

Appendix B: The impact of the development on bats.

It is considered in the ES for the outline planning application 06/02880/EOUT that the effect of the proposed refurbishment work of and subsequent re-use of the Brunel shed will cause the loss of a temporary night roost or feeding resource will result in a significant adverse effect in the medium to long term in a Local context (ES, 6.6.105). It is further considered in the ES that the populations of the SACs will not be significantly affected by the proposals. This applies to greater horseshoe bats, which are found at both connected SACs. **Although the applicants consider the roost to be lost to be a night roost only for greater horseshoe bat, there is no evidence to suggest that this roost could not be a day roost.** If it is being used as such, not only will it be a more important roost, but the forage resource provided by the site and accessibility to the compensation areas could also be more important. The presence of greater horseshoe bats in 2005 in Victoria Hall, adjacent to the site, has been assumed by the applicants from the tentative identification of droppings thought to be from that season, and the applicants have approached the application on the basis that it is a Greater horseshoe bat roost. If the droppings are from another species, the loss of the Brunel shed roost will be the loss of the only roost known in the vicinity. This has not been assumed.

The applicants also accept that there will be a significant indirect adverse effect in a County context to greater horseshoe bats through disturbance of the commuting routes and removal of potential foraging habitat. The site is a rich invertebrate resource for forage, including at times when dung beetles are less available (6.6.108). The application documents say that upward light spillage of column lighting (of unspecified strength) is 'minimised' and lighting is to be directed away from Kilmersdon Brook. The light designs in the Design Code which are to be used do not prevent spill outward, however, particularly those column lights with a railway design theme. I would assume that this design will be used in the Kilmersdon Brook corridor to complement the railway heritage features to be preserved in that location. **This lighting is unacceptable for Greater Horseshoe bat and Brown Long-eared bat. This is likely to render the off-site compensation area towards Frome, which connects to the Mells Valley SAC, inaccessible to greater horseshoe bats using the Victoria Hall roost.** There has been no light fall mapping or analysis of the strength and effect of lighting on light-sensitive species. It seems unlikely that the lighting in the Kilmersdon Brook corridor (running from Victoria Hall adjacent to the site in the north to the site exit in the south) could be replaced by very low elevation and low strength lighting (bollard lights, cats-eye style lights) given that the Design Code specifies column lighting and given that it lights an access road and National Cycle Network route through a new urban area, public spaces, and private car parking spaces. The importance of the link between the SACs and impact of the development upon it is explored in Appendix A.

The applicants propose mitigation for bats in the form of strengthened planting in the Kilmersdon Brook corridor itself, the retention of dense scrub along the cutting on the opposite side of the site to the Brook corridor (alternative commuting route), and additional planting adjacent to Rymans engineering (alternative route). The alternative route extends down the length of the site. There is presently scrub on the narrow track bed that is near to both the Kilmerson Brook corridor and the opposite corridor (this is not apparent in the overhead view supplied by the applicants, as the scrub has grown substantially since this photograph was taken). This will be removed. The alternative route has gaps in its scrub. One of these gaps is at the top of the cutting and the other is beyond the site exit.

There is a conflict with management of the scrub at the top of the cutting for invertebrates (in respect of which the site is given a high nature conservation value). **I note that application drawing 2138LO/REG.19/04¹ illustrates the view from the top of the cutting, where it is clear that scrub at the top of the cutting has been removed or cut back to near ground level. This would be likely to render the route unsuitable for use by Greater Horseshoe bats and any other species unwilling to cross gaps over a certain length.**

The top of the cutting is a nesting place for rare bees and their cleptoparasites. I have also observed nesting bees and found cleptoparasites patrolling the area at the extreme base of the field above the cutting, particularly in the area where people enter the site over the style, which has suitable bare soil in a sunny location. So it is important that this area remains as unshaded as possible. There is presently a significant gap of about 16m with two smallish hawthorns in it. I would expect management of the scrub in this location to entail periodically cutting the hawthorn down or back and preventing further scrub from taking hold at the top of the slope. This would sever the commuting route for some or all Greater Horseshoe bats using the site. On page 22 of English Nature Research Report 403, Radio tracking study of greater horseshoe bats at Mells, near Frome, Somerset, there are sections on urbanisation and roads, where it is stated that changes can make roosts unsuitable, damage flight route continuity and cause loss of foraging habitat. It states that Greater Horseshoe bats cross habitat gaps of up to 12m and that a Cheddar study found that a 15m gap was crossed, but

1 Please note that the perspective in this drawing, *View towards Brunel shed along proposed access road*, is wildly inaccurate. The area to be retained is nowhere near as wide as the size of the figures in the drawing would suggest.

that the widest gap-crossing places only occurred where there were trees or substantial hedgerows on either side. If it is intended to let the scrub grow, then I would anticipate that it could be, or could become in time, large enough to allow crossing the gap. However, I am unclear as to how substantial it would have to be to be viewed as a suitable bridge by Greater Horseshoe bats. I understand that the readiness to cross gaps is variable, with some individuals and family groups being more inclined than others to cross gaps. To establish whether or not greater horseshoe bats that use this site are presently using the alternative route, radio-tracking or extensive surveying would be needed. As the ES for the planning application intends that the route is strengthened in order to make it suitable for bats, it may not be unsafe to assume that it is presently unsuitable along its entire length for all species, particularly Greater Horseshoe. The implication would be that the bats were using the Kilmersdon Brook corridor to access the southern end of the site.

It has not been shown that lighting levels will be sufficiently low along the length of the alternative route to the Kilmersdon Brook route to accommodate Greater Horseshoe and Brown Long-eared bats. Lights on the the access road through the linear site will be directed away from the Kilmersdon Brook corridor and, therefore, towards the alternative route. There is no mapping of light fall or indication of lighting strength and no mention of the tolerance levels of the bats in question. Private residential dwellings are placed in close proximity to both routes, so even if street lighting was not considered to form a barrier to the use of the corridors, no control can be placed upon domestic lighting, including security lighting, without restrictive covenants. There is no guarantee that such covenants, even if legal, could or would be adequately policed. No covenants have been required in the S 106 and the conditions in the Delegated Report specify general compliance with the Design Code, which shows the lighting designs. Further, the scheme was acknowledged to be on a financial knife-edge in the viability report and the case officer pointed out to the committee that further costs or losses in revenue could not be borne and that any further enhancements to the scheme would be likely to result in a reduction in funds available for dealing with ecological issues. Covenants are likely to reduce revenue. It is unlikely that the LPA could insist on further significant cost to the developer, as it had already accepted that the final outcome would be constrained by financial viability issues.

The impact on the alternative route for bats of lighting from the adjacent Rymans Engineering site does not appear to have been addressed. No light fall mapping has been provided or other indication of the present light levels or of any future light levels. The additional proposed planting adjacent to Rymans Engineering does not look to be sufficient to ensure low enough light levels in this corridor now or in perpetuity (but this is dependent on the level of light from the development, which has not been established. It seems unlikely that the light levels would be low enough . At the point where the Kilmersdon Brook/Snails Brook waterway lies adjacent to the site (between the site and Rymans), the areas has comprised until now not just a river corridor, but also an extensive area of scrub and trees. Lights from the new residential area that replaces it could be a problem for light-sensitive species. The Reserved matters application for Area 2 (the first to be developed) addresses lighting to a limited degree only. The development constraints and opportunities document makes it clear that in order to create a secure urban environment, that spaces will be 'policed' by means of surveillance. This is to be achieved through a combination of measures - balconies on the southern sides of buildings facing into courtyards; parking courts well overlooked; flat entrances both onto the street and at the rear; and "overlooked and well lit" routes for pedestrians and cyclists. External lighting on buildings is to be through compact fluorescent lamps.

The Development Opportunities and Constraints document in application 08/02332/RES says that private footpath and Mews areas towards the outer edge of the development offer the potential for low-level and bollard lighting or lights fixed to buildings to reduce light pollution to the adjacent countryside. Nevertheless, the intention is to create a well lit urban public realm safe for pedestrians and there is no supporting evidence to suggest that the efforts to reduce light pollution would be sufficient to satisfy the requirements of light-sensitive bats. Nowhere in either application is it claimed that lighting will be sufficiently low for Greater Horseshoe or Brown Long-eared Bat and the impact on Lesser Horseshoe bat has not been examined. I do not think that the issue of the particular light sensitivity of these species is specifically addressed. The closest the analysis gets is the assumption that reduced light spill will be sufficient, but this is not backed up by any information or analysis. There are drawings showing indicative positions of column lights (figs 43 and 55 of the Design Code), which includes column lighting on the access road directed toward the alternative commuting route (figure 43) and within the treed corridor within the 'Kilmersdon Brook route' (the route from the direction of Victoria Hall towards and along Kilmersdon Brook).

In addition to the lack of information on cast light and luminosity, there is no indication for the triangular area of Area 2 of the height and density of the area of scrub and trees protecting the brook corridor or the height of the proposed new hedge. The new buildings will be three storey buildings with external lighting and possibly balconies and their ground level will be well above the deep channel of the waterway. Any gain from mitigatory planting and management could be offset by the height of the 3-storey buildings in Area 2 due to spill of residential lighting from the upper floors of buildings and from lighting on building entrances. The difference in elevation may cause an unacceptable degree of light to be cast upon the commuting corridor. No drawings have been provided that would show how light from buildings will affect the river corridor and there is no analysis to show the effect on light-sensitive bats. It is difficult to

see how a dimly lit public realm in the triangular area of Area 2 would comply with the developers' intention to provide a well lit and safe public realm. I submit that, as in other ecological areas, the applicants are relying on assumptions and optimism when they claim that mitigatory measures regarding bats will be both effective and beneficial.

The conditions of the development include that it must be generally in accordance with the Design Code to ensure that it accords with the approved development (the outline was accompanied by much detail). The style of street and public realm lighting is specified in the Design Code. It is clearly unsuitable regarding the needs of Greater Horseshoe and Brown Long-eared bats. I note that, although development control can make specifications regarding the proposed lighting within the limitations imposed through the agreed conditions, there is no control that can be imposed upon residents in private accommodation, except by means of covenants, which are unlikely, may not be lawful, and are probably unenforceable, given that safety and security issues would come into play. No details of light strength (lux) or extent of light fall are given in the reserved matters application or the outline application.

Mitigation measures beyond the site exit in the south include taking back scrub by 5m and removing a proportion of bramble. They are designed to accommodate reptiles and invertebrates through provision of hibernacula and grassland. Scrub on the southern side of the cycle path is removed to make way for development or scalloped. The trackbed area must also, in addition, accommodate the cycle path. There could be a problem with the continuity of the route at this point if it is not ensured that construction and management works do not maintain a sufficiently small gap between areas of mature scrub on either side of the compensation area adjacent to the development site. Although the applicants' drawings accompanying the Mitigation, Management and Compensation plan with the S 106 show continuous dense scrub on the northern side, their definition of scrub includes bramble patches, which do not produce the high hedge effect required by bats. It should be noted that the long 'sausage' of trees on the cutting (north east edge of site) showed on the applicants' drawings does not exist.

The lighting levels will not be low enough for Greater Horseshoe and other light sensitive bats in the Kilmersdon Brook corridor. It is not clear that management of the alternative commuting route to that corridor will establish a route with sufficient scrub and tree cover for use by the Greater Horseshoe bats. The substantial scrub on the track bed that presently links the two routes will be removed. The alternative route will not be accessible by light-sensitive species entering the site from the roosts in Victoria Hall or from the northern section of the Kilmersdon Brook corridor (and areas linked to it) due to a combination of lighting, built area, and consequent removal of scrub on the development site. Compliance with the outline consent only requires that light pollution is reduced to an unspecified level and that lighting is generally in accordance with the Design Code. The look of the development and safe and secure public movement is an integral part of the case for regeneration approved by the committee. If the lighting is low enough for Greater Horseshoe bat and Brown Long-eared bat, it is highly likely that it will fail to provide the safe and secure urban environment approved by the planning committee. Although it might be possible that the breaks in the physical linkage of the alternative route between the SACs towards Frome (scrub) can be overcome through specific management prescriptions, it is accepted that the roost in the Brunel shed used by Greater Horseshoe bats (and possibly other species) will be lost. Further, lighting may prove an insurmountable barrier to adequate linkage between SACs through either the Kilmersdon Brook commuting route or the alternative route and also to the use of a retained roost. There is a real danger that the commuter route through this site between the two SACs will not continue to be used by Greater Horseshoe bats.

The applicants have not assessed use of the site by bats from local greater horseshoe bat roosts (within a few kilometres of the site, at Ammerdown and at Camerton) by radio-tracking. The loss of roosts due to the development and the adverse effect on greater horseshoe bat (which the applicants described as significant) could conceivably affect the favourable conservation status of bats. I suggest that the effect on local populations of Greater Horseshoe bat and any effect on the SACs was not established and that the magnitude of the adverse effect may be understated due to an incorrect assumption on the part of the applicants that the mitigation suggested would be effective.

There is a maternity roost of brown long-eared bats in the Hall adjacent to the site (Victoria Hall). This species is particularly light-sensitive and will be adversely affected by light in the Kilmersdon Brook corridor. Upward light spillage of column lighting of unspecified strength is 'minimised' and the applicants plan to direct lighting away from Kilmersdon Brook, but the designs in the Design Code which are to be used do not prevent spill outward in all directions - this is completely unacceptable for brown long-eared bat and will prevent this species from using the Kilmersdon Brook corridor. The applicants proposed mitigation includes retaining a scrub line on the opposite side of the site and linking this via additional planting adjacent to Ryman's engineering, but there is no means of access for light sensitive species to this alternative route from Victoria Hall or the northern part of the Kilmersdon Brook corridor, so access to this significant forage resource will be lost to the maternity roost. It is claimed that retention of some on-site areas and restoration of off-site areas will compensate for the loss of forage on the site. This is debatable at best, but even were the off-site improvements considered to compensate, this role would depend on accessibility to the off-site areas. The access to both of these areas can presently be effected through the site, but light will sever this connection for Brown long-eared bats after development. This is particularly important regarding forage for Brown long-eared bats

from the maternity roost. This species has a known range from summer breeding roosts of only 1.5 km, so good access to forage near to the roost will be important to the continued viability of that roost. The development site itself extends to over 500 m from Victoria Hall, so the site alone represents an important part of the foraging area available. Further, if the juveniles have a smaller range than the adults, the forage on the site itself could be of vital importance to them. I have no information on the range of juvenile Brown long-eared bats, but juvenile greater horseshoe bats have a range of only 1 km compared to the adult range of 14 km. The Radstock Railway Land site is known to be a very rich invertebrate site, providing a high quality resource. The number of species of bat recorded is high and territorial behaviour has been recorded. These would appear to be indicative of the quality of the site. The loss of existing connectivity to the compensation sites could remove an important resource for migration and genetic exchange. Brown Long-eared bat is known to use the off-site compensation route from Radstock to Shoscombe for winter roosting². Lack of adequate access to winter roosts in the vicinity could be detrimental to maintaining favourable conservation status and could cause deterioration of the current roost. The provision of nest boxes in Kilmersdon Brook corridor will not compensate for loss of connectivity. **The developers' claim of benefit for Brown Long-eared bat regarding foraging would appear to be no more than an optimistic assumption. Lighting could prove a barrier to movement that denies access to current foraging areas, including in the on and off-site mitigation and compensation areas, and affects the long term viability of the maternity roost and the population of these bats in an area in which they are rare.**

Brown Long-eared bat will potentially be adversely affected by any additional lighting in the vicinity of its roost. Buildings adjacent to the Hall will be blocks of commercial space and apartments with access to front and rear and with ample private and public open parking spaces provided to the rear of them and Victoria Hall. There is presently a car park adjacent to Victoria Hall lit by one light which is directed downward and surrounded by the vegetation of a substantial mature tree. Ideally the light (which is on the applicants' land) would be changed for one at a lower elevation and lower strength, but the form of lighting appears to be related to safety, to allow CCTV surveillance. That said, the tree canopy after development would be subject to the lights from residential properties in 3-storey buildings above the commercial space and to any lighting associated with the rear of the residential and commercial properties and associated parking areas, including security lighting. It is highly unlikely that there will not be a rise in the amount of lighting in the vicinity of the hall and that, crucially, light sources in close proximity to it will be casting light into the area directly adjacent to the back of the hall and thus into the treed area that the bats would be using when emerging from their roost.

The loss of forage and commuting routes together with any localised effect of additional lighting in the vicinity of Victoria Hall associated with streets, buildings, parking and public realm, will have an adverse effect on these bats and could lead to deterioration of the function of the roost as a maternity roost and conceivably abandonment of the roost. The loss of access to the off-site compensation areas could have an adverse effect on the genetic exchange of a bat which is rare in the Bristol Regional Environmental Records area.

The applicants' considerations did not cover all the species of bat recorded on the site. Neither did the application consider the likely presence of Lesser horseshoe bats, also an Annex II species. **The committee was not made aware of the presence of Nathusius Pipistrelle on the site.** The use of the site by this species and the location of any roosts could not have been determined adequately through the inadequate surveys conducted. However, it is clear from the time of year of the recording that these Nathusius Pipistrelles are local bats, not bats passing through. Had they been passing through, they would have been recorded much earlier in the year. **Given the rarity of this bat and the paucity of roosts located in the UK, a negative effect on Favourable Conservation Status cannot be ruled out.** It is possible that the species is roosting in Victoria Hall under the roof slates and that the site could be an important foraging area. I do not know how likely it is that the bat would roost in the Brunel shed roof or how effective bat boxes, bat bricks etc would be as a mitigation measure. Nathusius' pipistrelles were detected in the Kilmersdon Brook/Snails Brook waterway which links to the mitigation route and also runs through a culvert under the site to the Kilmersdon Brook corridor. I do not know whether these bats would pass through the culvert or whether they would require an overland route. I understand from Dr John Russ that they are not light-sensitive in the way that Greater Horseshoe and Brown Long-eared bats are, but more akin to a Common Pipistrelle in this respect, so would be likely to use the Kilmersdon Brook corridor I would guess. However, I also understand that there is evidence to suggest that males may be somewhat light sensitive when it comes to leaving their roosts, eg where light shines on a wall with their roost in. I do not know whether or not they have a problem with crossing gaps. Any effect on this species is likely to be in respect of the loss of foraging resources generally on the site. the site is presently rich in insects, but the habitat will be much reduced and the much, if not most, of the best habitat lost.

Although the Local Planning Authority has expressed the view that EPS licences will not be required, the ES says (in the Planning Statement) that a licence for bats will be necessary. If a licence is applied for regarding works to or removal of trees and the refurbishment of the Brunel shed, it would be for the third phase of development. Some

2 bat disturbed during preparatory works by B&NES for national cycle route

damage to the commuting routes and access from Victoria Hall would already have taken place by this time through the build in the initial phase of development.

Conclusion

A route that could be a vital commuting route between SACs and a roost and forage for Greater Horseshoe bats (and possibly other species) will be lost due to the development; a further roost for greater horseshoe bat will be rendered inaccessible to bats commuting between two SACs; there is no evidence to show that the impact of development on the alternative route will be sufficiently low to allow it to function as an adequate alternative for bats traveling between the two off-site compensation areas which, with the site itself, form part of the link between two SACs; there will be no replacement of the known Brunel Shed roost to be lost; there will be no replacement roost provided in the alternative commuting route; there is no reason to believe that the Brunel shed roost (to be lost and not replaced) is not being used as a day roost, which could be significant in the context of migrating bats; light-sensitive bats entering the site from the north west or Victoria Hall will have no means of utilising the mitigation route provided; there will be a loss of an important forage resource to a brown long-eared bat maternity roost and possible loss of use of the Victoria Hall roost or deterioration of its function in respect of brown long-eared bats; access to the compensation areas for Brown Long-eared bats in Victoria Hall will not be possible due to severance by light and lack of scrub/tree cover, the impact on local roosts of greater horseshoe bat at Ammerdown and Camerton has not been examined; there is no evidence to suggest that the mitigation proposed will work in respect of either greater horseshoe bats or brown long-eared bats; there will be loss of forage for a range of bats, including the rare Nathusius pipistrelle, roosting locally; and the mitigation and compensation package does not provide equal nature conservation value or like with like. The applicants, in their assessment of effect, are assuming that the mitigation will work. There is no reason to believe that it will work or that there will not be an adverse effect on the conservation status of bats from one or more of the species, Greater Horseshoe bat, Brown long-eared bat and Nathusius' pipistrelle in the local area and beyond.

Deborah Porter
29/07/08