PLAN DISTRICT COUNCIL A/168/18/RES

THE DRAINAGE STRATEGY TO BE FURTHER ASSESSED AT THE DETAILED DESIGN STAGE AND AMENDED AS NECESSARY. ALL PROPOSED LEVELS ARE ASSUMED AND SHOULD BE CONFIRMED BY LANDSCAPING ARCHITECT/CLIENT. DESIGN SUBJECT TO WIDER CONSTRUCTION DETAILS.
ALL WORKS TO THE DITCH AND RUNOFF DISCHARGES TO BE CONFIRMED BY THE LPA.

THE SITE IS STEEPLY SLOPING FROM N-E (>22mAOD) TO S-W (<19mAOD). THE PROPOSED DRIVEWAY IS LOCATED CENTRALLY ACROSS THE SITE RUNNING WEST TO EAST AND FOR THE MOST PART COINCIDES WITH A FLAT TOPOGRAPHY ALONG THIS LENGTH. THE OTHER BRANCHES OF THE PROPOSED ROAD ARE MAINLY ON THE STEEPER N-E AXIS.
THE MAJORITY OF BUILDINGS WOULD BE LOCATED TO THE NORTH OF THE FLATTER W-E AXIS.

SOIL INFORMATION FROM THE *SOILSCAPES* WEBSITE INDICATES THAT THE SUPERFICIAL DEPOSITS AT THE SITE SITE ARE PREDOMINANTLY CLAYEY WITH IMPEDED DRAINAGE. IN ABSENCE OF BESPOKE INFILTRATION TESTING NO INFILTRATION RATES WERE ASSUMED FOR THE SUDS STRATEGY.
IT IS RECOMMENDED THAT SHALLOW INFILTRATION TESTING TO BRE365 IS CONDUCTED IN THE FLATTER DRIVEWAY REGION PRIOR TO DETAILED DESIGN AND THE CALCULATIONS AMENDED TO SUIT RESULTS.

THE DRAINAGE STRATEGY IMITATES THE GREENFIELD SETTING AS CLOSE AS POSSIBLE BY USING PERMEABLE PAVEMENTS (TYPE B), GEOCELLULAR CRATE SYSTEMS AND COMPLEX FLOW CONTROL DEVICES.

PERMEABLE PAVING IS PROPOSED FOR THE ENTIRE DRIVEWAY FOR RUNOFF INTERCEPTION, TREATMENT AND CONVEYANCE. RUNOFF ATTENUATION STORAGE HAS BEEN ALLOWED ONLY IN THE FLATTER SECTION OF THE DRIVEWAY. DUE TO THE LARGE RUNOFF STORAGE REQUIREMENTS OF THE DEVELOPMENT (ASSOCIATED WITH THE IMITATION OF THE GREENFIELD REGIME POST-DEVELOPMENT) IT IS RECOMMENDED TO PROVIDE GEOCELLULAR CRATES BELOW THE PERMEABLE PAVING. THE PLACEMENT OF THE CRATES TAKES INTO ACCOUNT THE SITE'S SLOPES, CONSTRUCTION REQUIREMENTS, LONG-TERM MAINTENANCE AND CURRENT DESIRED DEVELOPMENT LAYOUT.

1. GENERAL
a. THIS DRAWING IS NOT TO BE SCALED, WORK TO FIGURED DIMENSIONS ONLY, CONFIRMED ON SITE.
b. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTURAL DRAWINGS, DETAILED SPECIFICATIONS WHERE APPLICABLE AND ALL ASSOCIATED DRAWINGS IN THIS SERIES.
c. ANY DISCREPANCY ON THIS DRAWING IS TO BE REPORTED IMMEDIATELY TO THE PARTNERSHIP FOR CLARIFICATION.
d. THE CONTRACTOR IS RESPONSIBLE FOR ALL TEMPORARY WORKS AND FOR THE STABILITY OF THE WORKS IN PROGRESS.
e. CDM REGULATIONS 2015. ALL CURRENT DRAWINGS AND SPECIFICATIONS MUST BE READ IN CONJUNCTION WITH THE DESIGNER'S HAZARD RISK AND ENVIRONMENT ASSESSMENT RECORD. DESIGN HAS BEEN PRODUCED BASED ON INFORMATION PROVIDED BY THE CLIENT/PRINCIPLE DESIGNER AVAILABLE AT TIME OF ISSUE. CONTRACTOR TO REVIEW DRAWING AND SPECIFICATION IN CONTEXT WITH THE WIDER SITE AND SPECIFIC SITE INVESTIGATION, CONTAMINATION ASSESSMENT, ASBESTOS SURVEY, ENVIRONMENTAL SURVEY, UXO SURVEY AND ANY OTHER RELEVANT INFORMATION AND MANAGE RISKS RELATING TO THE WORKS OUTLINED IN THE DRAWINGS AND SPECIFICATION. PRINCIPLE CONTRACTOR TO MAKE DESIGNER AND CLIENT AWARE OF SITE SPECIFIC RISKS THAT MAY AFFECT THE DRAWING AND SPECIFICATION.
f. CDM REGULATIONS 2015. FOR GENERIC MAINTENANCE AND MANAGEMENT RISKS REFER TO CHAPTER 36 OF CIRIA 752 SUDS MANUAL. FOR PROPRIETARY SYSTEMS SEE MANUFACTURER'S MANAGEMENT AND MAINTENANCE DETAILS AND RISK ASSESSMENT WITH REGARDS TO MAINTENANCE OF PROPRIETARY SYSTEMS.

GEOCELLULAR TANK (INDICATIVE SECTION DETAIL 1)

CRATE DEPTH - 0.8m
CRATE POROSITY - 0.95
SURFACE AREA - 110.5m²
TOTAL STORAGE VOLUME PROVIDED - 84m³

WRAP TANK IN *IMPERMEABLE* GEOMEMBRANES (NO INFILTRATION)
ASSUMED DEPTH TO COVER 0.75m - SUBJECT TO CRATE TYPE. TO BE CONFIRMED BY MANUFACTURER.
TO BE PROVIDED WITH VENT PIPE
TREE ROOT PROTECTION BARRIER TO BE PROVIDED WHERE NECESSARY

EXISTING SITE LEVELS AS INDICATED IN THE TOPOGRAPHIC SURVEY OF THE EXISTING SITE CONDUCTED BY *Trueplan* (JOB. 25532/4546)

POND AND CRATES SHOWN AS A 'WORST CASE' SUBJECT TO RECIEPT OD DETAILED INFILTRATION TESTING. POND AND TANKS TO BE REMOVED IF INFILTRATION ALLOWS A REDUCTION IN THE REQUIRED STORAGE VOLUMES

"GT" - GEOCELLULAR TANK
CL 21.1
DEPTH (m) 1.550

S3.000
1:300.0
300mm

CL 20.6
DEPTH (m) 1.09

FLOWS TO BE CONTROLLED BY A 42mmØ ORIFICE PLATE FITTED AT INVERT LEVEL

"PP" - PERMEABLE PAVING
CL 20.5
DEPTH (m) 1.085

S1.006
1:400.0
300mm

S8
CL 20.5
DEPTH (m) 1.038

S1.005
1:400.0
300mm

S7
CL 20.5
DEPTH (m) 0.899

S1.004
1:400.0
300mm

S6
CL 20.5
DEPTH (m) 0.843

S1.003
1:400.0
300mm

S5
CL 20.5
DEPTH (m) 0.82

S1.007
1:400.0
300mm

S9
CL 20.3
DEPTH (m) 0.905

S1.008
1:45.0
300mm

S1
CL 21.5
DEPTH (m) 0.8

S1.000
1:28.0
150mm

S2
CL 21.25
DEPTH (m) 0.805

S1.001
1:59.2
150mm

S3
CL 21.1
DEPTH (m) 0.8

S1.002
1:36.4
225mm

S2.000
1:180.0
225mm

S4
CL 20.6
DEPTH (m) 0.8

PERMEABLE PAVING TO BE LAID FLAT WITH THE SUB-BASE EXTENDED INTO THE SIDEWALKS
TOTAL SURFACE AREA OF SUB-BASE - 812m²
SUB-BASE DEPTH: 0.5m
POROSITY: 0.3 (MIN)
TOTAL STORAGE VOLUME PROVIDED: 121.8m³
TO BE WRAPPED IN PERMEABLE GEOTEXTILE. TREE ROOT PROTECTION GEOTEXTILE TO BE PROVIDED WHERE NECESSARY

PERMEABLE PAVED ROAD WITHOUT ATTENUATION STORAGE DUE TO THE STEEP ROAD SLOPE. IF STORAGE IS REQUIRED THEN PROVIDE CHECK DAMS AT REGULAR INTERVALS TO COMPARTMENTALISE THE SUB-BASE. SUB-BASE DEPTH SUBJECT TO CBR TESTING RESULTS.

PIPE DIAMETER IN THE PERMEABLE PAVING COULD BE 150/225mm GIVEN THAT THE PIPE IS PERFORATED ALLOWING WATER TO RISE INTO THE SUB-BASE

TOPOGRAPHIC SURVEY OF DAPPERS LANE CONDUCTED BY *SeSurveying* (JOB. 016 02 19 - 001) AND PROPOSED SITE PLAN - BOTH REFERENCED TO THE TOPOGRAPHIC SURVEY OF THE EXISTING SITE CONDUCTED BY *Trueplan* (JOB. 25532/4546). APPARENT OFFSET TO BE ADDRESSED BY OTHERS.

INTERRUPT SUB-BASE CONSTRUCTION OR PROVIDE FLOW BARRIER/CHECK DAM. TBC AT DETAILED DESIGN.

EXTEND CRUSHED STONE SUB-BASE OF PERMEABLE PAVING BELOW SIDEWALKS. THE SIDEWALKS TO DRAIN ONTO ROAD IF SURFACING IMPERMEABLE.

GEOCELLULAR TANK (INDICATIVE SECTION DETAIL 2)

CRATE DEPTH - 0.4m
CRATE POROSITY - 0.95
SURFACE AREA - 121.75m²
TOTAL STORAGE VOLUME PROVIDED - 46.26m³

PROVIDE PERMEABLE GEOTEXTILE AT THE INTERFACE WITH THE SOIL (TANKS CURRENTLY LOCATED AT 5m FROM NEAREST FOUNDATIONS) AND WITH THE PERMEABLE PAVING.
ASSUMED DEPTH TO COVER 0.75m IN TRAFFICKED AREA - SUBJECT TO CRATE TYPE. TO BE CONFIRMED BY MANUFACTURER.
TREE ROOT PROTECTION GEOTEXTILE TO BE PROVIDED WHERE NECESSARY.

THE DEPTH OF THE PERMEABLE PAVEMENT'S SUB-BASE - BETWEEN THE PERFORATED CARRIER PIPE AND GEOCELLULAR TANK - TO BE AT THE FORMATION LEVEL OF THE TANK TO ALLOW RUNOFF TO ENTER AND DRAIN FROM THE TANK.

INDICATIVE (DRY) POND PROVIDING 31m³ OF STORAGE TO 19.560.
TOP AREA:62m²
BOTTOM AREA: 36m²
DETAILS TO BE FURTHER CONFIRMED (SEE NOTES IN RED).

PERMEABLE PAVED ROAD WITHOUT ATTENUATION STORAGE DUE TO THE STEEP ROAD SLOPE. IF STORAGE IS REQUIRED THEN PROVIDE CHECK DAMS AT REGULAR INTERVALS TO COMPARTMENTALISE THE SUB-BASE. SUB-BASE DEPTH SUBJECT TO CBR TESTING RESULTS.

PERMEABLE PAVING TO BE LAID FLAT AND SUB-BASE TO SURROUND THE GEOCELLULAR TANK TO ITS FORMATION LEVEL. SEE SECTION DETAIL ON DRAWING.
SURFACE AREA - 100m²
SUB-BASE DEPTH (CONSERVATIVE): 0.75m
POROSITY: 0.3 (MINIMUM)
TOTAL STORAGE VOLUME PROVIDED: 22.5m³
TREE ROOT PROTECTION GEOTEXTILE (ROOTGUARD OR SIMILAR) TO BE PROVIDED WHERE NECESSARY

LEVEL AT APPROX 18.49
OUTFALL LEVEL OF CHANNEL TO BE CONFIRMED ON SITE. ALL WORKS AND RUNOFF RATES TO THE DITCH TO BE CONFIRMED BY THE LOCAL PLANNING AUTHORITY.

HEADWALL TO BE FITTED WITH GRATES TO PROHIBIT TAMPERING, AND PIPE WITH FLAP TO PROHIBIT INGRESS OF SMALL ANIMALS.

INDICATIVE ARRANGEMENT OF PERFORATED CARRIER PIPES TO BE DISCONNECTED TO ENHANCE FILTRATION OF RUNOFF.

"PP&GT"
CL 19.75
DEPTH (m) 1.14

S4.003
1:40.0
300mm

S13
CL 19.75
DEPTH (m) 0.804

S4.002
1:50.0
225mm

S4.001
1:200.0
150mm

S4.000
1:100.0
150mm

S12
CL 20.0
DEPTH (m) 0.852

S11
CL 20.0
DEPTH (m) 0.804

S10
CL 20.25
DEPTH (m) 0.8

S1.009
1:4000
TBC

S1.010
1:4000
TBC

SWALE/VEGETATED CHANNEL DRAIN TO BE LAID 300mm DEEP ON THE BOUNDARY OF TREE ROOT PROTECTION AREAS TO INTERCEPT OVERLAND FLOWS AND PROVIDE OVERLAND FLOW ROUTE FROM SITE IN CASE OF BLOCKAGE

TYPE 2 MANHOLE FITTED WITH COMPLEX FLOW CONTROL TO CONTROL OUTFLOWS AT THE RESPECTIVE GREENFIELD RATES AND AT MINIMUM OF 2 L/S TO AVOID BLOCKAGES.
HYDROBRAKE TO BE FITTED AT INVERT LEVEL LIMITING FLOWS TO 2 L/S DURING THE 1 IN 2 YEAR EVENT. AT 0.85m ABOVE THE HYDROBRAKE PROVIDE A 85mmØ ORIFICE PLATE TO RESTRICT FLOWS TO 3.6 L/S DURING THE 1 IN 30 YEAR EVENT AND 5.3 L/S DURING THE 1 IN 100 YEAR EVENT. 40% CLIMATE CHANGE ALLOWANCE WAS ADDED TO ALL RAINFALL SCENARIOS.
PROVIDE PREFILTERING MESH TO ORIFICE PLATE OF DENSITY LESS THAN ORIFICE DIAMETER.

POND AND CRATES SHOWN AS A 'WORST CASE' SUBJECT TO RECIEPT OD DETAILED INFILTRATION TESTING. POND AND TANKS TO BE REMOVED IF INFILTRATION ALLOWS A REDUCTION IN THE REQUIRED STORAGE VOLUMES

OVERLAND FLOWS TO BE DIRECTED INTO THE PUBLIC DITCH AND AWAY FROM NEIGHBORING PRIVATE PROPERTIES

G1-PA
G2-PA
G3-PA
G4
G7
G12-PA
G14-PA

Dappers Lane

LEGEND
PRIVATE SURFACE WATER DRAIN
PERFORATED SURFACE WATER DRAIN
SLOT/CHANNEL DRAIN
TYPE 2 MANHOLE
TYPE 3 INSPECTION CHAMBER
TYPE 4 INSPECTION CHAMBER
RODDING EYE
RAIN WATER PIPE
ROAD GULLY
PERMEABLE PAVING
ATTENUATION SYSTEM
+26.500 PROPOSED LEVEL
OVERLAND FLOW ROUTE

REV	DATE	CKD	APPD	BY	DESCRIPTION
A	03/2019	--	--	--	POND ADDED AT REQUEST OF LEFA

PRELIMINARY DRAWING
FOR INFORMATION ONLY. NOT FOR CONSTRUCTION.

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Project
MERRY ENGLAND NURSERY, BN16 4EN
PROJECT NO 4383

Drawing
SURFACE WATER DRAINAGE STRATEGY
PROPOSED LAYOUT

Drawn by: SD Date: FEB-2019

Drawing No. 4383-01 Revision A

Drawing Scale: 1:200 @ A1
0 2m 4m 6m 8m 10m

Drawn No. P:\Projects\4383 Merry England Nursery, Ambiental\4383_SWM_MerryEnglandNursery_DrainageLayout_A1@1in200_REV A.dwg