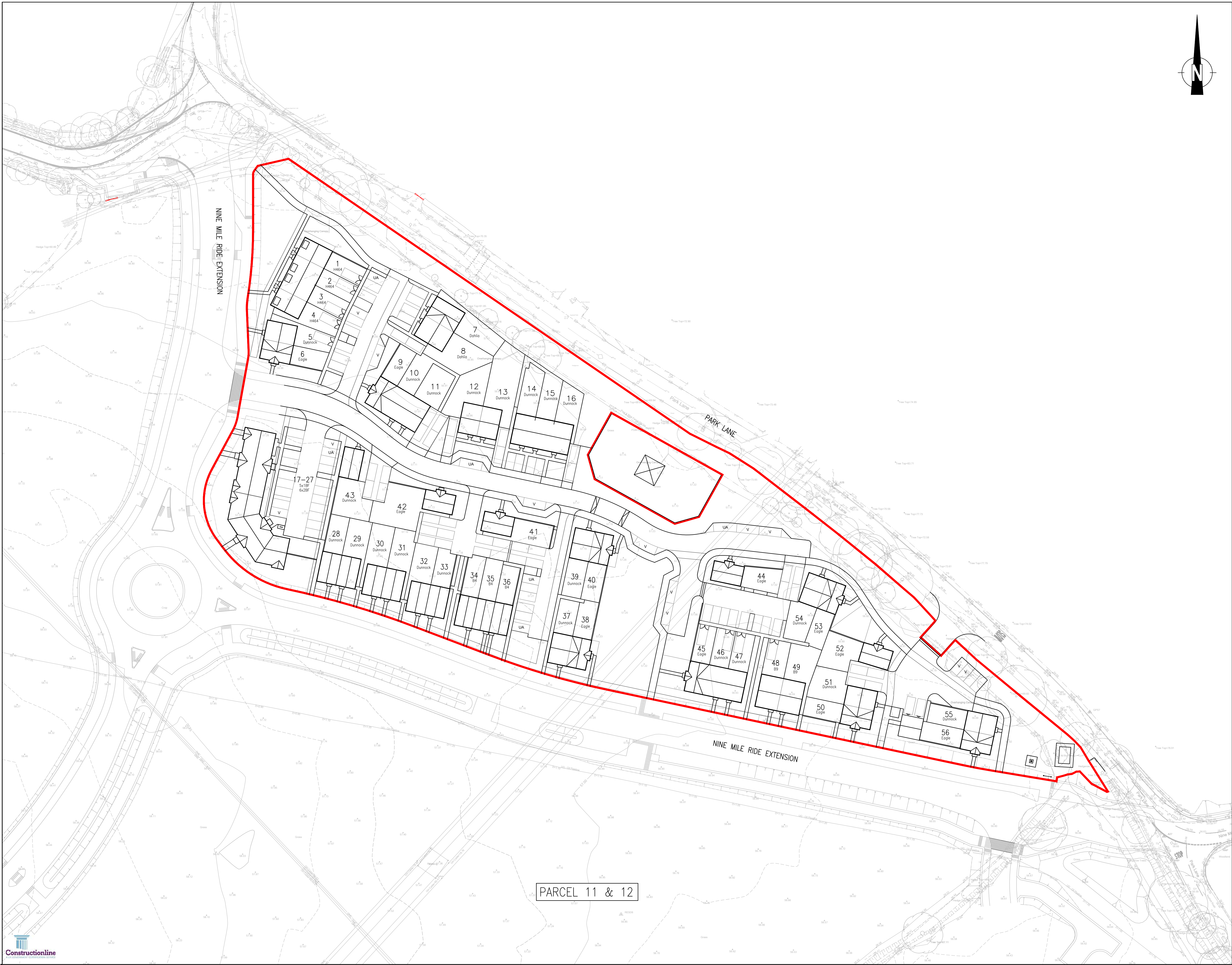
Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)
1.000	201	202	23.877	1.500	54.322	53.591	0.731	32.7	100

Name	Pro Vel @ 1/3 Q (m/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Dwellings (ha)	Σ Units (ha)	Σ Add Inflow (ha)	Pro Depth (mm)	Pro Velocity (m/s)
1.000	0.456	1.167	9.2	0.6	3.091	3.579	0.000	13	0.0	0.0	18	0.645

Appendix F

IMPERMEABLE AREAS PLAN



- NOTES:
1. DO NOT SCALE FROM THIS DRAWING.
 2. ALL DIMENSIONS ARE IN METRES, UNLESS STATED OTHERWISE.
 3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT SCHEME DRAWINGS AND SPECIFICATIONS.
 4. AS-BUILT NMRE LEVELS AND LAYOUT BASED ON DRAWINGS: 'WMHP-PBA-NMRE-DR-HI-0118-0120' DRAWN BY STANTEC.
 5. AS-BUILT EASTERN TURNING HEAD LEVELS AND LAYOUT BASED ON DRAWINGS: 'WMHP-PBA-NMRE-DR-HI-0160-0161' DRAWN BY STANTEC.
 6. TREE CONSTRAINTS BASED ON DRAWINGS: '5287_701-704' DRAWN BY RPS.
 7. DRAWING BASED ON TOPOGRAPHICAL SURVEY TITLED 'XREF 18215-Hogwood Farm 2D 21.12.17' RECEIVED ON 25.10.2024.

KEY

— PARCEL BOUNDARY

NETWORK A (PARCEL 13A)

- CONTRIBUTING AREAS FROM ADOPTABLE HIGHWAYS
- CONTRIBUTING AREAS FROM PRIVATE PLOTS/DRIVEWAYS/PARKING

NETWORK B (PARCEL 13B)

- CONTRIBUTING AREAS FROM ADOPTABLE HIGHWAYS
- CONTRIBUTING AREAS FROM PRIVATE PLOTS/DRIVEWAYS/PARKING

S0	P05	UPDATED TO SUIT LATEST SITE LAYOUT AND WBC COMMENTS	TV	TA	23.07.25
S0	P04	UPDATED TO SUIT LATEST SITE LAYOUT AND WBC COMMENTS	TV	TA	11.07.25
S0	P03	CONTRIBUTING AREAS UPDATED	AS	TA	03.03.25
S0	P02	SITE LAYOUT UPDATED	AS	TA	28.02.25
ST	Rev	Description	Dwn	Chk	Date

REVISIONS					
Preliminary Issue	✓	Submitted for S104			
Planning Issue	✓	Issued for Tender			
Submitted for S38		Issued for Construction			
Submitted for S278		As Built			

DRAWING STATUS

STUART MICHAEL ASSOCIATES
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Bovis Homes **Linden Homes** **Countryside Homes** **Countryside Partnerships**

Part of the Vistry Group

JOB TITLE
FINCHWOOD PARCELS 11, 12 & 13

DRAWING TITLE
PARCEL 13 IMPERMEABLE AREAS PLAN

DATE	DRAWN	CHECKED	SCALE	BY
FEB 2025	AS	TA	1:500	0A1
7292.028				SO
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Appendix G

PRE-DEVELOPMENT CONSULTATION WITH WBC

Date: 28 January 2025
Application: 250163



**WOKINGHAM
BOROUGH COUNCIL**

SDL Flood Risk Officer

Development Management &
Compliance

P.O. Box 157

Shute End, Wokingham

Berkshire, RG40 1BN

Tel: (0118) 974 6000

Minicom No: (0118) 974 6991

Dear SDL Flood Risk Officer,

Pre-app consultation Consultation

Application Number: 250163

Applicant: Vistry Thames Valley

Site Address: Parcels 11 12 and 13, Finchwood Park, Finchampstead

Parish: Finchampstead

Grid Reference: Easting - 477375, Northing - 164400

Type of Development:

Proposal: Pre-application advice for the proposed erection of circa. 217no. residential dwellings, ancillary structures, internal roads, car parking, landscaping and public open space, drainage features, and associated works split across Parcels 11, 12 and 13.

Case Officer: Nick Chancellor

Development Management has received the above application and we require your comments on the proposal using the recommended memorandum below. The documents associated with this are available to view in NEC DM using the application number 250163. Alternatively, public documents are available to view on the Council's planning application search page: [Wokingham Borough Council Online Planning](#).

Please index your response into NEC DM against the application. If you are recommending conditions, you should give a reason with reference to relevant policies. A list of standard conditions can be found on the Z Drive at: [Z:\Standard Planning Conditions](#).

Your observations are required in respect of this application within **10 working days** of the above date or **15 working days** if the development type is classed as a major development. As this is a pre-application request, you are reminded that all correspondence should be through the case officer. If the developer contacts you direct, please refer them to the case officer unless otherwise directed. It is possible

you will be required to attend a meeting with the developer as part of the pre-application process and you will be contacted if this is the case.

Yours sincerely,
Development Management & Compliance

MEMORANDUM

From:	Boniface Ngu Flood Risk & Drainage		
Service	SDL Flood Risk Officer	App No:	250163
Address:	Parcels 11 12 and 13, Finchwood Park, Finchampstead.		
Proposal:	Pre-application advice for the proposed erection of circa. 217no. residential dwellings, ancillary structures, internal roads, car parking, landscaping and public open space, drainage features, and associated works split across Parcels 11, 12 and 13.		
Type of Development:			
Site Visit Made:	No		

Summary Of Recommendations

Comments On Proposal

The site is within flood zone 1 and we note that there is an existing outline planning application for the wider site with approved overall sitewide drainage strategy.

Site layout drawings PL1004 D dated 17/01/2025 (Parcel 13) and PL04 J dated 17/01/2025 (parcels 11 & 12) show the general proposed development layout.

We would need to see how the proposed development of parcels 11, 12 and 13 feed into the most up to date approved sitewide drainage strategy, taking the SuDS management train into consideration, ensuring that runoff is attenuated and discharge controlled at the approved greenfield rates.

Attenuation provided should include various forms of SuDS, designed to cater for the 1 in 100-year flood event with a 40 % allowance for climate change, with adequate freeboard (minimum 300mm) and shallow side slopes (minimum 1:3).

We would also require understanding the drainage maintenance details for the SuDS features within the parcels, who will be responsible for the maintenance and adequate maintenance access for the attenuation features.

In calculating the attenuation volumes, we need to see a clear demonstration of the impermeable areas considered, with calculations making use of FEH 22 model characteristics.

There should be no surcharging for events up to the 1 in 30 flood event and ideally no flooding for the 1 in 100-year flood event with a 40% allowance for climate change.

If there is however flooding for the 1 in 100-year + 40% climate change, it should be demonstrated how this flooding will be catered for within the development boundary, so that flood risk is not increased elsewhere.

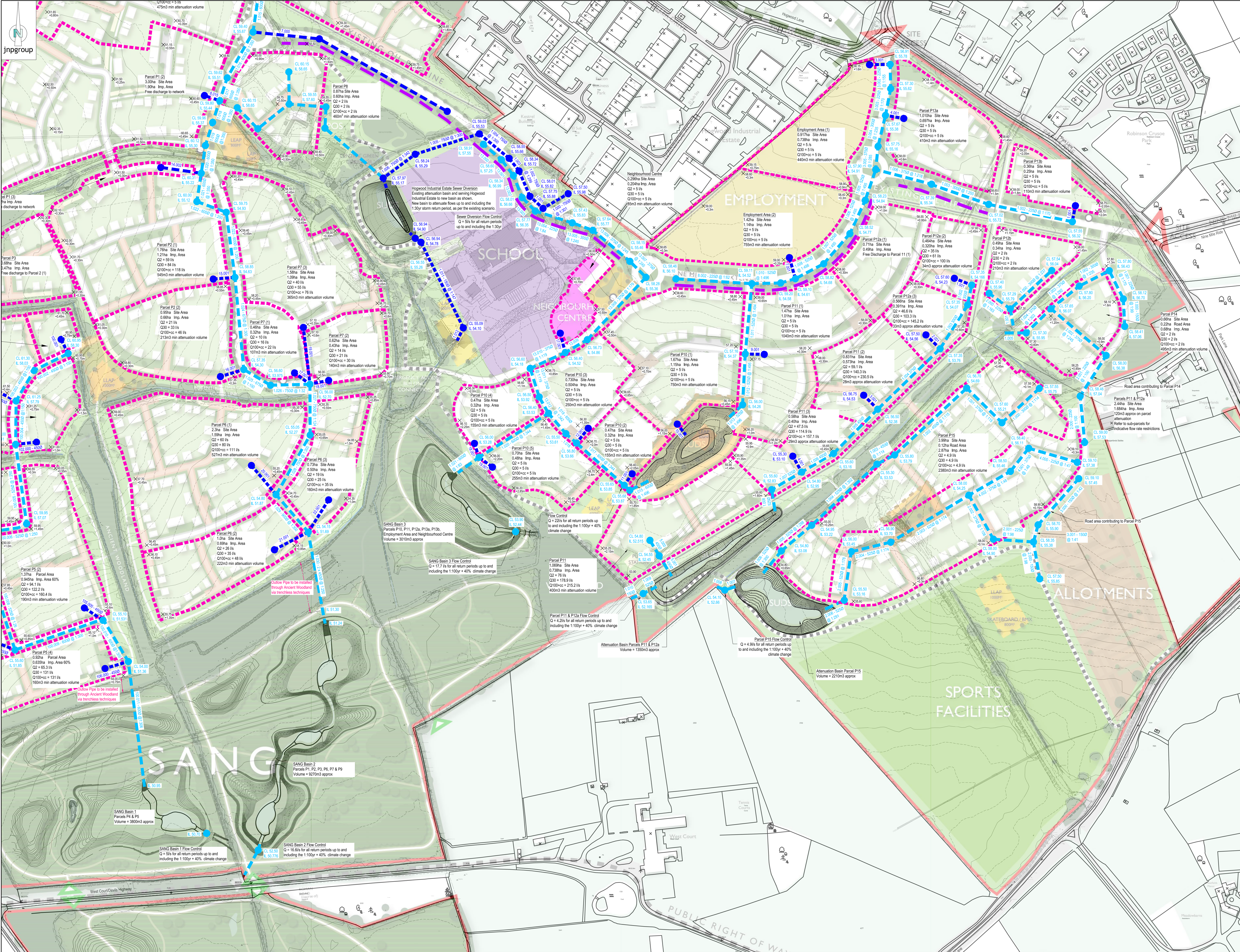
Conditions & Reasons (if required)

Please use this section to detail any conditions that are required to make this development acceptable in planning terms. All conditions should be accompanied by reasons.

Date:	30/01/2025	Signed:	Boniface Ngu
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Appendix H

OUTLINE PLANNING SURFACE WATER DRAINAGE STRATEGY



Notes:

- Where this drawing has been issued in electronic .dwg format it has been done so in good faith. jnp group do not take any responsibility for any inaccuracies in the electronic data, which should be checked against the paper (or .pdf) drawing issue. Any apparent discrepancies should be immediately reported to jnp group. The electronic .dwg file should not be assumed to be to scale and should not be used for overlaying, setting out or checking of any third party information. All dimensions should be taken from the paper (or .pdf) version of the drawing. Electronic drawings may contain third party information, jnp group take no responsibility for this information, which should be checked against the originators paper drawing(s).
- All working dimensions to be checked on site.
- Do not scale.
- Any discrepancies between drawings of different scales, and between drawings and specification where appropriate to be notified to The Engineer for decision.
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- This drawing should only be used for construction if the drawing status is "Construction". jnp group take no responsibility for construction works undertaken to drawings which are not marked with this status.

Health and Safety Note:
The details on this drawing have been prepared on the assumption that a competent contractor will be carrying out the works. If the contractor considers that there is insufficient Health and Safety information on this drawing, this should be immediately brought to the attention of the designer.

Key

- Surface Water Lateral
- Surface Water Storage
- Surface Water Main Sewer
- Surface Water Network Label
- Development Parcel
- Parcel P10 Catchment Area
- Possible Levels
- Proposed Levels
- Existing Contours

CATCHMENT ANALYSIS NOTES

- Impervious areas for different land use is based on:
 - 1.1. 60% of residential parcel area
 - 1.2. 60% of neighbourhood centre area
 - 1.3. 70% of employment area
- Impervious areas from the spine road are in addition to the impervious areas indicated and are not subject to P05 or urban creeps allowances.
- Refer to MicroDrainage calculations for full contributing areas.
- Flow controls for each parcel are based on Hydrobrake or similar with either 'Linear Discharge Profile' or 'Minimise Upstream Storage' flow curves. Refer to parcel specific notes for flow rates for given return periods.
- On parcel attenuation volumes indicated represent the minimum volumes required.
- This drawing is indicative only and subject to development of the site-wide Masterplan and Detailed design.

Rev.	Date	Amendment	By	CHK.
A	02.10.19	Strategy updated to suit removal of permeable paving and site masterplan.	KM	KT
B	08.08.18	Site layout updated and SUDs basin contours indicated.	MIT	MV

Status Preliminary

Legal & General HOMES

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Client Legal & General Homes

Job Hogwood Farm, Finchampstead

Title Outline Drainage Strategy

Scale 1:1250 Date April 2018
Drawn by HS Checked by MV Approved by MV

Drawing No. C85672-SK-204 Rev. B