



Hydrotec and Engineering Consultants

MEG Developments Ltd
Lodge Lane, Little Chalfont HP8 4AH
info@megdevelopments.co.uk

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11 MAR 2022

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Drainage Strategy at the Land Adjacent to 68 Knoll Crescent, Northwood

Revision B

PA445 3, 19, 20, 37, 38 REVISED

DR4. 201.5005.533 ADDS A C P. 38. 38. 39. 40 OMITTED

PPR/L 2022

addition, it is highly recommended to adopt rainwater harvesting, a further reduction of surface water runoff. The periodic maintenance of the attenuation crates and the water quality of the outfalls would be maintained.

The finished floor level of the houses could be at ground level as the development is not at risk to surface water runoff. However, it is highly recommended to raise the floor level by 300mm from the ground level. The access and egress from the Site during any flooding incident could be at Knoll Crescent located in front of the Site.

The generated wastewater flow by the proposed development was estimated to be 0.021 litres/sec.

DISCHARGES INTO BORE HOLE
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Table 4.2: The cumulative depth-duration rainfall at 20% AEP, 3.3% AEP, 1% AEP and 1% AEP+CCA¹⁴ (40%) at the Site.

Duration, mins	Rainfall depths, mm			
	20% AEP	3.3% AEP	1% AEP	1% AEP+CCA
15	12.69	21.80	28.52	39.93
30	16.23	28.29	37.37	52.32
45	18.38	32.09	42.57	59.60
60	20.01	34.91	46.35	64.89
90	23.70	40.10	53.15	74.41
120	26.86	44.16	58.53	81.94
180	30.90	49.61	66.01	92.41
240	33.66	53.32	71.20	99.68
300	35.67	56.01	75.02	105.03
360	37.24	58.09	77.95	109.13
420	38.47	59.74	80.24	112.34
480	39.51	61.10	82.11	114.95
540	40.41	62.26	83.67	117.14
600	41.19	63.27	85.00	119.00

To assess the attenuation of the generated surface water runoff through infiltration, the soil types around the project site were obtained from the UK soil observatory (UKSO) map¹⁵ and presented in Figure 4.2. There is no detailed data available below the Site however, the soil types in the west close to the Site are rich-loamy and clayey with impeded draining. Consequently, the surface water infiltration capacity within and around the project site could be relatively less. Thus, it would not assist a substantial reduction of surface water runoff through infiltration into the ground and consequently, the soakaway design at the Site would not be suitable.

The map below shows the soil types around the project site. The soil types are rich-loamy and clayey with impeded draining. Consequently, the surface water infiltration capacity within and around the project site could be relatively less.

¹⁴ Op.cit.
¹⁵ UK Soil Observatory (bgs.ac.uk)

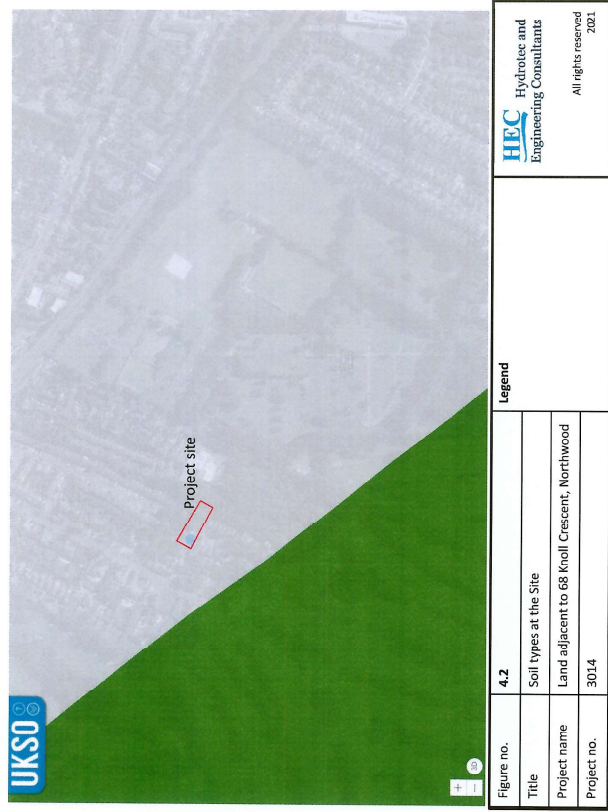
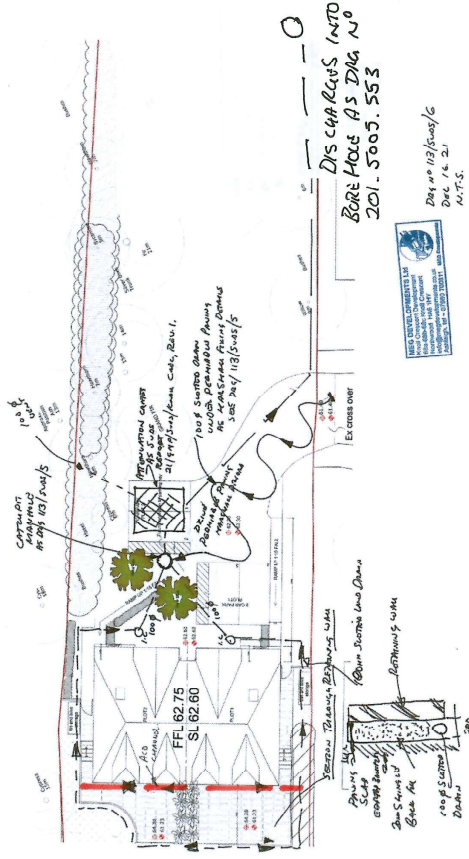


Figure 4.2: The soil types under the project site – sandy (reference - UKSO map¹⁶).

To calculate the generated surface water runoff at the Site, the hydrological data were obtained from the Flood Estimation Handbook¹⁷ (FEH). The cumulative rainfall depths were calculated and the values at 1 in 5-year (20% AEP), 1 in 30-year (3.3% AEP), 1 in 100-year (1% AEP) and 1 in 100-year (1% AEP) with climate change allowance (CCA) are provided in Table 4.2 up to 600mins (i.e. 10.0 hrs). The climate change allowance for the rainfall was taken to the upper end,

¹⁶ UK Soil Observatory (bgs.ac.uk)
¹⁷ Op.cit.

Appendix IV: Proposed SuDS features at the Site.



N.B. WATER BUTTS TO BE PROVIDED ON ROAD L.W.P'S (6 IN TOTAL) FOR GARDEN WATERING.

