

LOCAL CENTRE, NORTH STONEHAM PARK, EASTLEIGH

**SURFACE WATER STRATEGY AND DESIGN STATEMENT
ADDENDUM TO THE FLOOD RISK ASSESSMENT AND SURFACE WATER
STRATEGY AND DESIGN STATEMENT FOR NORTH STONEHAM PARK
PHASE 1**

Prepared by

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**DOCUMENT CONTROL SHEET**

Project Name Local Centre, North Stoneham, Eastleigh

Project No. 14-159

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1.0 INTRODUCTION

- 1.1 This report, Surface Water Management and Drainage Strategy, has been prepared by Odyssey on behalf of Highwood Homes in support for Reserved matters for appearance, landscaping, layout and scale (pursuant to outline planning permission O/15/76023 which was subject to Environmental Impact Assessment) for the provision of a Local Centre on the North Stoneham Park site including retail, café, gymnasium, community centre, nursery, offices and 26 age restricted flats in addition to associated access roads, drainage, car parking, refuse storage, boundary treatments and other supporting works and infrastructure.
- 1.2 Within the report the design procedure of the Surface Water Drainage Strategy will be described and its evolution from the proposed drainage strategy incorporated within the approved document ***Land South of Chestnut Avenue, North Stoneham Park – Flood Risk Assessment*** prepared by Ramboll UK Limited (Ramboll) with final issue dated the 11th of February 2015, referred to as the FRA in the report.
- 1.3 The report will also form a supplementary document to the previously submitted and approved 14-159-02 Rev E Surface Water Strategy and Design Statement Addendum to the FRA for the North Stoneham Park Phase 1, referred to as the “SWDS Phase 1” in the report, where the proposal forms part of the overall drainage strategy.
- 1.4 Preliminary SuDS maintenance and management procedures are outlined within the report.



2.0 SURFACE WATER DRAINAGE STRATEGY

2.1 The Local Centre proposals form part of **Sector D** within the overall drainage strategy described in detail within the SWDS Phase 1 report. Figure 1 below gives a visual representation of the Sector's position within the development, with an indication of the location of the Local Centre proposals. The proposed Local Centre layout is presented in Appendix A.

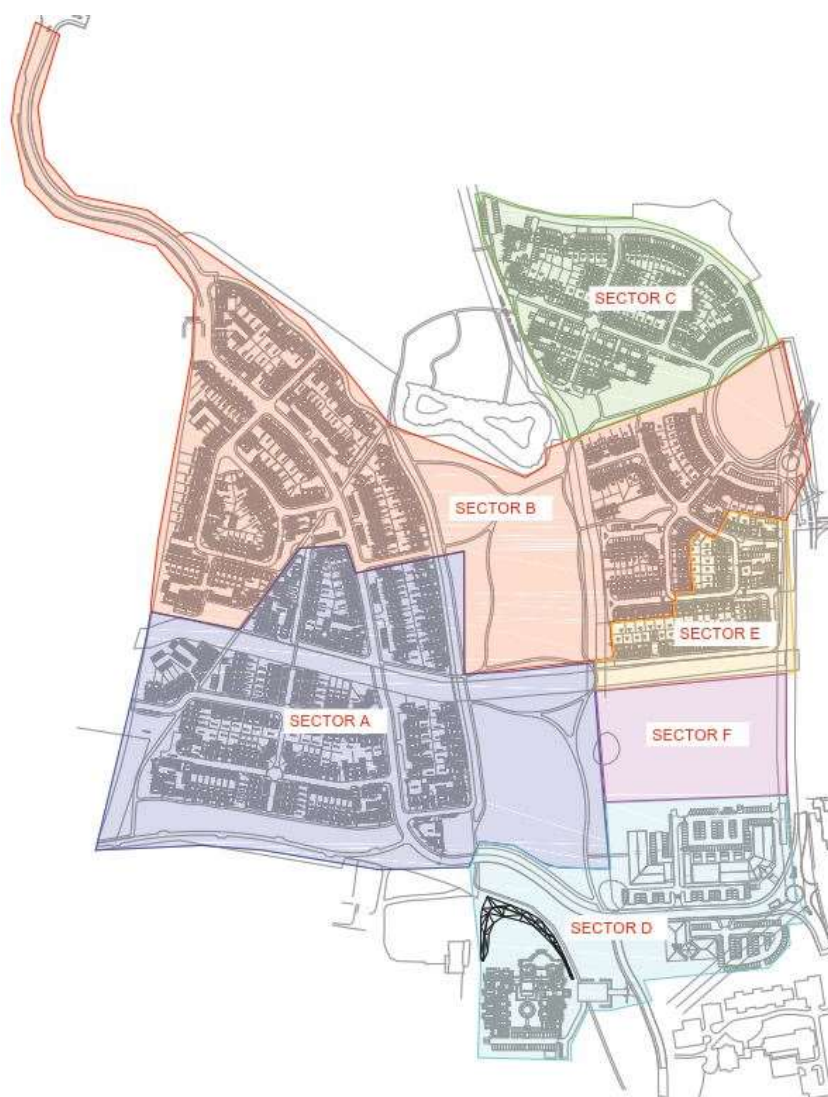


Figure 1 Sectors Position Within the Development

2.2 Following the recommendation of the SWDS Phase 1, a Sector D discharge allowance of 17 l/s, was distributed along the elements forming the Sector. There were two stubs, with restricted flow rate of 5 l/s each, provided for the surface water discharge generated by the Local Centre proposals to connect to the main surface water drainage for Sector D. It is to be noted that within SWDS Phase 1 and the FRA, no capacity for infiltration was assumed, thus providing the worst-case scenario.



2.3 Following a detail soakaway investigation, carried out to BRE 365 by Soils Limited, infiltration rates for the area were determined. These rates are illustrated within Table 1 below and the Soils Limited report is presented in Appendix B.

2.4 Given the soakaway potential of the area, soakaway crates were utilised to discharge the surface water catchment generated by the Local Centre buildings and carparks. The surface water will be conveyed via pipe network to the aforementioned soakaway crates employing silt traps and trapped gullies to treat the discharge prior to entering the system. A copy of the Drainage Strategy is presented within Appendix C.

2.5 Due to the location of the existing Southern Water 33 inch Water Main passing through the carpark of the Office building, north of the S278 works, permeable paving will be utilised to capture and discharge the rainfall that falls directly on the surface, thus having no adverse effect on the pipe state, mimicking the existing conditions of the area.

2.6 A separate drainage network was provided to discharge the flow generated by the main access road. The network will utilise the proposed stub, to connect to the main Sector D drainage, with a control discharge of 5 l/s via hydro-brake vortex flow control device. The drainage system is designed for flood events up to and including 1 in 100 year plus 30% climate change, with the attenuation provided within the pipe system.

2.7 The proposed on-site drainage system will be designed to cater for the 1 in 30 year storm, with no unintentional surface flooding, providing attenuation to store flood waters on-site during flood events up to and including the 1 in 100 year flood event plus allowance for 30% climate change.

2.8 For the proposed preliminary maintenance and management regimes of the Sustainable Drainage Systems, refer to Appendix D. This will be enhanced at the detailed design stage.

2.9 MicroDrainage calculations are presented as Appendix E.



3.0 CONCLUSION

3.1 The surface water drainage design for the Local Centre follows the principles set out in the FRA and SWDS Phase 1, with further involvement due to the detailed soakaway tests results obtained at the time of the report.

3.2 The surface water run-off generated from the proposed development area has been discharged via three different methods. The flows from the parking areas and building areas of the development will be conveyed via pipe network to soakaway crates and infiltrated in the ground. Due to the presence of the existing Southern Water 33 inch Water Main, the parking court for the Office building will utilize permeable paving, mimicking the existing conditions, by infiltrating the direct rainfall.

3.3 The school access road will have separate drainage pipe network and connect to the proposed stub near the S278 works, as intended within the SWDS Phase 1.

3.4 MicroDrainage Calculations are presented in Appendix E.

APPENDIX A

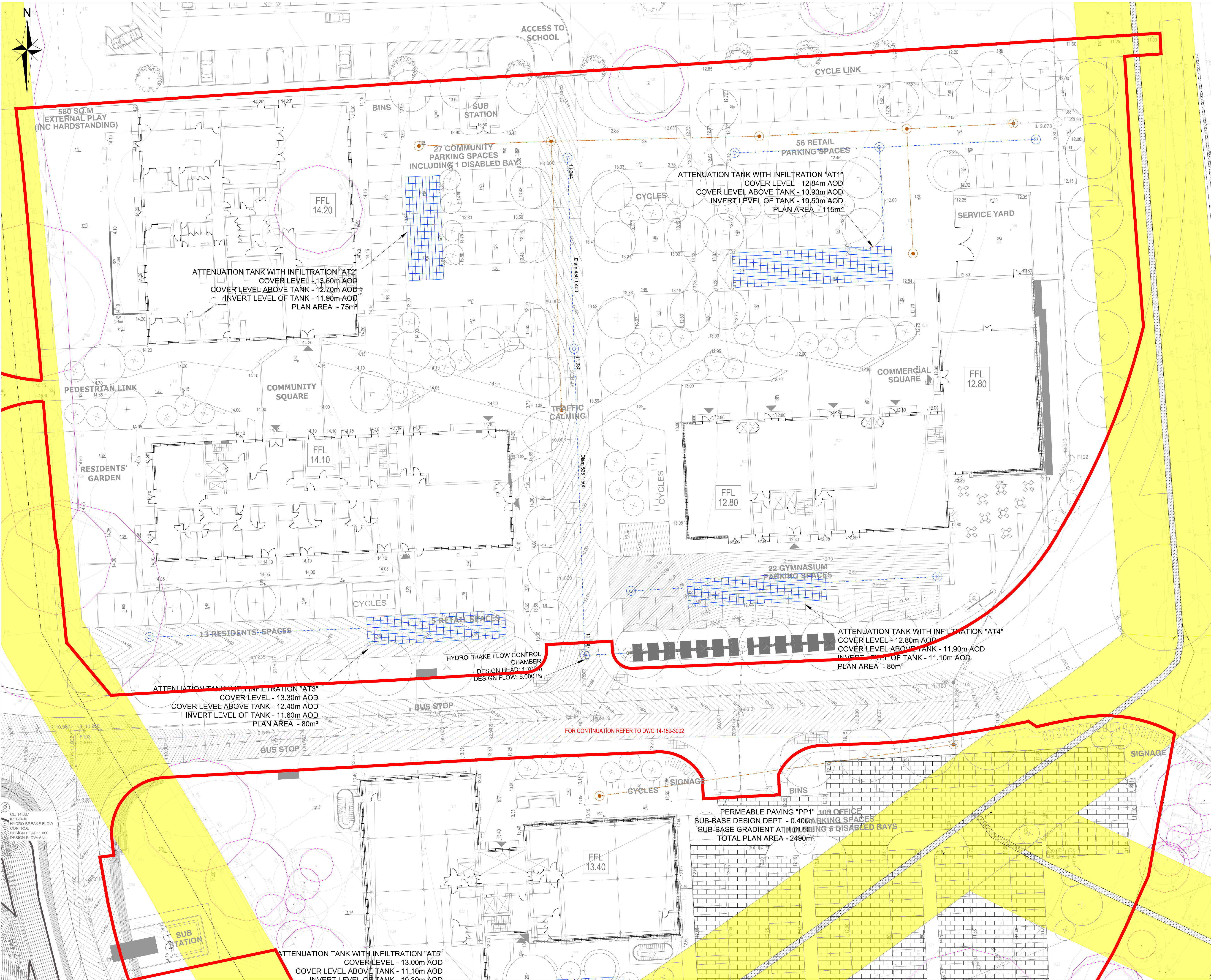
PROPOSED SITE LAYOUTS

APPENDIX B

SOAKAWAY INVESTIGATION REPORT

APPENDIX C

PROPOSED LOCAL CENTRE DRAINAGE STRATEGY



- NOTES**
1. ALL DIMENSIONS SHOWN IN METRES UNLESS NOTED OTHERWISE.
 2. THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT ARCHITECT & ENGINEERING DETAILS, DRAWINGS & SPECIFICATIONS.
 3. ANY DISCREPANCIES SHOULD BE REPORTED TO THE ARCHITECT AND/OR ENGINEER IMMEDIATELY SO THAT CLARIFICATION CAN BE SOUGHT PRIOR TO THE COMMENCEMENT OF WORK.
 4. WHERE CONNECTIONS MADE TO EXISTING DRAINS INVOLVE REMOVAL OF PIPES OR CONNECTION OF PIPES, FLEXIBLE COUPLINGS SHOULD BE USED TO ENSURE A WATERTIGHT JOINT.
 5. PLEASE NOTE. ALL LOCATION OF EXISTING PRIVATE DRAINS, MANHOLES AND LEVELS ARE INDICATIVE ONLY. ACCURATE POSITION AND LEVELS OF DRAINS AND CHAMBERS TO BE DETERMINE ON SITE PRIOR TO WORK COMMENCEMENT.
 6. 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.
 7. NO DEVIATION FROM THE DETAILS SHOWN ON THIS DRAWING IS PERMITTED WITHOUT PERMISSION FROM THE ENGINEER.
 8. THE CONTRACTOR MUST REFER TO THE EXISTING SERVICES PLANS AND INFORMATION AND MUST LOCATE EXISTING SERVICES PRIOR TO ANY EXCAVATIONS. ALL EXCAVATION WORKS IN THE VICINITY OF EXISTING SERVICES SHOULD BE CARRIED OUT IN ACCORDANCE WITH HSG47
 9. THE DRAINAGE ARRANGEMENTS ARE SUBJECT TO EVOLVE DURING THE DETAIL DESIGN STAGE OF THE PROJECT.

- LEGEND**
- PROPOSED SURFACE WATER NETWORK
 - SURFACE WATER NETWORK UNDER SEPARATE APPLICATION
 - PROPOSED FOUL WATER NETWORK
 - FOUL WATER NETWORK UNDER SEPARATE APPLICATION
 - PROPOSED INFILTRATING ATTENUATION CELLULAR SOAKAWAY
 - PROPOSED PERMEABLE PAVING
 - ROOT PROTECTION AREA
 - TRACED LOCATION OF EXISTING SOUTHERN WATER WATER MAIN
 - EXISTING SOUTHERN WATER WATER MAIN EASEMENT

FOR
PLANNING

A LAYOUT UPDATED OC JHM/BAC 30.11.18
Rev Amendments Dm Chk App Date

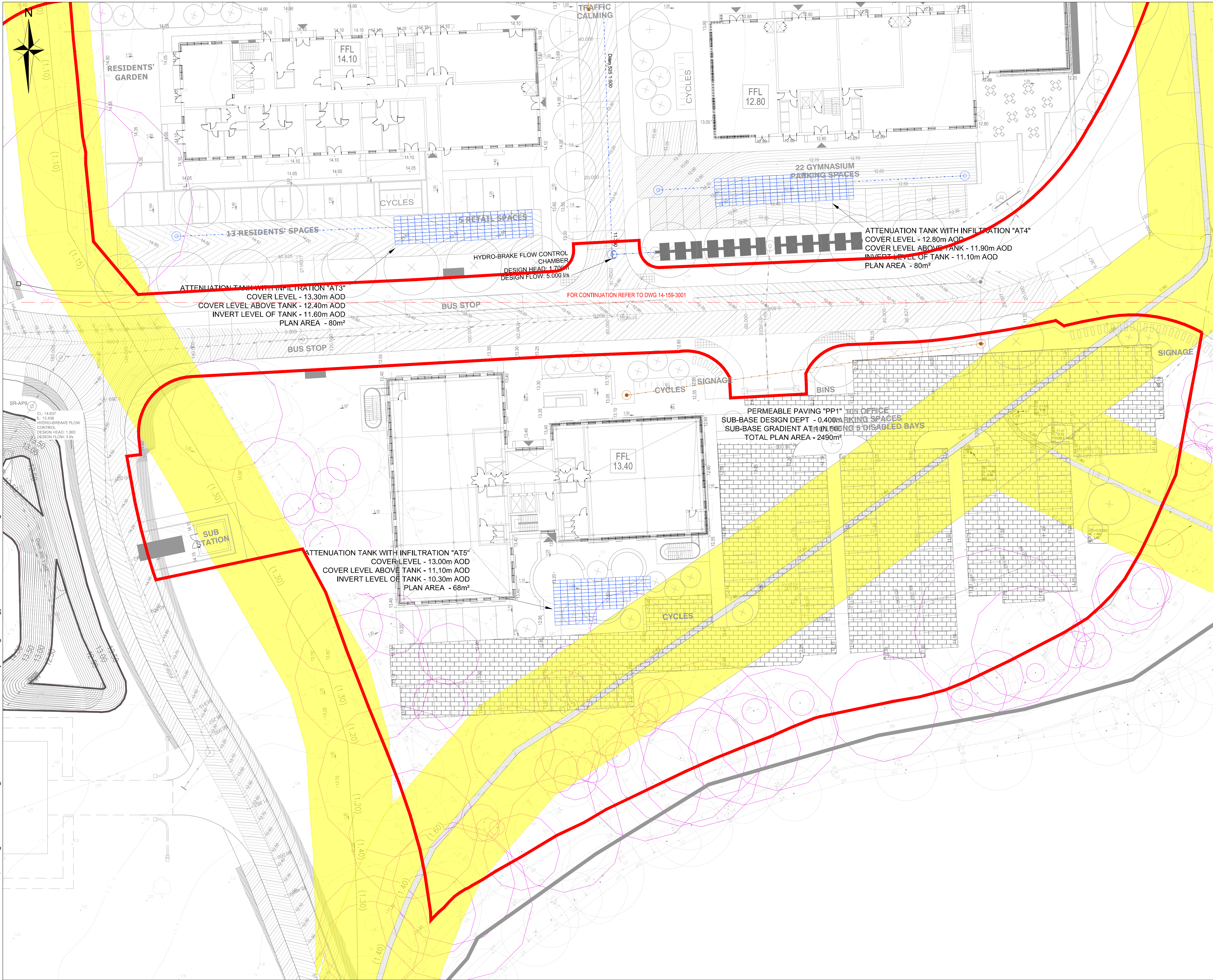
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Job Title
**STONEHAM, LAND AT CHESTNUT
AVE. EASTLEIGH**

Drawing Title
**PRELIMINARY DRAINAGE STRATEGY
LOCAL CENTRE SHEET 1 OF 2**

Client
**HIGHWOOD
CONSTRUCTION**

Scale 1:250 @ A1	Date NOV 2018	Designed NT
Drawn NT	Checked BAC	Approved BAC
Job No 14-159	Drawing No 14-159-3001	Rev A



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FOR PLANNING

A LAYOUT UPDATED	OC JHM/BAC 30.11.18
Rev Amendments	Dm Chk App Date

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Job Title

STONEHAM, LAND AT CHESTNUT AVE. EASTLEIGH

Drawing Title

**PRELIMINARY DRAINAGE STRATEGY
LOCAL CENTRE SHEET 2 OF 2**

Client

HIGHWOOD CONSTRUCTION

Scale 1:250 @ A1	Date NOV 2018	Designed NT
Drawn NT	Checked BAC	Approved BAC
Job No 14-159	Drawing No 14-159-3002	Rev A

APPENDIX D

PRELIMINARY MAINTENANCE AND MANAGEMENT REGIMES OF SUDS

Geocellular System Maintenance Activities & Frequency

Maintenance Category	Maintenance Activity	Comments	Frequency
Routine Maintenance	Inspect and identify any areas that are not operating correctly.		Monthly (for the first 3 months) then six monthly.
	Litter and debris removal.	Litter & debris to be removed prior to any grass cutting activity to minimise risk of shredding litter.	Monthly.
	Grass cutting (where applicable)	All cuttings to be removed from SUDS component.	Monthly (during growing season) or as required.
	Where rainfall infiltrates into blocks from above, check surface of filter for blockage by sediment, algae, other matter.	Remove and replace surface infiltration medium as necessary.	Monthly.
	Remove sediment from upstream silt trap (sump).	Remove sediment from sump when 50% volume lost. N.B. Sumps must be maintained to limit sediment entry into the underground cells.	Six monthly, or as required.
Infrequent Maintenance	Clear blockage of ½ perforated underflow pipes (Stormcell only) by rodding / jetting.	Stormcell system should be designed with underflow pipes laid at self-cleansing velocity; reducing likelihood of blockage.	As required.
Corrective Maintenance	Excavate, uncover & jet cells to remove sediment (Wavin Aquacell or similar).		As required.

Geocellular System Inspection & Frequency

Inspection Activity	Comments	Frequency
Inspect all inlets / outlets, vents and overflows to check they are in good condition and operating as designed.	Includes testing Hydro-Brake by-pass door (if present).	Annually.
Check mechanical devices within chambers.	Includes testing Hydro-Brake by-pass door (if present).	Half yearly.

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 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"
	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."	
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 as a result 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

APPENDIX E

MICRODRAINAGE CALCULATIONS

Odyssey				Page 1																																																																																																																																																																																																																			
Tuscany House White Hart Lane Baskingstoke RG21 4AF		14-159 Local Centre, Stoneham Office Centre Permeable Paving																																																																																																																																																																																																																					
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Summary of Results for 100 year Return Period (+30%) Half Drain Time : 12 minutes. <table><thead><tr><th>Storm Event</th><th>Max Level (m)</th><th>Max Depth (m)</th><th>Max Infiltration (l/s)</th><th>Max Volume (m³)</th><th>Status</th></tr></thead><tbody><tr><td>15 min Summer</td><td>12.650</td><td>0.150</td><td>32.4</td><td>30.3</td><td>O K</td></tr><tr><td>30 min Summer</td><td>12.666</td><td>0.166</td><td>36.0</td><td>37.4</td><td>O K</td></tr><tr><td>60 min Summer</td><td>12.670</td><td>0.170</td><td>36.7</td><td>39.0</td><td>O K</td></tr><tr><td>120 min Summer</td><td>12.657</td><td>0.157</td><td>33.9</td><td>33.2</td><td>O K</td></tr><tr><td>180 min Summer</td><td>12.641</td><td>0.141</td><td>30.6</td><td>26.9</td><td>O K</td></tr><tr><td>240 min Summer</td><td>12.628</td><td>0.128</td><td>27.7</td><td>22.0</td><td>O K</td></tr><tr><td>360 min Summer</td><td>12.607</td><td>0.107</td><td>23.2</td><td>15.6</td><td>O K</td></tr><tr><td>480 min Summer</td><td>12.593</td><td>0.093</td><td>20.1</td><td>11.6</td><td>O K</td></tr><tr><td>600 min Summer</td><td>12.582</td><td>0.082</td><td>17.7</td><td>9.1</td><td>O K</td></tr><tr><td>720 min Summer</td><td>12.573</td><td>0.073</td><td>15.9</td><td>7.2</td><td>O K</td></tr><tr><td>960 min Summer</td><td>12.561</td><td>0.061</td><td>13.1</td><td>5.0</td><td>O K</td></tr><tr><td>1440 min Summer</td><td>12.548</td><td>0.048</td><td>9.9</td><td>3.1</td><td>O K</td></tr><tr><td>2160 min Summer</td><td>12.541</td><td>0.041</td><td>7.2</td><td>2.2</td><td>O K</td></tr><tr><td>2880 min Summer</td><td>12.536</td><td>0.036</td><td>5.7</td><td>1.8</td><td>O K</td></tr><tr><td>4320 min Summer</td><td>12.531</td><td>0.031</td><td>4.2</td><td>1.3</td><td>O K</td></tr><tr><td>5760 min Summer</td><td>12.528</td><td>0.028</td><td>3.3</td><td>1.0</td><td>O K</td></tr><tr><td>7200 min Summer</td><td>12.525</td><td>0.025</td><td>2.8</td><td>0.9</td><td>O K</td></tr><tr><td>8640 min Summer</td><td>12.523</td><td>0.023</td><td>2.3</td><td>0.7</td><td>O K</td></tr><tr><td>10080 min Summer</td><td>12.522</td><td>0.022</td><td>2.1</td><td>0.7</td><td>O K</td></tr><tr><td>15 min Winter</td><td>12.662</td><td>0.162</td><td>35.0</td><td>35.3</td><td>O K</td></tr></tbody></table> <table><thead><tr><th>Storm Event</th><th>Rain (mm/hr)</th><th>Flooded Volume (m³)</th><th>Time-Peak (mins)</th></tr></thead><tbody><tr><td>15 min Summer</td><td>122.433</td><td>0.0</td><td>14</td></tr><tr><td>30 min Summer</td><td>82.239</td><td>0.0</td><td>22</td></tr><tr><td>60 min Summer</td><td>52.662</td><td>0.0</td><td>40</td></tr><tr><td>120 min Summer</td><td>32.503</td><td>0.0</td><td>72</td></tr><tr><td>180 min Summer</td><td>24.118</td><td>0.0</td><td>102</td></tr><tr><td>240 min Summer</td><td>19.386</td><td>0.0</td><td>132</td></tr><tr><td>360 min Summer</td><td>14.268</td><td>0.0</td><td>192</td></tr><tr><td>480 min Summer</td><td>11.460</td><td>0.0</td><td>252</td></tr><tr><td>600 min Summer</td><td>9.659</td><td>0.0</td><td>312</td></tr><tr><td>720 min Summer</td><td>8.396</td><td>0.0</td><td>370</td></tr><tr><td>960 min Summer</td><td>6.724</td><td>0.0</td><td>492</td></tr><tr><td>1440 min Summer</td><td>4.907</td><td>0.0</td><td>734</td></tr><tr><td>2160 min Summer</td><td>3.573</td><td>0.0</td><td>1076</td></tr><tr><td>2880 min Summer</td><td>2.849</td><td>0.0</td><td>1468</td></tr><tr><td>4320 min Summer</td><td>2.067</td><td>0.0</td><td>2180</td></tr><tr><td>5760 min Summer</td><td>1.644</td><td>0.0</td><td>2864</td></tr><tr><td>7200 min Summer</td><td>1.377</td><td>0.0</td><td>3584</td></tr><tr><td>8640 min Summer</td><td>1.193</td><td>0.0</td><td>4248</td></tr><tr><td>10080 min Summer</td><td>1.056</td><td>0.0</td><td>5064</td></tr><tr><td>15 min Winter</td><td>122.433</td><td>0.0</td><td>15</td></tr></tbody></table>						Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status	15 min Summer	12.650	0.150	32.4	30.3	O K	30 min 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5760 min Summer	12.528	0.028	3.3	1.0	O K																																																																																																																																																																																																																		
7200 min Summer	12.525	0.025	2.8	0.9	O K																																																																																																																																																																																																																		
8640 min Summer	12.523	0.023	2.3	0.7	O K																																																																																																																																																																																																																		
10080 min Summer	12.522	0.022	2.1	0.7	O K																																																																																																																																																																																																																		
15 min Winter	12.662	0.162	35.0	35.3	O K																																																																																																																																																																																																																		
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)																																																																																																																																																																																																																				
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720 min Summer	8.396	0.0	370																																																																																																																																																																																																																				
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Tuscany House White Hart Lane Baskingstoke RG21 4AF		14-159 Local Centre, Stoneham Office Centre Permeable Paving			
Date 20/11/2018 File 14-159 OFFICE CENTRE PE...		Designed by NT Checked by BAC			
XP Solutions		Source Control 2018.1.1			
Summary of Results for 100 year Return Period (+30%)					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
30 min Winter	12.677	0.177	38.3	42.1	O K
60 min Winter	12.675	0.175	37.8	41.3	O K
120 min Winter	12.653	0.153	33.1	31.6	O K
180 min Winter	12.632	0.132	28.5	23.4	O K
240 min Winter	12.614	0.114	24.7	17.7	O K
360 min Winter	12.591	0.091	19.6	11.1	O K
480 min Winter	12.575	0.075	16.2	7.6	O K
600 min Winter	12.564	0.064	13.9	5.5	O K
720 min Winter	12.556	0.056	12.2	4.2	O K
960 min Winter	12.548	0.048	9.9	3.1	O K
1440 min Winter	12.541	0.041	7.2	2.2	O K
2160 min Winter	12.535	0.035	5.2	1.6	O K
2880 min Winter	12.531	0.031	4.1	1.3	O K
4320 min Winter	12.526	0.026	3.0	0.9	O K
5760 min Winter	12.523	0.023	2.3	0.7	O K
7200 min Winter	12.521	0.021	2.0	0.6	O K
8640 min Winter	12.520	0.020	1.7	0.5	O K
10080 min Winter	12.519	0.019	1.5	0.5	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
30 min Winter	82.239	0.0	24		
60 min Winter	52.662	0.0	42		
120 min Winter	32.503	0.0	74		
180 min Winter	24.118	0.0	106		
240 min Winter	19.386	0.0	136		
360 min Winter	14.268	0.0	196		
480 min Winter	11.460	0.0	254		
600 min Winter	9.659	0.0	312		
720 min Winter	8.396	0.0	374		
960 min Winter	6.724	0.0	486		
1440 min Winter	4.907	0.0	718		
2160 min Winter	3.573	0.0	1092		
2880 min Winter	2.849	0.0	1468		
4320 min Winter	2.067	0.0	2192		
5760 min Winter	1.644	0.0	2888		
7200 min Winter	1.377	0.0	3664		
8640 min Winter	1.193	0.0	4344		
10080 min Winter	1.056	0.0	5112		
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Odyssey		Page 3																								
Tuscany House White Hart Lane Baskingstoke RG21 4AF	14-159 Local Centre, Stoneham Office Centre Permeable Paving																									
Date 20/11/2018 File 14-159 OFFICE CENTRE PE...	Designed by NT Checked by BAC																									
XP Solutions Source Control 2018.1.1																										
Model Details Storage is Online Cover Level (m) 13.100 Porous Car Park Structure <table><tr><td>Infiltration Coefficient Base (m/hr)</td><td>0.17316</td><td>Width (m)</td><td>18.0</td></tr><tr><td>Membrane Percolation (mm/hr)</td><td>1000</td><td>Length (m)</td><td>138.0</td></tr><tr><td>Max Percolation (l/s)</td><td>690.0</td><td>Slope (1:X)</td><td>500.0</td></tr><tr><td>Safety Factor</td><td>2.0</td><td>Depression Storage (mm)</td><td>5</td></tr><tr><td>Porosity</td><td>0.30</td><td>Evaporation (mm/day)</td><td>3</td></tr><tr><td>Invert Level (m)</td><td>12.500</td><td>Membrane Depth (m)</td><td>0</td></tr></table>			Infiltration Coefficient Base (m/hr)	0.17316	Width (m)	18.0	Membrane Percolation (mm/hr)	1000	Length (m)	138.0	Max Percolation (l/s)	690.0	Slope (1:X)	500.0	Safety Factor	2.0	Depression Storage (mm)	5	Porosity	0.30	Evaporation (mm/day)	3	Invert Level (m)	12.500	Membrane Depth (m)	0
Infiltration Coefficient Base (m/hr)	0.17316	Width (m)	18.0																							
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Odyssey				Page 1																																																																																																																																																																																																																			
Tuscany House White Hart Lane Baskingstoke RG21 4AF		14-159 Local Centre, Stoneham Soakaway Tank 5																																																																																																																																																																																																																					
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Summary of Results for 100 year Return Period (+30%) Half Drain Time : 218 minutes. <table><thead><tr><th>Storm Event</th><th>Max Level (m)</th><th>Max Depth (m)</th><th>Max Infiltration (l/s)</th><th>Max Volume (m³)</th><th>Status</th></tr></thead><tbody><tr><td>15 min Summer</td><td>11.657</td><td>0.357</td><td>1.8</td><td>23.1</td><td>O K</td></tr><tr><td>30 min Summer</td><td>11.767</td><td>0.467</td><td>1.8</td><td>30.1</td><td>O K</td></tr><tr><td>60 min Summer</td><td>11.866</td><td>0.566</td><td>1.9</td><td>36.5</td><td>Flood Risk</td></tr><tr><td>120 min Summer</td><td>11.930</td><td>0.630</td><td>1.9</td><td>40.7</td><td>Flood Risk</td></tr><tr><td>180 min Summer</td><td>11.935</td><td>0.635</td><td>1.9</td><td>41.0</td><td>Flood Risk</td></tr><tr><td>240 min Summer</td><td>11.924</td><td>0.624</td><td>1.9</td><td>40.3</td><td>Flood Risk</td></tr><tr><td>360 min Summer</td><td>11.901</td><td>0.601</td><td>1.9</td><td>38.8</td><td>Flood Risk</td></tr><tr><td>480 min Summer</td><td>11.875</td><td>0.575</td><td>1.9</td><td>37.2</td><td>Flood Risk</td></tr><tr><td>600 min Summer</td><td>11.849</td><td>0.549</td><td>1.9</td><td>35.5</td><td>Flood Risk</td></tr><tr><td>720 min Summer</td><td>11.823</td><td>0.523</td><td>1.8</td><td>33.8</td><td>Flood Risk</td></tr><tr><td>960 min Summer</td><td>11.771</td><td>0.471</td><td>1.8</td><td>30.4</td><td>O K</td></tr><tr><td>1440 min Summer</td><td>11.674</td><td>0.374</td><td>1.8</td><td>24.1</td><td>O K</td></tr><tr><td>2160 min Summer</td><td>11.551</td><td>0.251</td><td>1.7</td><td>16.2</td><td>O K</td></tr><tr><td>2880 min Summer</td><td>11.460</td><td>0.160</td><td>1.7</td><td>10.3</td><td>O K</td></tr><tr><td>4320 min Summer</td><td>11.361</td><td>0.061</td><td>1.7</td><td>3.9</td><td>O K</td></tr><tr><td>5760 min Summer</td><td>11.343</td><td>0.043</td><td>1.4</td><td>2.8</td><td>O K</td></tr><tr><td>7200 min Summer</td><td>11.336</td><td>0.036</td><td>1.2</td><td>2.3</td><td>O K</td></tr><tr><td>8640 min Summer</td><td>11.332</td><td>0.032</td><td>1.1</td><td>2.0</td><td>O K</td></tr><tr><td>10080 min Summer</td><td>11.328</td><td>0.028</td><td>0.9</td><td>1.8</td><td>O K</td></tr><tr><td>15 min Winter</td><td>11.703</td><td>0.403</td><td>1.8</td><td>26.0</td><td>O K</td></tr></tbody></table> <table><thead><tr><th>Storm Event</th><th>Rain (mm/hr)</th><th>Flooded Volume (m³)</th><th>Time-Peak (mins)</th></tr></thead><tbody><tr><td>15 min Summer</td><td>122.433</td><td>0.0</td><td>18</td></tr><tr><td>30 min Summer</td><td>82.239</td><td>0.0</td><td>33</td></tr><tr><td>60 min Summer</td><td>52.662</td><td>0.0</td><td>62</td></tr><tr><td>120 min Summer</td><td>32.503</td><td>0.0</td><td>120</td></tr><tr><td>180 min Summer</td><td>24.118</td><td>0.0</td><td>170</td></tr><tr><td>240 min Summer</td><td>19.386</td><td>0.0</td><td>198</td></tr><tr><td>360 min Summer</td><td>14.268</td><td>0.0</td><td>262</td></tr><tr><td>480 min Summer</td><td>11.460</td><td>0.0</td><td>330</td></tr><tr><td>600 min Summer</td><td>9.659</td><td>0.0</td><td>398</td></tr><tr><td>720 min Summer</td><td>8.396</td><td>0.0</td><td>468</td></tr><tr><td>960 min Summer</td><td>6.724</td><td>0.0</td><td>604</td></tr><tr><td>1440 min Summer</td><td>4.907</td><td>0.0</td><td>866</td></tr><tr><td>2160 min Summer</td><td>3.573</td><td>0.0</td><td>1232</td></tr><tr><td>2880 min Summer</td><td>2.849</td><td>0.0</td><td>1584</td></tr><tr><td>4320 min Summer</td><td>2.067</td><td>0.0</td><td>2208</td></tr><tr><td>5760 min Summer</td><td>1.644</td><td>0.0</td><td>2936</td></tr><tr><td>7200 min Summer</td><td>1.377</td><td>0.0</td><td>3672</td></tr><tr><td>8640 min Summer</td><td>1.193</td><td>0.0</td><td>4368</td></tr><tr><td>10080 min Summer</td><td>1.056</td><td>0.0</td><td>5120</td></tr><tr><td>15 min Winter</td><td>122.433</td><td>0.0</td><td>18</td></tr></tbody></table>						Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status	15 min Summer	11.657	0.357	1.8	23.1	O K	30 min Summer	11.767	0.467	1.8	30.1	O K	60 min Summer	11.866	0.566	1.9	36.5	Flood Risk	120 min Summer	11.930	0.630	1.9	40.7	Flood Risk	180 min Summer	11.935	0.635	1.9	41.0	Flood Risk	240 min Summer	11.924	0.624	1.9	40.3	Flood Risk	360 min Summer	11.901	0.601	1.9	38.8	Flood Risk	480 min Summer	11.875	0.575	1.9	37.2	Flood Risk	600 min Summer	11.849	0.549	1.9	35.5	Flood Risk	720 min Summer	11.823	0.523	1.8	33.8	Flood Risk	960 min Summer	11.771	0.471	1.8	30.4	O K	1440 min Summer	11.674	0.374	1.8	24.1	O K	2160 min Summer	11.551	0.251	1.7	16.2	O K	2880 min Summer	11.460	0.160	1.7	10.3	O K	4320 min Summer	11.361	0.061	1.7	3.9	O K	5760 min Summer	11.343	0.043	1.4	2.8	O K	7200 min Summer	11.336	0.036	1.2	2.3	O K	8640 min Summer	11.332	0.032	1.1	2.0	O K	10080 min Summer	11.328	0.028	0.9	1.8	O K	15 min Winter	11.703	0.403	1.8	26.0	O K	Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)	15 min Summer	122.433	0.0	18	30 min Summer	82.239	0.0	33	60 min Summer	52.662	0.0	62	120 min Summer	32.503	0.0	120	180 min Summer	24.118	0.0	170	240 min Summer	19.386	0.0	198	360 min Summer	14.268	0.0	262	480 min Summer	11.460	0.0	330	600 min Summer	9.659	0.0	398	720 min Summer	8.396	0.0	468	960 min Summer	6.724	0.0	604	1440 min Summer	4.907	0.0	866	2160 min Summer	3.573	0.0	1232	2880 min Summer	2.849	0.0	1584	4320 min Summer	2.067	0.0	2208	5760 min Summer	1.644	0.0	2936	7200 min Summer	1.377	0.0	3672	8640 min Summer	1.193	0.0	4368	10080 min Summer	1.056	0.0	5120	15 min Winter	122.433	0.0	18
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Tuscany House White Hart Lane Baskingstoke RG21 4AF	14-159 Local Centre, Stoneham Soakaway Tank 5	
Date 20/11/2018 File 14-159 LOCAL CENTRE TAN...	Designed by NT Checked by BAC	
XP Solutions	Source Control 2018.1.1	

Summary of Results for 100 year Return Period (+30%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
30 min Winter	11.828	0.528	1.8	34.1	Flood Risk
60 min Winter	11.944	0.644	1.9	41.6	Flood Risk
120 min Winter	12.028	0.728	1.9	47.0	Flood Risk
180 min Winter	12.043	0.743	1.9	48.0	Flood Risk
240 min Winter	12.031	0.731	1.9	47.2	Flood Risk
360 min Winter	11.999	0.699	1.9	45.2	Flood Risk
480 min Winter	11.963	0.663	1.9	42.8	Flood Risk
600 min Winter	11.924	0.624	1.9	40.3	Flood Risk
720 min Winter	11.883	0.583	1.9	37.7	Flood Risk
960 min Winter	11.803	0.503	1.8	32.5	Flood Risk
1440 min Winter	11.655	0.355	1.8	22.9	O K
2160 min Winter	11.479	0.179	1.7	11.6	O K
2880 min Winter	11.369	0.069	1.7	4.5	O K
4320 min Winter	11.339	0.039	1.3	2.5	O K
5760 min Winter	11.331	0.031	1.0	2.0	O K
7200 min Winter	11.326	0.026	0.9	1.7	O K
8640 min Winter	11.323	0.023	0.8	1.5	O K
10080 min Winter	11.320	0.020	0.7	1.3	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
30 min Winter	82.239	0.0	32
60 min Winter	52.662	0.0	62
120 min Winter	32.503	0.0	118
180 min Winter	24.118	0.0	174
240 min Winter	19.386	0.0	226
360 min Winter	14.268	0.0	280
480 min Winter	11.460	0.0	358
600 min Winter	9.659	0.0	434
720 min Winter	8.396	0.0	508
960 min Winter	6.724	0.0	654
1440 min Winter	4.907	0.0	922
2160 min Winter	3.573	0.0	1276
2880 min Winter	2.849	0.0	1560
4320 min Winter	2.067	0.0	2204
5760 min Winter	1.644	0.0	2936
7200 min Winter	1.377	0.0	3672
8640 min Winter	1.193	0.0	4248
10080 min Winter	1.056	0.0	5024

Odyssey		Page 3												
Tuscany House White Hart Lane Baskingstoke RG21 4AF	14-159 Local Centre, Stoneham Soakaway Tank 5													
Date 20/11/2018	Designed by NT													
File 14-159 LOCAL CENTRE TAN...	Checked by BAC													
XP Solutions	Source Control 2018.1.1													
Model Details Storage is Online Cover Level (m) 12.100 Cellular Storage Structure Invert Level (m) 11.300 Safety Factor 2.0 Infiltration Coefficient Base (m/hr) 0.17316 Porosity 0.95 Infiltration Coefficient Side (m/hr) 0.17316 <table><thead><tr><th>Depth (m)</th><th>Area (m²)</th><th>Inf. Area (m²)</th><th>Depth (m)</th><th>Area (m²)</th><th>Inf. Area (m²)</th></tr></thead><tbody><tr><td>0.000</td><td>68.0</td><td>68.0</td><td>0.800</td><td>68.0</td><td>81.2</td></tr></tbody></table>			Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)	0.000	68.0	68.0	0.800	68.0	81.2
Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)									
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Odyssey				Page 1																																																																																																																																																																																																																			
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Summary of Results for 100 year Return Period (+30%) Half Drain Time : 80 minutes. <table><thead><tr><th>Storm Event</th><th>Max Level (m)</th><th>Max Depth (m)</th><th>Max Infiltration (l/s)</th><th>Max Volume (m³)</th><th>Status</th></tr></thead><tbody><tr><td>15 min Summer</td><td>11.644</td><td>0.144</td><td>2.0</td><td>10.9</td><td>Flood Risk</td></tr><tr><td>30 min Summer</td><td>11.682</td><td>0.182</td><td>2.1</td><td>13.9</td><td>Flood Risk</td></tr><tr><td>60 min Summer</td><td>11.707</td><td>0.207</td><td>2.1</td><td>15.8</td><td>Flood Risk</td></tr><tr><td>120 min Summer</td><td>11.714</td><td>0.214</td><td>2.1</td><td>16.2</td><td>Flood Risk</td></tr><tr><td>180 min Summer</td><td>11.706</td><td>0.206</td><td>2.1</td><td>15.7</td><td>Flood Risk</td></tr><tr><td>240 min Summer</td><td>11.695</td><td>0.195</td><td>2.1</td><td>14.8</td><td>Flood Risk</td></tr><tr><td>360 min Summer</td><td>11.672</td><td>0.172</td><td>2.1</td><td>13.1</td><td>Flood Risk</td></tr><tr><td>480 min Summer</td><td>11.650</td><td>0.150</td><td>2.1</td><td>11.4</td><td>Flood Risk</td></tr><tr><td>600 min Summer</td><td>11.630</td><td>0.130</td><td>2.0</td><td>9.9</td><td>Flood Risk</td></tr><tr><td>720 min Summer</td><td>11.612</td><td>0.112</td><td>2.0</td><td>8.5</td><td>Flood Risk</td></tr><tr><td>960 min Summer</td><td>11.583</td><td>0.083</td><td>2.0</td><td>6.3</td><td>O K</td></tr><tr><td>1440 min Summer</td><td>11.550</td><td>0.050</td><td>2.0</td><td>3.8</td><td>O K</td></tr><tr><td>2160 min Summer</td><td>11.538</td><td>0.038</td><td>1.5</td><td>2.9</td><td>O K</td></tr><tr><td>2880 min Summer</td><td>11.531</td><td>0.031</td><td>1.2</td><td>2.4</td><td>O K</td></tr><tr><td>4320 min Summer</td><td>11.523</td><td>0.023</td><td>0.9</td><td>1.7</td><td>O K</td></tr><tr><td>5760 min Summer</td><td>11.518</td><td>0.018</td><td>0.7</td><td>1.4</td><td>O K</td></tr><tr><td>7200 min Summer</td><td>11.516</td><td>0.016</td><td>0.6</td><td>1.2</td><td>O K</td></tr><tr><td>8640 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Summer</td><td>11.460</td><td>0.0</td><td>290</td></tr><tr><td>600 min Summer</td><td>9.659</td><td>0.0</td><td>354</td></tr><tr><td>720 min Summer</td><td>8.396</td><td>0.0</td><td>414</td></tr><tr><td>960 min Summer</td><td>6.724</td><td>0.0</td><td>530</td></tr><tr><td>1440 min Summer</td><td>4.907</td><td>0.0</td><td>748</td></tr><tr><td>2160 min Summer</td><td>3.573</td><td>0.0</td><td>1104</td></tr><tr><td>2880 min Summer</td><td>2.849</td><td>0.0</td><td>1468</td></tr><tr><td>4320 min Summer</td><td>2.067</td><td>0.0</td><td>2200</td></tr><tr><td>5760 min Summer</td><td>1.644</td><td>0.0</td><td>2936</td></tr><tr><td>7200 min Summer</td><td>1.377</td><td>0.0</td><td>3664</td></tr><tr><td>8640 min Summer</td><td>1.193</td><td>0.0</td><td>4408</td></tr><tr><td>10080 min Summer</td><td>1.056</td><td>0.0</td><td>5136</td></tr><tr><td>15 min Winter</td><td>122.433</td><td>0.0</td><td>17</td></tr></tbody></table>						Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status	15 min Summer	11.644	0.144	2.0	10.9	Flood Risk	30 min Summer	11.682	0.182	2.1	13.9	Flood Risk	60 min Summer	11.707	0.207	2.1	15.8	Flood Risk	120 min Summer	11.714	0.214	2.1	16.2	Flood Risk	180 min Summer	11.706	0.206	2.1	15.7	Flood Risk	240 min Summer	11.695	0.195	2.1	14.8	Flood Risk	360 min Summer	11.672	0.172	2.1	13.1	Flood Risk	480 min Summer	11.650	0.150	2.1	11.4	Flood Risk	600 min Summer	11.630	0.130	2.0	9.9	Flood Risk	720 min Summer	11.612	0.112	2.0	8.5	Flood Risk	960 min Summer	11.583	0.083	2.0	6.3	O K	1440 min Summer	11.550	0.050	2.0	3.8	O K	2160 min Summer	11.538	0.038	1.5	2.9	O K	2880 min Summer	11.531	0.031	1.2	2.4	O K	4320 min Summer	11.523	0.023	0.9	1.7	O K	5760 min Summer	11.518	0.018	0.7	1.4	O K	7200 min Summer	11.516	0.016	0.6	1.2	O K	8640 min Summer	11.513	0.013	0.5	1.0	O K	10080 min Summer	11.512	0.012	0.5	0.9	O K	15 min Winter	11.663	0.163	2.1	12.4	Flood Risk	Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)	15 min Summer	122.433	0.0	17	30 min Summer	82.239	0.0	31	60 min Summer	52.662	0.0	58	120 min Summer	32.503	0.0	90	180 min Summer	24.118	0.0	124	240 min Summer	19.386	0.0	158	360 min Summer	14.268	0.0	226	480 min Summer	11.460	0.0	290	600 min Summer	9.659	0.0	354	720 min Summer	8.396	0.0	414	960 min Summer	6.724	0.0	530	1440 min Summer	4.907	0.0	748	2160 min Summer	3.573	0.0	1104	2880 min Summer	2.849	0.0	1468	4320 min Summer	2.067	0.0	2200	5760 min Summer	1.644	0.0	2936	7200 min Summer	1.377	0.0	3664	8640 min Summer	1.193	0.0	4408	10080 min Summer	1.056	0.0	5136	15 min Winter	122.433	0.0	17
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Odyssey		Page 2
Tuscany House White Hart Lane Baskingstoke RG21 4AF	14-159 Local Centre, Stoneham Soakaway Tank 4	
Date 20/11/2018 File 14-159 LOCAL CENTRE TAN...	Designed by NT Checked by BAC	
XP Solutions	Source Control 2018.1.1	

Summary of Results for 100 year Return Period (+30%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
30 min Winter	11.708	0.208	2.1	15.8	Flood Risk
60 min Winter	11.739	0.239	2.1	18.2	Flood Risk
120 min Winter	11.745	0.245	2.1	18.6	Flood Risk
180 min Winter	11.733	0.233	2.1	17.7	Flood Risk
240 min Winter	11.716	0.216	2.1	16.4	Flood Risk
360 min Winter	11.680	0.180	2.1	13.7	Flood Risk
480 min Winter	11.646	0.146	2.0	11.1	Flood Risk
600 min Winter	11.616	0.116	2.0	8.8	Flood Risk
720 min Winter	11.590	0.090	2.0	6.8	O K
960 min Winter	11.554	0.054	2.0	4.1	O K
1440 min Winter	11.539	0.039	1.5	3.0	O K
2160 min Winter	11.529	0.029	1.1	2.2	O K
2880 min Winter	11.523	0.023	0.9	1.7	O K
4320 min Winter	11.517	0.017	0.7	1.3	O K
5760 min Winter	11.513	0.013	0.5	1.0	O K
7200 min Winter	11.511	0.011	0.4	0.8	O K
8640 min Winter	11.510	0.010	0.4	0.7	O K
10080 min Winter	11.509	0.009	0.3	0.6	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
30 min Winter	82.239	0.0	31
60 min Winter	52.662	0.0	58
120 min Winter	32.503	0.0	96
180 min Winter	24.118	0.0	134
240 min Winter	19.386	0.0	172
360 min Winter	14.268	0.0	244
480 min Winter	11.460	0.0	310
600 min Winter	9.659	0.0	372
720 min Winter	8.396	0.0	428
960 min Winter	6.724	0.0	522
1440 min Winter	4.907	0.0	752
2160 min Winter	3.573	0.0	1104
2880 min Winter	2.849	0.0	1468
4320 min Winter	2.067	0.0	2208
5760 min Winter	1.644	0.0	2936
7200 min Winter	1.377	0.0	3576
8640 min Winter	1.193	0.0	4400
10080 min Winter	1.056	0.0	5088

Odyssey		Page 3												
Tuscany House White Hart Lane Baskingstoke RG21 4AF	14-159 Local Centre, Stoneham Soakaway Tank 4													
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File 14-159 LOCAL CENTRE TAN...	Checked by BAC													
XP Solutions	Source Control 2018.1.1													
Model Details Storage is Online Cover Level (m) 11.900 Cellular Storage Structure Invert Level (m) 11.500 Safety Factor 2.0 Infiltration Coefficient Base (m/hr) 0.17316 Porosity 0.95 Infiltration Coefficient Side (m/hr) 0.17316 <table><thead><tr><th>Depth (m)</th><th>Area (m²)</th><th>Inf. Area (m²)</th><th>Depth (m)</th><th>Area (m²)</th><th>Inf. Area (m²)</th></tr></thead><tbody><tr><td>0.000</td><td>80.0</td><td>80.0</td><td>0.400</td><td>80.0</td><td>94.3</td></tr></tbody></table>			Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)	0.000	80.0	80.0	0.400	80.0	94.3
Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)									
0.000	80.0	80.0	0.400	80.0	94.3									
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Summary of Results for 100 year Return Period (+30%) Half Drain Time : 36 minutes. <table><thead><tr><th>Storm Event</th><th>Max Level (m)</th><th>Max Depth (m)</th><th>Max Infiltration (l/s)</th><th>Max Volume (m³)</th><th>Status</th></tr></thead><tbody><tr><td>15 min Summer</td><td>11.992</td><td>0.392</td><td>10.9</td><td>29.8</td><td>O K</td></tr><tr><td>30 min Summer</td><td>12.063</td><td>0.463</td><td>11.2</td><td>35.2</td><td>O K</td></tr><tr><td>60 min Summer</td><td>12.087</td><td>0.487</td><td>11.3</td><td>37.0</td><td>O K</td></tr><tr><td>120 min Summer</td><td>12.055</td><td>0.455</td><td>11.2</td><td>34.6</td><td>O K</td></tr><tr><td>180 min Summer</td><td>12.002</td><td>0.402</td><td>10.9</td><td>30.5</td><td>O K</td></tr><tr><td>240 min Summer</td><td>11.946</td><td>0.346</td><td>10.7</td><td>26.3</td><td>O K</td></tr><tr><td>360 min Summer</td><td>11.850</td><td>0.250</td><td>10.3</td><td>19.0</td><td>O K</td></tr><tr><td>480 min Summer</td><td>11.775</td><td>0.175</td><td>10.0</td><td>13.3</td><td>O K</td></tr><tr><td>600 min Summer</td><td>11.718</td><td>0.118</td><td>9.8</td><td>9.0</td><td>O K</td></tr><tr><td>720 min Summer</td><td>11.679</td><td>0.079</td><td>9.6</td><td>6.0</td><td>O K</td></tr><tr><td>960 min Summer</td><td>11.648</td><td>0.048</td><td>9.1</td><td>3.6</td><td>O K</td></tr><tr><td>1440 min Summer</td><td>11.635</td><td>0.035</td><td>6.7</td><td>2.7</td><td>O K</td></tr><tr><td>2160 min Summer</td><td>11.626</td><td>0.026</td><td>4.9</td><td>1.9</td><td>O K</td></tr><tr><td>2880 min Summer</td><td>11.621</td><td>0.021</td><td>3.9</td><td>1.6</td><td>O K</td></tr><tr><td>4320 min Summer</td><td>11.615</td><td>0.015</td><td>2.8</td><td>1.1</td><td>O K</td></tr><tr><td>5760 min Summer</td><td>11.612</td><td>0.012</td><td>2.2</td><td>0.9</td><td>O K</td></tr><tr><td>7200 min Summer</td><td>11.610</td><td>0.010</td><td>1.9</td><td>0.8</td><td>O K</td></tr><tr><td>8640 min 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Summer	12.063	0.463	11.2	35.2	O K	60 min Summer	12.087	0.487	11.3	37.0	O K	120 min Summer	12.055	0.455	11.2	34.6	O K	180 min Summer	12.002	0.402	10.9	30.5	O K	240 min Summer	11.946	0.346	10.7	26.3	O K	360 min Summer	11.850	0.250	10.3	19.0	O K	480 min Summer	11.775	0.175	10.0	13.3	O K	600 min Summer	11.718	0.118	9.8	9.0	O K	720 min Summer	11.679	0.079	9.6	6.0	O K	960 min Summer	11.648	0.048	9.1	3.6	O K	1440 min Summer	11.635	0.035	6.7	2.7	O K	2160 min Summer	11.626	0.026	4.9	1.9	O K	2880 min Summer	11.621	0.021	3.9	1.6	O K	4320 min Summer	11.615	0.015	2.8	1.1	O K	5760 min Summer	11.612	0.012	2.2	0.9	O K	7200 min Summer	11.610	0.010	1.9	0.8	O K	8640 min Summer	11.609	0.009	1.7	0.7	O K	10080 min Summer	11.608	0.008	1.5	0.6	O K	15 min Winter	12.049	0.449	11.1	34.2	O K	Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)	15 min Summer	122.433	0.0	16	30 min Summer	82.239	0.0	28	60 min Summer	52.662	0.0	44	120 min Summer	32.503	0.0	80	180 min Summer	24.118	0.0	114	240 min Summer	19.386	0.0	146	360 min Summer	14.268	0.0	208	480 min Summer	11.460	0.0	268	600 min Summer	9.659	0.0	326	720 min Summer	8.396	0.0	378	960 min Summer	6.724	0.0	490	1440 min Summer	4.907	0.0	734	2160 min Summer	3.573	0.0	1100	2880 min Summer	2.849	0.0	1460	4320 min Summer	2.067	0.0	2200	5760 min Summer	1.644	0.0	2840	7200 min Summer	1.377	0.0	3624	8640 min Summer	1.193	0.0	4288	10080 min Summer	1.056	0.0	5096	15 min Winter	122.433	0.0	16
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Odyssey				Page 2	
Tuscany House White Hart Lane Baskingstoke RG21 4AF		14-159 Local Centre, Stoneham Soakaway Tank 3			
Date 20/11/2018 File 14-159 LOCAL CENTRE TAN...		Designed by NT Checked by BAC			
XP Solutions		Source Control 2018.1.1			
Summary of Results for 100 year Return Period (+30%)					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
30 min Winter	12.139	0.539	11.5	41.0	Flood Risk
60 min Winter	12.163	0.563	11.6	42.8	Flood Risk
120 min Winter	12.107	0.507	11.4	38.5	Flood Risk
180 min Winter	12.022	0.422	11.0	32.0	O K
240 min Winter	11.937	0.337	10.7	25.6	O K
360 min Winter	11.797	0.197	10.1	15.0	O K
480 min Winter	11.698	0.098	9.7	7.4	O K
600 min Winter	11.650	0.050	9.4	3.8	O K
720 min Winter	11.643	0.043	8.2	3.3	O K
960 min Winter	11.635	0.035	6.6	2.6	O K
1440 min Winter	11.625	0.025	4.8	1.9	O K
2160 min Winter	11.619	0.019	3.6	1.4	O K
2880 min Winter	11.615	0.015	2.8	1.1	O K
4320 min Winter	11.611	0.011	2.0	0.8	O K
5760 min Winter	11.609	0.009	1.7	0.7	O K
7200 min Winter	11.607	0.007	1.4	0.6	O K
8640 min Winter	11.606	0.006	1.2	0.5	O K
10080 min Winter	11.606	0.006	1.1	0.4	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
30 min Winter	82.239	0.0	30		
60 min Winter	52.662	0.0	48		
120 min Winter	32.503	0.0	86		
180 min Winter	24.118	0.0	122		
240 min Winter	19.386	0.0	156		
360 min Winter	14.268	0.0	218		
480 min Winter	11.460	0.0	272		
600 min Winter	9.659	0.0	306		
720 min Winter	8.396	0.0	368		
960 min Winter	6.724	0.0	486		
1440 min Winter	4.907	0.0	736		
2160 min Winter	3.573	0.0	1076		
2880 min Winter	2.849	0.0	1448		
4320 min Winter	2.067	0.0	2176		
5760 min Winter	1.644	0.0	2904		
7200 min Winter	1.377	0.0	3584		
8640 min Winter	1.193	0.0	4376		
10080 min Winter	1.056	0.0	5288		
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Odyssey		Page 3
Tuscany House White Hart Lane Basingstoke RG21 4AF	14-159 Local Centre, Stoneham Soakaway Tank 3	
Date 20/11/2018	Designed by NT	
File 14-159 LOCAL CENTRE TAN...	Checked by BAC	
XP Solutions		Source Control 2018.1.1

Model Details

Storage is Online Cover Level (m) 12.400

Cellular Storage Structure

Invert Level (m) 11.600 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.83520 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.83520

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	80.0	80.0	0.800	80.0	108.6

Odyssey		Page 1																																																																																																																																																																																																																			
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Summer</td><td>10.147</td><td>0.027</td><td>27.0</td><td>3.0</td><td>O K</td></tr><tr><td>600 min Summer</td><td>10.143</td><td>0.023</td><td>23.0</td><td>2.5</td><td>O K</td></tr><tr><td>720 min Summer</td><td>10.140</td><td>0.020</td><td>20.1</td><td>2.2</td><td>O K</td></tr><tr><td>960 min Summer</td><td>10.136</td><td>0.016</td><td>16.1</td><td>1.8</td><td>O K</td></tr><tr><td>1440 min Summer</td><td>10.132</td><td>0.012</td><td>11.6</td><td>1.3</td><td>O K</td></tr><tr><td>2160 min Summer</td><td>10.129</td><td>0.009</td><td>8.7</td><td>0.9</td><td>O K</td></tr><tr><td>2880 min Summer</td><td>10.127</td><td>0.007</td><td>7.2</td><td>0.8</td><td>O K</td></tr><tr><td>4320 min Summer</td><td>10.125</td><td>0.005</td><td>5.2</td><td>0.6</td><td>O K</td></tr><tr><td>5760 min Summer</td><td>10.124</td><td>0.004</td><td>4.2</td><td>0.5</td><td>O K</td></tr><tr><td>7200 min Summer</td><td>10.124</td><td>0.004</td><td>3.7</td><td>0.4</td><td>O K</td></tr><tr><td>8640 min Summer</td><td>10.123</td><td>0.003</td><td>3.2</td><td>0.4</td><td>O K</td></tr><tr><td>10080 min Summer</td><td>10.123</td><td>0.003</td><td>2.7</td><td>0.3</td><td>O K</td></tr><tr><td>15 min Winter</td><td>10.469</td><td>0.349</td><td>55.0</td><td>38.1</td><td>Flood Risk</td></tr></tbody></table> <table><thead><tr><th>Storm Event</th><th>Rain (mm/hr)</th><th>Flooded Volume (m³)</th><th>Time-Peak (mins)</th></tr></thead><tbody><tr><td>15 min Summer</td><td>122.433</td><td>0.0</td><td>13</td></tr><tr><td>30 min Summer</td><td>82.239</td><td>0.0</td><td>21</td></tr><tr><td>60 min Summer</td><td>52.662</td><td>0.0</td><td>38</td></tr><tr><td>120 min Summer</td><td>32.503</td><td>0.0</td><td>68</td></tr><tr><td>180 min Summer</td><td>24.118</td><td>0.0</td><td>96</td></tr><tr><td>240 min Summer</td><td>19.386</td><td>0.0</td><td>124</td></tr><tr><td>360 min Summer</td><td>14.268</td><td>0.0</td><td>184</td></tr><tr><td>480 min Summer</td><td>11.460</td><td>0.0</td><td>244</td></tr><tr><td>600 min Summer</td><td>9.659</td><td>0.0</td><td>306</td></tr><tr><td>720 min Summer</td><td>8.396</td><td>0.0</td><td>368</td></tr><tr><td>960 min Summer</td><td>6.724</td><td>0.0</td><td>488</td></tr><tr><td>1440 min Summer</td><td>4.907</td><td>0.0</td><td>734</td></tr><tr><td>2160 min Summer</td><td>3.573</td><td>0.0</td><td>1100</td></tr><tr><td>2880 min Summer</td><td>2.849</td><td>0.0</td><td>1464</td></tr><tr><td>4320 min Summer</td><td>2.067</td><td>0.0</td><td>2192</td></tr><tr><td>5760 min Summer</td><td>1.644</td><td>0.0</td><td>2960</td></tr><tr><td>7200 min Summer</td><td>1.377</td><td>0.0</td><td>3680</td></tr><tr><td>8640 min Summer</td><td>1.193</td><td>0.0</td><td>4488</td></tr><tr><td>10080 min Summer</td><td>1.056</td><td>0.0</td><td>5000</td></tr><tr><td>15 min Winter</td><td>122.433</td><td>0.0</td><td>14</td></tr></tbody></table>				Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status	15 min Summer	10.422	0.302	54.1	33.0	Flood Risk	30 min Summer	10.433	0.313	54.3	34.2	Flood Risk	60 min Summer	10.379	0.259	53.3	28.3	Flood Risk	120 min Summer	10.257	0.137	51.1	15.0	Flood Risk	180 min Summer	10.184	0.064	49.8	7.0	O K	240 min Summer	10.165	0.045	44.3	4.9	O K	360 min Summer	10.154	0.034	33.4	3.7	O K	480 min Summer	10.147	0.027	27.0	3.0	O K	600 min Summer	10.143	0.023	23.0	2.5	O K	720 min Summer	10.140	0.020	20.1	2.2	O K	960 min Summer	10.136	0.016	16.1	1.8	O K	1440 min Summer	10.132	0.012	11.6	1.3	O K	2160 min Summer	10.129	0.009	8.7	0.9	O K	2880 min Summer	10.127	0.007	7.2	0.8	O K	4320 min Summer	10.125	0.005	5.2	0.6	O K	5760 min Summer	10.124	0.004	4.2	0.5	O K	7200 min Summer	10.124	0.004	3.7	0.4	O K	8640 min Summer	10.123	0.003	3.2	0.4	O K	10080 min Summer	10.123	0.003	2.7	0.3	O K	15 min Winter	10.469	0.349	55.0	38.1	Flood Risk	Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)	15 min Summer	122.433	0.0	13	30 min Summer	82.239	0.0	21	60 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Odyssey				Page 2	
Tuscany House		14-159			
White Hart Lane		Local Centre, Stoneham			
Baskingstoke RG21 4AF		Soakaway Tank 2			
Date 20/11/2108		Designed by NT			
File 14-159 LOCAL CENTRE TAN...		Checked by BAC			
XP Solutions		Source Control 2018.1.1			
Summary of Results for 100 year Return Period (+30%)					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
30 min Winter	10.465	0.345	54.9	37.7	Flood Risk
60 min Winter	10.366	0.246	53.1	26.9	Flood Risk
120 min Winter	10.191	0.071	49.9	7.8	O K
180 min Winter	10.161	0.041	40.9	4.5	O K
240 min Winter	10.153	0.033	33.0	3.6	O K
360 min Winter	10.145	0.025	24.5	2.7	O K
480 min Winter	10.140	0.020	19.6	2.1	O K
600 min Winter	10.137	0.017	16.6	1.8	O K
720 min Winter	10.135	0.015	14.6	1.6	O K
960 min Winter	10.132	0.012	11.6	1.3	O K
1440 min Winter	10.129	0.009	8.7	0.9	O K
2160 min Winter	10.126	0.006	6.2	0.7	O K
2880 min Winter	10.125	0.005	5.2	0.6	O K
4320 min Winter	10.124	0.004	3.7	0.4	O K
5760 min Winter	10.123	0.003	3.2	0.4	O K
7200 min Winter	10.123	0.003	2.7	0.3	O K
8640 min Winter	10.122	0.002	2.2	0.3	O K
10080 min Winter	10.122	0.002	2.2	0.3	O K
Storm Event	Rain (mm/hr)		Flooded Volume (m³)	Time-Peak (mins)	
30 min Winter	82.239		0.0	23	
60 min Winter	52.662		0.0	40	
120 min Winter	32.503		0.0	68	
180 min Winter	24.118		0.0	94	
240 min Winter	19.386		0.0	124	
360 min Winter	14.268		0.0	184	
480 min Winter	11.460		0.0	238	
600 min Winter	9.659		0.0	300	
720 min Winter	8.396		0.0	366	
960 min Winter	6.724		0.0	492	
1440 min Winter	4.907		0.0	728	
2160 min Winter	3.573		0.0	1092	
2880 min Winter	2.849		0.0	1524	
4320 min Winter	2.067		0.0	2184	
5760 min Winter	1.644		0.0	2840	
7200 min Winter	1.377		0.0	3640	
8640 min Winter	1.193		0.0	4256	
10080 min Winter	1.056		0.0	4872	
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Odyssey		Page 3												
Tuscany House White Hart Lane Baskingstoke RG21 4AF	14-159 Local Centre, Stoneham Soakaway Tank 2													
Date 20/11/2108	Designed by NT													
File 14-159 LOCAL CENTRE TAN...	Checked by BAC													
XP Solutions	Source Control 2018.1.1													
Model Details Storage is Online Cover Level (m) 10.520 Cellular Storage Structure Invert Level (m) 10.120 Safety Factor 2.0 Infiltration Coefficient Base (m/hr) 3.04560 Porosity 0.95 Infiltration Coefficient Side (m/hr) 3.04560 <table><thead><tr><th>Depth (m)</th><th>Area (m²)</th><th>Inf. Area (m²)</th><th>Depth (m)</th><th>Area (m²)</th><th>Inf. Area (m²)</th></tr></thead><tbody><tr><td>0.000</td><td>115.0</td><td>115.0</td><td>0.400</td><td>115.0</td><td>132.2</td></tr></tbody></table>			Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)	0.000	115.0	115.0	0.400	115.0	132.2
Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)									
0.000	115.0	115.0	0.400	115.0	132.2									
©1982-2018 Innovyze														

Odyssey					Page 1
Tuscany House		14-159			
White Hart Lane		Local Centre, Stoneham			
Baskingstoke RG21 4AF		Soakaway Tank 1			
Date 20/11/2018		Designed by NT			
File 14-159 LOCAL CENTRE TAN...		Checked by BAC			
XP Solutions		Source Control 2018.1.1			
<u>Summary of Results for 100 year Return Period (+30%)</u>					
Half Drain Time : 6 minutes.					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	10.422	0.302	54.1	33.0	Flood Risk
30 min Summer	10.433	0.313	54.3	34.2	Flood Risk
60 min Summer	10.379	0.259	53.3	28.3	Flood Risk
120 min Summer	10.257	0.137	51.1	15.0	Flood Risk
180 min Summer	10.184	0.064	49.8	7.0	O K
240 min Summer	10.165	0.045	44.3	4.9	O K
360 min Summer	10.154	0.034	33.4	3.7	O K
480 min Summer	10.147	0.027	27.0	3.0	O K
600 min Summer	10.143	0.023	23.0	2.5	O K
720 min Summer	10.140	0.020	20.1	2.2	O K
960 min Summer	10.136	0.016	16.1	1.8	O K
1440 min Summer	10.132	0.012	11.6	1.3	O K
2160 min Summer	10.129	0.009	8.7	0.9	O K
2880 min Summer	10.127	0.007	7.2	0.8	O K
4320 min Summer	10.125	0.005	5.2	0.6	O K
5760 min Summer	10.124	0.004	4.2	0.5	O K
7200 min Summer	10.124	0.004	3.7	0.4	O K
8640 min Summer	10.123	0.003	3.2	0.4	O K
10080 min Summer	10.123	0.003	2.7	0.3	O K
15 min Winter	10.469	0.349	55.0	38.1	Flood Risk
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
15 min Summer	122.433	0.0	13		
30 min Summer	82.239	0.0	21		
60 min Summer	52.662	0.0	38		
120 min Summer	32.503	0.0	68		
180 min Summer	24.118	0.0	96		
240 min Summer	19.386	0.0	124		
360 min Summer	14.268	0.0	184		
480 min Summer	11.460	0.0	244		
600 min Summer	9.659	0.0	306		
720 min Summer	8.396	0.0	368		
960 min Summer	6.724	0.0	488		
1440 min Summer	4.907	0.0	734		
2160 min Summer	3.573	0.0	1100		
2880 min Summer	2.849	0.0	1464		
4320 min Summer	2.067	0.0	2192		
5760 min Summer	1.644	0.0	2960		
7200 min Summer	1.377	0.0	3680		
8640 min Summer	1.193	0.0	4488		
10080 min Summer	1.056	0.0	5000		
15 min Winter	122.433	0.0	14		
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Odyssey				Page 2	
Tuscany House White Hart Lane Baskingstoke RG21 4AF		14-159 Local Centre, Stoneham Soakaway Tank 1			
Date 20/11/2018 File 14-159 LOCAL CENTRE TAN...		Designed by NT Checked by BAC			
XP Solutions		Source Control 2018.1.1			
Summary of Results for 100 year Return Period (+30%)					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
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60 min Winter	10.366	0.246	53.1	26.9	Flood Risk
120 min Winter	10.191	0.071	49.9	7.8	O K
180 min Winter	10.161	0.041	40.9	4.5	O K
240 min Winter	10.153	0.033	33.0	3.6	O K
360 min Winter	10.145	0.025	24.5	2.7	O K
480 min Winter	10.140	0.020	19.6	2.1	O K
600 min Winter	10.137	0.017	16.6	1.8	O K
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8640 min Winter	10.122	0.002	2.2	0.3	O K
10080 min Winter	10.122	0.002	2.2	0.3	O K
Storm Event	Rain (mm/hr)		Flooded Volume (m³)	Time-Peak (mins)	
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180 min Winter	24.118		0.0	94	
240 min Winter	19.386		0.0	124	
360 min Winter	14.268		0.0	184	
480 min Winter	11.460		0.0	238	
600 min Winter	9.659		0.0	300	
720 min Winter	8.396		0.0	366	
960 min Winter	6.724		0.0	492	
1440 min Winter	4.907		0.0	728	
2160 min Winter	3.573		0.0	1092	
2880 min Winter	2.849		0.0	1524	
4320 min Winter	2.067		0.0	2184	
5760 min Winter	1.644		0.0	2840	
7200 min Winter	1.377		0.0	3640	
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10080 min Winter	1.056		0.0	4872	
©1982-2018 Innovyze					

Odyssey		Page 3												
Tuscany House White Hart Lane Baskingstoke RG21 4AF	14-159 Local Centre, Stoneham Soakaway Tank 1													
Date 20/11/2018	Designed by NT													
File 14-159 LOCAL CENTRE TAN...	Checked by BAC													
XP Solutions	Source Control 2018.1.1													
Model Details Storage is Online Cover Level (m) 10.520 Cellular Storage Structure Invert Level (m) 10.120 Safety Factor 2.0 Infiltration Coefficient Base (m/hr) 3.04560 Porosity 0.95 Infiltration Coefficient Side (m/hr) 3.04560 <table><thead><tr><th>Depth (m)</th><th>Area (m²)</th><th>Inf. Area (m²)</th><th>Depth (m)</th><th>Area (m²)</th><th>Inf. Area (m²)</th></tr></thead><tbody><tr><td>0.000</td><td>115.0</td><td>115.0</td><td>0.400</td><td>115.0</td><td>132.2</td></tr></tbody></table>			Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)	0.000	115.0	115.0	0.400	115.0	132.2
Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)									
0.000	115.0	115.0	0.400	115.0	132.2									
©1982-2018 Innovyze														

Odyssey		Page 1
Tuscany House White Hart Lane Baskingstoke RG21 4AF	14-159 Local Centre, Stoneham Access Road Storm Design	
Date 20/11/2018 File 14-159 S38 NETWORK.MDX	Designed by NT Checked by BAC	
XP Solutions	Network 2018.1.1	

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for Storm

Pipe Sizes STANDARD Manhole Sizes STANDARD

FSR Rainfall Model - England and Wales

Return Period (years)	100	PIMP (%)	100
M5-60 (mm)	20.200	Add Flow / Climate Change (%)	0
Ratio R	0.350	Minimum Backdrop Height (m)	0.200
Maximum Rainfall (mm/hr)	50	Maximum Backdrop Height (m)	1.500
Maximum Time of Concentration (mins)	30	Min Design Depth for Optimisation (m)	1.200
Foul Sewage (l/s/ha)	0.000	Min Vel for Auto Design only (m/s)	1.00
Volumetric Runoff Coeff.	0.750	Min Slope for Optimisation (1:X)	500

Designed with Level Soffits

Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
1.000	29.045	0.073	397.9	0.040	4.00	0.0	0.600	o	450	Pipe/Conduit	
1.001	44.302	0.090	492.2	0.029	0.00	0.0	0.600	o	525	Pipe/Conduit	
1.002	6.254	0.241	26.0	0.014	0.00	0.0	0.600	o	225	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	E I.Area (ha)	E Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
1.000	50.00	4.48	11.400	0.040	0.0	0.0	0.0	1.01	161.1	5.4
1.001	50.00	5.21	11.330	0.069	0.0	0.0	0.0	1.00	217.1	9.3
1.002	50.00	5.25	11.240	0.083	0.0	0.0	0.0	2.58	102.4	11.2

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Manhole Schedules for Storm

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam., L*W (mm)	PN	Pipe Out Invert Level (m)	Pipe Out Diameter (mm)	PN	Pipes In Invert Level (m)	Pipes In Diameter (mm)	Backdrop (mm)
1	13.223	1.823	Open Manhole	1350	1.000	11.400	450				
2	13.375	2.048	Open Manhole	1500	1.001	11.330	525	1.000	11.327	450	
3	12.942	1.702	Open Manhole	1500	1.002	11.240	225	1.001	11.240	525	
	12.811	1.811	Open Manhole	0		OUTFALL		1.002	10.999	225	

Simulation Criteria for Storm

Volumetric Runoff Coeff 0.750 Additional Flow - % of Total Flow 0.000
 Areal Reduction Factor 1.000 MADD Factor * 10m³/ha Storage 2.000
 Hot Start (mins) 0 Inlet Coefficient 0.800
 Hot Start Level (mm) 0 Flow per Person per Day (l/per/day) 0.000
 Manhole Headloss Coeff (Global) 0.500 Run Time (mins) 60
 Foul Sewage per hectare (l/s) 0.000 Output Interval (mins) 1

Number of Input Hydrographs 0 Number of Storage Structures 0
 Number of Online Controls 1 Number of Time/Area Diagrams 0
 Number of Offline Controls 0 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FSR Profile Type Summer
 Return Period (years) 100 Cv (Summer) 0.750
 Region England and Wales Cv (Winter) 0.840
 M5-60 (mm) 20.200 Storm Duration (mins) 30
 Ratio R 0.350

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Online Controls for Storm

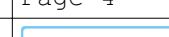
Hydro-Brake® Optimum Manhole: 3, DS/PN: 1.002, Volume (m³): 12.3

Unit Reference	MD-SHE-0095-5000-1700-5000
Design Head (m)	1.700
Design Flow (l/s)	5.0
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	95
Invert Level (m)	11.240
Minimum Outlet Pipe Diameter (mm)	150
Suggested Manhole Diameter (mm)	1200

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.700	5.0
Flush-Flo™	0.417	4.5
Kick-Flo®	0.851	3.6
Mean Flow over Head Range	-	4.1

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	3.1	1.200	4.3	3.000	6.5	7.000	9.7
0.200	4.2	1.400	4.6	3.500	7.0	7.500	10.1
0.300	4.5	1.600	4.9	4.000	7.5	8.000	10.4
0.400	4.5	1.800	5.1	4.500	7.9	8.500	10.7
0.500	4.5	2.000	5.4	5.000	8.3	9.000	11.0
0.600	4.4	2.200	5.6	5.500	8.7	9.500	11.3
0.800	3.9	2.400	5.9	6.000	9.0		
1.000	3.9	2.600	6.1	6.500	9.4		

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Summary of Critical Results by Maximum Level (Rank 1) for Storm

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m ³ /ha Storage	2.000
Hot Start Level (mm)	0	Inlet Coeffiecient	0.800
Manhole Headloss Coeff (Global)	0.500	Flow per Person per Day (l/per/day)	0.000
Foul Sewage per hectare (l/s)	0.000		

Number of Input Hydrographs	0	Number of Storage Structures	0
Number of Online Controls	1	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.350
Region	England and Wales	Cv (Summer)	0.750
M5-60 (mm)	20.200	Cv (Winter)	0.840

Margin for Flood Risk Warning (mm)	300.0
Analysis Timestep	2.5 Second Increment (Extended)
DTS Status	ON
DVD Status	ON
Inertia Status	ON

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880, 4320, 5760, 7200, 8640, 10080
Return Period(s) (years)	1, 30, 100
Climate Change (%)	0, 0, 30

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water
									Level (m)
1.000	1 60	Winter	100	+30%	100/15	Winter			12.942
1.001	2 60	Winter	100	+30%	100/15	Winter			12.941
1.002	3 60	Winter	100	+30%	30/15	Summer			12.939

PN	US/MH Name	Surcharged	Flooded	Flow / Cap.	Overflow (1/s)	Pipe	Status	Level Exceeded
		Depth (m)	Volume (m³)			Flow (1/s)		
1.000	1	1.092	0.000	0.08		11.1	FLOOD RISK	
1.001	2	1.086	0.000	0.06		12.3	SURCHARGED	
1.002	3	1.474	0.000	0.07		5.0	FLOOD RISK	