APPENDIX F: Severn Trent Water Sewer Records

SEVERN TRENT WATER

Severn Trent Water

Severn Trent Water Ltd
Regis Road
Tettenhall
Wolverhampton
WV6 8RU

Tel: 01902 793871
Fax:01902 793971

www.stwater.co.uk
net.dev.west@severntrent.co.uk

Contact: Dave Hadley

Your ref:
Our ref: WT32764/SAP8113271

16 April 2013

RPS Planning and Development Ltd
Highfield House
5 Ridgeway
Quinton Business Park
Birmingham
B32 1AF
FAO Amy Rix

Dear Sirs,

Proposed Housing Development at Thorley Drive, Cheadle, Staffordshire ST10 1SN

I refer to your Development Enquiry Request in respect of the above. Please find enclosed the sewer records that are included in the fee together with Supplementary Guidance Notes referred to herein.

Foul Water Drainage

As you can see from the records there is a 150mm diameter foul water sewer off Thorley Drive. There are two possible convenient connection points as far as I can see. These are MH8901 and MH7805. A connection to this system from 56 properties (average flow 1.31 l/s based on 3DWF) is acceptable to the Company at any convenient location in principle subject to formal Section 106 connection approval (see later). According to our records there is no reported flooding in the area.

Surface Water Drainage

There are watercourses to both the east and west of the site and possibly a minor watercourse to the southern boundary. There is also a 300mm diameter surface water sewer at MH9901 in the northern corner and a 150mm diameter surface water sewer to the west at MH7808. In the event that following comprehensive testing, it is demonstrated that soakaways would not be possible, evidence should be submitted. This would satisfy SGN1 (enclosed). A connection to a watercourse should be sought if possible but if a connection to our surface water sewer system is favourable a restriction of 5 l/s/ha will be applied to the site in accordance with SGN3.

For any new connections (including the re-use of existing connections) to the public sewerage system, the developer will

Severn Trent Water

need to submit Section 106 application forms. Our New Connections department are responsible for handling all such enquiries and applications. To contact them for an application form and associated guidance notes please call 0800 7076600 or download from www.stwater.co.uk.

Please quote WT32764/SAP8113271 in any future correspondence (including e-mails) with STWL. Please note that Developer Enquiry responses are only valid for 6 months from the date of this letter.

Yours sincerely

D J Hadley
Asset Protection West
Waste Water Services

SUPPLEMENTARY GUIDANCE NOTES

In 2006 the Government issued national advice in the form of "Planning Policy Statement 25: Development and Flood Risk" that seeks to reduce the impact of development on surface water runoff. This advice is generally followed by Local Authorities through both the Building Regulations (Approved Document H) and the imposition of appropriate planning conditions. Severn Trent welcomes this advice and supports such planning conditions that impose flow restrictions. It is considered that in accordance with current guidance disposal of storm runoff from the development should be dealt with as follows:

1. By soakage into the site's subsoil, subject to suitable ground soakage capacity and any contamination present. If ground soakage proves inadequate, evidence should be submitted to Severn Trent Water. The evidence should be either percolation test results or a statement from the SI consultant (extract from report or a supplementary letter) stating that soakaways would be ineffective. **A connection to public sewerage (existing or adoptable) would then be considered reasonable with flows as:**

2. Brown field development site: If storm runoff from the existing development is connected to the public sewerage system, then peak storm flows from the proposed development up to that generated from the previous connected impermeable area may be connected to the network subject to the details of the existing storm connection arrangements being submitted to Severn Trent Water. Existing flows should be assessed as the lower of $Q=2.78x50xA_{imp}$ l/s (A_{imp} ha), based on a 2 year storm return period, and the unsurcharged capacity of the outfall pipe(s).

   In addition to this restriction, for Brownfield developments, the Company would also suggest a reduction in surface water flow to the public sewerage systems of 20%. It should be noted that the Company would like to see any flow attenuation based on a 30 year critical duration storm design in accordance with 'Sewers for Adoption' current edition.

   For existing storm connections to the public foul sewerage system, any new storm connection to the public storm sewerage system (if available) should be limited to 5 litres/sec/ha (option A) OR a peak flow to be determined by the Company from its developer-funded hydraulic modelling of the public storm sewerage system (option B). The developer may choose either option.

3. Green field development site: If the site is a green field development i.e. not involving any demolition of buildings or paved areas connected to the public sewerage system, then the storm runoff from the proposed development may be connected to the public sewerage system subject to peak storm flows (30 year storm return period) being limited to a green field runoff of 5 litres/sec/ha (subject to a minimum of 5 litres/sec for Adoptable systems), applied to the gross area of the site, subject to sufficient capacity in the network.

Sewer Node / Sewer Pipe Data

REFERENCE	COVER LEVEL	INV LEVEL UPSTR	INV LEVEL DOWNSTR	PURP	MATL	SHAPE	MAX SIZE	MIN SIZE	GRADIENT	YEAR LAID
SK01426609	163.98	162.80	161.48	F	nil	C	150	nil	26.14	nil
SK01427001	nil	nil	159.12	F	nil	C	150	nil	0.00	nil
SK01427002	160.29	164.15	160.13	F	nil	C	150	nil	22.74	nil
SK01427003	167.54	165.55	166.15	F	nil	C	150	nil	22.20	nil
SK01427004	167.02	165.34	165.55	F	nil	C	150	nil	55.85	nil
SK01427005	nil	nil	165.34	F	nil	C	150	nil	0.00	nil
SK01427006	167.47	165.83	164.98	S	nil	C	150	nil	0.83	nil
SK01427007	168.07	165.77	165.83	S	nil	C	150	nil	92.14	nil
SK01427008	nil	nil	165.77	S	nil	C	150	nil	0.00	nil
SK01427009	169.69	168.03	165.34	F	nil	C	150	nil	15.17	nil
SK01427010	169.93	166.35	160.51	S	nil	C	150	nil	23.20	nil
SK01427501	172.87	171.14	nil	F	nil	C	150	nil	0.00	nil
SK01427502	nil	nil	167.10	F	nil	C	150	nil	0.00	nil
SK01427503	170.69	167.10	166.69	F	nil	C	150	nil	100.15	nil
SK01427504	169.33	166.69	166.29	F	nil	C	150	nil	66.26	nil
SK01427505	167.73	166.29	166.09	F	nil	C	150	nil	85.64	nil
SK01427506	170.26	167.54	167.39	S	nil	C	300	nil	431.69	nil
SK01427507	168.69	167.33	166.47	S	nil	C	150	nil	45.27	nil
SK01427508	167.62	166.47	165.43	S	nil	C	150	nil	56.40	nil
SK01428501	172.80	169.61	169.26	F	nil	C	150	nil	26.75	nil
SK01428502	174.15	171.70	169.61	F	nil	C	150	nil	11.41	nil
SK01428503	173.03	171.00	169.10	F	nil	C	150	nil	40.61	nil
SK01428001	173.33	172.10	171.70	F	nil	C	150	nil	77.60	nil
SK01428002	172.94	171.51	166.70	S	nil	C	150	nil	18.23	nil
SK01428003	171.21	167.12	nil	S	nil	C	300	nil	0.00	nil
SK01428004	nil	nil	167.12	S	nil	C	300	nil	0.00	nil
SK01428005	172.40	167.36	nil	S	nil	C	300	nil	0.00	nil
SK01428006	171.50	169.10	166.44	F	nil	C	150	nil	29.15	nil
SK01428001	nil	nil	166.28	S	nil	C	300	nil	0.00	nil
SK01428002	169.93	165.28	nil	S	VC	C	300	nil	0.00	nil
SK01437001	166.97	164.47	161.28	C	nil	C	225	nil	30.21	nil
SK01437002	166.67	165.34	164.47	C	nil	C	150	nil	31.63	nil
SK01437003	168.86	165.52	165.34	F	nil	C	150	nil	56.60	nil
SK01437004	165.07	162.97	161.92	F	VC	C	150	nil	19.94	2003
SK01437005	164.20	161.06	161.06	F	PVC	C	150	nil	37.21	2003
SK01437007	165.29	163.51	162.45	S	PVC	C	150	nil	24.31	2003
SK01437008	164.24	162.43	161.66	S	PVC	C	150	nil	40.68	2003
SK01437010	168.35	165.77	165.50	F	VC	C	150	nil	29.62	2003
SK01437011	167.11	165.53	165.20	F	VC	C	150	nil	79.38	2003
SK01439001	167.90	166.44	165.62	F	nil	C	150	nil	62.07	nil

Abandoned Gravity Sewer
Private Combined Gravity Sewer
Private Foul Gravity Sewer
Private Surface Water Gravity Sewer
Public Combined Gravity Sewer
Public Foul Gravity Sewer
Public Surface Water Gravity Sewer
Trunk Combined Gravity Sewer
Trunk Foul Use Gravity Sewer
Trunk Surface Water Gravity Sewer
Combined Use Pressurised Sewer
Foul Use Pressurised Sewer
Surface Water Pressurised Sewer
Highway Drain
Combined Lateral Drain (SS)
Foul Lateral Drain (SS)
Surface Water Lateral Drain (SS)

Culverted Watercourse
Cable, Earthing
Cable Junction
Cable, Optical Fibre/Instrumentation
Cable, Low Voltage
Cable, High Voltage
Cable, Other
Housing, Building
Housing, Kiosk
Disposal Site
Sewage Treatment Works
Housing, Other
Pipe Support Structure
Sewage Pumping Facility
Sewer Facility Connection Inlet / Outlet

Blind Shaft
Combined Use Manhole
Flushing Chamber
Foul Use Manhole
Grease Trap
Head Node
Hydrobrake
Lamp Hole
Outfall
Overflow
Penstock
Petrol Interceptor

Sewer Chemical Injection Point
Sewer Junction
Sewerage Air Valve
Sewerage Hatch Box Point
Sewerage Isolation Valve
Soakaway
Surface Water Manhole
Vent Column
Waste Water Storage
Pre-1937 Properties

TABULAR KEY
Sewer pipe data refers to downstream sewer pipe.
Where the node bifurcates (splits) X and Y indicates downstream sewer pipe.
Gradient is stated x 1 in...

MATERIALS
- = NONE
AC = ASBESTOS CEMENT
BR = BRICK
CO = CONCRETE BOX CULVERT
CI = CAST IRON
CO = CONCRETE
CBS = CONCRETE SEGMENTS (BOLTED)
CSJ = CONCRETE SEGMENTS (JAW/GUTTER)
DI = DUCTILE IRON
GRC = GLASS REINFORCED CONCRETE
GRP = GLASS REINFORCED PLASTIC
MAC = MASONRY (IN REGULAR COURSES)
MAR = MASONRY (NOT REGULARLY COURSED)
PT = POLYETHYLENE
PP = PITCH
PP = POLYPROPYLENE
PRC = PLASTIC RTD, COMPOSITE
PVC = POLYVINYL CHLORIDE
RPM = REINFORCED PLASTIC MATRIX
SI = SPUN IRON (CI) IRON
ST = STEEL
U = UNKNOWN
VC = VITRIFIED CLAY
XXX = OTHER

SHAPE
C = CIRCULAR
E = EGG SHAPED
O = OTHER
R = RECTANGULAR
S = SEMI
T = TRAPEZOIDAL
U = UNKNOWN

PURPOSE
C = COMBINED
F = FOUL (SEWAGE)
L = LOSSES
S = SURFACE WATER

CATEGORIES
N
W
E
S
M = MAIN
S = SIDE ENTRY
FM = FLAP VALVE
BD = BACK DROP
S = SIPHON
HO = HIGHWAY DRAIN
XXX = SECTION 104

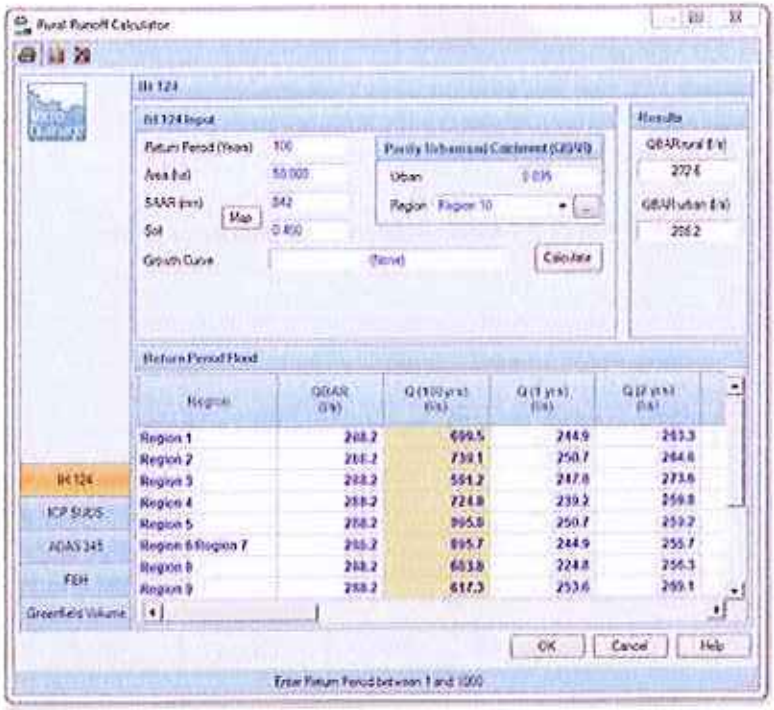
SEVERN TRENT WATER

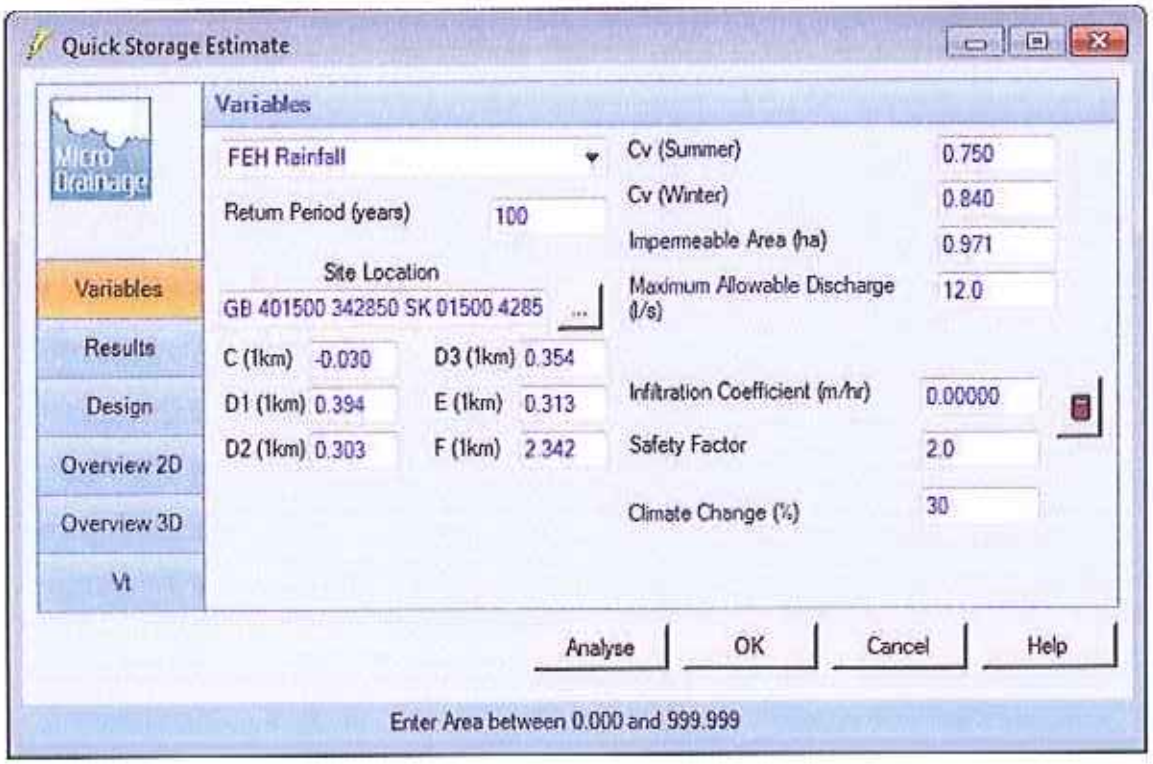
Severn Trent Water Limited
Asset Data Management
PO Box 5946
Coventry
CV3 0FT
Telephone 0845 601 4515

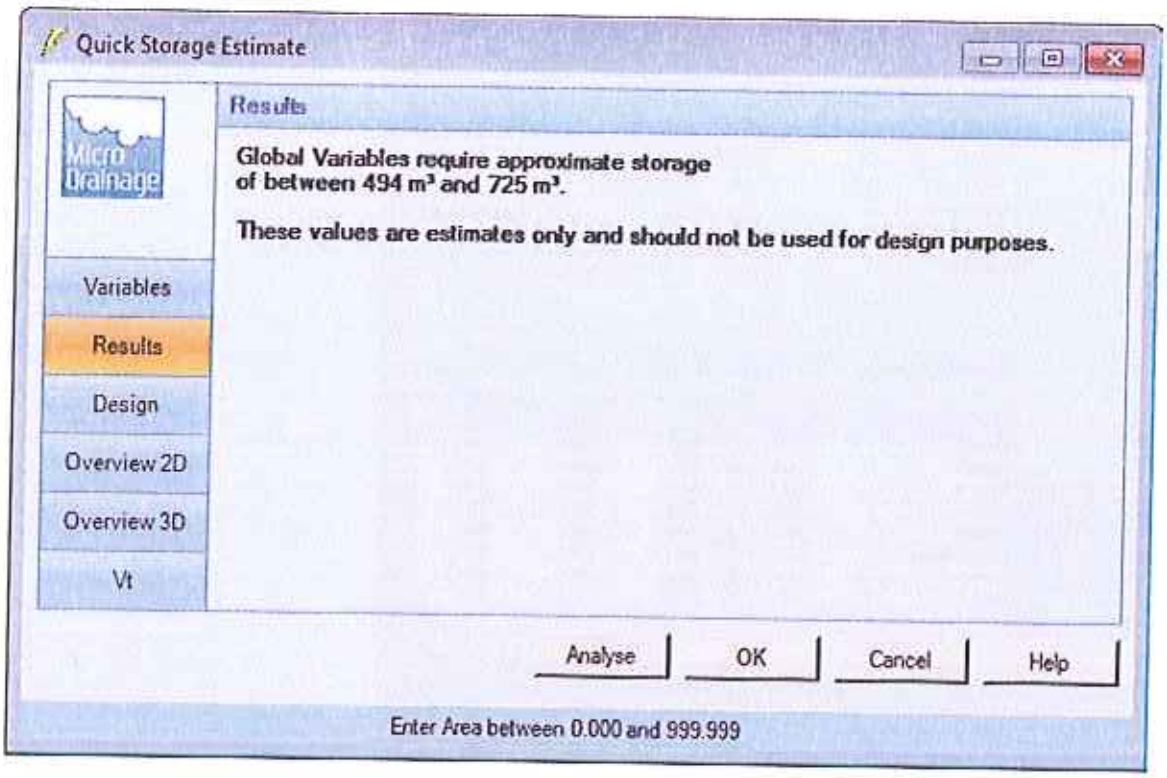
SEWER RECORD (Tabular)

OS Map scale:	1:2500	This map is centred upon: O / S Grid reference:
Date of issue:	15.04.13	x : 401912
Sheet No.	1 of 1	y : 342837

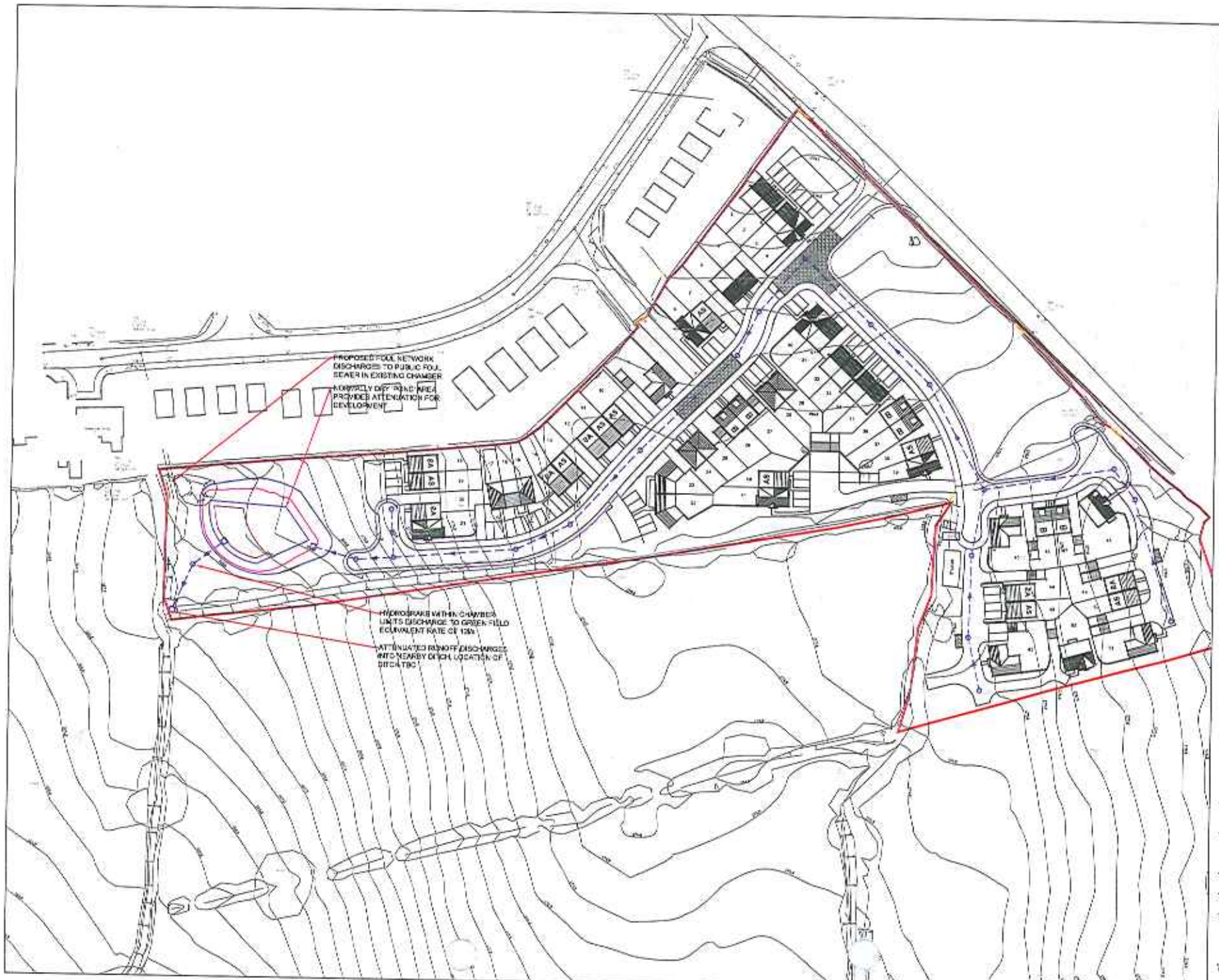
APPENDIX G: Calculations


Rural Runoff Calculator
BS 124
BS 124 Input
Return Period (Years) 100
Area (ha) 50.000
SAAR (mm) 842
Soil 0.450
Growth Curve
Map
Calculate
Results
Urban 0.035
Region Region 10
Return Period Flood
Region 1 268.2 699.5 244.9 263.3
Region 2 268.2 730.1 250.7 264.8
Region 3 268.2 594.2 247.8 273.6
Region 4 268.2 724.8 239.2 259.8
Region 5 268.2 995.8 250.7 259.2
Region 6 Region 7 268.2 895.7 244.9 256.7
Region 8 268.2 653.8 224.8 256.3
Region 9 268.2 617.3 253.6 259.1
BS 124
ICP SUDS
ADAS 345
FEH
Greenfield Volume
OK
Cancel
Help
Enter Return Period between 1 and 1000


Quick Storage Estimate
Micro Drainage
Variables
Results
Design
Overview 2D
Overview 3D
Vt
FEH Rainfall
Return Period (years) 100
Site Location
GB 401500 342850 SK 01500 4285
C (1km) -0.030
D1 (1km) 0.394
D2 (1km) 0.303
D3 (1km) 0.354
E (1km) 0.313
F (1km) 2.342
Cv (Summer) 0.750
Cv (Winter) 0.840
Impermeable Area (ha) 0.971
Maximum Allowable Discharge (l/s) 12.0
Infiltration Coefficient (m/hr) 0.00000
Safety Factor 2.0
Climate Change (%) 30
Analyse
OK
Cancel
Help
Enter Area between 0.000 and 999.999


Quick Storage Estimate
Micro Drainage
Variables
Results
Design
Overview 2D
Overview 3D
Vt
Results
Global Variables require approximate storage
of between 494 m³ and 725 m³.
These values are estimates only and should not be used for design purposes.
Analyse
OK
Cancel
Help
Enter Area between 0.000 and 999.999

APPENDIX H: Outline Drainage Strategy



mbe mayer brown

PROVIDENCE LAND LIMITED

THORLEY DRIVE
CHEADLE

1:500 | JAS

10/01/2016 | KDCHEADLE.10-601-

PROPOSED DRAINAGE STRATEGY

KDCHEADLE.10-601

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