

 HDL HAMILL DAVIES LIMITED Consulting Civil and Structural Engineers	Name	Hamill Davies Ltd
	Address	Ivydale Lower Chase Road Swanmore Hampshire SO32 2PB
	Tel	01489 893 596
	Mobile	07831 439 699
	Fax	01489 890 715
e-mail		brian.w.hamill@btopenworld.com

Havant Borough Council
Development Control
Civic Offices
Civic Centre Road
Havant
Hampshire
PO9 2AX

8th October 2013

Dear Sir,

**Discharge of Condition No. 6 of Planning Permission
APP/12/00467
Land adjacent to Langstone Technology Park, 2B
Langstone Road, Havant PO9 1SA**

Further to the letter from the Environment Agency dated 2nd September 2013, ref:- HA/2013/114609/01 – L01 we address the issues raised as follows:-

Assessment of how the site is currently drained

The site is a greenfield site which slopes from south east to north west. The highest level at the south east corner of the site is 7.33m with the lowest level in the north west corner of 5.28m giving an overall fall from east to west of 2.05m. The existing site drains into the Langstone Mill Channel to the west of the site. The Langstone Mill Channel runs along the western border of the site.

Drainage Strategy for the Site

Percolation tests carried out on the site have demonstrated that the use of soakaways is not practical due to the poor permeability of the underlying subsoils.

It is therefore proposed that flows from roofs and hardstanding areas will be attenuated to the adjacent Langstone Mill Channel water course on the western boundary of the site.

The drainage system has been designed so that surface water runoff rates from the developed site are no greater than the greenfield run off rates from the site, for a range of storms including the 1 in 2, 1 in 30 and 1 in 100 20% events.

Long term storage will be provided to cater for the additional run off volume generated by the development compared to the volume that would have been contributed from the site in its greenfield state.

Drainage Calculations

The attached HDL drawing no. 12-1772-900 P1 attached shows the pre and post development permeable and impermeable areas for the whole site.

The attached calculation sheet 01 indicates that the 100 year 6 hour (20% climate change) storm gives:-

Pre development volume = 160.40 m^3

Post development volume = 554.50 m^3

Storage volume to be provided for the development is $554.50 - 160.40 = 394.10 \text{ m}^3$

Q Bar = 3.521 litres per second

It is therefore proposed that for the whole site when developed 394.10 m^3 of storage will be provided with attenuation via a hydrobreak which will restrict flows to a maximum overall flow from the development site of 3.52 litres per second.

The hotel site is still subject to detailed design. The design of the restaurant site has been completed and jnpgroup drawings no. NS4733-10C, 11A, 12 & 13 give details of the proposed surface water drainage scheme for the restaurant site.

Maintenance and Management of the Drainage System

The site is to be maintained and managed by the restaurant and hotel operators.

Drainage gullies and drainage channels will be cleaned on a monthly basis as part of the ongoing maintenance regime.

Voided stone attenuation tanks will be surrounded by an impermeable source control membrane to the base and sides to prevent siltation of the tanks.

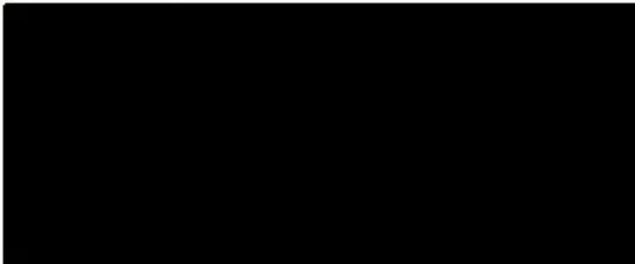
Inspection chambers and manholes will be provided at changes of size, direction and gradient of surface water drainage pipes to allow for future regular maintenance of drainage runs by the hotel and restaurant operators.

Flood Defence Consent

An application for flood defence consent has been issued to the Environment Agency for works within 8 metres of the top of the bank.

Please call Brian Hamill on 07831 439699 should you require clarification of the enclosed.

Yours sincerely,
for Hamill Davies Limited



Brian Hamill

Cc James Messenger / Paul Weller – Fasset
Verity Giles – Planning Advisor (Environment Agency)



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HAMILL DAVIES LIMITED

Consulting Civil & Structural Engineers
Ivydale, Lower Chase Road, Swanmore,
Hampshire, SO32 2PB
Tel: 01489 893 596 Fax: 01489 890 715
brian.w.hamill@btopenworld.com

Job No. 12-1772		
Sheet no. 1		
Date 08/10/13		
By B.H.	Checked	Reviewed

Project LTP, 2B Langstone Road, Havant PO9 1SA

Title BREEAM SUR1 calculations for HAVANT

Data:-

Hydrology:-

Location = HAVANT

Long reference = 471106

M5-60 (mm) = 19

r = 0.35

Hyd. area = 7

Hydrograph = Summer

WRAP = 3

Grid reference = SU7106

SAAR (mm/yr) = 750

Soil = 0.37

Hyd. zone = 7

Area = Scotland and N. Ireland

Site values used in design:-

Total site area = 1.1305 ha

Pre-dev area drained = 0.0000 ha

Imperm runoff factor = 98%

Climate change factor = 20%

Post-dev area drained = 0.7121 ha

Perm runoff factor = 20%

Area to soakaways = 0.0000 ha

Perv. area to SUDS = 0.0000 ha

Area to other SUDS = 0.0000 ha

Post-dev flow to drain = 0.00 l/s

Calculations:-

Revised Post-dev Imperm. area = 0.712 ha

Equiv. Post-dev Imperm. area = 0.698 ha

Equiv. Post-dev Perm. area = 0.084 ha

Total Pre-dev equiv. area ha = 0.226 ha

Total Post-dev equiv. area ha = 0.782 ha

100 yr 6 hour mean intensity = 9.85mm/hr

Results:-

Pre-dev peakflow runoff (l/s) (m³/s)

R.P.	15	30	60	120	240	360	480	600	Max	CCF	Final	R.P.
1	77.9	51.8	32.7	20.6	12.8	9.8	8.0	6.8	77.9	20	93.5	1
30	171.6	112.3	70.3	42.9	25.9	19.2	15.5	13.1	171.6	20	206.0	30
100	223.7	146.3	90.9	55.1	32.9	24.3	19.5	16.5	223.7	20	268.5	100

Post-dev peakflow runoff (l/s)

R.P.	15	30	60	120	240	360	480	600	Max	CCF	Final	R.P.
1	269.3	179.1	113.2	71.0	44.1	33.9	27.6	23.5	269.3	20	323.2	1
30	593.3	388.3	242.9	148.4	89.5	66.3	53.6	45.4	593.3	20	711.9	30
100	773.4	505.7	314.3	190.4	113.8	83.9	67.5	56.9	773.4	20	928.1	100

100 year 6 hour (x Climate Change Factor) storm gives:-

Pre-dev volume m³ = 160.4m³

Post-dev volume m³ = 554.5m³

Post-dev volume to drain (no SUDS) = 554.5m³

$Q_{BAR(rural)} = 3.521 \text{ l/s}$ or 3.114 l/s/ha or 0.004 cumecs - from IoH 124.

The rainfall rates are calculated using the location specific values above in accordance with the Wallingford procedure.