
Wetherby House

Drainage Strategy

July 2019

191188/DS/MK/RS/01

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1 INTRODUCTION

1.1 Scope

1.1.1 Lanmor Consulting has been appointed to prepare a Drainage Strategy for the proposed development site at Wetherby House, 15 Green Lane, Northwood, HA6 2UZ. This report has been prepared in support of an application and has been commissioned to advise on the feasibility of providing a surface water drainage solution for the proposed development.

1.1.2 This report will consider the proposed drainage regime for the site and set out the drainage strategy for the development including discharge rates and any requirements for attenuation.

1.1.3 The information within this report will be refined, modified, and updated as the detailed design is progressed. The scope of the works for this drainage strategy report is outlined below:

- Review available data in relation to on-site drainage and other drainage networks near the site.
- Review of the ground conditions for the suitability of Sustainable Drainage Systems (SuDS).
- Consider the use of SuDS as an option for disposal of surface water runoff from the proposed development.
- Undertake drainage assessments to establish attenuation requirements to deal with any increase in surface water runoff from the development.

2 SITE LOCATION AND DESCRIPTION

2.1 Location

- 2.1.1 The site is located on Green Lane, Northwood, within the London Borough of Hillingdon. The nearest main river is the River Colne located approximately 2.6km to the north of the site. The total area of the site is approximately 0.163 hectares. The existing site plan is included within Appendix A as Drawing FLU.441.3.16. Figure 1.1 below shows the location of the site.



Figure 1.1 – Site Location

2.2 Proposed Development

- 2.2.1 The proposed development will seek to demolish the existing building to make way for a residential building comprising of 2 x 1-bed and 10 x 2-bed flats. The proposed site plan of the development is included in Appendix A as Drawing SK.01.

2.3 Regional Geology

- 2.3.1 The British Geological Survey (BGS) indicates that the location of the site is underlain by Lambeth Group, containing clay, silt and sand. This sedimentary bedrock was formed approximately 48 to 56 million years ago in the Palaeogene Period. There were no superficial deposits recorded.

3 FLOOD RISK

3.1 Fluvial Flooding

3.1.1 The site is located in Flood Zone 1 so has a probability of flooding of less than 0.1% in any given year. Figure 3.1 below shows an extract from the EA Flood Maps and demonstrates the site is in Flood Zone 1.

3.1.2 The light blue area shows the extent of Flood Zone 2 and the dark blue area Flood Zone 3. The site is shown to be a considerable distance from these zones.



Figure 3.1 – EA Fluvial Flood Map

3.2 Surface Water Flood Risk

3.2.1 The EA surface water flood mapping for this area of Northwood shows the site not to be at risk of any surface water flooding. Figure 3.2 below shows the extent of potential flooding in the area as a result of an event with the probability of 1.0%. The map shows that site is in a very low risk area and the depths of flooding in the surrounding area that might occur during the 1.0% probability flood event.

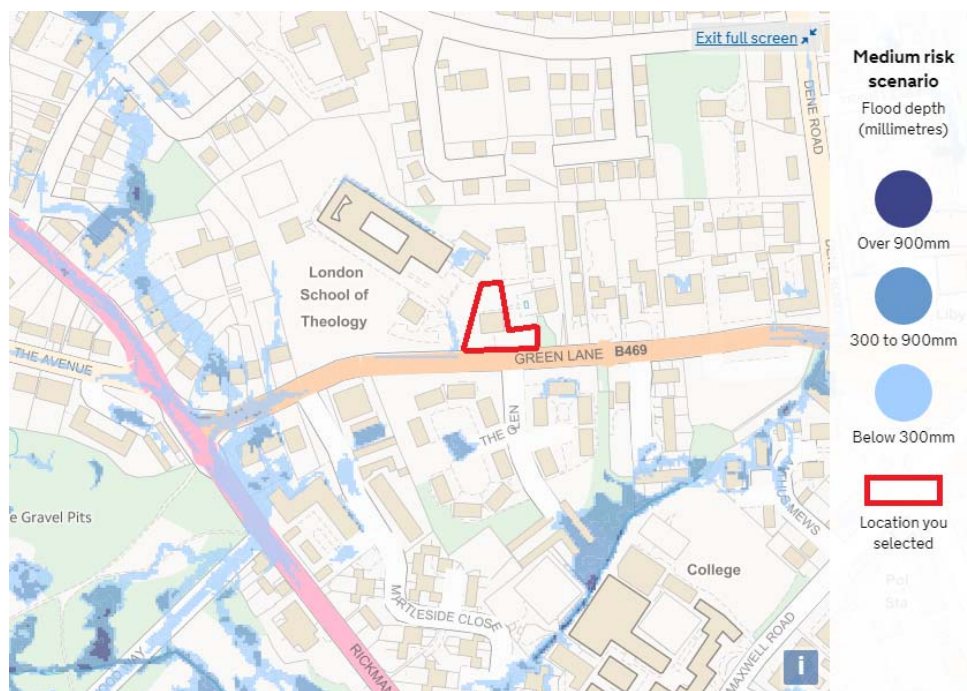


Figure 3.2 – EA Surface Water Flood Map

3.3 Other sources of flooding

3.3.1 The site is not in the area that would be affected by a failure of a reservoir, the site has no history of flooding and is covered by impermeable surfaces so has not been affected by groundwater flooding. The risk of flooding from other sources is considered low.

3.4 Climate Change

3.4.1 The proposed site is some distance from the nearest source of flooding, however climate change is likely to affect flood levels and therefore the extent of flooding. The EA have recently updated their Climate Change allowances, these have been considered for the new development, however when the appropriate allowance is applied to the existing flood levels the proposed development will still be free of flooding with a probability of 0.1% or greater.

3.4.2 Climate changes will have no impact on the flood risk to the site and it is therefore considered the site is at very low risk of fluvial flooding.

3.5 Safe Access

- 3.5.1 The site is located in Flood Zone 1 and therefore a dry access can be provided at all time to and from the site during an extreme flooding event.

3.6 Sequential Test

- 3.6.1 The purpose of the sequential test is to steer more vulnerable development to areas at less risk of flooding. The proposed use on site will be residential, considered to be 'More Vulnerable' under the NPPF. The site is located in Flood Zone 1 so is at very low risk of flooding. Given the proposals are for a More Vulnerable use in a low flood risk area the application meets to requirements of the NPPF as it is directing vulnerable development to areas at less risk of flooding.

4 EXISTING DRAINAGE REGIME

4.1 Existing Drainage

- 4.1.1 From the Thames Water sewer records, there is an existing public foul water sewer in Green Lane directly to the south of the site. The topographical survey has identified various foul manholes and pipes located within the site's boundary and appears to serve the existing building and leads off site to the foul water sewer in Green Lane.
- 4.1.2 The Thames Water sewer records also indicate a surface water sewer located under Green Lane however the survey did not identify any separate surface water drainage network, or any soakaways within the site boundary. The Thames Water sewer map is provided in Appendix B which shows the existing public foul and surface water networks in the area of the site.

5 PROPOSED DRAINAGE REGIME

5.1 Proposed Foul Water Drainage

5.1.1 A new foul drainage network will be provided to serve the 12 residential flats. Foul water will be collected through a series of new soil pipes from the building and discharged into the existing private foul sewer towards the western boundary of the site which discharges to the Thames Water foul sewer under Green Lane.

5.1.2 The proposals will allow for foul water drainage to discharge to the local drainage network, subject to a Section 106 with Thames Water for connection.

5.2 Proposed Surface Water Drainage

5.2.1 Sustainable Drainage Systems (SuDS) were considered as part of this assessment for the disposal of surface water runoff from the proposed development. The building has pitched roofs and will comprise of a balcony on the second floor, reducing the opportunities for green roofs therefore for these reasons green roofs have been discounted as a SuDS method.

5.2.2 Next on the Sustainable Drainage Hierarchy is the use of ground infiltration techniques such as soakaways and infiltration basins etc. The underlying ground is Lambeth Group which has poor infiltration characteristics. Therefore, infiltration of the surface water runoff is not a viable option and is discounted.

5.2.3 Discharge to a watercourse is the next option on the Sustainable Drainage Hierarchy, however the proposed development site is not situated near to any watercourses and therefore this is not a viable option.

5.2.4 Next is discharge to sewers. Thames Water have surface water sewers in the area, and this is preferred option for the discharge of runoff.

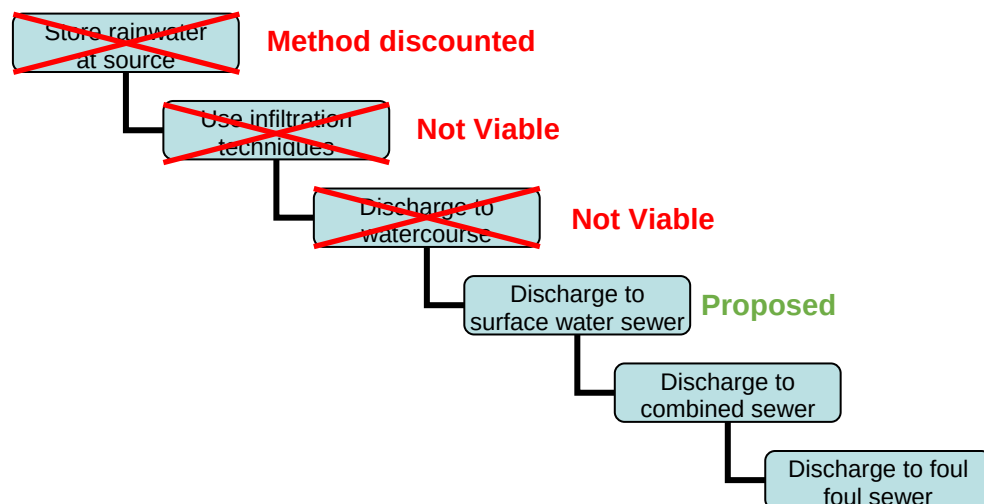


Figure 5.1 – Sustainable Drainage Hierarchy

- 5.2.5 The only viable option for the discharge of the surface water runoff from the development is to the public sewer. The proposed drainage strategy has therefore adopted the approach to attenuate runoff on site in underground tanks and discharge at a limited rate to the adopted sewer, below the current discharge rate for the site.
- 5.2.6 An assessment was carried out to determine the greenfield runoff rates for the site if it were undeveloped. A similar exercise was undertaken to estimate the runoff rates from the existing buildings and hard standing on site (brownfield). Tabulated below in Table 5.1 are the discharge rates for different return periods.
- 5.2.7 The greenfield runoff rate for the site is only 0.6 l/s for the 1 year return period, it is not practical to restrict the flow from the site to such a low rate without causing long term maintenance issues of blockages. The brownfield rate for the 1 year event was estimated at 4.8 l/s, the discharge from the site has been restricted down to 2.3 l/s for the 1 year event, which is less than the existing runoff rate from the site.

Return Period	Greenfield Rate (l/s)	Brownfield Rate (l/s)	Proposed Discharge (l/s)	% Reduction
1 in 1	0.6	4.8	2.1	56 %
1 in 30	1.6	11.5	2.3	80 %
1 in 100	2.3	15.0	2.3	85 %
1 in 100 +40% CC	N/A	N/A	2.3	N/A

Table 5.1 – Existing & Proposed Discharge Rates

- 5.2.8 The HydroBrake has be set at a flow rate of 2.3 l/s with a head of 0.8 m (height of tank) in order to achieve an outlet diameter of 75mm which is the minimum size recommended by the manufacture. This will restrict the flow rate to 2.3 l/s for all storms except the 1 in 1 year where the flow will only be 2.1 l/s.
- 5.2.9 The full calculations for each return period are included in Appendix C. The proposed discharge rates for all storm events will be less than the brownfield rates. The required attenuation needed to achieve the above rates of discharge while ensuring no flooding occurs on site will be provided in the underground tank to the front of the site. As there will be a basement as part of the development, any excess water within this area will be drained via gully's and pumped into the attenuation tank. The basement drainage has been designed indicatively and is to be confirmed at a detail design stage.
- 5.2.10 Drawing 191188/DS/01 in Appendix C shows an indicative drainage layout for the development. Drainage calculations have been undertaken to determine the necessary size of the attenuation tank needed to ensure no flooding occur on the site for a 1 in 100 year return period plus 40% climate change. The attenuation tank will be 10m x 3.5 x 0.8m deep and have a volume of 26.7m³ and cater for the surface water runoff from the building and hardstanding areas. The attenuation tank will then discharge through a new connection to the existing Thames Water network located towards the south of the site, subject to a S106 application.

- 5.2.11 The necessary attenuation storage can be provided in the form of a below ground cellular storage tank. A typical layout for the cellular attenuation tank is provided below and full calculations for the tank have been calculated using MicroDrainage and are provided in Appendix C.

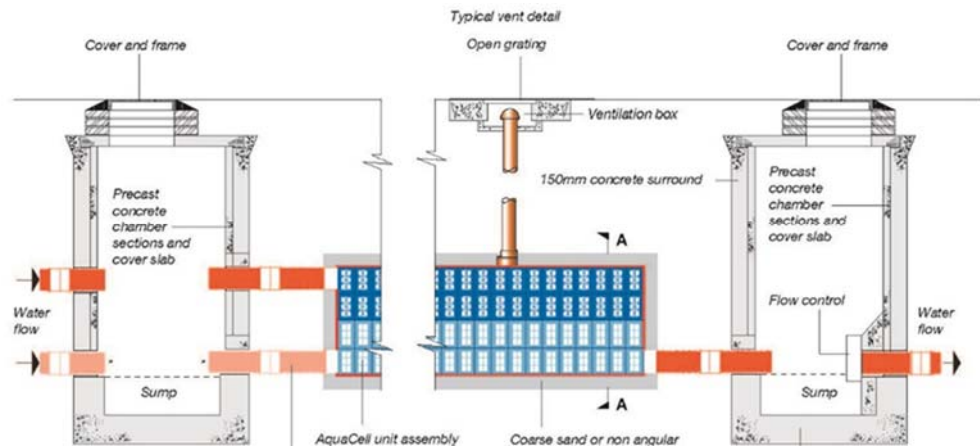


Figure 4.2 – AquaCell Attenuation Storage Tank

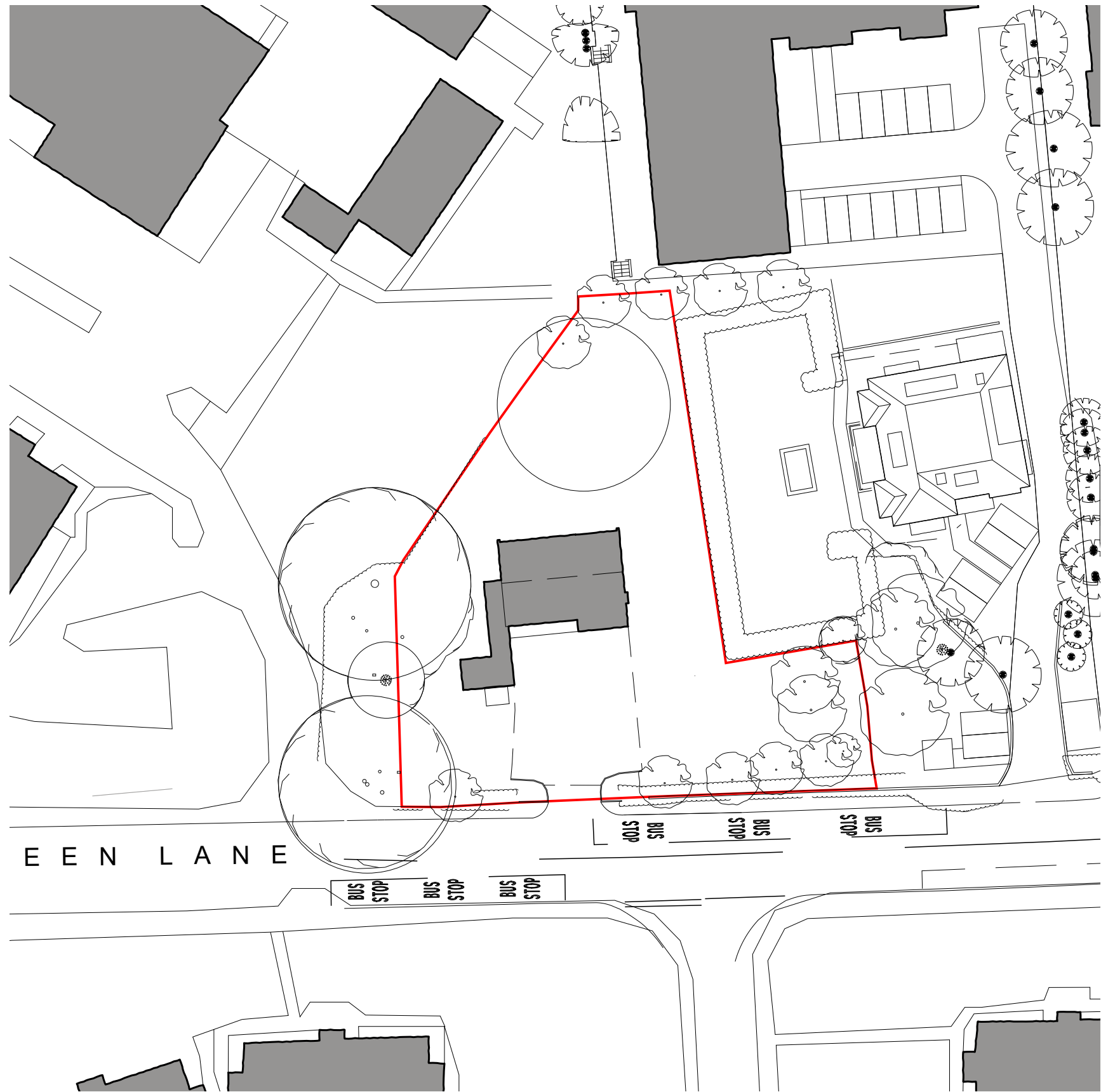
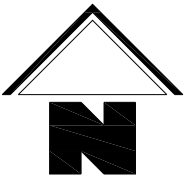
- 5.2.12 The surface water will be discharged from the tank via a HydroBrake which will restrict the flow rate to a maximum of 2.3 l/s. This rate has been selected to ensure the unit will function correctly without blocking. Full calculations for the proposed drainage networks have been included in Appendix C.

6 SUMMARY AND CONCLUSION

- 6.1.1 This Drainage Strategy report has been prepared to identify how the proposed development will be served in terms of the disposal of surface water runoff from the proposed dwellings, and the associated flood risk.
- 6.1.2 The proposed development is considered to be in a very low flood risk area from all sources of flooding. The extent of fluvial flooding in the area has been assessed and allowances for climate change factored in and the site is still in a very low flood risk area (Zone 1). It is therefore considered that the site will be safe and free from flood waters for all events with a probability of 0.1% or greater. The development site has also been assessed for risk of flooding from other sources including surface water and reservoirs. The assessment has confirmed that the site is at low risk of flooding from any of these sources. As it is in Flood Zone 1 a safe access can be provided at all times and it meets the requirements of the sequential test in the NPPF to allocate development to areas at low risk of flooding.
- 6.1.3 In the preparation of this strategy the use of SuDS was considered and where possible they have been incorporated into the strategy. The proposed drainage will use an attenuation tank to restrict the discharge rate below the current brownfield discharge from the site.
- 6.1.4 The attenuation tank will provide the main storage for the runoff from the development and will be located under the front of the site. The discharge from the tank will be restricted by a HydroBrake to ensure the development reduces the peak runoff rate from the site.
- 6.1.5 This statement clearly demonstrates that the proposed development can be served in terms of discharge of foul and surface water runoff from the site without increasing the risk of flooding in the area. Given the above we can see no reason to preclude development on this site on the grounds of there being insufficient capacity to deal with the runoff from the proposed development.

APPENDIX A

Drawing FLU.441.3.16 – Existing Site Plan



Rev	Date	Description

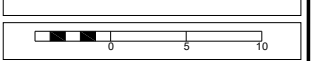


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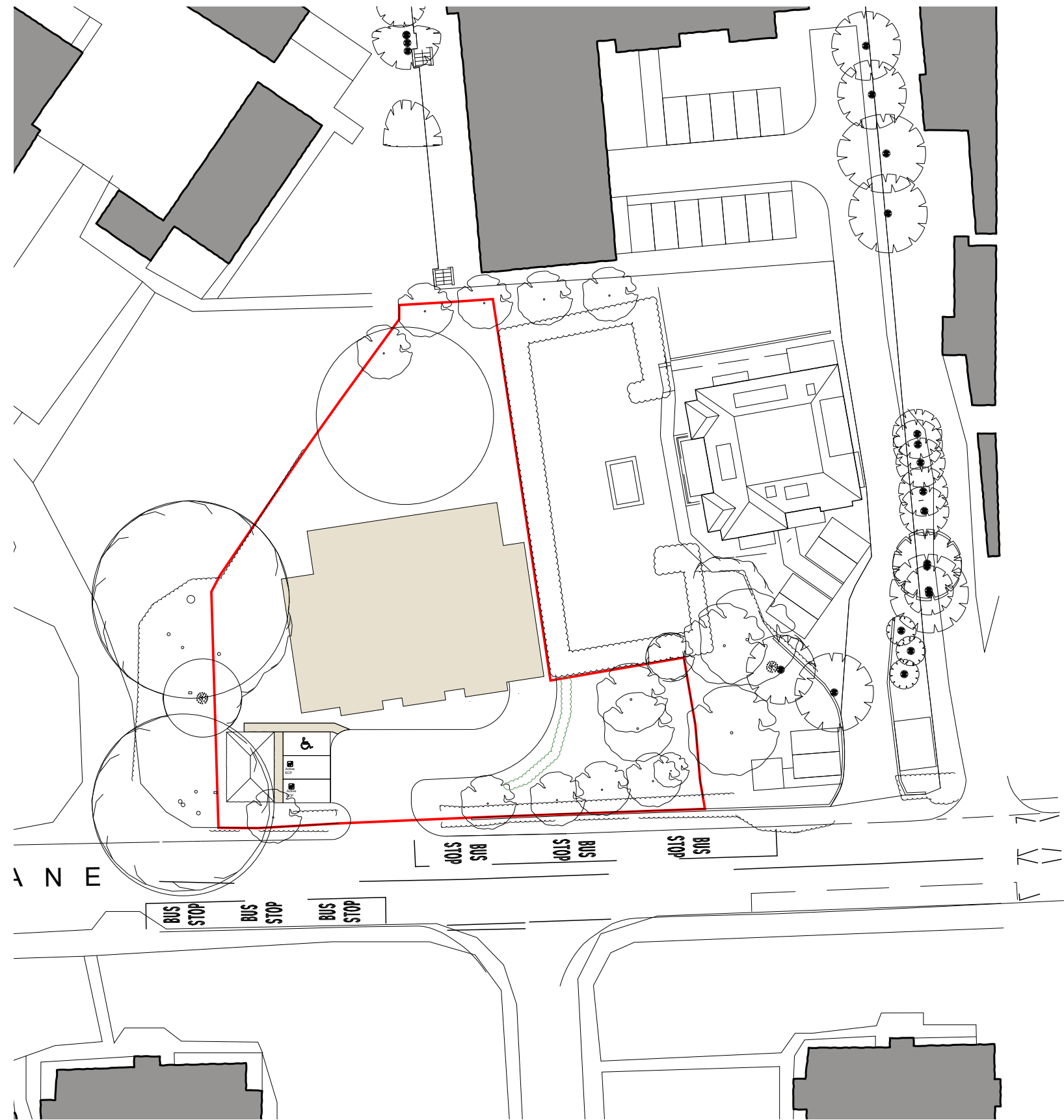
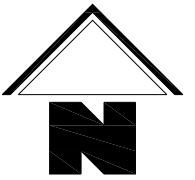
Wetherbys Nursery
Green Lane, Northwood

Existing Site Plan



Scale 1:500 @ A3	Dwg No. FLU.441.3.16
Date 24.02.19	Rev
Drawn N.Millin	

Drawing SK01 – Proposed Site Plan



Rev	Date	Description

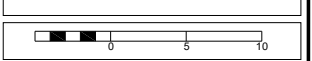


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Wetherbys Nursery
Green Lane, Northwood

Site Plan



Scale 1:500 @ A3	Dwg No. Sk.01
Date 25.01.19	Rev A
Drawn N.Millin	

APPENDIX B

Thames Water Sewer Records

NB. Levels quoted in metres Ordnance Newlyn Datum. The value -9999.00 indicates that no survey information is available

Manhole Reference	Manhole Cover Level	Manhole Invert Level
8501	69.52	68.33
8506	69.13	67.6
8502	68.32	67.4
8507	68.35	66.87
8508	68.15	66.93
8503	68.2	67.09
851A	n/a	n/a
8504	68.18	64.76
9505	n/a	n/a
7502	67.44	65.15
741C	n/a	n/a
761A	n/a	n/a
761B	n/a	n/a
7503	67.75	65.89
761C	n/a	n/a
7501	68.19	64.46
8505	68.28	66.26
The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.		



ALS Sewer Map Key

Public Sewer Types (Operated & Maintained by Thames Water)

	Foul: A sewer designed to convey waste water from domestic and industrial sources to a treatment works.
	Surface Water: A sewer designed to convey surface water (e.g. rain water from roofs, yards and car parks) to rivers or watercourses.
	Combined: A sewer designed to convey both waste water and surface water from domestic and industrial sources to a treatment works.
	Trunk Surface Water
	Trunk Foul
	Storm Relief
	Trunk Combined
	Vent Pipe
	Bio-solids (Sludge)
	Proposed Thames Surface Water Sewer
	Proposed Thames Water Foul Sewer
	Gallery
	Foul Rising Main
	Surface Water Rising Main
	Combined Rising Main
	Sludge Rising Main
	Proposed Thames Water Rising Main
	Vacuum

Notes:

- 1) All levels associated with the plans are to Ordnance Datum Newlyn.
- 2) All measurements on the plans are metric.
- 3) Arrows (on gravity fed sewers) or flecks (on rising mains) indicate direction of flow.
- 4) Most private pipes are not shown on our plans, as in the past, this information has not been recorded.
- 5) 'na' or '0' on a manhole level indicates that data is unavailable.

Sewer Fittings

A feature in a sewer that does not affect the flow in the pipe. Example: a vent is a fitting as the function of a vent is to release excess gas.

	Air Valve
	Dam Chase
	Fitting
	Meter
	Vent Column

Operational Controls

A feature in a sewer that changes or diverts the flow in the sewer. Example: A hydrobrake limits the flow passing downstream.

	Control Valve
	Drop Pipe
	Ancillary
	Weir

End Items

End symbols appear at the start or end of a sewer pipe. Examples: an Undefined End at the start of a sewer indicates that Thames Water has no knowledge of the position of the sewer upstream of that symbol, Outfall on a surface water sewer indicates that the pipe discharges into a stream or river.

	Outfall
	Undefined End
	Inlet

Other Symbols

Symbols used on maps which do not fall under other general categories

	Public/Private Pumping Station
	Change of characteristic indicator (C.O.C.I.)
	Invert Level
	Summit

Areas

Lines denoting areas of underground surveys, etc.

	Agreement
	Operational Site
	Chamber
	Tunnel
	Conduit Bridge

Other Sewer Types (Not Operated or Maintained by Thames Water)

	Foul Sewer
	Surface Water Sewer
	Combined Sewer
	Gully
	Culverted Watercourse
	Proposed
	Abandoned Sewer

- 6) The text appearing alongside a sewer line indicates the internal diameter of the pipe in millimetres. Text next to a manhole indicates the manhole reference number and should not be taken as a measurement. If you are unsure about any text or symbology present on the plan, please contact a member of Property Insight on 0845 070 9148.

APPENDIX C

Drawing 191188/DS/01 – Proposed Drainage Strategy

Key:

- Existing Private Drainage
- Thames Water Foul Water Sewer
- Thames Water Surface Water Sewer
- Proposed Surface Water Network
- Proposed Foul Water Network

Basement drainage
shown indicatively, TBC

Existing private foul
network to be utilized

Hydro Brake
Design Flow=2.3 l/s
Design Head=0.8m

MH FW
CL=69.15
IL=65.71

MH FW
CL=69.24
IL=68.24

Attenuation Tank
10m x 3.5m x 0.8m
deep

New connection to
Thames Water surface
water sewer, subject
to S106 approval

Green Lane
Estates Ltd

Wetherby House
Northwood
Proposed
Drainage Strategy

LANMOR Consulting
Civil Engineers & Transport Planning

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SCALE 1:200

DRAWN BY MK

PRJ No. 191188

DWG No. 191188/DS/01

MicroDrainage Calculations – Greenfield Runoff

Lanmor Consulting Ltd		Page 1																								
Thorogood House 34 Tolworth Close Surbition Surrey KT6 7EW	Wetherby House 15 Green Lane Northwood																									
Date 11/07/2019 File	Designed by MK Checked by RS																									
XP Solutions		Source Control 2015.1																								
<u>ICP SUDS Mean Annual Flood</u> Input <table> <tr> <td>Return Period (years)</td> <td>100</td> <td>Soil</td> <td>0.450</td> </tr> <tr> <td>Area (ha)</td> <td>0.163</td> <td>Urban</td> <td>0.000</td> </tr> <tr> <td>SAAR (mm)</td> <td>700</td> <td>Region Number</td> <td>Region 6</td> </tr> </table> Results 1/s <table> <tr> <td>QBAR Rural</td> <td>0.7</td> </tr> <tr> <td>QBAR Urban</td> <td>0.7</td> </tr> <tr> <td>Q100 years</td> <td>2.3</td> </tr> <tr> <td>Q1 year</td> <td>0.6</td> </tr> <tr> <td>Q30 years</td> <td>1.6</td> </tr> <tr> <td>Q100 years</td> <td>2.3</td> </tr> </table>			Return Period (years)	100	Soil	0.450	Area (ha)	0.163	Urban	0.000	SAAR (mm)	700	Region Number	Region 6	QBAR Rural	0.7	QBAR Urban	0.7	Q100 years	2.3	Q1 year	0.6	Q30 years	1.6	Q100 years	2.3
Return Period (years)	100	Soil	0.450																							
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Q30 years	1.6																									
Q100 years	2.3																									
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MicroDrainage Calculations – Attenuation Tank

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Thorogood House 34 Tolworth Close Surbition Surrey KT6 7EW			Wetherby House 15 Green Lane Northwood			
Date 11/07/2019 File ATTENUATION TANK.SRCX			Designed by MK Checked by RS			
XP Solutions			Source Control 2015.1			
<u>Summary of Results for 100 year Return Period (+40%)</u>						
Storm Event		Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m³)	Status
15 min Summer		68.164	0.464	2.3	16.2	O K
30 min Summer		68.282	0.582	2.3	20.4	O K
60 min Summer		68.356	0.656	2.3	23.0	O K
120 min Summer		68.361	0.661	2.3	23.1	O K
180 min Summer		68.335	0.635	2.3	22.2	O K
240 min Summer		68.302	0.602	2.3	21.1	O K
360 min Summer		68.233	0.533	2.3	18.7	O K
480 min Summer		68.156	0.456	2.3	16.0	O K
600 min Summer		68.089	0.389	2.3	13.6	O K
720 min Summer		68.031	0.331	2.3	11.6	O K
960 min Summer		67.940	0.240	2.3	8.4	O K
1440 min Summer		67.837	0.137	2.2	4.8	O K
2160 min Summer		67.787	0.087	1.8	3.0	O K
2880 min Summer		67.770	0.070	1.5	2.5	O K
4320 min Summer		67.755	0.055	1.1	1.9	O K
5760 min Summer		67.747	0.047	0.9	1.6	O K
7200 min Summer		67.742	0.042	0.7	1.5	O K
8640 min Summer		67.739	0.039	0.6	1.3	O K
10080 min Summer		67.736	0.036	0.5	1.3	O K
15 min Winter		68.226	0.526	2.3	18.4	O K
30 min Winter		68.359	0.659	2.3	23.1	O K
Storm Event		Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)	
15 min Summer		140.352	0.0	17.9	18	
30 min Summer		91.674	0.0	23.3	32	
60 min Summer		57.005	0.0	29.1	60	
120 min Summer		34.241	0.0	34.9	100	
180 min Summer		25.078	0.0	38.4	132	
240 min Summer		19.989	0.0	40.8	168	
360 min Summer		14.479	0.0	44.3	236	
480 min Summer		11.517	0.0	47.0	300	
600 min Summer		9.637	0.0	49.1	362	
720 min Summer		8.327	0.0	50.9	422	
960 min Summer		6.608	0.0	53.9	538	
1440 min Summer		4.764	0.0	58.3	764	
2160 min Summer		3.429	0.0	62.9	1104	
2880 min Summer		2.712	0.0	66.4	1468	
4320 min Summer		1.947	0.0	71.5	2200	
5760 min Summer		1.538	0.0	75.3	2928	
7200 min Summer		1.280	0.0	78.3	3656	
8640 min Summer		1.101	0.0	80.8	4320	
10080 min Summer		0.969	0.0	83.0	5104	
15 min Winter		140.352	0.0	20.0	18	
30 min Winter		91.674	0.0	26.2	32	
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Date 11/07/2019 File ATTENUATION TANK.SRCX		Designed by MK Checked by RS			
XP Solutions		Source Control 2015.1			
<u>Summary of Results for 100 year Return Period (+40%)</u>					
Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m³)	Status
60 min Winter	68.451	0.751	2.3	26.3	O K
120 min Winter	68.462	0.762	2.3	26.7	O K
180 min Winter	68.427	0.727	2.3	25.5	O K
240 min Winter	68.383	0.683	2.3	23.9	O K
360 min Winter	68.284	0.584	2.3	20.4	O K
480 min Winter	68.169	0.469	2.3	16.4	O K
600 min Winter	68.065	0.365	2.3	12.8	O K
720 min Winter	67.981	0.281	2.3	9.9	O K
960 min Winter	67.869	0.169	2.2	5.9	O K
1440 min Winter	67.789	0.089	1.9	3.1	O K
2160 min Winter	67.765	0.065	1.4	2.3	O K
2880 min Winter	67.755	0.055	1.1	1.9	O K
4320 min Winter	67.745	0.045	0.8	1.6	O K
5760 min Winter	67.739	0.039	0.6	1.4	O K
7200 min Winter	67.735	0.035	0.5	1.2	O K
8640 min Winter	67.732	0.032	0.4	1.1	O K
10080 min Winter	67.730	0.030	0.4	1.1	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)	
60 min Winter	57.005	0.0	32.5	60	
120 min Winter	34.241	0.0	39.1	112	
180 min Winter	25.078	0.0	43.0	140	
240 min Winter	19.989	0.0	45.7	180	
360 min Winter	14.479	0.0	49.6	256	
480 min Winter	11.517	0.0	52.6	326	
600 min Winter	9.637	0.0	55.0	386	
720 min Winter	8.327	0.0	57.1	442	
960 min Winter	6.608	0.0	60.4	548	
1440 min Winter	4.764	0.0	65.3	750	
2160 min Winter	3.429	0.0	70.5	1104	
2880 min Winter	2.712	0.0	74.4	1468	
4320 min Winter	1.947	0.0	80.1	2156	
5760 min Winter	1.538	0.0	84.3	2936	
7200 min Winter	1.280	0.0	87.7	3656	
8640 min Winter	1.101	0.0	90.5	4328	
10080 min Winter	0.969	0.0	93.0	5072	
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Thorogood House 34 Tolworth Close Surbition Surrey KT6 7EW	Wetherby House 15 Green Lane Northwood																															
Date 11/07/2019	Designed by MK																															
File ATTENUATION TANK.SRCX	Checked by RS																															
XP Solutions		Source Control 2015.1																														
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Model Details

Storage is Online Cover Level (m) 69.200

Tank or Pond Structure

Invert Level (m) 67.700

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	35.0	0.800	35.0	0.801	0.0

Hydro-Brake Optimum® Outflow Control

Unit Reference	MD-SHE-0075-2300-0800-2300
Design Head (m)	0.800
Design Flow (l/s)	2.3
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Diameter (mm)	75
Invert Level (m)	67.700
Minimum Outlet Pipe Diameter (mm)	100
Suggested Manhole Diameter (mm)	1200

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	0.800	2.3
Flush-Flo™	0.238	2.3
Kick-Flo®	0.508	1.9
Mean Flow over Head Range	-	2.0

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	2.0	1.200	2.8	3.000	4.2	7.000	6.3
0.200	2.3	1.400	3.0	3.500	4.5	7.500	6.5
0.300	2.3	1.600	3.1	4.000	4.8	8.000	6.7
0.400	2.2	1.800	3.3	4.500	5.1	8.500	6.9
0.500	1.9	2.000	3.5	5.000	5.3	9.000	7.1
0.600	2.0	2.200	3.6	5.500	5.6	9.500	7.3
0.800	2.3	2.400	3.8	6.000	5.8		
1.000	2.5	2.600	3.9	6.500	6.0		

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Event: 120 min Winter

