

Invicta Water Treatment

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Rosalind Gall

Momentum Planning Limited

Hasleworks, 2-4 Petworth Road

Haslemere, GU27 2HR

By email: ros@momentumplanning.co.uk

21/02/25

Dear Ms Gall,

Re: Private Water Supply at Sandgate Nurseries Site, Henfield – Summary of supporting evidence that borehole will provide a sustainable and secure source of water for the development of Sandgate Nurseries (DC/23/0189).

Further to the conversations with Kevin Beer at HDC, this document clarifies the key information with respect to the council's, Natural England's and Environment Agency's positions, as reported on the HDC Planning Portal. This document uses key facts from the extensive information on the portal to answer HDC queries.

Council Position

HDC consultation documents refer to Natural England (NE) and Environment Agency (EA) guidance. HDC require evidence that the borehole abstraction is viable, in perpetuity, as a source of water.

NE Position

NE make clear that the regulatory body is the council and they will need to manage the private water supply(ies). NE require clarity on how water will be used; how any rainwater system will work and water neutrality calculations.

EA Position

The borehole is subject to a 50 m radius protection zone both during and after construction work, to prevent undue contamination of the borehole water, providing it takes less than 50 days for any contamination to reach the abstraction point. This includes ground penetrating activities, like site investigation boreholes and SuDS schemes, which cannot proceed without the agreement of HDC. Please refer to drawings: SNH P23 101 showing site layout with borehole and 50 m radius zone and Price & Meyers Below Ground Drainage Layout 1 with Borehole Location 30512/6000 P05.

Evidence

Drinking Water Consumption

The development will have a proposed 171.27 residents on site with a central community hub with 4 bed medical facility. Referring to the Addendum, there is sufficient borehole water for the site (ref. Stephen Buss Report). If a RWH system for the community hub is installed, there will be an excess of drinking water of over 250 m³/y. There is no need for an EA licence as borehole abstraction is less than 20 m³/d.

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Supply of Water in Perpetuity

Aquifer Capacity

There is ample capacity in the aquifer (ref. Stephen Buss Report) and the borehole can yield up to 5.4 m³/h as proven by site pumping trials (ref. BGS Drill Log).

Borehole Water Security

The borehole has been drilled by a reputable and experienced drilling company, OT Drilling (ref competency statement). The borehole has been sealed against surface water ingress by both a steel casing, extending 18 m into the aquifer, and a bentonite plug with grouting (ref Drill Log and Diagram). This physically protects surface water or contamination from any building work above, as foundations are highly unlikely to reach 18 m depth.

All manmade surfaces on site can be impermeable within the 50 m radius of the borehole, directing runoff to the surface water drains for discharge some distance from the borehole. Likewise, the retention ponds will have impermeable membranes, with overflow water directed off site (ref. P&M Report P05 section 6.1.3; drawings Price & Meyers Below Ground Drainage Layouts 1 & 2; 30512/6000 and 6001). All sewage is piped off site to the Southern Water sewer network. Flooding from sewerage systems, surface water and other sources are negligible (ref. P&M Report P05 Section 4).

These design features more than alleviate the requirements for the EA SPZ criteria (see EA report).

The physical evidence that there is no ingress from potential surface activities or pollution is confirmed by the initial raw samples from the borehole showing no contamination from the requested Group A&B pesticides, herbicides and organics (ref. SEWSS Report 1287680-4 Final). The robust water treatment design includes a multi-barrier approach, with fine particulate filtration, and both UV and chlorine disinfection. This correctly designed, installed, monitored and maintained system, will last many years.

Summary

We trust that there is enough information herein for HDC. Please keep us informed of your progress. HDC can contact me directly if they wish.

Please feel free to call 07970 154529 if you need any parts of the report clarified.

Regards

Stefan Massingham BSc (Hons Chem.) MSc (Cran) MWMSoc

Director - Invicta Water Treatment Limited

Qualified UKAS Private Water Supply Sampler

Disclaimer

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Bibliography

HDC Planning Portal Documents (HDC, NE and EA reports)

BGS Borehole Record

SEWSS Report 1287680-4 Final

IWT Report 03/09/24

IWT Process Flow Diagram 24/10/24

Stephen Buss Environmental Consulting Document 2024-100-002-001

Price & Meyers Report 30512 P07 PM Flood Risk Assessment, Drainage & Water

Neutrality Report

Aviron Report 22-200.1: Version 2 Jan 2023

PWS Regs 2016 Amended 2018

CIBSE

Groundwater source protection zones (SPZs) -

<https://www.gov.uk/guidance/groundwater-source-protection-zones-spzs>

Drawings

SNH P23 101 Site Layout with Borehole Locations 28/01/25

Price & Meyers Below Ground Drainage Layout 1 with Borehole Location 30512/6000

P05

Addendums

Borehole Water Neutrality Calculations

Raw Borehole Production, m ³ /y based on 20 m ³ /d	7,300
Purification losses	5%
Available drinking water, m ³ /y	6,935
Water demand for 171.27 residents, based on 75.8 l/p/d, m ³ /y	4,739
Surplus drinking water, m ³ /y	2,196
Demand from medical centre, 4 beds @ 220 l/bed/d (5 d/wk), m ³ /y	229
Demand from café restaurant, 100 meals/d, 6 d/wk; m ³ /y	219
Demand from laundry, 8 machines, 4h/d, 7d/wk; m ³ /y	818
Total demand from community service, m ³ /y	1,266
Surplus drinking water after community needs are met, m ³ /y	930
Potential additional non-resident staff that could be supported (assuming staff needs of 20 l/p/d), p/y	128
Conclusion: There is sufficient borehole water to supply the site entirely based on the design assumptions. If RwH is considered then this gives additional water reserves including the 35 day reserve, as the RwH system can be fed from the drinking water system	

RwH Water Neutrality Calculations (If RwH required)

Community centre roof area, m ²	370
Estimated rainfall, mm/y	800
Collection and filtering efficiency, %	85
Annual drinking water available, m ³ /y	251

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WR39: Borehole record form

Borehole record form



British
Geological Survey
NATURAL ENVIRONMENT RESEARCH COUNCIL



Environment
Agency

Water Resources Act 1991 (as amended by the Water Act 2003)

A Site details

Borehole drilled for Littleworth Properties Ltd

Location Sandgate Nurseries, West End Lane, Henfield West Sussex BN5 9UL

NGR (ten digits) 10 20408 16086

Please attach site plan

Ground level (if known) 20

metres Above Ordnance Datum

Drilling company OT Drilling Ltd

Date drilling commenced 22/07/2024

(DD/MM/YYYY)

Completed 05/08/2024

(DD/MM/YYYY)

B Construction details

Borehole datum (if not ground level) GL metres (m). Please tick if this is above ☐ or below ☐ ground level.
(point from which all measurements of depth are taken, for example, flange, edge of chamber)

Borehole drilled diameter 200 mm from 0 to 55 m/depth
1 mm from 0 to 0 m/depth
1 mm from 0 to 0 m/depth
1 mm from 0 to 0 m/depth

Casing material Mild Steel diameter 219 mm from +0.0 to 18.0 m/depth
and type (for example, 11 plain steel, plastic slotted). Please record permanent casing details, not temporary casing.

Casing material UPVC Plain diameter 225 mm from +0.0 to 24.0 m/depth

Casing material UPVC Slotted 0.3mm diameter 125 mm from 24.0 to 32.5 m/depth

Casing material 0.3mm gravel diameter 0.3mm mm from 0 to 0 m/depth

Grouting details 0.3mm gravel placed in annulus around screen. Bentonite pellet grout placed 20-16m

Water struck at 1. 28.0 m (depth below datum - m(bd)) 2. 0 m (mbd)
3. 0 m (mbd) 4. 0 m (mbd)

C Test pumping summary (Please supply full details on form WR39)

Test pumping datum GL m. Please tick if this is above ☒ or below ☐ ground level.
(if different from borehole datum)

Pump suction depth 42 m(bd)

Water level (start of test) 4.8 m(bd)

Water level (end of test) 4.8 m(bd)

Type of test (for example, bailer, step, constant rate)

constant

Pumping rate 5.4 m³/hour ☒ or litres/second ☐. Please tick as appropriate.
for 0 days, 2 hours, 0 mins

Recovery to 4.8 m(bd) in 0 days, 0 hours, 0 mins
(from end of pumping)

Date(s) of measurements Pump started 05/08/2024 (DD/MM/YYYY)

Pump stopped 05/08/2024 (DD/MM/YYYY)

Please supply chemical analysis if available. If you have included this please tick this box ☐

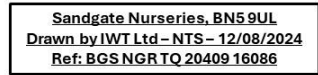
WR39: Version 2, February 2013

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Page 1 of 3 – see email attachments for full document

Borehole Drill Log

www.invictawatertreatment.co.uk



Sandgate Nurseries PWS Water Treatment
PFD – Invicta Water Treatment Ltd – NTS –
24/10/24

Water Treatment Process Flow Diagram

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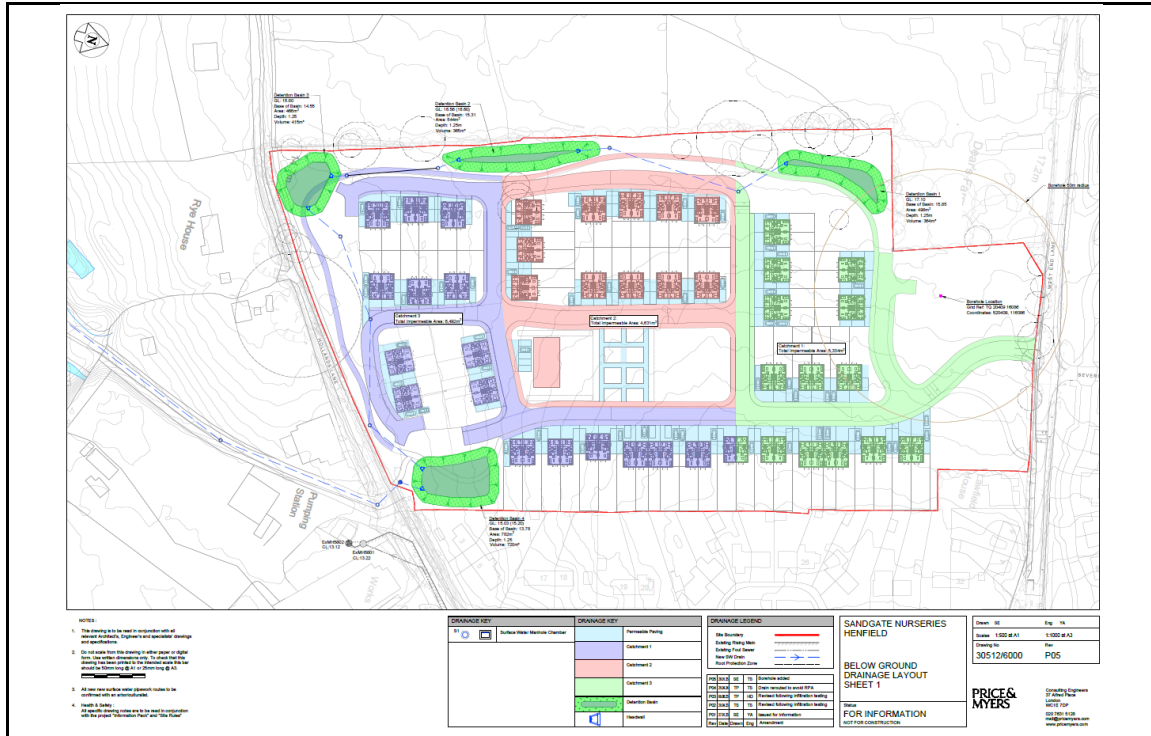
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Drawing P&M 30512/6000 P05 Showing Borehole and 50 m Radius (on right of drawing)



Drawing of Site Layout with Borehole and 50 m Radius (on right of drawing)

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OT Drilling Statement (Written by Owen Thomas – Director)

'OT Drilling Ltd, established in 2007, have a high proportion of their workload constructing larger diameter licensed boreholes, working closely with the Environment Agency and to their standards. Although the EA are a regulatory government body, our name has been mentioned by them when clients have asked for direction towards a contractor with which to be in safe hands.'