SAP Ecology & Environmental Ltd.

Bat Activity Surveys, Mitigation & Species Protection Plan



West Cumberland Hospital

Whitehaven

Prepared for CCL Solutions

Quality Assurance

Report Reference	Revision Number	Date of issue	Author	Checked by	Approved by
CCL102/002	001	9th December 2020	Sam Rogerson	Stephen Parkin	Sarah Parkin

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S.A.P Ecology & Environmental Ltd will submit any records of protected species to the appropriate biological records centre on an annual basis.

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1. Executive Summary

1.1 Summary

S.A.P. Ecology and Environmental Ltd carried out a preliminary building assessment of the properties at West Cumberland Hospital over two days, on Tuesday 19th and Friday 22nd May 2020 (SAP report ref: CCL102/001/001). The assessment recorded several potential bat roosting opportunities on the external of most of the buildings. Evidence of bats was recorded during the internal inspection in the form of bat droppings within buildings **B3**, **B7**, **B9** and **BH2**. Maternity roost evidence was discovered in **BH2**. A set of activity surveys were therefore commissioned to confirm if a bat roost was still present and if so the species and numbers of bats roosting across the site.

A series of dusk and dawn bat activity surveys were carried out between the 10th August and 17th September 2020 to cover all vantage points. In total, ten bat roosts were recorded across buildings **B1**, **B2H**, **B5**, **B7**, **B9**, **B18** and **B24**. Sound analysis of recordings made during the surveys confirmed the bat species utilising **B2H**, **B5, B9** and **B18** were Soprano and common pipistrelles. The bats utilising the remaining buildings were not echolocating, however, based on other evidence including bat droppings and flight behaviour these were determined to be of the *Pipistrellus* genus.

The proposed works on the property will cause the destruction of at least ten summer roosts for Common and Soprano pipistrelle/*Pipistrellus* bats. A Natural England European Protected Species Licence will be required to enable the legal disturbance and destruction of these bat roosts. The proposed works will not have any effect on the commuting and feeding opportunities within the surrounding area.

This report details the results of the activity surveys along with suggested mitigation options and compensation appropriate for the species of bat and type of roosts present within the property.

1.2 Summary of mitigation and compensation

- A European Protected Species Licence will be applied for from Natural England for works to continue in a legal manner.
- One Schwegler 2F bat box, or similar, will be erected on the southern aspect of a nearby mature tree prior to any works commencing on the property for potential translocation;
- It is proposed that demolition works commence during the winter period (November – 1st March) to limit the impact on roosting bats.
- Known roost locations should be exposed by hand under supervision from a licensed bat ecologist.
- Any future development should incorporate provision for roosting bats.
- All contractors will be made aware of the risk of finding bats during the works.

2. Introduction

2.1 Project background

North Cumbria Integrated Care NHS Foundation Trust (hereafter referred to as 'the Trust'), propose to carry out a number of phased building demolitions at the West Cumberland Infirmary in Whitehaven. To achieve planning permissions and any relevant protected species licence, a building assessment was carried out on all 15 properties (plus associated garages) proposed for demolition. These surveys were completed in May 2020 and recorded suitable bat roost features on most buildings.

The West Cumberland Infirmary is located in the Hensingham area of Whitehaven, directly off Homewood Road, with the buildings located on Homewood Drive and Homewood Hill (NX 98695 15840). The buildings are situated within an urban environment, with residential areas to the north, west and south. The surrounding area is comprised of amenity grassland, with small areas of broadleaved woodlands. The River Keekle and one of its tributaries are located within 1.8km to the east and Bellhouse Gill approximately 720 metres to the south. Four small ponds are located within 1.4km.

Each building will be identified individually by building number or collectively as the 'property' in the remainder of this document.

2.2 Ecology background

S.A.P Ecology and Environmental Ltd completed a preliminary building assessment of the property on the 19th and 22nd May 2020. Suitable roosting features were recorded on each building and garage, with the exception of garage 5. Direct evidence of bats was recorded in buildings 3, 7 and 9 on Homewood Drive, and in building 2 of Homewood Hill.

Each building and garage were assigned an appropriate level of suitability to support roosting bats and further surveys were recommended to confirm roost access locations, numbers and the species of bat present. This report details the results of the further bat surveys at West Cumberland Infirmary, Whitehaven.

2.3 Project brief

S.A.P Ecology & Environmental Ltd were commissioned to carry out the appropriate number of recommended surveys of the property. The brief was to:

- Undertake bat activity surveys of the sixteen buildings highlighted for demolition on Homewood Hill and Homewood Drive;
- Produce a combined activity survey report to support a planning application outlining relevant methodologies, results, discussion, and appropriate recommendations;
- The report will be supported by appropriate digitised mapping.

3. Methodology

3.1 Emergence/re-entry Surveys

Ecologists were situated around each building to ensure adequate visual coverage of all access/egress points which were identified during the daytime preliminary building assessment of the site.

Each ecologist was equipped with a Bat Box Duet frequency division detector and recording device. Sound recordings made during the survey were retained for analysis and to aid identification of species.

The dusk surveys started 15 minutes before sunset and continued for 90 minutes after sunset. Dawn surveys commenced 90 minutes before dawn and continued for at least 15 minutes after dawn, until all bat activity had ceased. Any visual emergence/re-entries were recorded, including the time and location.

All surveys were conducted in line with good practice guidelines (Collins, 2016).

3.2 Limitations

It is not considered that there were any limitations to survey and the weather at the time of survey was suitable for foraging and commuting bats.

3.3 Surveyors

Surveyor locations for each survey can be found in appendix 1.

4. Results

4.1 Emergence/Re-entry surveys

A summary of all activity surveys including start time, temperatures and findings can be found in appendix 2. This section will detail those buildings with confirmed bat roosts.

*Dusk emergence from roost 10th August 2020 – Homewood Drive Building 1 & 3 (**B1 & B3**)*

One bat emerged at 21:15 from the north-western wallhead of building 1 (Roost A, plate 1, figure 1a). This bat did not echolocate upon emergence. The time of emergence and flight would suggest one of the *pipistrellus* species.

Plate 1: Roost A (Building 1, N aspect).

The survey recorded very low activity with soprano (*Pipistrellus pygmaeus*) and common pipistrelles (*Pipistrellus pipistrellus*) recorded foraging around the nearby trees and commuting past.

*Dawn return to roost 11th August 2020 – Homewood Hill Building 1 & 2 (**B1H & B2H**)*

Three bats were recorded returning to roost at the top of the gable end on the northern aspect of building 2 (Roost B, plate 2, figure 1h). These bats were not echolocating at the time of returning to roost.

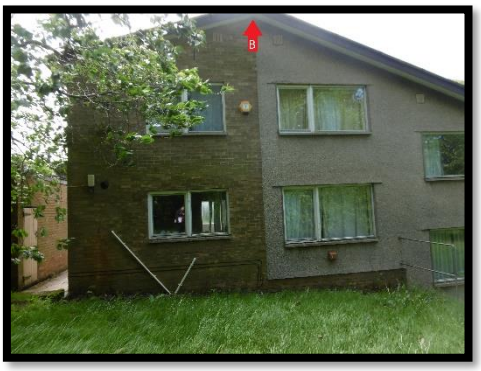

Plate 2: Roost B (Building 2, N aspect).

The survey recorded very low activity with bats foraging in the garden areas and commuting past the house. Sound analysis informs us that the bats active in the area during the survey were soprano and common pipistrelles and a *Myotis* sp.

*Dusk emergence survey 12th August 2020 – Building 5 & 9 (**B5 & B9**)*

Building 5

One roost was recorded on building 5 during this survey (roost F, plate 3, figure 1b). An individual bat emerged from the wallhead on the eastern aspect at 21:17 (roost F). Sound analysis informs us the bat emerging from roost F was a soprano pipistrelle.

Plate 3: Roost F (Building 5).

*Building 9 (**B9**)*

Three roosts for individual bats were recorded on building 9 during this survey (roosts C, D and E). One bat emerged from the western wallhead behind the down spout (roost C, plate 4, figure 1c), one from a second location on the wallhead on the western aspect (roost D) and a third from the wallhead on the eastern aspect (roost E, plate 9) at 21:14, 21:41 and 21:16 respectively.

Sound analysis informs us that the bat emerging from roost D was a common pipistrelle and the bat emerging from roost E was a soprano pipistrelle. The individual bat recorded from roost C was not echolocating at the time of emergence.

Plate 4: Roost C & D (Building 9).

Plate 5: Roost E (Building 9).

Bat activity in the area was low with mainly foraging/feeding and commuting behaviour recorded along the road and in the trees and garden areas. Common and soprano pipistrelles were active in the area during the survey.

*Dawn return to roost 13th August 2020 – Building 14 & 16 (**B14 & B16**)*

No bats were recorded returning to either building 14 or 16 during the survey, however, an incidental roost was recorded on building 18 (roost G, plate 6, figure 1e) with two bats returning to the north-western gable end apex at 05:19 and 05:21, respectively. Both bats were recorded re-emerging from roost G at 05:22, but then re-entered

at 05:23 and 05:26. Neither bats were echolocating at any time upon returning and emerging from roost G. An individual bat was observed marking the wallhead of building 14 but was not recorded returning to a roost.

Plate 6: Roost G (Building 18, N aspect).

Bat activity in the area was low with foraging/feeding and commuting behaviour recorded in the trees and garden areas and past the property. Common and soprano pipistrelles were active in the area during the survey.

*Dusk emergence survey 24th August 2020 – Building 1 & 2 (B1H & B2H), building 3 and 12 (**B3 & B12**).*

One roost was recorded on building 2 (Homewood Hill) with four bats emerging from the apex of the southern gable end between 20:31 and 20:43 (roost H, plate 7, figure 1h). None of the bats were echolocating upon emergence from roost.

Plate 7: Roost H (Building 2, S aspect).

Bat activity in the area was low with foraging/feeding and commuting behaviour recorded in the trees and garden areas and past the property. Common and soprano pipistrelles were active in the area during the survey.

*Dawn Return to roost survey 25th August 2020 – Building 12, 18 & 20 (**B12, B18 & B20**)*

One bat was recorded returning to roost G on building 18 at 06:12 (plate 6, figure 1e). This bat was not echolocating upon returning to roost.

Bat activity in the area was low with commuting behaviour recorded past the property. Common pipistrelles and a *Myotis* sp. were active in the area during the survey.

*Dusk Emergence survey 26th August 2020 – Building 22 & 24 (**B22 & B24**)*

Two bats were recorded emerging from behind the window boarding on the north-eastern aspect of building 24 at 20:39 and 20:42 (Roost I, plate 8, figure 1g). These bats were not echolocating upon emergence.

Plate 8: Roost I, building 24.

Bat activity in the area was low with foraging/feeding and commuting behaviour recorded past the property. Common pipistrelles and *Nyctalus* sp. were active in the area during the survey.

*Dawn return to roost survey 15th September 2020 – Building 9, Building 1 and 2 Homewood Hill (**B9, B1H & B2H**)*

Building 1 and 2 Homewood Hill

One bat was recorded returning to roost B on building 2 at 06:29 (figure 1h).

Building 9

No bats were recorded returning to roost within building 9, however an incidental return to roost was recorded on building 7 (Roost J). Two bats were recorded returning to roost under the roofing tiles on the southern aspect at 06:27 and 06:34, respectively (plate 9, figure 1c).

Plate 9: Roost J (Building 7, S aspect).

Sound analysis informs us that the bat returning to roost B was a soprano pipistrelle and the bats returning to roost J were one of the *Pipistrellus* species of bat.

Bat activity in the area was low with foraging/feeding and commuting behaviour recorded past the property. Soprano pipistrelles were active in the area during the survey.

*Dusk emergence survey 15th September 2020 – Building 7 and 26 (**B7 & B26**)*

Two bats were recorded emerging from roost J at 19:55 and 19:59. These bats were not echolocating upon emerging from roost J (figure 1c).

Bat activity in the area was low with foraging/feeding and commuting behaviour recorded past the property. Both soprano and common pipistrelles were active in the area during the survey.

*Dusk emergence survey 16th September 2020 – Building 12 and 18 (**B12 & B18**)*

Building 12

No bats emerged from building 12.

Building 18

Two bats were recorded emerging from roost G at 19:50 and 19:53 (figure 1e). These bats were not echolocating upon emerging from roost G.

Bat activity in the area was low with foraging/feeding and commuting behaviour recorded past the property. Both soprano and common pipistrelles were active in the area during the survey.

*Dawn return to roost survey 17th September 2020 – Building 14 & 16 (**B14 & B16**)*

No bats were recorded returning to roost within buildings 14 or 16 during the survey, however there was an incidental record of two bats returning to roost G on building 18 at 06:29 and 06:37 (figure 1e). Sound analysis informs us that the bat returning to roost at 06:29 was a soprano pipistrelle. The bat returning to roost at 06:37 was not echolocating.

Bat activity in the area was low with foraging/feeding and commuting behaviour recorded past the property. Soprano pipistrelles were active in the area during the survey.

5. Discussion & relevant legislation

5.1 Emergence/re-entry survey discussion

The 2020 bat surveys recorded ten bat roosts present at the property (roosts A – J) within buildings B2H (2 Homewood Hill) and Buildings B1, B5, B7, B9, B18 and B24 Homewood Drive. No bats were recorded roosting in any other buildings at the time of survey.

Homewood Hill

Building 2 recorded two bat roosts (roosts B & H). During the internal inspection, this building recorded evidence of prolonged bat use (10 years +), by a small colony of bats, initially suspected to be maternity usage. The bats utilising roost B were confirmed to be soprano pipistrelle. The bats using roost H could not be confirmed as no echolocation was heard, it is highly likely that these bats are also soprano pipistrelle and part of the same colony as those emerging from roost B. The internal space is open and interconnected. The change in roost access point is likely due to the internal climate, relating to the heat and humidity levels experienced in the day previous. Although once a likely maternity colony, the disuse and disrepair of this building has led to damp issues and gaps in the roof which will not provide a stable internal climate. The small colony that remains in 2020 (peak count of 4) is considered to be a non-breeding colony of soprano pipistrelle bats.

Homewood Drive

Single roost locations were recorded within buildings B1 (roost A), B5 (roost F), B7 (roost J), B18 (roost G), and building B24 (roost I) with three roost locations within building B9 (roosts C, D & E).

Roost D recorded common pipistrelle and roosts E – G recorded soprano pipistrelle, however the bats emerging/returning to roosts A, C, I and J were not echolocating during any of the surveys. Bat droppings found during the preliminary investigation along with flight patterns and behaviour observed and recordings of bats present in the area at the time of the activity surveys suggest that these bats are likely to be of the *Pipistrellus* genus.

The current proposal involves the demolition of all buildings highlighted in this report and subsequently all roosts that are present. Since more than three roosts are to be impacted, a full European Protected Species Licence (EPSL) to disturb and destroy bat roosts will need to be attained from Natural England. Once the licence is in place, works should proceed during the winter months when bats are less likely to be utilising the property. There is a low level of suitability for hibernation in the property, as the aspect and surrounding environment leave the potential features open to the elements.

5.2 Protected Species Legislation

Bats

All bat species in the UK are protected from killing, injury and roost disturbance by both national and international law, in the form of the Wildlife and Countryside act (1981) as amended. In England bats are also protected under The Conservation (Natural Habitats &) (Amendment) Regulations 2007.

The legislation that is in place makes it an offence to:

- Intentionally capture, injure or kill a bat; Intentionally disturb a bat which will likely Impair its ability to survive, breed, reproduce or rear its young;
- Impair its ability to hibernate or migrate
- Affect the local distribution or abundance of the species.

- Intentionally or recklessly disturb a bat roost; Intentionally or recklessly obstruct access to a roost;
- Damage or destroy a resting place or breeding site.

5.3 Licencing

EPSL applications for works affecting bats must satisfy the regulations set out in the Conservation of Habitats and Species Regulations 2010 (as amended), and pass the three tests:

- That the activity must be for a certain purpose;
- That there is no satisfactory alternative that will cause less harm to the species; and
- That the activity must not harm the long-term conservation status of the species.

6. Species Protection Plan

6.1 Impact Assessment

Buildings B1, B2H, B5, B7, B9, B18 & B24

Considering the results of the preliminary assessment and activity surveys, the proposed works will result in a negative impact on bats and result in the destruction of at least ten bat roosts for pipistrelle bats. The number of bats recorded in the roosts and the species present would put the level of impact as 'low' at both the local and national scale.

Multiple alternative roosting opportunities exist within the locality including occupied residential dwellings, office buildings and the hospital blocks.

Buildings B1H, B3, B12, B14, B16, B20, B22 & B26

No bat roosts were recorded within these buildings therefore there will be no direct impact on bats. Works can proceed at any time on the detached properties. For those buildings which are 'attached' to one with a confirmed bat roost, works should wait until an appropriate EPS licence is in place prior to being started.

The proposed works will not have any impact on the surrounding environment and therefore it is not considered that these proposals will have any effect on commuting or foraging bats.

6.2 Mitigation

Once an EPS Mitigation Licence has been attained from Natural England, demolition of **B1**, **B2H**, **B5**, **B7**, **B9**, **B18**, **B24** and their associated garages should proceed during the winter months (November – March inclusive) to limit the chance of bats being present during works and therefore reduce the chance of death or injury.

Furthermore, to prevent any major disturbance or potential death/injury of roosting bats, works **may not proceed** on buildings or their associated garages that are attached, or within close proximity, to buildings with recorded roosts. These buildings include **B3**, **B1H**, **B20**, **B22** and **B26**.

Demolition of **B12**, **B14** & **B16** and their associated garages **can proceed** at any time of the year. These buildings recorded no bat roosts and are not in close proximity to any roosts to cause disturbance.

Prior to works taking place, a detailed method statement and plan of works should be produced. Known roost locations should be exposed by hand, and a licenced bat ecologist should be present on-site during these exposures. If bats are found during the roofing works, the bat(s) will be translocated by the licenced ecologist to a 2F bat box located on a nearby mature tree. Any scaffolding erected should be placed to avoid obstructing the bat roost entrances identified within this report.

All building contractors will be made aware of the potential that bats may be found during works.

6.2 Compensation

No rebuild is currently planned for the site, however, should this change it is recommended that suitable bat roosting opportunities be incorporated into the design. This could take many forms including those mentioned below:

- Ridge Access: This aims to mimic the roosting locations used by bats (plate 10). When installing the roof ridge, the roofers will ensure that sufficient space is left underneath the new ridge (20mm x 100mm) to provide adequate roosting opportunity.

Plate 10: Example of bat ridge access

- Bat Tubes: These tubes can be incorporated into the new project to compensate for the loss of wallhead roosts.

Plate 11: Schwegler 1FR Bat Tube

No breathable roofing membrane is to be used within 0.5m of all new bat entry/exit points. Bitumen felt 1F type will be used in these areas to protect sarking around the new bat entry/exit point.

External lighting

Any external lighting placed around any new build will take bats into consideration. Lighting should aim to illuminate only the immediate area which is required, and a shield or hood can be used to limit the overspill. Lighting directly underneath the roost entrances will be avoided.

6.3 Further Survey

Bats surveys are only valid for a limited amount of time, if works are delayed for more than 18 months from the date of survey they should be repeated.

7. Conclusion

The activity surveys have confirmed that buildings **B1**, **B2H**, **B5**, **B7**, **B9**, **B18**, **B24** provide summer/day roosting opportunities for bats. A total of **10 roosts will be destroyed** due to the planned demolitions.

For works to continue legally an EPSL will need to be attained from Natural England.

Subject to the recommendations within this report being followed and a relevant mitigation licence being attained the proposed works should be compliant with relevant legislation and planning policy regarding protected species.

8. References

BCT (2009) *Bats and lighting in the UK, Bats and the Built Environment Series.* The Bat Conservation Trust, London.

Collins, J (ed.) (2016) *Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edition)*. The Bat Conservation Trust, London.

Mitchell-Jones, A.J, (2004) *Bat Mitigation Guidelines.* English Nature, Peterborough.

Mitchell-Jones, A.J. & McLeish, A.P. (2004) *Bat Workers Manual (3rd Edition).* Joint Nature Conservancy Committee, Peterborough.

SAP Ecology & Environmental Ltd (2019). *Preliminary Building Assessment, West Cumberland Infirmary, Homewood Drive and Homewood Hill.* SAP Ecology & Environmental Ltd, Eaglesfield.

Appendix 1: Survey locations

Date	Dusk/Dawn	Surveyor	Survey Location	Survey Licence Number
10/08/20	Dusk	Johnny Walls	1 (B1)	-
		Sam Rogerson	2 (B3)	-
		Shannon Clifford	3 (B3)	-
		Sean Prokopiw	4 (B1)	Agent (2015-11580-CLS-CLS)
11/08/20	Dawn	Sean Prokopiw	14 (B1H)	Agent (2015-11580-CLS-CLS)
		Sam Rogerson	15 (B1H)	-
		Johnny Walls	16 (B2H)	-
		Shannon Clifford	17 (B2H)	-
11/08/20	Dusk	Johnny Walls	7 (B7)	-
		Sean Prokopiw	8 (B7)	Agent (2015-11580-CLS-CLS)
		Shannon Clifford	9 (B7)	-
12/08/20	Dawn	Johnny Walls	1 (B1)	-
		Sam Rogerson	2 (B3)	-
		Shannon Clifford	3 (B3)	-
		Sean Prokopiw	4 (B1)	Agent (2015-11580-CLS-CLS)
12/08/20	Dusk	Sam Rogerson	5 (B5)	-
		Shannon Clifford	6 (B5)	-
		Johnny Walls	12 (B9)	-
		Sean Prokopiw	13 (B9)	Agent (2015-11580-CLS-CLS)
13/08/20	Dawn	Shannon Clifford	21 (B14)	-
		Johnny Walls	22 (B14)	-
		Sean Prokopiw	23 (B16)	Agent (2015-11580-CLS-CLS)
		Sam Rogerson	24 (B16)	-
24/08/20	Dusk	Michelle Stamp	2 (B3)	-
		Stephen Parkin	3 (B3)	2016-23679-CLS-CLS
		Malcolm Ginns	14 (B1H)	-
		Sam Rogerson	16 (B2H)	-
		Sean Prokopiw	17 (B2H)	-
		Sarah Parkin	18 (B12)	2015-11580-CLS-CLS
25/08/20	Dawn	Sam Rogerson	19 (B12)	-
		Michelle Stamp	20 (B12)	-
		Sean Prokopiw	27 (B18)	-
		Stephen Parkin	28 (B18)	2016-23679-CLS-CLS
		Sarah Parkin	29 (20)	2015-11580-CLS-CLS
		Malcom Ginns	30 (B20)	-
26/08/20	Dusk	Shannon Clifford	33 (B22)	-
		Stephen Parkin	34 (B24)	2016-23679-CLS-CLS
		Johnny Walls	35 (B24)	-
		Sam Rogerson	36 (B24)	-
27/08/20	Dawn	Johnny Walls	5 (B5)	-
		Shannon Clifford	6 (B5)	-
		Stephen Parkin	38 (B26)	2016-23679-CLS-CLS
		Sam Rogerson	39 (B26)	-
14/09/20	Dusk	Sean Prokopiw	1 (B1)	-
		Michelle Stamp	2 (B3)	-
		Stephen Parkin	3 B3)	2016-23679-CLS-CLS
		Gillian Dinsmore	4 (B1)	-
15/09/20	Dawn	Michelle Stamp	12 (B9)	-
		Stephen Parkin	13 (B9)	2016-23679-CLS-CLS
		Sean Prokopiw	14 (B1H)	-
		Sam Rogerson	16 (B2H)	-
		Gillian Dinsmore	17 (B2H)	-
15/09/20	Dusk	Sean Prokopiw	7 (B7)	-
		Gillian Dinsmore	8 (B7)	-
		Michelle Stamp	9 (B7)	-
		Sam Rogerson	39 (B26)	-
		Stephen Parkin	38 (B26)	2016-23679-CLS-CLS
16/09/20	Dawn	Gillian Dinsmore	29 (B20)	-
		Michelle Stamp	30 (B20)	-
		Sean Prokopiw	35 (B24)	-
		Sam Rogerson	33 (B22)	-
		Stephen Parkin	34 (B22)	2016-23679-CLS-CLS

Date	Dusk/Dawn	Surveyor	Survey Location	Survey Licence Number
16/09/20	Dusk	Stephen Parkin	18 (B12)	2016-23679-CLS-CLS
		Gillian Dinsmore	19 (B12)	-
		Malcolm Ginns	20 (B12)	-
		Sam Rogerson	27 (B18)	-
		Sean Prokopiw	28 (B18)	-
17/09/20	Dawn	Sam Rogerson	21 (B14)	-
		Stephen Parkin	22 (B14)	2016-23679-CLS-CLS
		Sean Prokopiw	23 (B16)	-
		Gillian Dinsmore	24 (B16)	-

Appendix 2 – Survey Summary

Survey type & Building	Date	Start time	Sunrise/ sunset time	Temp start (°C)	Temp finish (°C)	Wind	Notes
Dusk B1&B3	10/08/20	20:40	20:55	18	18	1	One bat emerged from roost A on building 1 (Homewood Drive). This bat was not echolocating. Low level of pipistrelle activity in surrounding area.
Dawn B1H & B2H	11/08/20	04:15	05:45	18	18	1-2	Three bats returned to roost at northern gable end (roost B). No echolocation during re-entry was recorded.
Dusk B7	11/08/20	20:38	20:53	20	19	1	Foraging and commuting activity was recorded past the building, sound analysis confirms that this included both common and soprano pipistrelle and myotis species. **No bats emerged from the property.**
Dawn B1 & B3	12/08/20	04:16	05:46	19	18	0	Bat activity over the duration of the survey was recorded as very low, occasional feeding activity was recorded amongst the trees within the garden. Pipistrellus and myotis species were active. **No bats returned to roost.**
Dusk B5 & B9	12/08/20	20:37	20:52	22	22	1	Four bat roosts were recorded during survey, roost C - E (building 9) and roost F (building 5). The bat emerging from roost C was not echolocating. The bat emerging from roost D was a common pipistrelle and the individual bats emerging from roosts E and F were both soprano pipistrelles. Bat activity in the area was low throughout the duration of the survey.
Dawn B14, B16 & B18	13/08/20	04:18	05:46	19	17	1	One incidental roost was recorded on building 18 (roost G) with two bats returning to roost at the north western gable end. These bats were not echolocating.
Dusk B1H & B2H B2 & B12	24/08/20	20:09	20:24	15.5	11.7	1	Four bats emerged from the southern gable end (roost H), no echolocation was recorded. Activity overall was low with commuting overhead and occasional foraging amongst the trees and garden. **No bats emerged from B1H, B3 or B12.**
Dawn B12, B18 & B20	25/08/20	04:40	06:10	13	13	2	A single roost location was recorded on building 18 (roost G) with a single bat returning to roost. This bat was not echolocating. **No bats were recorded returning to buildings B12 or B20.**

Dusk B22 & B24	26/08/20	20:04	20:19	19	18	1	Two bats emerged from a behind a window board on building 24 (roost I), these bats were not echolocating upon emerging. Activity was low throughout the survey. **No bats were recorded emerging from building B22**.
Dawn B5 & B26	27/08/20	04:43	06:13	13.5	13.4	2	Bat activity in the area was low with foraging/feeding and commuting behaviour recorded past the property and in the tree line to the west. Common pipistrelles were active in the area during the survey. No bats were recorded returning to either building.
Dusk B1 & B3	14/09/20	19:17	19:32	19.8	16.6	1	Bat activity in the area was low with foraging/feeding and commuting behaviour recorded past the property and in the tree line immediately to the west. Common and soprano pipistrelles were recorded to be active in the area during the survey. No bats were recorded emerging from either building.
Dawn B9, B1H & B2H	15/09/20	05:18	06:48	16.2	16.4	1	An individual bat was recorded returning to roost B within building B2H, sound analysis confirms the species to be soprano pipistrelle. No bats were recorded returning to roosting building B9, however an incidental recording was made on the neighbouring property (B7) to roost J. Two bats returned to roost under the roofing tiles on the southern aspect of building B7. The echolocation was faint; however, they could be identified as a one of the *pipistrellus* species.
Dusk B7 & B26	15/09/20	19:14	19:29	19	16	0-1	Two bats emerged from roost J. These bats were not echolocating upon emergence, however they had been confirmed to be pipistrellus during the previous dawn survey. Both common and soprano pipistrelle were actively foraging in the area during the survey.
Dawn B20, B22 & B24	16/09/20	05:20	06:50	14	15	2	Bat activity during the survey was low with occasional foraging behaviour recorded by soprano pipistrelle in the local area. **No bats returned to roost during the survey.**
Dusk B12 & B18	16/09/20	19:12	19:27	16	15	1	Two bats were recorded emerging from building B 18 at roost point G. These bats were not echolocating upon emergence. **No bats were recorded emerging from building B12.**
Dawn B14 & B16	17/09/20	05:22	06:52	12	13	1	No returns to roost were recorded on buildings B14 or B16, however an incidental recording was made of two bats returning to roost G on B18. The first was confirmed to be soprano pipistrelle and the second was not echolocating.

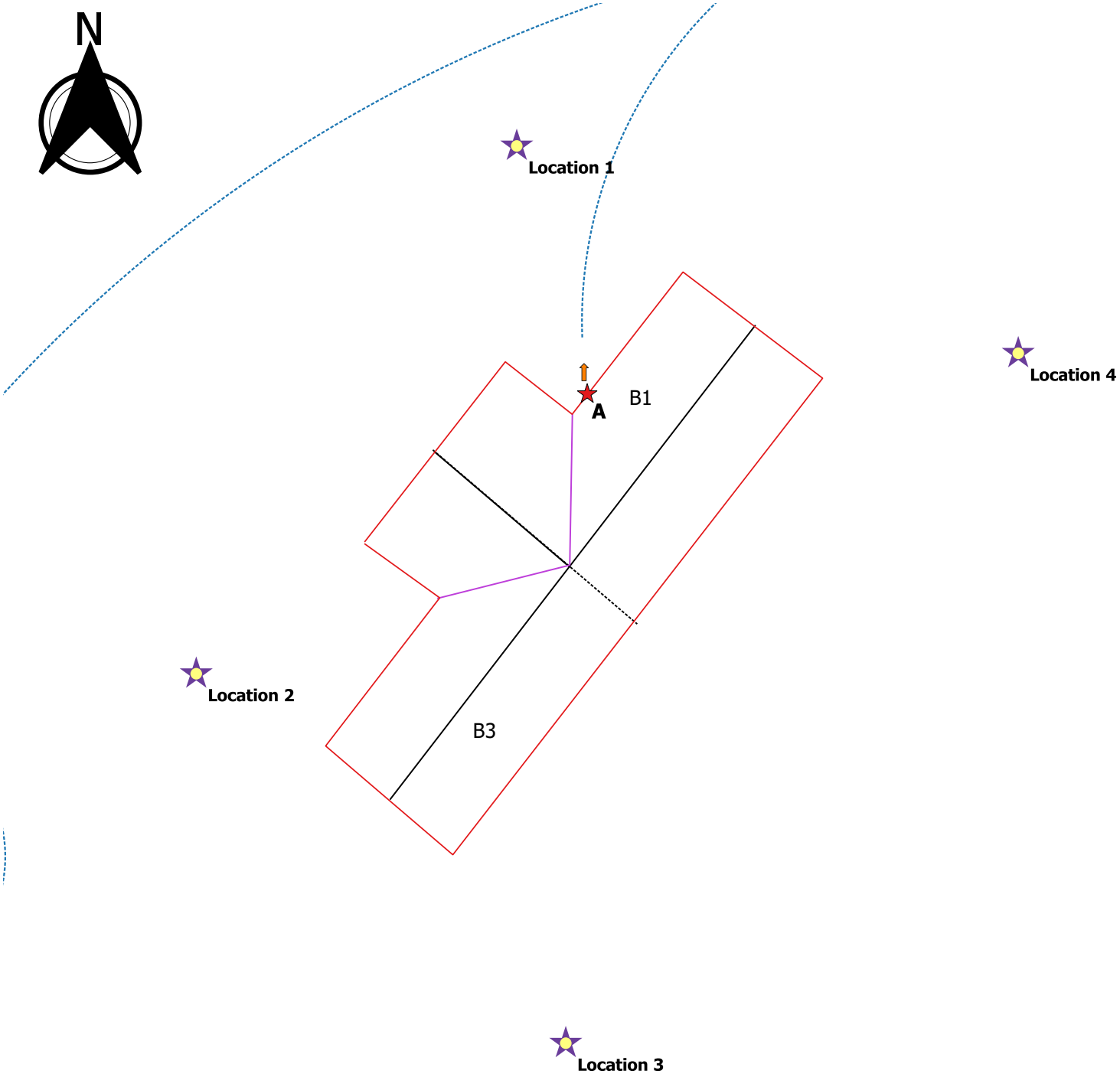

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Figure 1a: B1 & B3

Legend

Property Boundaries

- B1 & B3

Roof Details

- House separation
- Roof ridge
- Valley gutter

Survey Results

- Surveyor Locations
- Emergence
- Roost Location
- Bat Flightpaths

Date: 26/11/2020	Scale: 1:200

Client: CCL Solutions

Site Grid Reference: NX 98729 15917

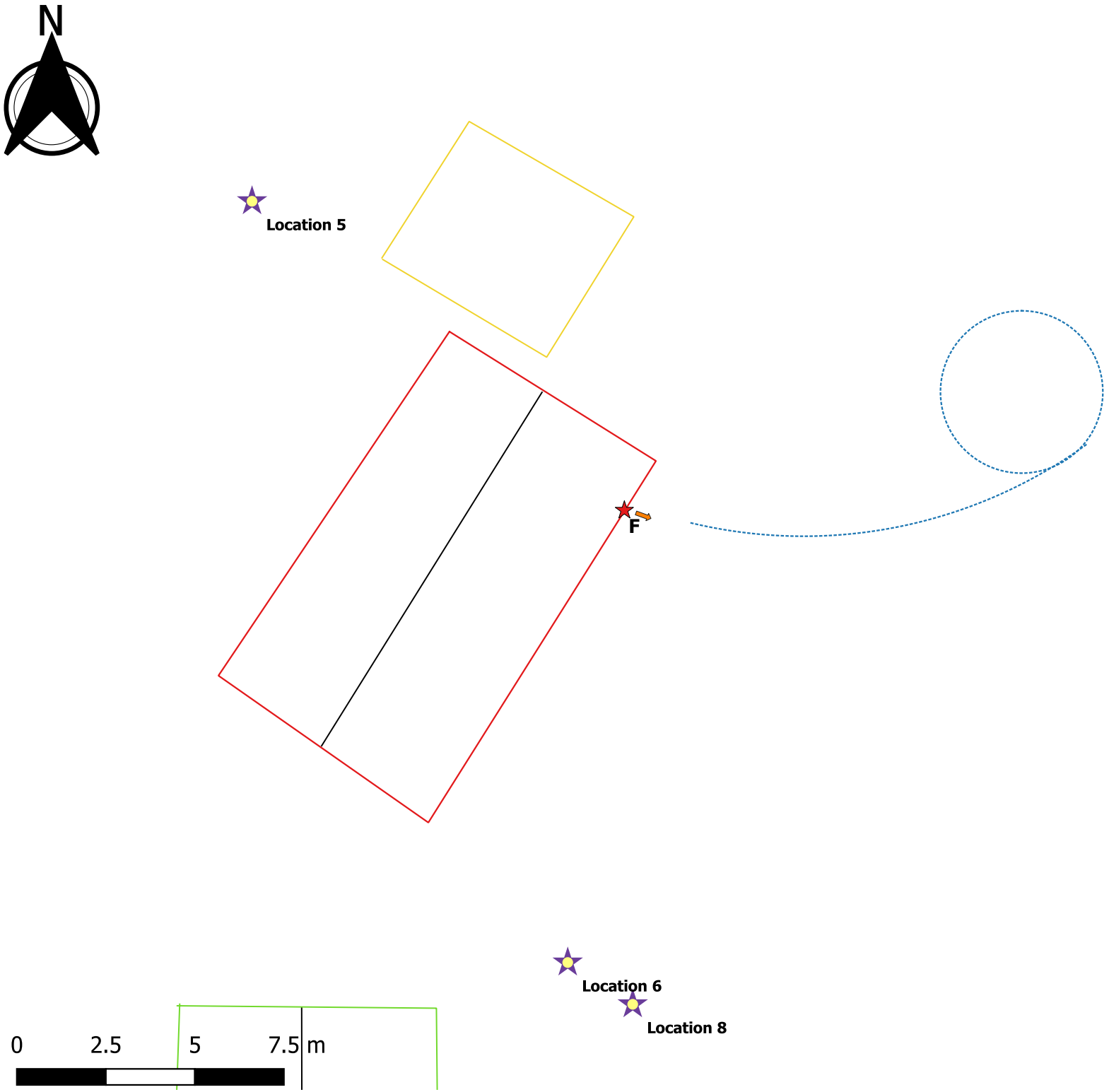

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Figure 1b: B5

Legend

Property Boundaries

- B5
- Garage 5

Roof Details

- House separation
- Roof ridge
- Valley gutter

Survey Results

- Surveyor Locations
- Emergence
- Roost Location
- Bat Flighpaths

Date: 26/11/2020 | Scale: 1:150

Client: CCL Solutions

Site Grid Reference: NX 98714 15872

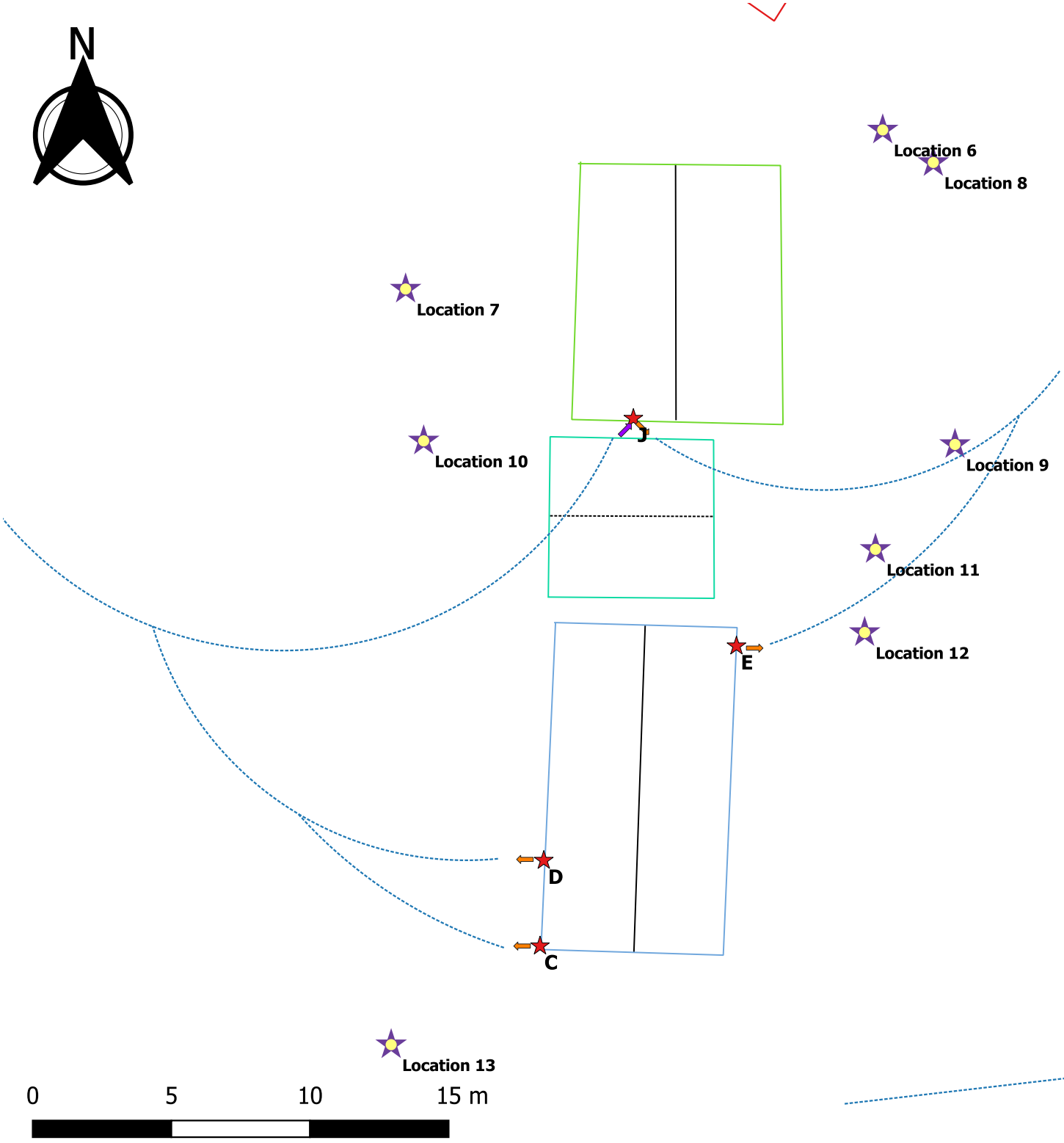

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Figure 1c: B7 & B9

Legend

Property Boundaries

- B7
- B9
- Garage 7 and 9

Roof Details

- House separation
- Roof ridge
- Valley gutter

Survey Results

- Surveyor Locations
- Emergence
- Re-entry
- Roost Location
- Bat Flightpaths

Date: 26/11/2020 | Scale: 1:200

Client: CCL Solutions

Site Grid Reference: NX 98708 15853

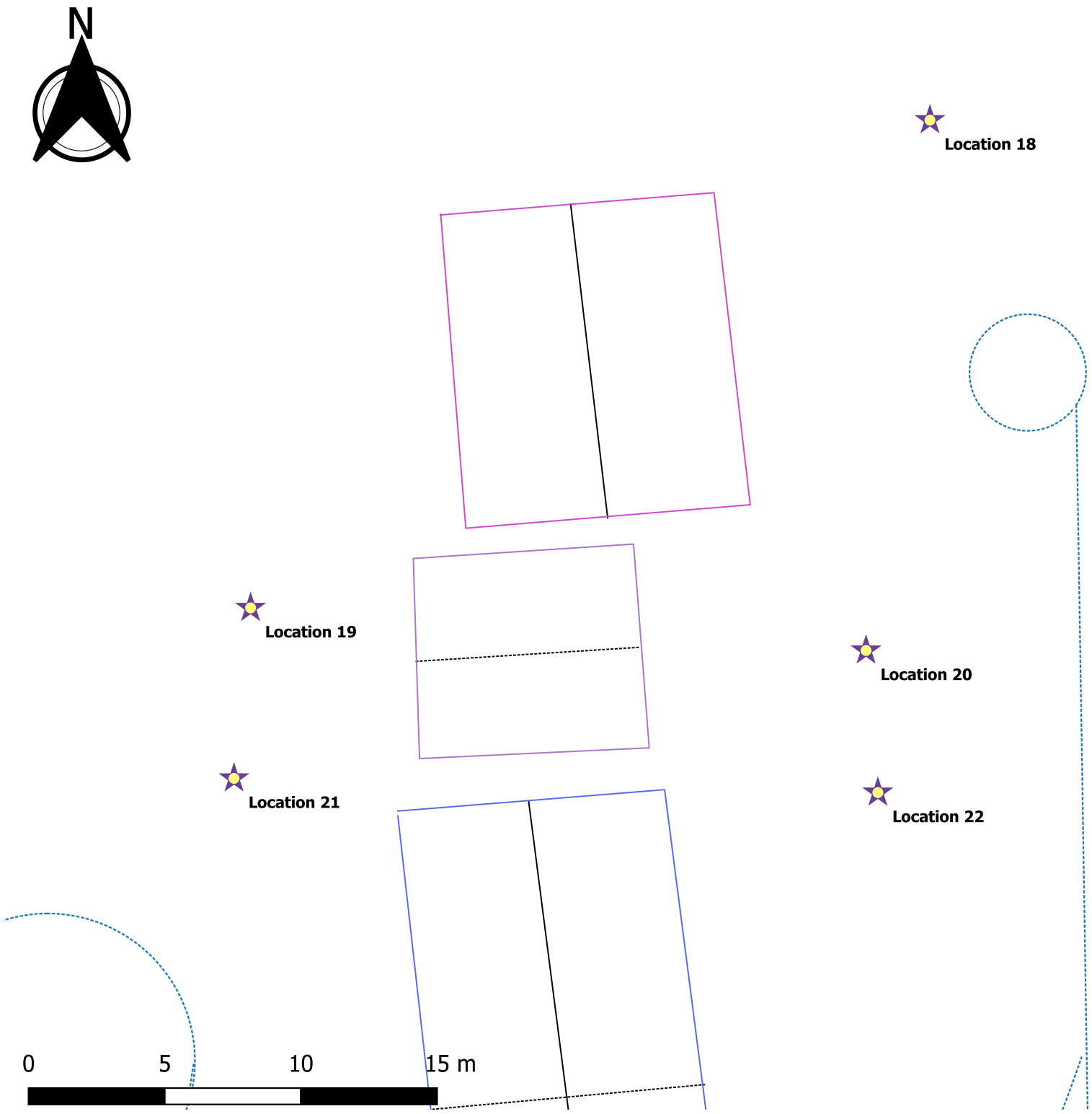

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Figure 1d: B12 & B14

Legend

Property Boundaries

- B12
- B14
- Garage 12 and 14

Roof Details

- House separation
- Roof ridge
- Valley gutter

Survey Results

- Surveyor Locations
- Bat Flightpath

Date: 26/11/2020	Scale: 1:150

Client: CCL Solutions

Site Grid Reference: NX 98670 15890

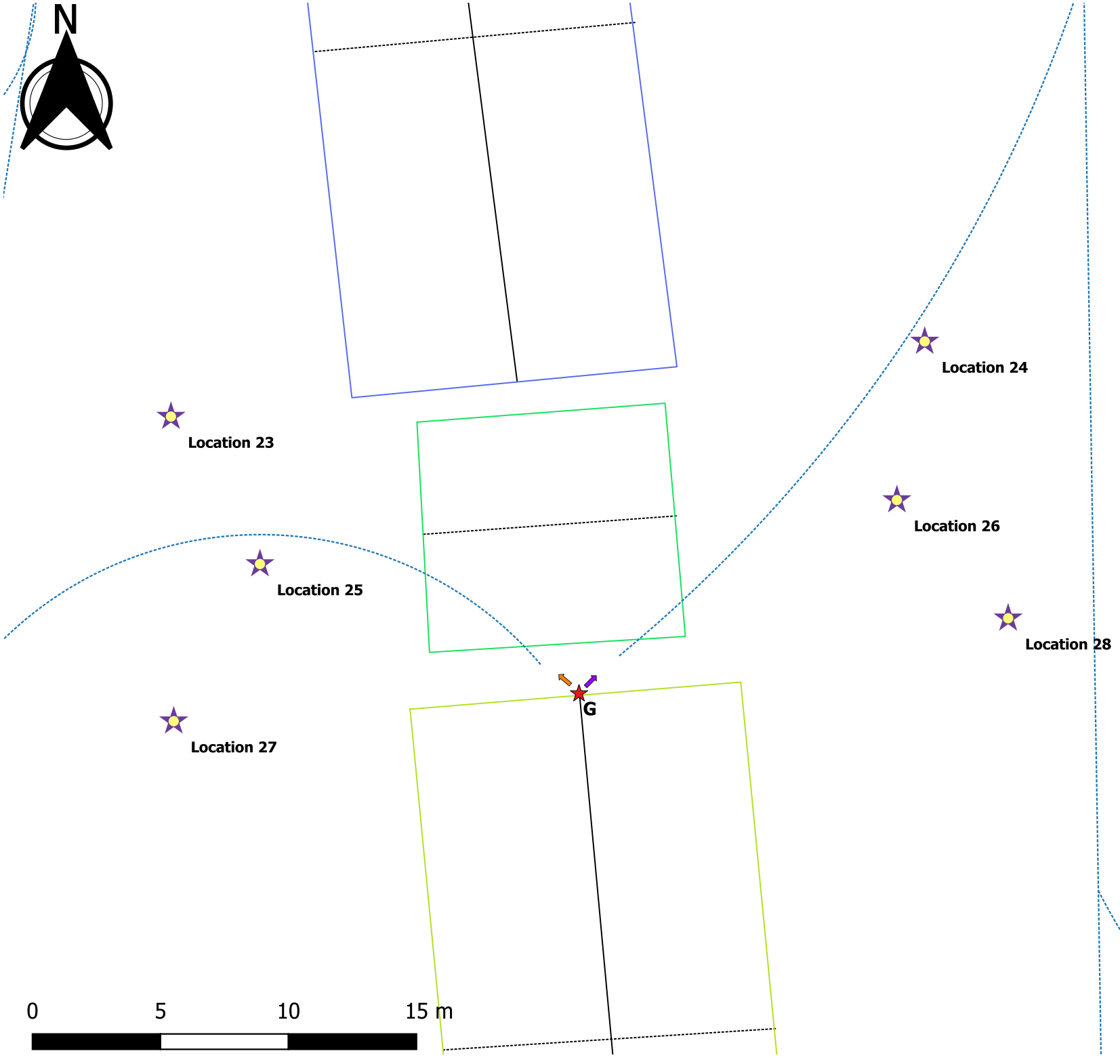

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Figure 1e: B16 & B18

Legend

Property Boundaries
- B16
- B18
- Garage 16 and 18

Roof Details
- Roof ridge
- Valley gutter
- House separation

Survey Results
- Surveyor Locations
- Emergence
- Re-entry
- Roost Location
- Bat Flightpath

Date: 26/11/2020 | Scale: 1:120

Client: CCL Solutions

Site Grid Reference: NX 98669 15870

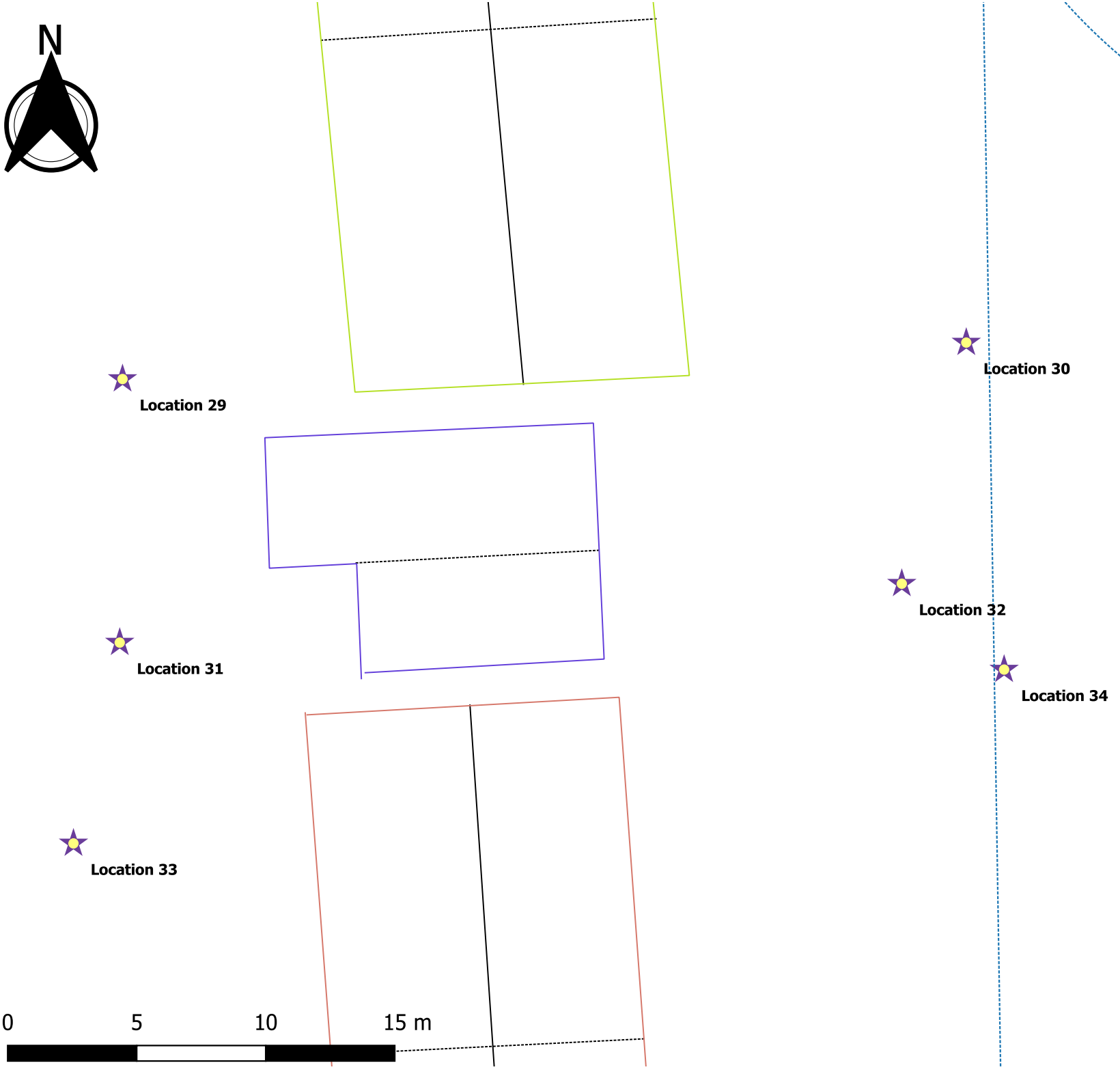

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Figure 1f: B20 & B22

Legend

Property Boundaries

- B20
- B22
- Garage 20 and 22

Roof Details

- House separation
- Roof ridge
- Valley gutter

Survey Results

- Surveyor Locations
- Bat Flightpaths

Date: 20/11/2020	Scale: 1:120

Client: CCL Solutions

Site Grid Reference: NX 98673 15846

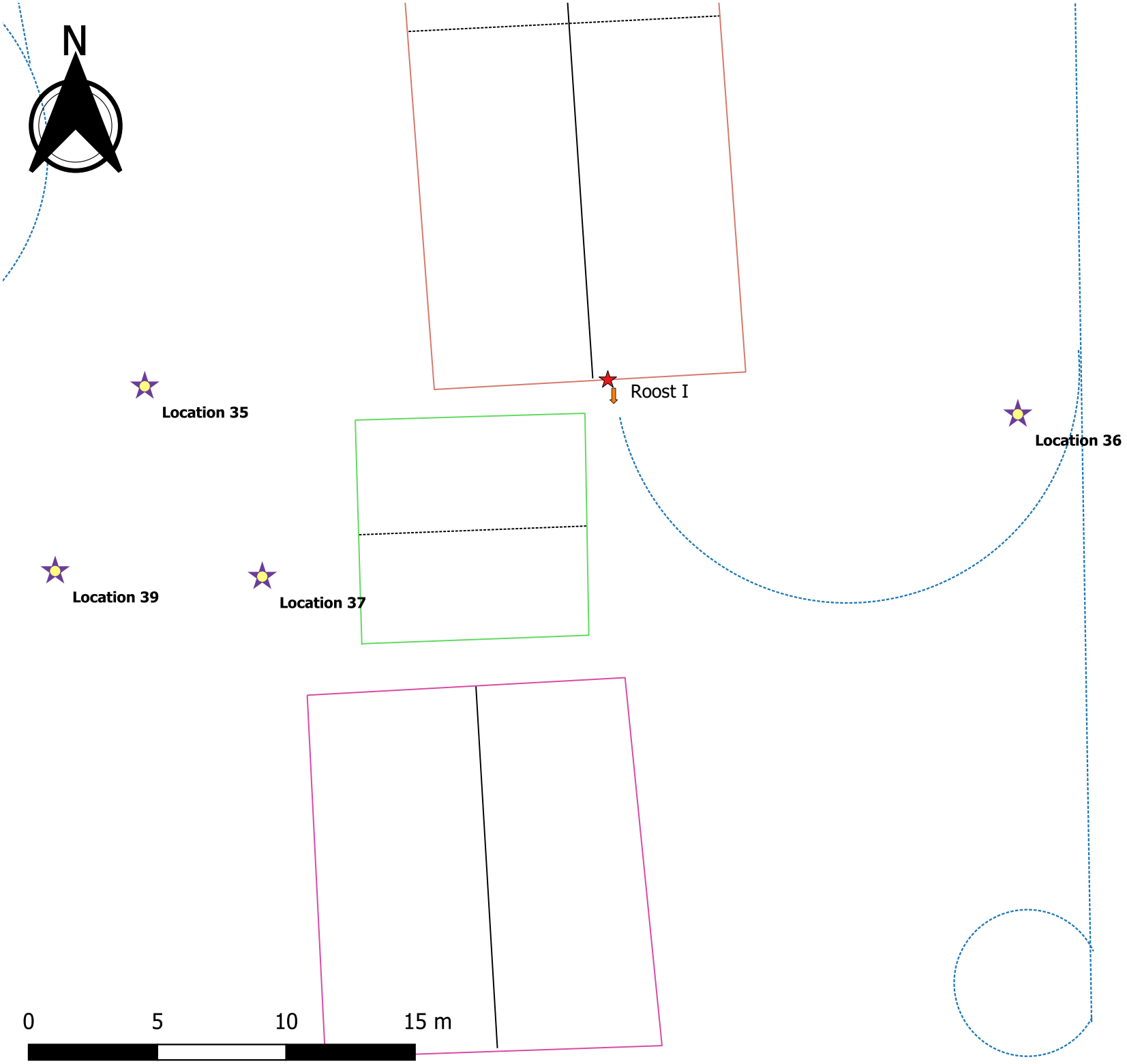

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Figure 1g: B24 & B26

Legend

Property Boundaries

- B24
- B26
- Garage 24 and 26

Roof Details

- House separation
- Roof ridge
- Valley gutter

Survey Results

- Surveyor Locations
- Emergence
- Roost Location
- Bat Flightpath

Date: 26/11/2020	Scale: 1:120

Client: CCL Solutions

Site Grid Reference: NX 98673 15822

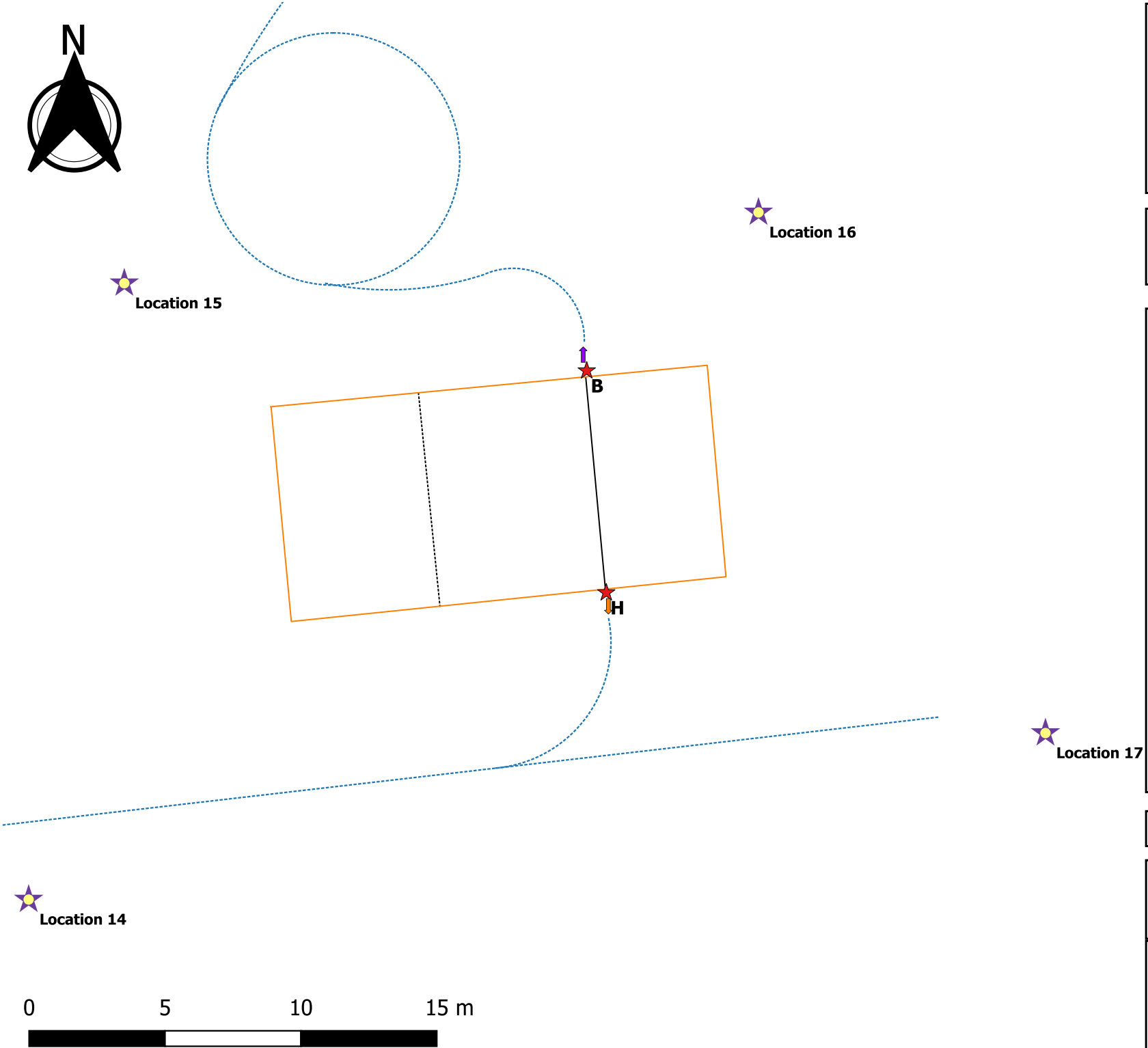

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Figure 1h: B1H & B2H

Legend

Property Boundaries

- Building B1H and B2H

Roof Details

- House separation
- Roof ridge
- Valley gutter

Survey Results

- Surveyor Locations
- Emergence
- Return to Roost
- Roost Location
- Bat Flightpath

Date: 26/11/2020	Scale: 1:190

Client: CCL Solutions

Site Grid Reference: NX 98745 15838