



Salt Box, Bognor Regis

Phase 2 - Unit 4-8

Operation and Maintenance
Drainage

For LandLink Estates

Date: 12 November 2021

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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 surcharge 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
	Gullies / Drainage Channels	Inspection	Quarterly
		Regular Maintenance	Remove silt and debris as necessary to prevent build up.
		Remedial / Occasional Maintenance	Damage to Gullies / 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

STORM WATER DRAIN: CULVY
Approx. gradient westward as noted. 150mm (2" DIA)

STORM WATER MANHOLE
No. 100 - REFER TO DETAILS FOR MIN. DIAMETER

STORM WATER INSPECTION CHAMBER
PVC (450mm) DIA. Min. 1.2m depth - recessed works to 2.1m

STORM SODDING EYE
2" as noted

SLIP TRAP

CONCRETE ENCASEMENT TO PIPE
Refer to levels of cover table drawing P101

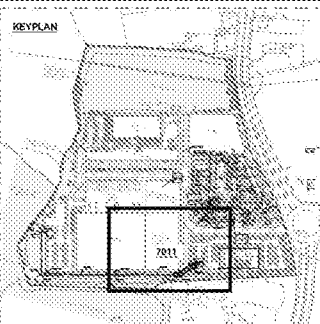
RAIN WATER DRAIN EYE
Storm inlets: refer to standard for setting out.
All rainwater 100mm (2" DIA)
1" - Culvert connects into 150mm (2" DIA) and 150mm (2" DIA) - includes access manhole in storm, and plumbing for roasting, refer to rain-water treatment process for details.

PERMEABLE GRASS TYPED SURFACE LEVELS
Refer to drawing T202 for ground levels

	RAIN WATER OUTLET ACCESS GULLY AC - Gully connects to gully.
	ROAD GULLY (to be topped)
	YARD GULLY (to be topped)
	PAVED AREA GULLY (to be topped)
	DRAINAGE CHANNEL (Refer to layout for specification)
	THRESHOLD DRAINAGE CHANNEL (Refer to architect for details / specification)
	FISH DRAIN Refer to details for specifications. All pipes to be 150/190

Note: All internet four MSN's and 02's to never missed copies, double account and looking to prevent odours. Please to favour for location.

Notes: All connections not made by handholes to be connected via oblique 45 degree junctions with the incoming connection pipe positioned at 12 or 2 o'clock in section.



FUTURE
EXPANSION

5017
FPL 43850

INDICATES APPROX
PROPOSED GROUND LEVELS

INDICATES BANNING
TO EXISTING LEVEL

INDICATES UNIT 8 DRAINAGE
PASSING THROUGH ROAD
TO BE INSTALLED IN PHASE 1
LEVELS, LOCATIONS AND PIPE
DIAMETER SUBJECT TO UNIT 9
AND 1 DETAILED DESIGN.

INDICATES SPUR FOR
UNIT 9 S/W DRAINAGE
CONNECTION IN
FUTURE WORKS

SW 300
DAG 012
CUT 200 APPROX
200 001
COVER LEVEL
SUBJECT TO UNIT 5
DETAILED DESIGN

SW-263
0125106
CL 2-995-MIN
RAISED 110mm LOCALLY
MINIMUM COVER LEVEL
REQUIRED TO PROVIDE
80mm COVER TO PIPE.
11-1-2008

POTENTIAL FUTURE ACCESS
TO ROWAN PARK (INDICATIVE)

[illegible]

Hydrock

LANDLINK ESTATES

PRODUCT
SALTBOX
BOGNOR REGIS

UNITS 1 AND 9
DRAINAGE LINK SHEET 1

[illegible]

ARUNDRICK COUNCIL BENEFIT DOC

PROPOSED DRAINAGE - STORM

STORM WATER DRAIN - CLAY
Approx. gradient and diameter as noted, 150mm Ø LINDI

STORM WATER MANHOLE
M2 Ring - REFER TO DETAILS FOR WH DIAMETER

STORM WATER INSPECTION CHAMBER
PVCu 450mm Ø, Max 1.2m depth - reduced to max 1.2m

STORM RODDING EYE
Ø 80mm

SB.7 TRAP

CONCRETE ENCASUREMENT TO PIPE
Refer to levels of cover table drawing 7191

RAIN WATER OUTLET
Shown indicative, refer to architect for setting out
all branches 100mm Ø LINDI
Ø1 - Outlet connects into standard Ø8" and 1mm,
Ø1A - includes access required in above, and plumbing for
rodging, refer to specialist engineer drawings for details.

PERMEABLE PAVING SUB BASE LEVELS
Refer to drawing 7391 for paving details

RAIN WATER OUTLET ACCESS GULLY
AG - Outlet connects to gully.

ROAD GULLY (to be trapped)

YARD GULLY (to be trapped)

PAVED AREA GULLY (to be trapped)

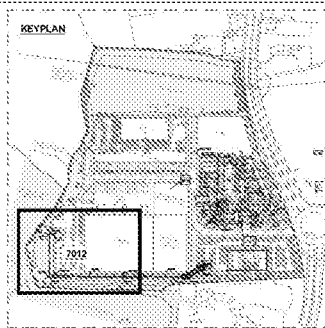
DRAINAGE CHANNEL
(Refer to layout for specification)

THRESHOLD DRAINAGE CHANNEL
(Refer to architect for details / specification)

FIN DRAIN
(Refer to details for specifications)
all pipes to be 150mm Ø LINDI

Note: All internal flow AG's and Ø1's to have increased covers, double sealant and locking to prevent odours. Refer to local for location.

Note: All overflows not made in manholes to be connected via oblique 45 degree aperture with the incoming connecting pipe to prevent or 10 or 2 pipes to service



22 HGV
PARKING
SPACES

