

Remediation Verification Report

45 Caversham Road, Reading



Stantec UK Limited

Prepared for:
Abri Group Ltd

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1 Introduction

1.1 Terms of reference

Stantec Hydrock Limited (Stantec) was commissioned by Abri Group Ltd (the Client) to prepare a verification report following the completion of the remediation and construction works at the development situated at 45 Caversham Road, Reading, RG1 7BT.

The proposed development at the site comprised one residential block, comprising 40 flats which has been constructed along with associated landscaping, public open spaces (POS) and parking areas.

A site Remediation Strategy (RMS) was produced by Hydrock in May 2021 (report ref: 16195-HYD-XX-XX-RP-GE-0001, revision P01) detailing the remediation requirements for the development. A Remediation Strategy Update (RSU, report ref: 16195-HYD-XX-XX-RP-GE-0002, revision P01) was subsequently produced by Hydrock on 5 June 2023. The update report re-assessed and subsequently removed the requirement for the ground gas membranes in the proposed developments to be Volatile Organic Compounds (VOCs) resistant.

The works have been undertaken in accordance with Stantec's fee proposal (16195-HYD-XX-XX-FP-GE-0003) dated January 2025 and the client's instructions to proceed via email dated 6th February 2025 along with provision of Purchase Order (RBPC130322).

1.2 Objectives

Reference should be made to the RMS and RSU reports which present the requirements of the remedial, enablement and construction phases of the works, including how the remediation of the proposed development should be undertaken and how the works are to be independently validated and verified by Stantec. The purpose of the verification report is to collect and present data to show compliance with the remediation objectives as outlined in the RMS and RSU.

Remedial works comprising the removal of impacted soils were required to improve the ground conditions at the site to make the development suitable for the intended residential end use. This verification report provides evidence that any unacceptable contamination risks to identified receptors under current regulatory regimes have been adequately remediated.

This verification report includes:

- The provision of background information pertaining to the demolition, enablement and construction phases of the development;
- A description of the works undertaken by the contractor and their subcontractors;
- Specialist contractor validation reports;
- Records of Stantec inspections and site watching brief visits, and;
- Final status of remediation and achievement of remedial objectives to satisfy the planning conditions.



This document is subject to approval of all regulatory parties including the Local Planning Authority (LPA) at Reading Borough Council.

1.3 Available information

The following documents have been provided to Stantec in the preparation of this report and should be read in conjunction

- Enzygo Geo-environmental (Enzygo). June 2020. Ge-environmental report. Caversham Road, Reading, RG1 7BT (Revision A). For Elstree Land Limited. Report Reference: CRM.1726.002.GE.R.001.A;
- Enzygo Geo-environmental (Enzygo). September 2020. Ge-environmental report. Caversham Road, Reading, RG1 7BT (Revision B). For Elstree Land Limited. Report Reference: CRM.1726.002.GE.R.001.B;
- Enzygo Geo-environmental (Enzygo). February 2021. Caversham Road, Reading, RG1 7BT. Letter report on supplementary investigation. Report Reference: CRM.1726.001GE.L.001.A;
- Hydrock Consultants Ltd (Hydrock). May 2021. Remediation Strategy – development at 45 Caversham Road, Reading. For Oriel Housing Ltd. Report Reference: 16195-HYD-XX-XX-RP-GE-0001; and
- Hydrock Consultants Ltd (Hydrock). June 2023. Remediation Strategy update in relation to VOC risk – Caversham Road, Reading. Report Reference: 16195-HYD-XX-XX-RP-GE-0002.

1.4 Planning background

The development benefits from planning permission reference: 201420 dated 24 February 2021 from Reading Borough Council (RBC). Proposed works are outlined as ‘demolition of existing buildings and construction of 40 flats with associated landscaping and parking.’ The planning conditions of concern for discharge were conditions 15 through 18; “the applicant is required to investigate the site for contamination potentially associated with past uses, assess the risk, and to provide a remediation scheme to deal with unacceptable risk and render the site suitable for its proposed new use”.

Condition 15 and 16 were discharged on 22 November 2021 by the Local Authority, details of which are provided below. Therefore, we consider the discharge of planning conditions 15 and 16 to be outside of the scope of this report.

Condition 17 and 18 are yet to be discharged, however, the objective of this report is to address their requirements as stated below:

Condition 17

The approved remediation scheme under Condition 16 above shall be implemented in accordance with the approved timetable of works. A validation report (that demonstrates the effectiveness of the remediation carried out) shall be submitted to and approved by the Local Planning Authority before construction above foundation level. REASON: To ensure the development is suitable for its end use and the wider environment and does not create undue risks to occupiers of the site or surrounding areas in accordance with Policy EN16 of the Reading local Plan 2019.



Condition 18

In the event that contamination is found at any time when carrying out the approved development not previously identified, development shall be halted on that part of the site the contamination reported in writing to the Local Planning Authority. An assessment of the nature and extent of contamination shall be undertaken and where remediation is necessary a remediation scheme, together with a timetable for its implementation, shall be submitted in writing to the Local Planning Authority for its written approval. The measures in the approved remediation scheme shall be implemented in accordance with the approved timetable. Halted works shall not be re-commenced until the measures identified in the approved remediation scheme have been completed and a validation report has been submitted to and been approved in writing by the Local Planning Authority. REASON: To ensure the development is suitable for its end use and the wider environment and does not create undue risks to occupiers of the site or surrounding areas in accordance with Policy EN16 of the Reading local Plan 2019.

1.5 Uncertainties and limitations

1.5.1 Site specific comments

The Hydrock RMS was issued on 6 May 2021 under reference 16195-HYD-XX-XX-RP-GE-0001 (revision P01). The RSU was subsequently issued on 5 June 2023 under reference 16195-HYD-XX-XX-FP-GE-0002 (revision P01) to revise the risk posed by volatile organic compounds (VOCs) following a re-assessment of available information. Further details are provided within the RSU and a summary is provided within Section 2.8 in this report.

1.5.2 General comments

The report has been prepared by Stantec with the available information obtained during the study period. Although every reasonable effort has been made to gather all of the relevant information, the potential environmental constraints or liabilities associated with the site may not have been revealed.

The report has been prepared for the exclusive benefit of Abri Group Ltd and those parties designated by them for the purpose of providing information on the remediation and validation works to be undertaken during the enabling works and construction phases of the development. The report contents should only be used in that context. Furthermore, new information, changed practices or new legislation may necessitate revised interpretation of the report after the date of its submission.

Stantec has used reasonable skill, care and diligence in the design of the remediation of the site. The inherent variation of ground conditions allows only definition of the actual conditions at the locations and depths of trial pits and boreholes at the time of the investigation. At intermediate locations, conditions can only be inferred. Information provided by third parties has been used in good faith and is taken at face value. However, Stantec cannot guarantee the accuracy or completeness of any information provided by others.

The work has been carried out in general accordance with recognised best practice as detailed in guidance documents such as in the 'Land Contamination: Risk Management' (LCRM, 2025), BS5930:2015+A1:2020 and BS10175: 2011+A2:2017.



2 Background

2.1 Site referencing

The site comprises 0.15ha plot of land on the corner of Caversham Road and Great Knollys Street. The site address is 45 Caversham Road, Reading, RG1 7BT (National Grid Reference: 471104E, 173749N). The development comprises a block apartment with communal open space for residential use.

2.2 Site setting

The site is situated within the town centre of Reading, approximately 500m southwest from the main Reading railway station. The area immediately surrounding the site is a mix of residential and commercial properties, and no significant nearby sources of contamination was identified by Enzygo in their Phase 1 desk study report, ref: CRM.1726.002.GE.R.001.A. A site location plan is presented in Appendix A (Drawing reference: 333800180-STN-XX-XX-DR-GE-1001).

2.3 Site history

A review of historical maps from Groundsure data is provided in the Enzygo Phase 1 desk study report and summarises the site's history from 1879 to 2020. In 1879, the western half comprised of residential houses and the eastern half comprised of a stone yard. In 1969, this subsequently turned into a builder's yard and more recently from Google Earth aerial imagery, a car rental facility, which comprised predominantly of an office building and hardstanding forecourt for the storage of vehicles. The site operated as a car rental facility from 2010 and featured bays for car cleaning and servicing, but on inspection by Enzygo in 2020, there was no observed storage of fuel or chemicals or any visual evidence of contamination (Report Reference: CRM.1726.002.GE.R.001.B).

A summary of the key historical developments on site is as follows:

On-site:

- Pre-1962: residential development (west) and stone yard (east);
- 1962: one house became a garage;
- 1969: stone yard became a builder's yard;
- 1978: whole site was builder's yard, and;
- 2010: site became a car rental facility.

Off-site:

- Since 1879; the surrounding land was shown as a mix of residential and commercial development and no significant change since in terms of contaminative use with a potential to affect the site was identified on the recent historical maps.



2.4 Geological and Environmental Setting

The geology at the site, as determined from the British Geological Survey (BGS) online GeoIndex and Map Sheet 268 Reading 1:50,000 map comprises, superficial deposits of Alluvium overlying the Taplow Gravel Member over bedrock geology of the Seaford Chalk Formation and Newhaven Chalk Formation (Undifferentiated), referred henceforth as the 'Upper Chalk'. Made Ground was also encountered at the ground surface around the areas of the historical developments.

The Made Ground is an unclassified aquifer, the Alluvium Deposits and Taplow Gravel Member are classified as Secondary (A) Aquifers, and the Chalk is classified as a Principal Aquifer. The site is not within a Source Protection Zone (SPZ). The closest licensed abstraction is 250m south of the site and is considered to be beyond influential distance.

There are no surface water courses closer than 250m to the site boundary. There are no current or historical landfills nor any waste treatment facilities within 250m of the site boundary. The site is not within a Radon Affected Area.

2.5 Previous Ground Investigation Summary

A desk study report and ground investigations were undertaken by Enzygo in June 2020, September 2020 and February 2021.



Figure 2.1: Enzygo Ground Investigation Locations (June 2020)

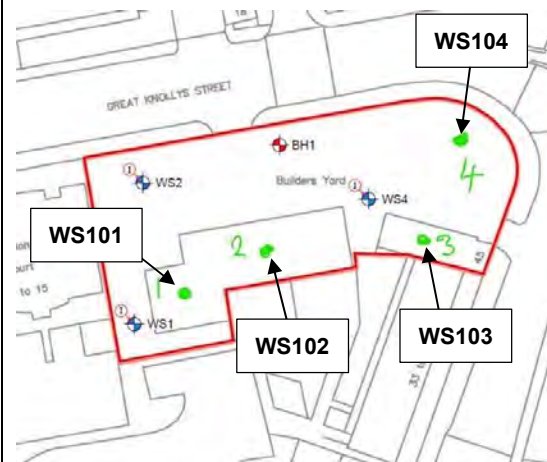


Figure 2.2: Enzygo Ground Investigation Locations (February 2021)

Figure 2.1 and Figure 2.2 show the exploratory hole locations of their ground investigations. On the 3 June 2020, three window sampler (WS) boreholes were completed (WS1, WS2 and WS4) along with a cable percussive borehole (BH1). WS3 could not be completed due to the existing buildings on site. On the 5 February 2021, a supplementary ground investigation was undertaken comprising four WS boreholes (WS101 to WS104) to access the previously inaccessible areas of the site.



The WS exploratory hole locations were drilled using a window sampler rig, with the exception of WS103 where only a hand pit was excavated due to lack of head room for the rig within the existing building.

The WS final depths during both investigations were drilled between 3.00 to 5.45m below ground level (m bgl), the location WS103 hand pit was excavated to a depth of 1.20m bgl within the Made Ground and the borehole BH1 was drilled to a depth of 20.43m bgl, which terminated in the chalk bedrock.

2.6 Ground conditions

The ground conditions as proven by the investigations described in Section 2.5 at the site comprise:

- Made Ground from ground level, up to a maximum depth of 2.90m bgl, comprising concrete hardstanding over fill materials of brick, concrete, ash and flint; over
- Alluvium (1.40m to 1.80m thick), comprising soft to firm silty gravelly clay;
- Taplow Gravel Member (average thickness of 4.0m), comprising medium dense orange-brown clayey flint gravel;
- Upper Chalk (thickness greater than 16m), comprising yellow-white structureless chalk (Class Dm/Dc);
- Groundwater was encountered (noted as seepages on Enzygo's logs) during the ground investigation within the encountered Alluvium or Taplow Gravel Member at depths between 3.0m bgl and 4.2m bgl. Post fieldwork monitoring recorded groundwater levels between 2.14m bgl and 2.66m bgl.
- No visual or olfactory evidence of evidence of contamination was noted during site works.

2.7 Geo-environmental risk assessment conclusion and remedial requirements

Representative soil samples and groundwater samples were collected for chemical analysis by Enzygo during their ground investigations, which were sent to i2 Analytical Ltd who are UKAS and MCERTS accredited specialist testing laboratory. Soil samples were tested for the Contaminated Land Exposure Assessment (CLEA) metal suite, pH, sulphate, cyanide, phenols, speciated Polycyclic Aromatic Hydrocarbons (PAHs), organic carbon, banded Total Petroleum Hydrocarbon (TPH) and asbestos screen. Groundwater samples were tested for speciated TPH Criteria Working Group (CWG).

2.7.1 Human health risk

Assessment to the risks to human health was undertaken by Enzygo by comparing soil quality data with reference values obtained from the CLEA, Soil Guideline Values (SGV) and Generic Assessment Criteria (GAC) published by Land Quality Management (LQM) and derived in consultation with the Chartered Institute of Environmental Health (CIEH).

The results have been compared with GAC values for a residential without plant uptake land end use scenario. The following exceedances against this GAC were encountered:



June 2020

- A minor exceedance of one Polycyclic Aromatic Hydrocarbon (PAH) substance (dibenzo(ah)anthracene) in WS2 at 0.30m, within the Made Ground. 0.34mg/kg compared to a GAC value of 0.31mg/kg.
- Two exceedances of lead in WS1 at 0.30m and in WS4 at 1.0m, within the Made Ground. 410mg/kg (WS1) and 920mg/kg (WS4) compared to a GAC value of 310mg/kg.

September 2021

- Exceedances for PAHs (four samples), metals (lead and arsenic, four samples), Total Petroleum Hydrocarbons (TPHs, seven samples) and benzene, toluene, ethylbenzene, and xylene (BTEX) in three samples, each exceedance was recorded within the Made Ground.

Asbestos was not detected in any soil samples during the ground investigations.

Ground gas and groundwater level monitoring visits were undertaken on three occasions within WS1, WS2 and WS4 by Enzygo between 26th August and 10th September 2020. Gas monitoring identified elevated concentrations of Carbon Dioxide between 1.2% to 12.7% in the WS locations. WS4 identified the highest concentrations recording 6.20%, 12.7% and 12.6% during each visit. It was recommended that gas protection measures would be required to meet the requirements of Characteristic Situation 2.

2.7.2 Controlled waters risk

Groundwater samples were collected for contamination testing during a return visit on the 26 August 2020 by Enzygo. The results were compared with the Fresh Water Environmental Quality Standard (EQS), Drinking Water Standards (DWS) and World Health Organisation (WHO) values for Drinking Water if no EQS was available). The testing identified a single TPH exceedance associated with the aliphatic hydrocarbon chain C21-C35 within WS2 recording a value of 270µg/l. Although no target value is provided for this specific TPH chain, this is considered to be an isolated exceedance, with no identified source of contamination from either the ground investigation or soil testing, it was considered that the risk to controlled waters is not significant.

2.7.3 Water pipeline risk

No risk to water pipelines was identified within the Enzygo report. It dismissed the possibility of organic contamination permeating into the water pipes, since no significant source of contamination was identified. As such, barrier pipework was not recommended, however, confirmation of the pipework for installation was recommended to be sought from the water supply company.

2.7.4 Waste classification

The Enzygo ground investigation report ref: CRM.1726.002.GE.R.001.B indicated that the soils were generally classified as non-hazardous with a stable non-reactive classification where the TPH has been measured in each of the exploratory hole locations (BH1, WS1, WS2, WS4, WS101, WS102, WS103 and WS104) within the Made Ground. Additionally, elevated concentrations of Total Organic Carbon (TOC) were recorded in WS102 and elevated concentrations of PAHs (benzo(a)pyrene, benzo(b)fluoranthene and dibenz(a,h)anthracene) were recorded in WS104.



It was advised that non-hazardous waste receiving landfills may accept soils with high TOC concentrations due to organic matter as inert or non-hazardous waste where they can use them as restoration soils above an engineered cap.

2.8 Hydrock Volatile Organic Compound (VOC) reassessment

Following Hydrock's reassessment of the VOC risk outlined within the Hydrock remediation strategy update (reference: 16195-HYD-XX-XX-RP-GE-0002), Hydrock concluded that even though the site requires mitigation measures for risk of ground gas (CS2 conditions apply), the gas resistant membrane does not require to be resistant to VOCs due to low risk of their presence. For further details please refer to Hydrock's RSU report.



3 Remediation strategy

3.1 Summary of remediation stages and tasks

The objective of the remediation works, as detailed in the Remediation Strategy produced by Hydrock referred to in Section 1.3 are to:

- break the linkage between the contaminants in the Made Ground from natural soils and future site users (including users of neighbouring properties);
- break the linkage between the contaminants and the groundwater;
- minimise off-site disposal requirement;
- not create a new contaminant pathway to Controlled Waters via the proposed foundation solution; and
- create a geotechnically suitable development platform.

The Remediation Strategy also states that the following remedial activities will be required to deliver the site suitable for use for the defined residential without plant uptake end use and can be separated into Pre-demolition Phase, Enablement Phase and Construction Phase, as detailed below:

Pre-demolition Phase

- Task 1: Project setup and management including liaison with the Local Authority, Environment Agency and Health and Safety Executive, where necessary, with appropriate permits / licences / consents / approvals granted.
- Task 2: Appointment of an appropriate contractor and appropriate permits / licences / consents / approvals.
- Task 3: Pre-works air quality boundary monitoring for dust and asbestos fibres (if deemed necessary by the contractor), before demolition and earthworks commence and during the earthworks.

Enablement Phase

The following Tasks for completion during the Enablement Phase of works (as outlined in Section 5 of the Hydrock RS report) are:

- Task 4: Demolition, breaking out of hardstanding and below-ground obstructions and below slab inspection with discovery strategy
- Task 5: Hotspot delineation, assessment and removal of impacted soils (if encountered)
- Task 6: Reuse and placement of soils
- Task 7: Off-site disposal of geotechnically or environmentally unsuitable material
- Validation during Enablement Works and Reporting (this report).

The Enablement Phase of work was undertaken by the Contractor (Gracelands Ltd), referred to as the Enablement Contractor.



Construction Phase

The Contractor shall undertake the follow tasks (as outlined in Section 6 of the Hydrock RMS report):

- Task 8: Installation of barrier pipework for potable water supplies (to be confirmed by the regulator). However, the RSU has identified no risk to water pipelines. As such, barrier pipework was not recommended, and this task is not required.
- Task 9: Installation of a cover system
- Task 10: Installation of ground gas protection measures in accordance with CS2 conditions.
- Validation during Construction Works.



4 Verification of remediation works

4.1 Introduction

Abri Group Ltd assumed the role of Principal Contractor with Gracelands Ltd subcontracted for the ground works during the enablement and construction phases.

Hydrock (now Stantec) were commissioned to conduct inspections of the installation of the gas membrane as well as the installation of the cover system for the area of soft landscaping during the construction phase, including validation as required, and preparation of a verification report. The following sections summarise works completed to date.

4.2 Pre-demolition Phase

Pre-demolition tasks 1-3 were carried out by Abri Build, the appointed Principal Contractor. No specific permits/licenses/consents/approvals were provided to Stantec for review. No air quality boundary monitoring for dust and asbestos was provided to Stantec for review.

4.3 Enablement Phase

Stantec were not present on site at the time of the enablement works, so the evidence provided in this section of the verification report comes through a review of the Contractors records, presented in Appendix C through Appendix F.

4.3.1 Task 4: Demolition, breaking out of hardstanding and below ground obstructions and below slab inspection with discovery strategy

Collards was the appointed sub-contractor for this task which comprised demolition, break out of hardstanding and any below-ground obstructions and below slab inspection if encountered with a discovery strategy in place.

Abri noted during these works that removal of underground soakaway chambers were undertaken. However, no records of this have been provided to Stantec for review. See Appendix F for correspondence from the site manager confirming that removal of the soakaway tanks had been undertaken and that no records of the removal were kept.

4.3.2 Task 5: Hotspot delineation, assessment and removal of impacted soils (if encountered)

Gracelands Ltd were the appointed subcontractor to undertake Tasks 5 through 7. During the enablement and construction phase of the apartment block, correspondence with the site manager reported to Hydrock that no unexpected contamination was encountered.



4.3.3 Tasks 6: Reuse and placement of soils

The RMS requires any material excavated from site to be appropriately disposed or re-used in accordance with industry accepted code of practice. It is understood from the Client that site-won materials were not reused on site, and that the excavated materials during the enabling phase were taken off site.

4.3.4 Task 7: Off-site disposal of geotechnically or environmentally unsuitable material

A selection of waste consignment notes (WCNs) were provided by Gracelands to Abri to confirm that geotechnically or environmentally unsuitable materials were taken off site. The waste certificates provided for the materials that were excavated and taken off site are presented in Appendix F.

4.3.5 Validation during enablement works and reporting

The RMS requires that the appointed contractor is responsible for undertaking a suitable environmental testing regime to indicate that all material remaining on site is in line with the residential remedial target values (RTVs) associated with the development. The contractor is to provide all environmental testing to Stantec for review.

Testing of the landscaped areas have been undertaken by Stantec, please refer to Section 4.4.2.

4.4 Construction Phase

4.4.1 Task 8: Installation of barrier pipework

The RSU has identified no risk to water pipelines. As such, barrier pipework was not recommended and this task was deemed to not be required.

4.4.2 Task 9: Installation of clean cover system

A cover system was required in areas of communal soft landscaping as outlined in the Remedial Strategy. These areas are shown in the Planting Plan (Drawing number: 13986/P01) and presented in Appendix A.

Clean topsoil was imported from Eversley Quarry by John Stacey & Sons Ltd. This was material used in the soft landscaping areas. One import round was delivered to site (though at the time of writing the volume of imported topsoil is not known, it is implied to be 30m³ from the import certificates), and a chemical test certificate was provided by the supplier for the topsoil and consignment notes for the delivery of the soil were provided to Stantec, these are presented in Appendix D.

A site visit was undertaken by Hydrock on the 20 May 2025, to verify the clean cover system installation. The site visit report and inspection records are presented in Appendix B. The findings of the site visit are discussed below.



During Stantec's site visit, representative soil samples of the imported topsoil were obtained for laboratory testing in line with the required frequency of one test per 250m³, with a minimum of four test per source. The RMS contained assessment criteria for imported soil. It is considered that given the time since these works were undertaken, it is best practice to update the assessment criteria with up-to-date guidance and the imported soils have been screened against updated generic assessment criteria (GAC) for Public Open Space (POS) residential land use without scenario. The average soil organic matter (SOM) value for the soil tested was 8.19% and the GAC for 6% SOM has been used. Sampling locations are presented in the site visit report as presented in Appendix B.

During Stantec's last site visit (20th May 2025) the soft landscaping areas were not levelled to the final curb level; however minimum required thickness was reached (400mm) and the additional topsoil to be placed would exceed what was required (500mm to 580mm). These levels were noted within the four hand pits excavated across the soft landscaping area and an orange marker membrane was recorded at the base of all locations. Thickness, descriptions and location of the hand pits are presented in the site visit report, as well as photos from the contractor showing the soft landscaping areas completed in Appendix B. No visual or olfactory indicators of contamination were identified during the works, therefore it is considered that this Task has been completed in accordance with the RMS.

All samples tested on the imported topsoil are below the required GAC and are considered to be suitable for use within the POS. The laboratory test certificates and assessment against the updated GAC are presented in Appendix E.

4.4.3 Task 10: Installation of ground gas protection

The ground gas regime at the site indicated that Characteristic Situation 2 (CS2) ground gas protection measures are required to be installed. For CS2 (Type B building) developments, 3.5 points of protection measures are required. The CIRIA Report C665 (Wilson et al 2007) recommends:

- Beam and block or pre-cast concrete floor slab (0 points);
- passive sub floor ventilation e.g. void (1.5 points);
- 2000g gas resistant membrane (2.0 points); and
- All joints and penetrations sealed.

A gas membrane was required within the footprint of the building as outlined in the RS. Gas membrane designs and materials used, along with third-party validation reports and installation certificates are presented in Appendix C. The gas membrane was installed by MB Membranes Ltd (MB) and MEC Environmental Ltd (MEC) has been appointed by MB to carry out independent validation of the installation.

The site inspections have been carried out by suitably qualified staff as defined in CIRIA C735; the qualification held by MEC inspection surveyor for these works were a NVQ Level 2 in gas membrane installation.



Following completion of the enablement phase, Stantec also completed two visits to inspect the gas membrane during installation. These were undertaken on the 10 February 2023 and 4 July 2023. In general, the gas membrane was noted to be in good condition, some rare defects were highlighted to the site manager and marked up for inspection by the installer and verifier.

An installation completion certificate was provided to Stantec dated 12 June 2025 undertaken by MB Membranes Ltd, this is presented in Appendix C. It is considered that this Task has been completed in accordance with the RMS.



5 Conclusion and Recommendations

Evidence that remediation works at the site has been conducted in general accordance with the RMS and RSU, and it is in Stantec's opinion that the following:

- No additional contamination was identified during enablement works;
- Unsuitable material excavated from site has been suitably disposed of;
- Chemical testing of the landscaped areas have proved that no contamination is present and is suitable for proposed end use as a POS area;
- Stantec believes that the cover system for the landscaped area has been installed as per the RS; and
- Stantec believes that the ground gas membrane has been suitably installed and verified as per the RS and CIRIA Report C665 (Wilson et al 2007).

It is recommended that the report be submitted to Reading Borough Council for review. Based on the remediation and verification works discussed in the report, it is considered that the remediation of 45 Caversham Road is completed and discharge of remaining Planning Condition 17 and 18 is requested.



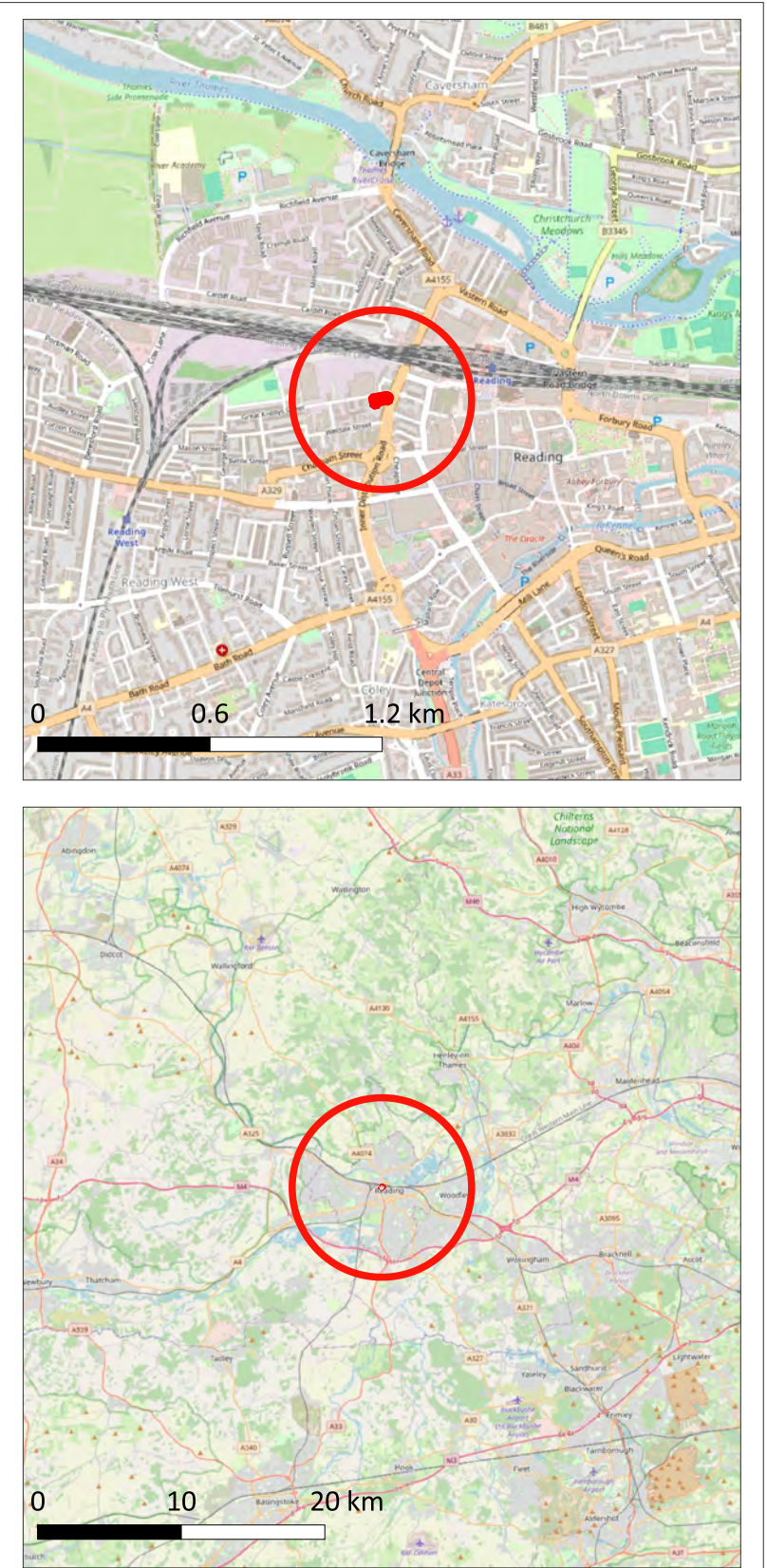
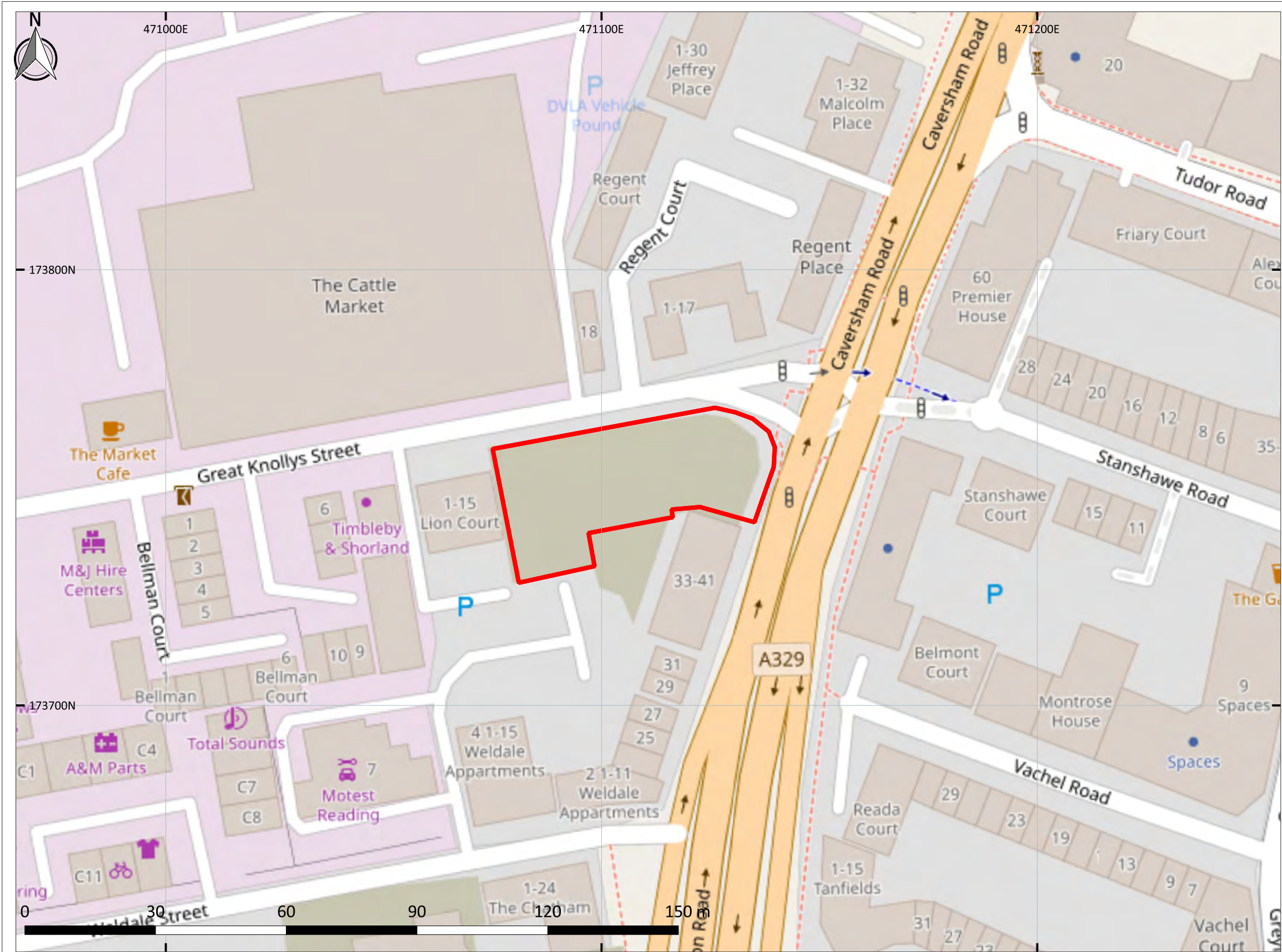
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Appendix A Drawings





KEY PLAN Site Boundary	NOTES 1. Contains OS data © Crown copyright and database right (2022)	REVISIONS <table><tr><th>REV.</th><th>DRAWN BY INITIALS</th><th>CHECKED BY INITIALS</th><th>DATE</th><th>REVISION NOTES/COMMENTS</th></tr><tr><td>P01</td><td>LC</td><td>DH</td><td>11/06/25</td><td>First issue</td></tr></table>				REV.	DRAWN BY INITIALS	CHECKED BY INITIALS	DATE	REVISION NOTES/COMMENTS	P01	LC	DH	11/06/25	First issue	Hydrock now Stantec CLIENT Abri Group Ltd PROJECT 45 Caversham Road, Reading		TITLE SITE LOCATION PLAN <table><tr><td> STANTEC PROJECT NO. 333800180 </td><td> SCALE @ A3 1:1,000 </td></tr><tr><td> PURPOSE OF ISSUE SUITABLE FOR INFORMATION </td><td> STATUS S2 </td></tr><tr><td> DRAWING NO. 333800180-STN-XX-XX-DR-GE-0001 </td><td> REVISION P01 </td></tr></table>		STANTEC PROJECT NO. 333800180	SCALE @ A3 1:1,000	PURPOSE OF ISSUE SUITABLE FOR INFORMATION	STATUS S2	DRAWING NO. 333800180-STN-XX-XX-DR-GE-0001	REVISION P01
		REV.	DRAWN BY INITIALS	CHECKED BY INITIALS	DATE	REVISION NOTES/COMMENTS																			
		P01	LC	DH	11/06/25	First issue																			
		STANTEC PROJECT NO. 333800180	SCALE @ A3 1:1,000																						
		PURPOSE OF ISSUE SUITABLE FOR INFORMATION	STATUS S2																						
DRAWING NO. 333800180-STN-XX-XX-DR-GE-0001	REVISION P01																								

SPECIFICATION NOTES

GENERAL

- Proposals to be read in conjunction with Architects and Engineers Drawings;
- All landscape operations to be in accordance with all relevant and current BS and BS EN standards including BS 8545: 2014, BS4428: 1989 & BS 3936: 1990,1992,2007; and all amendments to date.
- Plant material to conform with the National Plant Specification;
- All stock (other than container grown) shall be planted between November 30th and 28th February. Planting operations shall be carried out in suitable open weather and all plants re-firmed if lifted by frost during the contract. No planting shall take place in dry, hot and sunny weather or indeed if frost and snow are present, or in cold east winds, regardless of the stock specified;
- Any plant material planted outside the recognised planting season (Nov-Feb), to be containerised stock and supplied at the sizes specified;
- Plant handling and planting operations to be in accordance with HTA "Handling and Establishing Landscape Plants parts I - III;
- All planting to be maintained and guaranteed for 12 months to include watering, weeding, litter picking, pest & disease control;
- The landscape contractor is to take all safety precautions to prevent any injury to any persons. The landscape contractor shall comply with the requirements of the Health and Safety at Work Act 1974 and current Construction, Design and Management Regulations.

SOIL AND MULCH

- Existing topsoil to be stripped and stored on site in heaps not exceeding 2m height and kept weed free;
- Any compacted subsoil to be broken up to allow free drainage and to enable topsoil to key into surface;
- Any imported topsoil to be to BS3882:2015, weed free, medium texture, neutral PH value, reasonably stone free with no stones over 20mm in size;
- Finished topsoil levels to be flush with adjacent paved surfaces;
- Soil depths to be 900mm for Extra Heavy Standard trees, 600mm for Standard trees; 450mm for shrub and hedge planting, 150mm for grass turfing and seeding.
- Backfill for trees as per detail and other planting to be a mix of 50/50 approved/stored topsoil and shrub planting compost evenly mixed.
- All planting areas to be covered with a 75mm depth of medium grade bark mulch or 20mm gravel or slate chippings.
- Refer to the recommendations in 7.2 of the Remediation Strategy 16195-HYD-XX-XX-RP-GE-0001.

PLANT MATERIAL TREATMENT

- All to be British grown stock and fully hardened off;
- Root Dip - Proprietary Root Dip applied to all bare root stock at time of lifting at nursery and prior to planting (for hedgerow plants);
- Anti-Desiccant - Proprietary anti-desiccant to be applied to foliage of all containerised/rootballed material in leaf prior to transportation and during any delay in planting;
- Tree Stakes and Ties - Stakes to be pressure treated, round, smooth and peeled Larch or Chestnut as per detail.

PROPOSED TREES

- Contractor to ascertain the location of all sewers and services prior to tree planting;
- No trees to be planted within 3 metres of sewers or services or other easement recommended by the relevant statutory undertaker without the use of tree root barriers. Use Green Blue Urban Reroot 2000 in the vicinity of dwellings and Reroot Ribbed Barrier in the vicinity of paths/hard surfaces and services. All tree pits with root barriers are subject to engineer's approval.
- For tree pit installation (including tree pit details and soil rooting volume information) refer to the documentation produced by Green Blue Urban.

SHRUBS

- Before planting, remove any non-perishable containers and carefully prune any damaged roots. Plant upright or well balanced with best side to front. Carefully return excavated topsoil/shrub planting compost mix, packing around evenly spread roots or root ball and heel well in;
- Planting holes for shrubs to be 150mm wider than root spread and 450mm deep.
- Shrubs to be planted in groups of 3-7 of the same species, with smaller plants located abutting paths and roads;
- Water plants thoroughly immediately after planting;
- Immediately after planting cut back any damaged, dead or diseased branches;
- After planting rake soil to a fine tilth with approved cambers and no hollows;
- After raking apply approved bark mulch to a depth of 75mm.

HEDGING (Native)

- Plant hedging in trenches 450mm depth and large enough to take the full spread of roots;
- Set out plants evenly as scheduled; planted in groups of 3-7 of the same species;
- Backfill with excavated topsoil/shrub planting mix;
- Prune back native hedging hard at the appropriate season in year one (and outside of the bird nesting season September 1st to September 28th).

PREPARATION OF TURF BEDS, AMENITY GRASS and WILDFLOWER AREAS

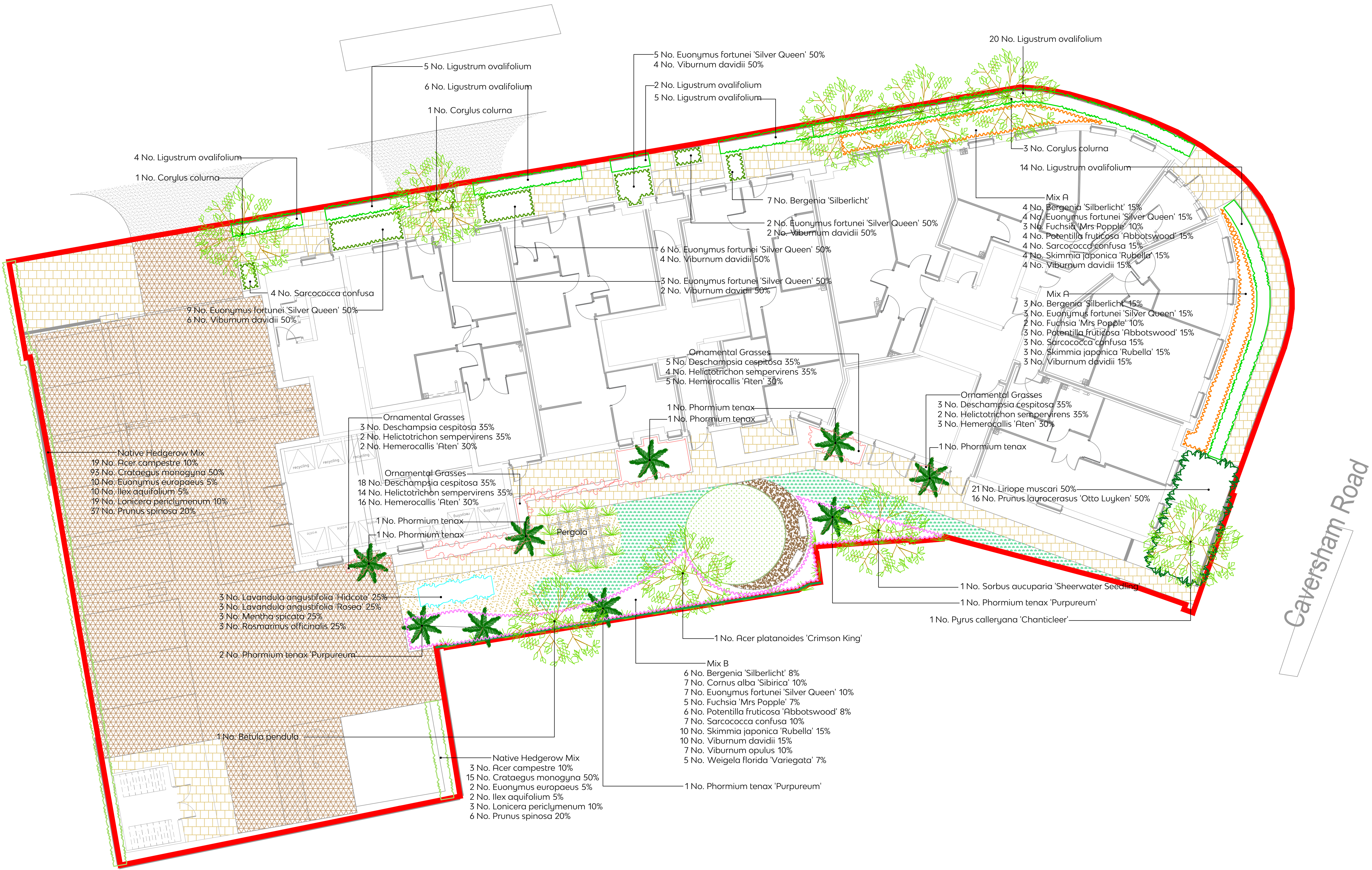
- Prepare the ground by rotavation to break up topsoil to full depth and reduce top 100mm to a fine tilth. Avoid doing this when the soil is wet, to avoid damaging the soil structure and drainage. All turfed areas are to be weed free prior to turfing;
- Remove all undesirable particles brought to the surface including clay balls and stones larger than 50mm in any dimension, building debris, or roots;
- Grade the final surface to smooth contours ensuring the removal of all localised hollows and ridges, allowing for any settlement so that finished levels should be approx. 30mm higher than adjacent kerbs and manholes.

TURFING

- Turf to be in accordance with BS3936:1998.
- Unless otherwise stated, turf is to be good quality cultivated turf, consisting of 25% Dwarf Rye Grass, 20% Chewing Fescue, 35% Creeping Red Fescue, 20% Smooth Stalked Meadow Grass (equivalent quality to Rolawn Medallion Grade turf), fibrous and well rooted, mown and free of matted or dead grass and pernicious weeds;
- Turves to have been treated by an approved selective weed killer not more than 3 months and not less than 4 weeks before lifting;
- Turf is to be delivered within 36 hours of cutting and shall be off loaded by hand unless arranged on pallets for mechanical handling;
- Turf, which is not laid immediately on delivery, or turf inadequately stored, or in poor condition shall be rejected;
- Turf shall not be laid in exceptionally dry weather or when the ground is frozen or waterlogged;
- All turf shall be laid from planks laid on the previously laid row in alternate grain up grain down rows, with broken joints between rows and well butted up.

GRASS SEEDING - AMENITY and WILDFLOWER

- Seeding to be undertaken between April-October (in accordance with Emorsgate recommendations);
- Seed in calm weather with seed evenly distributed in 2 directions;
- Sowing rates as recommended by Emorsgate;



Planting Schedule

Trees				
Number	Species	Height	Girth	Specification
1	Acer platanoides 'Crimson King'	400-450cm	14-16cm	Extra Heavy Standard: 5 brks: 3x: RB: Clear Stem min. 200cm
1	Betula pendula	250-300cm		Multi-Stemmed: Bushy: 3 stems min.: C
5	Corylus colurna	400-450cm	14-16cm	Extra Heavy Standard: 5 brks: 3x: RB: Clear Stem 175-200cm
1	Pyrus calleryana 'Chanticleer'	400-450cm	14-16cm	Extra Heavy Standard: 5 brks: 3x: RB: Clear Stem min. 200cm
1	Sorbus aucuparia 'Sheerwater Seedling'	300-350cm	10-12cm	Selected Standard: 4 brks: 2x: RB: Clear Stem 175-200cm
Total :9				

Specimen Shrubs

Number	Species	Height	Pot Size	Specification
5	Phormium tenax	60-80cm	10L	Double Crown: C
4	Phormium tenax 'Purpureum'	60-80cm	10L	Triple Crown: C
Total :9				

Shrub Mix

Number	Species	Height	Pot Size	Specification	Density
25	Euonymus fortunei 'Silver Queen'	20-30cm	5L	Bushy: 7 brks: C	3/m ²
18	Viburnum davidii	30-40cm	5-7.5L	Bushy: 4 brks: C	2/m ²
Total :43					

Shrubs

Number	Species	Height	Pot Size	Specification	Density
7	Bergenia 'Silverlicht'	3L	Full Pot: C	5/m ²	
4	Sarcococca confusa	30-40cm	5L	Bushy: 6 brks: C	3/m ²
Total :11					

Native Hedgerow

Number	Species	Height	Pot Size	Specification	Density
22	Acer campestre	100-125cm		1+2: Transplant - seed raised: B	6/m
108	Crataegus monogyna	100-125cm		1+2: Transplant - seed raised: B	6/m
12	Euonymus europaeus	60-80cm		1+2: Transplant - seed raised: Branched: 5 brks: B	6/m
12	Ilex aquifolium	100-125cm	15L	Leader with Laterals: 5 brks: C	6/m
22	Lonicera periclymenum	100-150cm	10L	Caned: Several Shoots: 5 brks: C	6/m
43	Prunus spinosa	100-125cm		1+2: Transplant - seed raised: Branched: 4 brks: B	6/m
Total :219					

Ornamental Hedgerow

Number	Species	Height	Pot Size	Specification	Density
56	Ligustrum ovalifolium	160-180cm	76L	Readyhedge instant hedging: 40cm wide x 100cm long: C: Pre-formed with Continuous Root-Strip: Dense: Straight-Sided: Feathered to base: Neatly Clipped: 1/m	
Total :56					

Ornamental Planting Mix A

Number	Species	Height	Pot Size	Specification	Density
7	Bergenia 'Silverlicht'	3L	Full Pot: C	0.6Ctr	
7	Euonymus fortunei 'Silver Queen'	20-30cm	5L	Bushy: 7 brks: C	0.6Ctr
5	Fuchsia 'Mrs Poppie'	30-40cm	5L	Bushy: 5 brks: C	0.6Ctr
7	Potentilla fruticosa 'Abbotswood'	30-40cm	5L	Bushy: 5 brks: C	0.6Ctr
7	Sarcococca confusa	30-40cm	5L	Bushy: 6 brks: C	0.6Ctr
7	Skimmia japonica 'Rubella'	30-40cm	5L	Bushy: 4 brks: C	0.6Ctr
7	Viburnum davidii	30-40cm	5-7.5L	Bushy: 4 brks: C	0.6Ctr
Total :47					

Ornamental Planting Mix B

Number	Species	Height	Pot Size	Specification	Density
6	Bergenia 'Silverlicht'	3L	Full Pot: C	0.6Ctr	
7	Cornus alba 'Sibirica'	60-80cm	5L	Branched: 4 brks: C	0.6Ctr
7	Euonymus fortunei 'Silver Queen'	20-30cm	5L	Bushy: 7 brks: C	0.6Ctr
5	Fuchsia 'Mrs Poppie'	30-40cm	5L	Bushy: 5 brks: C	0.6Ctr
6	Potentilla fruticosa 'Abbotswood'	30-40cm	5-7.5L	Bushy: 5 brks: C	0.6Ctr
7	Sarcococca confusa	30-40cm	5L	Bushy: 6 brks: C	0.6Ctr
10	Skimmia japonica 'Rubella'	30-40cm	5L	Bushy: 4 brks: C	0.6Ctr
10	Viburnum davidii	30-40cm	5-7.5L	Bushy: 4 brks: C	0.6Ctr
7	Viburnum opulus	60-80cm	5L	Branched: 4 brks: C	0.6Ctr
5	Weigela florida 'Variegata'	60-80cm	5-7.5L	Branched: 6 brks: C	0.6Ctr
Total :70					

Ornamental Grass Mix

Number	Species	Pot Size	Specification	Density
29	Deschampsia cespitosa	2L	Full Pot: C	4/m ²
22	Helictotrichon sempervirens	2L	Full Pot: C	3/m ²
26	Hemerocallis 'Athen'	2L	Full Pot: C	4/m ²
Total :77				

Sensory and Herb Garden Species Mix

Number	Species	Height	Pot Size	Specification	Density
3	Lavandula angustifolia 'Hidcote'	15-20cm	2L	Bushy: 5 brks: C	0.4Ctr
3	Lavandula angustifolia 'Rosea'	15-20cm	2L	Bushy: 5 brks: C	0.4Ctr
3	Mentha spicata	2L	Full Pot: C	0.4Ctr	
3	Rosmarinus officinalis	20-30cm	2L	Bushy: 3 brks: C	0.4Ctr
Total :12					

Understorey Planting Mix

Number	Species	Height	Pot Size	Specification	Density
21	Liriope muscari	2L	Full Pot: C	0.45Ctr	
16	Prunus laurocerasus 'Otto Luyken'	40-60cm	5-7.5L	Bushy: 5 brks: C	0.6Ctr
Total :37					

Climbers

Number	Species	Height	Pot Size	Specification	Density
1	Clematis armandii	60-80cm	2L	Caned: Several Shoots: 2 brks: C	3Ctr
3	Hedera algeriensis 'Gloire de Marengo'	40-60cm	2L	Caned: Several Shoots: 2 brks: C	3Ctr
4	Hydrangea anomala petiolaris	40-60cm	2L	Caned: Several Shoots: 2 brks: C	3Ctr
22	Lonicera periclymenum	100-150cm	10L	Caned: Several Shoots: 5 brks: C	6/m
1	Lonicera periclymenum 'Belgica'	60-80cm	2L	Caned: Several Shoots: 2 brks: C	3Ctr
1	Lonicera periclymenum 'Serotina'	60-80cm	2L	Caned: Several Shoots: 2 brks: C	3Ctr
4	Parthenocissus tricuspidata 'Veitchii'	60-80cm	2L	Caned: Several Shoots: 3 brks: C	3Ctr
1	Rosa 'Albentine'	2L	Budded: Caned: Bush: Quality Fl: C	3Ctr	
Total :37					

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Site Boundary

Proposed Tree Planting

Proposed Shrub Planting

Proposed Native Hedgerow

Proposed Ornamental Hedgerow

Proposed Sensory and Herb Garden Species

Proposed Ornamental Grasses

Proposed Ornamental Shrub Planting Mix A

Proposed Ornamental Shrub Planting Mix B

Proposed Shrub Planting

Proposed Climbers

Proposed Understorey Planting

Slate Chipping

Proposed Lawn (Turf)

Proposed Flowering Lawn Mixture (Emorsgate EL1 'Flowering Lawn Mixture' or similar approved) - 4g per m²

Gravel

Paving Slabs: Marshalls Saxon Paving Slabs 450 x 450 x 35mm (buff)

Paving Slabs: Marshalls Driveline 50 Block Paving 200 x 100 x 80mm (buff)

Green Wall

Tree species amendment - RB
Planning Comments Amendments
Updated Layout - MF/JL
Description

01.11.2021
12.10.2021
11.05.2021
Data

C
B
A
Rev

Tyler Grange
Marsden Estate, Rendcomb
Cirencester, GL7 7EX
E: TGlandscape@tylergrange.co.uk
W: www.tylergrange.co.uk
T: 01285 831 804

Project title
45 Caversham Road, Reading

Drawing title
Planting Plan

Date
Scale

October 2021
1:100 @ A3
Drawn: MF
Checked: AW
Approved: AW
Drawing number
13986/P01
Revision
C

Appendix B Stantec Site Visit Report and Inspection Records



Visual Inspection of Gas Protection Measures

Site name:	45 Caversham Road, Reading
Job number:	16195
Plot Number(s):	N/A
Date:	13/02/23
Checked by:	MR

Weather at time of inspection:	Overcast, cold
Gas characteristic situation:	CS2
Type of development and building/block checked:	Apartment Block ground floor
Building description:	Apartment Block
Foundation type:	Ground bearing
Gas protection type:	Void and membrane

No.	Item	Comments (see notes)
1 Gas membrane		
1.1	Condition of sub-grade and underside of gas membrane	Good and clear of debris beneath installed materials. Only external and internal walls DPC and detail tape applied. Main floor area to be cleared before install of sheets.
1.2	Gas membrane type	Visible - JUTA GP® PRIMER, JUTA GP® DPC and JUTA GP1 Gas Barrier Used in lift shafts and not able to inspect - JUTA UK Pile Head Sealer (PHS), GP TITANTANK, GP TITANBOND and JUTA GP – LIQUID GAS BARRIER
1.3	Gas membrane condition	Generally good. Rare defects, highlighted to site manager and marked up for inspection by installer and verifier.
1.4	Joining tape product	Premseal GMA and GP SAM.
1.5	Lapping design	150mm
1.6	Laps, welds and joints seals	Heat welded DPC with >150mm overlap. Tape where under 150mm.
1.7	Service entries seals	Joining tape.
2 Passive venting		
2.1	Sub-floor void	N/A
2.2	External wall airbricks	N/A
2.3	Internal sleeper walls	N/A
2.4	External vent trenches/ducts	N/A
2.5	Cavity Inspection	Clear.
Additional Notes:		
Some fencing feet were placed on top of the installed membrane. Upon pointing this out the site manager re-organised to place wooden planking over the membrane to protect it.		
Hydrock to re-visit after installation and verification of main floor area.		

Inspection Checklist		
1.1	Underside of gas membrane	Check that the sub grade does not contain rough/uneven surfaces, is appropriately clean and that there are no hard/sharp objects. That protective sand blinding or geotextile (if specified) is present and meets the design criteria.
1.2	Gas membrane type	Manufacturer and product specification, gauge, colour, brand/name, material batch/roll numbers, storage arrangements (protected from dirt/damage?)
1.3	Gas membrane condition	Open punctures, tears, rips, stretching? Excessive footprints/evidence of traffic? Presence of debris? Repairs? Signs of weakness such as raised or sunken indentations? Protection plan in place to restrict access to lain gas membrane?
1.4	Joining tape product	Product type, brand, thickness, material, width, colour? Use of double sided tape?
1.5	Lapping design	Joints lapped and sealed in accordance with manufacturer's requirements/ specification? Minimum overlap insured? Sections taped twice?
1.6	Laps and joints sealed	Welds complete? Appropriate joining/double sided tape used?
1.7	Service entries sealed	Top hats seal arrangements fixed around service entries? Use of Jubilee clips?
2.1	Sub-floor void	Is a check possible? Void former? Gravel (type/specification)? Height of void space? Is it clear?
2.2	External wall airbricks	Numbers, size, positions as design drawing?
2.3	Internal sleeper walls	Ventilation holes (honeycomb brickwork/pipe crossings?) – size, spacing, location in accordance with design?
2.4	External vent trenches/ducts	Located and constructed in accordance with design drawings? If open-topped gravel – gravel type/presence of fines? If pipe or other vent, check position and construction for functionality and absence of blockages. Ability of void former to withstand bearing of the superstructure?
2.5	Cavity Inspection	Confirm that the cavity is not blocked with debris, check that there are no rips in the membrane across the cavity and the jointing detail (if present) is fully sealed.
3.1	Active venting	Type of air supply: mechanical, natural, combined? Location/condition/number of fans and vents? Location and size of inlets? Provision of air-cleaning devices and air heaters? Supply and exhaust ductwork? Alarm provision/installation? Gas monitoring system in under-floor void?

Photographs	
No.	Description

The gas protection measures inspected:	a) Are acceptable and comply with the specification	
	b) Are acceptable but attention is drawn to issues related to item no. 1.3	x
	c) Are not acceptable due to the issues related to item no.	

Engineer Name:	M Rudd	Signature:	M Rudd	Date:	13/02/23
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Photographs



Photograph 1: General site condition



Photograph 2: DPC and detailing around external walls

Photographs



Photograph 3: DPC and detailing around internal walls and nearby services



Photograph 4: Cavity

Photographs



Photograph 5: sufficient overlap



Photograph 6: Overlap <150mm with additional tape

Photographs



Photograph 7: Non-proprietary top hat service detailing



Photograph 8: Detailing around reinforcement bar penetrating DPC

Photographs



Photograph 9: possible defect in join lapping seal



Photograph 10: possible defect in adhesion to pillar

Photographs



Photograph 11: possible defect in service entrance seal



Photograph 12: possible defect in detail tape joint

Visual Inspection of Gas Protection Measures

Site name:	45 Caversham Road, Reading
Job number:	16195
Plot Number(s):	N/A
Date:	04/07/2023
Checked by:	MR

Weather at time of inspection:	Cloudy and warm with rain spells
Gas characteristic situation:	CS2
Type of development and building/block checked:	Apartment Block ground floor
Building description:	Apartment Block
Foundation type:	Ground bearing slab
Gas protection type:	Void and membrane

No.	Item	Comments (see notes)
1 Gas membrane		
1.1	Condition of sub-grade and underside of gas membrane	Good and clear of debris beneath installed materials. Only external and internal walls DPC and detail tape applied. Main floor area to be cleared before install of sheets.
1.2	Gas membrane type	Visible - JUTA GP® PRIMER, JUTA GP® DPC and JUTA GP1 Gas Barrier Used in lift shafts and not able to inspect - JUTA UK Pile Head Sealer (PHS), GP TITANTANK, GP TITANBOND and JUTA GP – LIQUID GAS BARRIER
1.3	Gas membrane condition	Generally good. Rare defects, highlighted to site manager and marked up for inspection by installer and verifier.
1.4	Joining tape product	Premseal GMA and GP SAM.
1.5	Lapping design	<100mm welded
1.6	Laps, welds and joints seals	Generally okay.
1.7	Service entries seals	Joining tape, no tophats used
2 Passive venting		
2.1	Sub-floor void	N/A (vented slab)
2.2	External wall airbricks	N/A (vents – contractor to send designs to Hydrock)
2.3	Internal sleeper walls	N/A
2.4	External vent trenches/ducts	N/A
2.5	Cavity Inspection	Clear.
Additional Notes:		
Previously installed product has been damaged with holes noted in lapping tape Insufficient overlap on bricks Faults sprayed on previous visit don't appear to be rectified. The above comments have been raised to site manager to rectify before third party validation.		

Inspection Checklist		
1.1	Underside of gas membrane	Check that the sub grade does not contain rough/uneven surfaces, is appropriately clean and that there are no hard/sharp objects. That protective sand blinding or geotextile (if specified) is present and meets the design criteria.
1.2	Gas membrane type	Manufacturer and product specification, gauge, colour, brand/name, material batch/roll numbers, storage arrangements (protected from dirt/damage?)
1.3	Gas membrane condition	Open punctures, tears, rips, stretching? Excessive footprints/evidence of traffic? Presence of debris? Repairs? Signs of weakness such as raised or sunken indentations? Protection plan in place to restrict access to lain gas membrane?
1.4	Joining tape product	Product type, brand, thickness, material, width, colour? Use of double sided tape?
1.5	Lapping design	Joints lapped and sealed in accordance with manufacturer's requirements/ specification? Minimum overlap insured? Sections taped twice?
1.6	Laps and joints sealed	Welds complete? Appropriate joining/double sided tape used?
1.7	Service entries sealed	Top hats seal arrangements fixed around service entries? Use of Jubilee clips?
2.1	Sub-floor void	Is a check possible? Void former? Gravel (type/specification)? Height of void space? Is it clear?
2.2	External wall airbricks	Numbers, size, positions as design drawing?
2.3	Internal sleeper walls	Ventilation holes (honeycomb brickwork/pipe crossings?) – size, spacing, location in accordance with design?
2.4	External vent trenches/ducts	Located and constructed in accordance with design drawings? If open-topped gravel – gravel type/presence of fines? If pipe or other vent, check position and construction for functionality and absence of blockages. Ability of void former to withstand bearing of the superstructure?
2.5	Cavity Inspection	Confirm that the cavity is not blocked with debris, check that there are no rips in the membrane across the cavity and the jointing detail (if present) is fully sealed.
3.1	Active venting	Type of air supply: mechanical, natural, combined? Location/condition/number of fans and vents? Location and size of inlets? Provision of air-cleaning devices and air heaters? Supply and exhaust ductwork? Alarm provision/installation? Gas monitoring system in under-floor void?

Photographs	
No.	Description

The gas protection measures inspected:	a) Are acceptable and comply with the specification	
	b) Are acceptable but attention is drawn to issues related to item no. 1.3	x
	c) Are not acceptable due to the issues related to item no.	

Engineer Name:	Mike Rudd & Lily Cherry	Signature:	M Rudd, L Cherry	Date:	04/07/23
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Photographs



Photograph 1: General condition of membrane.



Photograph 2: General condition of membrane.

Photographs



Photograph 3: Type of membrane used shown.



Photograph 4: Seals noted with <100mm overlapping.

Photographs



Photograph 5: Non-proprietary top hat service detailing.



Photograph 6: Non-proprietary top hat service detailing.

Photographs



Photograph 7: Damage noted on lapping joints/seals.



Photograph 8: Damage noted on lapping joints/seals.

Photographs



Photograph 9: Areas sprayed from previous Hydrock visit not rectified.



Photograph 10: Areas yet to be sealed.

Photographs



Photograph 11: Membrane not sealed and has come away from brickwork



Photograph 12: Service points entry/exits.