

ODYSSEY

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**LAND AT STAKERS FARM YAPTON –
DRAINAGE AND SUDS MAINTENANCE AND
MANAGEMENT PLAN**

LAND AT STAKERS FARM, YAPTON

**DRAINAGE AND SUDS MAINTENANCE AND MANAGEMENT PLAN
ON BEHALF OF DANDARA LIMITED (SOUTHERN)**

Prepared by

Odyssey

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Unit 3 Winchester Hill Business Park

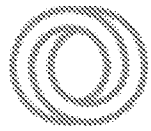
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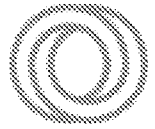
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**DOCUMENT CONTROL SHEET**

Project Name Land at Stakers Farm, Yapton

Project No. 19-156

Rev	Issue Purpose	Author	Checked	Reviewed	Approved	Date
-	First Issue	CJL	AK	SW	SW	29.07.20

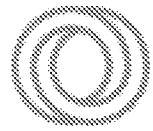


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DRAWINGS

YAP-130-01 Drainage Strategy Layout



1.0 INTRODUCTION

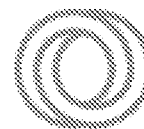
1.1 Background

1.1.1 Odyssey has been appointed by Dandara Limited (Southern) to provide a Drainage and SUDS Maintenance and Management Plan, to assist with the items required to discharge Conditions of the planning applications associated with their proposed development at Land at Stakers Farm, Yapton

1.1.2 There are two planning applications relating to this one overall site. Planning reference Y/88/18/OUT which is for the 38 units located to the Northern end of the site and Planning reference Y/44/17/OUT which is for the 70 units located to the Southern end of the site.

1.1.3 Both applications are being brought forward together by Dandara Limited (Southern) and are subject to outline conditions which prevent occupation prior to completion of the approved drainage

1.1.4 This report has been prepared based on the site-specific drainage design by Odyssey



2.0 DRAINAGE OVERVIEW

2.1 *Surface Water*

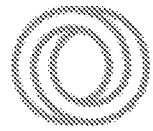
2.1.1 On the Northern end of the overall site (Y/88/18/OUT), there are two surface water networks proposed. One network serving the majority of the roofs only and draining to ground via a large infiltration blanket, with infiltration basin above located in the open space area. The other network serves all hard standing areas, roads, footways, parking areas via an interconnected porous paving network, with all roads, parking courts and driveways being constructed of a permeable block paved construction to allow infiltration to ground across the site. Approximately a third of the roof areas also connect into the permeable paving sub-base. All the drainage serving the Northern application site are contained fully with the application boundary. Refer to drawing YAP-130-020 for details of the drainage strategy.

2.1.2 On the southern end of the overall site (Y/44/17/OUT), there are two surface water networks proposed. One serving the roofs only and discharging to a large infiltration basin. This basin is located at the edge of the application boundary with part of it oversailing into the northern application site. It should be noted that although the Southern application site is reliant on this basin located partly within a separate application, that the applications are being brought forward by Dandara Limited (Southern) who are therefore in control of both applications. This method has also been approved by the Planners. The other network serves all hard standing areas, roads, footways, parking areas via an interconnected porous paving network, with all roads, parking courts and driveways being constructed of a permeable block paved construction to allow infiltration to ground across the site. It should be noted that there is an area to the south-west of the site where infiltration was poor and so an allowance for this has been made within the neighbouring connected porous paved areas, where infiltration is good. Flows that are unable to infiltrate to ground in the poor infiltration areas will flow via the connected sub-base material or the connection pipework to the porous paved sub-base in areas of good infiltration. Refer to drawing YAP-130-022 for details of the drainage strategy.

2.1.3 The surface water networks including the infiltration blankets, basins and permeable road systems are designed to cater for a 1 in 100-year return storm (1% annual probability) plus a climate change allowance of 40%. 10% Urban creep has been allowed for within the design catchments.

2.1.4 The key features of the Surface Water Drainage System will be maintained long term by the appointed Management Company in accordance with the drainage suppliers' requirements/recommendations

2.1.5 The surface water drainage networks will remain private and be maintained by the management company.



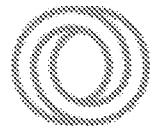
2.2 Foul Water

2.2.1 On the Northern end of the overall site (Y/88/18/OUT), the proposed foul water network is a traditional gravity fed pipe and manhole system, which drains to the west of the site and discharges into the public foul water network in North End Lane. The proposed connection will be made via a section 106 sewer agreement with Southern Water. Refer to drawing YAP-130-020 for details of the drainage strategy.

2.2.2 On the southern end of the overall site (Y/44/17/OUT), the proposed foul water network is a traditional gravity fed pipe and manhole system draining to a new adoptable foul water pump station in the middle of this site. From the pump station all flows will be pumped along a new rising main to the Northern site, where it will connect into the proposed gravity foul water network before discharging into the public foul sewer network in North End Lane. Refer to drawing YAP-130-022 for details of the drainage strategy.

2.2.3 All new foul drainage system will be constructed in accordance with Building Regulations Approved Document H and where possible offered for adoption to Southern Water who will maintain the adoptable system. Any drainage not adopted will be the responsibility of the management company.

2.2.4 All roads throughout the development will remain private.



3.0 MAINTENANCE AND MANAGEMENT PLAN

3.1 Overview

3.1.1 Outlined below are the inspection and maintenance specifications for the surface water drainage, which the appointed Management Company will own and maintain.

3.1.2 The long term Management Company will be: **Trinity Estates**, Vantage Point, 23 Mark Road, Hemel Hempstead, Hertfordshire, HP2 7DN; Tel: 0345 345 1584 Email: info@trinityestates.com Web: www.trinityestates.com.

3.1.3 The following text has been divided into sub-sections which correspond to each relevant SuDS type detailing:

- An explanation of the SuDS component and how it is used;
- The requirements and regularity of SuDS maintenance;
- The requirements and regularity of SuDS inspections;

3.1.4 The actions outlined below are common to all types of surface water drainage, and are the minimum standard of maintenance and inspection; indeed, the Management Company may find it beneficial to vary the maintenance regularity at some sites, and to include extra tasks such as

- To record the measurements of sediment levels;
- To make a photographic record of problem areas;
- To identify and clear areas where refuse is a problem;

3.2 Piped Systems and Manholes

3.2.1 Drainage systems comprising of pipe runs and manholes are a more conventional method of draining surface water runoff from hard standing areas

3.2.2 Surface water falling on impermeable areas, such as roofs, drain via rain water pipes which convey the water below ground to the main drainage network. Manholes are also provided on the main drainage system at regular intervals, changes in sewer direction, gradient or pipe diameter. This type of drainage system can be accessed from the manholes for routine inspection and maintenance.

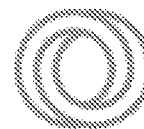
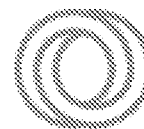


Table 3.1: Pipework, Inspection Chambers, Catchpits, Headwalls, Threshold Drains Maintenance Activities Frequency

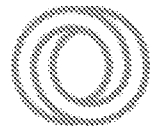
Maintenance Category	Maintenance Activity	Comments	Frequency
Routine Maintenance	Litter and debris removal.	Debris removal which may cause risks to performance.	Monthly.
	Checking of blockages.	Sumps found to be non-functioning/blocked on annual inspection will be noted and cleared at 6 monthly intervals. Recurring blockages should be investigated.	Annually (or as required)
	Correct Operation	Inspect and identify any areas that are not operating correctly. If required, take remedial action.	Monthly for 3 months after installation and then 6 monthly
Infrequent Maintenance	Clear blockages	Cleaning/jetting	As required
Corrective Maintenance	Repair	Repair/rehabilitation of inlets, outlets.	As required
Monitoring	Initial Inspection	Initial Inspection	Monthly for 3 months after installation.
	Operation Inspection	Inspect for evidence of poor operation and/or weed growth. If required, take remedial action.	3-monthly and 48 hours after large storms.
	Clogging Inspection	Inspect silt accumulation rates and establish appropriate brushing frequencies.	As required
	Inspection Chambers	Monitor inspection chambers.	As required

3.3 Permeable Paving

3.3.1 Permeable paving has been proposed on this site to drain the surface water falling on the roads and driveways. The blocks on the surface of the road are of a type which allows surface water to infiltrate through the small gaps and into the sub-base below. This avoids the need for gullies. The thickness of the sub-base has been sized to attenuate the surface water run off for a 1 in 100 year plus 40% event. 10% Urban creep has been allowed for within the design catchments. The system will be lined with a permeable geotextile, this will allow the surface water to infiltrate into the ground below.

**Table 3.2: Permeable Paving Maintenance Activities Frequency**

Maintenance Category	Maintenance Activity	Comments	Frequency
Routine Maintenance	Sweeping	Regular removal of silt and other sediments to maintain infiltration capacity.	"Minimum of 3 surface sweepings per year
	Brushing and Vacuuming	"Brush and suction cleaner (either lorry-mounted or small precinct sweeper) Care should be taken to adjust vacuum equipment to ensure jointing material is not removed. Any lost material should be replaced."	1. End of winter (April) - to collect winter debris 2. Mid-summer (July/August) - to collect dust, flower and grass-type deposits. 3. After autumn leaf fall (November) Or as required based on site specific observations of clogging or manufacturer's recommendations"
Infrequent Maintenance	Landscaping trimming	Stabilise and mow contributing and adjacent areas.	As required
	Weeding	Removal of weeds from permeable pavement structure.	As required
Corrective Maintenance	Landscape Remediation	Remediate any landscaping which, through vegetation maintenance or soil slip, has been raised to within 50mm of the level of the paving.	As required.
	Rutting and Damage Remediation	Remedial work to any depressions, rutting and cracked or broken blocks considered detrimental to the structural performance or a hazard to users.	As required
	Structural Remediation	Rehabilitation of surface and upper sub-structure	As Required (if infiltration performance is reduced because of significant clogging).
Monitoring	Initial Inspection	Initial Inspection	Monthly for 3 months after installation.
	Operation Inspection	Inspect for evidence of poor operation and/or weed growth. If required, take remedial action.	3-monthly and 48 hours after large storms.
	Clogging Inspection	Inspect silt accumulation rates and establish appropriate brushing frequencies.	Annually
	Inspection Chambers	Monitor inspection chambers.	Annually



3.4 Infiltration Basins and Infiltration Blankets

3.4.1 Infiltration basins are proposed on this site to drain surface water falling directly onto the roofs.

3.4.2 On the Northern site an infiltration blanket will be provided at the base of the infiltration basin. This will be constructed with granular subbase material and will be lined with a permeable geotextile membrane, which will allow surface water to infiltrate into the ground.

3.4.3 Surface water flow to the basins will be via linear drains, a piped network and silt trap inspection chambers. All manholes immediately upstream of the basins will incorporate a silt trap / sump. The above system will offer treatment of surface water prior to entering the open basin or directly into infiltration blanket through diffusers.

3.4.4 The basins will be subject to regular grass cutting regimes under the management company. All pipework up to the outlet, will be maintained in accordance with Table 3.1. Inspection to the infiltration blanket can be achieved through access to final upstream chamber.

4.0 FINANCIAL MANAGEMENT OF DRAINAGE

4.1 Management company

4.1.1 All drainage not adopted by the Southern Water will be maintained by a long-term management company.

4.1.2 Each respective plot purchaser will be responsible for drainage within their private curtilage, with remaining areas being the responsibility of Southern Water and/or management company.

4.2 Financial Management and Maintenance costs

4.2.1 The management company will collect funds through estate charges monthly from all residents to cover costs for the ongoing maintenance.

4.2.2 Within the estates charges a contingency pot/sinking fund will accumulate monies which will cover costs for unforeseen maintenance/repairs and the future replacement of any major components at the end of the manufacturers recommended design life.

4.2.3 In the event that the management company (or any subsequent management company) is no longer able to fulfil its duties, then the responsibility will remain with the residents to form and/or appoint a new management company.

DRAWINGS



ROAD 1 CONSTRUCTION SPEC:
SUB-BASE FORMATION LEVEL: 6.480m(*) AOD
SUB-BASE THICKNESS: 510mm
PERFORATED BASE COURSE BASE LEVEL: 6.990m(*) AOD
PERFORATED BASE COURSE THICKNESS: 130mm
LAYING COURSE / PERMEABLE BLOCKS LEVEL: 7.120m(*) AOD
LAYING COURSE / PERMEABLE BLOCKS THICKNESS: 130mm
ROAD FINISHED SURFACE LEVEL: 7.250(*)m AOD
(*) LEVEL PROVIDED FOR ROAD FINISHED LEVEL OF 7.250m AOD,
FOR DIFFERENT ROAD LEVELS THICKNESS OF EACH LAYER SHOULD
BE USED TO DETERMINE CONSTRUCTION LEVELS

ROAD 2 CONSTRUCTION SPEC:
SUB-BASE FORMATION LEVEL: 5.790m AOD
SUB-BASE THICKNESS: 215mm
GEOCELLULAR UNITS INVERT LEVEL: 6.005m AOD
GEOCELLULAR UNITS THICKNESS: 235mm
PERFORATED BASE COURSE BASE LEVEL: 6.240m AOD
PERFORATED BASE COURSE THICKNESS: 130mm
LAYING COURSE / PERMEABLE BLOCKS LEVEL: 6.370m AOD
LAYING COURSE / PERMEABLE BLOCKS THICKNESS: 130mm
ROAD FINISHED SURFACE LEVEL: 6.500m AOD

ROAD 3 CONSTRUCTION SPEC:
SUB-BASE FORMATION LEVEL: 5.620m(*) AOD
SUB-BASE THICKNESS: 220mm
GEOCELLULAR UNITS INVERT LEVEL: 5.840m(*) AOD
GEOCELLULAR UNITS THICKNESS: 300mm
PERFORATED BASE COURSE BASE LEVEL: 6.140m(*) AOD
PERFORATED BASE COURSE THICKNESS: 130mm
LAYING COURSE / PERMEABLE BLOCKS LEVEL: 6.270m(*) AOD
LAYING COURSE / PERMEABLE BLOCKS THICKNESS: 130mm
ROAD FINISHED SURFACE LEVEL: 6.400m(*) AOD
(*) LEVEL PROVIDED FOR ROAD FINISHED LEVEL OF 6.400m AOD,
FOR DIFFERENT ROAD LEVELS THICKNESS OF EACH LAYER
SHOULD BE USED TO DETERMINE CONSTRUCTION LEVELS

DRIVEWAYS CONSTRUCTION SPEC:
SUB-BASE THICKNESS: 370mm
LAYING COURSE / PERMEABLE BLOCKS THICKNESS: 110mm

ROAD 4 CONSTRUCTION SPEC:
SUB-BASE FORMATION LEVEL: 6.140m(*) AOD
SUB-BASE THICKNESS: 300mm
GEOCELLULAR UNITS INVERT LEVEL: 6.44m(*) AOD
GEOCELLULAR UNITS THICKNESS: 300mm
PERFORATED BASE COURSE BASE LEVEL: 6.740m(*) AOD
PERFORATED BASE COURSE THICKNESS: 130mm
LAYING COURSE / PERMEABLE BLOCKS LEVEL: 6.870m(*) AOD
LAYING COURSE / PERMEABLE BLOCKS THICKNESS: 130mm
ROAD FINISHED SURFACE LEVEL: 7.000m(*) AOD
(*) LEVEL PROVIDED FOR ROAD FINISHED LEVEL OF 7.000m AOD,
FOR DIFFERENT ROAD LEVELS THICKNESS OF EACH LAYER
SHOULD BE USED TO DETERMINE CONSTRUCTION LEVELS

BLUE HATCHED BUILDINGS TO
DISCHARGE ROOF WATER INTO
THE SUB-BASE OF ROAD 2

DIFFUSER UNITS TO BE
LOCATED MINIMUM 5m
AWAY FROM THE BUILDINGS

MAGENTA HATCHED BUILDINGS TO DISCHARGE
INTO THE 'POS A' INFILTRATION BASIN

INFILTRATION BLANKET SERVING ROOF,
GEOCELLULAR UNITS OR HYBRID WITH
GRAVEL FILL

ROAD 2 TO CATER FOR
ADJACENT FOOTWAYS

GREEN HATCHED BUILDINGS TO
DISCHARGE ROOF WATER INTO
THE SUB-BASE OF ROAD 3

FOUL WATER RISING MAIN SERVING 70 UNITS
FROM SOUTHERN SITE TO DISCHARGE INTO
ADOPTABLE GRAVITY DRAINAGE WITH 38 UNIT
NORTHERN SITE AS SHOWN SUBJECT TO WATER
AUTHORITY AGREEMENT, CONNECTION
LOCATION MAY ALTER FOLLOWING
CONSULTATION WITH WATER AUTHORITY.

ROAD 3 TO CATER FOR
ADJACENT FOOTWAYS

TOP OF BANK MIN. 6.550
BANK TL 6.400
INFIL BLANKET TOP LEVEL 6.350
BANK AT 1 IN 3
AREA AT BASE 680m²

INFILTRATION BASIN SERVING 70
UNITS SCHEME OVERLAPS THE
RED-LINE BOUNDARY WITH THE 38
UNITS SCHEME.
BOTH APPLICATION SITES AND
SCHEMES ARE BEING PROMOTED
BY (AND ARE UNDER CONTROL OF)
THE SAME DEVELOPER (DANDARA)
ALLOWING CONSTRUCTION OF
INFILTRATION BASIN ACROSS
RED-LINE BOUNDARIES

INFILTRATION BASIN 150mm DEEP WITH 330mm
DEEP UNDERLYING INFILTRATION BLANKET.
STORMS IN EXCESS OF APPROXIMATELY 1 IN 10 YRS
WOULD EMERGE ON THE SURFACE OF INFILTRATION
BASIN AND MORE FREQUENT EVENTS WOULD BE
DEALT WITHIN THE UNDERGROUND INFILTRATION
BLANKET

MAGENTA HATCHED BUILDINGS TO DISCHARGE
INTO THE 'POS A' INFILTRATION BASIN

ROAD TO BE PERVIOUS
PAVING CATERING FOR
ADJACENT FOOTWAYS

EXTENT OF PERMEABLE
ACCESS ROAD.

SITE ENTRANCE
BELLMOUTH IS COVERED
BY S278 AGREEMENT AND
DRAINAGE IS DEALT WITH
BY OUTFALL INTO
SOAKAWAY AS SHOWN ON
DRAWING YAP-S278-04
(LATEST REV.)

DRAINAGE KEY

- FWMH - EXISTING PUBLIC FOUL WATER MANHOLE
- FWMH - PROPOSED PUBLIC FOUL WATER MANHOLE UNDER SECTION 104
- FWMH - PROPOSED PRIVATE FOUL WATER MANHOLE (PCC RINGS) - MIN 1.2m DIA
- FW-IC3 - PROPOSED PRIVATE FOUL WATER INSPECTION CHAMBER - MIN 0.45m DIA
- FW-IC4 - PROPOSED PRIVATE FOUL WATER INSPECTION CHAMBER - MIN 0.25m DIA
- SWMH - PROPOSED PRIVATE SURFACE WATER MANHOLE (PCC RINGS / BRICKWORK)
- SW-IC3 - PROPOSED PRIVATE SURFACE WATER INSPECTION CHAMBER - MIN 0.45m DIA
- SW-IC4 - PROPOSED PRIVATE SURFACE WATER INSPECTION CHAMBER - MIN 0.25m DIA

- EXISTING PUBLIC FOUL WATER SEWER
- PROPOSED FW RISING MAIN
- PROPOSED PUBLIC FOUL WATER SEWER
- PROPOSED PRIVATE FOUL WATER DRAINAGE
- PROPOSED PRIVATE SURFACE WATER DRAINAGE
- PERMAVOID DIFFUSER UNIT - SIZE TBC AT THE DETAILED DESIGN STAGE

- INFILTRATION BLANKET
- PERVIOUS PAVING

- FFL 7.250 PROPOSED FINISHED FLOOR LEVEL
- RL 6.400 PROPOSED FINISHED ROAD LEVEL
- GL 6.550 PROPOSED FINISHED GROUND LEVEL

KEY TO HEALTH AND SAFETY SYMBOLS

- ABNORMAL OR UNUSUAL RESIDUAL RISKS ASSOCIATED WITH THE DESIGN OUTCOMES SHOWN ON THIS DRAWING MAYBE INDICATED BY MEANS OF THE FOLLOWING SYMBOLS.
- INDICATES A RESIDUAL RISK REQUIRING A COMPULSORY ACTION.
- INDICATES A RESIDUAL RISK FOR INFORMATION.
- INDICATES A RESIDUAL RISK REQUIRING A PROHIBITIVE ACTION.
- INDICATES A RESIDUAL RISK AS A WARNING.

ALL HARD SURFACES,
ROADS, PARKING AREAS,
FOOTWAYS AND SIMILAR TO
BE DRAINED TO PERVIOUS
PAVING SUB-BASE.

ALL ROADS ARE TO REMAIN
AS PRIVATE

MATERIALS FOR PIPES TO
COMPLY WITH PARAGRAPH
2.40, TABLE 7 OF THE
APPROVED DOCUMENT 'H'
OF THE BUILDING
REGULATIONS 2010 (2015
EDITION) OR AS SPECIFIED
ON THE DRAINAGE LAYOUT

NOTES

- THIS DRAWING IS NOT SUITABLE FOR CONSTRUCTION AND MUST ONLY BE USED FOR PLANNING PURPOSES.
- DRAINAGE PLAN SHOWN ON THIS DRAWING REPRESENTS THE PRINCIPLES ONLY AND IS SUBJECT TO CHANGE AT THE DETAILED DESIGN STAGE FOLLOWING DETAILED PLANS OF HOUSES, POSITION OF SVPS, RWP'S, ETC.
- IN COMPLIANCE WITH CDM 2015 ODYSSEY HAS FOLLOWED IT'S DESIGN RISK MANAGEMENT PROCESS FOR HAZARD ELIMINATION AND RISK REDUCTION IN DEVELOPING THE ODYSSEY DESIGNS SHOWN ON THIS DRAWING. THERE ARE NO ABNORMAL OR UNUSUAL RESIDUAL RISKS ASSOCIATED WITH THE DESIGN. ANY OTHER RESIDUAL RISKS ARE THOSE THAT WOULD NORMALLY BE EXPECTED BY COMPETENT PERSONS OR CONTRACTORS ENGAGED ON WORK OF THIS NATURE OR TYPE.
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER RELATED DRAWINGS ISSUED BY THE ARCHITECT AND ENGINEER.
- DO NOT SCALE FROM THIS DRAWING. WORK FROM FIGURED DIMENSIONS ONLY.
- EXISTING DRAINAGE FEATURES AND GROUND LEVELS (SHOWN TO AN ORDNANCE DATUM) ARE BASED ON THE MK SURVEYS TOPOGRAPHICAL SURVEY - DWG NO. 26714 DATED MARCH 2019. ODYSSEY ASSUMES NO RESPONSIBILITY ON THE LEVEL OF ACCURACY OF SURVEY INFORMATION PROVIDED.
- ALL DIMENSIONS SHOWN IN METRES UNLESS NOTED OTHERWISE.
- ALL DIMENSIONS, LEVELS AND SURVEY GRID CO-ORDINATES ARE TO BE CHECKED ONSITE AND THE ENGINEER NOTIFIED IMMEDIATELY OF ANY DISCREPANCIES PRIOR TO THE COMMENCEMENT OF THE WORKS.
- ALL FFL, RL AND GL ARE FOR GUIDANCE ONLY AND ARE SUBJECT TO CHANGE AT THE DETAILED DESIGN STAGE, I.E. TO COMPLY WITH THE REQUIREMENTS OF THE BUILDING REGULATIONS PART 'M'.
- SURFACE WATER FROM PRIVATE AREAS IS NOT TO BE DISCHARGED ONTO ADOPTABLE HIGHWAY, I.E. DRAINAGE CHANNELS WILL INTERCEPT FLOWS FROM PRIVATE AREAS AND CONNECT INTO THE PRIVATE OR S104 ADOPTABLE SYSTEM.
- PRIVATE INSPECTION CHAMBER SIZES ARE TO BE IN ACCORDANCE WITH THE BUILDING REGULATIONS PART 'H'; TABLE 11 AND MANHOLE SIZES TABLE 12.
- ALL CHAMBERS DIRECTLY UPSTREAM OF INFILTRATION FEATURES TO INCORPORATE SILT TRAP AND NO PIPE TO BE CONNECTED DIRECTLY TO INFILTRATION FEATURE WITHOUT PASSING THROUGH SILT TRAP.
- ALL RWPS TO HAVE RODDING ACCESS.
- ALL FOUL AND SURFACE WATER DRAINAGE PIPES WITHIN PRIVATE AREAS TO BE 100mm Ø UNLESS SPECIFIED OTHERWISE.
- FOUL WATER CONNECTION INTO PUBLIC SEWERAGE SYSTEM SHOWN INDICATIVELY ONLY. FORMAL SECTION 106 APPLICATION AND PRIOR APPROVAL MUST BE SOUGHT BEFORE ANY CONNECTION WORKS COMMENCE. INVERT LEVEL AT THE CONNECTION POINT INTERPOLATED ONLY AND TO BE CONFIRMED PRIOR ANY DRAINAGE WORKS OR FINAL SETTING OF FLOOR AND ROAD LEVELS.
- ANY ADOPTABLE S104 DRAINAGE WORKS TO BE CARRIED IN ACCORDANCE WITH THE SEWERAGE SECTOR GUIDANCE AND DESIGN AND CONSTRUCTION GUIDANCE.
- ALL DRAINAGE TESTING REQUIRED IS TO BE CARRIED OUT AT THE CONTRACTORS EXPENSE.
- DRAINS IN AREAS OF MADE GROUND TO BE CONSTRUCTED BY FIRST MAKING UP THE AREA TO APPROXIMATELY FINISHED LEVEL AND THEN EXCAVATE THROUGH THE FILL MATERIAL INTO UNDISTURBED GROUND. THE DRAIN TRENCH IS THEN TO BE BACKFILLED TO FORMATION LEVEL USING SUITABLE GRANULAR FILL MATERIAL WELL COMPACTED IN LAYERS NOT EXCEEDING 225 THICK.
- IF THERE IS ANY AMBIGUITY BETWEEN THE SPECIFICATION AND THE DRAWINGS, THE CONTRACTOR SHALL IMMEDIATELY INFORM THE ENGINEER.
- CONTRACTOR TO SURVEY FOR AND LOCATE THE POSITION AND DEPTH OF ALL SERVICES ACROSS THE SITE BEFORE COMMENCING ANY WORKS.
- STATUTORY SERVICE DIVERSION WORKS - IF DEEMED NECESSARY - TO BE AGREED WITH THE APPROPRIATE STATUTORY UNDERTAKER.
- ALL TOPSOIL STRIPPED FOR RE-USE ON VERGES ETC. TO BE STOCKPILED AT A LOCATION TO BE AGREED WITH THE ENGINEER.
- FOR PIPES WITH SHALLOW COVER CONCRETE SLAB / CONCRETE SURROUND PROTECTION MUST BE ADDED OR DUCTILE IRON PIPES USED (AS INDICATED ON PLAN).

DRAINAGE DESIGN SHOWN
SUBJECT TO APPROVAL FROM
THE LEAD LOCAL FLOOD
AUTHORITY AND LOCAL
PLANNING AUTHORITY

FOR PLANNING
PURPOSES ONLY

Rev	Amendments	Dm	Chk	App	Date
 ODYSSEY Odyssey House Unit 3 Winchester Hill Business Park Winchester Hill, Romsey Southampton SO51 7UT Telephone: 01794 527980 Fax: 01265 321134 E: info@odysseyconsult.co.uk W: www.odysseyconsult.co.uk					
Job Title LAND AT STAKERS FARM, YAPTON					
Drawing Title DRAINAGE STRATEGY LAYOUT					
Client DANDARA LIMITED (SOUTHERN)					
Scale 1:500 @ A1	Date JUL 20	Designed AK			
Drawn AK	Checked SW	Approved JHM			
Job No 19-156	Drawing No YAP-130-20	Rev -			



SITE UNDER SEPARATE
PLANNING APPLICATION
REFER TO DRAWING YAP-130-20

INFILTRATION BASIN SERVING 70 UNITS SCHEME OVERLAPS THE RED-LINE
BOUNDARY WITH THE 38 UNITS SCHEME.
BOTH APPLICATION SITES AND SCHEMES ARE BEING PROMOTED BY (AND ARE
UNDER CONTROL OF) THE SAME DEVELOPER (DANDARA) ALLOWING
CONSTRUCTION OF INFILTRATION BASIN ACROSS RED-LINE BOUNDARIES

INFILTRATION BASIN
BASIN IL 5.000
BASIN TOP LEVEL - 5.600 (MINIMUM)
BANK AT 1 IN 3
AREA AT BASE - 1146m² (MINIMUM)
AREA AT BANK LEVEL - 1410m² (MINIMUM)
WATER DEPTH DURING 1 IN 100 YRS + 40% - NOT EXCEEDING 400mm

ALL PERVIOUS PAVING SPEC:
SUB-BASE THICKNESS: 600mm
PERFORATED BASE COURSE THICKNESS: 130mm
LAYING COURSE / PERMEABLE BLOCKS THICKNESS: 130mm

INVESTIGATE WHETHER A CAST IRON
150mm PIPE CAN BE HAND DUG THROUGH
RPA AVOIDING TREE. IF SO THEN
RILLS/SWALES CAN BE UTILISED ALONG
THIS BOUNDARY AND LINKED THROUGH
THE RPA BY THE CAST IRON PIPE.

RIISING MAIN TO BE CONNECTED INTO THE FW DRAINAGE
SYSTEM SERVING THE ADJACENT 38 UNITS SCHEME. BOTH
SCHEMES ARE BEING PROMOTED BY THE SAME DEVELOPER.
CONNECTION WORKS WILL BE INCORPORATED INTO
DRAINAGE WORKS FOR THE 38 UNITS SCHEME

ADOPTABLE TYPE 3 FOUL WATER
PUMPING STATION - FINAL DETAILS
TBC WITH WATER COMPANY

INDICATIVE MANDATORY 15m OFFSET FROM
WET WELL INTO NEAREST HABITABLE
DWELLING. PLOT 70 LOCATION MAY NEED TO BE
ADJUSTED AT DETAILED STAGE TO
ACCOMMODATE 15m OFFSET

FAILED PERCOLATION TEST

FAILED PERCOLATION TEST

150mm DIA LINK CONDUIT LINKING AREA OF POOR
INFILTRATION WITH AREA OF GOOD INFILTRATION LAID
1:250 AS THE CONDUIT

DRAINAGE KEY

- FWMH - PROPOSED PRIVATE FOUL WATER
MANHOLE (PCC RINGS) - MIN 1.2m DIA
- FW-IC3 - PROPOSED PRIVATE FOUL WATER
INSPECTION CHAMBER - MIN 0.45m DIA
- FW-IC4 - PROPOSED PRIVATE FOUL WATER
INSPECTION CHAMBER - MIN 0.25m DIA
- SWMH - PROPOSED PRIVATE SURFACE WATER
MANHOLE (PCC RINGS / BRICKWORK)
- SW-IC3 - PROPOSED PRIVATE SURFACE WATER
INSPECTION CHAMBER - MIN 0.45m DIA
- PROPOSED FW RISING
MAIN
- PROPOSED PRIVATE FOUL
WATER DRAINAGE
- PROPOSED PRIVATE SURFACE
WATER DRAINAGE (*)
- PROPOSED LINK CONDUIT
- PERMAVOID DIFFUSER UNIT - SIZE TBC
AT THE DETAILED DESIGN STAGE
- PERVIOUS PAVING FULLY
UTILISING INFILTRATION
- PERVIOUS PAVING PARTIALLY
UTILISING INFILTRATION (**)
- PROPOSED FINISHED
FLOOR LEVEL
- PROPOSED FINISHED
ROAD LEVEL
- PROPOSED FINISHED
GROUND LEVEL

(*) SURFACE WATER CONDUITS CURRENTLY
SHOWN AS PIPES MAY BE REPLACED AT THE
DETAILED DESIGN STAGE BY OTHER FORMS OF
CONVEYANCE (RILLS, OPEN / CLOSED
DRAINAGE CHANNELS, GEOCELLULAR UNITS)
SHOULD THE COVER DEPTH BE NOT
SUFFICIENT FOR THE USE OF COMMON PIPES.
(**) AREAS TO BE CONSTRUCTED AS
PERVIOUS PAVING HOWEVER ALLOWING FOR
POOR INFILTRATION IN SUCH LOCATIONS
SURFACE WATER ACCUMULATED IN THE
GRANULAR SUB-BASE MAY BE CONNECTED
TO AREAS WITH BETTER INFILTRATION VIA
LINK PIPES OR SIMPLY BY ALLOWING FREE
FLOW TO THE ADJACENT AREAS

KEY TO HEALTH AND SAFETY SYMBOLS

- ABNORMAL OR UNUSUAL RESIDUAL
RISKS ASSOCIATED WITH THE DESIGN
OUTCOMES SHOWN ON THIS DRAWING
MAYBE INDICATED BY MEANS OF THE
FOLLOWING SYMBOLS
- INDICATES A RESIDUAL RISK
REQUIRING A COMPULSORY
ACTION.
 - INDICATES A RESIDUAL RISK
FOR INFORMATION.
 - INDICATES A RESIDUAL RISK
REQUIRING A PROHIBITIVE
ACTION.
 - INDICATES A RESIDUAL RISK
AS A WARNING.

ALL HOUSE AND GARAGE
ROOFS ARE TO BE DRAINED
TO INFILTRATION BASIN

ALL HARD SURFACES,
ROADS, PARKING AREAS,
FOOTWAYS AND SIMILAR TO
BE DRAINED TO PERVIOUS
PAVING SUB-BASE.

ALL ROADS ARE TO REMAIN
AS PRIVATE

MATERIALS FOR PIPES TO
COMPLY WITH PARAGRAPH
2.40, TABLE 7 OF THE
APPROVED DOCUMENT 'H'
OF THE BUILDING
REGULATIONS 2010 (2015
EDITION) OR AS SPECIFIED
ON THE DRAINAGE LAYOUT

NOTES

- THIS DRAWING IS NOT SUITABLE FOR CONSTRUCTION AND
MUST ONLY BE USED FOR PLANNING PURPOSES.
- DRAINAGE PLAN SHOWN ON THIS DRAWING REPRESENTS THE
PRINCIPLES ONLY AND IS SUBJECT TO CHANGE AT THE
DETAILED DESIGN STAGE FOLLOWING DETAILED PLANS OF
HOUSES, POSITION OF SVPS, RWP'S, ETC.
- IN COMPLIANCE WITH CDM 2015 ODYSSEY HAS FOLLOWED
IT'S DESIGN RISK MANAGEMENT PROCESS FOR HAZARD
ELIMINATION AND RISK REDUCTION IN DEVELOPING THE
ODYSSEY DESIGNS SHOWN ON THIS DRAWING. THERE ARE NO
ABNORMAL OR UNUSUAL RESIDUAL RISKS ASSOCIATED WITH
THE DESIGN. ANY OTHER RESIDUAL RISKS ARE THOSE THAT
WOULD NORMALLY BE EXPECTED BY COMPETENT PERSONS OR
CONTRACTORS ENGAGED ON WORK OF THIS NATURE OR TYPE.
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL
OTHER RELATED DRAWINGS ISSUED BY THE ARCHITECT AND
ENGINEER.
- DO NOT SCALE FROM THIS DRAWING. WORK FROM FIGURED
DIMENSIONS ONLY.
- EXISTING DRAINAGE FEATURES AND GROUND LEVELS (SHOWN
TO AN ORDANCE DATUM) ARE BASED ON THE MK SURVEYS
TOPOGRAPHICAL SURVEY - DWG NO. 26714 DATED MARCH
2019. ODYSSEY ASSUMES NO RESPONSIBILITY ON THE LEVEL
OF ACCURACY OF SURVEY INFORMATION PROVIDED.
- ALL DIMENSIONS SHOWN IN METRES UNLESS NOTED
OTHERWISE.
- ALL DIMENSIONS, LEVELS AND SURVEY GRID CO-ORDINATES
ARE TO BE CHECKED ONSITE AND THE ENGINEER NOTIFIED
IMMEDIATELY OF ANY DISCREPANCIES PRIOR TO THE
COMMENCEMENT OF THE WORKS.
- ALL FFL, RL AND GL ARE FOR GUIDANCE ONLY AND ARE
SUBJECT TO CHANGE AT THE DETAILED DESIGN STAGE, I.E.
TO COMPLY WITH THE REQUIREMENTS OF THE BUILDING
REGULATIONS PART 'M'.
- SURFACE WATER FROM PRIVATE AREAS IS NOT TO BE
DISCHARGED ONTO ADOPTABLE HIGHWAY, I.E. DRAINAGE
CHANNELS WILL INTERCEPT FLOWS FROM PRIVATE AREAS AND
CONNECT INTO THE PRIVATE OR S104 ADOPTABLE SYSTEM.
- PRIVATE INSPECTION CHAMBER SIZES ARE TO BE IN
ACCORDANCE WITH THE BUILDING REGULATIONS PART 'H';
TABLE 11 AND MANHOLE SIZES TABLE 12.
- ALL CHAMBERS DIRECTLY UPSTREAM OF INFILTRATION
FEATURES TO INCORPORATE SILT TRAP AND NO PIPE TO BE
CONNECTED DIRECTLY TO INFILTRATION FEATURE WITHOUT
PASSING THROUGH SILT TRAP.
- ALL RWPS TO HAVE RODDING ACCESS.
- ALL FOUL AND SURFACE WATER DRAINAGE PIPES WITHIN
PRIVATE AREAS TO BE 100mm Ø UNLESS SPECIFIED
OTHERWISE.
- FOUL WATER RISING MAIN CONNECTION INTO GRAVITY
SEWERAGE SYSTEM SERVING THE ADJACENT 38 UNITS
SCHEME.
- ANY ADOPTABLE S104 DRAINAGE WORKS TO BE CARRIED IN
ACCORDANCE WITH THE SEWERAGE SECTOR GUIDANCE AND
DESIGN AND CONSTRUCTION GUIDANCE.
- ALL DRAINAGE TESTING REQUIRED IS TO BE CARRIED OUT AT
THE CONTRACTORS EXPENSE.
- DRAINS IN AREAS OF MADE GROUND TO BE CONSTRUCTED BY
FIRST MAKING UP THE AREA TO APPROXIMATELY FINISHED
LEVEL AND THEN EXCAVATE THROUGH THE FILL MATERIAL
INTO UNDISTURBED GROUND. THE DRAIN TRENCH IS THEN
TO BE BACKFILLED TO FORMATION LEVEL USING SUITABLE
GRANULAR FILL MATERIAL WELL COMPACTED IN LAYERS NOT
EXCEEDING 225 THICK.
- IF THERE IS ANY AMBIGUITY BETWEEN THE SPECIFICATION
AND THE DRAWINGS, THE CONTRACTOR SHALL IMMEDIATELY
INFORM THE ENGINEER.
- CONTRACTOR TO SURVEY FOR AND LOCATE THE POSITION
AND DEPTH OF ALL SERVICES ACROSS THE SITE BEFORE
COMMENCING ANY WORKS.
- STATUTORY SERVICE DIVERSION WORKS - IF DEEMED
NECESSARY - TO BE AGREED WITH THE APPROPRIATE
STATUTORY UNDERTAKER.
- ALL TOPSOIL STRIPPED FOR RE-USE ON VERGES ETC. TO BE
STOCKPILED AT A LOCATION TO BE AGREED WITH THE
ENGINEER.
- DEPTH OF PERVIOUS PAVING SUB-BASE FOR THE SURFACE
WATER STORAGE CAPABILITIES GENERALLY TO BE 450mm
AND TO BE CONFIRMED AT THE DETAILED DESIGN STAGE
THROUGH FURTHER MODELING.
- ALL ROOFS TO DRAIN SURFACE WATER INTO THE
INFILTRATION BASIN SYSTEM.
- FOR PIPES WITH SHALLOW COVER CONCRETE SLAB /
CONCRETE SURROUND PROTECTION MUST BE ADDED OR
DUCTILE IRON PIPES USED (AS INDICATED ON PLAN).

DRAINAGE DESIGN SHOWN
SUBJECT TO APPROVAL FROM
THE LEAD LOCAL FLOOD
AUTHORITY AND LOCAL
PLANNING AUTHORITY

FOR PLANNING
PURPOSES ONLY

Rev	Amendments	Dm	Chk	App	Date
 Odyssey House Unit 3 Winchester Hill Business Park Winchester Hill, Romsey Southampton SO51 7UT Telephone: 01794 527980 Fax: 01265 321134 E: info@odysseyconsult.co.uk W: www.odysseyconsult.co.uk					
Job Title LAND AT STAKERS FARM, YAPTON					
Drawing Title DRAINAGE STRATEGY LAYOUT (70 UNITS)					
Client DANDARA LIMITED (SOUTHERN)					
Scale 1:500@A1	Date JULY 20	Designed AK			
Drawn AK	Checked SW	Approved JHM			
Job No 19-156	Drawing No YAP-130-22	Rev -			