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Our Ref: 96671A/JOB/RLB
Your Ref:

16 February 2026

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Dear Amanda

Re: LOWER GROUND FLOOR, CANOLFAN SOAR, PONTMORLAIS, MERTHYR TYDFIL CF47 8UB

Further to instructions received, please find detailed below our summary report following an inspection of the property on Tuesday 25 November 2025.

All directions given within this report are orientated as if stood outside the property facing the front elevation.

For the purpose of this report our inspection was limited to the basement and immediate surrounding internal and external walls, all other parts of the property are currently outside of scope. We can offer no comments or observations relating to walls/floors elsewhere within or outside of the building.

The weather conditions during our inspection were recent rain and damp ground, cloudy sky.

IN SAFE HANDS – BS8102 2022 Protection of below ground structures against water ingress – Code of Practice.

On 31 March 2022 the primary code of practice that is referenced when designing and planning basement waterproofing was republished following an extensive revision.

The previous version of BS8102 was dated 2009 and has been the basement waterproofing industry's "go to" publication.

BS8102 2022 does not however fundamentally change the way we design, plan and provide recommendations for waterproofing, as pre and post the new publication our designs follow best practice, are robust and are created to anticipate that ground water pressure will come to bear against the structure at some stage during the buildings life. This needed anticipation is included specifically in guidance that was included in BS8102 2009 and is carried over to BS8102 2022.

There may be a requirement by the client and their design team to consider project wide implications such as the need or otherwise for a Flood Risk Assessment including consideration of the risk of Sewer Flooding. These types of risk assessments are provided by specialist external professionals.

**BACKGROUND INFORMATION:**

Thank you for your enquiry received by email which is summarised as follows;

A damp-related issue within the lower ground floor has rendered the space unusable due to a continued deterioration in environmental conditions

It was noted in the email that the lower ground floor east wall is “partly subterranean”, which has been covered with a “metal stud and plasterboard”, this was added in a refurbishment project that was undertaken 10-12 years ago.

The goal of the project is to turn the space into a grade 3 environment for group activities and for accommodation. The system that will be put in place will need to be effective, long lasting and prevent the space becoming uninhabitable again.

Prior to visiting the property we were provided with documents and information in support of the enquiry, the documents are listed below:

- RIBA Stage 2 Report LR
- Environmental Monitoring & Environmental Control Report (2025)
 - Internal Data (CSV)
 - External Data (CSV)
- 22 – 1039 – 201 – C
- CCTV Drainage Survey
 - CCTV Drain Plan _ Canolfan Soar
 - CCTV Report summary _ Theatre Soar
 - CCTV Report _ Theatre Soar
 - Associated videos relevant to the CCTV survey

A further survey at a later date was undertaken with no official documentation produced, but I will refer to it in any statements where it is felt it may be relevant.

Email from Tom Martin – Associate Engineer – Mann Williams – dated 13/01/2026.

SCOPE OF WORK:

A Protectahome technical representative is to attend the property and inspect the existing basement.

The purpose of the inspection is to;

Asses the existing walls and floor to understand the build-up of the structure and if any waterproofing was completed during the refurbishment project.

Provide a summary report and budget cost for specialist remedial works, if possible.

The proposed inspection would be non-invasive and non-destructive.

PROPERTY INFORMATION:

Canolfan Soar which was originally formed part of the vestry for the adjoining Zoar Chapel both date back to the 1800's, the building was later extended in the 1900's with a significant increase to the foot print of the property.

Canolfan Soar is a grade II Listed building that underwent a refurbishment project, between 2010 and 2015. The refurbishment was meant to offer a habitable environment for a community facility but has since failed, leaving the lower ground floor inhabitable.



The property is located in Merthyr Tydfil, just off the main street, the property shares its space with a parking facility. Located to the west of the building is a river (Nant Morlais) flowing down away from the property. It was noted that previously there was a corn mill with a waterwheel located to the north of the property.

The property is fully subterranean to the east side and partially subterranean to west, with a man-made perched water table to the rear in the form of an access ramp. The project is due to be converted to a grade 3 environment.

The definition of a grade 3 environment by BS8102:2022 is *"No water ingress or damp from internal or external sources is acceptable. Ventilation, dehumidification or air conditioning necessary; appropriate to the intended use"*

For the purpose of this report and continuity we will refer to the lower ground floor as a basement.

DIALOGUE WITH PROPERTY OCCUPIER AT THE TIME OF INSPECTION:

The property is currently a community facility and coffee shop which was open at the time of my inspection. I was met in the upper levels by one of the occupiers of the property, who was very helpful and who had knowledge of the issues with the water ingress in the basement areas.

The occupier provided a quick breakdown of the footprint of the building and presented a few problem areas which are listed below:

Lobby – efflorescence and water ingress into retaining wall. Water heard with heavy rainfall
Male WC – water ingress into floorings
Meeting room – damp odour
Plant room – damp odour, mould growth

We did not establish a timeline for the problems mentioned above, nor whether a solution was ever put in place after the discovery of said problems.

The occupier advised that the plant had "not previously failed" because of the water ingress into the structure and to his knowledge, the Canolfan Soar had not experienced any problems. It is worth noting that the pipes were dripping when I was present on site, this had caused some damage the flooring below.

The area has been closed off from public access, as it is uninhabitable due to the problems that have been occurring with continued water ingress.

OBSERVATIONS – INTERNALLY

The basement can be accessed by taken by myself and the occupier down into the lobby. This is part of was undertaken (between 2010 modern construction methods.

The alternative pathway would lead disabled access ramp that is blockwork into the covered worth noting that efflorescence's is and over time lime has formed walls and metal gate as you enter



two separate routes. The path was a stairway that leads you the refurbishment project that and 2015) as evidenced by the

you from the car park down a formed from concrete and entrance of the basement. It is coming from the concrete cover around the glass doors, slate the property.





Upon entering the substructure, it became apparent that the blockwork was of updated construction and not part of the original construction, with a form of bitumen paint applied directly to the blockwork, which appeared not to be flush jointed. When observing the wall it seems to be letting free lime through the joints in the blockwork. It was not possible to determine if the blockwork walls are tied back to the original walls of the basement, if a cavity exists between the two, or if any other form of waterproofing has been applied behind the blockwork wall. The blockwork walls terminate against the wall of the existing structure. Upon a second visit during wet weather it was shown to be damp with water ingress from unknown sources present on the wall.

The basement is divided into rooms with a mixture of stud and plasterboard, blockwork and original construction methods. As per the marked up plans provided in the report, there are plans to remove and reconfigure some walls.



When entering the substructure and proceeding to turn towards the east wall, towards the male WC's, some opening up works have already commenced. Upon inspection, it was noted that the metal track along the wall floor junction has started to rust, along with the fixings that are installed into the original construction wall. The stone work wall is penetrable when probed and will require surface preparation work.

The same problems were apparent upon entering the meeting room, along with a damp odour. A destructive slab investigation has been conducted and reported "appeared to be a 150mm thick screed possibly on a sand layer with potential fragments of a DPC visible. There was no insulation and the material from the base of the hole appeared slightly damp but there was no standing water". Upon a second site visit after the investigation was completed, a probe into the cored hole was shown to go directly to soil.

The exposed floor had the appearance of a concrete slab, it is probable the basement originally had a brick floor. It is not known if the concrete floor has been laid on top of the original brick floor.



The construction/make up of floors at basement level is currently unknown. Upon inspection there appears to be a damp proof membrane (DPM) around the edge as well as evidence of a damp proof course (DPC). Both are of unknown quality and specification. As per Tom Martins email dated 26th November 2025, showing a build-up of flooring in the plant room "100mm-150mm concrete with screed cover" also stating "a plastic DPM visible around some slab edges which might suggest it's a replacement RC slab". Following the recent destructive slab inspection, inconclusive results, with a variation of build-ups was noted within the building.

As you move towards the west side of the building the floor does change, and if stamped it sounds like a suspended floor. After a destructive slab survey it has shown that the floor build-up in the "Meithrin" room is a 30mm chipboard floor over suspended timber joists running the length of the room and stopping at the current threshold. It is noted to have a vinyl finish with the gaps between joists filled with mineral wool insulation.



The plant room was not stated as part of the original build, but was not stated in the refurbishments that were undertaken between 2010 and 2015 either. The walls have not been opened up in the plant room as of yet, so we cannot confirm the construction method of walls.

Work has since taken place in the plant room with modern block work closing off a doorway. The blocked off doorway is situated against another disabled access ramp, which is effectively pushing water against the blockwork. This is shown by the growth of mould and staining around the door outline.

It is worth noting that there is also a gully in the centre of the plant room, however the water ingress is sat along the perimeter of the plant room. When the grating was lifted it was around 16 cm's deep with water. The occupier was unsure where the gully was discharging.

The floor slab in the plant room has experienced damage to it from prolonged exposure to water actively dripping onto it from the pipes which are linked to the boilers and heat pump. After a second site visit I was able to look further into the make-up of the plant room. It appears to be a sandy gravel base with a thin screed laid upon it and an extremely thin plastic membrane under the sand.

The west of the property it is partially subterranean with a car park at ground level. The walls along this side are yet to be opened up.

There is limited head room in the basement with a floor to ceiling measurement recorded at 2.3 metres varying down to 2.2 metres.

The basement is currently unused and has been uninhabitable since 2023, it has since been partially opened up to reveal the fabric of the structure.

Services essential for the use of the habitable accommodation above are located in the basement.

Due to the presence of the ceiling, it was not possible to access the ground floor joists above the basement to establish their condition, if they bear into the original walls, or whether they are provided with a barrier to moisture.

There is one passive, not powered, plastic air vent installed on the surface of the blockwork wall in the plant room. This corresponds in location with an external vent – see comment below in external observations.

A summary based on the destructive slab investigation as per Tom Martins email dated 09/01/2026 – “Overall, this is slightly inconclusive in that we have not been able to confirm the full build-up anywhere, but it does give us a much better understanding of the floors. It suggests all the floors (except the Meithrin room) were replaced in the 2009 works and it seems likely they are generally insulation laid on the ground with screed over although they could have a concrete slab below the insulation. The Meithrin room is as we expected, it's good to confirm it seems dry and that it has a screed / concrete slab but we were not able to confirm anything about it.”



OBSERVATIONS - EXTERNALLY

A limited external inspection was carried out at ground floor level.

The external elevation walls are constructed in face brickwork.

The ground adjacent to the front lobby and the rear access ramp above the basement is finished with hard paving.

Rain water pipes discharging storm water from the roof are not connected to or discharge to storm water drains. There are ACO drains around the perimeter of the property that appear to have points to discharge.

During my site visit an ACO channel running across the rear of the plant room was noted. Under closer inspection it was found to be





discharging into what is assumed to be a plastic plant pot acting as a cover for a discharge point.

There has been mention in my report that the storm water is discharging directly onto the ground surrounding the structure, there is further evidence of this when approaching the building with a build-up of lime on the structure.

A ventilation shaft has been constructed, to the rear, within the blocked off door way. The location of the shaft corresponds with the plastic air vent fitted to the surface of the block liner wall in the basement.

It is probable the vent was installed because the boiler has been installed at basement level.



OBSERVATIONS – EXISTING BASEMENT WATERPROOFING:

Without invasive work it is not possible to give certainty as to all of the provisions that have already been incorporated to protect the basement from dampness and water ingress.

It is also not possible to date the existing basement works, specifically the blockwork walls, or the installation of the concrete floor.

We cannot be certain that there is not another form of waterproofing installed between the liner walls and the existing original brick structure, nor if that waterproofing extends further than what has currently been revealed.

The design and installation of the existing waterproofing measures, based on a non-invasive inspection, does not comply with the current (2022) or past (1990 & 2009) relevant code of practice.

On the grounds of probability and what we already know, if the waterproofing were to be tested by ground water under pressure, it would leak, rendering the space uninhabitable and not fit for the purpose outlined.

This then means that the current end use as an area for community activities would not be achieved.

SITE INVESTIGATIONS:

There has been no information provided for our use/reference.

As an existing building it is our understanding that a site investigation of the geology and hydrogeology in keeping with BS 5930 and BS EN 1997 has not been completed and is not scheduled to be undertaken.

Inspection/investigation of the presence of ground contamination and/or ground gasses has not been undertaken.

In these circumstances a comprehensive desk study in keeping with guidance contained within BS 8102 cannot be completed. There are residual risks that the end user/client must accept as a result of not completing full site investigations and compliance with the guidance contained in BS8102 cannot therefore be inferred.



The recommendations provided by us in relation to Waterproofing do not include for ground contamination or ground gas mitigation unless otherwise stated.

ASBESTOS:

We have not been provided with a copy of a specialist Asbestos report or risk register that has already been prepared.

For the purpose of costing we have assumed that no asbestos is to present within the proposed work area.

FLOOD RISK:

Current guidance for the design of Waterproofing protection for below ground structures requires consideration to be given to the flood risk of the building/development.

We have not been provided with any information regarding flood risk for the building/development and we understand that a Flood Risk Assessment (FRA) in keeping with BS 8533 2017 Assessing and managing flood risk in development – Code of practice, has not been undertaken.

Basement and semi basement constructions (partially or fully below ground) to be used as habitable accommodation are classified under the National Planning Policy Framework July 2021 as;

It is therefore our standing recommendation that the flood risk for the property is classified via reference to the Government and Environment Agency websites to establish which flood zone the development is in and if a FRA is required.

If we can be provided with the information resulting from your enquiries and/or a FRA, we will be able to review this alongside our recommendations for underground waterproofing as set out below and make any necessary adjustments to the proposed Waterproofing specification.

In the current circumstance however, a comprehensive desk study in keeping with guidance contained within in BS 8102 cannot be completed. There are residual risks that the end user/client must accept as a result of not completing full site investigations and compliance with the guidance contained in BS8102 cannot therefore be inferred.

The recommendations provided by us in relation to Basement waterproofing do not include for flood mitigation (all sources - other than ground water) unless otherwise stated.

EXISTING DRAINAGE:

It is our understanding that a drainage survey/inspection or assessment in keeping with BS EN 13508-1: 2012 Investigation and assessment of drain and sewer systems outside buildings Part 1: General Requirements, has been completed by I Spy surveys on the 07/01/2026 and documents produced 20/01/2026.

The survey noted a collapsed pipe along the rear of property and a pipe obstruction across the front which is currently effecting the existing drainage. All defects or inadequacy's that currently exist in the existing drainage arrangements need to be remediated in line with the scope of works set out by I Spy surveys, if not they can significantly raise the risk of water logging in the ground and/or of sewer flooding.

BS EN 752 2017 Drain and sewer systems outside buildings - Sewer system management includes a definition of sewer flooding.

Sewer flooding – condition where wastewater escapes from or cannot enter a drain or sewer system and either lies on the surface or enters a building.

It is therefore our standing recommendation that the existing drainage that serves the property is compressively surveyed by a specialist who is a member of The National Association of Drainage Contractors (NADC) and their resulting report is provided for our further consideration.



A sewer flooding risk assessment is a specialist undertaking and beyond the scope of our instructions and qualifications. Specialist's providers, usually chartered engineers and/or hydrogeologists should be engaged to conduct a sewer flooding risk assessment, particularly where the local water authority records indicate the property/development is at risk.

PROPOSED DRAINAGE:

The enquiry package provided to us did not include a proposed drainage plan. We are therefore unable to consider the proposed drainage and provide comment for the design team in respect of the any potential impact on the Waterproofing specification.

If a plan has been prepared we would be grateful to receive a copy in order we may consider it alongside our recommendations, specifically looking at the risk classification of the water table and waterproofing protection.

It is sometimes possible to reduce the risk if, for example, a robust design of maintainable drainage has been provided by a drainage engineer that diverts or controls ground and surface water.

Equally, risks to the proposed below ground structure can rise significantly where attenuation is proposed in impermeable ground or where infiltration fields are being installed.

UNDISCLOSED RISK ELEMENTS:

Whilst it may not be immediately apparent to the recipient of this report/estimate, there are sometimes other risk factors that should be brought to our attention and be considered as part of our site evaluation and Waterproofing risk assessment process.

Such factors might include, by way of example; topography, past flood events (any source), water features, springs, wells, culverts, watercourses, ponds, existing water storage tanks, trees, water mains and sewers (community), existing subsurface water management and cut off drains etc. This list should not be considered as exhaustive.

The proposed development might also include for the installation or revision of any of the above as well as sustainable urban drainage (SUDS), soakaways, attenuation and infiltration fields.

We advocate full disclosure for the site in order we may take account of any pertinent risks when preparing our recommendations for Waterproofing protection. Our recommendations set out later in this report are based solely on our evaluation and risk assessment of factors disclosed to us with your enquiry.

WATER TABLE CLASSIFICATION:

In the absence of detailed site investigation data we have assumed a variable/high risk classification for the design and selection of ground water Waterproofing protection.

Waterproofing measures will be applied to the structure to a minimum of the full height of the retained ground and extend above ground level by a minimum of 150mm/DPC level.

The recommendations provided by us in relation to Waterproofing do not include for flood mitigation (all sources - other than ground water) unless otherwise stated.

HISTORIC BUILDING/S:

We understand that Canolfan Soar has a Grade 2 listing status and as such, works will be subject to approval/listed building consent.

Any recommendations provided within the body of this report must therefore be subject to review and agreement with the relevant interested parties and conservation officer.



Negotiations and correspondence with these parties is not included within scope for our brief or subsequent works.

The design for waterproofing provided below is in keeping with the current code of practice and good practice. Where waterproofing measures are required to be downgraded to preserve the existing structure or features, perhaps, as example, from an irreversible process, risk increases that the useable basement space may not provide a grade of performance commensurate with end use when water comes to bear against the structure.

END USE:

We have given consideration to the proposed end use and the environmental grades defining performance levels as set out in table 2 of BS8102: 2022 Protection of below ground structures against water ingress, which are as follows:

Table 2 – Waterproofing protection – Grade of performance for below ground spaces

Grade *A)	Performance definition
1a	Seepage *B) and damp areas *C) from internal and external sources are tolerable, where this does not impact on the proposed use of below ground structure. Internal drainage might be necessary to deal with seepage.
1b	No seepage *B). Damp areas *C) from internal and external sources are tolerable.
2	No seepage *B) is acceptable. Damp areas *C) as a result of internal air moisture / condensation are tolerable; measures might be required to manage water vapour / condensation *D).
3	No water ingress or damp areas *C) is acceptable. Ventilation, dehumidification or air conditioning necessary; appropriate to the intended use.
Terms and definitions	
*A)	The agreed grade should meet with the clients expectations for the intended use of the below ground space. Reducing the grade could increase the risk of not meeting the expectations of the client for the intended use of the below ground space.
*B)	Seepage - slow transmission of water through discrete pathways of a structure.
*C)	Damp area - area which is slightly wet but no seepage.
*D)	The additional considerations that are required to achieve the required environment are beyond the scope of this document.

It is anticipated that the end use of the basement will be similar to that as existing.

We have therefore allowed within our costs to provide a waterproofing solution capable of delivering a **Grade 3 Environment**.

It is imperative when designing a suitable system of waterproofing the end use is accurately assessed. Should you consider our anticipated end use to be inaccurate please advise us so in order that we may reconsider our recommendations.

Support measures including the provision of heating, ventilation, servicing of drainage provisions and general maintenance will be required to meet and maintain **Environmental Grades**. Such measures have **not** been included for within our quotation



CONDENSATION:

Once the waterproofing system has been applied, all rooms treated will require the application of natural/powered ventilation to ensure that the environmental grade is met and maintained. We have not costed for the installation of condensation control products, as the exact conditions may only be established once the waterproofing has been completed.

We would advocate testing of the relative humidity on site once the waterproofing system has been installed and any "wet trade" work has dried out. **Please Note:** Failure to embrace this advice may lead to the formation of black spot mould.

For your assistance we have reproduced below information relating to environmental grades as contained within CIRIA documents C139 and C140. This information is given for your guidance and as an indication of the relative humidity and temperature ranges that may need to be achieved. For site-specific information we recommend that you consult a heating and ventilation specialist.

Grade	Relative Humidity	Temperature Range
3	40-60% 55-60% for restaurants in summer	Offices: 21-25 °C Residential: 18-22 °C

Note: In order to install some powered ventilation products it may be necessary to install ducting and a power supply.

It is often beneficial to incorporate these requirements into the finish of the water proofing system to aid the installation process at a later date. We would be happy to discuss this with you in more detail when the works are underway.

WATERPROOFING AND DPC CONTINUITY:

The proposed waterproofing will extend continuously to the basement floor and walls up to the ceiling height.

Waterproofing measures should be applied to the structure to a minimum of the full height of the retained ground and extend above ground level by a minimum of 150mm/DPC level.

The practicality of achieving this detail with existing structures may result in the need to either open the basement ceiling/ground floor to allow waterproofing to extend up and meet with the Damp Proofing Course at ground floor level, or to terminate 150mm above the retained ground, whichever the higher.

Alternatively, it may be possible to mitigate the risk of over topping/discontinuity between the waterproofing below ground and the damp proof course above ground, by applying waterproofing externally where the structure allows.

In keeping with the enquiry provided to us, we have not costed for the external application of waterproofing or for extending waterproofing above the basement ceiling at this stage.

We would be happy to take your further instructions

CONCLUSIONS:

The existing basement waterproofing measures are extremely limited based upon what can be seen from a visual inspection, or from what can be observed from the walls that have been opened up together with the destructive slab survey.



If the existing waterproofing was to experience any hydrostatic pressure it would not provide adequate protection against ground water ingress into the basement.

The information provided by Tom Martin via email dated 09/01/2026 stated that the destructive slab survey was “inconclusive” and “not been able to confirm the full build-up anywhere”. From what has been observed from my site attendances there are varying thicknesses of screed ranging from 40mm to 150mm, insulation allocated to some rooms varying in thickness from 100mm – 130mm and a cored hole that leads directly into the soil beneath. Without strong documentation to back the statement of a reinforced concrete slab, a thorough inspection to provide a conclusive build-up will need to be undertaken, or a new slab will need to be introduced into the project.

Unless thorough investigations into the current slab build are completed providing a conclusive answer, the previous work completed as part of the regeneration project will need to be removed and a new reinforced concrete slab be introduced. The current substrate does not withstand any hydrostatic pressure, as clearly demonstrated by the current water ingress and it will not be able to withhold the application of a waterproofing membrane. The suspended timber floor will need to be removed for the installation of a waterproofing membrane in order for the space to achieve a grade 3 environment, and to ensure it is free of any damp or water ingress. The suspended timber floor can be reinstated after completion of waterproofing.

The risk of failure is classified as high due the proposed use of the space and fixtures and finishes being damaged (as is already occurring), the consequences of failure are unacceptable.

12. WATERPROOFING PROTECTION:

There are three types of waterproofing protection that may be selected for use either singularly, or depending on certain criteria, combined together to provide a robust Waterproofing solution.

- Type A (barrier) protection - A pre and/or post applied barrier material/s applied as continuous layers to the structure. Also commonly referred to as “tanking” or tanked protection.
- Type B (structurally integral) protection – Protection against water ingress is provided by the structure itself, more often the structure will be formed using reinforced concrete and may include admixtures to make the concrete more water resisting.
- Type C (drained) protection – Safely manages seepage via a series of planned voids/cavities, usually employing a combination of membranes and drainage channels. Seepage is directed to a suitable discharge point.

Based upon the information provided, our assessment of risk, and the proposed end use of the below ground structure, we have selected a combined system for use.

These will take the form of: -

- Type A post applied cementitious coating for surfaces where the primary resistance of the structure to ingress is low. This form of waterproofing, applied to the original structure, may be prohibited by the conservation team, in which case the risk of overwhelming the secondary form of waterproofing is increased. Preparation work for the substrate to accept waterproofing to be carried out by general builder.
- Type A pre applied fully bonded membrane under all new concrete floor slabs. Detailing around starter bars/stop ends will be required, this will include for the use of polymer modified liquid membranes, applied to seal the membrane to the reinforcement bars.
- Type B Water resisting concrete to the Structural engineer's design, with reinforcement to limit crack widths to 0.3mm for flexural cracks and 0.2mm for cracks that pass through the section
- Type B Waterstops to all construction joints of the slab. Waterstops are to take the form of a post injected (2 part PU) hose, where exposure to water and dampness will occur, prior to the reinforcement being placed and concrete poured. Polymer Waterstops may be used where exposure is controlled or limited.



- Type B Waterstops and puddle flanges are to be employed around all services and drainage that penetrate the walls/floors of the basement. Post applied sealing of post formed penetrations has not been included for.
- Complete laser level survey of the floor slab for the purpose of waterproofing. Provide feedback and recommendations for levelling if required. Grinding and levelling have not been costed for.
- Type C drained protection, Cavity Drain Membranes (CDM) fitted to the walls. Drainage of seepage from behind the CDM will be via a series of Perimeter and Cross Floor preformed drainage channels (PDC & CFDC respectively).
- Type C post applied waterproofing on the negative side of walls. Installation of Type C drained protection employing a 8mm profile Meshed HDPE BBA and Cavity Drain Membrane (CDM) fitted to the door and window reveals to maintain optimum opening widths
- Pre Type C application, an anti-lime coating is to be applied to all surfaces to receive the application of CDM. This coating acts as an inhibitor to Calcium Hydroxide and Carbonate. It is not a substitute for controlling seepage, and will not prevent leaching long term – the Type A cementitious coating set out above is targeted at preventing seepage and therefore reducing leeching.
- Type C CDM to be installed on the floor will either be laid over an XPS void former placed on the slab, creating a perimeter and cross floor void for PDC and CFDC to be placed on the slab or, the CDM will be laid directly on the slab which will require a void to be cast into the slab to accommodate PDC and CFDC.
- Discharge from the Type C drainage channels will be managed by new sump & pumps chambers (3x allowed), installed in the basement floor slabs during the construction phase. The sump liners are to be supplied with polymer Waterstops for casting in by the PC. Each sump is to be fitted with twin risers extending a minimum of one metre above the floor slab, the route and final connections beyond that will need to be agreed between the waterproofing specialist installer and the PC/design team. Each sump will be fitted with a battery powered alarm capable of being connected to the building management system.

Note: The current code of practice and best practice state that sump pumps should be fitted with a battery back-up system, to provide temporary power in the event of a mains power failure. We have not included for battery back-ups at this stage. This should be raised as a discussion point with the design team, before sumps are installed.

PRIMARY DEFENCE:

The rate of ground water ingress/seepage entering the planned cavities of the Type C waterproofing, should be controlled by the structure providing the primary defence. Where defects in the structure exist, and/or the rate of ingress is deemed unacceptably high, additional specialist waterproofing measures will be required to improve the water resistance of the structure, prior to the application of the Type C waterproofing.

It is also important to control and exclude, as far as is reasonably practicable, excess seepage which could introduce contaminants such as particulate matter, calcium hydroxide and calcium carbonate, into the drained protection system.

To mitigate the risk of the low primary resistance offered by the structure, a combined system of waterproofing has been designed. If any of the methods of waterproofing are omitted or changed, the design must be revisited and reassessed for risk.



SURFACE REGULARITY AND DEVIATION FROM DATUM:

Where Protectahome are to lay drainage channels onto any given surface it must be level and have a Surface Regularity (flatness) of no less than SR1 (3mm on a slip gauge) as defined in table 5 of BS 8204 – 1 2003. The base on to which the drainage channel sits plays an essential role in the drained protection waterproofing system and therefore the surface should have a surface regularity and departure from datum in keeping with the subsequent fitting of “specialised equipment”.

The discharge points for the drained protection waterproofing system must be considered as the datum point for the waterproofing system. The deviation from the datum may not be more than +/-5mm at any point between the datum and the furthest point on the floor to which the continuous waterproofing system extends. Equally, the deviation from the datum may be up to +15mm as long as this point of deviation is at the furthest point from the datum and does not occur at any mid-point that may lead to water becoming stranded.

Any works undertaken must comply with all appropriate statutory planning and building control regulations. Failure to do so could result in any non-compliant works being removed as well as give rise to other liabilities. Please note that our engagement does not include any analysis of or give any opinion on what needs to be done to comply with such planning and building regulations matters. It is your responsibility to apply and abide by all conditions imposed and we recommend that you take independent advice from a suitably qualified professional (e.g. an Architect/planning designer) on such matters.

SERVICE PENETRATIONS THROUGH THE WALLS OR SLAB:

Given the risks associated with penetrating the below ground structure with services, it is anticipated such can be minimised or totally designed out of the scheme.

If service penetrations cannot be designed out, the structure must incorporate Waterproofing measures to our written approval, to all locations where penetrations are to be formed.

Where unavoidable, penetrations should always be pre formed and not post formed, in order to maintain the waterproofing continuity/integrity.

MOVEMENT JOINTS:

BS8102 is quite specific in advising that “Movement joints below ground should not be used unless unavoidable. In such cases, these should be waterproofed in accordance with the manufacturer's instructions, following confirmation from the designer and/or engineer of the maximum predicted multi-directional movement”.

Unless otherwise stated, movement joints are to be excluded from the scheme of waterproofing. Movement joints introduce a weakness to the resistance of ground water, add complexity and increase cost for construction and waterproofing.

PROTECTION & REPAIR OF WATERPROOFING:

The waterproofing is unlikely to be installed as one continuous process and therefore, each stage must be protected to maintain the integrity of the design and installation.

The waterproofing installer and designer, if not one and the same, must work together throughout the construction phase, to ensure that the waterproofing is protected, and any damage is recorded and repaired before the next stage of waterproofing or construction proceeds.

The designer will also need to agree and cost for a verification program, to ensure that the design integrity is maintained, and that any damage is adequately dealt with.

Day to day protection of the waterproofing will be the responsibility of the PC, as they will have a continuous presence on site - neither the waterproofing installer nor designer will have a continuous presence.



Every effort should be made to prevent damage and maintain the integrity of structural underground waterproofing, during and after the construction phase.

Damage can occur accidentally or as a result of poor sequencing or inadequate planning; every effort should be made to avoid damaging waterproofing elements.

If damage does occur to any waterproofing component or waterproofed structure, this should be brought to the attention of the installing contractor and the waterproofing specialist immediately. Any damage should then be assessed and properly documented. When necessary, rectification and repair work should be designed, sequenced and undertaken to re-establish the integrity of the waterproofing system.

EXCLUSION OF SURFACE WATER:

During the construction phase every effort should be made to exclude surface water from collecting in excavations and the basement.

Where Type C waterproofing is being installed utilising membranes, it is important that the membrane on the floor is dry before the finishes are applied. This would ensure that water is not trapped in the cups of the membrane. Thereafter, the floor build/finish should be protected from water ingress and escapes of water, in order to avoid costly and time consuming drying.

Sumps are often installed very early in the waterproofing process. Mains powered pumps (240V) are usually not installed until much later in the construction phase. We can provide and design an installation for temporary automatic mains powered (110V) pumping if required, it has not been included for at this stage. Where practicable, provision should be made to prevent or reduce percolation of rainwater into the ground around the building and above any of the vaulted areas.

SERVICE REQUIREMENTS:

The drained protection (Type C) waterproofing system is wholly reliant upon the removal and management of seepage of ground water from behind the membranes employed. In order to ensure the long term efficacy of the waterproofing system (sumps, pumps & drainage channels) regular / annual inspection and servicing will be required.

The Peripheral Drainage Channel (PDC) and Cross Floor Drainage Channel (CFDC) must be inspected and periodically flushed out, subject to site conditions, to ensure that any seepage/free water behind the drained protection waterproofing is managed and safely discharged.

The sumps, pumps and drainage channels will require an assessment by Protectahome six months after installation / commissioning, at which point we will be happy to provide you with our recommendations and the frequency of servicing requirements.

The post installation assessment does not include for any service requirements that might be identified at the time of the assessment being completed.

Protectahome can provide regular/annual services of the waterproofing system on an ongoing charged basis for the duration of the guarantee period or longer, if so required. This is subject to the instructions of the beneficiary of any guarantee being received, and a service agreement being offered and accepted.



TENDER:**Item:**

1.	Type A cementitious coating to walls for stabilisation of substrate and to act as primary defence against water ingress.	£4,646.00
2.	Type A pre applied membrane to slab, including fitting polymer waterstop and puddle flanges to penetrations.	£8,357.00
3.	Injectable waterstop – Perimeter of new reinforced concrete slab to reinforced construction joint at wall floor junction	£4,964.00
4.	Complete laser level survey of the floor slab for the purpose of waterproofing. Slab tolerance of +5mm/-5mm.	£750.00
5.	Type C Cavity drain membrane to wall's, use of a cavity drain mesh membrane will also be utilised for spatial reason's outlined by architect.	£10,881.00
6.	Type C Perimeter drainage channel (PDC) and cross floor drainage channel (CFDC)	£4,508.00
7.	Type C XPS 50mm void former to surface of slab	£7,416.00
8.	Type C Cavity drain membrane to floors	£5,097.00
9.	Sump liner, twin 400W pumps, Battery alarm, 2m riser, 2 x 40mm ABS LV/HV conduits. 3x @ £2,515.00.	£7,545.00

Option - Battery back-up system for sump pump, including inverter and 60AH Battery - £1,985.00

The current code of practice indicates that a battery back-up/temporary power supply should be included where a sump/pumping station is being installed. A battery backup provides temporary power if mains power is lost to the sump pumps. The risk of power outage, the duration of the outage and the rate at which water may enter the drained protection waterproofing/sump system should be taken into account when deciding if this option is to be included and what size/AH battery/batteries are to be incorporated. This is a client's discussion item (at the client's discretion) with our pumping specialist.

Note: The basement is at risk of flooding due to water accumulating and surcharging the waterproofing system if pumps fail or there is a power outage.

Our tender for work does not include VAT, which will be charged at the standard rate unless otherwise stated, it does however include to carry out all necessary contract administration, programming, issuing or works sheets and specifications, resourcing and procurement to fulfil the contract.

This quotation will remain open for acceptance for a period of 28 days from the date of issue. Once accepted the work must be carried out within three months.

We reserve the right to amend this specification of remedial works at any time. We would of course consult with the client regarding fundamental changes to the specification.

All quotations issued by the company are subject to our standard terms and conditions a copy of which is attached.

This quotation assumes that the structure under the existing surface is sound enough to accept the direct application of the waterproofing system. Should it be found that this is not the case the specification may have to be changed and additional costs may apply.

No allowance has been made for the application of finishes.



We have not included for any works not listed above, all such works are to be the responsibility of others.

Where our works are to be carried out under a formal contract and the employer intends to hold retentions until the end of the defects liability period, any guarantee offered will not be issued until our final retention payment has been released.

Should the guarantee be required on practical completion, this will be issued upon receipt of payment in full, i.e. no retentions held.

Our tender does not include for discount.

Costs are based upon day time working, Monday-Friday 8:00am-4:00pm.

If progress is halted or delayed due to a lack of access, preparation etc., or other circumstances beyond our control, then an abortive visit may be charged.

A 50% deposit is payable upon acceptance of our formal quotation, the balance is payable on invoice on completion of the works. Interim invoices may be submitted in accordance with the standard terms and conditions of the company in which case the company's standard terms of payment will apply.

Our tender has been prepared on the basis that the work will be carried out in a fixed number of visits (or less) to site. If additional visits are required due to no fault of Protectahome we reserve the right to apply additional charges.

The cost provided includes for a scope of work in keeping with the enquiry documents provided and may be the subject of optional upgrading, for example by the inclusion of sumps/pumps/control panels/battery backups for drained protection waterproofing.

We would be pleased to provide further technical input and information regarding program subject to receipt of your instructions.

IMPORTANT NOTES:

	Excluded	Included
Pre-Tender Site Inspection	x	
CSSW qualified lead for the proposed work		✓
NVQ level 2 Structural Waterproofing installation team		✓
CSCS carded workforce		✓
Risk Assessment		✓
Method Statement		✓
Design Liability		✓
Power	x	
Water (Mains pressure)	x	
Welfare facilities	x	
Method of installation – full line out	x	
Method of installation – perimeter & infill.		✓
Number of site attendances by technicians – up to 6		✓
Number of attendances by Surveying Team – up to 4		✓
Abortive/non-productive site attendance by technicians	x	
Level survey of the slab for waterproofing		✓
Mechanical fixing of void forming XPS if less than 65mm screed is proposed	x	
Installation of levelling screed/compounds	x	
Setting out – waterproofing datum	x	
Site preparation/grinding/pressure washing	x	
Site dewatering	x	
Sealing leaks/services not specifically detailed in our offer	x	
Site lighting	x	
Making good	x	



IMPORTANT NOTES:

	Excluded	Included
Task lighting		✓
Temporary protection/loading	x	
Access Equipment – by PASMA carded technicians		✓
Protection of the work from follow on trades	x	
Propping or shoring of excavations	x	
Expansion/movement joints	x	
Wash out	x	
Provision of ground gas/contamination protection	x	
Puddle Pumping	x	
Pumping down standing water	x	
Waste created moved to receptacle on site		✓
Skips/Waste disposal	x	
Final electrical connections for sump pumps	x	
Final pressure pipe connections to mains for pumps	x	
Guarantee – 10yrs on materials and workmanship		✓
Insurance Backed Guarantee – available at extra cost	x	
Maintenance of the Waterproofing system	x	
O&M package		✓

The structural waterproofing proposed is for protection against ground water and should not be considered as flood protection system or protection from over topping by surface/floodwater or sewer flooding. If these risks have been identified by the clients design team as part of the site investigation/planning approval, we must be advised immediately in order we may review proposals for the provision of below ground waterproofing.

It is essential that the external fabric of the building be repaired as necessary and maintained in a good condition to ensure that penetration of rainwater and water logging is prevented.

It is vitally important that the waterproofing is not punctured in any way. If a fixing is required advice must be sought from ourselves. Similarly should the membrane be damaged or disturbed after completion we must be advised immediately as repair will be necessary.

The peripheral drainage channel may require flushing out occasionally, subject to site conditions, to ensure that any ground water that may enter behind the drained protection waterproofing runs freely to the mains drainage. Service requirements are site specific and will be advised upon after a post installation inspection has been undertaken, usually three months after completion of waterproofing.

As a minimum, annual service inspections will be required to validate the waterproofing guarantee and to satisfy any third party warranty providers' requirements.

It is essential that the drainage to which the sump/peripheral drainage channel is connect be maintained in a free flowing condition at all times and not be allowed to back up for any reason. It is the responsibility of the client to ensure that this drainage is maintained in such a condition.

Electrical components included as part of the drainage/discharge for the Type C waterproofing such as battery back-up systems, telemetrics and high water alarms etc. carry a comprehensive Protectahome 12 month warranty. Electrical components are not incorporated into the 10-year system guarantee issued by Protectahome Limited.

The Protectahome Guarantee for the waterproofing system will not be issued unless the system has been commissioned, tested and a commissioning certificate has been created.

The system Guarantee must be validated by regular inspection and servicing (annually as a minimum) of the perimeter drainage channels/inspection chamber, non-return valves and high water alarm which will be



subject to site conditions and requirements as directed by Protectahome Limited following the post installation assessment.

The content of this entire document and attachments are provided for the stated purpose and the sole use of the named client/addressee on page one. It may only be used within the context of the instructions under which it has been prepared.

Any inspection, investigation, letter or report has been carried out and prepared with skill, care and diligence reasonably to be expected of a competent specialist contractor within our field of expertise. However we accept no responsibility whatsoever to any third party for the whole or any part of this document and attachments, any such persons rely upon this document and attachments expressly at their own risk.

We trust that the information contained within this letter is sufficient to your current requirements. Should you require further assistance with this or any other tender please do not hesitate to contact us.

Yours sincerely

PROTECTAHOME LIMITED

Joe O'Brien

JOSEPH O'BRIEN
Technical Support

Email: JOBrien@protectahome.co.uk
Tel: 0800 055 6966

