

Our Ref: 114290/SWL/01  
11<sup>th</sup> July 2023  
Tarek Tabbah  
AJC Group  
4 Joshua's Vista  
202 Sandbanks Road  
Poole  
Dorset  
BH14 8HA

Dear Tarek

Re : Orchard Gate Development, Dibden Purlieu Surface Water Drainage

The following is a summary of the design approach, testing regime and Southern Water (water authority) discussions taken while undertaking the proposed drainage design for the Orchard Gate development, Dibden Purlieu, Hampshire.

A revised drainage strategy was submitted alongside a revised planning application ref 22/10813 in July 2022. An updated set of on-site infiltration tests were also undertaken by Geo-environmental Ltd covering more of the site. The results ranged from  $2.6 \times 10^{-5}$  to  $2.0 \times 10^{-6}$ . [See supplemental appendix for 'Orchard Gate Site Investigation Report Extract, June 2022'](#). A design was produced utilising two large infiltration tanks and employing permeable paving for hardstands and parking areas across the site. This would optimise infiltration over a greater area, maximising its effectiveness. [See supplemental appendix for Drawings '114290-CAL-XX-XX-CA-D-005, 006 and 007'](#). As with the initial scheme, the infiltration systems struggled to manage the surface water drainage due to the poor infiltration rates and failed to meet the 24-hour half drain time standard. This again required them to be oversized to accommodate repeat storms. Subsequently, surface run-off was conveyed to the permeable paving systems instead of the tanks where possible to reduce the amount of surface water entering the tank system. This is due to infiltration being more efficient within permeable paving as it has a greater surface area to volume ratio.

The LLFA require both infiltration testing and ground water monitoring to be undertaken within the winter months, to access site conditions during the most vulnerable period of the year. For this reason and due to the marginal performance of both drainage schemes already produced for the site, further testing was required to confirm the infiltration rates in key locations, also providing them in a form compliant with BRE Digest 365. Infiltration testing was also undertaken at shallower depths to determine the performance of the permeable paving systems.

The new site investigation tests were carried out in December 2022. [See supplemental appendix for 'Orchard Gate Site Investigation Report Extract, December 2022'](#). The deeper infiltration tests recorded a further drop in the rates used to design the two tanks which would negatively impact their performance. The tests carried out at shallow depths to assess the performance of the permeable paving failed entirely and were unable to provide any infiltration rate. Ground water levels were not encountered during the investigation, however the infiltration rates recorded demonstrated that an infiltration only solution could not be achieved for the current site proposals. An alternative off-site connection would therefore be needed.

The alternative to on-site infiltration would be to discharge surface water run-off off-site to an appropriate existing public sewer within the vicinity of the site. However, public sewer records show that the only asset near to the site was a 150mm public foul water sewer in located within Nords Way. The public foul sewer runs approximately 1.5m in depth, measured to invert, and was previously used as the discharge point for the proposed foul water drainage from the development. No other public sewer assets run anywhere close to the site, and there are no drainage ditches or watercourses that could serve as an appropriate surface water outfall location. [See supplemental appendix for the 'Southern Water Sewer Records Drawing'](#).

This would make a surface water connection to the public foul water sewer the only viable option for the development. Permission to connect would be subject to approval from Southern Water, who would

determine how much, if any, capacity was available within the existing public foul water sewer: network A revised drainage scheme was undertaken to illustrate the method required to make the positive connection into the foul water sewer. This utilised one of the tanks and some of the permeable paving for attenuation and used a pump station to lift and control the flows (as the invert of the receiving manhole was too high for a gravity system to work) that would then discharge to the public foul water sewer via a new lateral connection. A peak flow rate of 2.0 l/s was then proposed as it is typically the minimum flow rate that can be efficiently achieved using a surface water pump station. [See supplemental appendix for drawing '114290-CAL-XX-XX-CA-D-004'.](#)

A pre-application capacity check was submitted by AJC to Southern Water in February 2023 using the new attenuated flow control strategy as a basis. Southern Water responded in March 2023 confirming that they would accept the discharge for the foul drainage from the site but there was insufficient capacity within the existing public foul sewer for the proposed surface water connection, stating that the standard SuDS train should be applied to the site: The SuDS train is formed by the following steps, each of which must be ruled unviable before proceeding to the next.

- Surface water drainage to be disposed of on-site via infiltration systems – Unviable.
- Surface water drainage to discharge to a watercourse or drainage ditch – Unviable.
- Surface water to discharge to a public Surface Water Sewer at a controlled rate – Unviable.
- Surface water to discharge to a combined foul sewer at a controlled rate.

The response received from Southern Water is a standard refusal when requesting a surface water connection into a public foul water sewer, stating capacity as the reason. This is an important step as it logs the site in their system, assigning it a reference number and a Technical Advisor. This then enables the developer to enter detailed consultation with the Water Authority to discuss the drainage of the site and the potential use of public sewers to discharge. [See supplemental appendix for the 'Southern Water Response Letter'.](#)

Using the assigned application reference number 'DSA000020541' the Southern Water Technical Advisor was contacted via e-mail requesting a callback to discuss the site in more detail, this call was then received a few weeks later. The call was able to outline the problems with the site, highlighting how the SuDS train has been applied. The crucial factor would be how much capacity was available within the public foul sewer. The call was followed up with an e-mail outlining the points of the discussion and requesting a further review of the surface water connection based on the expanded context of the site, noting the proposed scheme and the methods used to minimise the surface water flow rate.

An updated response was received from Southern Water in early June 2023 stating:

*'As the development does not have existing connections and the previous use was agriculture and stables. Capacity assessment was undertaken to 2 l/s at MH SU41063501 and suggested insufficient capacity for these flows, additionally it was also assessed for max allowable surface water flows at the requested point of connection which resulted in the recommendation that there is insufficient capacity for any additional flows. Therefore, this application needs to be added to our growth scheme to improve capacity for surface water'.*

This response was followed up with an e-mail to Southern Water noting that the surface water connection was not currently viable but requesting clarification on the likelihood and potential timeline of the existing sewer network being upgraded. A response was then received from their Planning Department confirming their approach:

*'I can only advise that once planning permission has been granted, we will look to investigate the extent of reinforcement required to ensure the existing risk of flooding is not increased by a development, any works required as a result of this development will not address existing flooding issues in the catchment. As you will appreciate, we have a number of developments to design infrastructure for and we do not commence this process until planning permission has been granted, so we avoid expending resources unnecessarily as many developments do not gain planning permission and to expend resource in such circumstances is not a justifiable use of customer money.'*

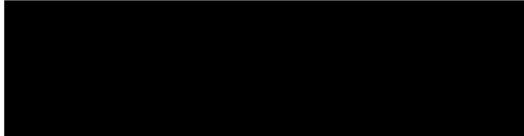
*We aim to provide infrastructure within 24 months of planning being granted or provide an alternative method of drainage should any required infrastructure not be in place by then. The developer will be asked to contribute to the costs of reinforcement via the New Infrastructure charging system details of which are available at:*

*Connection charging arrangements (southernwater.co.uk)*

[See supplemental appendix for the 'E-mail correspondence with Southern Water'.](#)

To conclude, the above narrative shows that all reasonable and practicable options have been duly explored for the discharge of surface water. A scheme of infiltration is considered unfeasible and direct connection to local sewerage network is required.

Yours sincerely



Mark Dewson BEng(Hons) CEng MICE MCIHT  
Director

07500 203867

**Supplemental Appendix Contents List:**

- Orchard Gate Site Investigation Report Extract, April 2021.
- Orchard Gate Site Investigation Report Extract, June 2022.
- 114290-CAL-XX-XX-CA-D-005 (Revision P2), Proposed Drainage Layout Drawing 1 of 3.
- 114290-CAL-XX-XX-CA-D-006 (Revision P2), Proposed Drainage Layout Drawing 2 of 3.
- 114290-CAL-XX-XX-CA-D-007 (Revision P2), Proposed Drainage Layout Drawing 3 of 3.
- Orchard Gate Site Investigation Report Extract, December 2022.
- Southern Water - Sewer Records Drawing.
- 114290-CAL-XX-XX-CA-D-004 (Revision P1), Proposed Drainage Strategy Drawing.
- Southern Water - Response Letter.
- Southern Water - E-mail Correspondence.



No groundwater was encountered during the intrusive investigation. Monitoring wells were installed with WS03 and WS06 to facilitate monitoring of groundwater and gases.

It should be noted that changes in groundwater levels do occur for a number of reasons including effects and variations in drainage.

For full details of the encountered conditions, the preliminary exploratory hole logs are enclosed.

Samples have been sent for testing at the appropriate lab. Once the results have been received, the report shall be prepared.

## Obstructions

Table 2 summarises the reasons for refusal across the site.

Location	Depth (m bgl)	Reason for refusal
TP01	2.55	Density of soils
TP02	2.80	Density of soils
WS01	1.45	Density of soils
WS02	1.30	Density of soils
WS03	1.60	Density of soils
WS04	1.40	Density of soils
WS05	1.40	Density of soils
WS06	2.00	Density of soils

Table 2 Summary of refusals

## Soakage Testing

Full scale soakage testing was undertaken in accordance with BRE365 within trial pits TP01 and TP02. Infiltration rates of  $6.6 \times 10^{-6} \text{m/s}$  and  $1.0 \times 10^{-5} \text{m/s}$  respectively were calculated.

Conventional soakaways may be appropriate for the site, and further testing is recommended.

## Closure

We trust that we have interpreted your instructions correctly, and please do not hesitate to contact us should you have any queries.

Yours sincerely

For and on Behalf of Geo-Environmental



**WILLIAM HUGHES MSc, MGeol (Hons), FGS**

Enc    Figure 1 – Site Location Plan  
        Figure 2 – Investigation Plan  
        Preliminary Exploratory Hole Logs

0.42 – 0.70	0.65 – 1.90+	RIVER TERRACE DEPOSITS: Very soft orange gravelly very sandy CLAY/gravelly clayey SAND	All
1.70 – 1.85	2.00 – 2.05+	RIVER TERRACE DEPOSITS: Orange slightly clayey gravelly SAND	TP101 & TP102

**Table 1 Summary of encountered ground conditions**

Positions WS101, TP101, TP105 and TP109 had to be repositioned due to obstructions and access constraints on site during the time of the investigation. The locations are shown in Figure 2. WS101 refused at 1.9m bgl and WS102 refused at 1.8m bgl, both due to the density of the soils encountered.

No groundwater was encountered within the intrusive locations during the intrusive investigation. It should be noted that changes in groundwater levels do occur for a number of reasons including effects and variations in drainage.

Monitoring wells were installed within WS101 and WS102 to facilitate return groundwater monitoring. Monitoring wells WS03 and WS06 were also installed during the previous investigation (see GE19721).

For full details of the encountered conditions, the preliminary exploratory hole logs are enclosed.

### Soakage Testing

Full scale soakage testing was undertaken broadly in accordance with BRE365 within the trial pits. The infiltration rates were relatively low, such that it was only possible to undertake one soakage run in the majority of the pits within the agreed timescales.

Location	Depth (m)	Infiltration Rate (m/s)	
		Run 1	Run 2
TP101	2.05	$4.9 \times 10^{-6}$ *	-
TP102	2.00	$1.3 \times 10^{-5}$	-
TP103	0.70	$2.3 \times 10^{-6}$ *	-
TP104	0.70	$6.6 \times 10^{-6}$	-
TP105	0.69	$6.7 \times 10^{-6}$ *	-
TP106	0.66	$2.0 \times 10^{-6}$ *	-
TP107	0.65	$5.8 \times 10^{-6}$	-
TP108	0.65	$5.2 \times 10^{-6}$ *	-
TP109	0.80	$2.6 \times 10^{-5}$	$5.5 \times 10^{-6}$ *

\*results were extrapolated to 75% completion

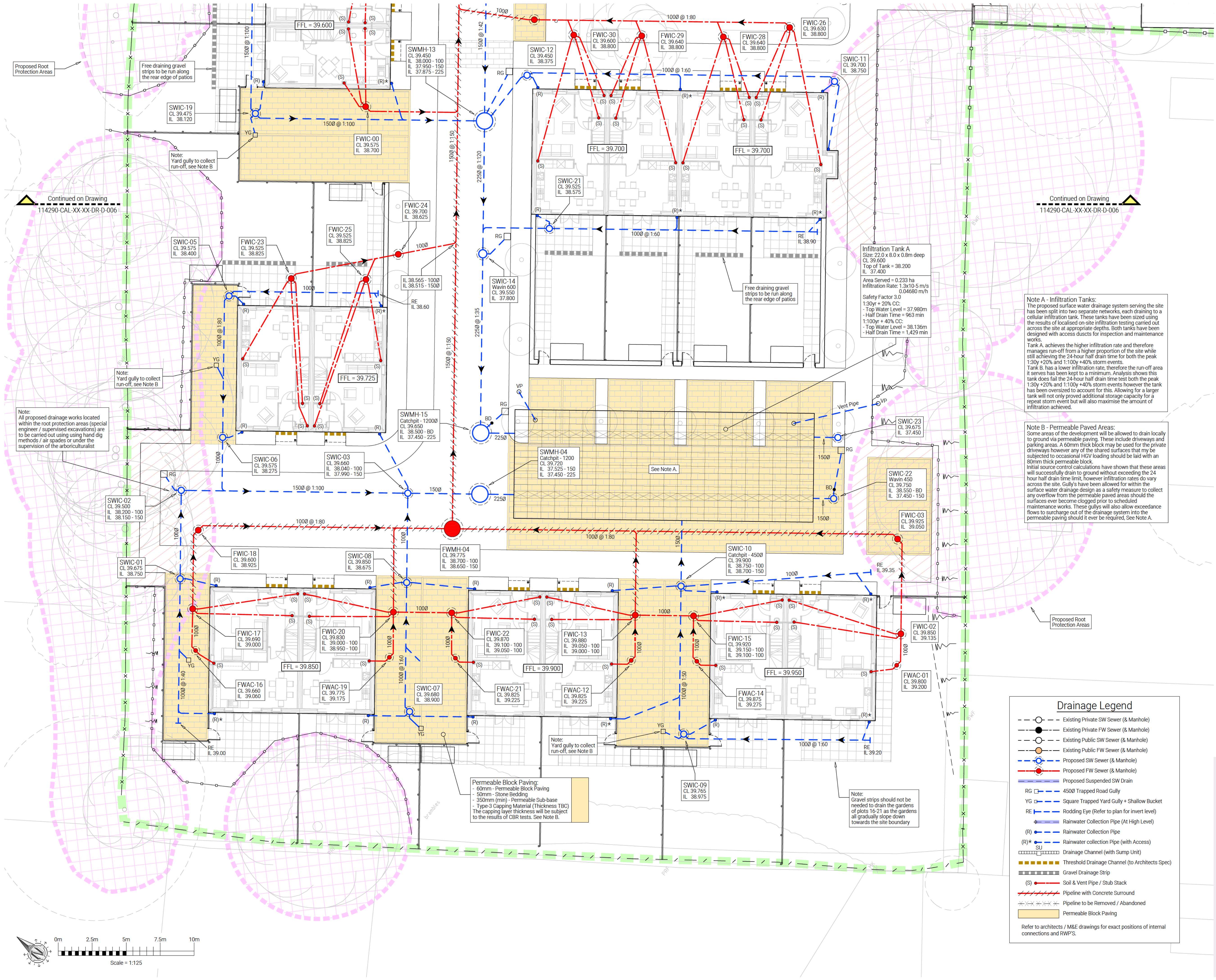
**Table 2 Calculated infiltration rates for each location**

The results indicate the design of conventional shallow soakaways should be feasible.

### Closure

We trust that we have interpreted your instructions correctly, and please do not hesitate to contact us should you have any queries.





- Notes:
- This drawing is to be read in conjunction with all of the relevant architects, engineers and specialist sub-contractor drawings and specifications.
  - Any discrepancies between the engineers and the architects drawings to be referred to the architect before proceeding. Drawings must not be scaled.
  - All private drainage is to be in accordance with BS EN 752-1-3-3.4, BS EN 1295-1, BS EN 1610 and all relevant sections of approved document H of the building regulations (2015 Edition).
  - All adoptable drainage is to be in accordance with Design and construction guidelines for foul & surface water sewers offered for adoption, where appropriate.
  - Pipework Type - Plastic i.e. PVC-U, to BS EN 1401-1 Orma or equivalent. (Private pipework to be type SN4 and all adoptable pipework to be type SN8)
  - Precast concrete manholes and fittings shall be to BS 5911 parts 3 and 4 and BS EN 1917.
  - Whenever pipework passes through foundations, walls or connects to manholes, flexible pipe joints are to be provided within 150mm of the face of the structure. 600mm pipe length to then be used to form a rocker pipe.
  - Whenever pipework passes through screen walls, footings or retaining walls, lintels are to be provided.
  - Where pipelines pass within 1.0m of buildings or walls the foundations are to be taken down below the bottom of the trench. Where pipelines are more than 1.0m away from foundations the trench shall be backfilled with concrete up to a point that meets a 45° angle line taken from the bottom corner of the nearest foundation.
  - Where pipelines cross with less than 300mm of clearance, each is to be surrounded with grade ST4 mass concrete for a distance not less than 1.0m centered on the crossing point. The length of surround should be extended as necessary to within 150mm of the next nearest flexible joints.
  - For private drainage, concrete protection is to be provided where the effective cover to the crown of the pipe(s) is less than 1.2m in trafficked areas and 0.6m in soft landscaped or pedestrianised areas. (Applies during and after construction).
  - The contractor is to ensure that suitable protective measures are taken to ensure that the drainage pipework and fittings are not damaged by site traffic prior to any over-site filling operations being completed.
  - Chamber annotation references are as follows:  
AC - Denotes a polypropylene or vitrified clay access chamber, depth not exceeding 600mm, diameter not exceeding 300mm.  
IC - Denotes a polypropylene inspection chamber, depth not exceeding 3.0m, diameter not exceeding 600mm. Standard diameter 450mm unless specified otherwise.  
MH - Denotes a manholes constructed from either brick, polypropylene or P.C.C. sections. Chamber depth to be in excess of 1.2m.
  - The top run of each private foul drainage network is to be laid to falls no steeper than 1:40. The head of each run is to be vented to atmosphere in accordance with approved document H.
  - All foul and surface water drainage pipelines are to be 100mm dia min and laid at a gradient no steeper than 1:80, unless stated otherwise.
  - The contractor is to ensure that all pipework connections are arranged to direct flows down or into the main channel in the direction of the main flow. Any oblique or perpendicular chamber connections are to be directed into the mainline channel via appropriate benching. All chambers must include a connection via the main channel to ensure that a flush through is achieved.
  - The contractor is to ensure that when preformed polypropylene manhole bases are used, they are orientated such that the main flow is directed through the main channel of the base. This should be achieved by using long radius bends outside of the manhole when necessary.
  - Where new connections are to be made into existing manholes or sewers, all invert levels, pipe orientation and sizes should be checked on-site prior to the commencement of the works, with any variance reported to the engineer once identified. Where new connections are to be made either on or off-site, the contractor is to check the line and level of any existing services / mains, to ensure that no clashes exist prior to the works commencing.
  - Any and all new connections into a public sewer are to be inspected by the local water authority and carried out fully in accordance with their requirements. The contractor is to allow for obtaining the appropriate 'Section Agreements' as well as paying all necessary fees.
  - The contractor is to allow for obtaining the appropriate road opening licence's from the local highway authority and paying all necessary fees. All reinstatement works within the public highway are to be carried out in accordance with the requirements of the local highway authority.
  - Permeable paving surface finish to the architects spec'. Any alteration to the extents of the permeable paving may have an adverse affect upon the Surface water drainage design and must therefore be discussed with the engineer.
  - Modular grate soakaway system(s) to be Wavin Aquacell® or Polypipe Polystorm®. Any other system offered will need to be provided with a separate warranty for design and installation.

Note:  
The proposed surface water drainage measures have been designed to manage a peak 1:100 year +40% climate change storm event.

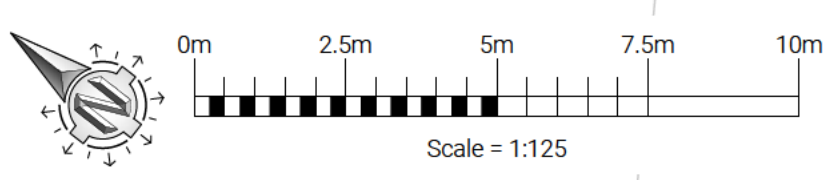
Note A - Infiltration Tanks:  
The proposed surface water drainage system serving the site has been split into two separate networks, each draining to a cellular infiltration tank. These tanks have been sized using the results of localised on-site infiltration testing carried out across the site at appropriate depths. Both tanks have been designed with access ducts for inspection and maintenance works.  
Tank A, achieves the higher infiltration rate and therefore manages run-off from a higher proportion of the site while still achieving the 24-hour half drain time for both the peak 1:30yr +20% and 1:100yr +40% storm events.  
Tank B, has a lower infiltration rate, therefore the run-off area it serves has been kept to a minimum. Analysis shows this tank does fail the 24-hour half drain time test both the peak 1:30yr +20% and 1:100yr +40% storm events however the tank has been oversized to account for this. Allowing for a larger tank will not only provide additional storage capacity for a repeat storm event but will also maximise the amount of infiltration achieved.

Note B - Permeable Paved Areas:  
Some areas of the development will be allowed to drain locally to ground via permeable paving. These include driveways and parking areas. A 60mm thick block may be used for the private driveways however any of the shared surfaces that may be subjected to occasional HGV loading should be laid with an 80mm thick permeable block.  
Initial source control calculations have shown that these areas will successfully drain to ground without exceeding the 24 hour half drain time limit, however infiltration rates do vary across the site. Gullies have been allowed for within the surface water drainage design as a safety measure to collect any overflow from the permeable paved areas should the surfaces ever become clogged prior to scheduled maintenance works. These gullies will also allow exceedance flows to surcharge out of the drainage system into the permeable paving should it ever be required. See Note A.

**Drainage Legend**

- Existing Private SW Sewer (& Manhole)
- Existing Private FW Sewer (& Manhole)
- Existing Public SW Sewer (& Manhole)
- Existing Public FW Sewer (& Manhole)
- Proposed SW Sewer (& Manhole)
- Proposed FW Sewer (& Manhole)
- Proposed Suspended SW Drain
- RG 4500 Trapped Road Gully
- YG Square Trapped Yard Gully + Shallow Bucket
- RE Rodding Eye (Refer to plan for invert level)
- Rainwater Collection Pipe (At High Level)
- (R) Rainwater Collection Pipe
- (R)\* Rainwater collection Pipe (with Access)
- SU Drainage Channel (with Sump Unit)
- Threshold Drainage Channel (to Architects Spec)
- Gravel Drainage Strip
- (S) Soil & Vent Pipe / Stub Stack
- Pipeline with Concrete Surround
- Pipeline to be Removed / Abandoned
- Permeable Block Paving

Refer to architects / M&E drawings for exact positions of internal connections and RWPS.



P2 12.07.22 Site plan and building layouts updated. Drainage revised following the results of on-site infiltration testing - Issued for Planning  
P1 21.06.22 Drawn - Preliminary Issue  
Rev Date Description

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Client  
**AJC Homes**

Project Title  
**Orchard Gate, Dibden Purlieu**

Drawing Title  
**Proposed Drainage Layout Drawings Sheet 1 of 3**

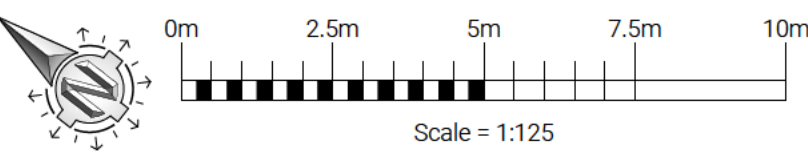
Drawing Status  
**Planning**

Originator No.	Rev by	Chk by	Scale
114290	GEB	GEB	1:125 @A1

PROJECT / ORIGINATOR / ZONE / LEVEL / TYPE / ROLE / NO.  
114290-CAL-XX-XX-DR-D-005

Revision  
P2





#### Note A - Infiltration Tanks:

The proposed surface water drainage system serving the site has been split into two separate networks, each draining to a cellular infiltration tank. These tanks have been sized using the results of localised on-site infiltration testing carried out across the site at appropriate depths. Both tanks have been designed with access ducts for inspection and maintenance works.

Tank A, achieves the higher infiltration rate and therefore manages run-off from a higher proportion of the site while still achieving the 24-hour half drain time for both the peak 1:30yr +20% and 1:100yr +40% storm events.

Tank B, has a lower infiltration rate, therefore the run-off area it serves has been kept to a minimum. Analysis shows this tank does fail the 24-hour half drain time test both the peak 1:30yr +20% and 1:100yr +40% storm events however the tank has been oversized to account for this. Allowing for a larger tank will not only provide additional storage capacity for a repeat storm event but will also maximise the amount of infiltration achieved.

#### Note B - Permeable Paved Areas:

Some areas of the development will be allowed to drain locally to ground via permeable paving. These include driveways and parking areas. A 60mm thick block may be used for the private driveways however any of the shared surfaces that may be subjected to occasional HGV loading should be laid with an 80mm thick permeable block.

Initial source control calculations have shown that these areas will successfully drain to ground without exceeding the 24 hour half drain time limit, however infiltration rates do vary across the site. Gullies have been allowed for within the surface water drainage design as a safety measure to collect any overflow from the permeable paved areas should the surfaces ever become clogged prior to scheduled maintenance works. These gullies will also allow exceedance flows to surcharge out of the drainage system into the permeable paving should it ever be required. See Note A.

Note:  
The proposed new foul water mainline drain serving the site will need to be laid at a shallow depth to achieve a gravity connection to the existing public foul water sewer. It will therefore require a type 2 pipe bedding wherever there is less than 1.2m of cover to the soffit of the pipe within trafficked areas

Note:  
All proposed drainage works located within the root protection areas (special engineer / supervised excavations) are to be carried out using using hand dig methods / air spades or under the supervision of the arboriculturalist

Continued on Drawing  
114290-CAL-XX-XX-DR-D-007

#### Notes:

- This drawing is to be read in conjunction with all of the relevant architects, engineers and specialist sub-contractor drawings and specifications.
- Any discrepancies between the engineers and the architects drawings to be referred to the architect before proceeding. Drawings must not be scaled.
- All private drainage is to be in accordance with BS EN 752-1-3-3.4, BS EN 1295-1, BS EN 1610 and all relevant sections of approved document H of the building regulations (2015 Edition).
- All adoptable drainage is to be in accordance with 'Design and construction guidelines for foul & surface water sewers offered for adoption', where appropriate.
- Pipework Type - Plastic i.e. PVC-U, to BS EN 1401-1 Orsm or equivalent. (Private pipework to be type SNM and all adoptable pipework to be type SN8)
- Precast concrete manholes and fittings shall be to BS 5911 parts 3 and 4 and BS EN 1917.
- Whenever pipework passes through foundations, walls or connects to manholes, flexible pipe joints are to be provided within 150mm of the face of the structure. 600mm pipe length to them be used to form a rocker pipe.
- Whenever pipework passes through screen walls, footings or retaining walls, joints are to be provided.
- Where pipelines pass within 1.0m of buildings or walls the foundations are to be taken down below the bottom of the trench. Where pipelines are more than 1.0m away from foundations the trench shall be backfilled with concrete up to a point that meets a 45° angle line taken from the bottom corner of the nearest foundation.
- Where pipelines cross with less than 300mm of clearance, each is to be surrounded with grade 3/4 mass concrete for a distance not less than 1.0m centered on the crossing point. The length of surround should be extended as necessary to within 150mm of the next nearest flexible joints.
- For private drainage, concrete protection is to be provided where the effective cover to the crown of the pipe(s) is less than 1.2m in trafficked areas and 0.6m in soft landscaped or pedestrianised areas. (Applies during and after construction).
- The contractor is to ensure that suitable protective measures are taken to ensure that the drainage pipework and fittings are not damaged by site traffic prior to any over-site filling operations being completed.
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- The contractor is to allow for obtaining the appropriate road opening licence's from the local highway authority and paying all necessary fees. All reinstatement works within the public highway are to be carried out in accordance with the requirements of the local highway authority.
- Permeable paving surface finish 'to the architects spec'. Any alteration to the extents of the permeable paving may have an adverse affect upon the Surface water drainage design and must therefore be discussed with the engineer.
- Modular grate soakaway system(s) to be 'Wavin Aquaceff' or 'Polypipe Polystorm'. Any other system offered will need to be provided with a separate warranty for design and installation.

Note:  
The proposed surface water drainage measures have been designed to manage a peak 1:100 year +40% climate change storm event.

P2	12.07.22	Site plan and building layouts updated. Drainage revised following the results of on-site infiltration testing - Issued for Planning
P1	21.06.22	Drawn - Preliminary Issue
Rev	Date	Description



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Client  
AJC Homes

Project Title  
Orchard Gate, Dibden Purlieu

Drawing Title  
Proposed Drainage  
Layout Drawings  
Sheet 2 of 3

Drawing Status  
Planning

Originator No.	Rev by	Chk by	Scale
114290	GEB	GEB	1:125 @A1

PROJECT   ORIGINATOR   ZONE   LEVEL   TYPE   ROLE   NO.	Revision
114290-CAL-XX-XX-DR-D-006	P2

Continued on Drawing  
114290-CAL-XX-XX-DR-D-005

Continued on Drawing  
114290-CAL-XX-XX-DR-D-005

Note:  
All proposed drainage works located within the root protection areas (special engineer / supervised excavations) are to be carried out using using hand dig methods / air spades or under the supervision of the arboriculturalist

Note:  
Access ducts within the bottom layer of the infiltration tanks for inspection and maintenance works

Infiltration Tank B  
Size: 17.0 x 10.0 x 0.8m deep  
CL 39.300  
Top of Tank = 38.000  
IL 37.200  
Area Served = 0.114 ha  
Infiltration Rate: 4.9x10<sup>-6</sup> m/s  
0.01764 m/h  
Safety Factor 3.0  
1:30yr +20% CC:  
- Top Water Level = 37.530m  
- Half Drain Time = 1,553 min  
1:100yr +40% CC:  
- Top Water Level = 37.706m  
- Half Drain Time = 2,311 min

See Note A.

Permeable Block Paving:  
- 60mm - Permeable Block Paving  
- 50mm - Stone Bedding  
- 350mm (min) - Permeable Sub-base  
- Type-3 Capping Material (Thickness TBC)  
The capping layer thickness will be subject to the results of CBR tests. See Note B.

Free draining gravel strips to be run along the rear edge of patios

Free draining gravel strips to be run along the rear edge of patios

Proposed Root Protection Areas

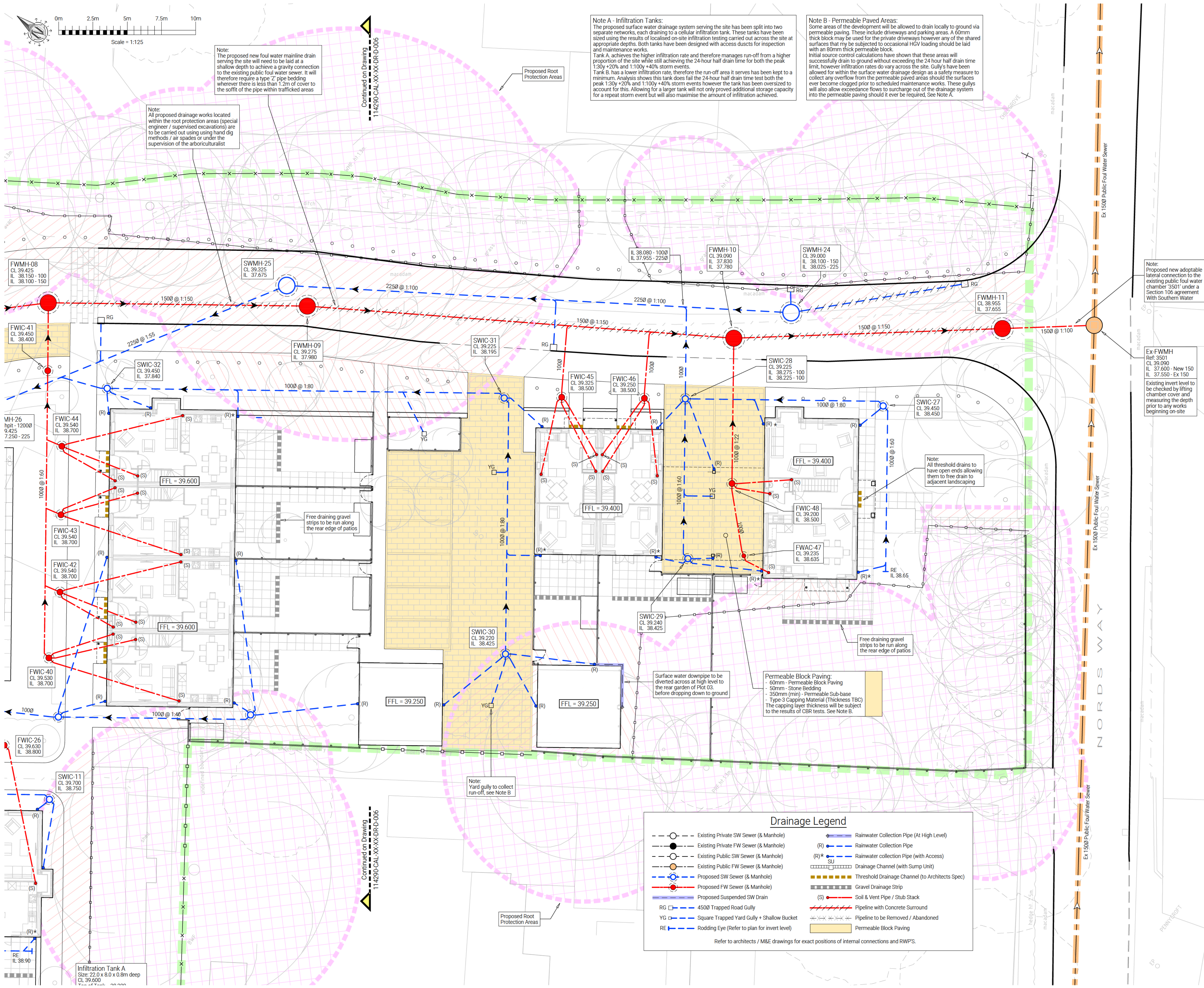
Free draining gravel strips to be run along the rear edge of patios

Note:  
Yard gully to collect run-off, see Note B

Continued on Drawing

114290-CAL-XX-XX-DR-D-005





**Note A - Infiltration Tanks:**  
The proposed surface water drainage system serving the site has been split into two separate networks, each draining to a cellular infiltration tank. These tanks have been sized using the results of localised on-site infiltration testing carried out across the site at appropriate depths. Both tanks have been designed with access ducts for inspection and maintenance works.  
Tank A, achieves the higher infiltration rate and therefore manages run-off from a higher proportion of the site while still achieving the 24-hour half drain time for both the peak 1:30y +20% and 1:100y +40% storm events.  
Tank B, has a lower infiltration rate, therefore the run-off area it serves has been kept to a minimum. Analysis shows this tank does fail the 24-hour half drain time test both the peak 1:30y +20% and 1:100y +40% storm events however the tank has been oversized to account for this. Allowing for a larger tank will not only proved additional storage capacity for a repeat storm event but will also maximise the amount of infiltration achieved.

**Note B - Permeable Paved Areas:**  
Some areas of the development will be allowed to drain locally to ground via permeable paving. These include driveways and parking areas. A 60mm thick block may be used for the private driveways however any of the shared surfaces that may be subjected to occasional HGV loading should be laid with an 80mm thick permeable block.  
Initial source control calculations have shown that these areas will successfully drain to ground without exceeding the 24 hour half drain time limit, however infiltration rates do vary across the site. Gullies have been allowed for within the surface water drainage design as a safety measure to collect any overflow from the permeable paved areas should the surfaces ever become clogged prior to scheduled maintenance works. These gullies will also allow exceedance flows to surcharge out of the drainage system into the permeable paving should it ever be required. See Note A.

- Notes:**
- This drawing is to be read in conjunction with all of the relevant architects, engineers and specialist sub-contractor drawings and specifications.
  - Any discrepancies between the engineers and the architects drawings to be referred to the architect before proceeding. Drawings must not be scaled.
  - All private drainage is to be in accordance with BS EN 752-1-3-3.4, BS EN 1295-1, BS EN 1610 and all relevant sections of approved document H of the building regulations (2015 Edition).
  - All adoptable drainage is to be in accordance with Design and construction guidelines for foul & surface water sewers offered for adoption, where appropriate.
  - Pipework Type - Plastic i.e. PVC-U, to BS EN 1401-1 Orsmo or equivalent. (Private pipework to be type SNM and all adoptable pipework to be type SN8)
  - Precast concrete manholes and fittings shall be to BS 5911 parts 3 and 4 and BS EN 1917.
  - Whenever pipework passes through foundations, walls or connects to manholes, flexible pipe joints are to be provided within 150mm of the face of the structure. 600mm pipe length to then be used to form a rocker pipe.
  - Whenever pipework passes through screen walls, footings or retaining walls, lintels are to be provided.
  - Where pipelines pass within 1.0m of buildings or walls the foundations are to be taken down below the bottom of the trench. Where pipelines are more than 1.0m away from foundations the trench shall be backfilled with concrete up to a point that meets a 45° angle line taken from the bottom corner of the nearest foundation.
  - Where pipelines cross with less than 300mm of clearance, each is to be surrounded with grade 3/4 mass concrete for a distance not less than 1.0m centered on the crossing point. The length of surround should be extended as necessary to within 150mm of the next nearest flexible joints.
  - For private drainage, concrete protection is to be provided where the effective cover to the crown of the pipe(s) is less than 1.2m in trafficked areas and 0.6m in soft landscaped or pedestrianised areas. (Applies during and after construction).
  - The contractor is to ensure that suitable protective measures are taken to ensure that the drainage pipework and fittings are not damaged by site traffic prior to any over-site filling operations being completed.
  - Chamber annotation references are as follows:  
AC - Denotes a polypropylene or vitrified clay access chamber, depth not exceeding 600mm, diameter not exceeding 300mm.  
IC - Denotes a polypropylene inspection chamber, depth not exceeding 3.0m, diameter not exceeding 600mm. Standard diameter 450mm unless specified otherwise.  
MH - Denotes a manholes constructed from either brick, polypropylene or P.C.C sections. Chamber depth to be in excess of 1.2m.
  - The top run of each private foul drainage network is to be laid to falls no slacker than 1:40. The head of each run is to be vented to atmosphere in accordance with approved document H.
  - All foul and surface water drainage pipelines are to be 100mm dia min and laid at a gradient no slacker than 1:80, unless stated otherwise.
  - The contractor is to ensure that all pipework connections are arranged to direct flows down or into the main channel in the direction of the main flow. Any oblique or perpendicular chamber connections are to be directed into the mainline channel via appropriate benching. All chambers must include a connection via the main channel to ensure that a flush through is achieved.
  - The contractor is to ensure that when preformed polypropylene manhole bases are used, they are orientated such that the main flow is directed through the chamber cover and measuring the depth prior to any works beginning on-site.
  - Where new connections are to be made into existing manholes or sewers, all invert levels, pipe orientation and sizes should be checked on-site prior to the commencement of the works, with any variance reported to the engineer once identified. Where new connections are to be made either on or off-site, the contractor is to check the line and level of any existing services / mains, to ensure that no clashes exist prior to the works commencing.
  - Any and all new connections into a public sewer are to be inspected by the local water authority and carried out fully in accordance with their requirements. The contractor is to allow for obtaining the appropriate 'Section Agreements' as well as paying all necessary fees.
  - The contractor is to allow for obtaining the appropriate road opening licence's from the local highway authority and paying all necessary fees. All reinstatement works within the public highway are to be carried out in accordance with the requirements of the local highway authority.
  - Permeable paving surface finish 'to the architects spec'. Any alteration to the extents of the permeable paving may have an adverse affect upon the Surface Water drainage design and must therefore be discussed with the engineer.
  - Modular grate soakaway system(s) to be Wavin Aquacell® or Polypipe Polystorm®. Any other system offered will need to be provided with a separate warranty for design and installation.

**Note:**  
The proposed surface water drainage measures have been designed to manage a peak 1:100 year +40% climate change storm event.

**Drainage Legend**

Existing Private SW Sewer (& Manhole)	Rainwater Collection Pipe (At High Level)
Existing Private FW Sewer (& Manhole)	Rainwater Collection Pipe
Existing Public SW Sewer (& Manhole)	Rainwater collection Pipe (with Access)
Existing Public FW Sewer (& Manhole)	SU
Proposed SW Sewer (& Manhole)	Drainage Channel (with Sump Unit)
Proposed FW Sewer (& Manhole)	Threshold Drainage Channel (to Architects Spec)
Proposed Suspended SW Drain	Gravel Drainage Strip
RG 4500 Trapped Road Gully	(S) Soil & Vent Pipe / Stub Stack
YG Square Trapped Yard Gully + Shallow Bucket	Pipeline with Concrete Surround
RE Rodding Eye (Refer to plan for invert level)	Pipeline to be Removed / Abandoned
	Permeable Block Paving

Refer to architects / M&E drawings for exact positions of internal connections and RWPS.

P2 12.07.22 Site plan and building layouts updated. Drainage revised following the results of on-site infiltration testing - Issued for Planning  
P1 21.06.22 Drawn - Preliminary Issue  
Rev. Date Description

Calcnorro  
Jensen House  
43 Commercial Rd  
Poole BH14 6HU  
01202 237237  
info@calcnorro.co.uk  
www.calcnorro.co.uk

Client  
**AJC Homes**

Project Title  
**Orchard Gate, Dibden Purlieu**

Drawing Title  
**Proposed Drainage Layout Drawings**

Sheet 3 of 3

Drawing Status  
**Planning**

Originator No.	Rev by	Chk by	Scale
114290	GEb	GEb	1:125 @A1

PROJECT   ORIGINATOR   ZONE   LEVEL   TYPE   ROLE   NO.	Revision
114290-CAL-XX-XX-DR-D-007	P2



Top (m bgl)	Base (m bgl)	Generalised Geology	Locations
		sandy GRAVEL. Gravel is fine to coarse subangular to subrounded flint. Abundant 1-10mm rootlets.	
0.70	0.72	<b>RIVER TERRACE DEPOSITS:</b> Very soft orangish brown slightly gravelly very sandy CLAY. Sand is fine. Gravel is fine coarse subangular to subrounded flint.	TP204

**Table 1 Summary of encountered ground conditions**

No groundwater was encountered within the intrusive locations during the investigation. It should be noted that changes in groundwater levels do occur for a number of reasons including effects and variations in drainage.

For full details of the encountered conditions, the preliminary exploratory hole logs are enclosed.

### Soakage Testing

Soakage testing was undertaken broadly in accordance with BRE365 within the trial pits, the infiltration rates of which are provided in Table 2. Within pits TP203 and TP204 the infiltration rates were relatively low, such that it was only possible to undertake two soakage runs, the details of these tests are provided in Table 3. As the shallow soakage tests stalled there was insufficient soakage to reach the 75% point, thus an infiltration rate could not be calculated.

Location	Depth (m)	Infiltration Rate (m/s)		
		Run 1	Run 2	Run 3
TP201	1.70	$4.3 \times 10^{-6}$	$5.7 \times 10^{-6}$	$5.4 \times 10^{-6}$
TP202	1.70	$3.3 \times 10^{-6}$	$4.8 \times 10^{-6}$	$5.7 \times 10^{-6}$
TP203	0.70	*	*	-
TP204	0.70	*	*	-

\*Tests stalled and 75% was not reached after 24 hours, see Table 3.

**Table 2 Calculated infiltration rates for each location**

Location	Pit depth (m)	Test run	Water start depth (m bgl)	Water final depth (m bgl)	Water stall depth	Time at stalled depth (hours)
TP203	0.70	Test 1	0.22	0.42	0.42	4.1*
		Test2	0.30	0.39	0.30	6
TP204	0.70	Test 1	0.23	0.52	0.52	6.1*
		Test 2	0.29	0.50	0.50	4.8*

\*Time to soak 10mm after being left overnight.

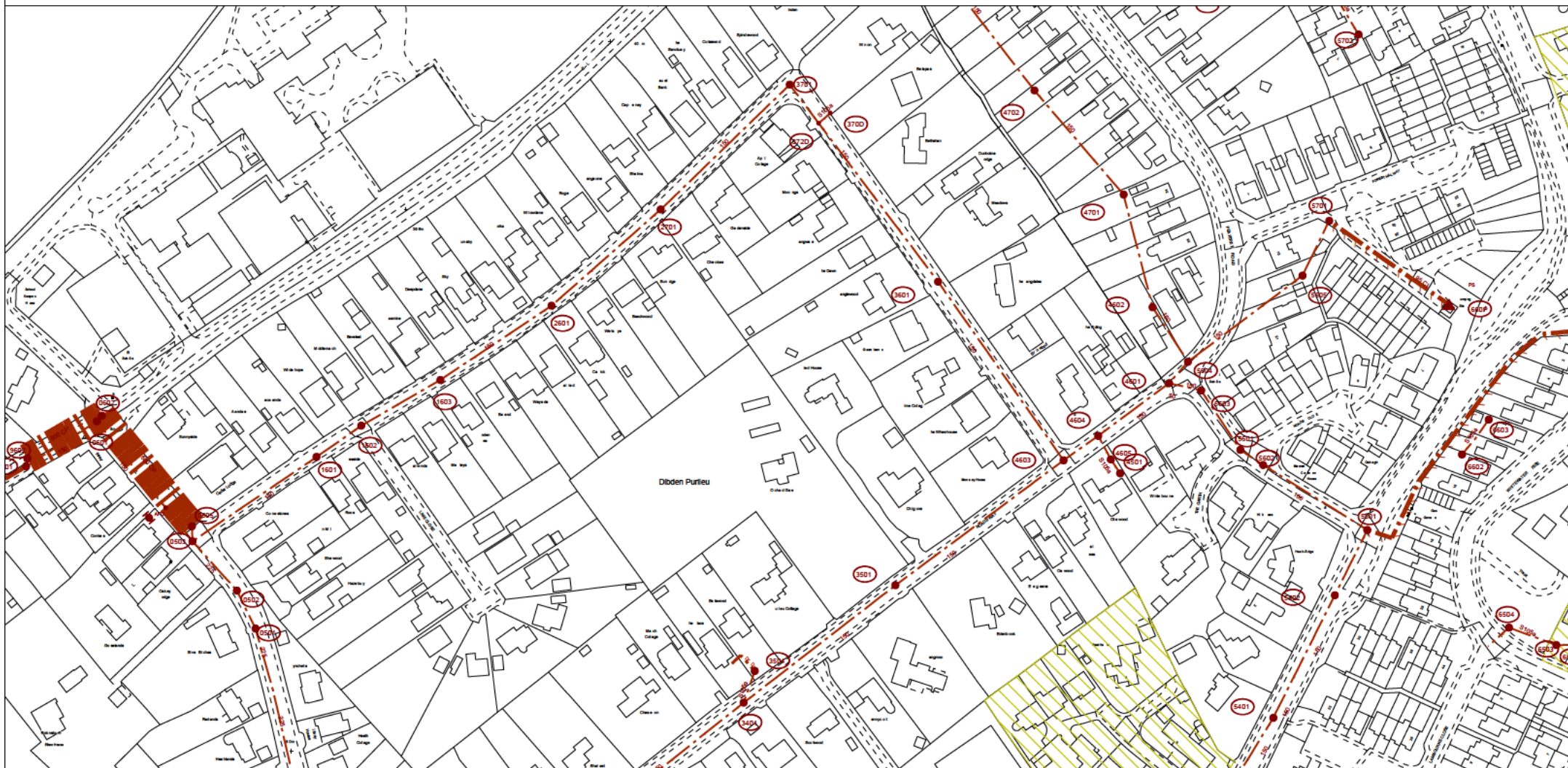
**Table 3 Details of shallow soakage tests (TP203 & TP204)**

On the basis of the testing undertaken, it is considered that on-site storage and peak flow attenuation would be required for a SUDS solution. Shallow testing was unsuccessful and thus shallow infiltration through permeable paving is not considered likely to be a feasible solution for infiltration, but might provide some shallow storage (within the pavement construction).

### Closure

We trust that we have interpreted your instructions correctly, and please do not hesitate to contact us should you have any queries.

# SOUTHERN WATER



The positions of pipes shown on this plan are believed to be correct, but Southern Water Services Ltd accept no responsibility in the event of inaccuracy. The actual positions should be determined on site.

Based upon Ordnance Survey Digital Data with the permission of the controller of H M S O Crown Copyright Reserved Licence No WU 298530

O.S. REF: SU4106NW

Scale: 1:2500

Sewer Plot

**WARNING: BAC pipes are constructed of Bonded Asbestos Cement**

**WARNING: Unknown (UNK) materials may include Bonded Asbestos Cement**



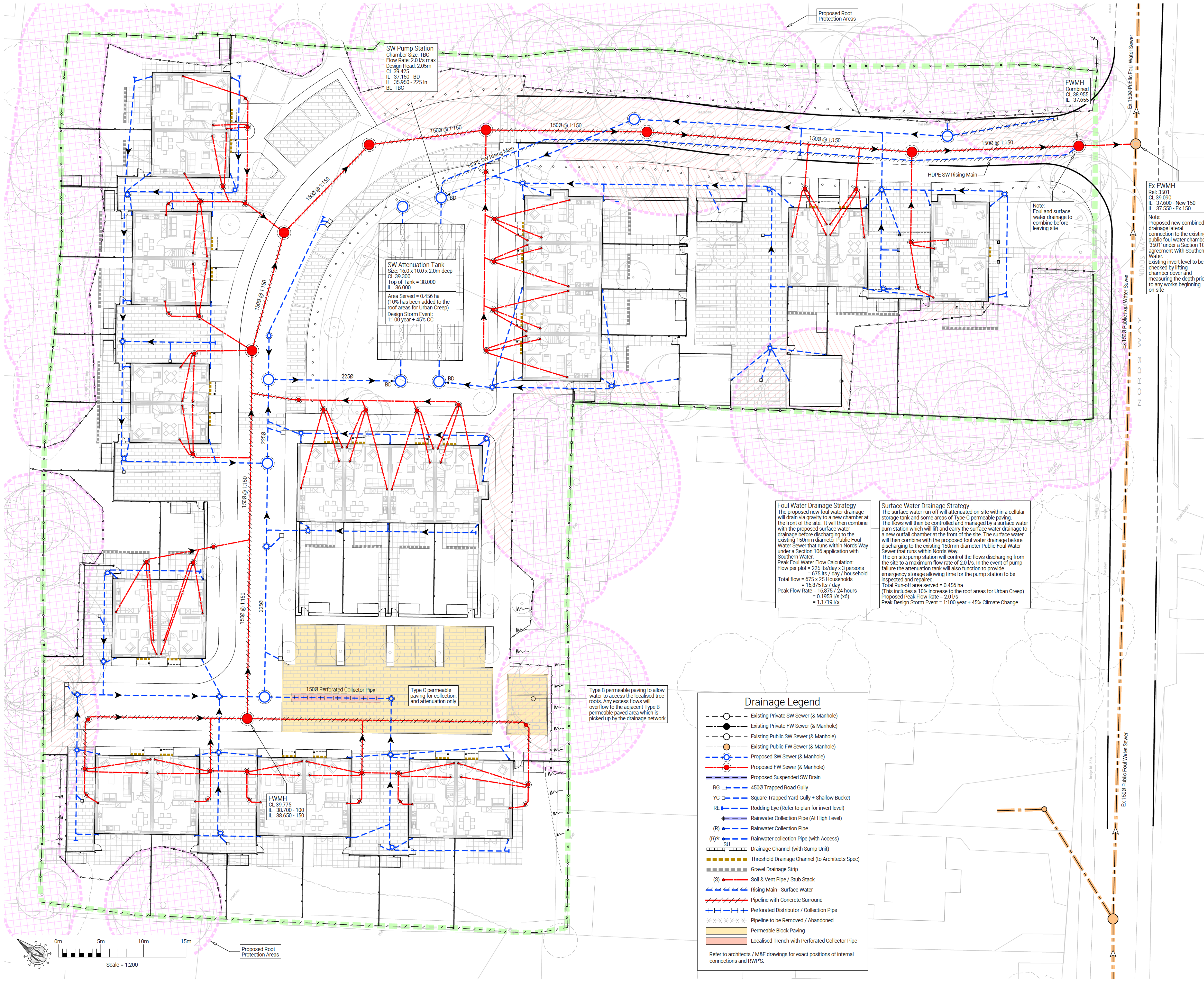
Printed By: PP

Date: 2-2-2021

Orchard Gate Noads Way

Requested By:





SW Pump Station  
Chamber Size: TBC  
Flow Rate: 2.0 l/s max  
Design Head: 2.05m  
CL 39.425  
IL 37.150 - BD  
IL 35.950 - 225 in  
BL TBC

SW Attenuation Tank  
Size: 16.0 x 10.0 x 2.0m deep  
CL 39.300  
Top of Tank = 38.000  
IL 36.000  
Area Served = 0.456 ha  
(10% has been added to the  
roof areas for Urban Creep)  
Design Storm Event:  
1:100 year + 45% CC

FWMH  
Combined  
CL 38.955  
IL 37.655

Ex-FWMH  
Ref: 3501  
CL 39.090  
IL 37.600 - New 150  
IL 37.550 - Ex 150  
Note:  
Proposed new combined  
drainage lateral  
connection to the existing  
public foul water chamber  
3501' under a Section 106  
agreement With Southern  
Water.  
Existing invert level to be  
checked by lifting  
chamber cover and  
measuring the depth prior  
to any works beginning  
on-site

**Foul Water Drainage Strategy**  
The proposed new foul water drainage will drain via gravity to a new chamber at the front of the site. It will then combine with the proposed surface water drainage before discharging to the existing 150mm diameter Public Foul Water Sewer that runs within Nords Way under a Section 106 application with Southern Water.  
Peak Foul Water Flow Calculation:  
Flow per plot = 225 lts/day x 3 persons  
= 675 lts / day / household  
Total flow = 675 x 25 Households  
= 16,875 lts / day  
Peak Flow Rate = 16,875 / 24 hours  
= 0.1953 l/s (x0)  
= 1.1719 l/s

**Surface Water Drainage Strategy**  
The surface water run-off will be attenuated on-site within a cellular storage tank and some areas of Type-C permeable paving. The flows will then be controlled and managed by a surface water pump station which will lift and carry the surface water drainage to a new outfall chamber at the front of the site. The surface water will then combine with the proposed foul water drainage before discharging to the existing 150mm diameter Public Foul Water Sewer that runs within Nords Way.  
The on-site pump station will control the flows discharging from the site to a maximum flow rate of 2.0 l/s. In the event of pump failure the attenuation tank will also function to provide emergency storage allowing time for the pump station to be inspected and repaired.  
Total Run-off area served = 0.456 ha  
(This includes a 10% increase to the roof areas for Urban Creep)  
Proposed Peak Flow Rate = 2.0 l/s  
Peak Design Storm Event = 1:100 year + 45% Climate Change

Drainage Legend	
---	Existing Private SW Sewer (& Manhole)
---	Existing Private FW Sewer (& Manhole)
---	Existing Public SW Sewer (& Manhole)
---	Existing Public FW Sewer (& Manhole)
---	Proposed SW Sewer (& Manhole)
---	Proposed FW Sewer (& Manhole)
---	Proposed Suspended SW Drain
RG	4500 Trapped Road Gully
YG	Square Trapped Yard Gully + Shallow Bucket
RE	Rodding Eye (Refer to plan for invert level)
---	Rainwater Collection Pipe (At High Level)
(R)	Rainwater Collection Pipe
(R)*	Rainwater collection Pipe (with Access)
---	Drainage Channel (with Sump Unit)
---	Threshold Drainage Channel (to Architects Spec)
---	Gravel Drainage Strip
(S)	Soil & Vent Pipe / Stub Stack
---	Rising Main - Surface Water
---	Pipeline with Concrete Surround
---	Perforated Distributor / Collection Pipe
---	Pipeline to be Removed / Abandoned
---	Permeable Block Paving
---	Localised Trench with Perforated Collector Pipe
Refer to architects / M&E drawings for exact positions of internal connections and RWPS.	

- Notes:
- This drawing is to be read in conjunction with all of the relevant architects, engineers and specialist sub-contractor drawings and specifications.
  - Any discrepancies between the engineers and the architects drawings to be referred to the architect before proceeding. Drawings must not be scaled.
  - All private drainage is to be in accordance with BS EN 752-1-3.4, BS EN 1295-1, BS EN 1610 and all relevant sections of approved document H of the building regulations (2015 Edition).
  - All adoptable drainage is to be in accordance with Design and construction guidelines for foul & surface water sewers offered for adoption, where appropriate.
  - All materials for adoptable drainage are to be Kitemarked as appropriate.
  - All adoptable manhole covers and frames are to be 150mm deep minimum and the covers badged as appropriate i.e. FW or SW.
  - Pipework Type - Flexibly jointed extra strength vitrified clay, to BS EN 295-1, Hepworth 'Supersewer' or equivalent.
  - Pipework Type - Plastic i.e. PVC-U, to BS EN 1401-1 Osma or equivalent. (Private pipework to be type SN4 and all adoptable pipework to be type SN8.)
  - Precast concrete manholes and fittings shall be to BS 5911 parts 3 and 4 and BS EN 1917.
  - The rising main within the highway should be laid no closer than 1.0m from the kerb face. Minimum Cover, 1.2m in the road and 0.9m in the footpath.
  - The private rising main trench is to have a warning tape fitted. Allow for 1.0m of tape coiled inside the pump chamber at the upstream end.
  - Whenever pipework passes through foundations, walls or connects to manholes, flexible pipe joints are to be provided within 150mm of the face of the structure. 600mm pipe length to then be used to form a rocker pipe.
  - Whenever pipework passes through screen walls, footings or retaining walls, lintels are to be provided.
  - Where pipelines pass within 1.0m of buildings or walls the foundations are to be taken down below the bottom of the trench. Where pipelines are more than 1.0m away from foundations the trench shall be backfilled with concrete up to a point that meets a 45° angle line taken from the bottom corner of the nearest foundation.
  - The contractors attention is drawn to the need to ensure that any trenches excavated through previously compacted or filled areas, in particular under the building footprint and immediately around the outside, are re-compacted to ensure that localised differential settlement does not occur.
  - Where pipelines cross with less than 300mm of clearance, each is to be surrounded with grade ST4 mass concrete for a distance not less than 1.0m centred on the crossing point. The length of surround should be extended as necessary to within 150mm of the next nearest flexible joints.
  - For private drainage, concrete protection is to be provided where the effective cover to the crown of the pipe(s) is less than 1.2m in trafficked areas and 0.6m in soft landscaped or pedestrianised areas. (Applies during and after construction).
  - The contractor is to ensure that suitable protective measures are taken to ensure that the drainage pipework and fittings are not damaged by site traffic prior to any over-site filling operations being completed.
  - Chamber annotation references are as follows:  
AC - Denotes a polypropylene or vitrified clay access chamber, depth not exceeding 600mm, diameter not exceeding 300mm.  
IC - Denotes a polypropylene inspection chamber, depth not exceeding 3.0m, diameter not exceeding 600mm. Standard diameter 450mm unless specified otherwise.  
MH - Denotes a manholes constructed from either brick, polypropylene or P.C.C. sections. Chamber depth to be in excess of 1.2m.
  - The top run of each private foul drainage network is to be laid to falls no slacker than 1:40, the head of each run is to be vented to atmosphere in accordance with approved document H.
  - All foul and surface water drainage pipelines are to be 100mm dia min and laid at a gradient no slacker than 1:80, unless stated otherwise.
  - The contractor is to ensure that all pipework connections are arranged to direct flows down or into the main channel in the direction of the main flow. Any oblique or perpendicular chamber connections are to be directed into the mainline channel via appropriate benching. All chambers must include a connection via the main channel to ensure that a flush through is achieved.
  - The contractor is to ensure that when preformed polypropylene manhole bases are used, they are orientated such that the main flow is directed through the main channel of the base. This should be achieved by using long radius bends outside of the manhole when necessary.
  - Where new connections are to be made into existing manholes or sewers, all invert levels, pipe orientation and sizes should be checked on-site prior to the commencement of the works, with any variance reported to the engineer once identified. Where new connections are to be made either on or off-site, the contractor is to check the line and level of any existing services / mains, to ensure that no clashes exist prior to the works commencing.
  - Any and all new connections into a public sewer are to be inspected by the local water authority and carried out fully in accordance with their requirements. The contractor is to allow for obtaining the appropriate 'Section Applications' as well as paying all necessary fees.
  - The contractor is to allow for obtaining the appropriate road opening licence's from the local highway authority and paying all necessary fees. All reinstatement works within the public highway are to be carried out in accordance with the requirements of the local highway authority.
  - Package pumping station(s) to be 'a specialist design element'. For installation guidance refer to manufacturer's specification. Any vent pipes to be taken to a position agreed with the architect. A three phase electricity supply is required to provide power to the pumping station control panel. The control panel, if external, is to be located inside a kiosk with close proximity of the pumping station. If internally located within a building, the control panel may be positioned on a wall. An informative notice plaque should be located on or near the control panel stating 'in the event of the alarm sounding or warning light flashing please contact the number below insert contact telephone number'.
  - Drainage channel(s) to be 'Acc' or equivalent. For installation guidance refer to the manufacturer's specification. Refer to landscape architects details for surface treatments around units where applicable. All drainage channels are to be constructed with in-built falls where possible. Relevant units are to be incorporated to provide the necessary length of channel gradient from the head of the run to the sump unit.
  - Permeable paving surface finish to the architects spec. Any alteration to the extents of the permeable paving may have an adverse affect upon the Surface water drainage design and must therefore be discussed with the engineer.
  - Modular grate attenuation tank system(s) to be 'Wavin Aquacell' or 'Polypipe Polystorm'. Any other system offered will need to be provided with a separate warranty for design and installation.
- Note:  
The proposed foul and surface water drainage strategy is subject to approval by Southern Water

10.02.23  
Date

Drawn  
Description

Calcroto  
Jensen House  
43 Commercial Rd  
Poole BH14 4HU

01202 237237  
info@calcroto.co.uk  
www.calcroto.co.uk

Client  
AJC Homes

Project Title  
Orchard Gate, Dibden Purlieu

Drawing Title  
Proposed Drainage  
Strategy Drawing

Drawing Status  
For Approval

Originator No.	Rev by	Chk by	Scale
114290	GEB	GEB	1:200 @A1

PROJECT / ORIGINATOR / ZONE / LEVEL / TYPE / ROLE / NO.

114290-CAL-XX-XX-DR-0-004

Revision  
P1





Tarek Tabbah  
AJC Developments (South) Ltd  
4 Joshuas Vista  
202 Sandbanks Road  
Poole  
Dorset  
BH14 8HA

Your ref

-----

Our ref

DSA000020541

Date

21 March 2023

Contact

Tel 0330 303 0119

Dear Mr Tabbah,

Level 1 Capacity Check Enquiry: Orchard Gate, Noads Way, Diben Perlieu, Southampton, Hampshire, SO45 4PD.

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

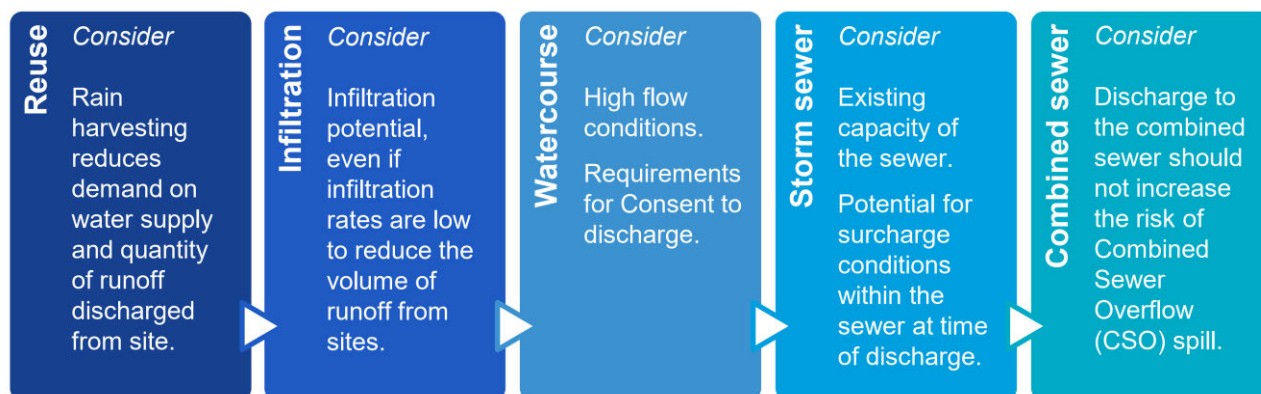
### Foul Water

There is currently adequate capacity in the local sewerage network to accommodate a foul flow of **0.23 l/s** for the above development at manhole reference SU4106**3501**. Please note that no surface water flows (existing or proposed) can be accommodated within the existing foul sewerage system unless agreed by the Lead Local Flood Authority in consultation with Southern Water, after the hierarchy Part H3 of Building Regulations has been complied with.

### Surface Water

There is currently inadequate capacity within the local sewerage network to accommodate a flow of **2 l/s** at manhole reference SU4106**3501**. Please note, there are no surface water sewers with sufficient capacity in the vicinity of the development site.

In situations where surface water is being 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](https://gov.uk/government/publications/drainage-and-waste-disposal-approved-document-h)

We would like 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. In many cases this may negate or reduce the need for network reinforcement and allow earlier completion of the development.

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.

Southern Water has a duty to provide Network capacity from the point of practical connection (point of equivalent or larger diameter pipe) funded by the New Infrastructure Charge.


Southern Water aim to provide this within 24 months following the date that planning has been granted for developments not identified as strategic sites in our current business plan. Strategic sites are larger developments and will often take longer than 24 months for a full solution to be provided.

### New Infrastructure Charging

Please note as of 1st April 2018 we have moved to the “New Connections Services Charging Arrangements”. We understand that this may cause uncertainty for customers, particularly where they may have already committed to a development based on previous charging arrangements. We have worked with our stakeholders and Water UK to agree a set of principles by which we will base our charges. Please read through our new charging arrangement documents available at the following link: [southernwater.co.uk/developing-building/connection-charging-arrangements](https://southernwater.co.uk/developing-building/connection-charging-arrangements)

Alternatively, New Appointees and Variations (NAVs), also known as ‘inset’ companies, can provide new connection services or take ownership of the new water and wastewater connection infrastructure provided for a new development. NAVs are appointed by Ofwat and replace the





regional water company. It is for the developer to choose whether to use a NAV or the regional water company to supply services for new sites, according to certain legal criteria.

### **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: [developerservices.southernwater.co.uk](https://developerservices.southernwater.co.uk)

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.

Should it be necessary to contact us please quote our above reference number relating to this application by email at [southernwaterplanning@southernwater.co.uk](mailto:southernwaterplanning@southernwater.co.uk)

Yours sincerely,

Future Growth Planning Team  
**Developer Services**

[southernwater.co.uk/developing-building/planning-your-development](https://southernwater.co.uk/developing-building/planning-your-development)

## Gerry Bird

---

**Subject:** FW: Orchard Gate, Dibden Purlieu – Southern Water Ref: DSA000020541 /  
Calcinotto Ref: 114290

Good Morning Gerry,

I can only advise that once planning permission has been granted we will look to investigate the extent of reinforcement required to ensure the existing risk of flooding is not increased by a development, any works required as a result of this development will not address existing flooding issues in the catchment. As you will appreciate we have a number of developments to design infrastructure for and we do not commence this process until planning permission has been granted, so we avoid expending resources unnecessarily as many developments do not gain planning permission and to expend resource in such circumstances is not a justifiable use of customer money.

We aim to provide infrastructure within 24 months of planning being granted or provide an alternative method of drainage should any required infrastructure not be in place by then. The developer will be asked to contribute to the costs of reinforcement via the New Infrastructure charging system details of which are available at: [Connection charging arrangements \(southernwater.co.uk\)](https://www.southernwater.co.uk/connection-charging-arrangements)

I hope the above explains the position but should you have any further questions please do not hesitate to contact me

Many Thanks,

**Danni Tamplin**  
**Future Growth Planner**  
**Developer Services**

[southernwater.co.uk](https://www.southernwater.co.uk)



---

**From:** Gerry Bird <[g.bird@calcinotto.co.uk](mailto:g.bird@calcinotto.co.uk)>

**Sent:** 08 June 2023 12:21

**To:** Yoganathan, Shanthya <[Shanthya.Yoganathan@southernwater.co.uk](mailto:Shanthya.Yoganathan@southernwater.co.uk)>; Southern Water Planning <[SouthernWaterPlanning@southernwater.co.uk](mailto:SouthernWaterPlanning@southernwater.co.uk)>

**Cc:** Mark Dewson <[m.dewson@calcinotto.co.uk](mailto:m.dewson@calcinotto.co.uk)>; Tarek - AJC Group <[tarek.tabbah@ajcgroup.uk](mailto:tarek.tabbah@ajcgroup.uk)>

**Subject:** RE: Orchard Gate, Dibden Purlieu – Southern Water Ref: DSA000020541 / Calcinotto Ref: 114290

Shanthya

Thank you for your response. As you note, we have no existing flows known to currently leave the site, therefore we have no ability to reduce the existing load put upon the public foul sewer to free up capacity. If Southern Waters position is that the existing 150mm diameter public foul sewer in that area has been assessed to be at capacity, then we appreciate that its not possible to accept a new surface water discharge. However, the public sewers in this area are critical to the developability of the site and the current public foul

sewer is the only asset available. We have explored SuDS options and encountered problems with both the infiltration rates recorded and the ground water levels of the site.

We note that you have forwarded this application onto Southern Water Planning for review. Are they the team who would be responsible for assessing whether the public sewer is eligible for upgrade and if so, how long would this process typically take. For the time being we would like to keep our client informed of the options available and the actions being taken. Thank you again for your continued assistance.

Regards

Gerry Bird BSc  
Civil Engineering Technical Manager

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**From:** Yoganathan, Shanthya <[Shanthya.Yoganathan@southernwater.co.uk](mailto:Shanthya.Yoganathan@southernwater.co.uk)>  
**Sent:** Wednesday, June 7, 2023 2:42 PM  
**To:** Gerry Bird <[g.bird@calcinotto.co.uk](mailto:g.bird@calcinotto.co.uk)>; Southern Water Planning <[SouthernWaterPlanning@southernwater.co.uk](mailto:SouthernWaterPlanning@southernwater.co.uk)>  
**Cc:** Mark Dewson <[m.dewson@calcinotto.co.uk](mailto:m.dewson@calcinotto.co.uk)>  
**Subject:** Orchard Gate, Dibden Purlieu – Southern Water Ref: DSA000020541 / Calcinotto Ref: 114290

Good afternoon Gerry,

Thank you for your patience.

As the development does not have existing connections and the previous use was agriculture and stables. Capacity assessment was undertaken to 2 l/s at MH SU41063501 and suggested insufficient capacity for these flows, additionally it was also assessed for max allowable surface water flows at the requested point of connection which resulted in the recommendation that there is insufficient capacity for any additional flows. Therefore this application needs to be added to our growth scheme to improve capacity for surface water.

[@Southern Water Planning](#) – Can you please assess this application.

Kind regards,

**Shanthya Yoganathan BEng (Hons)**  
**Technical Coordinator Hampshire & IOW.**  
**Developer Services**

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**From:** Gerry Bird <[g.bird@calcinotto.co.uk](mailto:g.bird@calcinotto.co.uk)>

**Sent:** 28 April 2023 14:35

**To:** Yoganathan, Shanthya <[Shanthya.Yoganathan@southernwater.co.uk](mailto:Shanthya.Yoganathan@southernwater.co.uk)>

**Cc:** Mark Dewson <[m.dewson@calcinotto.co.uk](mailto:m.dewson@calcinotto.co.uk)>

**Subject:** DSA000021519 (113829 ) / DAS000020541 (114290) - Follow up E-mail and Technical Queries

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Shanthya

Thank you for your call back yesterday to discuss our pre-application for, DAS000020541 (114290) Orchard Gate , Dibden Purlieu. This site have been complicated by problems with the surface water drainage. I have assembled an information pack for the site which is attached within a zip file and contain various elements to support our approach to the drainage solution.

We are looking to discharge the surface water drainage into the existing foul water sewer network. We appreciate that this is undesirable, but we see no other option and hope to find a compromise that would satisfy Southern Water as well as our clients. As is protocol, we have followed the SuDS train for the design of the surface water drainage ruling out one option before reviewing the next (1. Infiltration, 2. Watercourse, 3 SW Sewer and finally 4. Combined Sewer). While rainwater harvesting could be introduced it would not impact the flow rate leaving the site as any harvested water features would need to be kept separate from the attenuation features, on the assumption they would be filled during a rainfall event. We have also designed the drainage network to have as minimal an impact on the existing sewer network as possible. We hope that after reviewing the information attached and broken down below you will be able to grant preliminary permission for us to pursue this approach subject to the formal S106 application process.

Orchard Gate , Dibden Purlieu – Southern Water Ref: DAS000020541 / Calcinotto Ref: 114290

SuDS Train Assessment

1. Infiltration did seem viable for this site however the testing that was initially carried out recorded very marginal results ranging from low (-5s) to medium (-6s). we assembled a detailed drainage scheme for the site which included multiple elements of permeable paving and two large infiltration tanks. This solution struggled to achieve the necessary half drain times but was achievable with some surface flooding for the upper storm events. The local authority now requires wintertime infiltration testing and ground water monitoring for developments so this was undertaken starting in December of 2022. This investigation recorded a drop in the infiltration rates and was not able to achieve any infiltration within at shallower depth which would be used to engineer the permeable paving elements. In addition, the ground water levels rose high enough to rule out infiltration within the tanks. These results rule out the use of infiltration measures. The updated SI including the new infiltration results is included within the attached zip file.
2. No drainage ditches or watercourses run within the vicinity of the site.
3. There are no Public surface water sewers currently serving the site. The existing is mostly landscaped with isolated structures. It is assumed these structures drain to ground but would not have been designed to modern standards.
4. Having eliminated the first three options, we proposed to discharge the surface water via a flow-controlled outfall to the public foul water sewer. Our client has also investigated the viability of upgrading the existing public foul sewer to achieve more capacity and this would require chasing the line downstream a great distance making this option unfeasible. Please see supporting information with the attached zip file. A breakdown of this approach along with some queries and suggestions is listed below.

Proposed surface water strategy:

- It is now proposed to attenuate the surface flows on site and discharge them to the existing public foul sewer via a flow-controlled outfall which will be managed by a surface water pump station at a rate of 2.0 l/s.
- This flow rate has been determined since it is the minimum flow rate that can be reliably achieved by a surface water pump station.
- The proposed drainage scheme can be seen on drawing 114290-CAL-XX-XX-CA-D-004 included within the attached zip file.
- [Would Southern Water be willing to accept this discharge on a preliminary basis subject to a formal Section 106 application?](#)
- If not, are Southern Water able to provide any suggestion that would make this proposal more acceptable?

Thank you in advance for any assistance you can provide in progressing these two projects. Both have already gone through planning approval. Please feel free to contact me if you have any queries or wish to discuss any elements of these sites in more detail.

Regards

Gerry Bird BSc  
Civil Engineering Technical Manager

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