Appendix 1 – Baseline Ecological Appraisal (WYGE E007203)

White Young Green

MARKET BOSWORTH STW

Baseline Ecological Appraisal

from strength to strength

White Young Green

MARKET BOSWORTH STW

Baseline Ecological Appraisal

August 2005

White Young Green Environmental Ltd accept no responsibility or liability for any use which is made of this document other than by the Client for the purpose for which it was originally commissioned and prepared.

Reference: E07203				
Issue		**Prepared by**	**Checked by**	**Verified by**
V1	15.08.05	Victoria Pope	Ryan Mellor	Shane Humphries
V2	-			
V3	-			
V4	-			

White Young Green Environmental Ltd, Executive Park, Avalon Way, Anstey, Leicester LE7 7GR
Tel: 0116 234 8100 Fax: 0116 234 8002
Email: Humphries-rowell@wyg.com

CONTENTS

1. Introduction

2. Desk Study

3. Phase I Vegetation & Habitat Survey

4. Reconnaissance Survey & Assessment for Protected & Notable Species

5. Preliminary Ecological Appraisal & Potential Constraints

6. Summary & Recommendations

7. Reference

Map 1 Phase I Vegetation & Habitat Survey

Appendix 1 Area of Search & Response from Consultees

MARKET BOSWORTH STW, LEICESTERSHIRE: Baseline Ecological Appraisal

1. INTRODUCTION & SITE DESCRIPTION

White Young Green Environmental were commissioned to undertake a baseline ecological appraisal of Market Bosworth Sewage Treatment Works, Leicestershire. The purpose of the appraisal was to identify any potential ecological constraints associated with proposed improvements works at the site and to provide appropriate recommendations for mitigation and further survey. Proposed work involves the installation of sand filters in an area approximately 150m^2, located in the southern part of the site (Map 1).

The appraisal has included:

i) a desk study for existing information on statutory and non-statutory sites of nature conservation interest and notable and protected species;

ii) a walkover survey of the sewage works and adjacent area, mapping and description of vegetation and habitats to Phase 1 level, reconnaissance survey for evidence of protected species and assessment of the suitability of the habitats present to support such species.

This report outlines the findings of the above surveys and provides recommendations based on these results.

2. DESK STUDY

English Nature's interactive map (www.magic.gov.uk) was searched for details of SSSIs and other statutory designations.

Information was also sought from Leicestershire Environmental Resources Centre for grid squares SK3803, SK3903, SK3804 and SK3904. Information requested included statutory and non-statutory sites and records of protected and notable species.

Consultation responses are contained in Appendix 1.

2.1 Statutory Sites of Nature Conservation Importance

One such site was identified within the area of search. This site is Ashby Canal Site of Special Scientific Interest, which is designated for the high diversity of aquatic plants and invertebrates present. The canal also supports a population of white clawed crayfish. This site lies approximately 0.5km to the east of Market Bosworth STW (Appendix 1).

2.2 Non-Statutory Sites of Nature Conservation Importance

In Leicestershire, sites of nature conservation interest are graded into three categories; 'Significant at county level' (10 'best' sites of a given habitat type), 'Significant at district level' (top 100 sites of a given habitat type, for which a minimum standard must be met) and 'Significant at parish level' (any additional sites of a given habitat type whose loss would be significant locally and about whose fate Leicestershire County Council would wish to be informed).

Land within Market Bosworth STW currently includes two sites graded as 'Significant at parish level'. These are site numbers 00035063 and 0003568, which are described as 'semi-improved grassland' (Appendix 1). As this habitat type was not recorded during field survey, further information was sought from Leicestershire Environmental Resources Centre regarding these two sites (Appendix 1). The details of these sites date from 1986; it is therefore likely that construction of the sewage works has taken place since this time and that the semi-improved grassland for which the sites were graded is no longer present.

The sewage treatment works are bounded by two other sites graded as 'Significant at parish level', 00035114, which is described as 'grassland' and 00035053, 'railway embankment'.

2.3 Protected & Notable Species

No records of protected or notable species were provided for the area within the sewage works. Records of slow worm (200m to the north west), common lizard (600m to the north east), grass snake (1.2km to the south east), water vole (1km to the south west) and barn owl (300m to the north west) were provided (Appendix 1).

3. FIELD SURVEY RESULTS & POTENTIAL CONSTRAINTS

3.1 Phase 1 Vegetation and Habitat Survey

A Phase I Vegetation & Habitats Survey was undertaken according to published methodology (Joint Nature Conservation Committee, 1993) on 10th August 2005. The survey area included the proposed working area, surrounding land within the sewage treatment works and adjacent habitats.

The area within the treatment works is mainly hard standing, comprising filters, tanks and cabins surrounded by gravel and concrete/paving. The only habitats recorded within this area were amenity grassland and introduced shrub. The treatment works are enclosed by a rabbit-proof fence (Map 1).

Immediately adjacent to the treatment works, habitats recorded include plantation woodland/scrub, scattered mature trees, tall ruderal, hedgerows and running water.

3.1.1 Habitats within Proposed Working Area

Amenity grassland: A small area of amenity grassland would be lost during the installation of the sand filters. The grass in this area is sparse, with some patches of bare ground present. The dominant species is perennial rye-grass (*Lolium perenne*) with creeping buttercup (*Rannunculus repens*) frequent. The sward is maintained very short (2-3cm).

The loss of this area of amenity grassland would not be significant in terms of nature conservation.

The remainder of the proposed working area comprises concrete/hard standing.

3.1.2 Surrounding Habitats

The following habitats were recorded in the immediate surrounding area. The proposed works would not affect these habitats directly but were surveyed to inform the appraisal for protected species in the wider area.

Amenity grassland: Amenity grassland was recorded within the treatment works in a narrow strip of on the north western boundary of the treatment works and on a steep embankment on the south eastern boundary. Perennial rye-grass (*Lolium perenne*) was the dominant species, with creeping buttercup (*Rannunculus*

repens) abundant and creeping thistle (*Cirsium arvense*) recorded occasionally. The sward is maintained very short.

Introduced shrub: Four beds of introduced shrubs were recorded within the treatment works. The height of the vegetation was 1.5 -3m. The beds were divided from the fence by a 1m wide mown strip of ruderal vegetation. Species recorded included snowberry (*Symphoricarpos albus*) and cotoneaster (*Cotoneaster* sp), with garden privet (*Ligustrum ovalifolium*), rose (*Rosa* sp.) and bramble (*Rubus fruticosus* agg) also frequent. These beds are maintained and have a covering of mulch beneath.

Plantation woodland/scrub: The treatment works are surrounded by relatively mature plantation woodland to the south, west and east. Species recorded include hawthorn (*Crataegus monogyna*), hazel (*Corylus avellana*), blackthorn (*Prunus spinosa*) and rose which dominate on an embankment immediately adjacent to the boundary fence to the south and west. Also present in these areas were frequent young field maple (*Acer campestre*), cherry (*Prunus* sp.) ash (*Fraxinus excelsior*) and occasional oak (*Quercus* sp.), elder (*Sambucus nigra*) and alder (*Alnus glutinosa*). The ground beneath much of the planting is bare; where a ground flora is present, it is sparse and consists entirely of stinging nettle (*Urtica dioica*) and ivy (*Hedera helix*).

To the east of the site, the plantation is less dense and is dominated by field maple and hawthorn, with occasional blackthorn and cherry. This area has an understorey of bramble scrub and a ground flora dominated by ruderal vegetation. Several log/brash piles were present in this area.

Scattered mature trees: Several mature trees were recorded in the surrounding area: these include four ash and one crack willow (*Salix fragilis*) on the banks of Carlton Brook, a large ash to the west of the site access road, a heavily pruned oak to the east of the entrance and a crack willow and two large oaks on the northern boundary of the survey area.

Tall ruderal: A strip of tall ruderal vegetation runs along the north-eastern boundary. This included frequent rosebay willowherb (*Chamaerion angustifolium*), ragwort (*Sencecio jacobea*) and creeping thistle, with stinging nettle, false oat grass (*Arrhenatherum elatius*), broad leaved dock (*Rumex obtusifolius*), bittersweet

(*Solanum dulcmara*), cleavers (*Galium aparine*) and black nightshade (*Solanum nigrum*) also recorded.

Tall ruderal vegetation dominated by rosebay willowherb and stinging nettle was recorded on an embankment to the south of the site, in the area surrounding the outfall points.

A small patch of nettles was recorded to the east of the site entrance.

Running water: Carlton Brook flows eastwards along the southern boundary of the site. The brook is approximately 3m wide and 0.2 – 0.4m deep with a moderate flow. The substrate is largely pebbles/stones, with more silt in ponded areas. The water is clear and the channel unvegetated. The banks are steep/vertical to a depth of 1m, and the watercourse is shaded by overhanging scrub and mature trees.

Hedgerow/dry ditch: The planting to the east and north of the site is bordered by hedgerows/dry ditches. To the north is a defunct, 3.5m, unmanaged hedgerow dominated by blackthorn and hawthorn with a dry ditch 1m wide, 0.5m deep and containing no vegetation. To the east is a 2.5m blackthorn hedgerow with occasional hawthorn and young ash standards and a similar dry ditch.

3.2 Protected Species

3.2.1 Badger

During the walkover survey signs of the presence of badger were noted (setts, latrines, paths, prints and snuffle holes). The survey area included all land within 30m of the proposed working area.

No evidence of badger was recorded during the survey and no records were provided for the area. It is unlikely that any animals could access the treatment works, as the surrounding fence is rabbit-proof. There is currently no constraint relating to badger.

3.2.2 Bats

There are no buildings or trees within the proposed working area which could support roosting bats.

The mature trees on the boundaries of the survey area have moderate potential to support roosting bats and the wooded areas may be utilised by foraging bats. None of these habitats would be affected by the proposed works.

3.2.3 Great Crested Newt

No permanent water bodies are present within the survey area and none were observed adjacent to the site. Within the treatment works, the habitat present (amenity grassland) is not suitable as terrestrial habitat for this species as it does not provide sufficient cover. The habitats surrounding the site (plantation, hedgerow, dry ditches) are assessed as suitable terrestrial habitat for this species if present in the vicinity; however, these would not be affected by the proposed works.

3.2.4 Water Vole

Water vole burrows are protected on Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). At present, protection is only afforded to voles while they are occupying their burrows.

The section of Carlton Brook to the south of the site was searched for evidence of water vole according to standard methodology (Strachan, 1998). No evidence was found, and it is considered that this section of the watercourse does not provide highly suitable habitat for this species it lacks emergent/marginal vegetation.

No evidence of the presence of water voles was recorded. The proposed works are located approximately 20m from Carlton Brook, which is sufficient to ensure that there is no negative impact on this feature.

3.2.5 Reptiles

The Wildlife and Countryside Act 1981 (as amended) protects all native species of reptile from deliberate killing and injuring.

The proposed working area contains only amenity grassland and hard standing: these are not considered suitable habitat for reptiles and therefore there is no constraint to works.

3.2.6 Nesting Birds

All bird species receive protection from disturbance whilst nesting or attempting to nest under the Wildlife and Countryside Act 1981 (except those listed on Schedule 2).

The habitat present in the proposed working area would not support nesting birds. The surrounding habitats provide suitable opportunities for nesting but will not be affected by the proposed works.

3.3 Invasive/Alien species

A search for invasive/alien species was undertaken within the survey area during the above survey. None were recorded.

4. SUMMARY AND RECOMMENDATIONS

4.1 Sites & Habitats

The nearest statutory site is Ashby Canal SSSI, which lies 500m from the site and would not be affected by the proposed works.

The sewage treatment works, including the proposed working area, comprises two non-statutory sites of nature conservation interest designated by Leicestershire County Council as being 'significant at parish level'. The habitat for which the sites were designated (semi-improved grassland) is described in records from 1986 and is no longer present within the site boundaries. This designation therefore should not be a constraint to proposed works.

Two other sites graded as 'significant at parish level', comprising grassland and railway embankment, are adjacent to the sewage treatment works. These sites would not be affected by proposed works.

The habitats within and immediately adjacent to the proposed working area are assessed as being of low nature conservation value. Their loss is not considered significant.

The habitats surrounding the treatment works are considered to be of no more than local nature conservation value. None of these habitats would be affected by the proposed works.

4.2 Protected Species

No evidence of protected species within or adjacent to the proposed working are was recorded during survey work.

The only habitat within the proposed working area (amenity grassland) is not currently considered suitable to support any protected species. It is recommended that this grassland is maintained in its current state (very short) until such time as works are required to ensure that it does not become suitable habitat for reptiles or great crested newt.

5. REFERENCES

Joint Nature Conservation Committee (1993)

Handbook for Phase 1 Habitat Survey – a technique for environmental audit England Field Unit/Nature Conservancy Council 1990. Reprinted 1993, JNCC, Peterborough.

Strachan.R (1998)

Water Vole Conservation Handbook. English Nature, Peterborough.

APPENDIX 1

Area of Search & Response from Consultees

(9 pages)

Appendix 2 – Re-cycled plastic Otter Holt

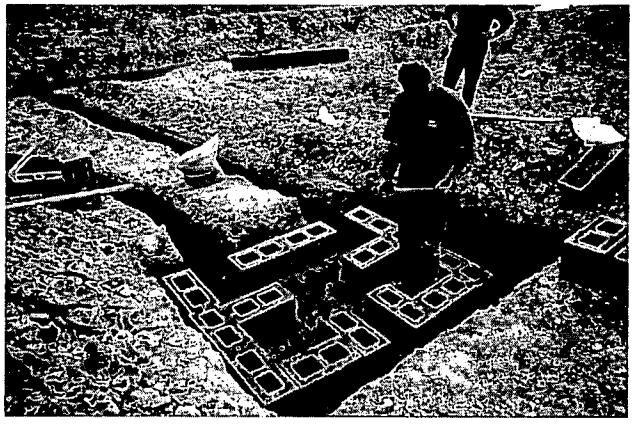
Recycled Plastic Otter Holt

Traditionally, artificial otter holts have been built with several interconnecting "rooms" in order to give the animal a choice as to where it sleeps, provide space to have cubs, to allow the mother to rest apart from the cubs if desired and to create areas for more than one adult to sleep in the same holt. Two main types of material are used: logs and brash or concrete blocks and paving slabs. There are disadvantages inherent with both the design and the materials.

1) To design a holt with several rooms results in quite a large structure. If made of logs this can be difficult to hide away from human gaze,



2) and if built of concrete underground it is often necessary to dig a very large hole in which to put it.



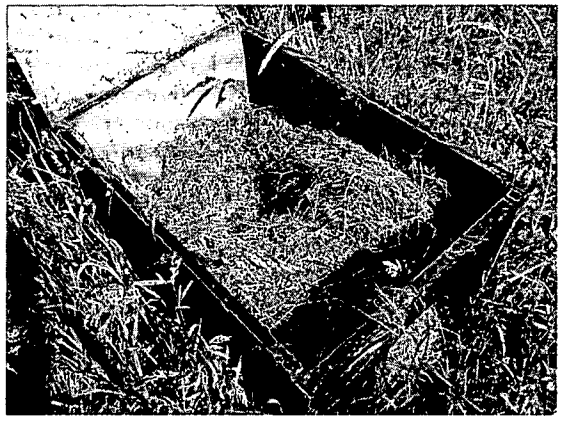
3) Holts built with logs are not easily made very weatherproof and will, in time, rot down and have to be regularly replaced. The major advantages are cheapness, as material costs are negligible, and the shape can be easily made to fit the available space.
4) Concrete and paving slabs are heavy and awkward to manipulate during construction and put the labour force at risk of injury by slipping on wet, unstable ground whilst carrying heavy loads or by crushing fingers when manoeuvring the slabs into place. They are also

very cold and rough to the touch. The finished product is however, very sturdy and weatherproof.

5) Both logs and concrete blocks are thick so that a large structure is necessary to create a relatively small internal space.
6) Otters are solitary animals and very territorial so that contact, particularly with same sex animals, is avoided. Radio tracking surveys have shown that even when different sex animals are hunting and moving in close proximity they sleep apart from each other. Thus except for a maternal holt there is no need to provide otters with a large home.

It can be seen that the materials used hitherto have some distinct disadvantages so it was decided to see if a more appropriate design and better materials could be found.

Bearing this in mind, whilst visiting The British Wildlife Centre in Surrey, the opportunity was taken to inspect the sleeping boxes provided for their captive otters. These are made of wood, used individually by the otters and measure about 60cm long x 40cm wide x 40 cm high. The entrance is a round hole half way up the front of the box. Inside the animals tend to fill the boxes with grass bedding to a depth of about 20cm. **What the otters are trying to create is not a house but a bed.**

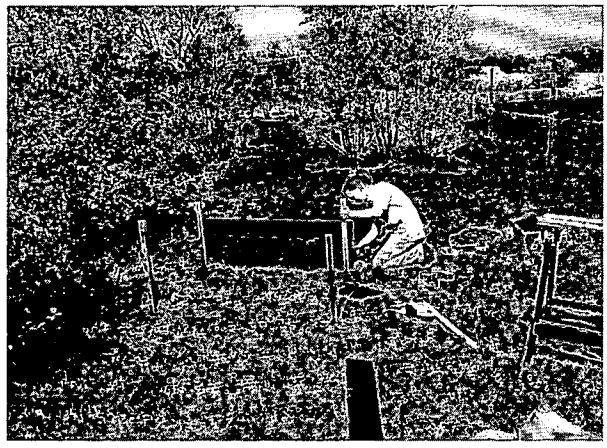


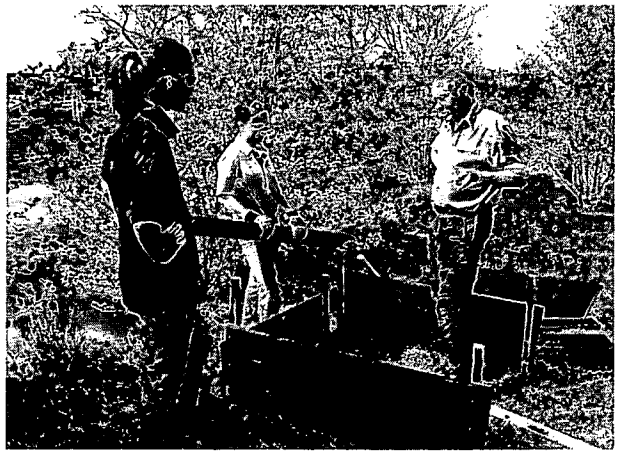
The staff also said that the animals have dug some burrows into the bank around the pond and that the tunnel entrances extend further than an arms length.

Having used recycled plastic on other wetland projects it was decided to experiment with this as a building material since it is relatively light, easy to saw or drill and is completely weatherproof and will not rot. Our supplier, Filcris Ltd, of Bourn in Cambridgeshire, were keen to help with the design and also advise on the best materials to use in the construction.
The prototype holt was designed to incorporate 2 internal tunnels and one secure room. Since the walls are made up of plastic planks the holt can be made much smaller than the traditional models. The spare space outside the

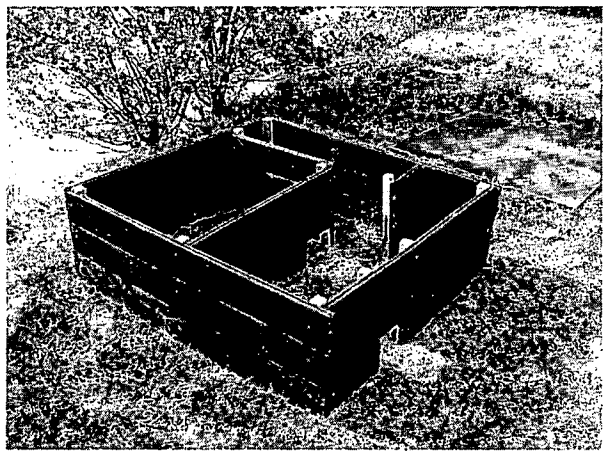
secure room provided an area that could provide a secondary sleeping compartment if necessary. The whole structure was contained within a 4 x 4 foot square (120cm x 120cm) that was only 45 cm high.

The trial model was built in one of the otter pens at The British Wildlife Centre at Lingfield in Surrey who were also very supportive. Only three people were needed to build the holt and the job took less than a day. Wooden posts were used on this occasion as we were not sure how much modification might be needed on this first attempt and it would be cheaper to use tree stakes instead of plastic posts.

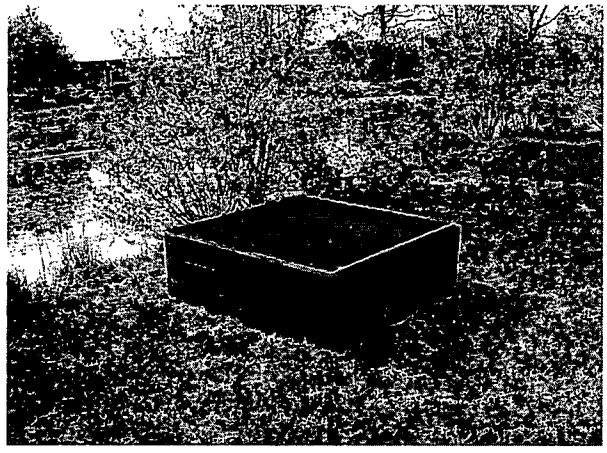




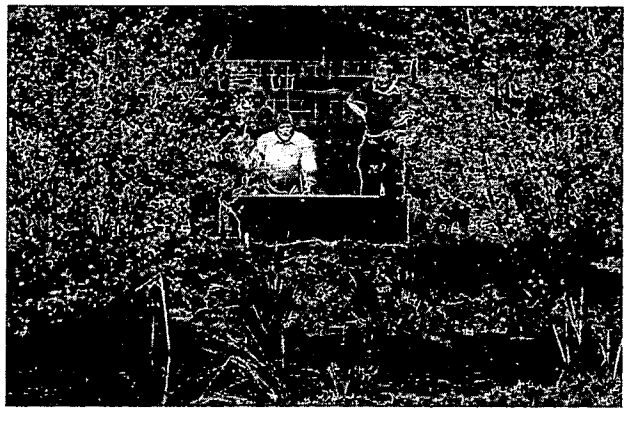
The finished holt looks like this internally



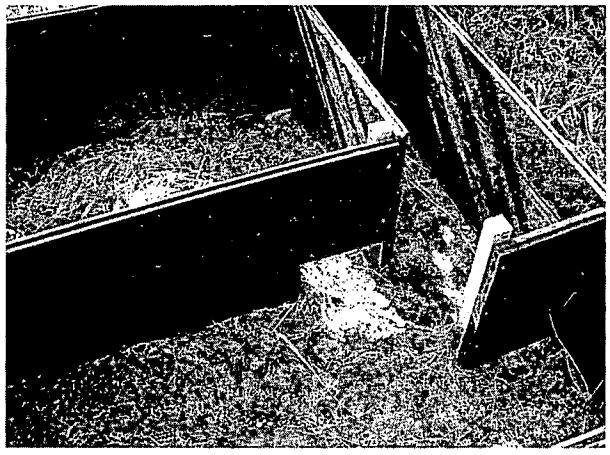
and looks very boring with the roof on.



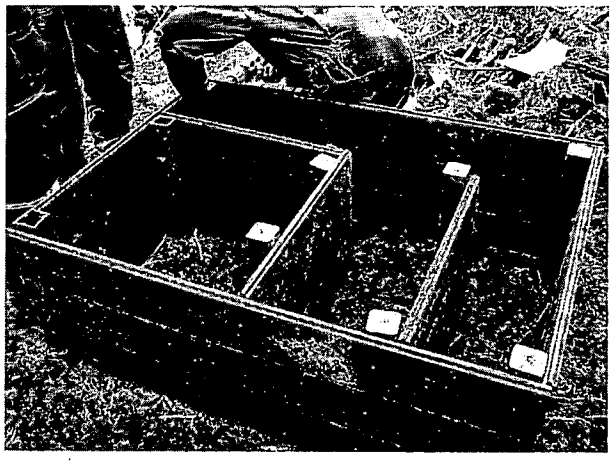
There are entrances at the front, to allow easy access to the water, and also to the rear as in the wild it is felt that this gives an added safety factor under conditions where intermittent flooding of the site is likely. "Minnie" readily took over the holt and now sleeps in it every night.



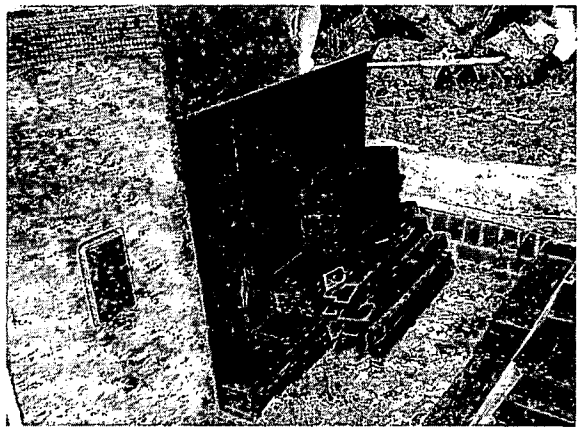
We went back after about a month and removed the top so that we could see what use Minnie was making of the internal space. This showed that bedding was being taken in to the secure sleeping area although it was obvious that the secure room was going to be difficult to fill with bedding as it was overlarge. Further inspection 3 months later showed that only the "bedroom" was being used. There is no bedding in the outer compartment.



The final design has therefore been reduced in size to make a structure 120cm x 90cm x 45 cm high (4' x 3' x 18"). Internally the secure room is 60cm x 60 cm x 45cm high (2' x 2' x 18") . It is felt that this makes a space that is not too large for a single animal to make comfortable, but would still be large enough for a mother to raise her cubs. The holt now has 3 internal tunnels in order to reach the "bedroom". Inspection of the prototype holt did show that condensation forms on the bedroom ceiling so in the future holes will be drilled along the top of some of the interior walls to improve air circulation.



Filcris will supply the holt pre-cut to the specification and sent as a flat pack and the whole thing stacks away into quite a small space for storage prior to building:



It is easy to transport on site as everything will fit into the back of a pick-up and apart from the roof, which requires 2 people, the materials are very light to carry. All you need for assembly are exterior screws, a couple of battery powered drills, a tape measure, set square and a mell. Once assembled it can be staked down with sheep netting for added security and then covered with brash to add camouflage.



If required, the holt can be buried underground since it won't rot and a pipe entrance to the riverbank can be screwed onto the front quite easily. The cost: £217.77 inc. carriage, palletted and delivered to your door (but plus VAT). Since no ongoing maintenance is needed it is felt that the initial expense can be offset against staff labour costs in the long run.

I'm very grateful for the support and help given by:
My sponsors: The Environment Agency, www.environment-agency.gov.uk
and Thames Water, www.thameswater.co.uk
Filcris Ltd, www.filcris.co.uk, who put up with endless design modifications,
The British Wildlife Centre, www.britishwildlifecentre.co.uk , who allowed me to make use of their otters pens,
and above all Minnie, who made the customer choice.

Contact Chris Matcham at Surrey Wildlife Trust, 01483-795457 chris.matcham@surreywt.org.uk for further information.

Appendix 3 – Typical Log-pile Otter Holt

HEREFORDSHIRE ACTION for MAMMALS

WHAT'S INVOLVED?

LIST OF EVENTS WITH LINKS

Bat Box Checking
Otter Holt Building

*** Bulletin Board Home Page ***

OTTER HOLT BUILDING



Background Information

- Although there are indications that otters nationally are on the increase, they remain perhaps one of our more secretive and elusive mammals. It is probably true to say that even many HAM members have yet to see one in the wild.
- Like the population of many of our native species, the demise of the otter can be attributed in part to the loss of

suitable habitat for feeding and breeding.

- With this in mind, HAM have been involved in the construction of several artificial otter holts in the county over the past few years. By providing a "home" for the otter at suitable selected sites, we hope to provide them with an opportunity to establish a secure base from which they may be encouraged to breed.

What is an otter holt?

Quite simply, an otter holt is the name given to the home of an otter!

In natural situations otters make a holt in an embankment close to secluded rivers, quite often making use of natural cavities in river banks or those found under tree trunks.

How do you make an artificial otter holt?

The foundation of the holt is a log framework, pegged securely to the ground. The pegs are made on site.







At least two gaps are left between the logs nearest to the river bank to provide a choice of exit. The inner chamber is separated into several compartments using more large logs. The inner turf is then removed and packed on the outside to help to provide stability. More logs are then placed across the walls to produce a ceiling.

Large branches are then spread across the structure and this is topped by lighter branches and twigs. Ideally, all of the material used in the construction is taken from the immediate area. Much of the activity can be taken up by gathering, preparing and sorting the materials. The actual construction can be completed quite quickly once all the materials are to hand.





As most artificial holts are built in areas liable to flooding, the structure has to be secured by pinning it down; wire fencing is usually employed. Wooden stakes made on site are used to secure the wire. Hopefully this will hold the whole construction in place should the site become flooded.

Finally, the structure is topped with fine vegetation to make the wire less conspicuous.





In due course, the natural riverside vegetation will grow up around the holt making it less obvious to the casual passer-by and, hopefully, more attractive to an otter!



Who can be involved?

For safety reasons, this type of activity is not best suited for the presence of children. The activity involves the wielding of numerous implements including axes, saws, cleavers, large hammers and maybe even a chain saw. The presence of water nearby only makes it potentially more hazardous to minors.

Apart from that, any fit adult is welcome; "Many hands make light work" and this is certainly an activity where this phrase is proven.

Why get involved?

It is very unlikely that you will see an otter on one of these events. Any self-respecting mammal is going to be long gone when it gets wind of us arriving and once we get to work, there's no hope!

However, don't be discouraged. Our holts have been known to be occupied at a later date so this should increase the likelihood of sighting one should you pass that way on some quieter occasion. The events are great fun and can provide an opportunity to rub shoulders and chat with other experienced naturalists.

Check out the HAM Bulletin Board for the next event

All photographs are copyright of HAM (Mike Coleman) and were taken near Bodenham Lake in 2003