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1. INTRODUCTION

1.1. SCOPE OF REPORT

1.1.1. WSP UK Limited (WSP) have been commissioned by Blenheim Estates to prepare a surface water drainage strategy in support of an outline planning application for the redevelopment of the Kwik-Fit site at 37-41 Brighton Road, Shoreham-by-Sea (herein referred to as 'the development' in this report.

1.1.2. The development will include up to 49 apartments and approximately 90 m² of retail space. The proposed development is situated south of Brighton Road and to the north of the Free Wharf Development.

1.1.3. The proposed development site covers an area of approximately 0.215 hectares (ha).

1.1.4. This strategy has been developed in accordance with West Sussex LLFA Policy for the Management of Surface Water and SuDS manual (C753, 2015).

The following documents have been reviewed in the preparation this surface water drainage strategy.

- Adur Local Plan 2017[1]
- Shoreham Harbour Flood Risk Management Guide,2015[2]
- Shoreham Harbour Joint Area Action Plan, 2019[3]
- West Sussex LLFA Policy for the Management of Surface Water, November 2018[4]
- West Sussex Local Flood Risk Management Strategy (LFRMS), 2014[5]
- Shoreham Harbour Joint Area Action Plan, 2019[6]
- National planning policy framework, 2024[7]

[1] Adur Local Plan 2017 (adopted) - Complete document (adur-worthing.gov.uk)

[2] FRMG SPD Consultation Statement Final Sep 15.pdf (brighton-hove.gov.uk)

[3] Shoreham Harbour Joint Area Action Plan (JAAP) - adopted October 2019 (adur-worthing.gov.uk)

[4] https://www.midsussex.gov.uk/media/3826/ws-llfa-policy-for-management-of-surface-water.pdf

[5] https://www.westsussex.gov.uk/media/1595/local_flood_risk_management_strategy.pdf

[6] https://www.adur-worthing.gov.uk/media/Media,156282,smxx.pdf

[7] https://assets.publishing.service.gov.uk/media/675abd214cbda57cacd3476e/NPPF-December-2024.pdf

2. EXISTING SCENARIO

2.1. SITE LOCATION

2.1.1. The proposed development site is currently occupied by a single storey industrial unit with Kwik Fit as a tenant. The postcode for the site is BN43 6RE. The site fronts Brighton Road and is surrounded by a mix of residential and commercial properties. To the east and south, it is adjacent to the Free Wharf Development that is currently under construction. To the west, there is a car wash facility that has right of way access at both the front and rear of the site.

A general site location plan is presented in Figure 1 below:

Figure 1 Site location

2.2. TOPOGRAPHY

2.2.1. Existing ground levels surrounding the site generally lies in the range of 4.0 mAOD to 4.6 mAOD as per the topographical survey. The River Adur is located 65 m away (at closest point) which flows from west to east at the southern side of the site.

The site generally slopes from south-west to north towards Brighton Road, with a high point of 4.6mAODat the south-west corner and a low point of 4.0mAOD on the north edge of the site.

2.3. EXISTING SURFACE WATER DRAINAGE

2.3.1. The total catchment area or the site is 0.215ha which is fully impermeable with hardstanding surfaces and building roofs. According to the topographical survey, the site slopes towards the north edge along Brighton Road.

2.3.2. The survey identifies several surface water gullies and chambers placed across the site, yet the precise location of the existing outfall remains unidentified. There are no details of any existing foul or combined sewers within Brighton Road according to a utility search report from Southern Water. Based on the presence of highway drainage gullies along Brighton Road, it is assumed that there is an existing surface water drainage system in Brighton Road and that the existing surface water drainage network for the site outfalls to this system in Brighton Road. It is assumed that the proposed site surface water drainage system will maintain this connection to the Brighton Road surface water drainage system.

2.3.3. It is assumed that infiltration to ground is very unlikely in this area due to assumed high ground water levels being in close vicinity to the sea. Further investigation of groundwater levels and infiltration rates will be undertaken prior to detailed design stage.

2.3.4. The Proposed Development is at very low probability of surface water flooding as identified The EA's flood map for planning from surface water (shown in Figure 2).

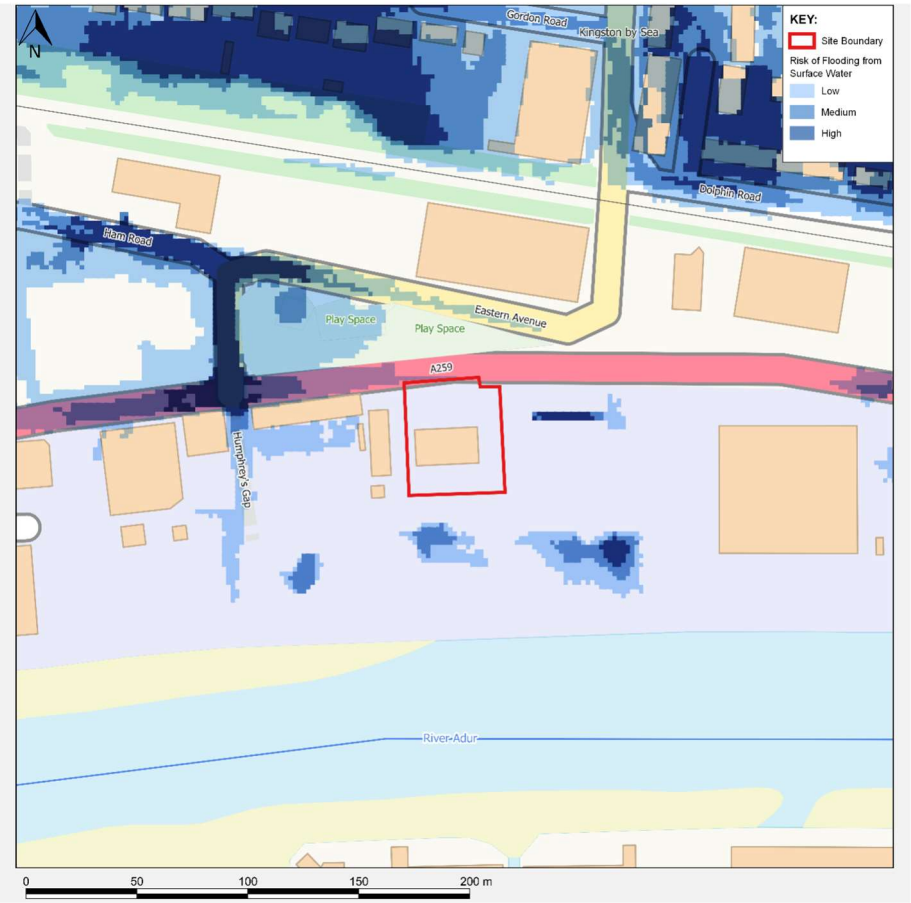


Figure 2 EA surface water flood extents

2.4. EXISTING PEAK DISCHARGE RATES

2.4.1. Peak surface water discharge rates for pre-development site are calculated in MicroDrainage software using FEH rainfall data (2 yr, 30 yr and 100 yr) and FSR data (1 yr) for the site by creating a model based on the topographical survey and assumed outfall to drainage system for Brighton Road. The calculated peak discharge rates are presented in the Table 1 below. MicroDrainage calculations are attached in appendix A

Table 1 Pre-development surface water run-off rates

Storm return period (years)	Pre-development surface water peak rate of runoff (l/s)
1	32.30
2	36.80
30	74.60
100	85.00

3. PROPOSED DEVELOPMENT SCHEME

3.1.1. The proposed development is mixed-use and will include up to 49 apartments and approximately 90 m² of retail space. The scheme includes 18 parking spaces in the undercroft. The residential lobby and a commercial unit are proposed on the ground floor with prominent corners facing Brighton Road, while the undercroft car park is located at the rear of the site. The established frontage along Brighton Road is enhanced by a double-height colonnade and a landscaped green strip. The building is designed with residential units located on the upper floors, with a minimum finished floor level (FFL) of 8.0 mAOD. The finished floor level for the ground floor, which is designated for commercial use, is set at 4.4 mAOD. Figure 3 shows the FFLs and northern elevation of the proposed development.

Figure 3 Floor levels and northern elevation

The proposed development masterplan is shown in Figure 4 below.

Figure 4 Proposed development

3.2. PROPOSED SURFACE WATER DRAINAGE

3.2.1. The impermeable area of the site post-development is considered for design purposes to be equal to that of the pre-development site i.e. 0.215ha. The existing outfall shall be retained in the post-development site.

3.2.2. According to 'West Sussex LLFA Policy for the Management of Surface Water'8, redeveloped sites should restrict the surface water discharge rate to the greenfield runoff rate for 1 in 1 year. The greenfield runoff rate for the Kwik-fit site is calculated using web-based greenfield runoff rate estimation tool[9] and FEH data which is 0.14 l/s (refer appendix A for calculations).

[8] https://www.midsussex.gov.uk/media/3826/ws-llfa-policy-for-management-of-surface-water.pdf

[9] https://www.uksuds.com/tools/members/greenfield-runoff-rate-estimation-members

3.2.3. The attenuation requirement for the site, restricting discharge rate to minimum of 2 l/s for 100-year storm event with 40% climate change is estimated to be approximately 350m3. Achieving such a large attenuation volume is impractical for this small site due to spatial limitations.

3.2.4. According to paragraph 5.4.5 in the "West Sussex LLFA Policy for the Management of Surface Water," if restricting discharge to the greenfield runoff rate is not feasible, brownfield runoff rates can be used with a 50% betterment. To provide a robust drainage solution to reduce flood risk downstream, the brownfield discharge rate for 1-year event will be used with 50% betterment i.e. 16.15 l/s, during all rainfall event up to and including 100-year rainfall event with 40% climate change. Existing drainage outfall will be retained in the post-development site. A quick analysis using MicroDrainage Source Control software with this flow control setting estimates attenuation volume in the range of 85m3 to 137m3 with average of approximately 111m3. Quick Storage Estimate calculations are given in appendix A. This can be accommodated below the right of access for the car wash on the northern side of the site. The detailed design of surface water drainage will include the exact location and dimensions of the attenuation feature. A tentative layout for the same is shown in the Figure 5.

3.2.5. As, the existing outfall connection is to be retained, the receiving drainage network should be able to accommodate the reduced discharge rate in in the post-development site.

3.2.6. The guidance stipulates that the surface water drainage system must be designed to prevent flooding on any part of the site during a 1 in 30-year rainfall event. Additionally, it should ensure that no flooding occurs in any part of a building, including basements, or in any utility plants susceptible to water during a 1 in 100-year event. The detailed design of the surface water drainage system will consider these parameters, with pipe networks appropriately arranged to meet these requirements.

3.2.7. The existing site, sloping north towards Brighton Road, will maintain this gradient in the proposed development. During extreme rainfall events, exceedance flow will get directed towards Brighton Road, where it will be captured by the Brighton Road drainage system.

3.2.8. The use of planting, landscaping area with bioretention features and permeable paving at the ground level will offer improvement in post-development peak run-off both qualitatively and quantitatively. The amount of potential improvement to the surface water run-off post development is dependent upon the landscaping design and shall be addressed at detailed design stage.

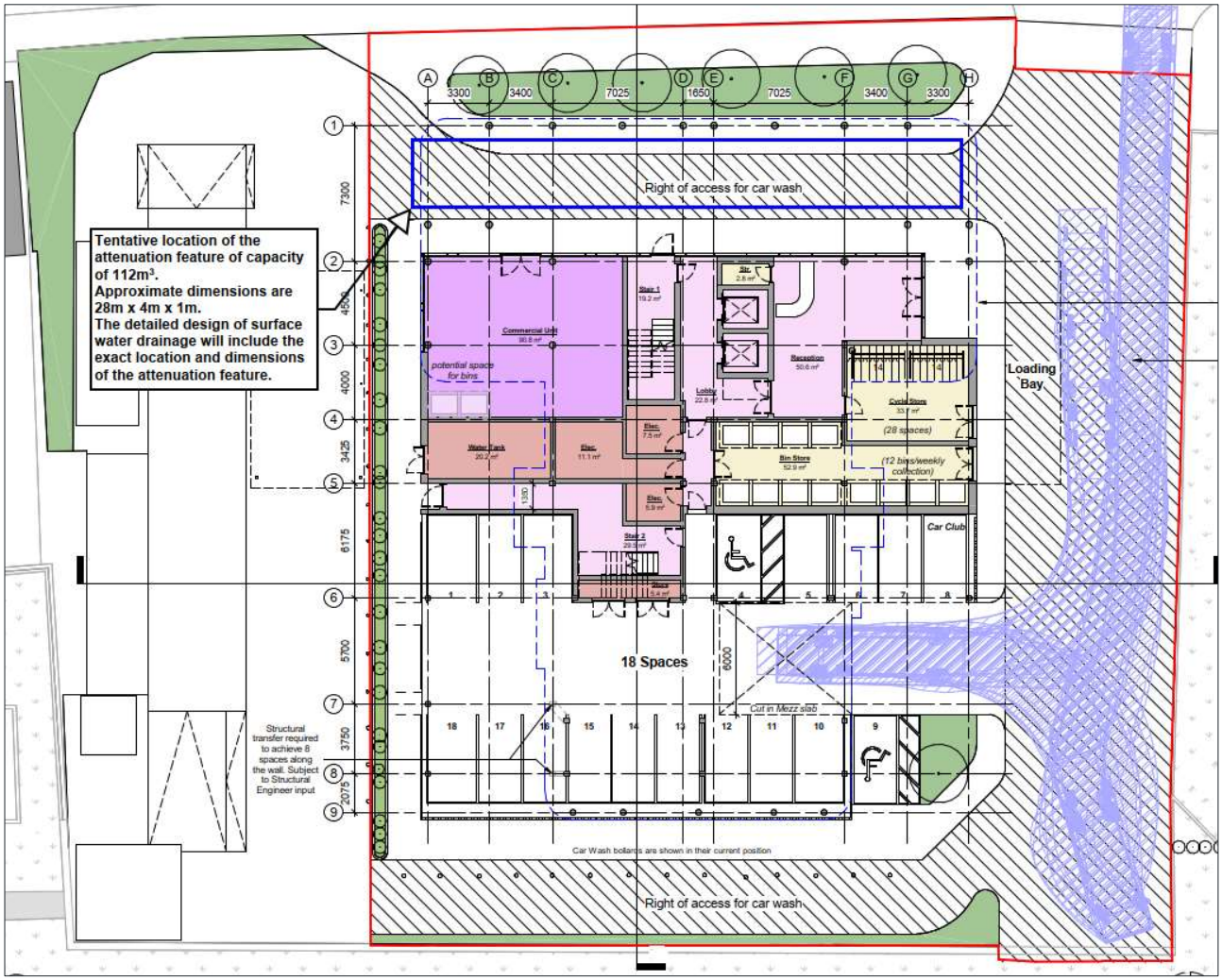


Figure 5 Tentative location of attenuation feature

3.3. WATER QUALITY

3.3.1. According to SuDS manual (CIRIA 75310 - Table 4.3), the runoff from residential roofs is considered of very low risk of pollution hazard and does not require and pollution control measures except removal of gross solids and sediments only. This can be achieved by use of trapped gullies, silt traps and catchpits etc. in the surface water drainage system. The detailed design of the drainage will consider these provisions.

[10] https://www.ciria.org/CIRIA/CIRIA/Item_Detail.aspx?iProductCode=C753

3.3.2. The post-development site will have car parks and internal roads which are considered as low risk areas for containing contaminants. SuDS manual (CIRIA 753 – Table 4.3) suggests using the simple index method to assess the pollution control measures.

3.3.3. The simple index method is specified in the SuDS Manual (CIRIA 753 – Table 26.2) and provides pollution hazard indices for different land use classifications. An extract applicable to the development site is provided in Table 2.

Table 2 Extract of table 26.3 from SuDS manual

Pollution hazard indices for different land use classifications				
Land use	**Pollution hazard level**	**Total suspended solids (TSS)**	**Metals**	**Hydro-carbons**
Residential roofs	Very low	0.2	0.2	0.05
Individual property driveways, residential car parks, low traffic roads (eg cul de sacs, homezones and general access roads) and non-residential car parking with infrequent change (eg schools, offices) ie < 300 traffic movements/day	Low	0.5	0.4	0.4

3.3.4. These indices are to be compared against the mitigation indices specified in SuDS manual (CIRIA-753 – Table 26.3), an extract of which showing the mitigation indices for SuDS options is provided in Table 3.

Table 3 Indicative SuDS mitigation indices - Extract of Table 26.3 from the SuDS Manual

Indicative SuDS mitigation indices for discharges to surface waters			
	Mitigation indices[1]		
Type of SuDS component	**TSS**	**Metals**	**Hydrocarbons**
Filter strip	0.4	0.4	0.5
Filter drain	0.4[2]	0.4	0.4
Swale	0.5	0.6	0.6
Bioretention system	0.8	0.8	0.8
Permeable pavement	0.7	0.6	0.7
Detention basin	0.5	0.5	0.6
Pond[4]	0.7[3]	0.7	0.5
Wetland	0.8[3]	0.8	0.8
Proprietary treatment systems[5,6]	These must demonstrate that they can address each of the contaminant types to acceptable levels for frequent events up to approximately the 1 in 1 year return period event, for inflow concentrations relevant to the contributing drainage area.		

3.3.5. The SuDS manual also specifies that proprietary systems also can be used as pollution control measures. These products must demonstrate that they can address each of the contaminant types to acceptable levels for inflow concentrations relevant to the contributing drainage area.

3.3.6. The specification of the SuDS componants shall be determined in the detailed design phase.

Provision of pollution control elements and treatment prior to discharging in the receiving drainage network shall ensure a significant improvement to the quality of the surface water run-off from the site.

3.4. SuDS MAINTENANCE

3.4.1. Details for the SuDS operation and maintenance activities are provided within chapter 32 of the SuDS manual. A summary of typical key SuDS components is given in Table 4 (an extract of Table 32.1 from SuDS manual) All the proposed SuDS components shall undergo regular inspection and maintenance activities in accordance with the SuDS manual.

3.4.2. SuDS components at the site are not to be adopted and will be maintained for their lifetime by the managing company of the development for the site-wide SuDS features.

3.4.3. Further operational activities for the SuDS components described for the site include regular litter and debris removal; and weed and invasive plant control to ensure the drainage systems function without their design characteristics being compromised.

3.4.4. Contractors should protect SuDS components from adverse sediment runoff during the construction phase and an initial pre-handover inspection is required (CCTV survey, etc.) to ensure that the drainage system has been constructed as designed.

Table 4 Extract of Table 32.1 of the SuDS Manual

Typical key SuDS components operation and maintenance activities (for full specifications, see Chapters 11–23)													
Operation and maintenance activity	**SuDS component**												
	Pond	Wetland	Detention basin	Infiltration basin	Soakaway	Infiltration trench	Filter drain	Modular storage	Pervious pavement	Swale/bioretention/ trees	Filter strip	Green roofs	Proprietary treatment systems
Regular maintenance													
Inspection	■	■	■	■	■	■	■	■	■	■	■	■	■
Litter and debris removal	■	■	■	■	□	■	■	□	■	■	■		□
Grass cutting	■	■	■	■	□	■	■	□	□	■	■		
Weed and invasive plant control	□	□	□	□		□	□		□		□	■	
Shrub management (including pruning)	□	□	□	□					□	□	□		
Shoreline vegetation management	■	■	□										
Aquatic vegetation management	■	■	□										
Occasional maintenance													
Sediment management[1]	■	■	■	■	■	■	■	■	■	■	■		■
Vegetation replacement	□	□	□	□						□	□	■	
Vacuum sweeping and brushing									■				
Remedial maintenance													
Structure rehabilitation /repair	□	□	□	□	□	□	□	□	□	□	□	□	
Infiltration surface reconditioning				□	□	□	□		□	□	□		

Key

■ will be required

□ may be required

Notes

1 Sediment should be collected and managed in pre-treatment systems, upstream of the main device.

4. CONCLUSION

4.1.1. The total catchment area or the pre-development site is 0.215ha which is fully impermeable with hardstanding surfaces and building roofs. The outfall for the existing surface water drainage network is assumed to be to the highway drainage system on Brighton Road.

4.1.2. The impermeable area of the site post-development is considered for design purposes to be equal to that of the pre-development site, i.e. 0.215ha. The existing outfall shall be retained in post-development site.

4.1.3. To provide a robust drainage solution to reduce flood risk downstream, the brownfield discharge rate for 1-year event will be used with 50% betterment i.e. 16.15 l/s, during all rainfall event up to and including 100-year rainfall event with 40% climate change, which requires approximately 112m3 of attenuation volume which can be provided within the site. The detailed design of surface water drainage will include the exact location and dimensions of the attenuation feature.

4.1.4. The use of proprietary systems is considered compliant in accordance with SuDS manual for pollution control measures. These products must demonstrate that they can address each of the contaminant types to acceptable levels for inflow concentrations relevant to the contributing drainage area. The specification of the proprietary system shall be determined in the detailed design phase.

Appendix A

EXISTING DISCHARGE RATES AND PROPOSED ATTENUATION REQUIREMENT CALCULATIONS

Greenfield runoff rate estimation for sites

www.uksuds.com | Greenfield runoff tool

Calculated by:	Vishvesh Deshpande
Site name:	Kwik-Fit
Site location:	Shoreham-by-Sea

This is an estimation of the greenfield runoff rates that are used to meet normal best practice criteria in line with Environment Agency guidance "Rainfall runoff management for developments", SC030219 (2013) , the SuDS Manual C753 (Ciria, 2015) and the non-statutory standards for SuDS (Defra, 2015). This information on greenfield runoff rates may be the basis for setting consents for the drainage of surface water runoff from sites.

Site Details

Latitude:	50.83268° N
Longitude:	0.26588° W
Reference:	2778010919
Date:	Jan 09 2025 12:02

Runoff estimation approach

FEH Statistical

Site characteristics

Total site area (ha):	0.215

Methodology

Q_{MED} estimation method:	Calculate from BFI and SAAR
BFI and SPR method:	Specify BFI manually
HOST class:	5
BFI / BFIHOST:	0.875
Q_{MED} (l/s):	0.15
Q_{BAR} / Q_{MED} factor:	1.14

Hydrological characteristics

	Default	Edited
SAAR (mm):	740	736
Hydrological region:	7	7
Growth curve factor 1 year:	0.85	0.85
Growth curve factor 30 years:	2.3	2.3
Growth curve factor 100 years:	3.19	3.19
Growth curve factor 200 years:	3.74	3.74

Notes

(1) Is Q_{BAR} < 2.0 l/s/ha?

When Q_{BAR} is < 2.0 l/s/ha then limiting discharge rates are set at 2.0 l/s/ha.

(2) Are flow rates < 5.0 l/s?

Where flow rates are less than 5.0 l/s consent for discharge is usually set at 5.0 l/s if blockage from vegetation and other materials is possible. Lower consent flow rates may be set where the blockage risk is addressed by using appropriate drainage elements.

(3) Is SPR/SPRHOST ≤ 0.3?

Where groundwater levels are low enough the use of soakaways to avoid discharge offsite would normally be preferred for disposal of surface water runoff.

Greenfield runoff rates

	Default	Edited

Q_{BAR} (l/s):	0.17	0.17
1 in 1 year (l/s):	0.14	0.14
1 in 30 years (l/s):	0.38	0.38
1 in 100 year (l/s):	0.53	0.53
1 in 200 years (l/s):	0.62	0.62

Existing Network Details for Storm

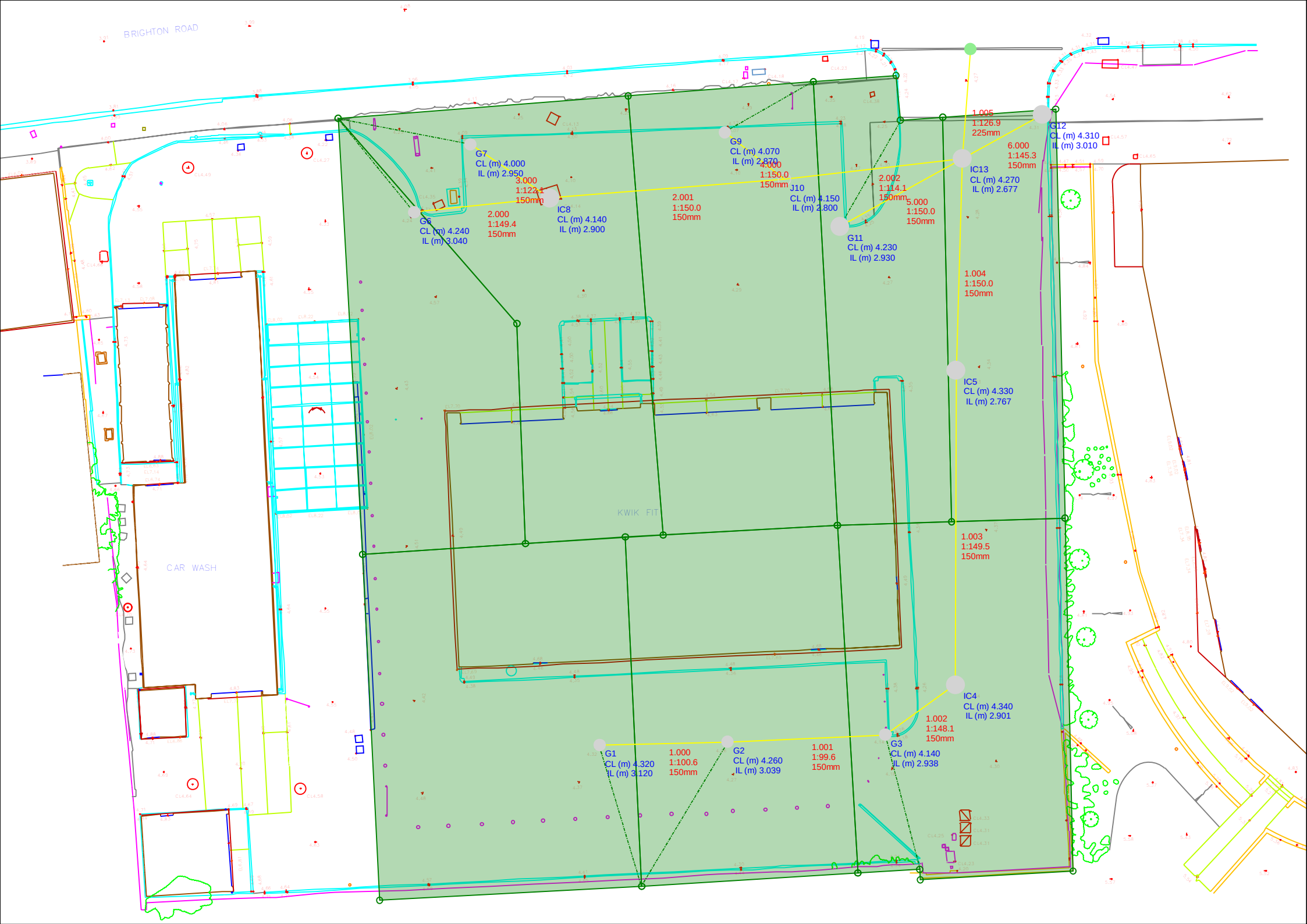
PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type
1.000	8.146	0.081	100.6	0.037	5.00	0.0	0.600	o	150	Pipe/Conduit
1.001	10.061	0.101	99.6	0.030	0.00	0.0	0.600	o	150	Pipe/Conduit
1.002	5.479	0.037	148.1	0.032	0.00	0.0	0.600	o	150	Pipe/Conduit
1.003	20.034	0.134	149.5	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit
1.004	13.499	0.090	150.0	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit
2.000	8.668	0.058	149.4	0.022	5.00	0.0	0.600	o	150	Pipe/Conduit
3.000	6.103	0.050	122.1	0.031	5.00	0.0	0.600	o	150	Pipe/Conduit
2.001	15.004	0.100	150.0	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit
4.000	4.842	0.032	150.0	0.032	5.00	0.0	0.600	o	150	Pipe/Conduit
2.002	11.406	0.100	114.1	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit
5.000	8.928	0.060	150.0	0.021	5.00	0.0	0.600	o	150	Pipe/Conduit
6.000	5.811	0.040	145.3	0.019	5.00	0.0	0.600	o	150	Pipe/Conduit
1.005	6.981	0.055	126.9	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit

Network Results Table

PN	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Vel (m/s)	Cap (l/s)
1.000	3.120	0.037	0.0	1.00	17.7
1.001	3.039	0.067	0.0	1.01	17.8
1.002	2.938	0.099	0.0	0.82	14.6
1.003	2.901	0.099	0.0	0.82	14.5
1.004	2.767	0.099	0.0	0.82	14.5
2.000	3.040	0.022	0.0	0.82	14.5
3.000	2.950	0.031	0.0	0.91	16.1
2.001	2.900	0.053	0.0	0.82	14.5
4.000	2.870	0.032	0.0	0.82	14.5
2.002	2.800	0.085	0.0	0.94	16.6
5.000	2.930	0.021	0.0	0.82	14.5
6.000	3.010	0.019	0.0	0.83	14.7
1.005	2.677	0.224	0.0	1.16	46.1

Area Summary for Storm

Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
1.000	Classification	Default	100	0.037	0.037	0.037
1.001	Classification	Default	100	0.030	0.030	0.030
1.002	Classification	Default	100	0.032	0.032	0.032
1.003	-	-	100	0.000	0.000	0.000
1.004	-	-	100	0.000	0.000	0.000
2.000	Classification	Default	100	0.022	0.022	0.022
3.000	Classification	Default	100	0.031	0.031	0.031
2.001	-	-	100	0.000	0.000	0.000
4.000	Classification	Default	100	0.032	0.032	0.032
2.002	-	-	100	0.000	0.000	0.000
5.000	Classification	Default	100	0.021	0.021	0.021
6.000	Classification	Default	100	0.019	0.019	0.019
1.005	-	-	100	0.000	0.000	0.000
				Total	Total	Total
				0.224	0.224	0.224


BRIGHTON ROAD
KWIK FIT
CAR WASH
G7
CL (m) 4.000
IL (m) 2.950
3.000
1:122.1
150mm
G9
CL (m) 4.070
IL (m) 2.870
4.000
1:150.0
150mm
1.005
1:126.9
225mm
G12
CL (m) 4.310
IL (m) 3.010
6.000
1:145.3
150mm
IC13
CL (m) 4.270
IL (m) 2.677
J10
CL (m) 4.150
IL (m) 2.800
2.002
1:114.1
150mm
5.000
1:150.0
150mm
G6
CL (m) 4.240
IL (m) 3.040
2.000
1:149.4
150mm
IC8
CL (m) 4.140
IL (m) 2.900
2.001
1:150.0
150mm
G11
CL (m) 4.230
IL (m) 2.930
1.004
1:150.0
150mm
IC5
CL (m) 4.330
IL (m) 2.767
1.003
1:149.5
150mm
IC4
CL (m) 4.340
IL (m) 2.901
1.002
1:148.1
150mm
G3
CL (m) 4.140
IL (m) 2.938
1.001
1:99.6
150mm
G2
CL (m) 4.260
IL (m) 3.039
1.000
1:100.6
150mm
G1
CL (m) 4.320
IL (m) 3.120

1 year Return Period 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 * 10m³/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 Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 0 Number of Storage Structures 0 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FSR M5-60 (mm) 19.600 Cv (Summer) 1.000
Region England and Wales Ratio R 0.350 Cv (Winter) 1.000

Margin for Flood Risk Warning (mm) 50.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

Profile(s) Summer and Winter
Duration(s) (mins) 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440
Return Period(s) (years) 1
Climate Change (%) 0

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.
1.000	G1	15 Summer	1	+0%					3.186	-0.084	0.000	0.40
1.001	G2	15 Summer	1	+0%					3.154	-0.035	0.000	0.64
1.002	G3	15 Summer	1	+0%	1/15 Summer				3.116	0.028	0.000	1.19
1.003	IC4	15 Summer	1	+0%	1/15 Summer				3.069	0.018	0.000	0.98
1.004	IC5	15 Summer	1	+0%	1/15 Summer				2.943	0.026	0.000	1.03
2.000	G6	15 Summer	1	+0%					3.095	-0.095	0.000	0.29
3.000	G7	15 Summer	1	+0%					3.014	-0.086	0.000	0.38
2.001	IC8	15 Summer	1	+0%					2.989	-0.061	0.000	0.65
4.000	G9	15 Summer	1	+0%					2.943	-0.077	0.000	0.48
2.002	J10	15 Summer	1	+0%					2.921	-0.029	0.000	0.81
5.000	G11	15 Summer	1	+0%					2.984	-0.096	0.000	0.28
6.000	G12	15 Summer	1	+0%					3.061	-0.099	0.000	0.25
1.005	IC13	15 Summer	1	+0%					2.855	-0.047	0.000	0.98

PN	US/MH Name	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
1.000	G1			6.2	OK	
1.001	G2			10.1	OK	
1.002	G3			14.2	SURCHARGED	
1.003	IC4			13.4	SURCHARGED	
1.004	IC5			13.7	SURCHARGED	
2.000	G6			3.7	OK	
3.000	G7			5.1	OK	
2.001	IC8			8.7	OK	
4.000	G9			5.4	OK	
2.002	J10			13.5	OK*	
5.000	G11			3.5	OK	
6.000	G12			3.1	OK	
1.005	IC13			32.3	OK	

2 year Return Period 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 * 10m³/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 Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 0 Number of Storage Structures 0 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model		FEH Data Type	Point
FEH Rainfall Version		2013 Cv (Summer)	1.000
Site Location	GB 522076 105104 TQ 22076 05104	Cv (Winter)	1.000

Margin for Flood Risk Warning (mm) 50.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440
Return Period(s) (years)	2, 30, 100
Climate Change (%)	0, 0, 0

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)
1.000	G1	15 Summer	2	+0%	2/15 Summer	30/15 Summer			3.306	0.036	0.000
1.001	G2	15 Summer	2	+0%	2/15 Summer	30/15 Summer			3.285	0.096	0.000
1.002	G3	15 Summer	2	+0%	2/15 Summer	30/15 Summer			3.241	0.153	0.000
1.003	IC4	15 Summer	2	+0%	2/15 Summer				3.183	0.132	0.000
1.004	IC5	15 Summer	2	+0%	2/15 Summer				3.019	0.102	0.000
2.000	G6	15 Summer	2	+0%	30/15 Summer				3.103	-0.087	0.000
3.000	G7	15 Summer	2	+0%	30/15 Summer	100/15 Summer			3.055	-0.045	0.000
2.001	IC8	15 Summer	2	+0%	30/15 Summer				3.041	-0.009	0.000
4.000	G9	15 Summer	2	+0%	30/15 Summer				3.001	-0.019	0.000
2.002	J10	15 Summer	2	+0%	2/15 Summer				2.988	0.038	0.000
5.000	G11	15 Summer	2	+0%	30/15 Summer				2.991	-0.089	0.000
6.000	G12	15 Summer	2	+0%	100/15 Summer				3.069	-0.091	0.000
1.005	IC13	15 Summer	2	+0%	2/15 Summer				2.904	0.002	0.000

PN	US/MH Name	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
1.000	G1	0.46			7.1	SURCHARGED	8
1.001	G2	0.71			11.2	SURCHARGED	10
1.002	G3	1.32			15.8	SURCHARGED	9
1.003	IC4	1.10			15.0	SURCHARGED	
1.004	IC5	1.17			15.5	SURCHARGED	
2.000	G6	0.36			4.6	OK	
3.000	G7	0.47			6.3	OK	3
2.001	IC8	0.77			10.3	OK	
4.000	G9	0.58			6.5	OK	
2.002	J10	0.92			15.3	SURCHARGED*	
5.000	G11	0.35			4.4	OK	
6.000	G12	0.32			3.9	OK	
1.005	IC13	1.11			36.8	SURCHARGED	

30 year Return Period 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 * 10m³/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 Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 0 Number of Storage Structures 0 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model		FEH Data Type	Point
FEH Rainfall Version		2013 Cv (Summer)	1.000
Site Location	GB 522076 105104 TQ 22076 05104	Cv (Winter)	1.000

Margin for Flood Risk Warning (mm) 50.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

Profile(s) Summer and Winter
Duration(s) (mins) 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440
Return Period(s) (years) 2, 30, 100
Climate Change (%) 0, 0, 0

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)
1.000	G1	15 Summer	30	+0%	2/15 Summer	30/15 Summer			4.321	1.051	0.576
1.001	G2	30 Summer	30	+0%	2/15 Summer	30/15 Summer			4.261	1.072	1.466
1.002	G3	15 Summer	30	+0%	2/15 Summer	30/15 Summer			4.141	1.053	0.516
1.003	IC4	15 Summer	30	+0%	2/15 Summer				3.964	0.913	0.000
1.004	IC5	15 Summer	30	+0%	2/15 Summer				3.470	0.553	0.000
2.000	G6	15 Summer	30	+0%	30/15 Summer				3.758	0.568	0.000
3.000	G7	15 Summer	30	+0%	30/15 Summer	100/15 Summer			3.769	0.669	0.000
2.001	IC8	15 Summer	30	+0%	30/15 Summer				3.730	0.680	0.000
4.000	G9	15 Summer	30	+0%	30/15 Summer				3.545	0.525	0.000
2.002	J10	15 Summer	30	+0%	2/15 Summer				2.988	0.038	0.000
5.000	G11	15 Summer	30	+0%	30/15 Summer				3.148	0.068	0.000
6.000	G12	15 Summer	30	+0%	100/15 Summer				3.136	-0.024	0.000
1.005	IC13	15 Summer	30	+0%	2/15 Summer				3.117	0.215	0.000

PN	US/MH Name	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
1.000	G1	0.86			13.2	FLOOD	8
1.001	G2	1.35			21.5	FLOOD	10
1.002	G3	2.66			31.9	FLOOD	9
1.003	IC4	1.99			27.2	SURCHARGED	
1.004	IC5	2.08			27.5	SURCHARGED	
2.000	G6	0.71			9.0	SURCHARGED	
3.000	G7	0.92			12.4	SURCHARGED	3
2.001	IC8	1.49			19.8	SURCHARGED	
4.000	G9	1.23			13.9	SURCHARGED	
2.002	J10	1.95			32.4	SURCHARGED*	
5.000	G11	0.72			9.2	SURCHARGED	
6.000	G12	0.74			9.1	OK	
1.005	IC13	2.26			74.6	SURCHARGED	

100 year Return Period 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 * 10m³/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 Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 0 Number of Storage Structures 0 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model		FEH Data Type	Point
FEH Rainfall Version		2013 Cv (Summer)	1.000
Site Location	GB 522076 105104 TQ 22076 05104	Cv (Winter)	1.000

Margin for Flood Risk Warning (mm) 50.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

Profile(s) Summer and Winter
Duration(s) (mins) 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440
Return Period(s) (years) 2, 30, 100
Climate Change (%) 0, 0, 0

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)
1.000	G1	15 Summer	100	+0%	2/15 Summer	30/15 Summer			4.322	1.052	1.814
1.001	G2	30 Summer	100	+0%	2/15 Summer	30/15 Summer			4.263	1.074	3.293
1.002	G3	30 Summer	100	+0%	2/15 Summer	30/15 Summer			4.142	1.054	1.894
1.003	IC4	15 Summer	100	+0%	2/15 Summer				3.979	0.928	0.000
1.004	IC5	15 Summer	100	+0%	2/15 Summer				3.525	0.608	0.000
2.000	G6	15 Summer	100	+0%	30/15 Summer				4.048	0.858	0.000
3.000	G7	15 Summer	100	+0%	30/15 Summer	100/15 Summer			4.001	0.901	0.799
2.001	IC8	15 Summer	100	+0%	30/15 Summer				3.985	0.935	0.000
4.000	G9	15 Summer	100	+0%	30/15 Summer				3.837	0.817	0.000
2.002	J10	15 Summer	100	+0%	2/15 Summer				2.988	0.038	0.000
5.000	G11	15 Summer	100	+0%	30/15 Summer				3.256	0.176	0.000
6.000	G12	15 Summer	100	+0%	100/15 Summer				3.234	0.074	0.000
1.005	IC13	15 Summer	100	+0%	2/15 Summer				3.204	0.302	0.000

PN	US/MH Name	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
1.000	G1	0.86			13.2	FLOOD	8
1.001	G2	1.49			23.6	FLOOD	10
1.002	G3	2.69			32.2	FLOOD	9
1.003	IC4	2.05			28.0	SURCHARGED	
1.004	IC5	2.14			28.4	SURCHARGED	
2.000	G6	0.94			11.9	SURCHARGED	
3.000	G7	1.30			17.4	FLOOD	3
2.001	IC8	1.83			24.5	SURCHARGED	
4.000	G9	1.56			17.5	SURCHARGED	
2.002	J10	2.31			38.5	SURCHARGED*	
5.000	G11	0.91			11.6	SURCHARGED	
6.000	G12	0.86			10.5	SURCHARGED	
1.005	IC13	2.57			85.0	SURCHARGED	

Appendix B

WEST SUSSEX SURFACE WATER STATEMENT PROFORMA

Surface Water Drainage Statement

In order to provide the required information on surface water drainage from the proposed development this pro-forma must be completed in full and be submitted with any planning application which seeks permission for 'major' development. This information contained in this form will be used by West Sussex County Council in its role as Lead Local Flood Authority and 'statutory consultee' on SuDs for all 'major' planning applications. The pro-forma is supported by the Defra/EA Guidance on Rainfall Runoff Management and can be completed using freely available tools including SuDS Tools. The pro-forma should be considered alongside other supporting SuDS Guidance but focuses on ensuring flood risk is not made worse elsewhere. The SuDS solution must operate effectively for as long as the development exists. This pro-forma is based upon current industry standard practice.

1. Site Details

Site	Kwik Fit
Address & post code or LPA reference	37-41 Brighton Road, Shoreham-by-Sea, BN43 6RN
Grid reference	TQ 22212 05113 (E: 522212 m, N:105113 m)
Is the existing site developed or Greenfield?	Developed site
Total Site Area served by drainage system (excluding open space) (Ha)*	0.215 ha
Topographical survey plan showing existing site layout, site levels and drainage system	Yes.

***** The Greenfield runoff off rate from the development which is to be used for assessing the requirements for limiting discharge flow rates and attenuation storage from a site should be calculated for the area that forms the drainage network for the site whatever size of site and type of drainage technique. Please refer to the Rainfall Runoff Management document or CIRIA manual for detail on this.

2. Impermeable Area

	Existing	Proposed	Difference (Proposed-Existing)	Notes for developers & Local Authorities
Impermeable area (ha) (areas to be shown on a plan)	0.215	0.215	-	If the proposed amount of impermeable surface is greater, then runoff rates and volumes will increase. Section 6 must be filled in. If proposed permeability is equal or less than existing, then section 6 can be skipped & section 7 filled in.
Drainage Method (infiltration/sewer/watercourse)	Highway drainage sewer (Assumed)	Highway drainage sewer (Assumed)	N/A	If different from the existing, please fill in section 3. If existing drainage is by infiltration and the proposed is not, discharge volumes may increase. Fill in section 6.

PPG Paragraph 080

3. Proposing to Discharge Surface Water via

	Yes	No	Evidence that this is possible	Notes for developers & Local Authorities
Existing and proposed micro-drainage calculations	Yes		Peak surface water discharge rates for pre-development site are calculated in MicroDrainage software using FEH rainfall data (2 yr, 30 yr and 100 yr) and FSR data (1 yr) for the site by creating a model based on the topographical survey and assumed outfall to drainage system for Brighton Road.	Please provide micro-drainage calculations of existing and proposed run-off rates and volumes in accordance with a recognised methodology or the results of a full infiltration test (see line below) if infiltration is proposed.
Infiltration		No	Investigation of groundwater levels and infiltration rates will be undertaken prior to detailed design stage.	e.g. soakage tests. Section 6 (infiltration) must be filled in if infiltration is proposed.
To watercourse		No		e.g. Is there a watercourse nearby? Please provide details of any watercourse to which the site drains including cross-sections of any adjacent water courses for appropriate distance upstream and downstream of the discharge point (as agreed with the LLFA and/or EA)
To surface water sewer	Yes		The brownfield discharge rate for 1-year event will be used with 50% betterment i.e. 16.15 l/s, during all rainfall event up to and including 100-year rainfall event with 40% climate change. Existing drainage outfall will be retained in the post-development site.	Confirmation from sewer provider that sufficient capacity exists for this connection.

Combination of above		No		e.g. part infiltration part discharge to sewer or watercourse. Provide evidence above.
Has the drainage proposal had regard to the SuDS hierarchy?	Yes			Evidence must be provided to demonstrate that the proposed Sustainable Drainage proposal has had regard to the SuDS hierarchy.
Layout plan showing where the sustainable drainage infrastructure will be located on site.	Yes		The tentative layout for the SuDS components included in the Strategy. The detailed design of surface water drainage will include the exact location and dimensions of the attenuation feature.	Please provide plan reference numbers showing the details of the site layout showing where the sustainable drainage infrastructure will be located on the site. If the development is to be constructed in phases this should be shown on a separate plan and confirmation should be provided that the sustainable drainage proposal for each phase can be constructed and can operate independently and is not reliant on any later phase of development.

Technical Standards S2 and S3

4. Peak Discharge Rates – This is the maximum flow rate at which surface water runoff leaves the site during a particular storm event.

	Existing Rates (l/s)	**Proposed Rates (l/s)**	**Difference (l/s) (Proposed-Existing)**	**Notes for developers & Local Authorities**
Greenfield QBAR	0.14	N/A	N/A	Mean annual Greenfield peak flow - QBAR is approx. 1 in 2 storm events. Use that figure in Section 7a.
1 in 1	32.30	16.15	-16.15	Proposed discharge rates (with mitigation) should be no greater than existing rates for all corresponding storm events. e.g. discharging all flow from site at the existing 1 in 100 event increases flood risk during smaller events.
1 in 30	74.60	16.15	-58.45	
1in 100	85.00	16.15	-68.85	
1 in 100 plus climate change	N/A	16.15		To mitigate for climate change the proposed 1 in 100 +CC must be no greater than the existing 1 in 100 runoff rate. If not, flood risk increases under climate change should be added to the peak rainfall intensity. EA Guidance - Flood Risk Assessments: Climate Change Allowances (Published Feb 2016) https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances

Technical Standards S4 to S9

5. Calculate discharge volumes –The total volume of water leaving the development site for a particular rainfall event. Introducing new impermeable surfaces increases surface water runoff and may increase flood risk outside the development.

	Existing Volume (m^3)	Proposed Volume (m^3)	Difference (m^3) (Proposed-Existing)	Notes for developers & Local Authorities
1 in 1				Proposed discharge volumes (without mitigation) should be no greater than existing volumes for all corresponding storm events. Any increase in volume increases flood risk elsewhere. Where volumes are increased section 6 must be filled in.
1 in 30				
1in 100				
1 in 100 plus climate change				To mitigate for climate change the volume discharge from site must be no greater than the existing 1 in 100 storm event. If not, flood risk increases under climate change.

To provide a robust drainage solution to reduce flood risk downstream, the brownfield discharge rate for 1-year event will be used with 50% betterment i.e. 16.15 l/s, during all rainfall event up to and including 100-year rainfall event with 40% climate change. Existing drainage outfall will be retained in the post-development site. Hence volumetric assessment is not necessary.

6. Calculate attenuation storage – In order to minimise the negative impact on flood risk resulting from increased volumes runoff from the proposed development, storage must be provided.

		Notes for developers & Local Authorities
Storage volume required to retain discharge rates as existing (m^3)	$111m^3$	Volume of water to attenuate on site if discharging at existing rates. Can't be used where discharge volumes are increasing
Where will the storage be provided on site?	Tentative plan is included in the strategy.	

7. How is Storm Water stored on site?

Storage is required for the additional volume from site but also for holding back water to slow down the rate from the site. This is known as attenuation storage and long-term storage. The intention is to not discharge that volume into the watercourses so as not to increase flood risk elsewhere.

			Notes for developers & Local Authorities
Infiltration	**State the Site's Geology/drift material overlaying)**	Investigation of groundwater levels and infiltration rates will be undertaken prior to detailed design stage.	Avoid infiltrating in made ground.
	Does the site have a high ground water table? Yes/No?		If yes, please provide details of the site's hydrology.
	Is the site within a known Source Protection Zones (SPZ)? Yes/No?		Infiltration rates are highly variable and refer to Environment Agency website to identify and source protection zones (SPZ)
	Are infiltration rates suitable?		Infiltration rates should be no lower than $1x10^{-6}$ m/s.
	Is the site contaminated? If yes, consider advice from others on whether infiltration can happen.		Water should not be infiltrated through land that is contaminated. The Environment Agency may provide bespoke advice in planning consultations for contaminated sites that should be considered.
	State the distance between a proposed infiltration device base and the ground water (GW) level		Need 1m (min) between the base of the infiltration device & the water table to protect Groundwater quality & ensure GW doesn't enter infiltration devices. Avoid infiltration where this isn't possible.
	Were infiltration rates obtained by desk study or infiltration test?		Infiltration rates can be estimated from desk studies at most stages of the planning system if a back-up attenuation scheme is provided.
Is infiltration feasible?	**Yes/No?**		If infiltration is not feasible how will the additional volume be stored?. The applicant should then consider the following options in the next section.

7a. Storage requirements

Where infiltration is not possible, then the developer must confirm that either of the two options below will be implemented for dealing with the amount of water that needs to be stored on site.

Option 1 Simple – Store both the additional volume and attenuation volume in order to make a final discharge from site at **QBAR**. This is preferred if no infiltration can be made on site. This very simply satisfies the runoff rates and volume criteria.

Option 2 Complex – If some of the additional volume of water can be infiltrated back into the ground, the remainder can be discharged at a very low rate of 2 l/sec/hectare. A combined storage calculation using the partial permissible rate of 2 l/sec/hectare and the attenuation rate used to slow the runoff from site.

		Notes for developers & Local Authorities
Please confirm what option has been chosen and how much storage is required on site.	The brownfield discharge rate for 1-year event will be used with 50% betterment i.e. 16.15 l/s, during all rainfall event up to and including 100-year rainfall event with 40% climate change. Existing drainage outfall will be retained in the post-development site. A quick analysis using MicroDrainage Source Control software with this flow control setting estimates attenuation volume in the range of 85m3 to 137m3 with average of approximately 111m3.	The developer at this stage should understand the site characteristics and be able to explain what the storage requirements are on site and how it will be achieved.

8. Additional Consideration to comply with the Technical Standards and PPG

		Notes for developers & Local Authorities
Which Drainage Systems measures have been used?	Trapped gullies, silt traps and catchpits, bioretention system, soft landscaping etc.	SUDS can be adapted for most situations even where infiltration isn't feasible e.g. impermeable liners beneath some SUDS devices allows treatment but not infiltration. See CIRIA SUDS Manual C753.
How will exceedance events be catered on site without increasing flood risks (both on site and outside the development)?	The existing site, sloping north towards Brighton Road, will maintain this gradient in the proposed development. During extreme rainfall events, exceedance flow will get directed towards Brighton Road, where it will be captured by the Brighton Road drainage system.	**Safely:** not causing property flooding or posing a hazard to site users i.e. no deeper than 300mm on roads/footpaths

How are rates being restricted?	Flow control device shall be specified in detailed design.	Hydrobrakes to be used where rates are between 2l/s to 5l/s. Orifices not be used below 5l/s as the pipes may block. Pipes with flows < 2l/s are prone to blockage.
Drainage during construction period		Provide details of how drainage will be managed during the construction period including any necessary connections, impacts, diversions and erosion control.
Key Drainage components / Features		Which component if blocked (even partial) will lead to flooding?

Technical Standards S10 to S12

9. Management and Maintenance of SuDs

Details are required to be provided of the management and maintenance plan for the SUD, including for the individual plots in perpetuity.

How is the entire drainage system to be maintained in perpetuity?	SuDS components at the site are not to be adopted and will be maintained for their lifetime by the managing company of the development for the site-wide SuDS features.	Clear details of the maintenance proposals of all elements of the proposed drainage system must be provided to show that all parts of SuDs are effective and robust. Provide a management plan to describe the SUDS scheme and set out the management objectives for the site. It should consider how the SuDs will perform and develop over time anticipating any additional maintenance tasks to ensure the system continues to perform as designed. — Specification notes that describe how work is to be undertaken and the materials to be used. — A maintenance schedule describes what work is to be done and when it is to be done using frequency and performance requirements as appropriate. — A site plan showing maintenance areas, control points and outfalls. Responsibility for the management and maintenance of each element of the SUDS scheme will also need to be detailed within the Management Plan. Where open water is involved please provide a health and safety plan within the management plan.
Please confirm the owners/adopters of the entire drainage systems throughout the development. Please list all the owners.	Shall be specified in detailed design.	If these are multiple owners then a drawing illustrating exactly what features will be within each owner's remit must be submitted with this Proforma. Please give details of each feature and how it will be managed in accordance with the details in the management plan.
Please provide details demonstrating that any third-party agreements required using land outside the application site have been secured.		

The above form should be completed using evidence from information which should be appended to this form. The information being submitted should be proportionate to the site conditions, flood risks and magnitude of development. It should serve as a summary of the drainage proposals and should clearly show that the proposed discharge rate and volume as a result of development will not be increasing. Where there is an increase in discharge rate or volume, then the relevant section of this form must be completed with clear evidence demonstrating how the requirements will be met.

This form is completed using factual information and can be used as a summary of the surface water drainage strategy on this site.

Form Completed By: *Vishvesh Deshpande*

Qualification of person responsible for signing off this pro-forma: Edward Clarke, BSc MSc MCIWEM C.WEM CEng CEnv

Company: *WSP UK Limited*

On behalf of (Client's details): *Blenheim Estates Ltd*

Date: *31/01/2025*

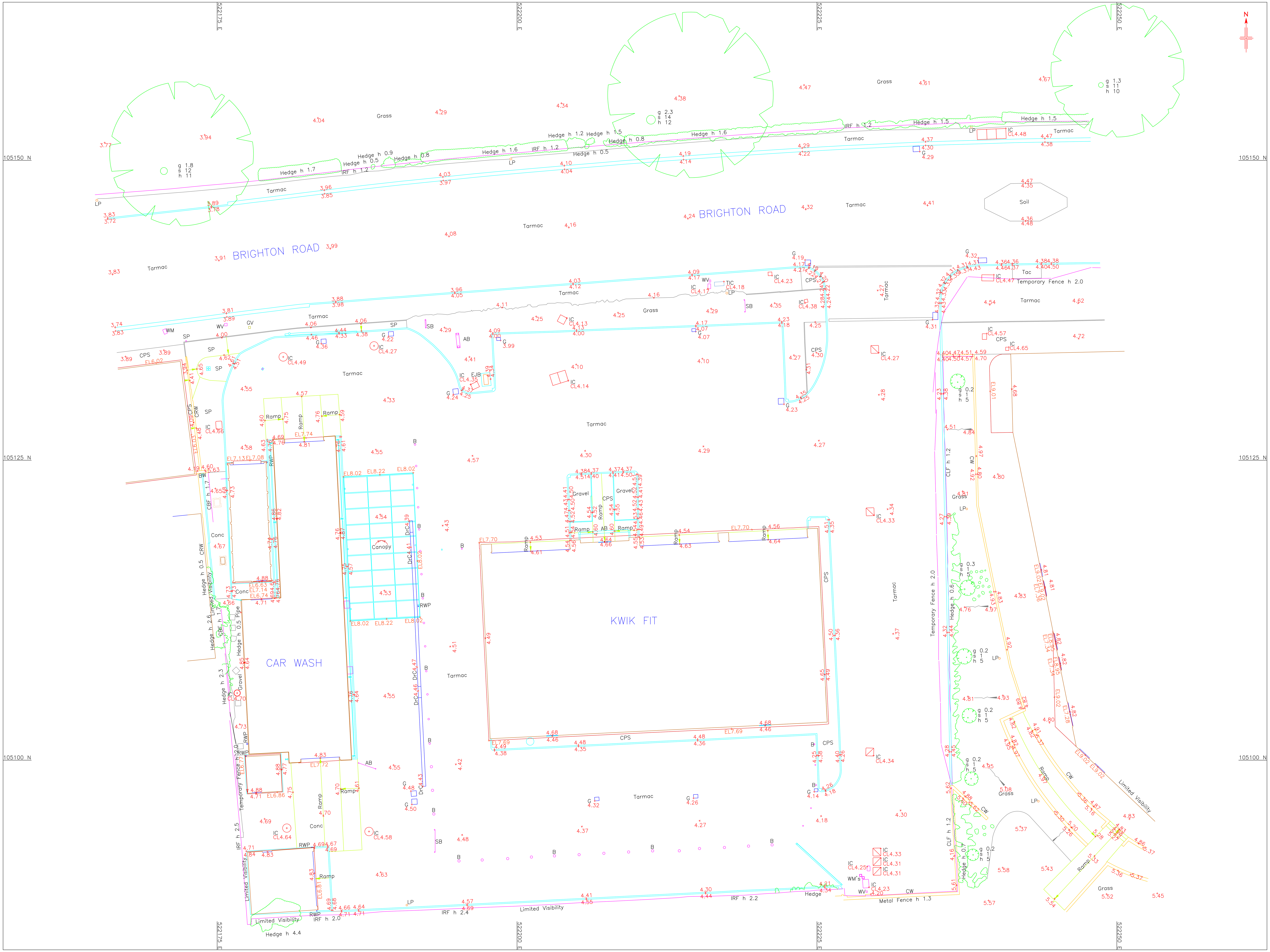
WSP House
70 Chancery Lane
London
WC2A 1AF

wsp.com

Appendix D

TOPOGRAPHICAL SURVEY

A0 DO NOT SCALE



ALL DIMENSIONS, LEVELS AND CLEARANCES TO BE CHECKED ON SITE PRIOR TO WORKS COMMENCING

THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH ALL OTHER PROJECT RELATED DRAWINGS, SPECIFICATIONS AND DOCUMENTS AS PART OF A SINGLE PROJECT PACKAGE.

ANY DISCREPANCY BETWEEN THIS DRAWING, OTHER DRAWINGS FORMING PART OF THIS CONTRACT, OR THE SPECIFICATION / BILLS OF QUANTITIES MUST BE CLARIFIED BEFORE COMMENCEMENT OF ANY WORK OR ORDERING OF ANY MATERIALS.

PLEASE CONSULT THE AUTHOR OR PROJECT MANAGER SHOULD THE READER REQUIRE CLARIFICATION ON ANY PART OF THIS DRAWING.

NOTES

STANDARD ABBREVIATIONS

A/C	Air Conditioner	IRF	Iron Railing Fence
AH	Arch Height	IRS	Illuminated Road Sign
AL	Arch Level	JB	Junction Box
ASH	Arch Spring Height	L	Light
ASL	Arch Spring Level	LB	Litter Bin
B	Bollard	LP	Lamp Post
BGP	Break Glass Point	Max	Maximum
BH	Beam Height	MH	Manhole
Br	Brick	Min	Minimum
BRW	Brick Retaining Wall	O/H	Overhead
BSL	Beam Soffit Level	OSBM	Ordnance Survey Bench Mark
BT	British Telecom	P	Post
BW	Brick Wall	PB	Pillar Box
CBF	Close Boarded Fence	PLt	Pavement Light
CCTV	Closed Circuit Television	PS	Paving Stones
Chy	Chimney	Rad	Radiator
CL	Cover Level	RDM	Recessed Door Mat
CLF	Chain Link Fence	RE	Rodding Eye
Col	Column	RS	Road Sign
Conc	Concrete	RSJ	Rolled Steel Joist
CPS	Concrete Paving Slabs	RWP	Rain Water Pipe
CTV	Cable Television IC	s	spread
Cup	Cupboard	S	Window Sill Level/Height
DP	Down Pipe	SBM	Site Bench Mark
DrC	Drainage Channel	SC	Stop Cock
EIC	Electrical Inspection Cover	SH	Spring Height
EJB	Electrical Junction Box	SL	Sump Level
EM	Electricity Meter	Slt	Skylight
ER	Earthing Rod	SO	Smoke Outlet
ESG	Electrical Switchgear	SP	Sign Post
FA	Fire Alarm	SS	Security Sensor
FB	Flower Bed	SV	Stop Valve
FE	Fire Extinguisher	T	Telephone
FH	Fire Hydrant	Tac	Tactile Paving
FHR	Fire Hose Reel	TBM	Temporary Bench Mark
FL	Floor Level	TCB	Telephone Call Box
Flt	Floodlight	TIC	Telephone Inspection Cover
g	girth	TJB	Telephone Junction Box
G	Gully	TL	Traffic Light
GC	Gas Cock	TLCB	Traffic Light Control Box
GM	Gas Meter	TLIC	Traffic Light Inspection Cover
GV	Gas Valve	TP	Telephone Pole
H	Window Head Height/Level	Typ	Typical
h	height	V	Vent
HB	Hand Basin	VP	Vent Pipe
HR	Handrail	WH	Water Heater
IC	Inspection Cover	WM	Water Meter
IL	Invert Level	WV	Water Valve

Rev	Date	By	Chk	Apr	Comment
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Client

Project Title:

Kwik Fit
Shoreham-By-Sea

Drawing Title:

2D Topographical Survey

Status:

RECORD

Drawn By:	Designed By:	Checked By:	Approved By:
MT	MT	GO	NC

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Job No/ File Ref	Originator	Zone	Level
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Type	Discipline	Number	Suitability	Revision
G	DR	1001	S2	R01

Appendix E

ADUR POLICIES MAP