

Technical Note – Response to Comments



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Checked by: EC

Project: 4274 - The Old Butcher's Block, Climping

Date: 08 July 2026

Revision: 1st ISSUE

Background Information

This technical note has been prepared in response to the surface water drainage comments issued by Arun District Council's reviewing engineer (Ref: CM/11/26/DOC, ADC/EXT02, dated 22 June 2026), raised in respect of the discharge of Condition 3 (Surface Water Drainage) attached to planning permission CM/12/25/PL.

Rigates and The Old Butcher's Block are two neighbouring residential development sites off Climping Street, Climping, sharing a common vehicular access. Both schemes propose surface water drainage strategies based on gravity discharge, via permeable paving and source control features, to the existing public surface water sewer within Climping Street. A CCTV and manhole survey has since been carried out on this sewer to confirm invert depths and connection feasibility, the findings of which are appended to this note.

This note responds to the Council's comments under the same headings used in its consultation response, cross-referenced to the seven National Standards for Sustainable Drainage Systems (NSfS), published by Defra on 19 June 2025, and to the CIRIA SuDS Manual (C753). The comments are copied below (in blue) followed by our response.

0. General

- 0.1. Whilst some information has been submitted that shows compliance with some parts of the 7 Standards, it is not comprehensive enough to demonstrate full compliance. The drawings that have been submitted are noted as being indicative, the submitted information should be suitable for use during construction.

The drawings previously submitted have been reviewed and references to them being "indicative" removed; any remaining product or construction-specific detail (for example, manufacturer specifications and jointing arrangements) will be confirmed within the contractor's SuDS construction method statement, in accordance with Standard 7 of the NSfS.

1. Runoff Destination

- 1.1. It is accepted that infiltration methods of drainage are not likely to be suitable due to the depth of the groundwater in the winter.

Accepted and agreed.

- 1.2. The surface water drainage strategy includes a new connection to the existing public surface water sewer at a restricted rate. No evidence has been supplied to confirm that the existing public surface water sewer has capacity to accept the additional flow.

A capacity check has been undertaken for this site, and the results confirm discharges of 1.0l/s can be accommodated in the existing surface water sewer system. Capacity is therefore confirmed as available.

The capacity check was undertaken based on the following information.

Proposed discharge of 1.0 l/s for all return periods, up to and including, the design event (1 in 100years +45%cc). The discharge rates will be restricted using a flow control device and attenuation SuDS. Surface water is proposed to be discharged between manholes MH0502 and MH1450. Both systems will be gravity fed.

- 1.3. The new connection is shown as being secured under a sewer requisition, which is unusual unless there is a land ownership issue. If that is the case, it should be demonstrated that Southern Water will provide the connection.

If a S106 or 98 requisition is not; required, desired, or acceptable, the applicant intends to construct a new connection themselves between the site and the public sewer system. This will replace the existing broken connection identified on the CCTV drainage survey.

- 1.4. Additionally, there does not appear to be any assessment that the proposed development can drain by gravity to the existing public sewer (it is noted that limited information regarding the public surface water sewer is included in the public sewer records).

Surveys of the existing sewer network have been carried out and appended to this letter. From this survey information, it has been concluded that the depth to the public sewer is approximately 2m below the existing land levels at the entrance to the site. This is more than enough depth for the proposed connection to be made via gravity in this case. In addition, it is intended to construct a new manhole to replace the existing failed connection from a gully to the sewer that currently exists at the site entrance.

2. Interception drainage

- 2.1. Water reuse is acknowledged the strategy as being part of the SuDS hierarchy, but it does not appear to be proposed, and no reasons are given to justify why.

Standard 1 of the NSfS gives highest priority to non-potable rainwater reuse within the runoff destination hierarchy. It requires reuse to be considered where there is water-saving demand, a need for landscape irrigation, or where the site is located in an area of serious water stress. Climping lies within Southern Water's supply area, which the Environment Agency identifies as an area of serious water stress; rainwater reuse has therefore been considered.

Given the modest scale of the proposal (a single dwelling) and the absence of any communal or high-volume non-potable demand, a bespoke whole-house harvesting system designed to BS EN 16941 is not considered a proportionate response. The standards recognise that the scale of a development may justify maximising the opportunity to meet a standard rather than delivering it in full, subject to justification agreed with the approving body. A water butt is therefore proposed to each dwelling to serve garden irrigation, satisfying the landscape-

irrigation trigger under Standard 1 and providing a multi-benefit source control measure consistent with the SuDS approach. For clarity, this reuse provision addresses Standard 1 only, and it is not relied upon to demonstrate compliance with the Standard 2 interception target, which is addressed separately below.

- 2.2. The strategy includes the installation of downpipe/SuDS planters, and it is stated that this will reduce the volume of run off discharged. This statement should be evidenced.

The downpipe/SuDS planters shown on the drainage layout [REF: HC-4274-501] are intended to intercept and store roof runoff within the growing medium and any integral reservoir, from which water is lost to evapotranspiration and soil retention rather than discharging off-site. Standard 2 of the NSfS requires interception of the first 5mm of rainfall for the majority of events (80% of events in summer, 50% in winter).

Raingardens totalling 28m³ are proposed for the total roof area which is ~280m². This equates to approximately a 1:10 ratio. As these systems are to be lined to protect groundwater and the adjacent building, they do not automatically qualify as providing sufficient interception, nonetheless, a 5mm event would only produce 1.4m³ of floodwater which is relatively small compared to the area of proposed raingardens.

If all of this water drains to the raingardens, this would result in a water depth of 5cm within each raingarden and would likely still remain below the level of the overflow as shown on the drainage drawings. This also assumes that the raingarden soils are already saturated which is unlikely to be the case. With a reasonable evaporation rate of 3mm per day, it would take 17 days for this water to fully evaporate via evaporation alone, with less time expected due to the soils and planting scheme which will improve evapotranspiration and seepage. These raingardens are considered SuDS thus meeting the initial requirements of the NSfS and NPPF. Further management of rainfall is considered impossible given the constraints of the small site and high groundwater levels.

With runoff intercepted by the raingardens / bioretention system, the permeable paving is considered to meet the requirements as the only additional area draining to the permeable paving during small rainfall events, is drained through these additional SuDS. Furthermore, permeable paving is typically very effective at intercepting small volumes of surface water runoff.

- 2.3. The inclusion of permeable paving when it drains its own catchment is considered to provide an adequate level of interception, however the plan appears to show the runoff from the roof connected to the permeable paving. Further interception measures may be required for the roof run-off, if evidence of evapotranspiration cannot be provided for the downpipe/SuDS planters.

The permeable paving provides interception for its own contributing (hardstanding) catchment. However, because infiltration has been discounted across the site due to seasonally high groundwater (see response to Standard 1 above), the paving is expected to require an impermeable liner. Under Standard 2, a lined permeable surface that also drains an additional impermeable area, such as a roof, is not deemed to achieve interception compliance for that additional area without further downstream measures.

To address this, roof runoff is routed through the downpipe/SuDS planters described in Section 2.2 ahead of entering the permeable paving sub-base. The planters provide interception for the roof catchment, with only interception-exceedance flows passing to the paving for onward attenuation and controlled discharge.

3. Extreme rainfall and flooding

- 3.1. In principle, the method used in the calculations is accepted, the FEH rainfall data file should be emailed to land.drainage@arun.gov.uk.

A copy of the FEH data has been copied to the email accompanying this technical note report.

- 3.2. Details of the existing and proposed external levels have not been submitted. This is required to verify the calculations.

Details of the external levels are included on the drainage drawings.

- 3.3. A plan has not been submitted that cross references with the calculations.

A catchment plan has been appended to this document which includes references to the calculations.

- 3.4. It has not been demonstrated that capacity exists in the public sewer network to accept the proposed flows.

A capacity check has been undertaken and results appended to this letter. These results confirm that 1.0l/s can be accommodated within the existing surface water sewer system.

- 3.5. A catchment plan should be provided which can be cross referenced to the calculations and including how urban creep has been applied.

A catchment plan has been appended to this document which includes references to the calculations, furthermore, urban Creep has been applied across all impermeable areas evenly as a blanket uplift factor within the simulation settings in Causeway Flow. This includes the roofs and hardstanding areas and is set to 10% for all areas used within the drainage model.

- 3.6. There does not appear to be an allowance for surcharging of the outfall.

Calculations have been undertaken which assume a totally surcharged outfall for all rainfall events, up to and including, 10080 minutes in duration. The results of these calculations confirm the drainage system would operate even in a totally surcharged condition for the public sewer system. This is principally due to the site being at a higher elevation than the sewer system allowing for a driving head of water to be maintained.

- 3.7. There does not appear to be an assessment of the impact that a flood event would have on the proposed surface water drainage system.

The surcharge calculations (referenced in 3.6 above) confirm that should flooding result in surcharge of the surface water sewer network, then it is unlikely that this will result in an immediate failure of the drainage system. Furthermore, if the site were to flood, floodwater is likely to flow up the driveway slowly entering the permeable paving system. This could influence the performance of the permeable paving in this area particularly if mud and debris becomes entrained in the floodwater and clogs part of the paving system. However, as floodwater recedes, maintenance or replacement of the permeable paving should allow for restoration of the drainage system in a way which replicates the current design. As the risk of flooding is considered low, it is unlikely that this would occur, but consideration has been made to ensure that even in such a worst-case scenario, floodwater will be managed effectively and the drainage system impacted in a minimal way which does not result in additional flooding in the surrounding area.

4. Water Quality

4.1. No comments

5. Amenity

5.1. No information has been submitted. The applicant may wish to assess if the small site exception would apply in this instance.

The small site exception does apply in this case as the increase in roof area does not exceed 250m². However, amenity has still been considered within the design of both the site and SuDS as part of this policy and to assist in managing runoff as effectively as possible. Many trees have been retained and the proposed permeable paving worked around these existing features. Planters and open SuDS features have been used where possible to provide both biodiversity benefits and improve site amenity. Permeable paving has also been specified as a way to make the drainage, parking, and driveway multifunctional, which removes the need for any tanks or other SuDS which would limit garden space and potentially further increase the impermeable area onsite. The existing ground and geology have also influenced the drainage system which has been developed as shallow as possible and designed to prevent any direct discharges to groundwater.

6. Biodiversity

6.1. The provision of downpipe/SuDS planters is acknowledged but no assessment of the impact of these has been included.

The planters will provide 28m³ of new habitat space and planting as part of the drainage scheme. These features have been designed as lined bioretention SuDS with overflows into the wider drainage system. The soils are to be managed to maximise water retention and provide a suitable growing medium.

These features will provide space for new plants and wildlife to flourish near to the building and following rainfall events will allow natural irrigation of the plants with runoff from the building's roof. In particularly dry months the water butt can be used as a reservoir to provide additional water for use in irrigating the raingardens. The storage capacity of these features has been

maximised to ensure as much water as possible is retained within the soil medium and if necessary, atop the surface with the plants before it overflows into the wider site drainage. Reference should also be made to section 2.2.

7. Construction, operation, maintenance, decommissioning and structural integrity

7.1. [The submitted drawings are indicative; construction level information is required.](#)

The Drawings have been updated and references to indicative removed. Construction levels information is included on the drainage drawings.

8. Conclusions

This technical note contains additional information to address the comments made by the LPA and Council's Engineers and Consultants on the proposed drainage system for The Old Butcher's Block, Climping.

Additional calculations to address the surcharge and flooded scenarios have been provided, as has more detail on the site amenity and biodiversity benefits provided by the proposed bioretention systems.

A justification for how the scheme is likely to ensure the 5mm event is managed in SuDS has been provided and justification for where a reasonable approach has been taken with regards to the scale and performance of these SuDS has been made with regards to other site constraints.

A CCTV drainage survey and capacity check have been provided and appended to this letter, these confirm that a gravity connection to the public sewer system is possible. Capacity has also been confirmed within the Surface Water Sewer network, this is based on a proposed 1.0l/s peak discharge rate.

Updated drainage drawings with the additional information as requested including a catchment plan matching the drainage calculations has also been provided.

We hope that this is sufficient for the LPA to remove their objection to the current discharge of conditions application for the proposed drainage system.

9. Appendices

- CCTV Drainage Survey
- Capacity Check Response
- Surcharge Calculations
- Revised Drainage Drawings

Julian Munn Drainage Services Ltd

15 Whitfield Close, Bognor Regis, West Sussex, PO22 8DY

T [REDACTED]

Client: Baird Farming Partnership
Address: Rigates, Climping Street, BN17 5RQ
Job No.S1493/06/26
Client: Alison Baird

A visit to the above site to establish the depth of the main surface water sewer in Climping Street was carried out. Our summary of findings is as follows.



With reference to the Southern Water sewer mapping various manhole were investigated.

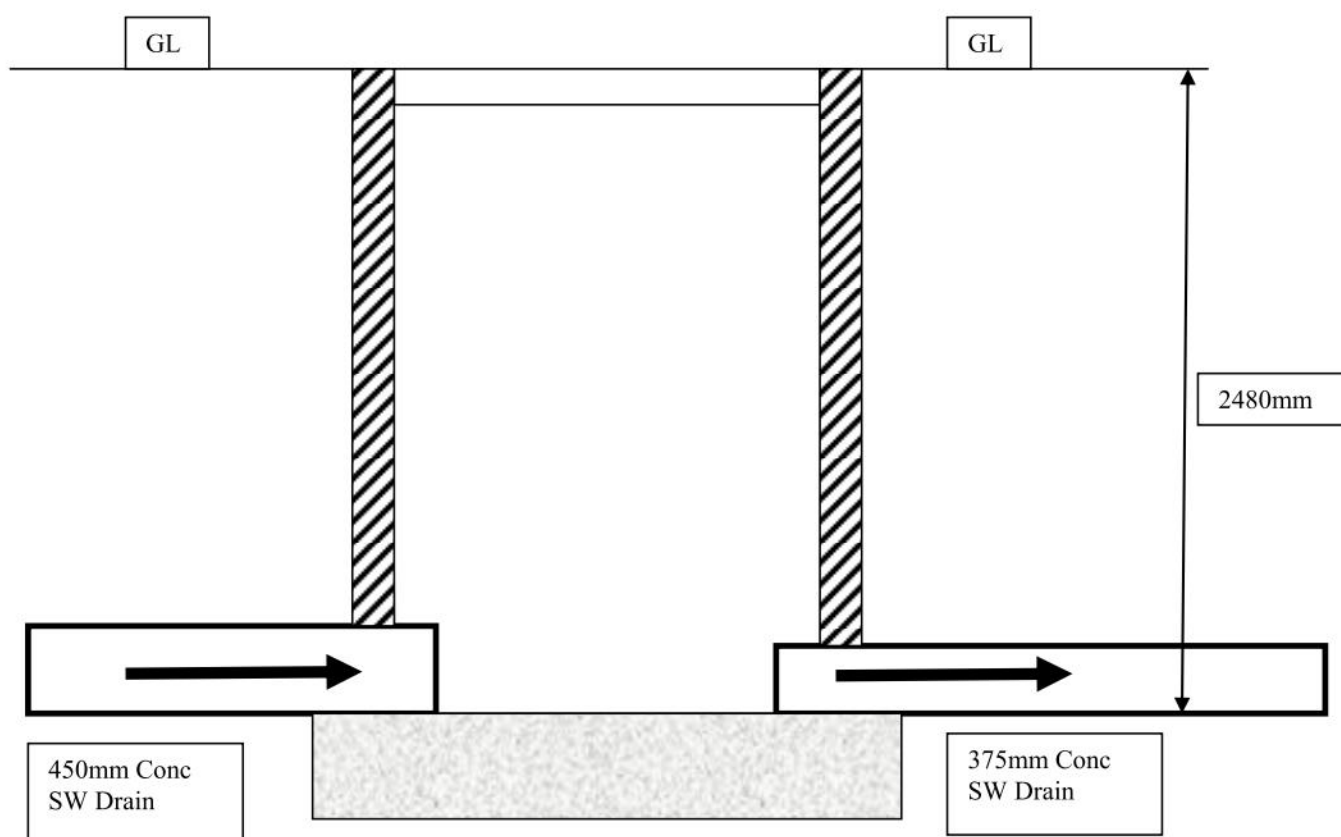
TQ0001056D - Dummy manhole and has no visible cover/chamber to investigate.

Uncharted Manhole – Adjacent to the White Cottage a manhole cover was found in the highway. This is not shown on the sewer mapping but almost certainly is on the surface water sewer.

An attempt to raise this cover was made but unsuccessful. The cover is siezed into the frame and has hairline fractures through the casting and so really requires renewing should access be necessary. This is assumed to be a Southern Water asset.



TQ00011450 was located and raised. This chamber is on the main surface water sewer. Details of the chamber are as follows.





940mm x 940mm Brick constructed Chamber

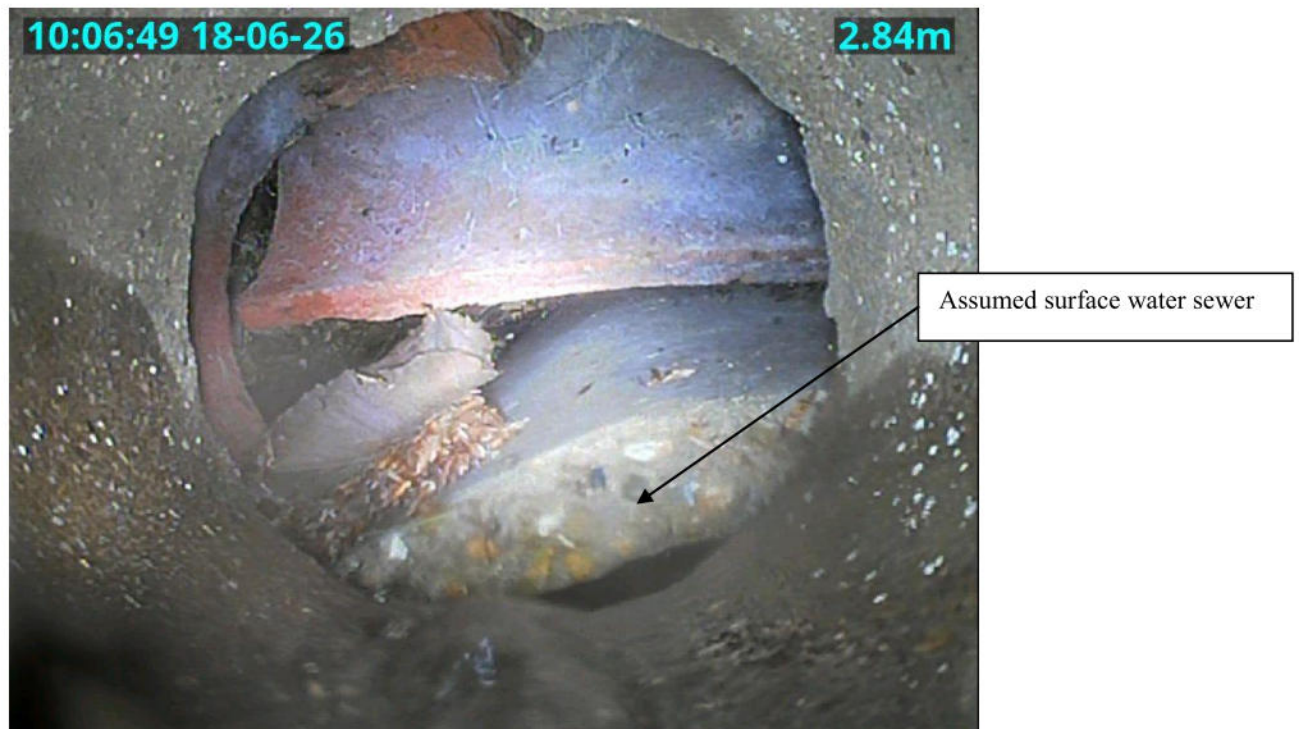
On the 18th June 2026 a further visit has been made to try and establish the surface water sewer depth in Climping street adjacent to Rigates. An CCTV survey was carried out on a road gully situation at the entrance to Rigates off Climping Street.



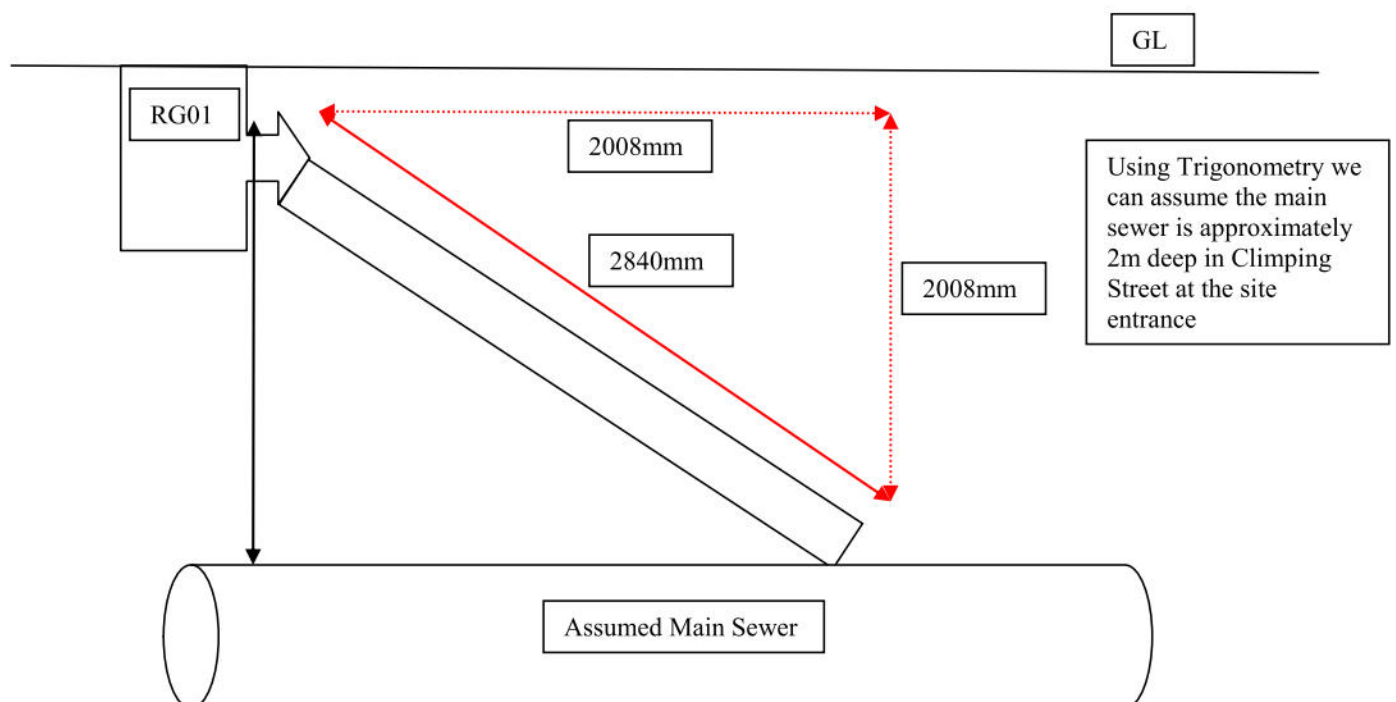
CCTV Survey was carried out on the road gully.



From the gully the pipe immediately drops sharply down before ending at what is assumed to be a defective connection to the concrete surface water sewer.



The pipe appears to drop at an approximate angle of 45 degrees from the gully pot.



During this visit further investigation found a manhole chamber the grass verge boundary of White Cottage which could be on the main surface water sewer.



Uncharted Manhole in grass verge.

2020mm Deep to Invert

450mm Concrete Pipe

50% surcharged

Appears to be Main Surface Water Sewer

We are unable to CCTV survey the main sewer as the surcharge is too high.

All the investigation works carried out suggest the main surface water sewer in Climping Street is Approximately 2m deep which would be deep enough for a new connection from 'Rigates'



Elena Corchon
Unit 6 and 7 Barham Business Park,
Elham Valley Road
Barham
Canterbury
CT4 6DQ

Your ref
25863

Our ref
DSA000054275

Date
18th June 2026

Contact

Te 

Dear Mrs Corchon,
Level 1 Capacity Check Enquiry: The Baird Farming Partnership, Rigates, Climping Street,
Littlehampton, Arun, West Sussex County Council, BN17 5RQ.

We have completed the capacity check for the above development site, and the results are as follows:

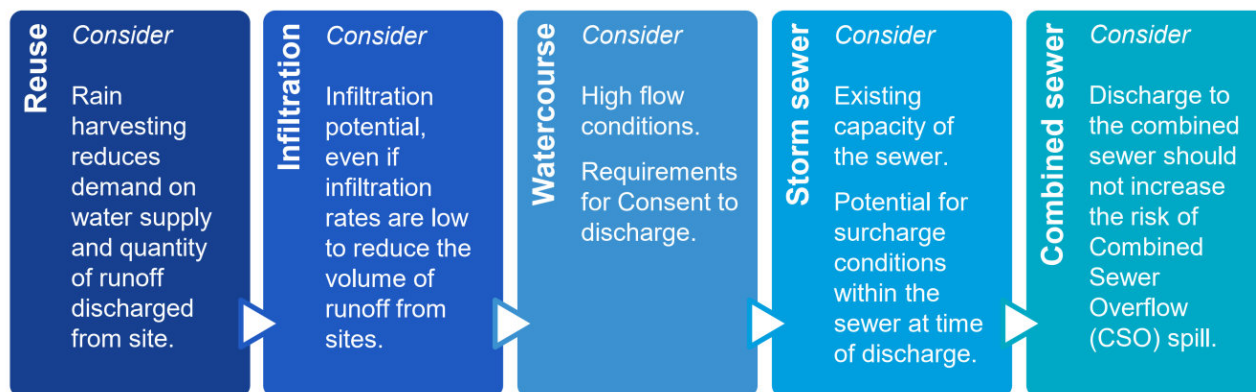
Surface Water

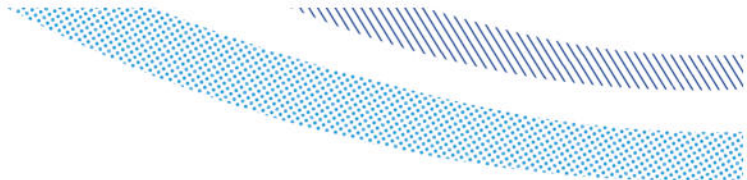
The enquiry has been assessed to determine the capacity available for **1l/s** for **2** residential units discharging to manhole reference TQ0001056D Grid Reference: 50076 101522.

Capacity check results

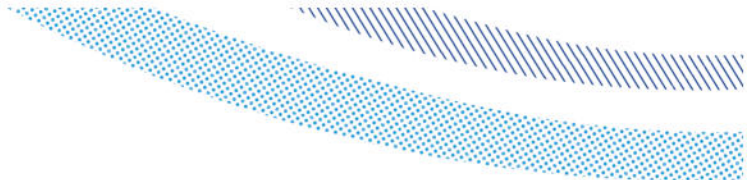
There is currently adequate capacity in the local surface water sewerage network to accommodate a surface water flow of **1l/s** for 2 residential units discharging to manhole reference TQ0001056D Grid Reference: 50076 101522

Although capacity in the surface water network has been identified, in all situations where surface water is considered for discharge to our network, we require the below hierarchy for surface water to be followed which is reflected in part H3 of the Building Regulations. Whilst reuse does not strictly





form part of this hierarchy, Southern Water would encourage the consideration of reuse for new developments.



Guidance on Building Regulations is here: gov.uk/government/publications/drainage-and-waste-disposal-approved-document-h

We would welcome the opportunity to engage with you on the design for disposal of surface water, with a particular focus on the potential for incorporating Sustainable Drainage Systems (SuDS), for this development at the earliest opportunity and we recommend that civil engineers and landscape architects work together and with Southern Water.

Where a surface water connection to the foul or combined sewer is being considered, this should be agreed by the Lead Local Flood Authority, in consultation with Southern Water.

It should be noted that although the above assessment indicates that there is capacity available for your proposed surface water flows the LLFA (Local Lead Flood Authority) may impose/request that a lower flow is discharged to the public surface water sewer.

If the excess surface water flows are to be attenuated on site, it could have a significant effect on any proposed Sewer Adoption (S104) Agreements. Any attenuation proposals should be agreed before any works are implemented on site. Where capacity is limited/restricted, agreement should be sought if you are to include any highway drainage within your proposals as Southern Water is not obligated to accept highway flows.

Connecting to our network

It should be noted that this information is only a hydraulic assessment of the existing sewerage network and does not grant approval for a connection to the public sewerage system. A formal Sewer Connection (S106) application is required to be completed and approved by Southern Water Services. To make an application visit [\[redacted\]](#)

Please note the information provided above does **not** grant approval for any designs/drawings submitted for the capacity analysis. The results quoted above are only valid for 12 months from the date of issue of this letter. **Any revisions in flow rate or alternative point of connection will require a new Pre-Planning Application to be submitted.**

Please get in touch via the Get Connected customer dashboard if you have any queries.

Yours sincerely,

Future Growth Planning Team
Developer Services

southernwater.co.uk/developing-building/planning-your-development



Design Settings

Rainfall Methodology	FEH-22	Maximum Time of Concentration (mins)	30.00	Preferred Cover Depth (m)	0.500
Return Period (years)	100	Maximum Rainfall (mm/hr)	999.0	Include Intermediate Ground	x
Additional Flow (%)	45	Minimum Velocity (m/s)	1.00	Enforce best practice design rules	x
CV	1.000	Connection Type	Level Soffits		
Time of Entry (mins)	4.00	Minimum Backdrop Height (m)	0.200		

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)	Invert Level (m)
PS1	0.017	4.00	5.450	1200	-9.185	100.807	0.600	4.850
PPIC1			5.180	1200	-12.457	101.241	0.513	4.667
PPIC2			5.160	1200	-13.727	99.983	0.568	4.592
PS2a	0.058	4.00	5.250		-11.770	98.563	0.700	4.550
PS2b	0.015	4.00	5.150		-15.201	97.928	0.700	4.450
PS2c	0.021	4.00	4.850	1200	-17.030	97.758	0.700	4.150
Public SW Sewer			4.700	1200	-19.890	97.234	0.589	4.111

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	PS1	PPIC1	18.535	0.600	4.850	4.667	0.183	101.3	150	4.31	169.4
1.001	PPIC1	PPIC2	7.582	0.600	4.667	4.592	0.075	101.1	150	4.44	169.4
1.002	PPIC2	PS2a	4.248	0.600	4.592	4.550	0.042	101.1	150	4.51	169.4
1.003	PS2a	PS2b	2.000	0.600	4.550	4.450	0.100	20.0	100	4.53	169.4

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
1.000	0.998	17.6	15.1	0.450	0.363	0.017	0.0	107	1.119
1.001	0.999	17.7	15.1	0.363	0.418	0.017	0.0	107	1.120
1.002	0.999	17.7	15.1	0.418	0.550	0.017	0.0	107	1.120
1.003	1.734	13.6	66.6	0.600	0.600	0.075	0.0	100	1.781

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)
1.004	PS2b	PS2c	2.000	0.600	4.450	4.436	0.014	140.0	100	4.58	169.4
1.005	PS2c	Public SW Sewer	3.918	0.600	4.150	4.111	0.039	100.0	150	4.64	169.4

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)
1.004	0.648	5.1	79.9	0.600	0.314	0.090	0.0	100	0.665
1.005	1.005	17.8	98.5	0.550	0.439	0.111	0.0	150	1.023

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	18.535	101.3	150	Circular	5.450	4.850	0.450	5.180	4.667	0.363
1.001	7.582	101.1	150	Circular	5.180	4.667	0.363	5.160	4.592	0.418
1.002	4.248	101.1	150	Circular	5.160	4.592	0.418	5.250	4.550	0.550
1.003	2.000	20.0	100	Circular	5.250	4.550	0.600	5.150	4.450	0.600
1.004	2.000	140.0	100	Circular	5.150	4.450	0.600	4.850	4.436	0.314
1.005	3.918	100.0	150	Circular	4.850	4.150	0.550	4.700	4.111	0.439

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.000	PS1	1200	Manhole	Adoptable	PPIC1	1200	Manhole	Adoptable
1.001	PPIC1	1200	Manhole	Adoptable	PPIC2	1200	Manhole	Adoptable
1.002	PPIC2	1200	Manhole	Adoptable	PS2a		Junction	
1.003	PS2a		Junction		PS2b		Junction	
1.004	PS2b		Junction		PS2c	1200	Manhole	Adoptable
1.005	PS2c	1200	Manhole	Adoptable	Public SW Sewer	1200	Manhole	Adoptable



Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
PS1	-9.185	100.807	5.450	0.600	1200				
PPIC1	-12.457	101.241	5.180	0.513	1200		0 1	1.000 1.000	4.850 4.667
PPIC2	-13.727	99.983	5.160	0.568	1200		0 1	1.001 1.001	4.667 4.592
PS2a	-11.770	98.563	5.250	0.700			0 1	1.002 1.002	4.592 4.550
PS2b	-15.201	97.928	5.150	0.700			0 1	1.003 1.003	4.550 4.450
PS2c	-17.030	97.758	4.850	0.700	1200		0 1	1.004 1.004	4.450 4.436
Public SW Sewer	-19.890	97.234	4.700	0.589	1200		0 1	1.005 1.005	4.150 4.111



Simulation Settings

Rainfall Methodology Rainfall Events Summer CV	FEH-22	Winter CV	1.000	Drain Down Time (mins)	1440	Check Discharge Rate(s)	x
	Singular	Analysis Speed	Normal	Additional Storage (m³/ha)	0.0	Check Discharge Volume	x
	1.000	Skip Steady State	x	Starting Level (m)			

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 %)	Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
2	0	0	0	30	40	0	0
10	0	0	0	100	0	0	0
10	40	0	0	100	45	10	0
30	0	0	0				

Node PS2c Online Hydro-Brake® Control

Replaces Downstream Link	Flap Valve	x	Objective	(HE) Minimise upstream storage
Invert Level (m)	4.150		Sump Available	✓
Design Depth (m)	0.600		Product Number	CTL-SHE-0052-1000-0600-1000
Design Flow (l/s)	1.0		Min Outlet Diameter (m)	0.075
			Min Node Diameter (mm)	1200

Node PS2a Online Orifice Control

Replaces Downstream Link	Flap Valve	x	Invert Level (m)	4.550	Discharge Coefficient	0.600
			Diameter (m)	0.040		

Node PS2b Online Orifice Control

Replaces Downstream Link	Flap Valve	x	Invert Level (m)	4.450	Discharge Coefficient	0.600
			Diameter (m)	0.020		



Node PS2b Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Porosity	0.30	Width (m)	12.100	Depth (m)	0.600
Side Inf Coefficient (m/hr)	0.00000	Invert Level (m)	4.450	Length (m)	12.100	Inf Depth (m)	
Safety Factor	2.0	Time to half empty (mins)		Slope (1:X)	1000.0		

Node PS2a Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Porosity	0.30	Width (m)	19.500	Depth (m)	0.600
Side Inf Coefficient (m/hr)	0.00000	Invert Level (m)	4.550	Length (m)	19.500	Inf Depth (m)	
Safety Factor	2.0	Time to half empty (mins)		Slope (1:X)	1000.0		

Node PS1 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Porosity	0.30	Width (m)	7.098	Depth (m)	0.300
Side Inf Coefficient (m/hr)	0.00000	Invert Level (m)	4.850	Length (m)	7.098	Inf Depth (m)	
Safety Factor	2.0	Time to half empty (mins)	720	Slope (1:X)	1000.0		

Node PS2c Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Porosity	0.30	Width (m)	12.800	Depth (m)	0.600
Side Inf Coefficient (m/hr)	0.00000	Invert Level (m)	4.150	Length (m)	12.800	Inf Depth (m)	
Safety Factor	2.0	Time to half empty (mins)		Slope (1:X)	1000.0		



EPS

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Climping Street
Proposed SuDS (DoC)

Results for 2 year Critical Storm Duration. Lowest mass balance: 98.08%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	PS1	11	4.889	0.039	3.6	0.5799	0.0000	OK
10080 minute summer	PPIC1	6960	4.710	0.043	0.1	0.0483	0.0000	OK
10080 minute summer	PPIC2	7020	4.710	0.118	0.2	0.1331	0.0000	OK
10080 minute summer	PS2a	7020	4.710	0.160	0.5	17.0739	0.0000	SURCHARGED
10080 minute summer	PS2b	7020	4.710	0.260	1.7	11.0661	0.0000	SURCHARGED
10080 minute summer	PS2c	7080	4.708	0.558	0.4	27.7276	0.0000	FLOOD RISK
15 minute summer	Public SW Sewer	1	4.700	0.589	0.0	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)
15 minute summer	PS1	1.000	PPIC1	2.6	0.697	0.145	0.0685	
10080 minute summer	PPIC1	1.001	PPIC2	0.1	0.268	0.006	0.0718	
10080 minute summer	PPIC2	1.002	PS2a	0.3	0.092	0.017	0.0689	
10080 minute summer	PS2a	1.003	PS2b	1.6	0.302	0.117	0.0156	
10080 minute summer	PS2b	1.004	PS2c	0.3	0.331	0.051	0.0156	
10080 minute summer	PS2c	1.005	Public SW Sewer	0.0	0.002	0.002	0.0690	2.3



EPS

Causeway

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Climping Street
Proposed SuDS (DoC)

Results for 10 year Critical Storm Duration. Lowest mass balance: 98.11%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	PS1	11	4.911	0.061	7.0	0.9216	0.0000	OK
7200 minute winter	PPIC1	4740	4.781	0.114	0.1	0.1291	0.0000	OK
7200 minute winter	PPIC2	4740	4.781	0.189	0.1	0.2139	0.0000	SURCHARGED
7200 minute winter	PS2a	4740	4.781	0.231	0.5	25.2299	0.0000	SURCHARGED
7200 minute winter	PS2b	4740	4.778	0.328	0.7	14.0539	0.0000	SURCHARGED
7200 minute winter	PS2c	4800	4.729	0.579	0.3	28.8052	0.0000	FLOOD RISK
15 minute summer	Public SW Sewer	1	4.700	0.589	0.0	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)
15 minute summer	PS1	1.000	PPIC1	5.8	0.849	0.328	0.1264	
7200 minute winter	PPIC1	1.001	PPIC2	0.1	0.268	0.006	0.1213	
7200 minute winter	PPIC2	1.002	PS2a	0.2	0.095	0.010	0.0748	
7200 minute winter	PS2a	1.003	PS2b	0.6	0.302	0.043	0.0156	
7200 minute winter	PS2b	1.004	PS2c	0.2	0.296	0.039	0.0156	
7200 minute winter	PS2c	1.005	Public SW Sewer	0.3	0.016	0.016	0.0690	36.0



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Climping Street
Proposed SuDS (DoC)

Results for 10 year +40% CC Critical Storm Duration. Lowest mass balance: 98.10%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	PS1	11	4.925	0.075	9.8	1.1558	0.0000	OK
10080 minute winter	PPIC1	6600	4.883	0.216	0.1	0.2448	0.0000	FLOOD RISK
10080 minute winter	PPIC2	6600	4.883	0.291	0.1	0.3296	0.0000	FLOOD RISK
10080 minute winter	PS2a	6600	4.883	0.333	0.6	36.8958	0.0000	SURCHARGED
10080 minute winter	PS2b	6480	4.877	0.427	0.7	18.3971	0.0000	FLOOD RISK
8640 minute summer	PS2c	4680	4.738	0.588	0.4	29.2537	0.0000	FLOOD RISK
15 minute summer	Public SW Sewer	1	4.700	0.589	0.0	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)
15 minute summer	PS1	1.000	PPIC1	8.4	0.917	0.475	0.1695	
10080 minute winter	PPIC1	1.001	PPIC2	0.1	0.268	0.006	0.1335	
10080 minute winter	PPIC2	1.002	PS2a	0.3	0.092	0.016	0.0748	
10080 minute winter	PS2a	1.003	PS2b	0.6	0.302	0.044	0.0156	
10080 minute winter	PS2b	1.004	PS2c	0.3	0.255	0.061	0.0156	
8640 minute summer	PS2c	1.005	Public SW Sewer	0.4	0.025	0.024	0.0690	77.0



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Climping Street
Proposed SuDS (DoC)

Results for 30 year Critical Storm Duration. Lowest mass balance: 98.12%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	PS1	11	4.921	0.071	9.0	1.0928	0.0000	OK
10080 minute winter	PPIC1	6420	4.836	0.169	0.1	0.1917	0.0000	SURCHARGED
10080 minute winter	PPIC2	6420	4.836	0.244	0.2	0.2765	0.0000	SURCHARGED
10080 minute winter	PS2a	6420	4.836	0.286	0.4	31.5423	0.0000	SURCHARGED
10080 minute winter	PS2b	6420	4.830	0.380	0.5	16.3546	0.0000	SURCHARGED
10080 minute winter	PS2c	6480	4.734	0.584	0.4	29.0345	0.0000	FLOOD RISK
15 minute summer	Public SW Sewer	1	4.700	0.589	0.0	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)
15 minute summer	PS1	1.000	PPIC1	7.7	0.901	0.435	0.1578	
10080 minute winter	PPIC1	1.001	PPIC2	0.1	0.268	0.006	0.1335	
10080 minute winter	PPIC2	1.002	PS2a	0.1	0.092	0.006	0.0748	
10080 minute winter	PS2a	1.003	PS2b	0.4	0.302	0.029	0.0156	
10080 minute winter	PS2b	1.004	PS2c	0.3	0.261	0.051	0.0156	
10080 minute winter	PS2c	1.005	Public SW Sewer	0.4	0.020	0.020	0.0690	65.1



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Climping Street
Proposed SuDS (DoC)

Results for 30 year +40% CC Critical Storm Duration. Lowest mass balance: 98.17%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
10080 minute summer	PS1	6360	4.946	0.096	0.2	1.4899	0.0000	OK
10080 minute summer	PPIC1	6360	4.946	0.279	0.2	0.3155	0.0000	FLOOD RISK
10080 minute summer	PPIC2	6360	4.946	0.354	0.2	0.4003	0.0000	FLOOD RISK
10080 minute summer	PS2a	6360	4.946	0.396	0.8	44.0275	0.0000	SURCHARGED
10080 minute summer	PS2b	6300	4.939	0.489	0.5	21.1018	0.0000	FLOOD RISK
2160 minute summer	PS2c	1320	4.747	0.597	0.8	29.7166	0.0000	FLOOD RISK
15 minute summer	Public SW Sewer	1	4.700	0.589	0.0	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)
10080 minute summer	PS1	1.000	PPIC1	0.2	0.269	0.011	0.2734	
10080 minute summer	PPIC1	1.001	PPIC2	0.2	0.268	0.011	0.1335	
10080 minute summer	PPIC2	1.002	PS2a	0.2	0.095	0.013	0.0748	
10080 minute summer	PS2a	1.003	PS2b	0.3	0.282	0.025	0.0156	
10080 minute summer	PS2b	1.004	PS2c	0.4	0.255	0.073	0.0156	
2160 minute summer	PS2c	1.005	Public SW Sewer	0.6	0.032	0.032	0.0690	50.2



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Climping Street
Proposed SuDS (DoC)

Results for 100 year Critical Storm Duration. Lowest mass balance: 98.12%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	PS1	11	4.933	0.083	11.4	1.2828	0.0000	OK
1440 minute winter	PPIC1	1380	4.888	0.221	0.4	0.2503	0.0000	FLOOD RISK
1440 minute winter	PPIC2	1380	4.888	0.296	0.4	0.3351	0.0000	FLOOD RISK
1440 minute winter	PS2a	1380	4.888	0.338	1.9	37.4521	0.0000	SURCHARGED
1440 minute winter	PS2b	1380	4.883	0.433	1.7	18.6551	0.0000	FLOOD RISK
2160 minute winter	PS2c	1500	4.740	0.590	0.7	29.3579	0.0000	FLOOD RISK
15 minute summer	Public SW Sewer	1	4.700	0.589	0.0	0.0000	0.0000	OK

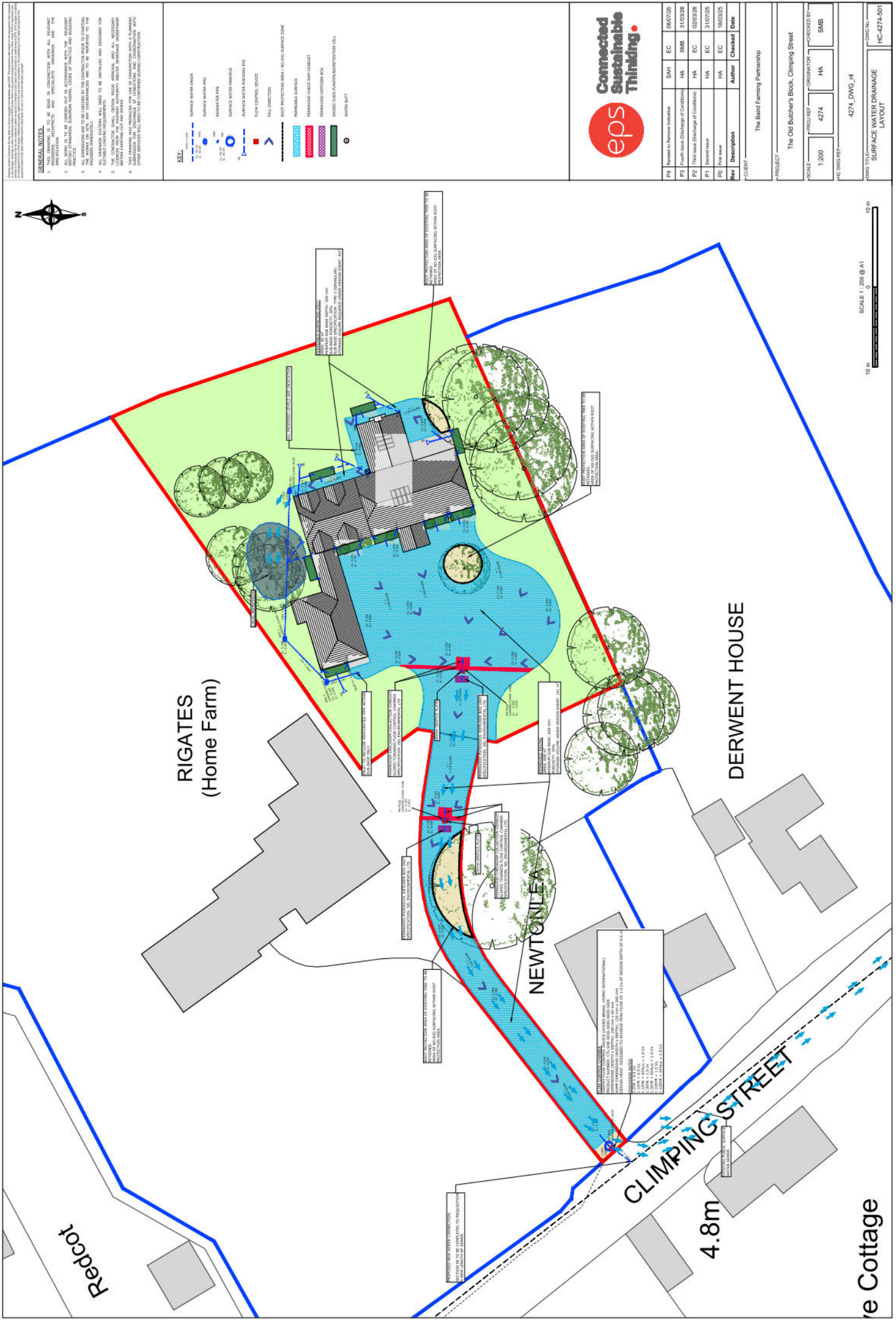
Link Event	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	PS1	1.000	PPIC1	9.8	0.944	0.558	0.1933	
1440 minute winter	PPIC1	1.001	PPIC2	0.4	0.331	0.023	0.1335	
1440 minute winter	PPIC2	1.002	PS2a	0.9	0.154	0.051	0.0748	
1440 minute winter	PS2a	1.003	PS2b	1.5	0.240	0.113	0.0156	
1440 minute winter	PS2b	1.004	PS2c	0.4	0.368	0.074	0.0156	
2160 minute winter	PS2c	1.005	Public SW Sewer	0.5	0.027	0.026	0.0690	40.8



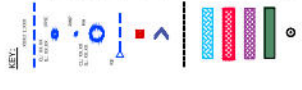
Results for 100 year +45% CC +10% A Critical Storm Duration. Lowest mass balance: 98.32%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
960 minute winter	PS1	945	5.127	0.277	1.0	4.4176	0.0000	SURCHARGED
960 minute winter	PPIC1	930	5.127	0.460	1.0	0.5203	0.0000	FLOOD RISK
960 minute winter	PPIC2	930	5.127	0.535	0.9	0.6052	0.0000	FLOOD RISK
960 minute winter	PS2a	930	5.127	0.577	4.2	64.6885	0.0000	FLOOD RISK
960 minute winter	PS2b	945	5.113	0.663	1.5	26.0042	0.0000	FLOOD RISK
1440 minute summer	PS2c	840	4.846	0.696	1.6	29.9841	0.0000	FLOOD RISK
15 minute summer	Public SW Sewer	1	4.700	0.589	0.0	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)
960 minute winter	PS1	1.000	PPIC1	1.0	0.458	0.055	0.3263	
960 minute winter	PPIC1	1.001	PPIC2	0.9	0.331	0.052	0.1335	
960 minute winter	PPIC2	1.002	PS2a	1.1	0.193	0.062	0.0748	
960 minute winter	PS2a	1.003	PS2b	-1.8	0.288	-0.129	0.0156	
960 minute winter	PS2b	1.004	PS2c	0.5	0.382	0.099	0.0156	
1440 minute summer	PS2c	1.005	Public SW Sewer	1.0	0.056	0.056	0.0690	63.0



- GENERAL NOTES**
1. ALL WORK SHALL BE IN ACCORDANCE WITH ALL RELEVANT BUILDING REGULATIONS, STANDARDS, AND THE RELEVANT CONTRACT DOCUMENTS.
 2. ALL WORK IS TO BE COMPLETED IN ACCORDANCE WITH THE RELEVANT CONTRACT DOCUMENTS, CODES OF PRACTICE AND BUILDING REGULATIONS.
 3. ALL CONSTRUCTION SHALL BE CHECKED BY THE CONTRACTOR PRIOR TO STARTING WORK. ANY DISCREPANCIES OR OMISSIONS ARE TO BE REPORTED TO THE ENGINEER IMMEDIATELY.
 4. ALL DRAINAGE SYSTEMS SHALL BE INSTALLED AND TESTED FOR PROPER FUNCTIONING PRIOR TO THE COMPLETION OF THE WORK.
 5. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS AND APPROVALS PRIOR TO STARTING WORK.
 6. THE CONTRACTOR SHALL MAINTAIN ACCESS TO ALL ADJACENT PROPERTIES AND ROADS AT ALL TIMES.
 7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING UTILITIES AND STRUCTURES.
 8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING LANDSCAPE AND PLANTING.
 9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING SURFACE WATER DRAINAGE SYSTEMS.



P4	Revised to Revise	SAH	EC	08/07/26
P3	Fourth Issue (Change of Conditions)	HA	SMB	31/03/26
P2	Third Issue (Change of Conditions)	HA	EC	02/03/26
P1	Second Issue	HA	EC	31/07/25
P0	First Issue	HA	EC	18/03/25
Rev	Description	Author	Checked	Date
1	Initial Design	SAH	EC	18/03/25
2	Revised Design	SAH	EC	18/03/25
3	Revised Design	SAH	EC	18/03/25
4	Revised Design	SAH	EC	18/03/25
5	Revised Design	SAH	EC	18/03/25
6	Revised Design	SAH	EC	18/03/25
7	Revised Design	SAH	EC	18/03/25
8	Revised Design	SAH	EC	18/03/25
9	Revised Design	SAH	EC	18/03/25
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94	Revised Design	SAH	EC	18/03/25
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96	Revised Design	SAH	EC	18/03/25
97	Revised Design	SAH	EC	18/03/25
98	Revised Design	SAH	EC	18/03/25
99	Revised Design	SAH	EC	18/03/25
100	Revised Design	SAH	EC	18/03/25

SCALE 1:200 @ A1
100 m
0 100 m

4274.DWG.d4
SURFACE WATER DRAINAGE
LAYOUT
HC-4274-501

DWG TITLE	DWG No.
SURFACE WATER DRAINAGE DETAILS	HC-4274-502

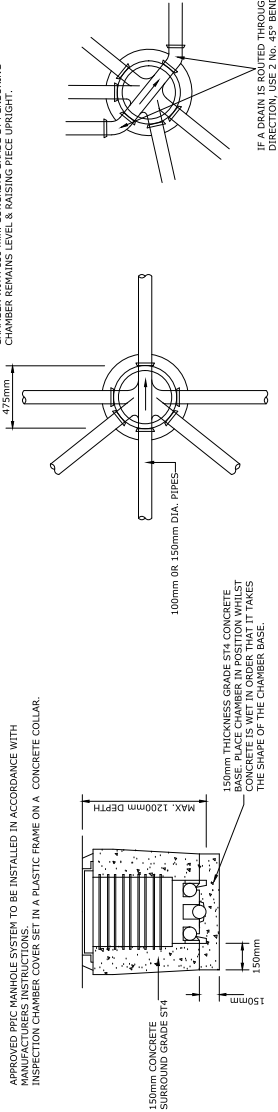
Approved for use on the basis of the information provided. The user assumes all liability for the use of this drawing. The user agrees to indemnify and hold the author harmless from and against all claims, damages, losses and expenses, including reasonable attorneys' fees, arising out of or in connection with the use of this drawing, whether or not such claims, damages, losses and expenses are caused in whole or in part by the negligence of the author.

GENERAL NOTES

1. ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE NOTED.
2. ALL WORK IS TO BE COMPLETED IN ACCORDANCE WITH THE RELEVANT STANDARDS, SPECIFICATIONS, CODES OF PRACTICE AND BUILDING REGULATIONS.
3. ALL DIMENSIONS ARE TO BE CHECKED BY THE CONTRACTOR PRIOR TO STARTING WORK. ANY DISCREPANCIES ARE TO BE REPORTED TO THE ENGINEER IMMEDIATELY.
4. ALL DRAINAGE SYSTEMS WILL NEED TO BE INSTALLED AND DESIGNED FOR THE SPECIFIC SITE CONDITIONS AND REQUIREMENTS.
5. THE CONTRACTOR SHALL OBTAIN NECESSARY APPROVALS AND ALL NECESSARY PERMITS PRIOR TO STARTING WORK.
6. THIS DRAWING WAS PRODUCED FOR USE IN CONNECTION WITH A DRAINAGE SYSTEM. IT IS NOT TO BE USED FOR ANY OTHER PURPOSES WITHOUT THE WRITTEN CONSENT OF THE ENGINEER.

PREFORMED POLYPROPYLENE INSPECTION CHAMBER WITH FACILITY FOR UP TO FIVE INLET CONNECTIONS. SURROUND CONCRETE IS NOT IN ORDER THAT IT TAKES THE SHAPE OF THE CHAMBER BASE.

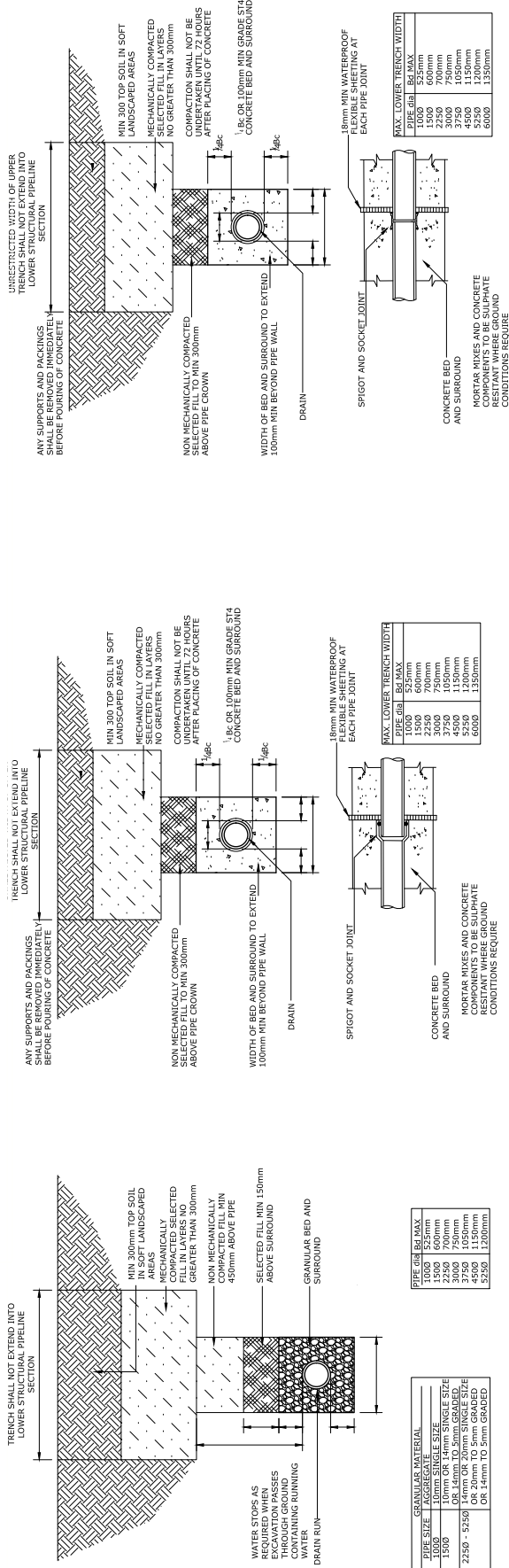
APPROVED PRC MANHOLE SYSTEM TO BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS. INSPECTION CHAMBER COVER SET IN A CONCRETE COLLAR.



PROPRIETARY POLYPROPYLENE INSPECTION CHAMBER (PPIC)

FOR USE IN FOOTPATHS OR GRASSED AREAS. MAX. DEPTH COVER TO INVERT 1.2m

SCALE 1:20



CLASS S BED AND SURROUND

UNIFORM SOIL TRENCH BED (NOT IN ROCK)

SCALE 1:20

UNREINFORCED CONCRETE BED AND SURROUND

SPIGOT AND SOCKET JOINED PIPES

SCALE 1:20

UNREINFORCED CONCRETE BED AND SURROUND

SPIGOT JOINED PIPES

SCALE 1:20

BEDDING DETAILS



PIPE DIM	BD MAX				
1000	525mm				
1500	600mm				
2250	700mm				
3000	750mm				
3750	750mm				
4500	1150mm				
5250	1200mm				
6000	1350mm				

Rev Description Author Checked Date

Client The Baird Farming Partnership

Project The Old Butcher's Block, Climping Street

Scale 1:20

Checked By HA

Originator HA

Scale 1:20

Project The Baird Farming Partnership

Scale 1:20

Checked By HA

Originator HA

Scale 1:20

Project The Baird Farming Partnership

Scale 1:20

Checked By HA

Originator HA

Scale 1:20

Project The Baird Farming Partnership

Scale 1:20

DWG TITLE	SURFACE WATER DRAINAGE DETAILS	DWG No.	HC-4274-504
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GENERAL NOTES

1. ALL WORK SHALL BE IN ACCORDANCE WITH ALL RELEVANT BUILDING REGULATIONS AND THE RELEVANT STANDARDS.
2. ALL WORK IS TO BE CARRIED OUT IN ACCORDANCE WITH THE RELEVANT BUILDING REGULATIONS AND THE RELEVANT STANDARDS.
3. ALL CONSTRUCTION WORK TO BE CARRIED OUT IN ACCORDANCE WITH THE RELEVANT BUILDING REGULATIONS AND THE RELEVANT STANDARDS.
4. ALL CONSTRUCTION WORK TO BE CARRIED OUT IN ACCORDANCE WITH THE RELEVANT BUILDING REGULATIONS AND THE RELEVANT STANDARDS.
5. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PLANNING PERMISSIONS AND ALL NECESSARY CONSENTS FROM THE RELEVANT AUTHORITIES.
6. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY CONSENTS FROM THE RELEVANT AUTHORITIES.
7. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY CONSENTS FROM THE RELEVANT AUTHORITIES.
8. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY CONSENTS FROM THE RELEVANT AUTHORITIES.
9. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY CONSENTS FROM THE RELEVANT AUTHORITIES.
10. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY CONSENTS FROM THE RELEVANT AUTHORITIES.



PO	First issue	SH	EC	08/07/20
Rev	Description	Author	Checked	Date

CLIENT: The Baird Farming Partnership

PROJECT: The Old Butcher's Block, Climping Street

SCALE: 1:200

PROJ REF: 4274

ORIGINATOR: SH

CHECKED BY: EC

HC DWG REF: 4274_DWG_04

DWG TITLE: CATCHMENT PLAN

DWG NO: HC-4274-505