Final

NATURAL RESOURCES WALES
PEN-YR-ENGLYN TIP REMEDIATION

Ground Level Tree Assessment Technical Note

Project no. 4021526

Prepared for:

Natural Resources Wales

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1. Introduction

1.1 Background

Binnies UK Limited (BUKL) was commissioned by NRW to undertake a Ground Level Tree Assessment (GLTA) for the Pen-Yr-Englyn Tip Remediation project.

The purpose of this report is to present the findings of a GLTA for roosting bats of trees potentially impacted by proposed works to install a drainage solution for the Pen yr Englyn tip, and to recommend further surveys that may be needed depending on the final project design.

1.2 Scheme Location and Context

Pen-Yr-Englyn tip is situated on the eastern side of the Rhondda Fawr Valley. The Scheme Area is located directly north of Pen-Yr-Englyn, situated between the village of Treherbert to the west and the town of Treorchy to the east. The Scheme Area is centred at National Grid reference SS 94822 98025 (nearest postcode CF42 5HA) and covers approximately 0.2 km^2 (20 ha) of land.

Pen-Yr-Englyn tip was formed as a result of the historical mining waste produced by the Ynysfeio Colliery between 1854 and 1935. Mining spoil was placed on the steep slopes above mine shafts and colliery buildings. The tipping area is above residential properties, and as part of previous remediation works to cap shallow mine entries at the base of the hillside, some spoil was reprofiled to create what is now a plateau at the base of the steep slopes. The current project is to design and implement a drainage solution to reduce the pore water pressure and stabilise the tip.

The Scheme Area is situated within the County Borough of Rhondda Cynon Taff. Rhondda Cynon Taff County Borough Council (RCTCBC) land holdings own the plateau at the base of the hillside. The hillside north of the plateau is currently owned by the Welsh Government Woodland Estate (WGWE) and is managed by Natural Resources Wales (NRW). The location of the Scheme Area is shown in Figure 1-1 below.

The hillside in the north of the Scheme Area is crossed by the Ynysfeio forest road and a number of other forest tracks exist on the slopes. The steep slopes below the forest road were previously part of a conifer plantation but were clear-felled in winter 2023-24 to comply with a statutory plant health notice to remove the *Phytophthora ramorum* diseased trees. An area of broadleaved wet woodland on the lower slopes was retained, as was an area of mature western hemlock *Tsuga heterophylla* plantation on the western boundary of the Scheme Area (Binnies UK Ltd, 2024).

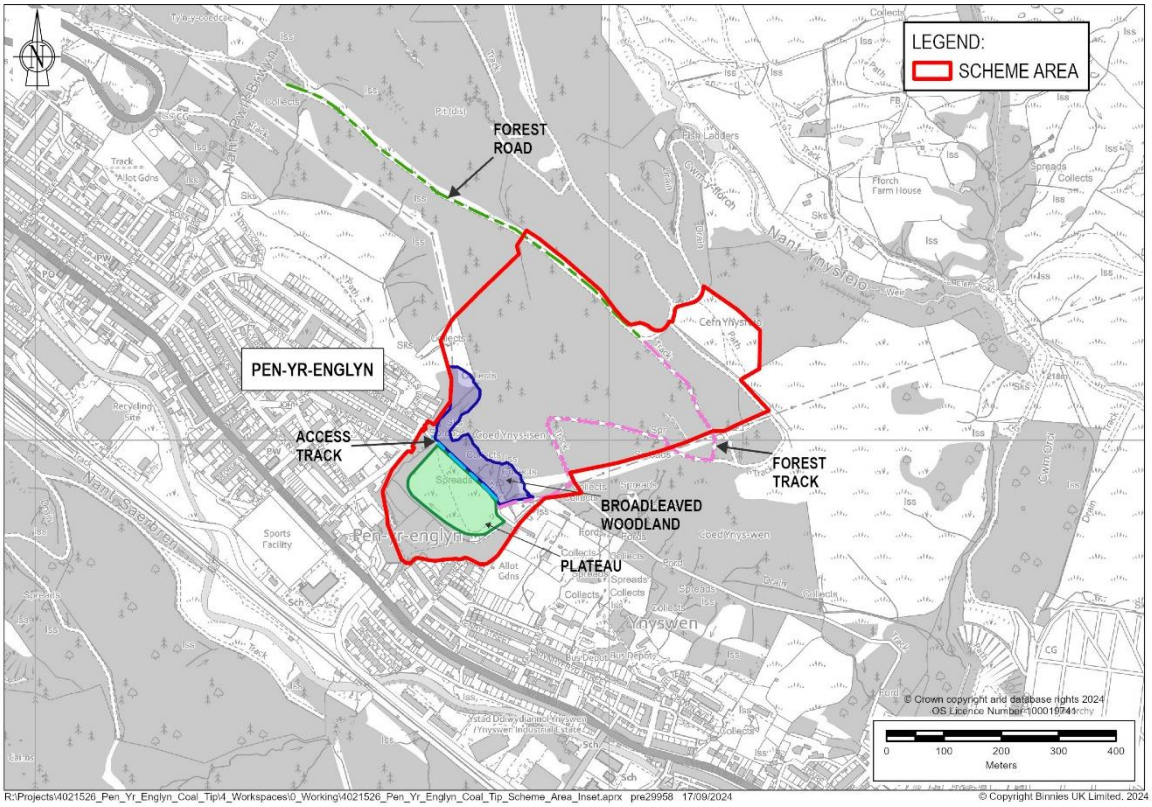


Figure 1-1: Scheme Area

2. Methodology

2.1 Standards and Guidelines

The GLTA was completed following appropriate guidelines:

- Bat Surveys for Professional Ecologists. Good Practice Guidelines (Collins, 2023)
- Bat Roosts in Trees. A guide to Identification and Assessment for Tree-Care and Ecology Professionals (Andrews, 2018)
- Bat Tree Habitat Key 2023. Part 2 of 3 - Desk-study, Truthing & Close-inspection framework for predicting the likelihood a specific potential bat roost feature (PRF) might be exploited by roosting bats, when and for what purpose (BTHK, 2023).

2.2 Ground Level Tree Assessment (GLTA)

A GLTA survey was led by Binnies' Principal Ecologist Jonathan Goodrick (BSc, CEcol, MCIEEM, holder of Natural Resources Wales Bat Survey Licence) and assisted by Binnies' ecologists Jack Childs (BSc, MSc), Rebecca Lloyd (BSc, ACIEEM**)** and Katie Tamin (BSc, MSc, Qualifying member of CIEEM). The GLTA survey was carried out on the 2nd, 5th and 6th of August in warm and dry conditions.

The survey area comprised the area of broadleaved woodland and adjacent scrub within the Scheme Area, shown on Drawing 4021526-BUK-ZZ-DR-EN-00009, Appendix A.

Trees within the Survey Area were inspected from the ground and categorised by their perceived suitability to support roosting bats (refer to Table 2.1 for the categorisation criteria). Evidence of use by bats was sought such as urine staining, droppings, feeding remains, and any other indicative marks present. The presence of cobwebs and detritus within suitable access points suggests that they are less likely to be in use by bats.

As part of the GLTA, trees were surveyed and where trees had roosting suitability and constraints present requiring further surveys and/or mitigation, these trees were tagged on site. In addition to this, trees that contained features that were found to have no suitability during the inspection, or trees over 0.25m in diameter at breast height (DBH), were also tagged. Where trees were under 0.25m DBH and no roosting suitability was recorded and no constraints present, trees were not tagged.

A general description of each tree including location, tree species, and description of features was taken to allow identification and location of each potential roosting feature (PRF) during follow up surveys and construction works.

Table 2-1: Ground Level Tree Assessment categorisation criteria (adapted from Collins, 2023)

Suitability	Description
None	No PRFs in the tree or highly unlikely to be any.
PRF-I	PRF is only suitable for individual bats or very small numbers of bats either due to size or lack of suitable surrounding habitats.
PRF-M	PRF is suitable for multiple bats and may therefore be used by a maternity colony.

2.3 Limitations

Every effort has been made to provide a comprehensive and robust assessment of the Survey Area. However, the following limitations remained during the assessment:

- Due to the time of year surveys were carried out, trees were in leaf which may have obscured potential roosting features.

Despite the above limitations, the survey results are considered valid and give an accurate assessment and representation of otter presence and the suitability of trees to support roosting bats within the Scheme Area. The limitations above are not deemed severe enough to significantly affect the outcomes described within this report.

3. Results

3.1 Ground Level Tree Assessment

Table 3.1 presents the trees found to have suitable features for roosting bats and their classification as PRF-I or PRF-M. The remaining trees assessed were found to have no suitable features for roosting bats. The complete list of trees surveyed is included as Appendix B.

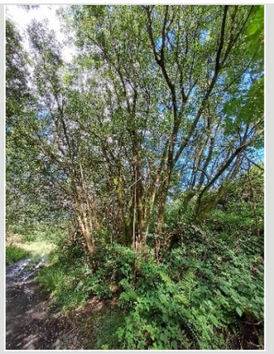
Drawing 4021526-BUK-ZZ-DR-EN-00009 (Appendix A) shows the approximate location of all the trees surveyed and their suitability category.

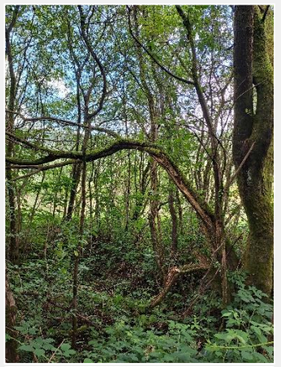
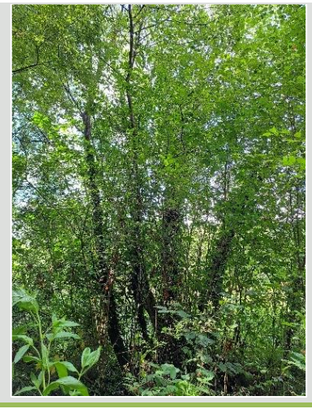
Two trees (untagged 1 & 2) were not tagged due to the presence of dense scrub vegetation preventing surveyor access.

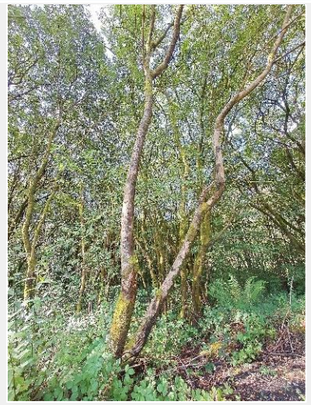
3.2 Incidental findings (Structures)

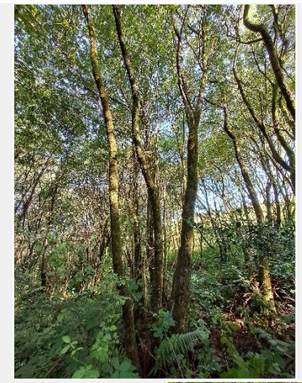
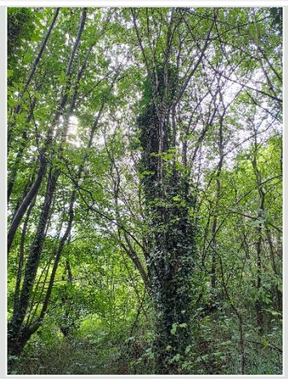
In addition to the trees the surveyors found two structures that contained suitable features for roosting bats (Table 3.2). The structures were two rock filled gabion basket structures used to reinforce the stream channel in the northern extent of the Survey Area.

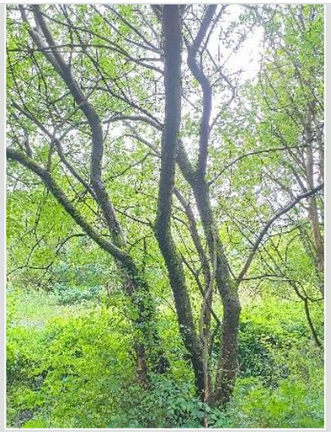
Table 3-1: Ground Level Tree Assessment results tree identified with PRF-I or PRF-M features.

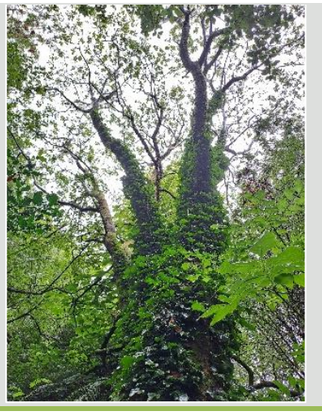
Tree tag	Grid reference	Species	DBH (m)	Stem	PRF	Notes	Photographs
3504	SS 9483197918	Birch (*Betula* sp.)	0.4	Multi stemmed	PRF-M	Feature at 1 m, facing north east. 15 x 4 cm. Opening which appears to extend south into trunk. Ground endoscope survey would be required. Full survey of tree not possible due to safety issues.	 
3509	SS 94760 97977	Willow species (*Salix* sp.)	0.3	Multi stemmed	PRF-I	Hole on north limb south aspect, feature 4 x 3 cm.	 

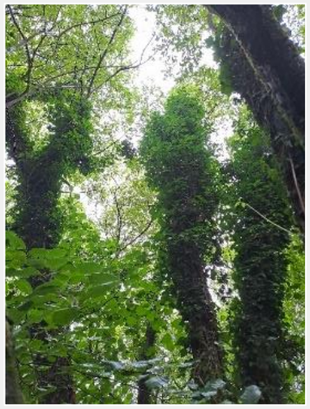
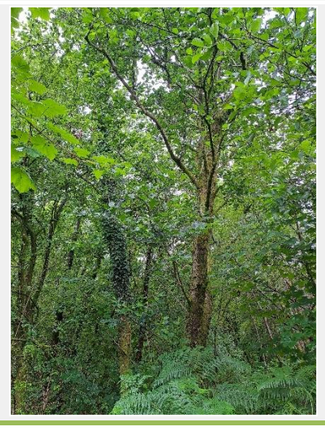
Tree tag	Grid reference	Species	DBH (m)	Stem	PRF	Notes	Photographs
3511	SS 94753 97971	Goat willow (*Salix caprea*)	0.4	Multi stemmed	PRF-M	Feature 1 – main split on southern limb - PRF-M; snap runs through limb and is present on north side of limb as well. Feature 2 - split in base on eastern limb, north west orientation, 70 cm x 5 cm - PRF I. Feature 3 - small hole at top of split on south west limb, north orientation. Hole is 5 x 4 cm. Split has been internally assessed and has no suitability.	   
3513	SS 94765 97949	Willow species (*Salix* sp.)	0.2	Multi stemmed	PRF-I	Ivy covering on western most limb, full assessment not possible, PRF-I given as a precaution.	 

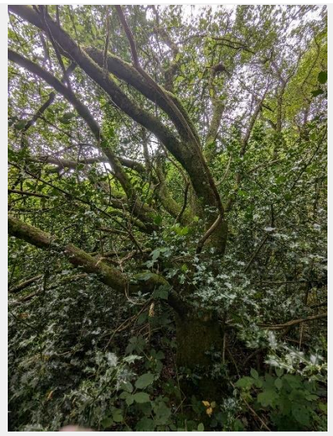
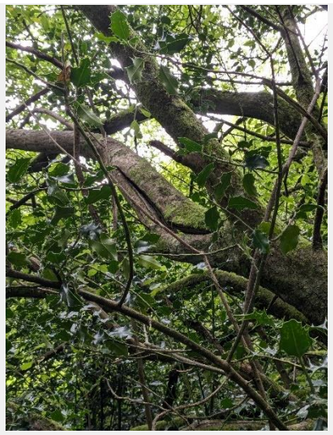
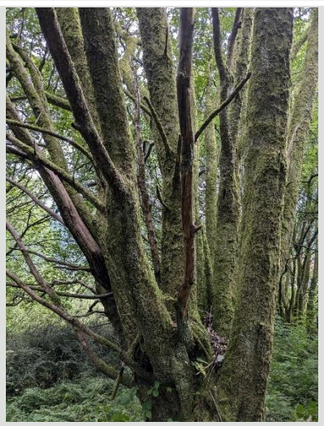
Tree tag	Grid reference	Species	DBH (m)	Stem	PRF	Notes	Photographs
3516	SS 94771 97978	Willow species (*Salix* sp.)	0.25	Multi stemmed	PRF-I	Callus roll / knot hole on the western most limb on southern aspect, large opening 10 x 10 cm hole but can see the back. There is a small gap in left top corner that cannot be fully examined, suitable for a single bat.	 
3520	SS 94766 97940	Willow species (*Salix* sp.)	0.2	Multi stemmed	PRF-I	Feature on eastern most limb, of south orientation. Split is 5 x 18 cm and suitable for a single bat.	 

Tree tag	Grid reference	Species	DBH (m)	Stem	PRF	Notes	Photographs
3521	SS 94773 97948	Willow species (*Salix* sp.)	0.2	Multi stemmed	PRF-I	Feature 1 - multiple splits on eastern most limb, majority of splits are unsuitable. One split appears suitable for single bats – PRF-I. This split is at eastern aspect at 5 m high, feature is 3 x 8 cm. Feature 2 - second split at south aspect, feature is 4 x 14 cm. Multiple splits that can see the back of on southern aspect limb – PRF-I.	  
3523	SS 94775 97942	Willow species (*Salix* sp.)	0.15	Multi stemmed	PRF-I	Ivy covering from base to 5 m high, suitable for individual bat.	 

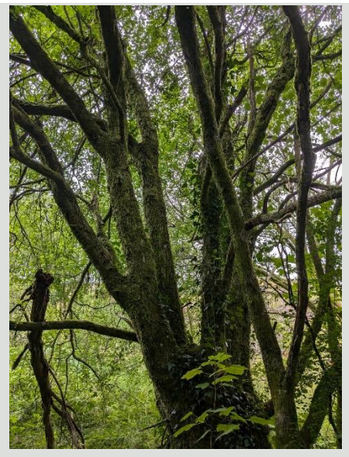
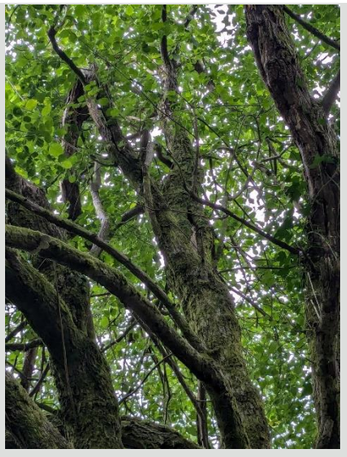
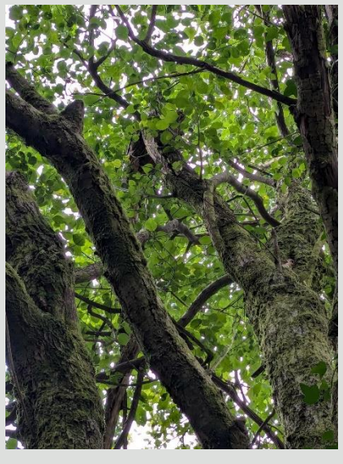
Tree tag	Grid reference	Species	DBH (m)	Stem	PRF	Notes	Photographs
3524	SS 94777 97935	Willow species (*Salix* sp.)	0.25	Multi stemmed	PRF-I	Ivy covering on middle stem from base to 5 m high, suitable for individual bat.	 
3527	SS 94778 97932	Willow species (*Salix* sp.)	0.3	Multi stemmed	PRF-I	Small knot hole feature on southern limb, northern aspect at 4 m high.	 
3530	SS 94821 97960	Willow species (*Salix* sp.)	0.35	Multi stemmed	PRF-I	Thin ivy covering across multiple stems from base to 6 m high.	 

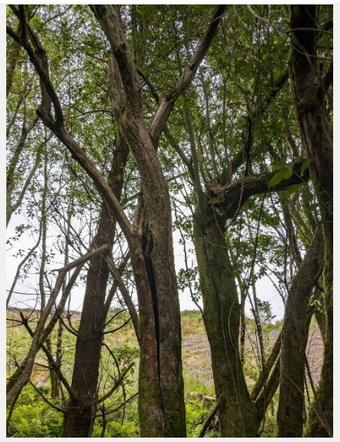
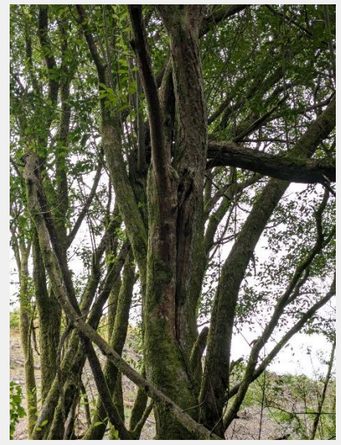
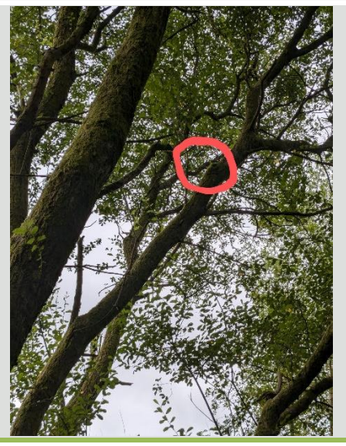
Tree tag	Grid reference	Species	DBH (m)	Stem	PRF	Notes	Photographs
3531	SS 94816 97955	Alder (*Alnus glutinosa*)	0.4	Single stem	PRF-I	Small knot hole 5 x 8 cm on southern aspect of eastern limb.	 
3532	SS 94806 97944	Birch (*Betula* sp.)	0.25	Multi stemmed	PRF-I	Callus roll on eastern aspect of northern limb, feature at 3m high, 4 x 8 cm. Callus roll features starting to form on stem next to original feature.	 
3537	SS 94815 97924	Willow species (*Salix* sp.)	0.5	Single stem	PRF-I	Thin ivy covering on tree, suitable for individual bat.	 

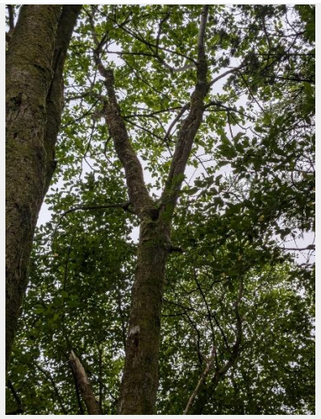
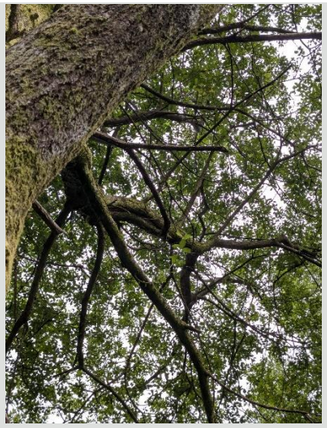
Tree tag	Grid reference	Species	DBH (m)	Stem	PRF	Notes	Photographs
3539	SS 9482097906	Willow species (*Salix* sp.)	0.3	Multi stemmed	PRF-I	Ivy coverage across multiple stems suitable for single bat.	 
3541	SS 94821 97904	Willow species (*Salix* sp.)	0.2	Multi stemmed	PRF-I	Ivy covering on western stem.	 
3545	SS 94844 97905	Alder (*Alnus glutinosa*)	0.35	Multi stemmed	PRF-I	Dense ivy covering on western limb covering up to 6 m.	 

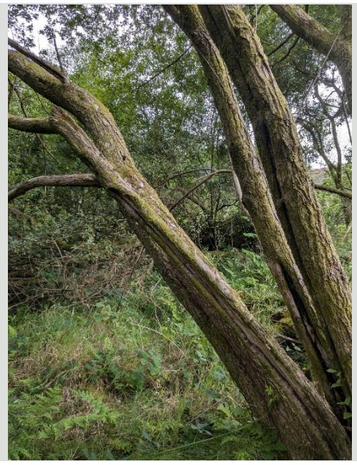
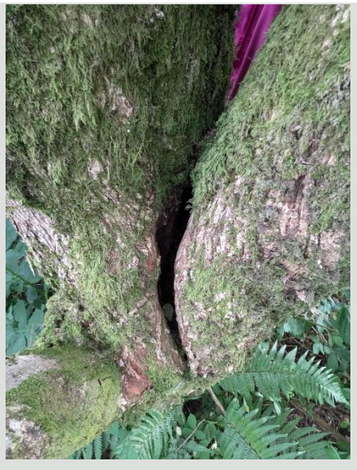
Tree tag	Grid reference	Species	DBH (m)	Stem	PRF	Notes	Photographs
3546	SS 94855 97905	Alder (*Alnus glutinosa*)	0.4	Multi stemmed	PRF-I	Ivy covering up to 3 m of multi stem. Given tree size, ivy covering likely to support individual bats.	 
3555	SS 94721 98047	Willow species (*Salix* sp.)	0.2	Single stem	PRF-I	Split in branch at 1.5 m on the southern side of the tree, access size 1 m x 6cm.	 
3556	SS 94726 98043	Willow species (*Salix* sp.)	1	Multi stemmed	PRF-I	Crevice created by crossed over limbs from the original coppice at approximately 1m. Cavity small in size only able to support individual bats. Facing south east.	 

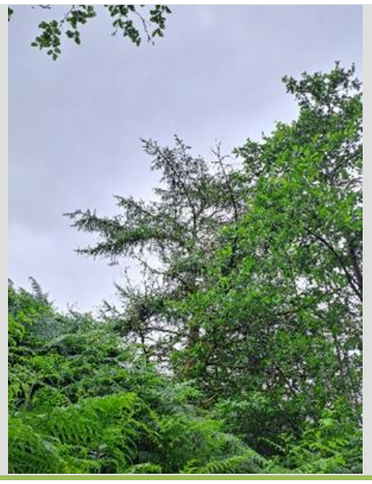
Tree tag	Grid reference	Species	DBH (m)	Stem	PRF	Notes	Photographs
3571	SS 94752 98065	Elder (*Sambucus nigra*)	0.15	Multi stemmed	PRF-I	Hollow elder, trunk cavity 8 cm x 5 cm only suitable for individual bats. Adjacent to group of sycamores.	 
3572	SS 94755 98069	Sycamore (*Acer pseudoplatanus*)	0.2	Multi stemmed	PRF-I	Group of sycamores growing within a stand of cotoneaster, growing out of an old discarded metal pile. Cavities don't appear to offer any shelter, precautionary PRF-I given. Average DBH 20 cm.	
3574	SS 94770 98064	Willow species (*Salix* sp.)	0.45	Multi stemmed	PRF-I	Peeling bark and numerous callous rolls, PRF- I due to small size of cavities present, only suitable for individual bats.	 

Tree tag	Grid reference	Species	DBH (m)	Stem	PRF	Notes	Photographs
							
3575	SS 94762 98070	Willow species (*Salix* sp.)	1	Single stem	PRF-M	Partially dead willow, numerous callous rolls and tear pits in upper canopy. Not safe to climb. 4 Night Vision Aids (NVA) required to survey.	  

Tree tag	Grid reference	Species	DBH (m)	Stem	PRF	Notes	Photographs
3586	SS 94790 98096	Willow species (*Salix* sp.)	0.3	Multi stemmed	PRF-I	Large split facing south 1 m x 10 cm. 1.5 m high, internal cavity small in size, only suitable for individual bats.	  
3587	SS 94785 98105	Willow species (*Salix* sp.)	0.3	Multi stemmed	PRF-I	Upwards facing knot hole facing north west on a south pointing branch.	 

Tree tag	Grid reference	Species	DBH (m)	Stem	PRF	Notes	Photographs
3590	SS 94781 98107	Willow species (*Salix* sp.)	0.25	Multi stemmed	PRF-M	4.5 m high cavity on stem just before the branches fork off, facing north east. Stem appears to be hollow and could potentially support multiple bats. Recommend NVA survey due to height of feature, species, and condition of tree.	 
3591	SS 94801 98107	Willow species (*Salix* sp.)	0.35	Single stem	PRF-I	Callous roll on 4 m high north pointing branch. Unable to see full extent, but branch only small in size. Therefore, only potentially suitable for individual bats.	 
3592	SS 94787 98107	Willow species (*Salix* sp.)	0.2	Dual stem	PRF-M	East facing, basal cavity, 35 cm x 4 cm, unsure of full extent. Has the potential to extend far into the tree so precautionary PRF M given. Ground endoscope recommended.	 

Tree tag	Grid reference	Species	DBH (m)	Stem	PRF	Notes	Photographs
3593	SS 94778 98114	Willow species (*Salix* sp.)	0.25	Multi stemmed	PRF-I	Numerous callous rolls with small cavities leading upwards into the tree.	
3595	SS 94778 98113	Scots pine (*Pinus sylvestris*)	0.25	Single stem	PRF-I	Dead Scots pine with hanging bark and minor cavities.	
3596	SS 94773 98112	Willow species (*Salix* sp.)	0.3	Dual stem	PRF-I	Feature 1 – (No photograph) Crack on north east side 10 cm x 2 cm, looks to extend upwards. Cavity small in size only suitable for individual bats. Feature 2 - South facing cavity in base of tree (approx. 1m high), upwards facing and only suitable for individual bats.	 

Tree tag	Grid reference	Species	DBH (m)	Stem	PRF	Notes	Photographs
3600	SS 94795 98124	Willow species (*Salix* sp.)	0.25	Multi stemmed	PRF-I	Large split going down one of the main stems, only suitable for individual bats. Split runs from base of tree to main branch split (approx. 2.5m), is fresh and hasn't rotted away, so potential cavities will be small in size.	 
Untagged 1	SS 94852 97920	Coniferous / fir	0.45	Single stem	PRF-I	Precautionary PRF-I given as full assessment not possible due to dense vegetation and canopy cover.	

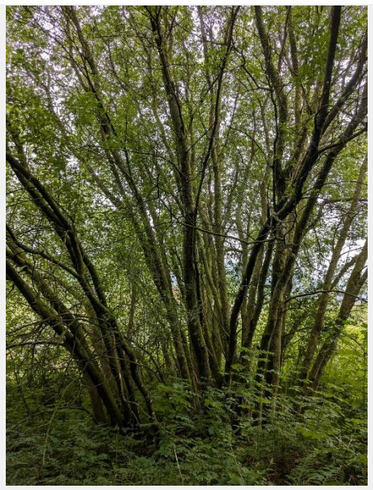
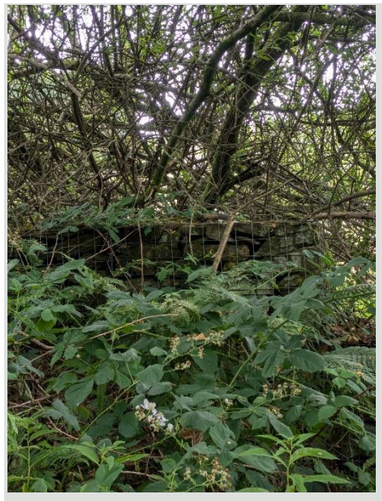
Tree tag	Grid reference	Species	DBH (m)	Stem	PRF	Notes	Photographs
Untagged 2	SS 94725 98047	Willow species (*Salix* sp.)	0.2	Multi stemmed	PRF-I	Multi stemmed willow on the western side of the channel, precautionary PRF-I given as not able to fully assess.	

Table 3-1: Structures identified with suitable features for roosting bats

Structure Reference	Grid Reference	Suitability	Description	Photographs
Structure 1	SS 94778 98111	Low	Gabion cages with rocks in and earth back fill. Crevices observed using torch: majority small in diameter or shallow. Low suitability, could support opportunistic roosting by individual bats. No evidence of bat activity found during torch inspection. Further endoscopic inspection recommended to assess suitability of internal cavities.	 
Structure 2	SS 94769 98100	Low	Gabion cages with rocks in and earth back fill. Crevices observed using torch: majority small in diameter or shallow. Low suitability, could support opportunistic roosting by individual bats. No evidence of bat activity found during torch inspection. Further endoscopic inspection recommended to assess suitability of internal cavities.	

4. Discussion and recommendations

In line with the mitigation hierarchy (Reason & Wray, 2023), the first action for features that have been identified with suitability for roosting bats should be to retain the feature and avoid disturbance wherever possible. Where avoidance of impact is not possible, further survey will be required to establish conclusively the presence/absence of roosting bats.

Should avoidance and protection of suitable features not be possible, and tree works or removal be required, further surveys and/or further measures must take place. These are summarised in Table 4.1. These recommendations are based upon the current assessment and may be updated following additional survey. All recommendations are made following the appropriate guidelines (Collins, 2023; Andrews, 2018; BTHK, 2023).

To reduce possible disturbance of foraging habitat within working areas it is recommended that night working is avoided, and any light sources that have to be used overnight within the Scheme Area should be limited and not directly pointing onto a watercourse and/or surrounding habitat to reduce effects on foraging bats.

The survey assessed those trees identified as potentially being impacted by installation of a drainage system for the coal tip. Of these trees, 35 contained potential roosting features, five of those trees had PRF-M roosting suitability and the other 30 trees had PRF-I roosting suitability. An additional 65 trees were noted as having no suitable features for bats. In addition, two gabion structures were identified along the stream course that were found to have low suitability for roosting bats.

For trees with 'None' roosting suitability, tree works i.e. removal or trimming etc, can proceed without further survey. It is therefore advised, that where tree impact is unavoidable, it is those trees with 'None' roosting suitability that are impacted.

Table 4-1 Ground Level Tree Assessment Recommendations

Tree tag / Structure ID	PRF Suitability	Internal inspection / Nocturnal Presence/Absence Surveys Required	Comments
3503, 3505, 3506, 3507, 3508, 3510, 3512, 3514, 3515, 3517, 3518, 3519, 3522, 3525, 3526, 3528, 3529, 3533, 3534, 3535, 3536, 3538, 3540, 3542, 3543, 3544, 3547, 3548, 3549, 3550, 3551, 3552, 3553, 3554, 3557, 3558, 3559, 3560, 3561, 3562, 3563, 3564, 3565, 3566, 3567, 3568, 3569, 3570, 3573, 3576, 3577, 3578, 3579, 3580, 3581, 3582, 3583, 3584, 3585, 3588, 3589, 3594, 3597, 3598, 3599	None	N/A	No further surveys required. Works can be carried out under standard reasonable avoidance measures.

Tree tag / Structure ID	PRF Suitability	Internal inspection / Nocturnal Presence/Absence Surveys Required	Comments
Untagged 1, 3546, 3545, 3541, 3539, 3537, 3532, 3531, 3530, 3527, 3524, 3523, 3521, 3520, 3516, 3513, 3509, 3600, 3596, 3595, 3593, 3591, 3587, 3586, 3574, 3572, 3571, 3556, 3555, Untagged 2	PRF-I	N/A	PRF-I features present on multiple trees. Any work needed must be carried out under supervision of a suitably qualified ecologist (SQE) and suitable method statement. The suitable method statement must include an inspection / survey of PRF_I features by a SQE before works.
Structure 1, Structure 2	Low	Yes	Low suitability feature present, further surveys would be required to determine bat presence/absence.
3511, 3504, 3592, 3590, 3575	PRF-M	Yes	PRF-M features present, further surveys would be required to determine bat presence/absence.

5. References

Andrews, H. (2018). *Bat Roosts in Trees. A guide to Identification and Assessment for Tree-Care and Ecology Professionals.* Exeter:: Pelagic Publishing.

Binnies UK Ltd. (2024). *Pen yr-Englyn Tip Remediation, Habitat Condition and Flora Survey Report. .* August 2024, Rev P01.

BTHK. (2023). *Bat Tree Habitat Key 2023. Part 2 of 3- Desk-study, Truthing & Close-inspection framework for predicting the likelihood a specific potential bat roost feature (PRF) might be exploited by roosting bats, when and for what purpose.* V1, April 2023. Available from http://battreehabitatkey.co.uk/?page_id=43.

Collins, J. (2023). *Bat Surveys for Professional Ecologists. Good Practice Guidelines. (4th Edition).* London: Bat Conservation Trust.

Reason & Wray. (2023). *UK Bat Mitigation Guidelines: a guide to impact assessment, mitigation and compensation for developments affecting bats.* Ampfield: CIEEM.

APPENDICES

Appendix A: Drawings

Note: The limits, including the height and depths of the Works, shown in this drawing are not to be taken as limiting the obligations of the contractor under Contract.

LEGEND

APPROXIMATE GLTA SURVEY AREA

GLTA RESULTS

TREE SUITABILITY

- NONE
- PRF-I
- PRF-M

INCIDENTAL FINDS

- LOW

SAFETY HEALTH AND ENVIRONMENT INFORMATION
IN ADDITION TO THE HAZARDS OR RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, THE FOLLOWING SIGNIFICANT RESIDUAL RISKS SHOULD BE NOTED. FURTHER DETAILS ARE INCLUDED IN THE CDM DESIGN RISK MANAGEMENT REGISTER
CONSTRUCTION
N/A
MAINTENANCE / CLEARING / OPERATION
N/A
DECOMMISSIONING / DEMOLITION
N/A

Rev	Drawn	Chkd	Rvwd	Apprvd	Date	Description
P02	AP	RL	JW	AH	08/11/2024	FOR INFORMATION
P01	AP	JG	JW	AH	12/09/2024	FOR INFORMATION

Designed by: AP Date: NOVEMBER 2024

Client:

Cyfoeth Naturiol Cymru Natural Resources Wales

Client Drawing No. | Revision

Binnies UK Limited
Registered Office
Spring Lodge, 172 Chester Road, Helsby, Cheshire, WA6 0AR UK
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Project:

PEN YR ENGLYN

Drawing title:

GROUND LEVEL TREE ASSESSMENT RESULTS

Drawing scale: 1:1,500 Sheet size: A3

Drawing no. 4021526-BUK-ZZ-00-DR-EN-00009 | Revision P02

Print Version: Print Quality (300dpi @ A3)

R:\Projects\4021526_Pen_Yr_Englyn_Coal_Tip\4_Workspace\2_Issue\4021526-BUK-ZZ-00-DR-EN-00009.aprx jme29658 05/11/2024

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Appendix B: Full Survey Results

Tree tag	Grid reference	Species	DBH (m)	Stem	Suitability	Field notes
Untagged 1	SS9485297920	Coniferous / fir	0.45	Single	PRF I	Precautionary PRF-I given as full assessment not possible due to dense vegetation and canopy cover.
3547	SS9485197909	Alder (*Alnus glutinosa*)	0.4	Multi stemmed	None	None
3546	SS9485597905	Alder (*Alnus glutinosa*)	0.4	Multi stemmed	PRF I	Ivy covering up to 3 m of multi stem. Given tree size, ivy covering likely to support individual bats.
3545	SS9484497905	Alder (*Alnus glutinosa*)	0.35	Multi stemmed	PRF I	Dense ivy covering on western limb covering up to 6 m.
3544	SS9484797902	Alder (*Alnus glutinosa*)	0.4	Multi stemmed	None	None
3543	SS9483997895	Alder (*Alnus glutinosa*)	0.7	Multi stemmed	None	None
3542	SS9483297902	Willow sp. (*Salix* sp.)	0.4	Multi stemmed	None	None
3541	SS9482197904	Willow sp. (*Salix* sp.)	0.2	Multi stemmed	PRF I	Ivy covering on western stem.
3540	SS9481297910	Alder (*Alnus glutinosa*)	0.25	Single stem	None	None
3539	SS9482097906	Willow sp. (*Salix* sp.)	0.3	Multi stemmed	PRF I	Ivy coverage across multiple stems suitable for single bat.
3538	SS9482497918	Willow sp. (*Salix* sp.)	0.25	Multi stemmed	None	None
3537	SS9481597924	Willow sp. (*Salix* sp.)	0.5	Single stem	PRF I	Thin ivy covering on tree, suitable for individual bat.

Tree tag	Grid reference	Species	DBH (m)	Stem	Suitability	Field notes
3536	SS9480697921	Silver birch (*Betula pendula*)	0.3	Multi stemmed	None	None
3535	SS9480497921	Birch (*Betula* sp.)	0.25	Multi stemmed	None	None
3534	SS9480697936	Birch (*Betula* sp.)	0.35	Single	None	None
3533	SS9481097945	Birch (*Betula* sp.)	0.4	Single stem	None	None
3532	SS9480697944	Birch (*Betula* sp.)	0.25	Multi stemmed	PRF I	Callus roll on eastern aspect of northern limb, feature at 3m high, 4 x 8 cm. Callus roll features starting to form on stem next to original feature.
3531	SS9481697955	Alder (*Alnus glutinosa*)	0.4	Single stem	PRF I	Small knot hole 5 x 8 cm on southern aspect of eastern limb.
3530	SS9482197960	Willow sp. (*Salix* sp.)	0.35	Multi stemmed	PRF I	Thin ivy covering across multiple stems from base to 6 m high.
3529	SS9479397947	Birch (*Betula* sp.)	0.35	Single stem	None	None
3528	SS9479697933	Birch (*Betula* sp.)	0.3	Multi stemmed	None	None
3527	SS9477897932	Willow sp. (*Salix* sp.)	0.3	Multi stemmed	PRF I	Small knot hole feature on southern limb, northern aspect at 4 m high.
3526	SS9478897946	Willow sp. (*Salix* sp.)	0.25	Multi stemmed	None	None
3525	SS9478697948	Birch (*Betula* sp.)	0.25	Single	None	None
3524	SS9477797935	Willow sp. (*Salix* sp.)	0.25	Multi stemmed	PRF I	Ivy covering on middle stem from base to 5 m high, suitable for individual bat.
3523	SS9477597942	Willow sp. (*Salix* sp.)	0.15	Multi stemmed	PRF I	Ivy covering from base to 5 m high, suitable for individual bat.
3522	SS9478397969	Willow sp. (*Salix* sp.)	0.25	Multi stemmed	None	None

Tree tag	Grid reference	Species	DBH (m)	Stem	Suitability	Field notes
3521	SS9477397948	Willow sp. (*Salix* sp.)	0.2	Multi stemmed	PRF I	Feature 1 - multiple splits on eastern most limb, majority of splits are unsuitable. One split appears suitable for single bats – PRF-I. This split is at eastern aspect at 5 m high, feature is 3 x 8 cm. Feature 2 - second split at south aspect, feature is 4 x 14 cm. Multiple splits that can see the back of on southern aspect limb – PRF-I.
3520	SS9476697940	Willow sp. (*Salix* sp.)	0.2	Multi stemmed	PRF I	Feature on eastern most limb, of south orientation. Split is 5 x 18 cm and suitable for a single bat.
3519	SS9478397961	Birch (*Betula* sp.)	0.3	Single	None	None
3518	SS9478097965	Birch (*Betula* sp.)	0.35	Single	None	None
3517	SS9477997974	Willow sp. (*Salix* sp.)	0.35	Multi stemmed	None	None
3516	SS9477197978	Willow sp. (*Salix* sp.)	0.25	Multi stemmed	PRF I	Callus roll / knot hole on the western most limb on southern aspect, large opening 10 x 10 cm hole but can see the back. There is a small gap in left top corner that cannot be fully examined, suitable for a single bat.
3515	SS9476697973	Willow sp. (*Salix* sp.)	0.3	Multi stemmed	None	None
3514	SS9477197965	Willow sp. (*Salix* sp.)	0.3	Multi stemmed	None	None
3513	SS9476597949	Willow sp. (*Salix* sp.)	0.2	Multi stemmed	PRF I	Ivy covering on western most limb, full assessment not possible, PRF I given as caution
3512	SS9475997962	Willow sp. (*Salix* sp.)	0.4	Multi stemmed	None	None

Tree tag	Grid reference	Species	DBH (m)	Stem	Suitability	Field notes
3511	SS9475397971	Goat Willow (*Salix caprea*)	0.4	Multi stemmed	PRF M	Feature 1 – main split on southern limb - PRF-M; snap runs through limb and is present on north side of limb as well. Feature 2 - split in base on eastern limb, north west orientation, 70 cm x 5 cm - PRF I. Feature 3 - small hole at top of split on south west limb, north orientation. Hole is 5 x 4 cm. Split has been internally assessed and has no suitability – None suitability.
3510	SS9474897969	Birch (*Betula* sp.)	0.25	Single	None	None
3509	SS9476097977	Willow sp. (*Salix* sp.)	0.3	Multi stemmed	PRF I	PRF I - hole on north limb south aspect, feature 4 x 3cm
3508	SS9476497981	Sycamore (*Acer pseudoplatanus*)	0.35	Multi stemmed	None	None
3507	SS9479897977	Willow sp. (*Salix* sp.)	0.45	Multi stemmed	None	None
3506	SS9483197931	Alder (*Alnus glutinosa*)	0.6	Multi stemmed	None	None
3505	SS9483097926	Rowan (*Sorbus acuparia*)	0.3	Single	None	None
3504	SS9483197918	Birch (*Betula* sp.)	0.4	Multi stemmed	PRF M	PRF- M Feature at 1 m, facing north east. 15 x 4 cm. Opening which appears to extend south into trunk. Ground endoscope survey would be required. Full survey of tree not possible due to safety issues.
3503	SS9486397923	Rowan (*Sorbus acuparia*)	0.3	Multi stemmed	None	None

Tree tag	Grid reference	Species	DBH (m)	Stem	Suitability	Field notes
3600	SS9479598124	Willow sp. (*Salix* sp.)	0.25	Multi stemmed	PRF I	Large split going down one of the main stems, only suitable for individual bats. Split runs from base of tree to main branch split (approx. 2.5m), is fresh and hasn't rotted away, so potential cavities will be small in size.
3599	SS9478098143	Silver birch (*Betula pendula*)	0.3		None	None
3598	SS9477898142	Willow sp. (*Salix* sp.)	0.25	Multi stemmed	None	None
3597	SS9477498119	Scots pine (*Pinus sylvestris*)	0.25		None	None
3596	SS9477398112	Willow sp. (*Salix* sp.)	0.3		PRF I	Feature 1 – (No photograph) Crack on north east side 10 cm x 2 cm, looks to extend upwards. Cavity small in size only suitable for individual bats. Feature 2 - South facing cavity in base of tree (approx. 1m high), upwards facing and only suitable for individual bats.
3595	SS9477898113	Scots pine (*Pinus sylvestris*)	0.25		PRF I	Dead Scots pine with hanging bark and minor cavities.
Structure 1	SS9477898111	N/A	N/A	N/A	Low	Gabion cages with rocks in and earth back fill. Crevices observed using torch: majority small in diameter or shallow. Low suitability, could support opportunistic roosting by individual bats. No evidence of bat activity found during torch inspection. Further endoscopic inspection recommended to assess suitability of internal cavities.

Tree tag	Grid reference	Species	DBH (m)	Stem	Suitability	Field notes
3594	SS9477798109	Scots pine (*Pinus sylvestris*)	0.3		None	None
3593	SS9477898114	Willow sp. (*Salix* sp.)	0.25	Multi stemmed	PRF I	Numerous callous rolls with small cavities leading upwards into the tree.
3592	SS9478798107	Willow sp. (*Salix* sp.)	0.2	Dual stem	PRF M	East facing, basal cavity, 35 cm x 4 cm, unsure of full extent. Has the potential to extend far into the tree so precautionary PRF M given. Ground endoscope recommended.
3591	SS9480198107	Willow sp. (*Salix* sp.)	0.35		PRF I	Callous roll on 4 m high north pointing branch. Unable to see full extent, but branch only small in size. Therefore, only potentially suitable for individual bats.
3590	SS9478198107	Willow sp. (*Salix* sp.)	0.25	Multi stemmed	PRF M	4.5 m high cavity on stem just before the branches fork off, facing north east. Stem appears to be hollow and could potentially support multiple bats. Recommend NVA survey due to height of feature, species, and condition of tree.
3589	SS9478898100	Pine (*Pinus* sp.)	0.3		None	None
3588	SS9479198088	Willow sp. (*Salix* sp.)	0.3		None	None
3587	SS9478598105	Willow sp. (*Salix* sp.)	0.3	Multi stemmed	PRF I	Upwards facing knot hole facing north west on a south pointing branch.
3586	SS9479098096	Willow sp. (*Salix* sp.)	0.3	Multi stemmed	PRF I	Large split facing south 1 m x 10 cm. 1.5 m high, internal cavity small in size, only suitable for individual bats.
3585	SS9478798100	Willow sp. (*Salix* sp.)	0.25		None	None
3584	SS9477998102	Willow sp. (*Salix* sp.)	0.2	Multi stemmed	None	None

Tree tag	Grid reference	Species	DBH (m)	Stem	Suitability	Field notes
3583	SS9478498092	Willow sp. (*Salix* sp.)	0.25	Multi stemmed	None	None
3582	SS9477798085	Larch (*Larix decidua*)	0.35		None	None
Structure 2	SS9476998100	N/A	N/A	N/A	Low	Gabion cages with rocks in and earth back fill. Crevices observed using torch: majority small in diameter or shallow. Low suitability, could support opportunistic roosting by individual bats. No evidence of bat activity found during torch inspection. Further endoscopic inspection recommended to assess suitability of internal cavities.
3581	SS9477598092	Willow sp. (*Salix* sp.)	0.2	Multi stemmed	None	None
3580	SS9475698086	Scots pine (*Pinus sylvestris*)	0.35	Dual stem	None	None
3579	SS9476598084	Scots pine (*Pinus sylvestris*)	0.45		None	None
3578	SS9476298086	Scots pine (*Pinus sylvestris*)	0.35	Dual stem	None	None
3577	SS9475898082	Willow sp. (*Salix* sp.)	0.25	Multi stemmed	None	None
3576	SS9475598067	Willow sp. (*Salix* sp.)	0.3	Dual stem	None	None
3575	SS9476298070	Willow sp. (*Salix* sp.)	1		PRF M	Partially dead willow, numerous callous rolls and tear pits in upper canopy. Not safe to climb.

Tree tag	Grid reference	Species	DBH (m)	Stem	Suitability	Field notes
						4 Night Vision Aids (NVA) required to survey.
3574	SS9477098064	Willow sp. (*Salix* sp.)	0.45	Multi stemmed	PRF I	Peeling bark and numerous callous rolls, PRF- I due to small size of cavities present, only suitable for individual bats.
3573	SS9477598056	Willow sp. (*Salix* sp.)	0.3	Dual stem	None	None. Split in western limb however no cavity suitable for bats is present.
3572	SS9475598069	Sycamore (*Acer pseudoplatanus*)	0.2		PRF I	Group of sycamores growing within a stand of cotoneaster, growing out of an old discarded metal pile. Cavities don't appear to offer any shelter, precautionary PRF-I given. Average DBH 20 cm.
3571	SS9475298065	Elder (*Sambucus nigra*)	0.15		PRF I	Hollow elder, trunk cavity 8 cm x 5 cm only suitable for individual bats. Adjacent to group of sycamores.
3570	SS9474998065	Sycamore (*Acer pseudoplatanus*)	0.35		None	None
3569	SS9474898065	Willow sp. (*Salix* sp.)	0.4		None	None
3568	SS9474398064	Willow sp. (*Salix* sp.)	0.25		None	None
3567	SS9475398057	Willow sp. (*Salix* sp.)	0.25		None	None
3566	SS9475798038	Willow sp. (*Salix* sp.)	0.25		None	None
3565	SS9475498040	Willow sp. (*Salix* sp.)	0.25	Multi stemmed	None	None
3564	SS9474998033	Willow sp. (*Salix* sp.)	0.4		None	None, has a split but doesn't lead anywhere
3563	SS9474298028	Willow sp. (*Salix* sp.)	0.25	Multi stemmed	None	None, has a split but upwards facing and open, not able to support roosting bats.

Tree tag	Grid reference	Species	DBH (m)	Stem	Suitability	Field notes
3562	SS9471998029	Willow sp. (*Salix* sp.)	0.3	Multi stemmed	None	None
3561	SS9472398027	Willow sp. (*Salix* sp.)	0.2	Multi stemmed	None	None, tree within channel.
3560	SS9472998022	Willow sp. (*Salix* sp.)	0.25	Multi stemmed	None	None, located next to the channel.
3559	SS9472598030	Dead tree	0.25		None	None
3558	SS9472898034	Willow sp. (*Salix* sp.)	0.5		None	None
3557	SS9472498038	Willow sp. (*Salix* sp.)	0.25		None	None
3556	SS9472698043	Willow sp. (*Salix* sp.)	1	Multi stemmed	PRF I	Crevice created by crossed over limbs from the original coppice at approx 1m. Cavity small in size only able to support individual bats. Facing south east.
3555	SS9472198047	Willow sp. (*Salix* sp.)	0.2		PRF I	PRF I split in branch at 1.5 m on the Split in branch at 1.5 m on the southern side of the tree, access size 1 m x 6cm.
Untagged 2	SS9472598047	Willow sp. (*Salix* sp.)	0.2	Multi stemmed	PRF I	Multi stemmed willow on the western side of the channel, precautionary PRF-I given as not able to fully assess.
3554	SS9472898048	Willow sp. (*Salix* sp.)	0.4	Multi stemmed	None	None
3553	SS9474098046	Willow sp. (*Salix* sp.)	0.4		None	None
3552	SS9474198063	Willow sp. (*Salix* sp.)	0.5		None	None
3551	SS9474598062	Willow sp. (*Salix* sp.)	0.4		None	None
3550	SS9474398072	Willow sp. (*Salix* sp.)	0.25		None	None, tree located approximately 5m to the west of the channel.

Tree tag	Grid reference	Species	DBH (m)	Stem	Suitability	Field notes
3549	SS9473598076	Willow sp. (*Salix* sp.)	0.35		None	None, tree located approximately 5m to the west of the channel.
3548	SS9473898078	Willow sp. (*Salix* sp.)	0.25	Multi stemmed	None	None, tree located approximately 3m to the west of the channel.

Appendix C: Relevant Legislation

Note that the details provided in this appendix are for general guidance only and should not be relied upon as a definitive statement of the law. Only legislation applicable to this scheme is provided here.

(a) Legislation Afforded to Species

Legislation Overview

The EC Habitats Directive requires Member States to take measures to maintain or restore wild species listed on the Annexes to the Directive at a favourable conservation status, introducing robust protection for those species of European importance. The Directive was transposed into English and Welsh law (up to the seaward limits of territorial seas) by **The Conservation of Habitats and Species Regulations 2017 (Habitats Regulations)**.

When the United Kingdom left the European Union, the Habitats Regulations were amended by the Conservation of Habitats and Species Regulations (Amendment) (EU Exit) Regulations 2019. These amendment regulations transferred functions from the European Commission to English and Welsh government, but retained the levels of protection to the identified species of European importance.

The following notes are relevant for all species protected under the Habitats Regulations 2017 (as amended):

- The term 'deliberate' is interpreted as being somewhat wider than 'intentional' and may be thought of as including an element of recklessness. The Habitats Regulations do not define the act of 'migration' and, therefore, as a precaution, it is recommended that short distance movement of animals for e.g. foraging, breeding or dispersal purposes are also considered.
- In order to obtain a European Protected Species Mitigation licence, the application must demonstrate that it meets all of the following three 'tests':
    - the action(s) are necessary for the purpose of preserving public health or safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequence of primary importance for the environment;
    - there is no satisfactory alternative; and
    - the action authorised will not be detrimental to the maintenance of the species concerned at a favourable conservation status in their natural range.

The Wildlife and Countryside Act 1981 (as amended) is the principal mechanism for the legislative protection of wildlife in Great Britain. It does not extend to Northern Ireland, the Channel Islands or the Isle of Man. This legislation is the means by which the Convention on the Conservation of European Wildlife and Natural Habitats (the 'Bern Convention') is enacted in Great Britain, and was also how the provisions of the European Union Directive on the Conservation of Wild Birds (79/409/EEC) were originally enacted in Great Britain.

The Wildlife and Countryside Act 1981 (as amended) has been subject to a number of amendments, the most important of which are through the Natural Environment & Rural Communities (NERC) Act 2006 and the Countryside and Rights of Way (CRoW) Act (2000).

Wild Mammals (Protection Act) 1996 All wild mammals are protected against intentional acts of cruelty under the above legislation. This makes it an offence to mutilate, kick, beat, nail or

otherwise impale, stab, burn, stone, crush, drown, drag or asphyxiate any wild mammal with intent to inflict unnecessary suffering.

To avoid possible contravention, due care and attention should be taken when carrying out works (for example operations near burrows or nests) with the potential to affect any wild mammal in this way, regardless of whether they are legally protected through other conservation legislation or not.

Bats

All species are fully protected under the Habitats Regulations 2017 (as amended) as they are listed on Schedule 2 which prohibits:

- Deliberate killing, injuring or capturing of Schedule 2 species (e.g. all bats);
- Deliberate disturbance of bat species as:
    - to impair their ability:
        - to survive, breed, or reproduce, or to rear or nurture young; or
        - to hibernate or migrate.
    - to affect significantly the local distribution or abundance of the species.
- Damage or destruction of a breeding site or resting place; or
- Keeping, transporting, selling, exchanging or offering for sale whether live or dead or of any part thereof.

Bats are afforded the following additional protection through the Wildlife Countryside Act 1981 (as amended) as they are included on Schedule 5:

- Intentional or reckless disturbance (at any level);
- Intentional or reckless obstruction of access to any place of shelter or protection; or
- Selling, offering or exposing for sale, possession or transporting for purpose of sale.

Effects of legislation on the Proposed Scheme

A European Protected Species Mitigation (EPSM) Licence issued by Natural Resources Wales will be required for any works liable to affect a bat roost or for operations likely to result in a level of disturbance which might impair their ability to undertake those activities mentioned above (e.g. survive, breed, and rear young). The licence is to allow derogation from the relevant legislation but also to enable appropriate mitigation measures to be put in place and their efficacy to be monitored.