



Salt Box, Bognor Regis

Phase 2 - Unit 4-8

Operation and Maintenance Drainage

For LandLink Estates

Date: 20 May 2020

Doc ref: SAL-HYD-PH2-ZZ-RP-C-0021

DOCUMENT CONTROL SHEET

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Introduction

The key elements of the surface water system will require periodic maintenance to prevent failure of the system and/or a reduction in capacity of the networks as a whole and the following matrix therefore sets out the various drainage items to be maintained, identifies whose is responsible and the frequency of maintenance.

The drainage within the development will be maintained privately by a management company appointed by the owner / occupier as follows:

Unit 4-8

The occupier (ALDI/GREGGS/STARBUCKS) will have direct responsibility for the maintenance and repair of the foul and surface water drainage system within their site boundary including ensuring compliance with any regulatory requirement with regards to the quality of surface water discharge.

Site Wide Drainage (inc Estate Road)

Management of the site wide drainage is the overall responsibility of the Landlords. The overall estate will be owned & managed by a management company who will be funded by the landlord. The management Company will derive income from the service charge obligations placed on the tenants on a due proportion basis.

Maintenance of the Estate Road drainage will be the responsibility of the Landlords as noted above.

Drainage Strategy Summary

0.1 Surface Water

The surface water drainage for the wider development has been split into 3 no. networks. This Operation and Maintenance document relates to Surface Water Network 1 for Units 4 - 8.

Surface Water Network

Unit 4-8 surface water run-off is collected by way of drainage channels, gullies, Rain Water Pipes and Permeable Paving (Car Park). Run-off from the car park is treated by a Full Retention Oil Interceptor OI-401. The roof of the building is collected by rain water pipes.

The car park is drained by way of porous paving located in the bays. Each 'strip' of porous paving has a filter drain along its length which collects run-off which permeates through the sub-base before it is discharged into the below ground drainage system. Some attenuation storage will be provided within the sub-base of the permeable paving areas.

In order to achieve the permitted discharge rates, flows have been restricted by a HydroBrake flow control at FC-401 and attenuation provided in cellular storage tank located beneath the car park.

Unit 4-8 will connect into the phase 1 estate road drainage (refer to phase 1 reports for details of network 1).

Drainage Strategy Performance Criteria (both networks)

The surface water drainage for both Units 4- 8 has been designed to ensure that:

- No flooding will occur during the 1 in 100-year rainfall event in any part of the building, or in any utility plant susceptible to water.
- Surface water for the 100-year rainfall event is contained within each catchment boundary.
- An allowance for **40%** climate change is applied to the 100-year rainfall event and incorporated into the surface water drainage design in accordance with local and national planning policy.

The surface water drainage network has been modelled to take into consideration the effects surge should an extreme storm event occur at the same time as high flood levels from the adjacent water course.

The 100 year plus 45% climate change fluvial flood level of **1.85 mAOD** has specified at the outfall of each network and rainfall simulated for all storm events up to and including the 100 year plus 40% climate change.

Should rainfall exceed the 1 in 100-year storm event or the system failure through lack of maintenance, surface water run-off is to be directed via designated exceedance routes away buildings and/or critical infrastructure.

0.2 Foul Water

Foul water drainage from Units 4-8 will discharge into a new sewer located within the estate roads. Flows will be directed towards the north of the development where they will then be pumped from a new foul pumping station offsite via a rising main into the Southern Water Foul Sewer at Manhole ref 8801 to the north east in Shripney Road.

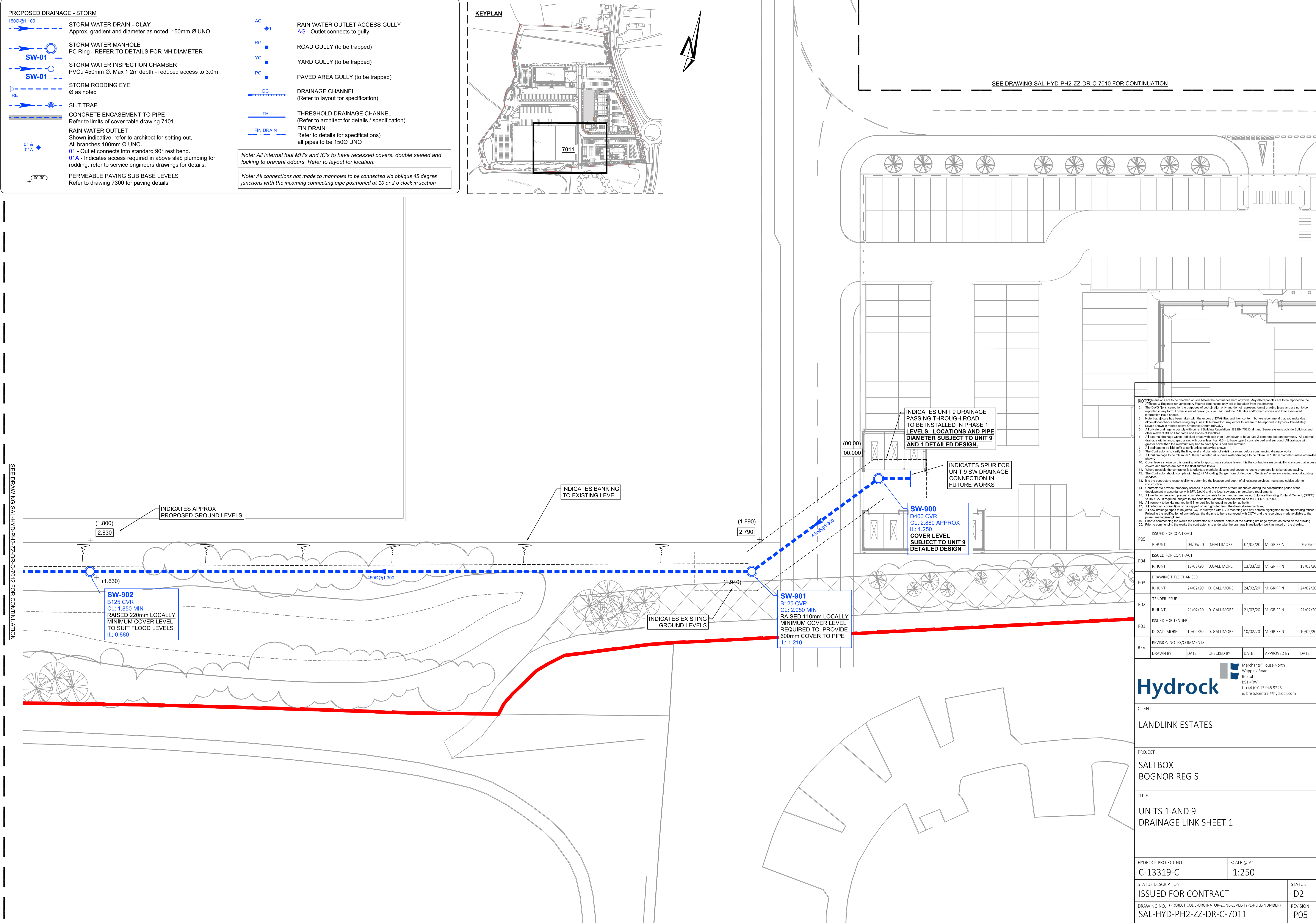
Ownership & Maintenance Responsibility Matrix

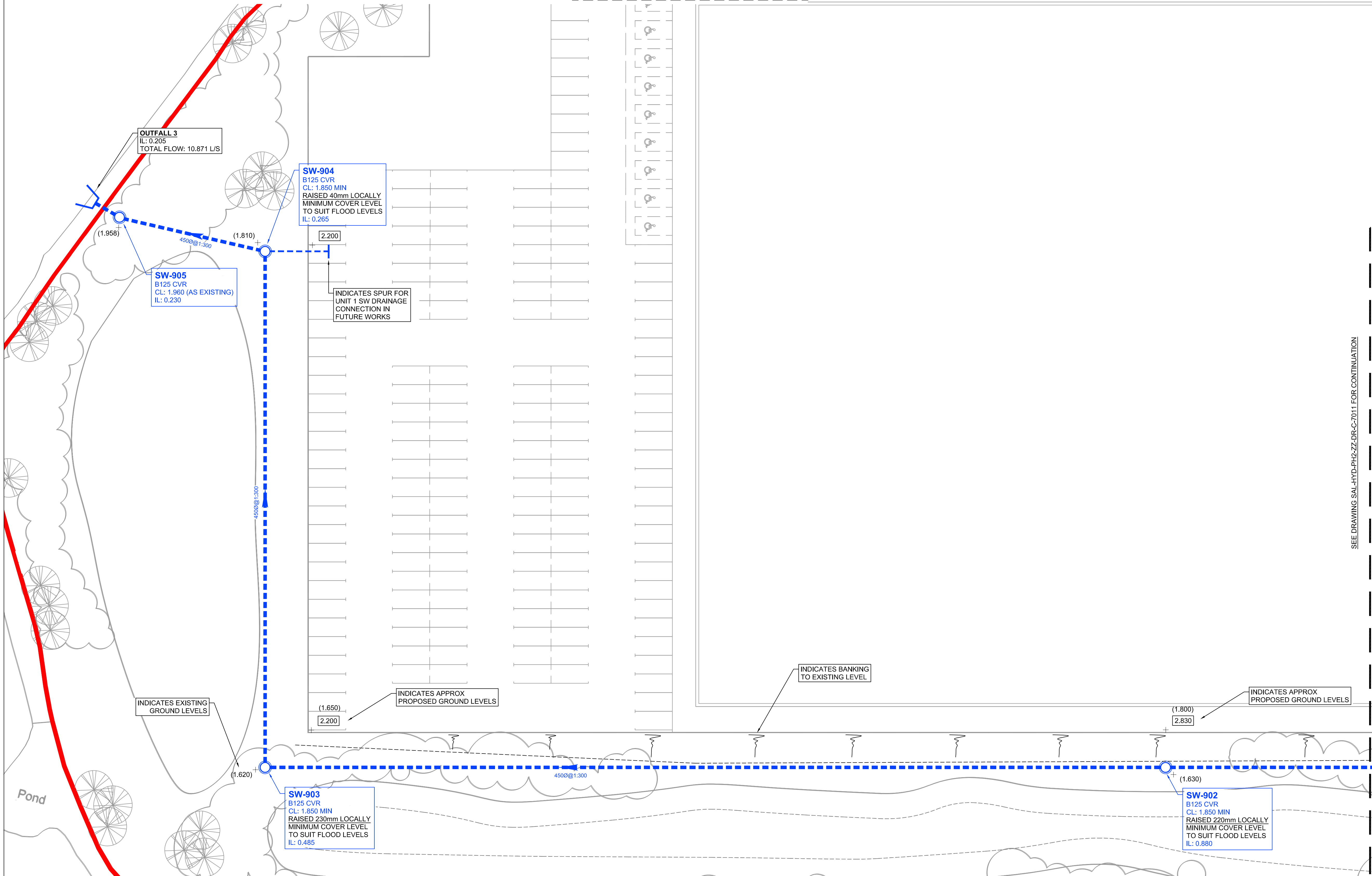
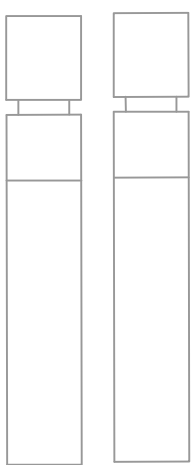
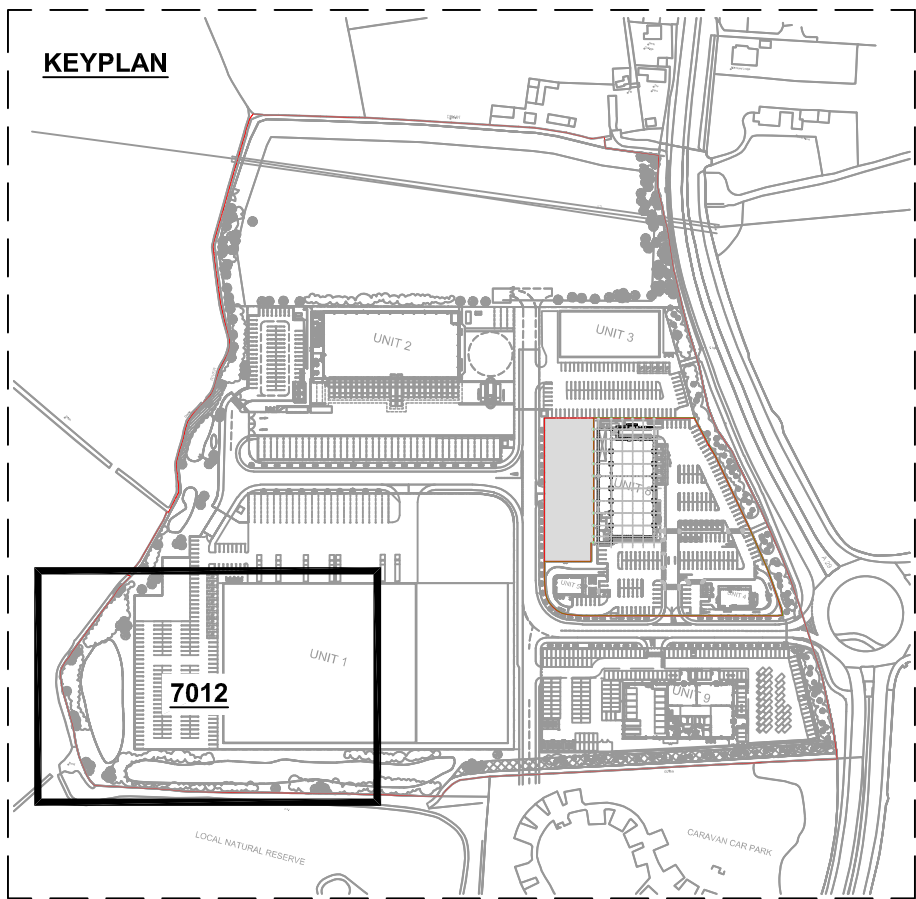
Responsibility	Feature	Maintenance	Frequency
Owner / Occupier Appointed Management Company	Private Drains	Inspection	CCTV survey every 5-10 years.
		Regular Maintenance	Jet clean system fully every 5-10 years. (Recommend prior to CCTV drainage survey is)
		Remedial / Occasional Maintenance	Carry out remedial works as identified in CCTV survey.
	Outfall pipes, non-return pipe flaps, and anti-scour mat flow channel	Inspection	Quarterly
		Regular Maintenance	Remove silt and debris as necessary to prevent build up.
		Remedial / Occasional Maintenance	Damage to pipes and headwall to be repaired as necessary
	Discharge orifice manholes/flow control devices	Inspection	Monthly
		Regular Maintenance	Remove silt and debris as necessary to prevent build up.
		Remedial / Occasional Maintenance	Damage to orifice manholes/flow control devices to be repaired as necessary
	Gullys / Drainage Channels	Inspection	Quarterly
		Regular Maintenance	Remove silt and debris as necessary to prevent build up.
		Remedial / Occasional Maintenance	Damage to Gullys / Drainage Channels to be repaired as necessary
	Permeable Paving (Refer to specialist)	Inspection	Within 3 months of installation then every 6 months
		Regular Maintenance	Sweep surface to remove debris and contamination 1-2 times a year, and typically after leaf fall in autumn.
		Occasional Maintenance	Removal of weeds. As required.
		Remedial Measures	Remediate areas of rutting and depressions. As required. Replace broken / damaged blocks. As required. Rehabilitate surface with sweeping and reapplication of clean gritstone. As required.
	Attenuation tank	Inspection	Annually
		Occasional Maintenance	Remove silt and debris as necessary to prevent build up.
		Remedial Measures	Damage to Attenuation tank to be repaired as necessary.
	Catchpits	Inspection	Every 6 months
		Occasional Maintenance	Remove silt and debris as necessary to prevent build up.
		Remedial Measures	Damage to catchpits to be repaired as necessary.

	Oil Interceptor	Inspection	Monthly
		Regular Maintenance	Jet clean system fully every 5-10 years. (Recommend prior to CCTV drainage survey)
		Remedial / Occasional Maintenance	Carry out remedial works as identified in CCTV survey.
	In addition to the above, the following is a list of tasks associated with the maintenance of an Interceptor. This should be read in conjunction with the manufacturers own specific maintenance requirements and only carried out by a fully trained operative. • Inspect the integrity of the separator and all mechanical parts. • Inspect all filters and replace or repair as required. • Assess the amount of collected contaminants (oil and fuel) and silt. • Service any electrical systems including volume alarms and any interceptor management systems. • Conduct safe silt/contaminant removal in accordance with waste transit and disposal regulations. • Maintain industry standard documentation. Maintain logs of inspections, maintenance, incidents, services and contaminant removal.		
	Interceptor Alarms: Each interceptor will have a visual alarm indicator local to the interceptor as well as an alarm (visual or audible) linked either back to the adjacent building if maintenance responsibility resides with the tenant or to a remote supervisory point when maintenance responsibility resides with the estate management team. Alarm sounds to inform to take corrective action ensuring the safe and economic operation of separators preventing oil passing through the separator. When alarm sounds, empty tank as necessary. Factory trained engineers are available for site visits as part of a planned maintenance contract or on a one-off call out basis.		
	Reference should be made to the manufacturer recommendations where applicable		

Appendix A Drainage Layouts

- SAL-HYD-PH2-ZZ-DR-C-7010 Phase 2 Drainage layout Sheet 1
- SAL-HYD-PH2-ZZ-DR-C-7011 Phase 2 Drainage layout Sheet 2
- SAL-HYD-PH2-ZZ-DR-C-7012 Phase 2 Drainage layout Sheet 3





NOTATIONS: All information is to be consistent with the network the contractor consent of travel. Any discrepancies are to be reported to the Engineer & Engineer for verification. Flipped dimensions only are to be taken from this drawing. The DWG is for issued for the purpose of coordination only and do not represent final drawing issues and are not to be used for construction. Formatted drawings in A4, DWG, Adobe PDF files and/or hard copies and their associated information block sheets. Note that all items have been taken with the support of DWG and their content, but we recommend that you make due diligence checks before using any DWG file information. Any errors found are to be reported to Hydrock immediately. All plans shall conform to the following standards: - All plans shall comply with current Building Regulations, BS EN-752 Drain and Sewer systems outside Buildings and other relevant (BS81 Standards and Codes of Practice). - All external drainage within trafficked areas with less than 1.2m cover to have type Z concrete bed and surround. All external drainage within landscaped areas with cover less than 0.6m to have type Z concrete bed and surround. All drainage with greater cover than the minimum required to have type S bed and surround. - All drainage to be laid with a fall of not less than 1:100. - The Contractor is to verify the size, level and diameter of existing sewers before commencing drainage works. - All drainage to be laid with a fall of not less than 1:100. - Cover levels shown on this drawing refer to approximate surface levels. It is the contractor's responsibility to ensure that access covers and frames are set at the final surface levels. - Where possible the contractor is to observe manhole locations and covers to locate them parallel to kerbs and paving. - The Contractor should comply with all Health & Safety "Guiding Direction from Underground Services" when excavating around existing services. - It is the contractor's responsibility to determine the location and depth of all existing services, mains and cables prior to construction. - Contractor to provide temporary support in such as the down stream manholes during the construction period of the development in accordance with BS4.235.70 and the local sewerage undertakers requirements. - All joints concrete and precast concrete components to be manufactured using Sulphate Resisting Portland Cement, (SRPC). - Manhole covers to be cast in situ. - All manhole to be laid marked by BS51 or covered by equal inspection authority. - All standard connections to be capped off and grouted from the down stream manhole. - All manhole drainage pipes to be jetted, CTV surveyed with DVD recording and any defects highlighted to the sponsoring officer. Following the rectification of any defects, the drain is to be de-surveyed with CTV and the recording made available to the project manager/engineer. - Prior to commencing the works the contractor is to confirm details of the existing drainage system as noted on the drawing. - Prior to commencing the works the contractor is to undertake the drainage investigation work as required on the drawing.					
P05	ISSUED FOR CONTRACT				
	R.HUNT	04/05/20	D.GALLIMORE	04/05/20	M. GRIFFIN
P04	ISSUED FOR CONTRACT				
	R.HUNT	13/03/20	D.GALLIMORE	13/03/20	M. GRIFFIN
P03	DRAWING TITLE CHANGED				
	R.HUNT	24/02/20	D. GALLIMORE	24/02/20	M. GRIFFIN
P02	TENDER ISSUE				
	R.HUNT	21/02/20	D. GALLIMORE	21/02/20	M. GRIFFIN
P01	ISSUED FOR TENDER				
	D. GALLIMORE	10/02/20	D. GALLIMORE	10/02/20	M. GRIFFIN
REV	DRAWING NOTES/COMMENTS				
	DRAWN BY	DATE	CHECKED BY	DATE	APPROVED BY DATE
	 Merchants' House North Wapping Road Bristol BS1 4BW t: +44 (0)117 945 9225 e: bristolcentral@hydrock.com				
CLIENT					
LAND LICK ESTATES					
PROJECT					
SALTBOX					
BOGNOR REGIS					
TITLE					
UNITS 1 AND 9					
DRAINAGE LINK SHEET 2					
HYDROCK PROJECT NO. C-13319-C					
SCALE @ A1 1:250					
STATUS DESCRIPTION					
ISSUED FOR CONTRACT					
DRAWING NO. (PROJECT CODE-ORIGINATOR-ZONE-LEVEL-TYPE-ROLE-NUMBER)					
SAL-HYD-PH2-ZZ-DR-C-7012					
STATUS					
D2					
REVISION					
P05					