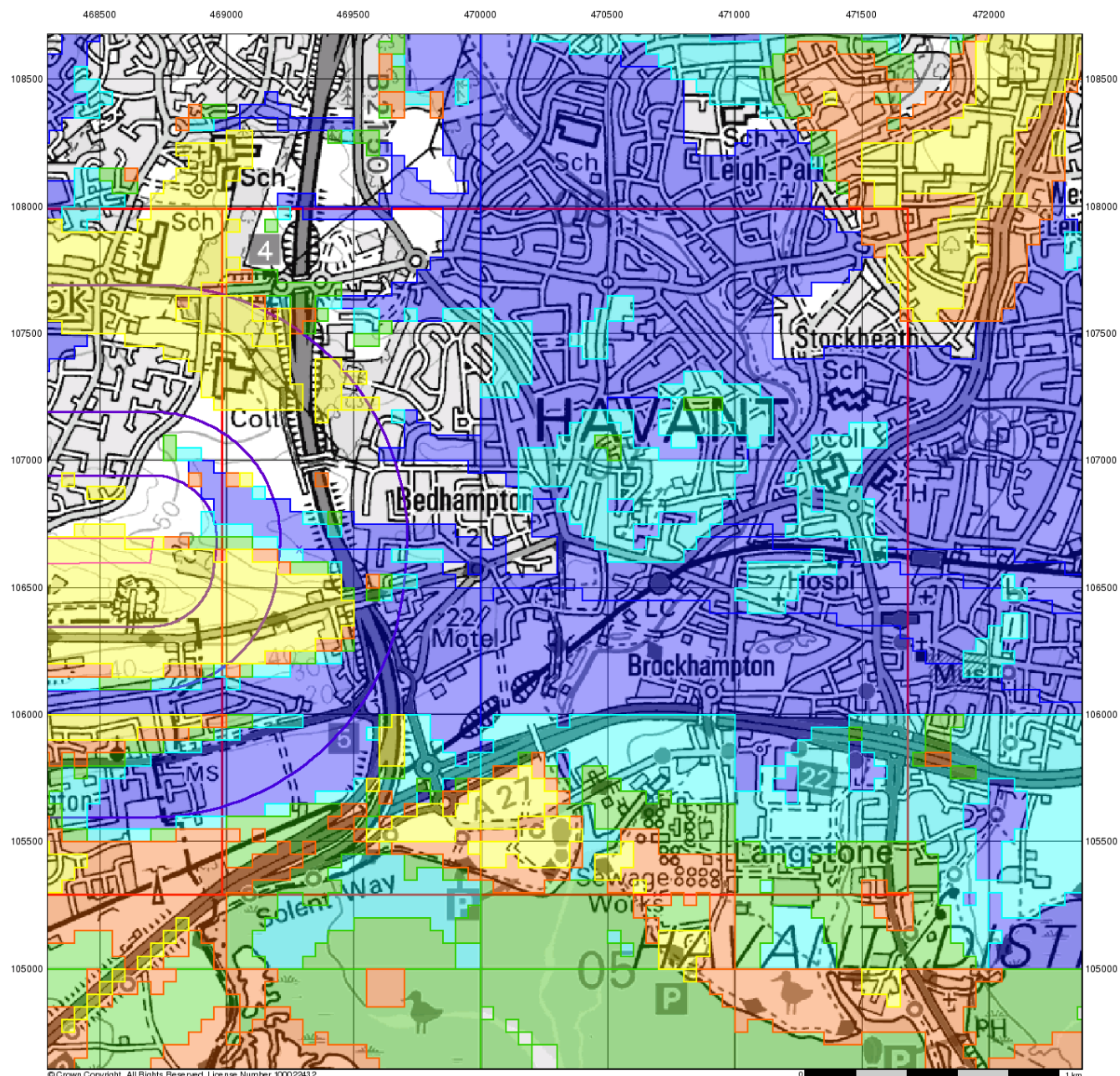




BGS Flood Data (1:50,000)

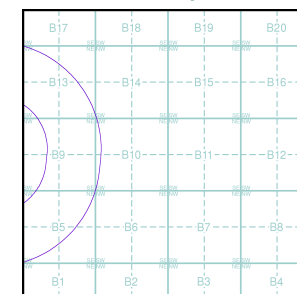
General

- ◇ Specified Site
- Specified Buffer(s)
- X Bearing Reference Point
- Slice
- B Map ID

BGS Groundwater Flooding Susceptibility

- High Susceptibility
- Moderately High Susceptibility
- Moderate Susceptibility
- Low Susceptibility
- Negligible Susceptibility

BGS Flood Data Map - Slice B



Order Details

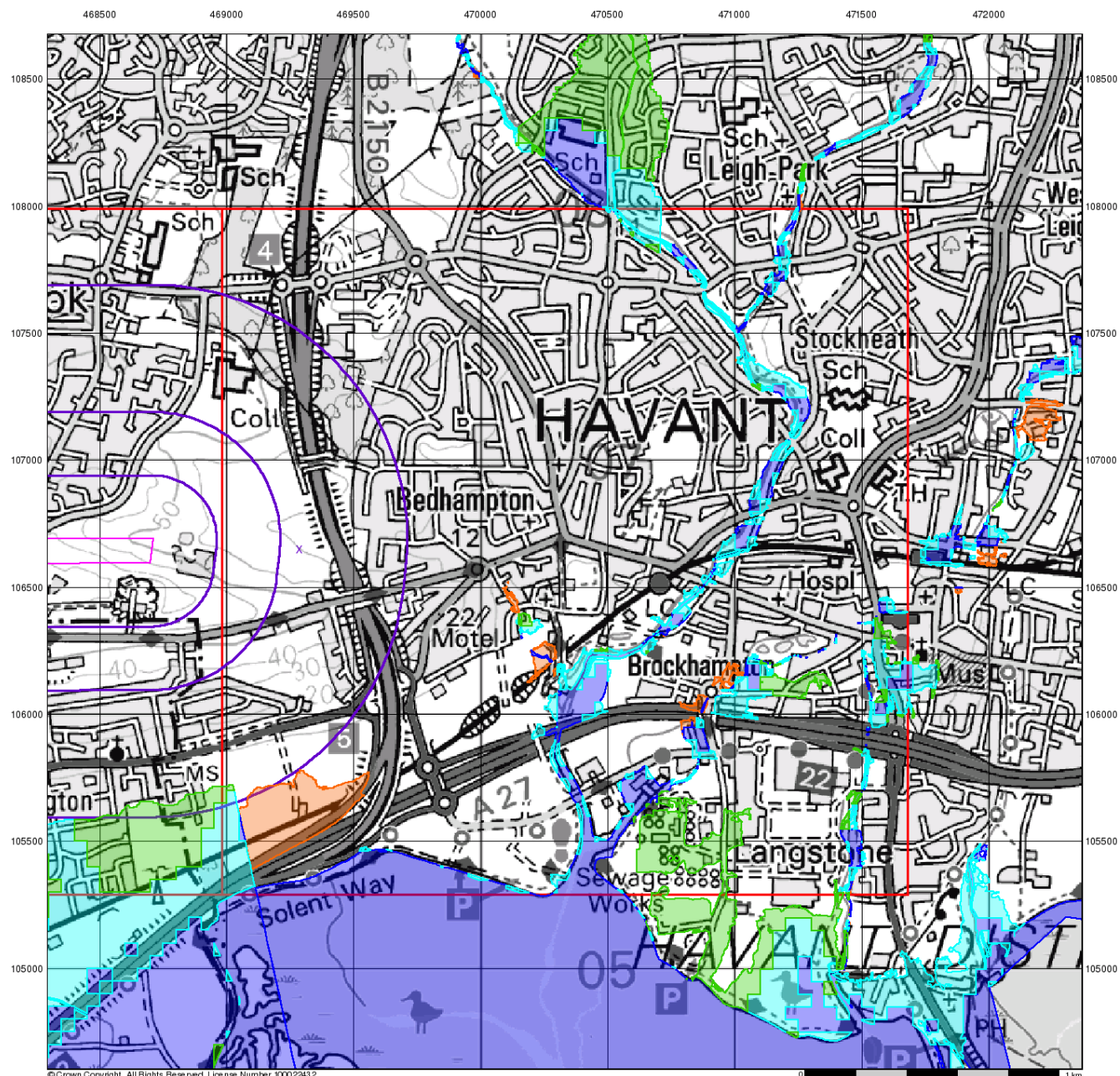
Order Number: 39397411_1_1
 Customer Ref: w1209-Portsmouth Golf Course
 National Grid Reference: 469290, 106650
 Slice: B
 Site Area (Ha): 7.8
 Search Buffer (m): 1000

Site Details

Site at 468600, 106720



Tel: 0844 844 9952
 Fax: 0844 844 9951
 Web: www.envirocheck.co.uk



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EA NaFRA Data (1:50,000)

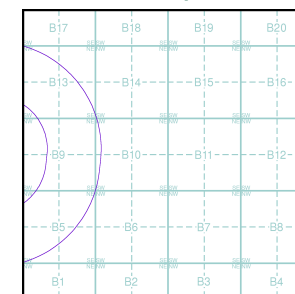
General

- ◇ Specified Site
- Specified Buffer(s)
- X Bearing Reference Point
- Slice
- B Map ID

National Flood Risk Assessment (NaFRA)

- Significant Risk
- Moderate Risk
- Low Risk
- No Result

EA NaFRA Data Map - Slice B



Order Details

Order Number: 39397411_1_1
 Customer Ref: w1209-Portsmouth Golf Course
 National Grid Reference: 469290, 106650
 Slice: B
 Site Area (Ha): 7.8
 Search Buffer (m): 1000

Site Details

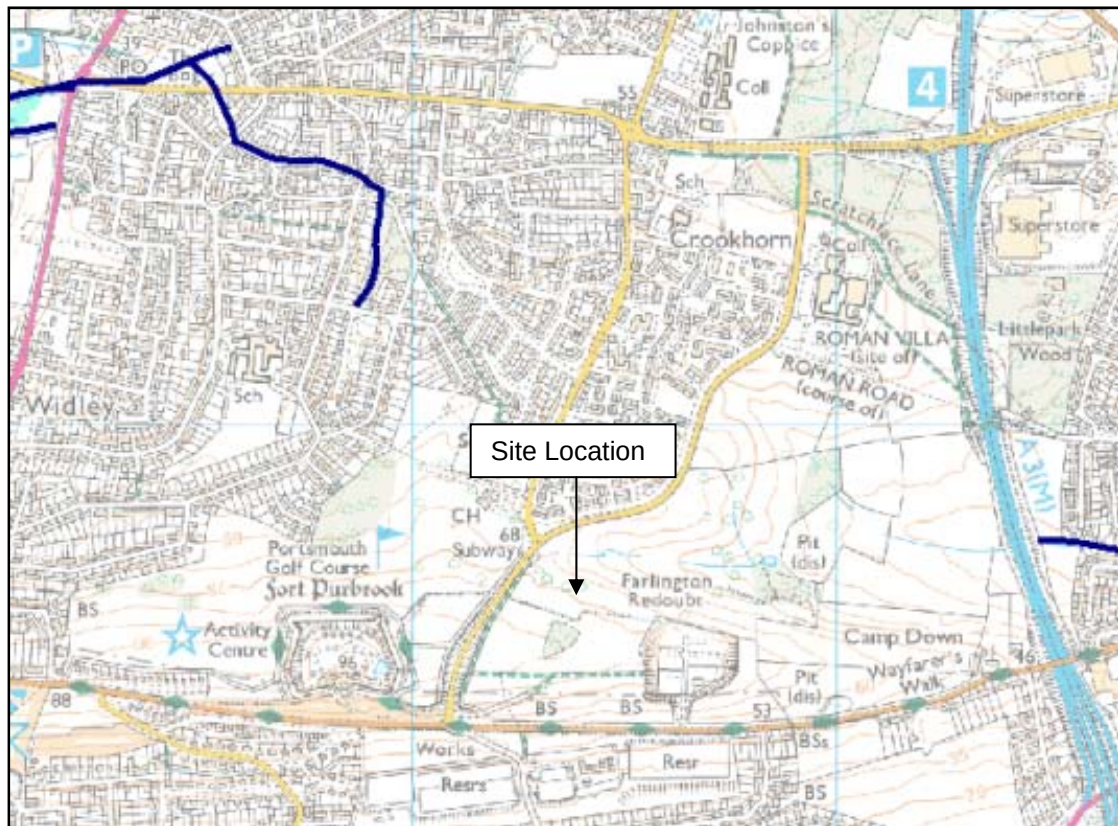
Site at 468600, 106720



Tel: 0844 844 9952
 Fax: 0844 844 9951
 Web: www.envirocheck.co.uk

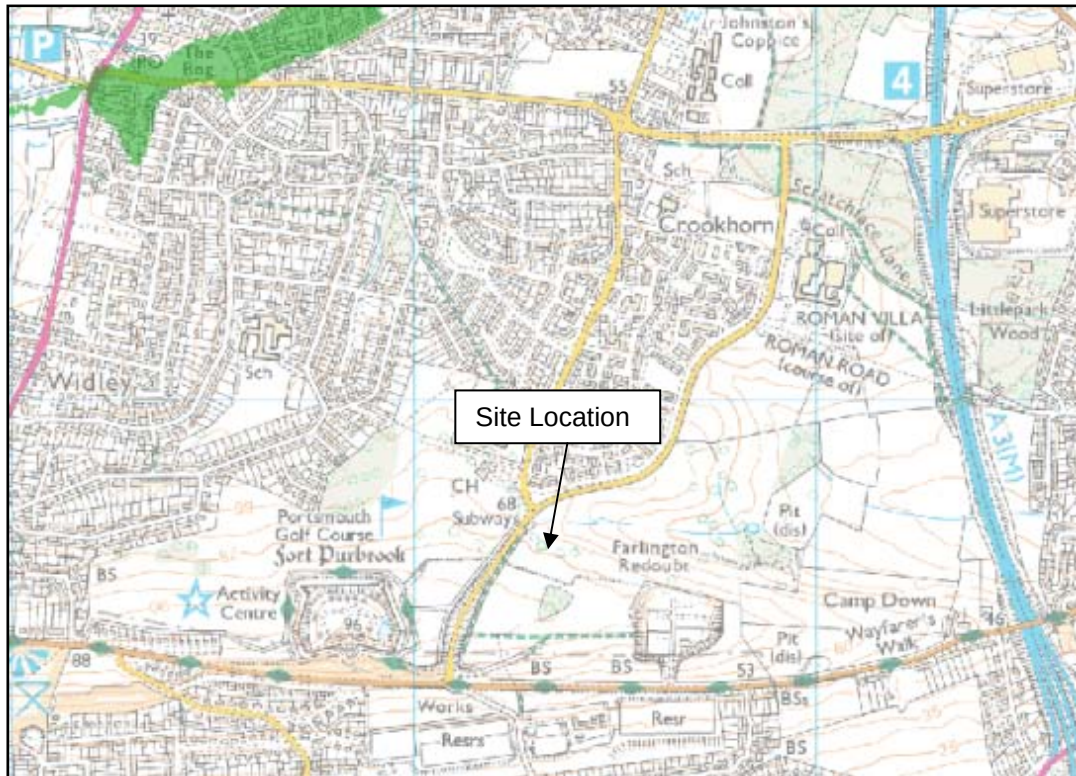
Appendix

D – Environment Agency Flood Maps and Correspondence



Environment Agency Flood Map

	Flooding from rivers or sea without defences
	Extent of extreme flood
	Flood defences
	Areas benefiting from flood defences



Environment Agency Flooding from Reservoirs Map

Risk of Flooding from Reservoirs 	
Maximum extent of flooding	
☒ Risk of Flooding from Reservoirs 	
 Maximum extent of flooding	

Gemma Roberts

From: SSD Enquiries [SSD.Enquiries@environment-agency.gov.uk]
Sent: 18 May 2012 16:30
To: Gemma Roberts
Subject: SSD/2634/KJW Portsmouth Golf Club, Crookhorn Lane, Waterloooville
Attachments: Standard Notice.pdf

Categories: Red Category

Dear Gemma,

Thank you for your enquiry regarding the above site.

I passed your enquiry onto our Flood Risk Mapping and Data (FRM&DM) team and also our Development and Flood Risk (DFR) team.

Although, our FRM&DM team could not comment as the site is not in a flood risk zone, our DFR team commented with the following:

'The Portsmouth Golf Club site is located within flood zone 1 defined by the National Planning Policy Framework and it's associated technical guidance as having a low probability of flooding.

For development proposals on sites of one hectare or above the vulnerability to flooding from other sources as well as from river and sea flooding, and the potential to increase flood risk elsewhere through the addition of hard surfaces and the effect of the new development on surface water run-off, should be fully investigated within a Flood Risk Assessment (FRA) to be submitted with the planning application.

The proposed landscaping improvement works don't appear to result in any increase in the impermeable area and therefore are unlikely to result in increased runoff rates or volumes. However, the FRA should fully outline any impacts upon surface water drainage resulting from the works and any mitigation required. The works should not result in any increase in flow rates or volumes to receiving watercourses or sewers.

The works in areas 1, 2 & 3 are located relatively close to residential areas and Crookfield Lane. The works must not result in any increase in surface water runoff, or flood risk in general to these areas, i.e. there should be no adverse impacts upon any natural drainage routes. The FRA should clearly demonstrate that this is the case.

The applicant is advised that an ordinary watercourse is shown located within areas 3 & 4 on the plan, and that part of this watercourse is culverted. Any works to the existing culvert or that would result in a further culverting of this watercourse will require the prior written permission of the Lead Local Flood Authority, in this case Hampshire County Council. The works must not adversely impact upon flow capacity or conveyance within this watercourse. Please contact Adam Collier, at Hampshire County Council, on telephone number 01962 845518 (Adam.Collier@hants.gov.uk) for further information on any consenting requirements in relation to this watercourse.'

I hope that we have correctly interpreted your request. Please see the attached Notice for details of permitted use.

Should you have any further queries, please do not hesitate to contact me.

Many thanks

Kelly Windebank (née Broomfield)
External Relations Officer
Planning & Corporate Services
Solent & South Downs Area
Environment Agency - South East

☎ External: 01962 764890
Internal DDI: 723 4890



We are working hard to produce less waste in our offices. In 2011/12 we produced a third less waste than in our baseline year, but we still sent 48,000 kgs of waste to landfill. Please continue to play your part by using the right bin to recycle your waste - think before you throw!

www.environment-agency.gov.uk

From: Enquiries, Unit
Sent: 03 May 2012 11:39
To: Gemma.Roberts@waterco.co.uk
Subject: Ref:120503/PC08 - w1209-1205014-e-EA-pre app enquiry
Importance: High

Dear Gemma,

Thank you for your enquiry regarding information to complete a Flood Risk Assessment (FRA).

For your information, I have passed your query to our local External Relations Team (Planning and Corporate Services) for advice.

You are able to request specific information regarding FRA's, I have attached a link to this section of our website for your convenience.

<http://www.environment-agency.gov.uk/research/planning/93498.aspx>

The External Relations team have 20 working days from the date we receive your enquiry to provide a response, and they will get this to you as soon as possible.

Should you wish to contact them in the meantime, their details are below.

External Relations
Planning and Corporate Services
Environment Agency
South East Region
Solent & South Downs Area
Colvedene Court
Wessex Business Park
Wessex Way
Colden Common
WINCHESTER
SO21 1WP
Tel: 03708 506506

Please quote your Enquiry Ref:120503/PC08 in your correspondence with us.

If you have any further enquiries please contact us and we will be happy to help.

Kind Regards

Paul Carnall
National Customer Contact Centre
Part of National Operations
☎ 03708 506 506
✉ Enquiries@environment-agency.gov.uk



please consider the environment - do you really need to print this email?



Ystyriwch Yr Amgylchedd - Oes Rhaid I Chi Brintio'r E-Bost Hwn?

We would really like to know what you think of our customer service.
Please send any comments to us.

From: Gemma Roberts [mailto:Gemma.Roberts@waterco.co.uk]
Sent: 01 May 2012 10:34
To: Enquiries, Unit
Subject: w1209-1205014-e-EA-pre app enquiry
Importance: High

Click [here](#) to report this email as spam.

Pre-application flood risk enquiry
Portsmouth Golf Club, Crookhorn Lane, Waterloooville, Portsmouth, PO7 5QL

For the attention of: the relevant flood risk and development engineer

We are in the process of completing a Flood Risk Assessment report in accordance with NPPF in respect of proposed landscaping improvement works to the above site. Grid reference: 468600, 106720. The site is in Flood Zone 1 and > 1 Ha. I have attached an outline proposals plan (drawing no. GGD2167).

Please could you provide me with pre-application advice and any specific requirements that you may have for the FRA before we submit the report with the planning application. Also if you have any information about historical flooding/ flood issues in this area that would also be helpful.

Please could you confirm this email has been received and the likely response date.

Kind Regards
Gemma Roberts.

Gemma Roberts | Senior Flood Risk Engineer
MEng (Hons)

Waterco are climbing Cnicht for WaterAid June 16th - Please click [here](#) to sponsor us



Waterco Ltd. Eden Court, Lon Parcwr Business Park, Ruthin LL15 1NJ
01824 702220 www.waterco.co.uk

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Appendix

E – Surface Water Run-off Calculations

 Eden Court, Lon Parcwr, Ruthin, 01824 702220		Calculations		ref W1209	
Client :	Glendale Golf Ltd			no of pages attached: 1 of 14	
Scheme :	Portsmouth Golf Club			prefix	revision
Section :	Surface Water Run-off			SWR	A
prepared by: Gemma Roberts		date:		30/05/2012	
checked by: Chris Lewis		date:		31/05/2012	
approved by: Peter Jones		date:		31/05/2012	
<u>Comparison of pre-development and post-development run-off rates and volumes for greenfield or brownfield sites up to 200 Ha</u>					
Site description Proposed development of land at Portsmouth Golf Club, Crookfield Lane. Development includes proposed landscaping improvement works. National Grid Reference (centre of site) approx. 468600E 106720N					
Design Brief To calculate both pre and post development rainfall run-off in accordance with the requirements of the Interim Code of Practice for Sustainable Drainage Systems. The peak run-off rates are to be estimated for return periods of up to 100 years and the run-off volumes are also to be calculated for a 1 in 100 year event of 6 hour duration. An allowance for climate change is only included in the case of the post-development run-off calculation.					
Documents Referenced 1. Code for Sustainable Homes Technical Guide 2010 2. Interim Code of Practice for Sustainable Drainage Systems (ICP-SUDS)(July 2004) 3. I o H Report 124 - Flood Estimation for Small Catchments (Marshall & Bayliss, 1994) 4. FSSR 16 runoff model - Fixed Percentage Runoff Method 5. Wallingford Procedure 1981 6. CIRIA C697 - The SUDS Manual (Feb 2007)					
Basis of estimates The Interim Code of Practice for Sustainable Drainage Systems (July 2004) ^[2] recommends the use of I o H 124 ^[3] for calculating peak greenfield run-off rates for sites up to 200 Ha. For site less than 50 Ha, the run-off should be calculated for 50 Ha and adjusted in proportion for the actual area. For sites greater than 200 Ha, the FEH run-off model should be used. CIRIA C697 ^[6] recommends the use of the FSSR 16 ^[4] run-off method for calculating the run-off volume for greenfield sites. For brownfield sites with a recognised drainage system, the Rational Method ^[5] has been used to calculate the run-off for the impermeable portions of the catchment (pre- & post development). For sites without a proper drainage system, the pre-development run-off is calculated as for a greenfield site, assuming soil type 5, regardless of type indicated on mapping. In accordance with National Planning Policy Framework (NPPF) and assuming a 100yr projection, a 30% on peak rainfall intensity increase in rainfall / run-off has been included to allow for the climate change anticipated in the years 2085 - 2115. Rainfall data is taken from maps in Defra / EA Tech Report W5-074/A Rev D (see page SWR10 & 11). Standard Average Annual Rainfall and Soil classification from maps in FSR Report (see page SWR8 & 9).					
N.B. These calculations are for planning purposes only and will need to be reviewed at the detailed design stage.					

		Eden Court, Lon Parcwr, Ruthin, 01824 702220	Calculations	ref : W1209
				prefix - page no. SWR2
Scheme :	Portsmouth Golf Club			dated :
Section :	Surface Water Run-off			30/05/2012

Basis of calculations

Peak run-off rate based on combination of IOH 124 method & Rational method

Run-off volume based on combination of FSSR 16 method & Rational method

N.B. Rational method used for impervious portion of total area for both pre and post development, allowing for pre-development of site where appropriate.

Catchment Details - input data

Proportions of soil type (from maps)

Prop S1	(fraction)		(x 0.15)
Prop S2	(fraction)		(x 0.30)
Prop S3	(fraction)	1.000	(x 0.40)
Prop S4	(fraction)		(x 0.45)
Prop S5	(fraction)		(x 0.50)
Total fraction		1.000	OK - total = 1
Calculated value of SOIL		0.400	
Calculated value of SPR		37.000	

$$SOIL = (0.15S1 + 0.3S2 + 0.4S3 + 0.45S4 + 0.5S5) / (S1 + S2 + S3 + S4 + S5)$$

$$SPR = 10S1 + 30S2 + 37S3 + 47S4 + 53S5$$

Region number	7	Select from list
AREA (Ha)	55.3000	(1Ha = 0.01Km ²)
SOIL (fraction)	0.400	Calculated above
SAAR (mm)	750	From FSR maps
CWI	110	From FSR graph

M5-60 rainfall (mm)	20.00	From Defra / EA maps
Ratio M5-60/M5-2d	0.40	From Defra / EA maps
M100-6hr rainfall (mm)	63.00	From Defra / EA maps

Storm duration (min)	15	(To give peak run-off-15 min for small site)
----------------------	----	---

PIMP Pre-develop (%)	0.00	Provided by client
PIMP Post-develop (%)	0.00	Provided by client

Pre-dev drain system?	No	If "No", whole site assumed pervious - Soil type 5 & pre-dev PIMP taken as zero in following calcs
-----------------------	----	--

Climate change

Rainfall increase (%)	30	Based on NPPF (for years 2085 - 2115) Applied to post development case only
-----------------------	----	--

N.B. These calculations are for planning purposes only and will need to be reviewed at the detailed design stage.

		Eden Court, Lon Parcwr, Ruthin, 01824 702220		Calculations		ref : W1209	
						prefix - page no. SWR3	
Scheme :		Portsmouth Golf Club				dated :	
Section :		Surface Water Run-off				30/05/2012	

Pre- & Post-development peak run-off - Rational Method
(for impervious portions of catchment only)

Input data from sheet 2

Total area (Ha)	55.3000	from sht 2	
Pre dev PIMP (%)	0.00	from sht 2	Or zero if no pre-development drainage
Post dev PIMP (%)	0.00	from sht 2	
Pre-dev Imp area (Ha)	0.0000	calculated	
Post-dev Imp area (Ha)	0.0000	calculated	

M5-60min rain (mm)	20.00	from sht 2
Ratio "r"	0.40	from sht 2
Climate change (%)	30	from sht 2
Storm duration (min)	15.00	from sht 2

Rational Method

Peak run-off $Q_i = 2.78 C_v C_r i A$

Z1 Factor from table	0.633	pro-rata
Volume coeff C_v	0.75	(Typical 0.75)
Routing coeff C_r	1.30	(Standard value 1.3)

Calculation

M5-Dmin rain (mm)	12.660	M5-60min * Z1 factor
Climate change factor	1.30	Applied to post-development run-off only

Return period	1 yr	30 yr	100 yr
Z2 factor from table	0.615	1.536	1.953
Rainfall (mm)	7.79	19.45	24.72
Rainfall intensity (mm/hr)	31.2	77.8	98.9
Rainfall + CC (mm)	10.13	25.29	32.14
R. Intensity + CC (mm/hr)	40.5	101.2	128.6

Peak run-off rate

Pre-development Q_i (l/s)	0.00	0.00	0.00
Post-development Q_i (l/s)	0.00	0.00	0.00

N.B. These calculations are for planning purposes only and will need to be reviewed at the detailed design stage.

	Eden Court, Lon Parcwr, Ruthin, 01824 702220	Calculations	ref : W1209
			prefix - page no. SWR4
Scheme :	Portsmouth Golf Club		dated :
Section :	Surface Water Run-off		30/05/2012

Pre & Post development peak run-off

IOH124 method for pervious areas - Rational method for impervious areas

Input data from sheet 2

Total Area (Ha)	55.3000	from sht 2	
Pre-dev PIMP (%)	0.00	from sht 2	Or zero if no pre-development drainage
Post-dev PIMP (%)	0.00	from sht 3	
Pre-dev Perv area (Ha)	55.3000	Calculated	$\geq 0.5 \text{ km}^2$
Post-dev Perv area (Ha)	55.3000	Calculated	$\geq 0.5 \text{ km}^2$
Region number	7	from sht 2	
SOIL (fraction)	0.400	from sht 2	Pre-dev SOIL 0.500 from sht 2 or fixed 0.5 if no drainage system
SAAR (mm)	750	from sht 2	

Regional growth factors

Multiplier for 1/1 yrs	0.74	FSSR 14 table 1 (lookup table)
Multiplier for 1/30 yrs	2.25	FSSR 14 table 1
Multiplier for 1/100 yrs	3.19	FSSR 14 table 1

Climate change factor 1.3 Applied to post-development run-off only

Mean annual flood

$$Q_{bar} = 0.00108 * (AREA/100)^{0.89} * SAAR^{1.17} * SOIL^{2.17}$$

	<u>Pre-development</u>		<u>Post development</u>	
Qbar' (for 50 Ha) (m3/s)	0.29929	value not used	0.18442	value not used
Qbar (actual area) (m3/s)	0.20172	direct from formula	0.20172	direct from formula

Peak flows (IoH 124)

Return period	1 yr	30 yr	100 yr	1 yr	30 yr	100 yr
Multiplier	0.740	2.250	3.190	0.740	2.250	3.190
Peak run-off (m ³ /s)	0.14927	0.45387	0.64349	0.14927	0.45387	0.64349
Peak + CC Qp (m ³ /s)	n/a	n/a	n/a	0.19405	0.59003	0.83654

Total peak flows (l/s)

Perv area flow-Qp (l/s)	149.27	453.87	643.49	194.05	590.03	836.54
Imp area flow -Qi (l/s)	0.00	0.00	0.00	0.00	0.00	0.00
Total peak flow Q (l/s)	149.27	453.87	643.49	194.05	590.03	836.54

Peak flow increase (l/s)	44.78	136.16	193.05
--------------------------	-------	--------	--------

N.B. These calculations are for planning purposes only and will need to be reviewed at the detailed design stage.

	Eden Court, Lon Parcwr, Ruthin, 01824 702220	Calculations	ref : W1209 prefix - page no. SWR5 dated : 30/05/2012
Scheme :	Portsmouth Golf Club		
Section :	Surface Water Run-off		

Pre & Post development run-off volume - FSSR 16
Applied to pervious and impervious areas
For 1 in 100yr 6hr storm

Input data from sheet 2

Total area (Ha)	55.3000	from sht 2	
Pre-dev PIMP (%)	0.00	from sht 2	Or zero if no pre-development drainage
Post-dev PIMP (%)	0.00	from sht 2	
Pre-dev Perv Area (Ha)	55.3000	calculated	
Pre-dev Imp Area (Ha)	0.0000	calculated	
Post-dev Perv Area (Ha)	55.3000	calculated	
Post-dev Imp Area (Ha)	0.0000	calculated	
SAAR (mm)	750.0	from sht 2	
CWI	110	from sht 2	
SPR (%)	37.00	from sht 2	

DPR _{CWI} (%)	-3.750	calc	0.25*(CWI-125)
DPR _{RAIN} (%)	6.148	calc	0.45*(P-40)^0.7 for P>40mm
PR _p (%) (perv area)	39.398	calc	SPR + DPR _{CWI} + DPR _{RAIN}
PR _i (%) (imp area)	100.000	defined	100% of impervious area

Rainfall data
(M100-360 min)

Rainfall P (mm)	63.00	from sht 2	
CC factor	1.30	from sht 2	
Rainfall Pcc (mm)	81.90	calculated	

Storm duration (mins)	360	defined	
-----------------------	-----	---------	--

Run-off volume $V = PR/100 * A * 10000 * P/1000 = PR * A * P / 10$ (m3)

where PR = Percentage run-off PR_p or PR_i (%)
 A = Catchment area A_p or A_i (Ha)
 P = Rainfall depth (M100-360) P or Pcc (mm)
 (including climate change for post development only)

	Pre-dev	Post dev
	-	incl CC
Run-off volume- Pervious area (m3)	13725.87	17843.63
Run-off volume- Impervious area (m3)	0.00	0.00
Total run-off volume (m3)	13725.87	17843.63
Volume increase (m3)	4117.76	

N.B. These calculations are for planning purposes only and will need to be reviewed at the detailed design stage.



Eden Court, Lon Parcwr,
Ruthin, 01824 702220

Calculations

ref :

W1209

prefix - page no.

SWR6

Scheme :

Portsmouth Golf Club

dated :

Section :

Surface Water Run-off

30/05/2012

Z1 Factor for England & Wales (Values from BRE 365 - Table 1)

<u>Ratio</u>	<u>Rainfall Duration (mins)</u>					
<u>r</u>	15	30	60	120	240	360
0.12	0.450	0.670	1.000	1.480	2.170	2.750
0.15	0.480	0.690	1.000	1.420	2.020	2.460
0.18	0.510	0.710	1.000	1.360	1.860	2.250
0.20	0.530	0.723	1.000	1.340	1.800	2.163
0.21	0.540	0.730	1.000	1.330	1.770	2.120
0.24	0.560	0.750	1.000	1.300	1.710	2.000
0.25	0.567	0.753	1.000	1.290	1.687	1.960
0.27	0.580	0.760	1.000	1.270	1.640	1.880
0.30	0.590	0.770	1.000	1.250	1.570	1.780
0.33	0.610	0.780	1.000	1.230	1.530	1.730
0.35	0.617	0.787	1.000	1.223	1.497	1.690
0.36	0.620	0.790	1.000	1.220	1.480	1.670
0.39	0.630	0.800	1.000	1.210	1.460	1.620
0.40	0.633	0.823	1.000	1.207	1.447	1.603
0.42	0.640	0.810	1.000	1.200	1.420	1.570
0.45	0.650	0.820	1.000	1.190	1.380	1.510

Z2 Factors for England & Wales from table 6.2 - Wallingford Procedure

<u>M5 Rain</u>	<u>Diff</u>	<u>M1</u>	<u>M30</u>	<u>M100</u>
<u>(mm)</u>	<u>(mm)</u>			
		1	30	100
5.00	5	0.62	1.45	1.79
10.00	5	0.61	1.52	1.91
15.00	5	0.62	1.55	1.99
20.00	5	0.64	1.58	2.03
25.00	5	0.66	1.57	2.01
30.00	10	0.68	1.55	1.97
40.00	10	0.70	1.50	1.89
50.00	25	0.72	1.45	1.84
75.00	25	0.76	1.36	1.64
100.00	50	0.78	1.32	1.54
150.00	50	0.78	1.26	1.45
200.00		0.78	1.24	1.40
N.B. M30 Factors interpolated graphically				

N.B. These calculations are for planning purposes only and will need to be reviewed at the detailed design stage.



Eden Court, Lon Parcwr,
Ruthin, 01824 702220

Calculations

ref :

W1209

prefix - page no.

SWR7

dated :

30/05/2012

Scheme :

Portsmouth Golf Club

Section :

Surface Water Run-off

Hydrological Regions (From Defra / EA R&D Tech Report W5-074/A Rev D)



Figure 1.1 Hydrological regions of UK

Grid Ref: - 468600E 106720N - Hydrological region 7

N.B. These calculations are for planning purposes only and will need to be reviewed at the detailed design stage.



Eden Court, Lon Parcwr,
Ruthin, 01824 702220

Calculations

ref :

W1209

prefix - page no.

SWR8

Scheme :

Portsmouth Golf Club

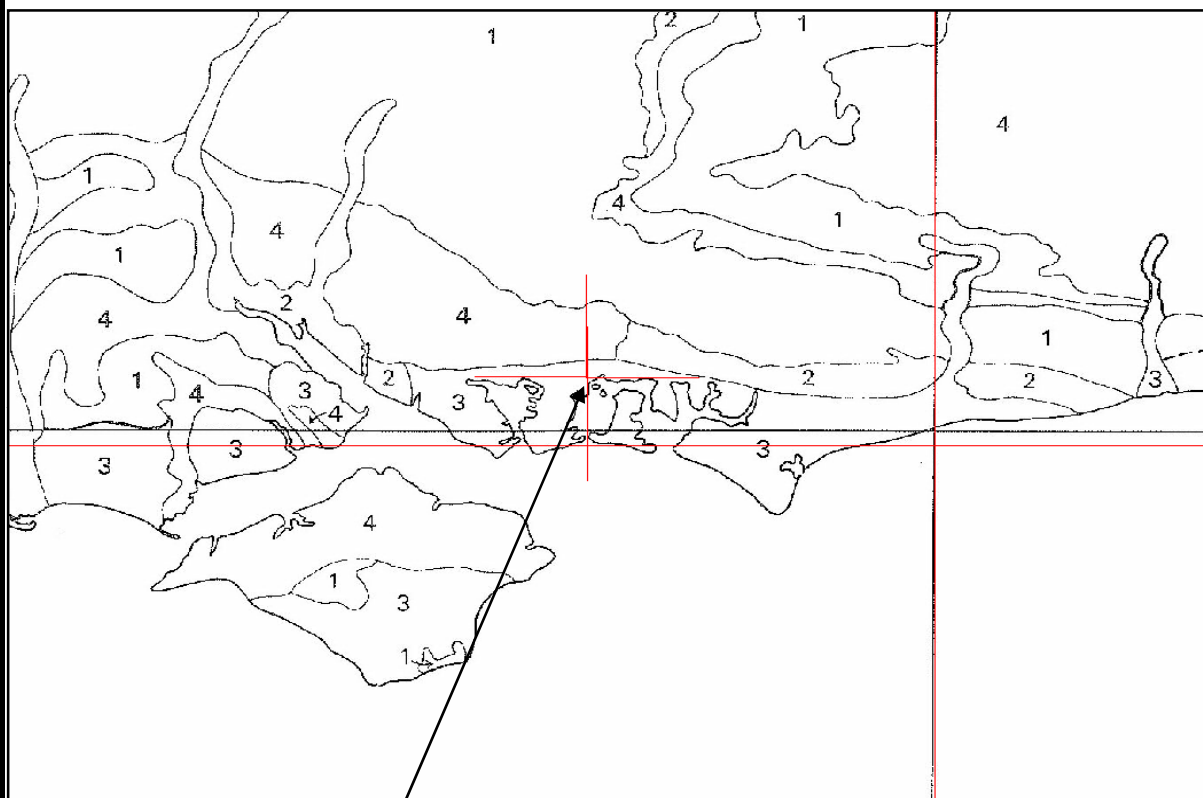
dated :

Section :

Surface Water Run-off

30/05/2012

Soil Classification Chart



Grid Ref: - 468600E 106720N - Soil Classification = 3

N.B. These calculations are for planning purposes only and will need to be reviewed at the detailed design stage.



Eden Court, Lon Parcwr,
Ruthin, 01824 702220

Calculations

ref :

W1209

prefix - page no.

SWR9

Scheme :

Portsmouth Golf Club

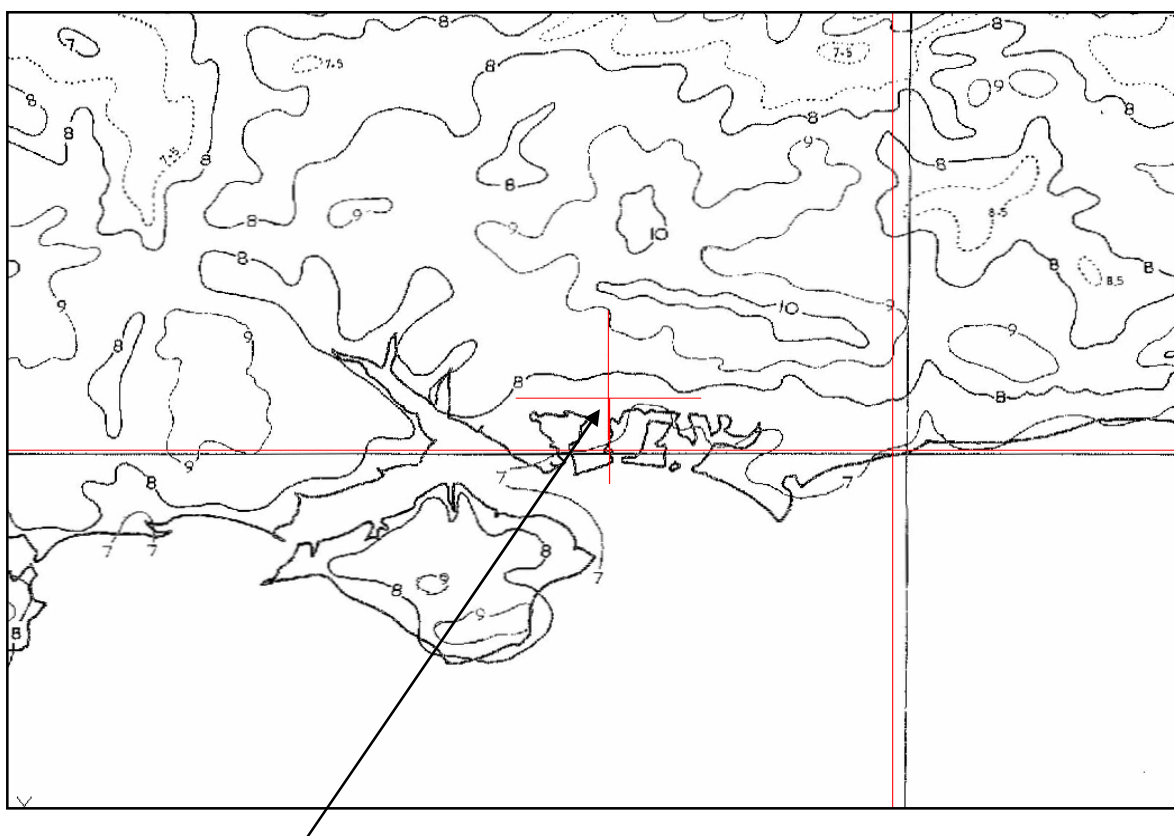
dated :

Section :

Surface Water Run-off

30/05/2012

Standard Annual Average Rainfall (SAAR) Chart



Grid Ref: - 468600E 106720N - SAAR = 750mm

N.B. These calculations are for planning purposes only and will need to be reviewed at the detailed design stage.



Eden Court, Lon Parcwr,
Ruthin, 01824 702220

Calculations

ref :

W1209

prefix - page no.

SWR10

Scheme :

Portsmouth Golf Club

Section :

Surface Water Run-off

dated :

30/05/2012

M5-60min Rainfall + r (From Defra / EA R&D Tech Report W5-074/A Rev D)

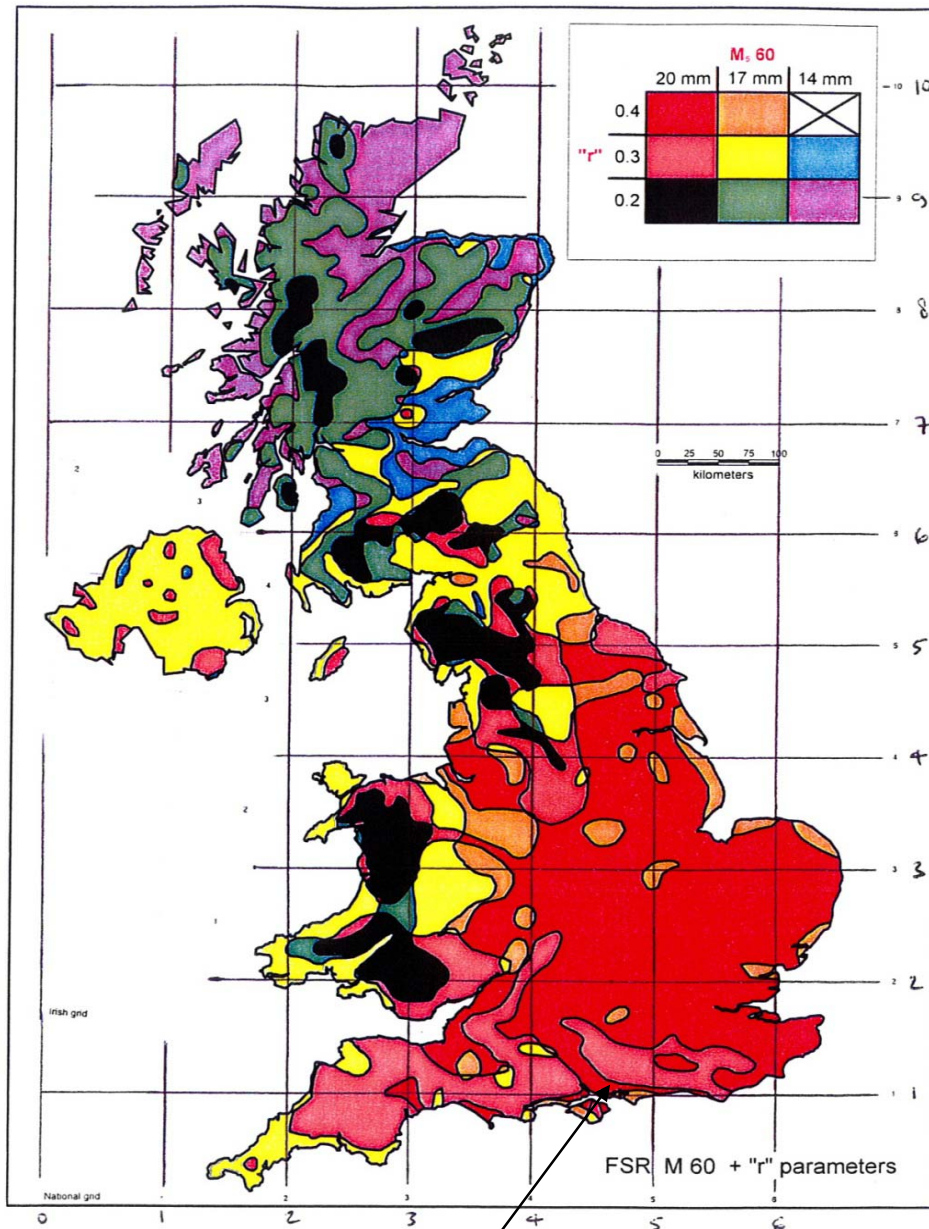


Figure 2 Hydrological rainfall zones of UK

Grid Ref: - 468600E 106720N - M5-60 = 20mm, 'r' = 0.4

N.B. These calculations are for planning purposes only and will need to be reviewed at the detailed design stage.



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Calculations

ref :

W1209

prefix - page no.

SWR11

dated :

30/05/2012

Scheme :

Portsmouth Golf Club

Section :

Surface Water Run-off

M100 6hr Rainfall (From Defra / EA R&D Tech Report W5-074/A Rev D)

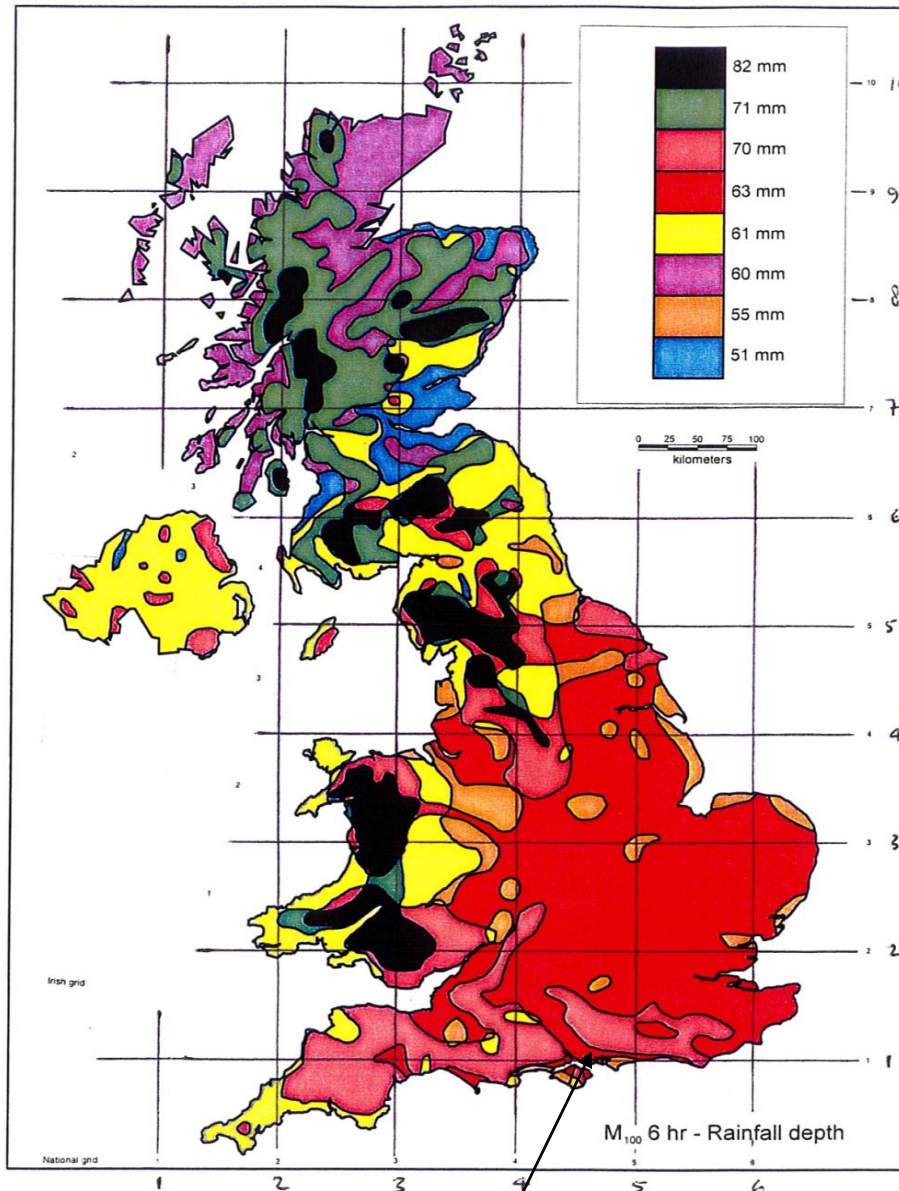


Figure 3.1 100 year 6 hour rainfall depths of UK

Grid Ref: - 468600E 106720N - M100-6hr Rainfall = 63

N.B. These calculations are for planning purposes only and will need to be reviewed at the detailed design stage.



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Calculations

ref :

W1209

prefix - page no.

SWR12

Scheme :

Portsmouth Golf Club

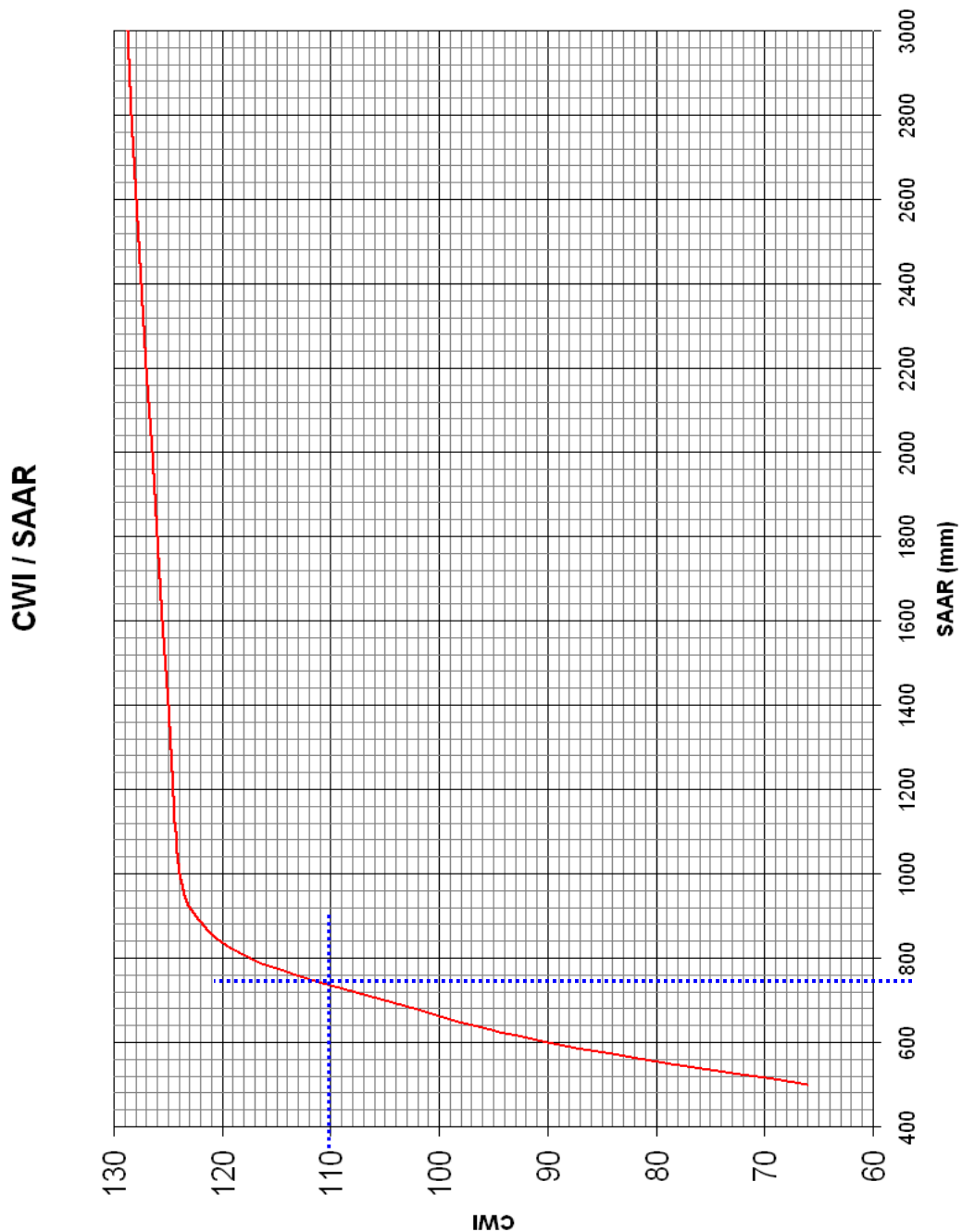
dated :

Section :

Surface Water Run-off

30/05/2012

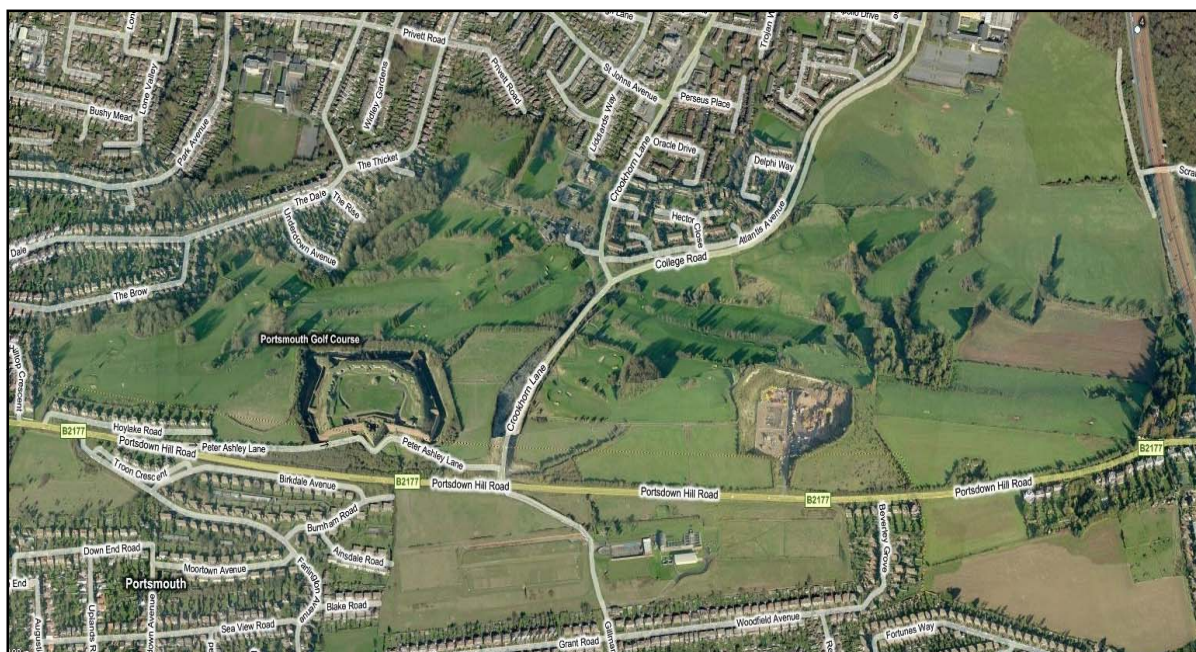
Catchment Wetness Index (CWI) vs Standard Annual Average Rainfall (SAAR)



N.B. These calculations are for planning purposes only and will need to be reviewed at the detailed design stage.

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Scheme :	Portsmouth Golf Club		prefix - page no. SWR13
Section :	Surface Water Run-off		dated : 30/05/2012

Pre-development Area



Total area = 55.3Ha
Impermeable area = 0m²= 0%
Permeable area = 55.3Ha = 100%

N.B. These calculations are for planning purposes only and will need to be reviewed at the detailed design stage.



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Ruthin, 01824 702220

Calculations

ref :

W1209

prefix - page no.

SWR14

Scheme :

Portsmouth Golf Club

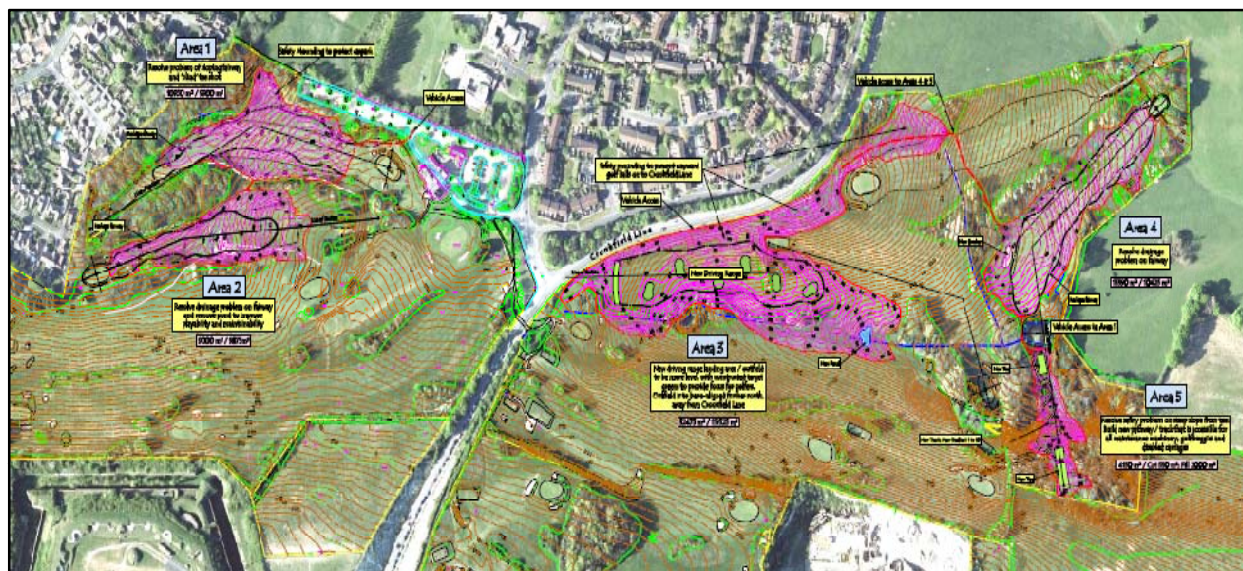
dated :

Section :

Surface Water Run-off

30/05/2012

Post-development Area



Total area = 55.3Ha

Impermeable area = 0m² = 0%

Permeable area = 55.3Ha = 100%

N.B. These calculations are for planning purposes only and will need to be reviewed at the detailed design stage.