

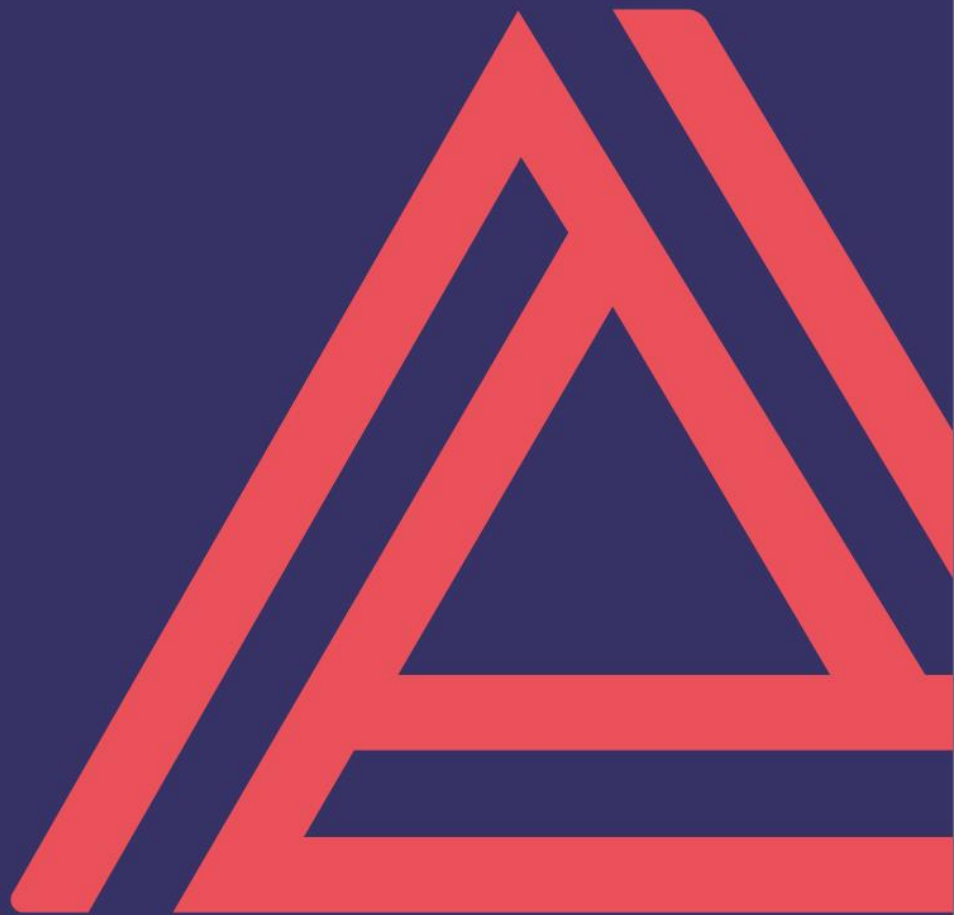


Aster Group

Living (Green) Roofs Review

Final Report

February 2024



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1 INTRODUCTION

- 1.1 In December 2023 the ombudsman issued a judgement against Aster in respect of no 3 Roman Barns. This was a property with a living or green roof where the resident had complained, in February 2022, the roof was failing as a result of storm damage. The roof was not letting water, but the planting was becoming detached.
- 1.2 The roof is now in the planned programme for replacement but as yet, for reasons explored later in the report, the issue remains unresolved.
- 1.3 A requirement of the Ombudsman's report was that there should be an independent investigation of the circumstances associated with this property and the wider management of "living roof" properties.
- 1.4 ARK consultancy was appointed to undertake that independent review. Established in 1990 and with over 500 social landlord clients since their inception, ARK are one of the largest specialist social housing consultants in the UK. ARK understands the social housing arena and has undertaken a number of similar reviews, including high profile incidents that have found their way into the media e.g. LB Croydon.
- 1.5 The review was undertaken during January 2024.

2 AIMS OF THE REPORT

- 2.1 The Ombudsman's report identified what went wrong, the purpose of this report is not to rehearse those findings but to identify why things went wrong. We are not seeking to allocate blame but to make recommendations to prevent reoccurrence.
- 2.2 The Ombudsman was explicit in the outcomes expected from this review and the questions he wanted answered, namely,

“The landlord must carry out a review of its practice in relation to maintenance and repairs of living roofs within its housing stock. The review should be conducted by a team independent of the service area responsible for the failings identified by this investigation and use the experience and knowledge the landlord has gained over the last 10 years as well as its property records. The review should cover, as a minimum, the following:

- An exploration of why the failings identified in this investigation occurred.
- A review of staff training to ensure that relevant staff are aware of living roofs within its housing stock and are able to respond to requests for repairs appropriately.
- Identification of all other residents who may have been affected by similar issues but who have not necessarily engaged with the landlord's complaints procedure. This service has seen evidence that other properties located within the resident's estate have experienced similar issues with their living roofs as has been identified in this investigation, so any review must consider the properties in this estate.
- Identify all properties with living roofs in its housing stock and ensure that appropriate maintenance has been arranged.
- The availability of specialist contractors for maintenance and repairs for living roofs, identifying any gaps in service coverage and creating an action plan to address any gaps in service provision.
- Pay close attention to the location of properties with living roofs and how they are affected by weather as well as any other relevant factors identified by the landlord. This will help the landlord to plan for routine maintenance of living roofs and assist in any assessments of the viability of any current living roofs and whether they may benefit from being replaced with conventional roofing.

2.3 Within 16 weeks of the date of this report, the landlord must, following the review, produce a report setting out:

- The findings and learnings from the review.
- Recommendations on how it intends to prevent similar failings from occurring in the future.
- The number of other residents who have experienced similar issues and what steps the landlord is taking to put things right.
- The steps it proposes to take to put things right at the earliest opportunity for residents who have been by similar issues to those identified in this investigation. This should include consideration of proportionate compensation payable to residents affected by the landlord's failings.
- A policy for the repairs and maintenance of living roofs.

NOTE: There were two issues associated with the ombudsman's review, service charges and the repair/condition of the roof. This report seeks to address issues associated with the repair and maintenance of the roof only.

3 CONDUCT OF THE REVIEW

3.1 The review consisted of four elements:

- A document review of current procedures, policies, and practices as well as some archive material from when the scheme was originally built.
- 121 Interviews with those involved with Roman Barns and other schemes where there are living roofs.
- Examination of repairs and complaint records as well as 121 conversations to establish whether there were similar problems elsewhere.
- Research to establish current best practice for the installation and maintenance of living roofs.

3.2 We would like to thank the Aster staff who assisted us in this review.

4 CONTEXT

4.1 In considering this report, it is important to understand context, we reviewed the asset register and identified the following properties as having living roofs:

ADDRESS	PROPERTY DESCRIPTION	NUMBER OF HOMES
Roman Barn, Worth Matravers, Swanage, BH19 3LZ	Detached Houses	5
MAIN BLOCK 6-18 Hockney Green Artists Way Andover SP10 3ZF	Flats (living roof described as a secondary roof)	17
Cyril Wood Court, 89 West Street, Bere Regis, BH20 7HH	3 Blocks of 24 flats	Only two of the three blocks have living roofs. Relates to 12 units
MAIN BLOCK Grace House, 26, London, NW8 7ER	Sheltered Accommodation, inherited from Central and Cecil HA as part of 2022 merger.	See notes

NOTES

- Cyril Wood Court is logged as being bungalows when it is in fact a combination of flats and bungalows. The unit mix is complex and some bungalows share a living roof.
- Grace house is a high rise multi use block of flats, they have a number of planters (with an electronic irrigation system installed) around the perimeter of the roof terraces, this is not a living green roof as some other schemes have. There is a landscape management plan in place.
- In addition to the above there is another scheme that has been identified as having a living roof, Chapter House. Our understanding is that the original living roof failed and was letting water. The living roof was removed and replaced with a traditional roof. It was subsequently discovered that the living roof was a condition of planning and hence had to be reinstated. This reinstatement is in the process of being undertaken and the asset register will be updated when the works are complete.

- 4.2 In addition to referring to the asset register, the area surveyors were contacted to identify whether there were any other properties with living roofs. No further homes were identified.
- 4.3 Whilst the number of schemes with living roofs is small, it should be recognised that carbon capture, thermal efficiency and biodiversity net gain benefits of living roofs are likely to increase the pressure for their use.
- 4.4 Having checked the repairs and complaints record for all schemes and spoken to stakeholders, there have been issues at:
- Chapter House this was clearly an installation issue where the waterproof membrane had failed, there have been no issues since replacement.
 - Roman Barns where all roofs appear to be failing to different degrees.
 - Cyril Wood Court there are light tubes penetrating the roof (see figure 1 below), the seals had perished over time. These were replaced and there were no further reported issues.



Fig 1

- 4.5 In short, across Aster there were no issues with the “living” elements of roofs other than at Roman Barns.
- 4.6 Of the five properties at Roman Barns all bar one (number 5) have now been in contact to report issues, Number 5 was contacted directly, and they confirmed similar issues with their roof as with the others. No roofs are leaking but action is in hand to address any immediate repairs. The area surveyor is undertaking additional visits to ensure there are no outstanding matters beyond the known repairs.
- 4.7 Originally a Community Housing Trust Scheme, Roman Barns completed in 2012 with Synergy HA. The scheme transferred to Aster with a long lease. Supporting documentation (in paper form) therefore moved through a number of organisations as did individuals’ knowledge of the scheme.
- 4.8 Roman Barns is unique within Asters living roof portfolio in that it is houses rather than flats and the roofs are pitched.

- 4.9 Designed to be a PAS4 scheme the living roofs are mono pitch in an extremely exposed position facing the sea (see figure 2 below):



Fig 2

- 4.10 Whilst pitched roofs are acceptable, in exposed positions, particularly in coastal regions, they are to be treated with caution. The combination of pitched roofs and exposed coastal location made Roman Barns particularly vulnerable to the weather.
- 4.11 Although far from an ideal location for living roofs, there is no reason why they should not be used providing the design, substrate and fixing are appropriate. Due to the slope, rainwater will travel down towards the roof edges more quickly, which can cause the greenery at the top of the roof to dry out, making maintenance or irrigation essential.
- 4.12 Our first consideration was therefore whether Roman Barns were specified and constructed correctly.

5 CONSTRUCTION

- 5.1 Roman Barns was a negotiated JCT design and build contract. It was awarded to CJ Fry. Responsibility for the design and installation of the living roof was subcontracted to Sky-Garden Green Roof Ltd.
- 5.2 An extract from the CJ Fry Specification is shown below:

4.8 Extensive Green Roof

Install a Sarnavert Extensive Green Roof system above the Sarnafil AquaDrain, consisting of Pre-grown Sedum Blanket laid on a suitable thickness (minimum 50mm) of Sarnavert growing medium. The green roof should be in accordance with the design agreed with the Specifier and supplied and installed by a Sarnafil Horticultural Partner or by a Sarnafil Registered Contractor, trained by the relevant Horticultural Partner.

Sarnafil Horticultural Partners

Sky-Garden Green Roof Ltd

Tel: 01242 620905

Email: enquiries@sky-garden.co.uk

Web: www.sky-garden.co.uk

Sika Ltd is a founder member of GRO (Green Roof Organisation) and recommends that the green roof design should be carried out in accordance with all relevant GRO Guidelines.

Irrigation

Installation of this extensive plant layer will require additional temporary irrigation, typically between April 30th and 30th September, until it is deemed self-sustaining. Failure to irrigate particularly in adverse weather conditions, planting may suffer unacceptably high losses of un-established plant material.

Falls

Standing roof water may be detrimental to the Sarnavert planted element. If this is possible or is likely, consult with Sarnafil Horticultural Partner before installation.

Upstands

Ensure that upstand dimensions allow for the built up height of the planted element plus 150mm, where required.

Resistance to Wind Loads

It is the responsibility of the Sarnafil Horticultural Partner to ensure that the green roof has been

- 5.3 Sky-Garden Green Roof Ltd appear from their web site and conversations to be an appropriately experienced company. We contacted Sky-Garden and asked if they can find the original specification, unfortunately, their CRM system was only installed in 2014, post Roman Barns. They confirmed that it appeared they were retained for two maintenance visits in the first year.
- 5.4 The use of the term “extensive” green roof in the specification is important. Extensive green roofs are designed to be low maintenance, lightweight systems with no general access. Typically, they have thin layers of substrate (the growing medium) to keep depth and weight to a minimum.
- 5.5 There is also reference in the contractor’s specification to irrigation, recognising the need to irrigate particularly during the early stages,

- 5.6 The amount of maintenance needed depends on the type of green roof installed. Sedum roofs (which appear to have been installed at Roman Barns) require little maintenance; clearing gutters periodically and occasional weeding to clear unwanted self-seeding species are recommended. It is however recommended that irrigation systems are installed on all steeply sloped (“steep” is not defined) roofs to ensure they remain at their optimum throughout hot spells of weather. It appears that no allowance was made at Roman Barns for an in build irrigation system.
- 5.7 Whilst the actual design and quality of the build cannot be established until the existing roof is stripped off, it would appear that the nominated green roof sub-contractor was experienced and that considerations in terms of maintenance and the exposed location of the houses were reflected in the specification.
- 5.8 The practical completion certificate was issued on 28 March 2012
- 5.9 The value for money statement referred to a fall restraint system, however we could find no reference to it in the contractor’s specification (albeit could have been reflected elsewhere e.g. drawings). In the event the fall restraint system was not installed making the required maintenance impossible. The lack of a fall restraint system was not recognised as an omission until concerns were expressed about the condition of the roof, suggesting that very little if any maintenance was undertaken.
- 5.10 The matter of the fall restraint equipment highlights the transition of projects from development to asset management. The agendas of the two departments can be different, and in this case the ongoing maintenance of the living roof was not focussed on once construction was underway, despite this being highlighted in the specification. We were unable to find the O&M manual (apparently provided as a CD) in the archives.
- 5.11 The time elapsed since the development and the fact this was prior to merger, has made it impossible to determine what involvement asset management had in the design phase or at handover, or if they would have understood what was being handed over and the required maintenance regime.
- 5.12 The transition from Development to Asset Management, particularly for new or innovative projects is critical. The installation of living roofs is not included in the new build employers’ requirements. Without an understanding of the specification for the fabric of the building, Asset Management do not know how best to maintain or repair such a product.

6 THE COMPLAINT PROCESS

6.1 We have reviewed the complaints procedure and policy, and, of itself, it is reasonable. It is within the bounds of what we would expect from a responsible landlord and in keeping the guidance from the Housing Ombudsman.

2.23 There are 2 stages to our formal complaints process, each with clear time scales:

Stage 1

- A written decision will be given within 10 working days from logging and allocating the complaint.
- If this is not possible, an explanation and a timeframe for a response will be given.
- This should not exceed a further 10 working days without good reason (for example if a customer cannot be contacted; or has made a request to be contacted at specified times which are outside of the complaint response timescales.)

Stage 2

- When a customer is dissatisfied with the outcome of the stage 1 response, they will be given the opportunity to explain why they feel the complaint has not been resolved.
- A written response will be given within 20 working days from the request to escalate.
- If this is not possible, an explanation and a timeframe for a response will be given.
- This should not exceed a further 10 working days without good reason.

2.24 If a customer remains dissatisfied following the exhaustion of Aster's complaints process as set out in 2.21, they will be provided with an opportunity for the complaint to be reviewed by the Designated Complaints Panel. For more information on the DCP see our website - <https://www.aster.co.uk/existing-customers/customer-voice>

2.25 If applicable and the complaint falls within the scope of the Housing Ombudsmen Scheme customers have the right to refer their complaint to the Housing Ombudsman at any point during the investigation and details of how to do this will be included in the complaint correspondence. More information is also available on their website: [Contact us - Housing Ombudsman \(housing-ombudsman.org.uk\)](http://www.housing-ombudsman.org.uk)

6.2 Of itself there are no issues with the complaints procedure.

7 RESOLUTION OF THE REPAIR

7.1 Whilst the mechanics for recording the repair and communication with the customer may be in line with good practice, the key is effective resolution.

7.2 The procedure is quite clear in terms of who is charged with resolving the problem.

“Formal complaints are owned by the relevant service area and investigated by case managers who have been trained in managing complaints and Aster’s complaints process”.

7.3 The initial complaint was made on the 22nd of February 2022 and logged as a temporary repair on a 20-day turnaround (as per policy) Complaint shown below in Fig 3.

Our roof has been damaged in the storm today. Parts of some of the layers have blown off and you can see the felt has come off though still attached.

The photos show the felt, the last photo shows a part of the layer that has blown across the field.

There is no water coming in but I am concerned that more will blow off as flapping badly in the wind. Also the Wood under the roof layers could get water damaged.



Fig 3

7.4 On the following day, the request was sent to repairs and from them to a roofing contractor from the approved list on 23rd February. The prospect of the roof being a defect and under guarantee was also raised.

7.5 Progress up until this point raises four issues,

- There was little understanding/experience of repairing living roofs within the repairs service.

- Finding a suitable contractor proved challenging. There are approaching 200 names on the approved specialist roofer supplier list, unless there is a clue in their name, it is impossible to identify which, if any, is equipped to deal with living roofs. The contractor selected was not a living roof specialist.
 - Despite chasing the selected contractor at least seven times they failed to respond until 12 May 2022 - some three months later. Following the visit, they stated the green roof was beyond their scope and suggested contacting the supplier. Having asked a contractor to visit a site and after seven calls and approaching three months nothing has happened someone else should have been approached.
 - When the properties move from development to asset management, is the information on warranties and guarantees sufficiently flagged on the asset register and transparent enough for asset management or the customer centre to identify and act upon it? (as a point of note, had the guarantee been researched at the point of complaint, it might still have been covered, PC was certified on 28/3/2012, but by the time the contractor got to inspect it was beyond the 10 years)
- 7.6 Following the eventual visit of the roofing contractor, they confirmed that a specialist was required. Again, the absence of clearly identified living roof installers on the approved supplier list, this presented a problem and relied on the repairs team finding a suitable provider.
- 7.7 A specialist provider, Green Roofs Ltd was eventually found by the repairs team. Green Roofs Ltd inspected on 28th July 2022 and produced a report on the 16th of August 2022 suggesting that the roof needed replacing.
- 7.8 The nature of the remediation and projected cost took it beyond the remit of repairs and into the realms of planned works, effectively changing the “case manager” and triggering another approval process.
- 7.9 The estimated cost of the project was £10k and standing orders dictated that three quotes would be required. However, given the lapse of time, approval was sought and given for a direct appointment of a specialist contractor.
- 7.10 The selected specialist was Green Roofs Ltd.
- 7.11 Whilst their recommendation was that the roof of number 3 should be stripped off and replaced, this could not take place, because of the planting season, until spring 2024, some two years from the issue being raised.
- 7.12 The strategy was to use plot 3 as a learning experience, understand why it had failed and apply this learning to the remaining plots at Roman Barns where other roofs were also failing.
- 7.13 Progress up until this stage highlighted four issues.
- How was the specialist provider selected, given the issues with the previous installation how can Aster test the credentials of potential providers when they cannot be drawn from an approved list.

- As far as can be determined from the records, the customer had to chase six times for updates on progress.
- The proposed strategy is for number 3 to be used as a trial to understand what went wrong and to deploy this knowledge to remediate or replace the others. Presumably this will require a further procurement exercise.
- If the selected specialist has defined the action and specification for number 3 following inspection, why can't that be done for the remaining properties, reducing thereby reducing the time and mitigating the potential for further complaints.
- The recommended replacement consists of:
 - “Remove the existing green roof down to but not including the drainage layer (if it is still sound)
 - Roll 2 x 2cm Urbanscape Green Roll Substrate onto the drainage layer. Each layer cross laid
 - Lay basic irrigation system consisting of small 8-10mm drip pipes laid directly onto the green roll
 - Roll Urbanscape Sedum Blanket on the Green Roll
 - Should also have a stone margin, the width and depth dependant on manufacturers specification, however we do recommend at least a 300mm by 50mm deep stone border all around the roof as this will help with wind uplift and also wind drying the sedum out.”

7.14 It is suspected that none of the other roofs have an irrigation system nor, as we understand it, appropriate stone margins. If this is the prerequisite for pitched roofs in this location, then at minimum those on the front will require this work - which cannot be achieved without stripping back the green roofs.

8 CURRENT STATUS

- 8.1 Resolution of the complaint remains outstanding, however works to all the properties are funded and contained within the 2023/4 roofing programme. An Aster surveyor has been nominated to oversee this programme. A direct appointment has been made of a specialist contractor to address number 3, and depending upon the outcome of this trial exercise, further works will be scheduled for the remaining properties.

9 CONCLUSIONS

- 9.1 Aster's exposure to living roofs is relatively limited with only four sites where they have been installed, however, there may well be pressure for further installations as a result of zero carbon targets and the biodiversity premium on new developments.
- 9.2 If properly applied, the Aster procedures and policies for dealing with complaints appear to follow best practice.
- 9.3 Other than Roman Barns there have been no failures of the green elements of the roofs.
- 9.4 Other than Roman Barns we have not identified any other residents experiencing problems or registering complaints about their living roofs.
- 9.5 All the roofs installed appear "extensive" which means that they:

Are Low Maintenance: Extensive green roofs have a shallow soil depth (typically 2-6 inches) and support lightweight vegetation such as sedums, mosses, and grasses. Maintenance is focused on the horticultural elements, removal of dead plants, stray species seeded by birds etc. and clearing of dead leaves etc. from roofs and gutters etc. and potentially fertilisation. This is normally undertaken twice a year.

Require Minimal Irrigation: And maintenance, making them suitable for areas with limited access or resources for upkeep.

Lightweight: Due to their lightweight nature, extensive green roofs are ideal for buildings with limited load-bearing capacity.

- 9.6 Irrigation is typically required for the initial establishment of roof depending on natural rainfall during this time. Once vegetation cover is achieved, irrigation can be reduced and in areas with typical UK rainfall is generally unnecessary thereafter. However, all green roofs will need watering in periods of extended draught i.e. more than 6 weeks without any rain or if they are in particularly exposed conditions – Roman Barns falls into that latter category.

- 9.7 There are no clearly identified living roof installers on the approved supplier list, nor any reference to living roofs or their maintenance in the new build employers' requirements. This, coupled with low number of Living roof sites meant exposure to and knowledge of living roofs across Aster is low.
- 9.8 The transfer of specification and maintenance information at the point the responsibility for homes moves from development to maintenance may be weak. We were unable track down the O&M manual for Roman Barns to establish whether the installation details, specification and maintenance requirements for the roofs was adequately documented.
- 9.9 The gaps between communication with the customer inevitably caused frustration. The customer felt it necessary to chase Aster on at least six occasions (April and June in 2022, January, April, and May x2 in 2023)

10 PROPOSED ACTIONS

- 10.1 As far as we can determine there isn't a specific nationwide green roof installer accreditation scheme in the UK that applies uniformly across the industry. However, there are several organisations and initiatives that promote best practices and standards for Living roof installations and would propose the Green Roof Organisation (GRO) as a reference source.

Action: An exercise should be undertaken to ensure that appropriately qualified living roof installers are added to the approved supplier list. They should be clearly identified as living roof specialists undertaking maintenance as well as installation. In the absence of recognised trade accreditation, reliance will have to be placed on experience, qualifications of individuals within the organisation and references.

Action: The Development Departments instructions to employer's agents should be updated to make express mention of Living/Green roofs under the roofs section. It is appreciated that a large proportion of new build contracts will be design and build placing the responsibility on the contractor, however the ERs should lodge the expectation that installers should comply with industry good practice using the Green Roof Organisations guide as the source document (copy appended to this report for information) ERs must make express reference to the ongoing maintenance requirements of living roofs.

- 10.2 Unlike M&E equipment, it is rare for the fabric of a building to be subject to routine maintenance. The onus is on development to highlight to responsive repairs, at the point of handover, where anything "unusual" has been installed and whether there are associated maintenance requirements.

Action: Review handover procedures to confirm how responsive repairs are made aware of any innovations in new build properties where they have to implement routine maintenance or stock non-standard materials.

- 10.3 Given the limited number of living roofs in Aster it would be disproportionate to instigate a wholesale training programme on Living Roofs -- which is likely to be forgotten anyway if not being regularly applied.

Action: Ensure that adequate general information is available at the time of handover and provided to those directly responsible for maintenance. Maintenance should be carried out by horticultural specialists (usually those originally employed to install the roof) however, Aster staff should be clear on what is required. There are numerous proprietary information sheets available and one from Blackwood Green Roofs Ltd is attached as an example.

- 10.4 The length of time this complaint took to resolve and the gaps between communication caused the resident to repeatedly chase Aster, whereas Aster could have been proactive in its approach to minimise frustration.

Action: Review whether there is “bring up” system within the customer hub that allows the complaints officer to chase the case officer and reply to the resident, even if it is just a holding response.

- 10.5 The works were deferred until the “planting season”. Current plan is to undertake works to Number 3 and then use that knowledge to specify works to numbers 1,2,4 and 5. The logic of undertaking 3 as a trial is understandable given the lack of understanding of living roofs, however, if diagnosis of the problems at 3 could be established by inspection why not the remaining plots? The concern with the other roofs is that if Aster waits until 3 is completed and then needs to go through another procurement process to appoint a contractor, we may again be waiting for the planting season and unable to do anything until 2025. Similarly, the installation of an irrigation system is recommended by the nominated installer for plot 3, which we understand is not currently installed on other roofs and could require major disturbance of the roofs anyway.

Action: Are we now at the point, with all the all the approvals in place, that we can consult with the selected supplier and give the resident in plot 3 a specific start date (subject to weather)?

Action: As installation of an irrigation system is recommended by the nominated installer for plot 3, Aster should have the remaining properties surveyed immediately to confirm whether they require an irrigation system and if this would require removal of the planting anyway. Review the programme and consider whether to accelerate the implementation of the remaining houses in the context of the responses.

Contacts

If you need help or advice on any aspect of this document, please contact:

Jerry Gilbert
Director

jgilbert@arkconsultancy.co.uk

0121 515 3831

07973 835896

