

CampbellReith
consulting engineers

Kilnwood Vale, Crawley

Ground Gas Vent Well Maintenance

For
Crest Nicholson

Project No.
11950

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Figure 3 - Vent Well Installation Details.

1.0 INTRODUCTION

1.1 Summary

1.1.1 Campbell Reith Hill LLP (CampbellReith) have been commissioned by Crest Nicholson (the Client) to provide a maintenance plan for the permanent vent wells in the mixed-use scheme comprising residential, commercial, and amenity space.

1.1.2 The site is located to the east of Kilnwood Vale Primary School and accessed via Illett Way and Calvert Link, as indicated in Figures 1 & 2.

1.1.3 The site, including the wider area, was subject to a cut and fill exercise, to build a cohesive engineering platform, placed and compacted to an end-product earthworks specification. Beneath the engineering platform is construction waste landfill, under which lies the Weald Clay formation, as shown on the site cross section in Figure 3. A desk study is included with this specification.

1.1.4 The vent wells provide a mechanism for venting of a reservoir of ground gas that is present as a result of the former landfilling at the site.

1.1.5 This plan should be read in conjunction with the CampbellReith ground gas risk assessment report for the neighbourhood centre (ref. APP11950-23-07-25-Neighbourhood Centre-Gas Assessment-Addendum-F1).

1.2 Aims and Objectives

1.2.1 The primary aim of this maintenance plan is to ensure the effective and ongoing operation of the ground gas vent wells within the residential development. This will demonstrate the continuing function of the wells mitigate any potential risks associated with ground gas buildup (methane and carbon dioxide) which can pose health and safety hazards to the residents.

1.2.2 The objectives of this maintenance plan are to:

- To monitor the performance of the vent wells to ensure they remain free of blockages and operate effectively.
- To prevent any accumulation of harmful ground gases that could compromise the indoor air quality or safety of residents.

1.2.3 The obligations will commence after the installation of the permanent monitoring wells. The installation itself will be overseen by CampbellReith. The monitoring wells will be initially installed with a raised pipe fitted with rotating cowl that can be removed for monitoring and, if required, due to completion of the development whilst venting is ongoing, retrofitted with semi flush vent points.

1.2.4 It is noted that failure to preserve the installed monitoring wells is likely to result in the requirement for costly reinstallation and an extension of the monitoring period. The satisfactory completion of this venting is a pre-requisite of occupation and subject to the agreement of the regulatory authorities.

1.2.5 Any damage to the monitoring wells should immediately be reported to the technical team at Crest and also James Clay at CampbellReith (jamesclay@campbellreith.com).

1.3 Roles and Responsibilities

1.3.1 **Site Manager/Development Owner**:

- Ensure the protection of the wells and communicate with relevant personnel, contractors and sub-contractors of the requirements to preserve the monitoring wells.
- Oversee the implementation of the maintenance plan, ensuring that all tasks are carried out in compliance with relevant regulations.
- Ensure the coordination of the maintenance schedule and record-keeping.
- Provide unfettered access to monitor the boreholes by the Engineers.

1.3.2 It is presumed that this will be Crest are the current Development Owner and that their site representative, unless otherwise confirmed, will be Martin Wallice.

1.3.3 **Site Purchaser:** In the event that the site is sold to another Party, the obligations of the existing Site Manager/Development Owner should be transferred to the new owner in the form of a contractual undertaking. The preceding Site Owner will be responsible for transferring these obligations.

1.3.4 **Maintenance Team**: Carry out routine inspections and maintenance tasks as per the plan. These parties are to be confirmed but will be the responsibility of the Site Manager/Development Owner.

1.3.5 **Engineers:** Ongoing monitoring for ground gas will be taking place on a monthly basis for up to 2 years from the point of installation. CampbellReith are appointed to oversee the monitoring works. Sub-contractors appointed for the installation will be appointed directly via Crest.

1.3.6 **CDM:** The provisions presented herein should be included within the Health and Safety File by the Principal Designer that is passed, alongside any other relevant information, on to any future developer.

2.0 IMPLEMENTATION AND MAINTENANCE

2.1 Implementation

2.1.1 The implementation of the maintenance plan will be a phased approach, with an initial review of the vent wells to assess their condition and functionality. Regular inspections will then be scheduled, with maintenance actions based on findings from those inspections.

- Initial Survey: Conduct an initial site survey of all vent wells to assess their condition and verify that each well is properly installed and operational.
- Routine Inspections: Perform regular inspections to monitor the condition and functionality of the vent wells.
- Maintenance: Address any issues identified during inspections, such as cleaning, repairs, or adjustments.
- Record Keeping: Maintain a log of all inspections, repairs, and maintenance activities for future reference and regulatory compliance.

2.2 Maintenance

2.2.1 It is vital that the vent wells on site operate at the required capacity at all times, as per the requirements listed in Table 1. A period of gas monitoring and assessment may be implemented, which could allow for the wells to be decommissioned at a later date, if results / assessments demonstrate the wells are no longer required. The assessment should be carried out or peer reviewed by a suitably qualified person as defined in the NPPF and LC:RM.

Table 1 – Vent Well Maintenance

Element	Maintenance Requirements	Maintenance Frequency
Vent Well Box (raised borehole in the short term)	Check for any visible damage, blockages or signs of wear. Visual inspections should record locations where leaves are prevalent and additional attention to cleaning is required at these locations. Check that the boreholes remain visible and protected from traffic.	Once every **month** whilst the wells are in their temporary raised form. Once installed in a permanent surface vent form, inspection should be quarterly. An inspection should be carried out at the end of Autumn, after leaf fall.
Odour	The sniff test sampling procedure (See Appendix 1) should be carried out at each location for approximately five minutes.	Once every **6 months**.
Documentation review and update	Review and update records for maintenance activities.	Annually or following any major work.

2.3 The requirements for monitoring will remain for such time as these works have been determined as complete by the Engineer.

2.4 Record Keeping

2.5 Each inspection shall be accompanied by the following information which shall be sent to the Engineer within 2 weeks of monitoring.

- Date of inspection
- Name of personal involved in the inspection
- Weather
- Observations such as damage
- Photograph of each installation

3.0 CONCLUSION

3.1.1 The ongoing maintenance of the ground gas vent wells is crucial for ensuring the safety and well-being of residents in the development. By adhering to this plan, the system will continue to function effectively, helping to prevent any risks associated with ground gas buildup. Regular maintenance, prompt repairs, and accurate record-keeping will be key to maintaining the system's integrity and preventing future issues.

3.1.2 It is envisaged that over time the reservoir of ground gas will deplete such that the vent wells are no longer needed but this will require a suitable monitoring programme to be carried out and assessment by a suitably qualified person as defined in this report.

APPENDIX 1 – SNIFF TEST PROCEDURE

Purpose

To define a concise procedure for undertaking field odour sniff tests to assess odour potentially emanating from landfill gas vent wells within or adjacent to a residential development, in accordance with the principles of the IAQM Odour Planning Guidance[1].

Scope

This procedure applies to qualitative regular field assessments and complaint-related purposes.

Assessor Competence and Preparation

- Assessors shall not be suffering from illness or conditions affecting their sense of smell.
- Avoid smoking, eating, drinking (other than water), or using perfumes/aftershaves for at least 30 minutes prior to assessment.

Assessment Locations

- Adjacent to landfill vent wells

Meteorological Conditions

- Assessments should be undertaken during conditions conducive to odour detection - typically light to no wind or rain.

Sniff Test Method

1. Take short, gentle sniffs of ambient air.
2. Over a defined period of 2–5 minutes, record:
    - Odour presence (yes/no);
    - Odour character (e.g. landfill gas, waste, sulphurous);
    - Odour intensity, using the following scale:

      0 = No odour
      1 = Very weak
      2 = Weak
      3 = Distinct
      4 = Strong
      5 = Very strong
    - Persistence (continuous or intermittent).

Recording

- Record date, time, duration, location, weather conditions and any identifiable odour source/s.
- Use consistent terminology and complete records contemporaneously.

[1] https://www.iaqm.co.uk/text/guidance/odour-guidance-2014.pdf

Quality Assurance and Limitations

- Where practicable, repeat assessments at different times and meteorological conditions.
- The same assessor should be used for repeat surveys where possible.
- Sniff tests are subjective and indicative and should be interpreted alongside other evidence, in line with IAQM guidance.

Health and Safety

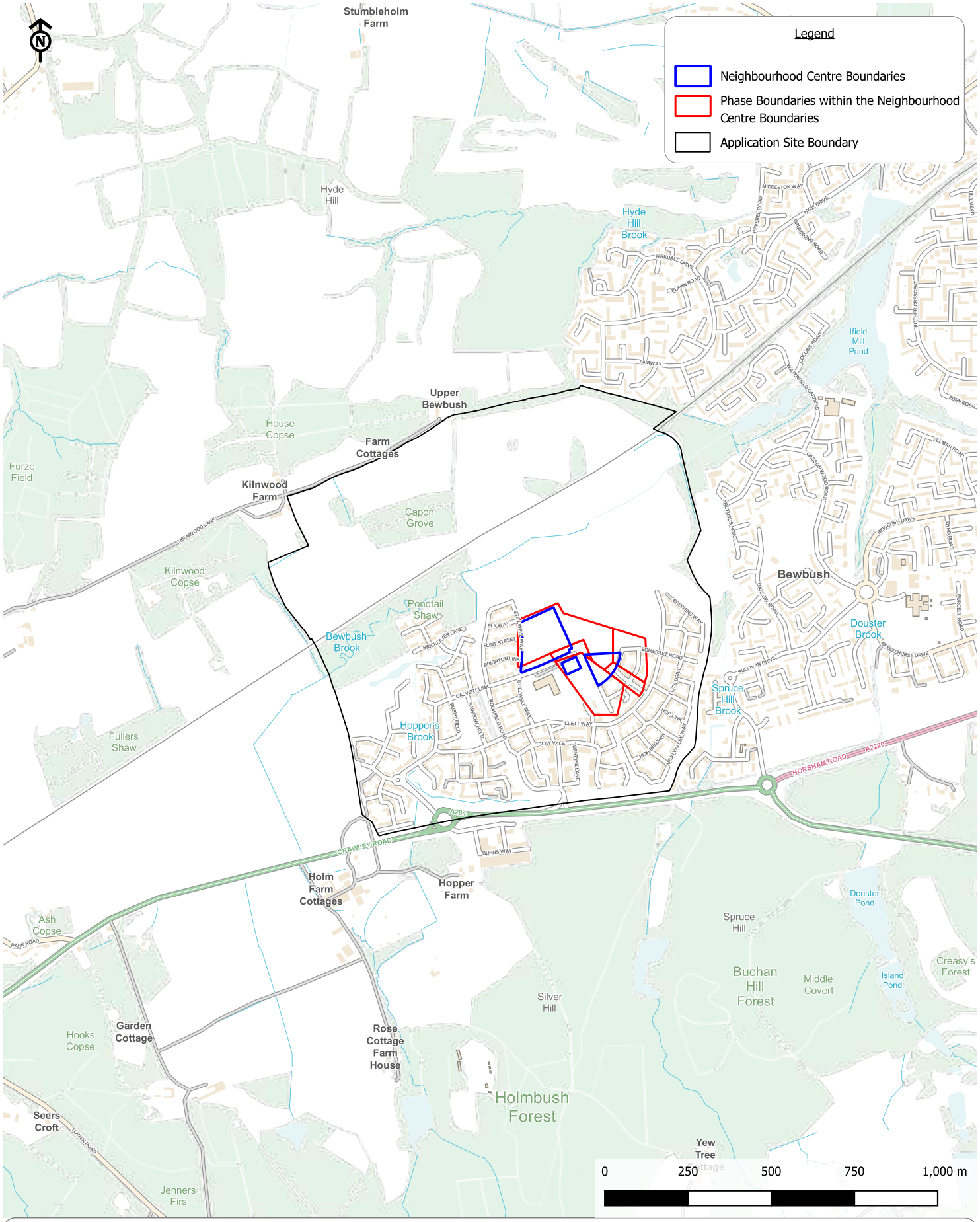
- Comply with site-specific risk assessments and permissions.
- The vent wells may contain methane and therefore no sources of ignition are to be present near the wells.
- Do not approach damaged or unsafe vent infrastructure.
- Leave the area immediately if odours cause discomfort or concern.

APPENDIX 2 – FIGURES

Figure 1 - Site Location Plan

Figure 2 - Proposed Development and Vent Well Locations

Figure 3 - Vent Well Installation Details.



Kilnwood Vale

Client: Crest Nicholson

Figure 1:
Site Location

Scale: 1:15000@A4

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VW10	523635.391	134997.243
VW11	523650.899	134997.810
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VW13	523663.452	134990.029
VW14	523665.859	134979.898
VW15	523643.187	134967.126

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Kilnwood Vale

Client: Crest Nicholson

Figure 4:
Proposed Development and Vent Well Locations

Scale: 1:750@A3
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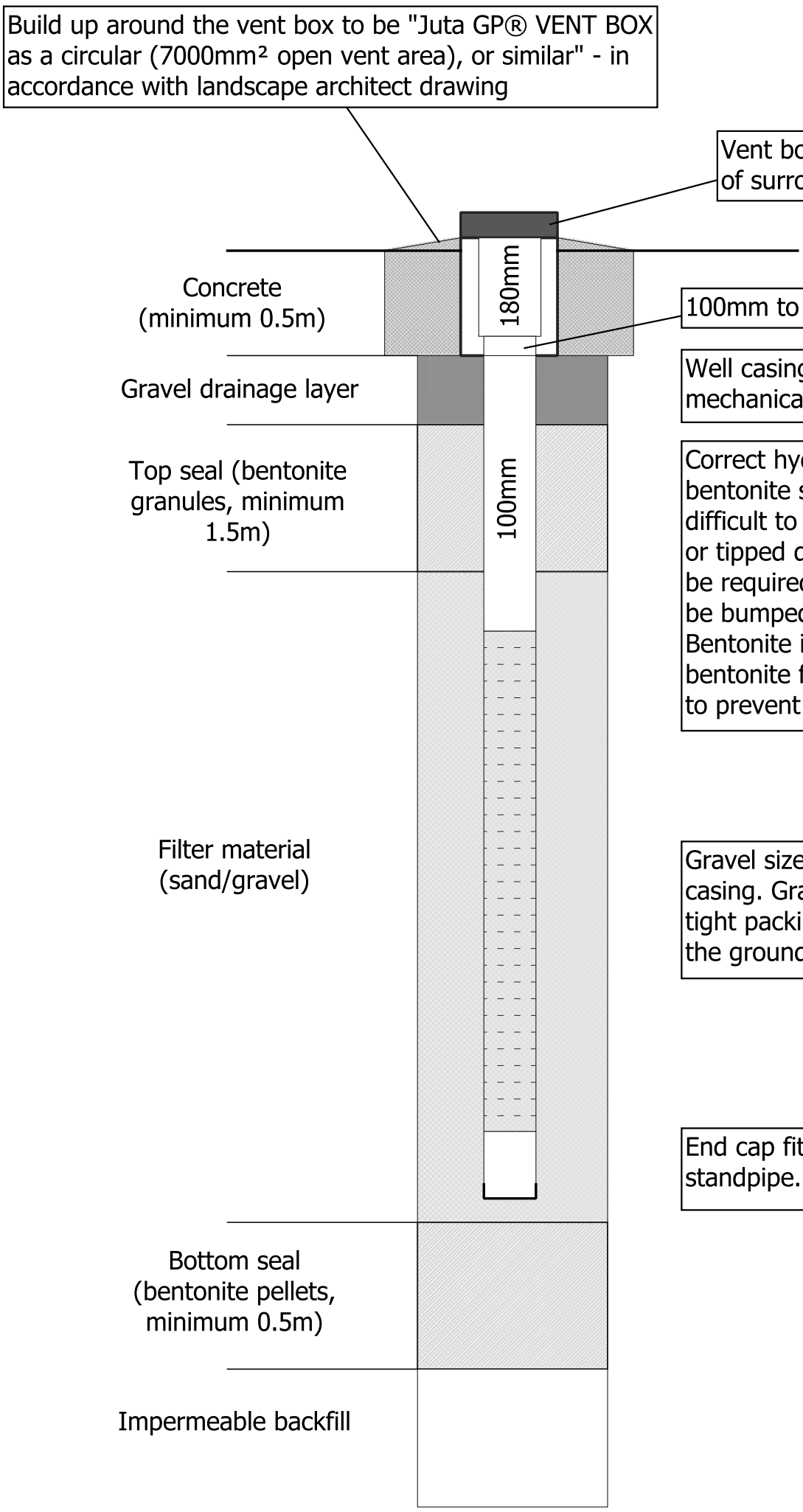

Kilnwood Vale

Client: Crest Nicholson

Proposed Permanent Vent Well Design

Scale: NTS@A3

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