Appendix C Site Photographs



Plate 1: Bare Ground



Plate 2: Bare Ground



Plate 3: Plantation woodland along the River Dearne

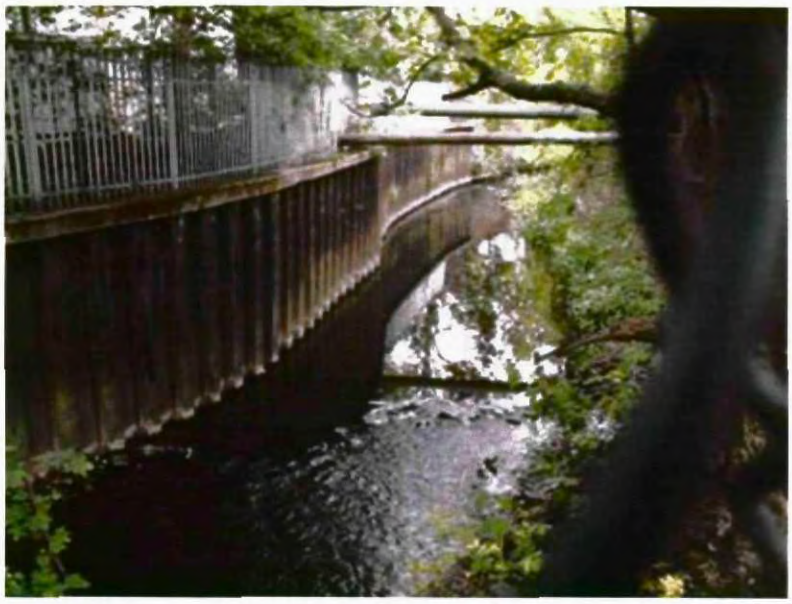


Plate 4: River Dearne at the western end of the Site

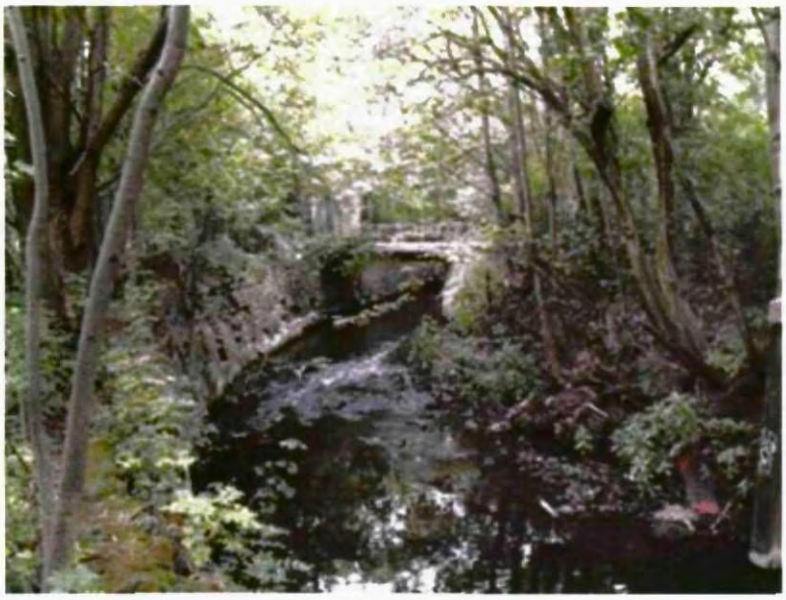


Plate 5: River Dearne in the middle of the Site



Plate 6: River Dearne at the end of the eastern end of the Site (showing Japanese knotweed, Himalayan balsam and giant hogweed)

APPENDIX 12.3: BAT, OTTER AND WATER VOLE REPORT



UNITED
BY OUR
DIFFERENCE

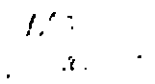
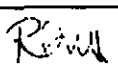
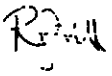
WSP

Title: Old Mill Lane, Barnsley: Bat, Otter and Water Vole Survey Report

Client: Peel Holdings

Date: 25 November 2011

QUALITY MANAGEMENT

Issue/revision	Issue 1	Revision 1	Revision 2	Revision 3
Remarks				
Date	25/11/2011			
Prepared by	Matt Oakley			
Signature				
Checked by	Rich Gill			
Signature				
Authorised by	Rich Gill			
Signature				
Project number	20470			
File reference	Old Mill Lane Bat Water Vole and Otter			

WSP Environment & Energy
1st Floor Keble House
Southernhay Gardens
Exeter
EX1 1NT

Tel: 01392 267500
Fax: 01392 267599

www.wspenvironmental.com

1152332

CONTENTS

EXECUTIVE SUMMARY 1

1 INTRODUCTION 2

2 LEGISLATION 3

3 METHODOLOGY 5

4 RESULTS 7

5 EVALUATION 8

6 RECOMMENDATIONS **Error! Bookmark not defined.**

Figure 1 – Location of Bat Roost

Appendix A – Survey Limitations

EXECUTIVE SUMMARY

WSP Environmental Limited (WSPE) were instructed by Peel Holdings to undertake further ecological surveys for bats, water vole and otter for an area of land at Old Mill Lane, Barnsley, South Yorkshire, which is proposed for future development into commercial use.

The surveys were undertaken in July and August 2011, which included bat emergence surveys of a culvert adjacent to the River Dearne, bat activity surveys of the Site, and water vole and otter surveys of the River Dearne.

The surveys have identified that the culvert supports a large Daubenton's bat maternity roost, and the River Dearne provides an important foraging site and commuting route for the bats. The remainder of the Site provides poor foraging habitat. No evidence of water vole or otter presence was recorded on the River Dearne within or adjacent to the Site.

1 INTRODUCTION

1.1 BACKGROUND

1.1.1 WSP Environmental (WSPE) was requested by Peel Holdings to undertake bat (*Chiroptera*), otter (*Lutra lutra*) and water vole (*Arvicola amphibious*) surveys of an area of land (the Site) situated at Old Mill Lane, Barnsley, South Yorkshire (hereafter referred to as the Site) proposed for future redevelopment into mixed use.

1.2 SITE OVERVIEW

1.2.1 The Site is centred on National Grid Reference SE 351 072 and covers an area of approximately 6.5 hectares (ha) (see **Figure 1** for Site boundary). The Site is bordered to the west by Old Mill Lane, to the south by Twibell Street, to the north by Burton Road and to the east by Dearne Valley Country Park. The Site is set within the urban landscape of Barnsley with both residential and commercial developments in close proximity to the Site. To the west of the Site is The Fleets, a lake next to the River Dearne, and to the east is the Dearne Valley Country Park which consists of a mix of grassland, woodland and ponds..

1.2.2 The Site includes numerous buildings, broad leaved plantation woodland, bare ground, hardstanding and the River Dearne.

1.2.3 An extended Phase 1 habitat survey of the Site undertaken by WSPE in May 2011, which included a desk study, confirmed the presence of a large Daubentons bat (*Myotis daubentonii*) roost within a culvert adjacent to the River Dearne (see **Figure 1**). The river was also noted to have the potential to be used as a commuting and foraging route for otter, and whilst not optimal for water vole the river also has the potential to support this species.

1.3 OBJECTIVES

1.3.1 Further to the previous survey works undertaken at the Site additional bat emergence and activity surveys, and a water vole and otter surveywas commissioned in order to:

- identify the presence of roosting bats within the culvert, and also identify any significant foraging areas or commuting routes both within and immediately adjacent to the Site;
- identify the presence of water vole and otter within the Site boundary;
- assess the potential impact of the proposed development work on any bat, water vole or otter populations present; and
- propose appropriate compensation and/or mitigation measures which could be taken to ameliorate foreseeable negative impacts on the bat, water vole or otter populations as a result of the proposed work.

1.3.2 The survey methodology applied is outlined in Section 3, with the survey results and evaluationpresented in Sections 4 and 5 respectively. Recommendations for mitigation and enhancement have been made within the accompanying Ecological Impact Assessment for the proposed development (WSP, 2011).

1.4 STUDY LIMITATIONS

1.4.1 General notes and limits pertaining to ecological surveying are provided in Appendix A.

2 LEGISLATION

2.1.1 A level of statutory protection is afforded to specific species; the various statutes of which provide this protection include the following:

- The Wildlife & Countryside Act (WCA) 1981;
- Countryside and Rights of Way (CROW) Act 2000;
- The Conservation of Habitats and Species Regulations 2010;
- Natural Environment and Rural Communities Act (NERC) 2006; and
- Wild Mammals (Protection) Act 1996.

2.2 BATS

2.2.1 All species of bat and their roosts are protected under the WCA 1981 (as amended) and The Conservation of Habitats and Species Regulations 2010, which is the implementation of the EC Directive on the Conservation of Natural Habitats and Flora and Fauna, 1992 (the Habitats Directive). This makes it illegal to:

- Intentionally kill, injure or take a bat;
- Damage or destroy a breeding site or resting place of a bat;
- Deliberately disturb a bat, including disturbance of a bat which is likely to:
    1. Impair their ability to survive, to breed or reproduce, to rear or nurture their young, or to hibernate or migrate.
    2. Affect significantly the local distribution or abundance of bats.
- Possess, transport or sell a bat.

2.2.2 Breeding and resting sites of bats, commonly called roosts, are defined as 'any structure or place which is used for shelter or protection', irrespective of whether bats are resident.

2.2.3 In addition to these pieces of legislation, further protection is afforded to bats by 'An Agreement on the Conservation of Bats in Europe' (under the Bern Convention) to which the United Kingdom (UK) Government is a signatory. This agreement places obligations on the government to protect important bat roosts or foraging areas.

2.2.4 The UK Biodiversity Action Plan (BAP) forms part of the UK government's commitment to conserve and enhance national biodiversity following the Rio Convention on Biodiversity in June 1992. The UK BAP Framework describes the UK's biological resources and commits a detailed plan for the protection of these resources. Three types of action plan (Species Action Plans (SAPs), Habitat Action Plans (HAPs) and Local Biodiversity Action Plans (LBAPs)) have been developed which set priorities for nationally and locally important habitats and wildlife.

2.2.5 Seven species of bat are included within the priority species list of the UK BAP. The Devon LBAP lists greater horseshoe bat as a priority species.

2.2.6 Works that will disturb bats or damage or destroy a bat roost require a licence from Natural England. Licences can only be granted if there is no satisfactory alternative or if the action authorised will not be detrimental to the maintenance of the population of the species at a favourable conservation status in their natural range.

2.3 WATER VOLE

2.3.1 The water vole is fully protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). The legislation makes it an offence to:

- Intentionally kill, injure or capture a water vole;

- Possess or control a live or dead water vole, or any part of a water vole or anything derived from a water vole;
- Intentionally or recklessly damage, destroy or obstruct access to any structure or place which a water vole uses for shelter or protection – whether occupied or not; and
- Sell, possess or transport a water vole for the purpose of sale, and advertising the buying or selling of a water vole.

2.3.2 The Statutory Nature Conservation Organisation (SNCO) (in this case Natural England) and the Environment Agency should be consulted when any development or maintenance works may affect a water vole population. The SNCO will not issue licences specifically to cover development or waterway maintenance activities in respect to water vole populations. If works cannot be reasonably avoided then the "incidental result of an otherwise lawful action" defence will need to be relied upon which provides for the carrying out of lawful operations from which some harm to the species would otherwise be an offence. Attention must be paid to the presence of water voles and as far as is reasonable appropriate action taken to safeguard the animals and the places they use for shelter and protection. If after all options for conserving the water vole population have been considered, that the best outcome for water voles is capture and translocation to a different location, then this action is considered by the SNCO to be outside the scope of the defence. This is because the intentional capture of water voles is unlikely to be considered incidental and therefore a conservation licence will need to be obtained from SNCO if it is deemed that the translocation will produce a net conservation benefit to the water vole population concerned.

2.4 OTTERS

2.4.1 Otters are protected under the Wildlife and Countryside Act 1981 (as amended) and The Conservation of Habitats and Species Regulations 2010, which is the implementation of the EC Directive on the Conservation of Natural Habitats and Flora and Fauna, 1992 (the Habitats Directive). This makes it illegal to:

- Intentionally kill, injure or take an otter;
- Damage or destroy a breeding site or resting place of an otter;
- Deliberately disturb an otter, including disturbance of an otter which is likely to:
    1. Impair their ability to survive, to breed or reproduce, to rear or nurture their young, or to hibernate or migrate.
    2. Affect significantly the local distribution or abundance of otters.
- Possess, transport or sell an otter.

2.4.2 A European Protected Species (EPS) licence can be issued by Natural England for the disturbance of otters in relation to a development. Licences can only be granted if there is no satisfactory alternative or if the action authorised will not be detrimental to the maintenance of the population of the species at a favourable conservation status in their natural range.

3 METHODOLOGY

3.1 BAT EMERGENCE SURVEYS

3.1.1 Two dusk emergence surveys of the culvert adjacent to the Old Mill Lane bridge over the River Dearne at the western end of the Site were undertaken on the 18th July and the 31st August 2011, to determine the potential impacts to roosting bats within the culvert as a result of the proposed development.

3.1.2 The dusk surveys began approximately 30 minutes before sunset and continued for 1.5 hours after sunset. A total of two Natural England licenced bat workers (licence no. 20113033 and 20104693) equipped with time expansion (Petterson D-240X) and dual-mode (Bat Box Duet) bat detectors, were positioned situated either side of the bridge to record emerging bats travelling both upstream and downstream of the culvert..

3.1.3 Temperature, wind speed/direction and cloud cover were recorded at the beginning and end of each of the surveys, and a note was made of any significant weather changes during the survey (i.e. heavy showers).

3.1.4 All surveys were conducted during suitable weather conditions (dry, low wind, air temperature above 8°C), detailed below in Table 1.

3.1.5 After completion of each survey session, the digital bat recordings were analysed where appropriate using BatScan v8.7 songoram analysis software (Batbox Ltd) to confirm species identification.

3.1.6 The surveys were commensurate with the methodologies outlined in *Bat Survey: Good Practice Guidelines* (BCT, 2007)

Table 1: Weather Conditions for Bat Emergence Surveys

Date	Time	Sunset	Temperature (°C)		Cloud cover / Wind / Precipitation
			Start	Finish	
18/07/2011	21.00 – 10.45	21.23	17.5	16.0	30%, calm, and dry.
31/08/2011	19.40 – 21.30	19.58	15	15	20%, calm and dry.

3.2 BAT ACTIVITY TRANSECTS

3.2.1 Two nocturnal bat activity transects were carried out immediately following the emergence surveys undertaken on the 18th July and 31st August 2011, to determine flight paths, commuting routes and feeding areas of any bats present. These surveys utilised time expansion (Petterson D-240X) bat detectors to assist in the location and identification of any bats present

3.2.2 A transect route was designed to encompass the broad habitat types on Site, paying particular attention to areas deemed most suitable to support bats including the River Dearne and the plantation woodland. Two experienced surveyors walked the transect route twice on each of the survey visits.

3.2.3 On each occasion the activity surveys began approximately 1.5 hours after sunset and lasted a period of 1.5 to 2 hours. During the survey, the surveyors stopped at up to 10 sample points along their route for a period of 3 minutes to record any bat activity. The surveys recorded the species present, level of use by bats and identified areas of concentrated bat activity.

3.2.4 The surveys were conducted during suitable weather conditions (dry, low wind, air temperature above 8°C) (see **Table 1** above). The survey was commensurate with good practice following standard methodologies (BCT, 2007).

3.2.5 After completion of each survey session, the digital bat recordings were analysed using BatScan v8.7 songoram analysis software (Batbox Ltd) to confirm species identification.

3.3 WATER VOLE

3.3.1 The water vole survey was undertaken on the 2 July 2010 by suitably qualified and experienced WSPE ecologists using the standard methodologies of Strachen et al. (2006). The surveys were undertaken within the optimal period for finding water vole activity (April – October), and particularly evidence of territorial marking, which increases during the breeding season. Signs that were searched for along the each of the watercourses were:

- Faeces;
- Latrines;
- Feeding stations or cropped vegetation;
- Burrows (above and below the water level);
- Cropped 'gardens' or 'lawns' around burrow entrances;
- Footprints;
- Runs in the vegetation;
- Actual sightings; and
- Sounds of water vole entering the water.

3.3.2 Where burrows were recorded, they were assessed for their level of use. Active burrows are characterised by clean open tunnel entrances free of any debris or vegetation, the presence of footprints, or other signs of evidence nearby. Disused burrows tend not to show any recent signs of entering; may have become overgrown with vegetation and lack any other signs of water vole activity in the immediate vicinity.

3.4 OTTER

3.4.1 The otter survey was undertaken on the 2 July 2010 by suitably qualified and experienced WSPE ecologists following the methodology detailed in the New Rivers and Wildlife Handbook (RSPB, NRA & RSNC, 1994).

3.4.2 Due to the unlikely event of actual observation, the survey concentrated on locating field signs indicating otter presence or use. Such field signs include:

- Spraints – characteristic sweet-smelling, black tar-like (where fresh/relatively recent i.e. within a few weeks) or grey crumbly (when old) faecal deposits usually containing fish scales, bones and occasionally invertebrate exoskeleton and bird feathers;
- Footprints – In good substrate typically asymmetrical and showing five toes arched around a large pad and, depending on substrate, webbing and claw marks. Poorer, generally coarser substrates do not often enable the identification of otter footprints;
- Feeding remains;
- Slides – routes into and out of the water, which are usually associated with terrestrial routes such as short cuts around meanders or along traditionally used otter paths/routes;
- Couch – above ground resting place. Usually associated with cover such as dense scrub, rushes or reed, flood debris or fallen trees. Many couches are rarely used whilst other more so. Difficult to prove use without radio tracking; and
- Holt – below ground resting site usually associated with sprainting. Sometimes used with greater frequency than couches and can be important for breeding (natal holts) where other signs are usually absent. Notoriously difficult to find or prove without radio tracking.

4 RESULTS

4.1 BAT EMERGENCE SURVEYS

4.1.1 Counts of 67 Daubentons bats on the 18th July and 61 Daubentons bats on the 31st August were recorded emerging from the culvert at dusk.

4.1.2 No other species of bat were recorded roosting within the Site during the emergence surveys.

4.2 BAT ACTIVITY SURVEYS

4.2.1 During the activity surveys significant Daubentons bat foraging activity was recorded under the bridge and outside of the culvert opening. Small numbers of soprano (*Pipistrellus pygmaeus*) and common pipistrelle (*Pipistrellus pipistrellus*) were also recorded foraging and commuting along the River Dearne during the activity surveys undertaken in 2011.

4.2.2 The bats were recorded foraging both downstream of the roost entrance and upstream to the west of the Site. The tree canopy and tall retaining walls provides an ideal dark corridor through the Site and wider landscape for foraging and commuting bats.

4.2.3 Apart from the river corridor, which is sheltered from artificial light spill by the strip of broad-leaved plantation woodland and therefore remains dark, the Site provides poor foraging habitat as it consists of bare ground, buildings and hardstanding, and only one common pipistrelle was recorded commuting over the bare ground in the north east of the Site during the August 2011 activity survey.

4.3 WATER VOLE AND OTTER SURVEYS

4.3.1 No evidence of either of these species being present within or adjacent to the Site was recorded during the survey.

5 EVALUATION

5.1 BATS

5.1.1 The counts of Daubentons bats recorded in 2011 were significantly less than those recorded between 1990 and 2003, when the National Bat Monitoring Programme surveyed the culvert annually.

5.1.2 It is known through consultation that the culvert was flooded in 2007, which is the most likely cause of the reduced numbers of roosting bats. It is unknown as to whether the reduced numbers of bats are due to the fact that a percentage of the colony moved to another roosting site or whether the bats were killed when the culvert flooded.

5.1.3 Even though the numbers of bats are greatly reduced, the roost is still a large maternity roost as numbers of Daubentons bats maternity roosts average 20-50 individuals. The roost is classified as being of **MODERATE** to **HIGH** nature conservation significance as defined in the *Bat Mitigation Guidelines* (English Nature, 2004), given that it is a maternity roost of a rarer species and it has been in-situ within the culvert since at least 1990 when it was first recorded.

5.2 OTTER

5.2.1 Although no evidence of otter was recorded either within or adjacent to the Site, given the records of otter both upstream and downstream of the Site, and the fact that individual otters can have territories extending to 40km of linear habitat it is likely that otters commute through the Site.

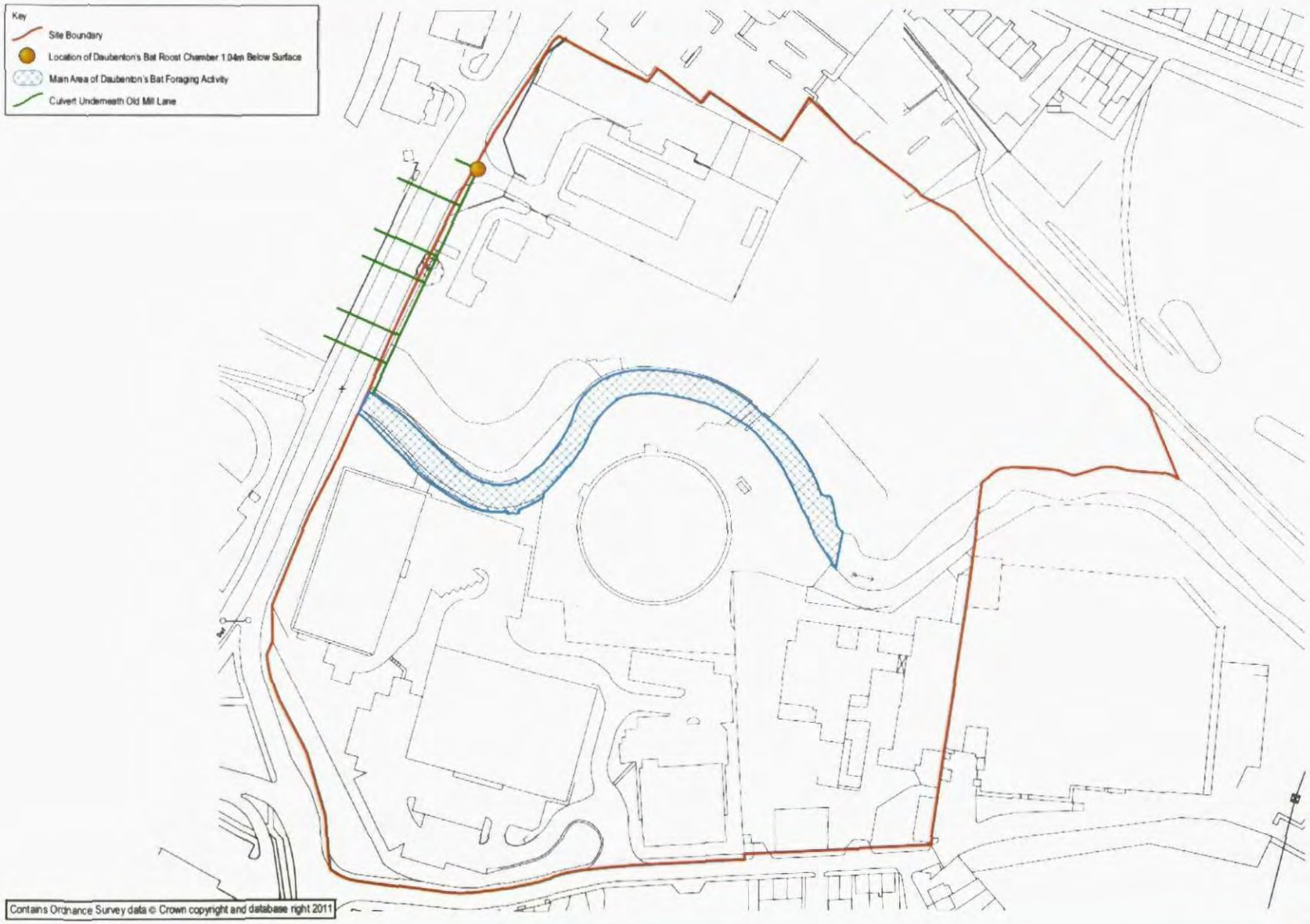
5.3 WATER VOLE

5.3.1 The banks of the River Dearne within the Site are suboptimal for this species given that they have shallow gradients which prevent burrowing and are heavily shaded and riparian vegetation is therefore sparse along the majority of the River Dearne that flows through the Site.

Figure 1 – Location of Bat Roost

Location of Bat Roost

Figure 11.2



PROJECT: Old Mill Lane, Barnsley
PROJECT No: 20470
CLIENT: Peel Holdings PLC

DRAWN: GH
CHECKED: MO
APPROVED: MO
REVISION: A
DATE: October 2011

WSP

WSP Environment & Energy

Old Mill Lane: Bat, Otter and Water Vole Surveys

Appendix A Survey Limitation

WSP Environmental staff and their sub-consultants have endeavoured to identify the presence of protected species wherever possible on site, where this falls within the agreed scope of works.

Up to date standard methodologies have been used, which are accepted by Natural England (previously English Nature) and other statutory conservation bodies. No responsibility will be accepted where these methodologies fail to identify all species on site. WSP cannot take responsibility where Government, national bodies or industry subsequently modify standards.

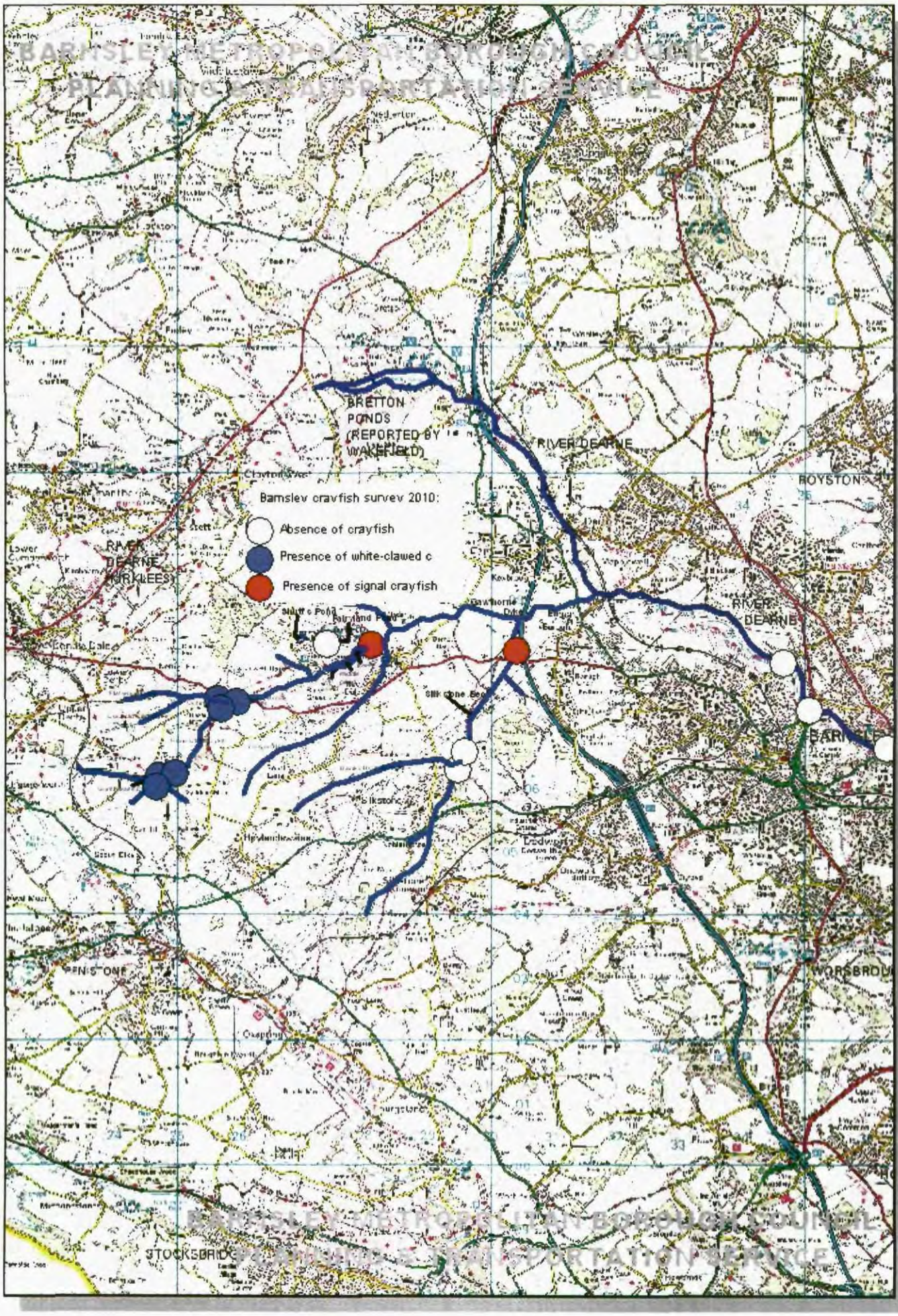
The results of the survey and assessment work undertaken by WSP Environmental were representative at the time of surveying.

WSP Environmental has advised on the optimum survey season for a particular habitat/species prior to undertaking the survey work. However, WSP Environmental cannot accept responsibility for the accuracy of surveys undertaken outside this period.

WSP Environmental cannot accept responsibility for data collected from third parties.

APPENDIX 12.4: WHITE CLAWED CRAYFISH SURVEYS

Layout width 175mm



Barnsley MBC Licence Number 100022
Crown copy
Reproduced from the Ordinance Survey mapping with the permi of the Controller of Her Majesty's Stationery Office
Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings.

BARNSLEY MBC - Planning and Transportation Service
Assistant Director: Chris Collison, MBA, BA(Hons), MRTPI, MCMI, MIED, IHBC.
PO Box 604, Barnsley, S70 9FE.
Tel: (01226) 770770 Fax: (01226) 772599

NORTH

Scale 1: _____

APPENDIX 12.5: BAT REPORT (ERIC BENNETT)

Eric Bennett Consultancy Ltd

Protected species survey and advice

5 Lynwood Drive, Carlton, Barnsley. S71 3ES
Tel: 01226 723220
Fax: 01226 727511
E-mail: eric.bats@uwclub.net

Old Mill Lane (A61) Culvert Barnsley

Bat Survey

March 2004.

Registered in England & Wales – Company Number 4907827

Surveyor	Experience
Mr Eric Bennett	Licensed bat worker with 15 years experience. Licensed by English Nature and Countryside Council for Wales for all bat species in all counties. EN Licence No: 20031612 CCW Licence No: OTH:CSAB:37:2003

Revision record.

Date	Details
2 February 2004.	Original report
3 March 2004.	Revised report following scheme redesign to create island over roost site for protection.

Table of contents

1	**Introduction**	1
2	**Development Proposals**	1
3	**Survey Methodology**	1
4	**Survey Results**	2
4.1	Background	2
4.2	Existing survey records	2
4.3	Topographical survey results	4
4.4	Site habitats	4
4.5	Status	4
5	**Evaluation of survey results**	5
5.1	Evaluation of habitats	5
5.2	Evaluation of survey results	5
5.3	Evaluation of legal situation	5
5.4	Licensing arrangements	5
5.5	Conservation status	6
6	**Impact assessment**	6
6.1	Short term impacts	6
6.2	Long term impacts	7
7	**Mitigation**	7
8	**Recommendations**	8
9	**Appendices**	9
1	Legal situation	9
2	Licensing	9
3	New DEFRA Licensing requirements	11

1. Introduction

1.1 The survey was required in connection with highway improvement proposals for Old Mill Lane, Barnsley (A61). The site is located at O.S. Grid Ref. SE 351072

2. Development Proposals

2.1 The proposals are part of ongoing improvements to the A61 Quality Bus Corridor into Barnsley and involve the construction of a new light controlled junction, to replace two existing junctions accessing the former Gas Depot and Wickes Store and to facilitate the re-development of the former Gas Site for a retail store.

3. Survey Methodology

3.1 The report is based on existing knowledge and records covering the monitoring of the site since 1991.

3.2 A topographical survey was carried out on 19th November 2003, to determine the precise position of the roost site below the roadway and its depth.

4. Survey Results

4.1 Background

4.1.1 The culvert is located close to Barnsley town centre, where the A61 Old Mill Lane crosses the River Dearne. It is an important roosting site for Daubenton's bat *Myotis daubentonii.*

4.1.2 The main feature of the site is a brick culvert approximately 2 metres wide, 1.5 metres high and 90 metres long, running from the River Dearne banks adjacent to the road bridge, within the boundary wall of the former British gas depot site. The head of the culvert lies beneath the entrance threshold to the gas site. The roost chamber itself is hidden between the tarmac road surface and the roof of the culvert and nothing was known of its size, construction or its depth below the tarmac road surface. The bats gain access to the roost chamber through small openings in a manhole type feature in the culvert roof.

4.1.3 In addition there are five small and very much older stone culverts leading off the main culvert and crossing beneath Old Mill Lane. The origin of these culverts is probably connected with the former mill and millrace shown on the 1779 Enclosure map. The line of the main culvert is clearly marked on the 1850 first edition of the Ordnance Survey map. Remnants of the millrace can still be seen as earthworks west of Old Mill Lane.

4.1.4 The bat colony was discovered in 1990 and, in order to protect the bats, the culvert entrance was grilled by British Gas, in early 1991, to a design and recommendations supplied by the Robert Stebbings Consultancy.

4.1.5 Patterns of usage have been identified by annual monitoring surveys since 1991. During the 11 years when June counts have been made, 8 have been over 250 and two over 300 with the highest recorded June count of breeding females at 309. The highest overall count was 412 in July 1990 that included juveniles.

4.1.6 Bats emerge from the culvert entrance at dusk and appear to congregate in the downstream, heavily tree lined section of the river between the culvert and the end of the gas site, in the immediate post sunset period before moving off to feeding areas. Core feeding areas appear primarily to be the Fleets and to a lesser extent the Dearne Valley Park. These areas are generally accessed from the river corridor but bats flying upstream from the roost detour through the adjacent small woodland area to avoid the weir.

4.2 Existing survey records

4.2.1 Annual June counts have been made for a number of years as part of the National Bat Colony Survey and later the National Bat Monitoring Programme. Other counts have been made to determine seasonal usage of the site.

4.2.2 Between 1990 and 1993, simultaneous counts were made at the culvert entrance (to count the total number of bats emerging) and beside the bridge on the west side of Old Mill Lane (to count the number of bats flying upstream to feed over the Fleets) These counts are entered in brackets in the table below and also expressed as a percentage with generally about 70-80 % of the bats in the culvert feeding west of Old Mill Lane, probably over the Fleets. On two or three occasions in 1991/92, these westerly movements of bats were higher than the numbers counted out of the culvert, so another undiscovered roost site clearly exists.

4.2.3 There is no evidence that the site is used during the winter, when the culvert is occasionally inundated.

Table showing records of bats counted.

Year	Date	May	Jun	Jul	Aug	Sep
1990	24/6		(171)			
1990	27/6		(185)			
1990	11/7		(203)			
1990	23/7		(261)			
1990	29/7			412		
1990	06/9					170

Year	Date	May	Jun	Jul	Aug	Sep
1991	26/5	186 (192) 103%				
1991	11/6		197 (142) 72%			
1991	08/7			251 (172) 68%		
1991	22/7			325 (268) 82%		
1991	05/8				177 (227) 128%	
1992	09/6		271 (198) 73%			
1992	13/7			316 (240) 76%		
1992	18/8				127 (171) 134%	
1993	01/6		309 (133) 43%			
1993	08/6		294 (210) 71%			
1994	06/6		286			
1994	20/6		283			
1995	20/6		266			
1996	04/6		168			
1996	18/6		196			
1997	02/6		170			
1997	10/6		261			
1998	No records					
1999	09/6		212			
1999	25/6		258			
2000	05/6		278			
2000	14/6		304			
2001	No records					
2002	12/6		257			
2002	16/6		152 count interrupted.			
2003	08/6		293			

4.3 Topographical Survey

4.3.1 A topographical survey was carried out on 19th November 2003, to determine the precise position of the roost site below the roadway and its depth.

4.3.2 At the point where the roost site is located at the head of the culvert, the level of the inside of the culvert is 1.04 metres below the tarmac road surface. The roost chamber is within that figure but the nature or size of the chamber is unknown. It must be assumed therefore that the top of the feature may be quite near to the road surface.

4.3.3 Two open manhole chambers, about 600mm square, were noted in the culvert roof. One near the river boundary fence to the gas site was uncovered and clearly used by children to gain access to the culvert. The second was at the mid point of the culvert and covered at the top. Both of these chambers were visibly about 900mm deep from the crown of the culvert.

4.3.4 It seems likely that the roost chamber may be a similar structure, possibly with an iron cover below the tarmac road surface.

4.4 Site habitats

4.4.1 In habitat terms the river downstream passes through a series of meanders with the gas site on the north bank and various industrial premises on the south bank. The river is confined within tall retaining walls until after the gasholder, thereafter the river is within more naturally vegetated banks. The whole section is thickly covered with trees, mostly Sycamore *Acer pseudo-platanus* overhanging the river and creating a tunnel effect. Beyond the gas site the river turns abruptly south and runs straight and parallel to the former railway line, now a footpath.

4.4.2 Upstream from the culvert, the river immediately passes beneath the A61 Old Mill Lane and after a short stretch crosses a tall weir. Between the bridge and the weir the river is confined within tall concrete walls but returns to a naturally vegetated bank above the weir. The north bank here has a small woodland area, predominantly Sycamore *Acer pseudo-platanus*, but also some Crack Willow *Salix fragilis*, Silver Birch *Betula pendula*, Beech *Fagus sylvatica*, Hawthorn *Crataegus monogyna* and Elder *Sambucus nigra*. There is a substantial area of Giant Hogweed *Heracleum mantegazzianum*. Three very large mature specimens, two Sycamore *Acer pseudo-platanus* and one Beech *Fagus sylvatica* dominate this area.

4.5 Status

4.5.1 The culvert and surrounding habitats along the River Dearne, is a candidate site for inclusion in the list of Natural Heritage Sites in the Barnsley Unitary Development Plan (UDP).

4.5.2 In terms of colony size, this is a very large colony for Daubenton's bat *Myotis daubentonii* with June counts of breeding females up to 309 bats and with the highest recorded count at 412 (July 1990). Average nursery colony size for this species is 20-50 bats. Only 2 or 3 nursery roost sites for Daubenton's bat are known to be of similar stature in Britain and this is probably the largest.

4.5.3 All species of bat are fully protected under the Wildlife & Countryside Act 1981 and the Habitats Regulations 1994. Further information is given on the legislation and on D.E.F.R.A. licensing arrangements later in this report.

4.5.4 The scrub area west of Old Mill Lane, is listed in the UDP as a nature conservation site. This recognises its importance as a "commuting route" for bats feeding areas at the Fleets, avoiding the weir.

4.5.5 The trees along the river corridor are protected by a Tree Preservation Order.

5. Evaluation of Survey Results

5.1 Evaluation of habitats

5.1.1 In order to support a colony as large as this, the feeding habitat is clearly very suitable indeed. The presence of large water bodies, all linked by the River Dearne is a combination that is capable of supporting an unusually large colony of these bats.

5.2 Evaluation of Survey Results

5.2.1 The culvert itself supports a nationally important nursery roost of Daubenton's bats *Myotis daubentonii*. Only 2 or 3 roosts of similar size are known nationally and this is probably the biggest.

5.2.2 The habitats along the river corridor form vital connective habitat or "bat commuting routes" and core feeding areas. The loss or fragmentation of this connective habitat and any degradation of the feeding areas would seriously prejudice the future viability of the roost site and the colony.

5.2.3 These features are included in the Barnsley Local Biodiversity Action Plan

HAP 15 Running Water
HAP 16 Open Water

5.3 Evaluation of Legal situation.

5.3.1 All bats are fully protected under the Wildlife & Countryside Act 1981 and the Habitats Regulations 1994. Under this legislation, it is an offence to intentionally or recklessly kill, injure, capture or disturb bats or to damage, destroy or obstruct access to any place used by bats for shelter or protection.

5.3.2 The culvert is confirmed as a bat roost in respect of the legislation.

5.3.3 There is a defence under the legislation, where the disturbance is the result of a lawful operation that could not reasonably have been avoided. In order to benefit from this defence, English Nature must be consulted and allowed reasonable time to provide advice.

5.3.4 Where bats may be affected by development proposals, a licence is required from the Department for the Environment, Food and Rural Affairs (DEFRA). Further information is given in the following section and the procedure for this is set out in Appendix 2 & 3.

5.4 Licensing arrangements

5.4.1 DEFRA's published guidelines on the licence procedure indicate that if, on the basis of survey information and specialist knowledge of the species concerned, the proposed activity is **reasonably likely** to result in an offence then, as in this case, a licence may be required. If the works can be carried out without disturbance to the bats or the roost a licence will not be required.

5.4.2 That application will require the production of a detailed Method Statement, setting out clearly how the scheme can be implemented whilst meeting the following test:-

- **"the action authorised will not be detrimental to the maintenance of the population of the species at a favourable conservation status in their natural range"**

.5.4.3 The approved Method Statement will form part of any licence issued.

5.4.4 DEFRA announced changes to the European Protected Species application process, taking effect from 1 September 2003. These are incorporated in an updated appendix 2 and detailed in Appendix 3 and should be carefully considered by developers. The main change relates to the requirement for applicants to submit a "Reasoned Statement of Application". This requires details to be provided on land use and allocations, planning history and policies etc.

5.4.5 More particularly it requires applicants to provide a clear and reasoned case of the need for the proposed activity, detailing how and why the activity meets the two tests:-

- **Regulation 44 (2) (e) "preserving public health or public safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment"**

- **Regulation 44 (3) (a) "that there is no satisfactory alternative"**

5.5 Conservation status

5.5.1 Status of species present.

Common name	Scientific Name	Status	Distribution
Daubenton's Bat	Myotis daubentonii	Widespread/Common Not threatened	Found feeding over most lakes, reservoirs, canals and smooth flowing rivers. A number of roost sites are known in the Barnsley Area but mostly only 5-30 bats.

6. Impact Assessment

6.1 Short term impacts during development

Impact	Mitigation
Potentially risk of breaking into the roost chamber. killing or injuring large numbers of bats during road construction work.	The scheme has been redesigned to locate a traffic island over the roost site. This will be constructed on top of the existing road surface, to avoid the risk from excavations.
Potential risk of breaking into the culvert during building work.	The culvert (away from the roost site) will be uncovered by hand digging to avoid risk of damage and will be protected, under the roadway and footpath with a reinforced concrete slab to avoid the possibility of damage from ad-hoc excavations in the future.
Disturbance to bats during road construction work.	Choice of design and materials to reduce noise and vibration around the roost site. No excessive noise or disturbance during April to September inclusive.

6.2 Long term impacts after completion of development.

Disturbance may cause colony to abandon the site.	Minimise disturbance with season of work and care in reducing noise & vibration.
Threat to roost from future excavations in the highway.	Protect the culvert and the roost site with a reinforced concrete layer beneath the road and footpath construction. Carefully record the site in Public Utility records.
Threat to emerging bats from recreational use of the river corridor eg. riverside footpath route.	Any proposals should avoid passing close to the culvert entrance to keep this area as undisturbed as possible. Screed planting & fencing may be required.
Threat to bats use of the river corridor from lighting.	Any new or altered lighting scheme must be designed in such a way that the river corridor is maintained with light levels no greater than existing at present. Car park lighting to the development site must be directional.

7 Mitigation

7.1 Overall, the culvert is 90 metres long and currently 19 metres lie outside the gas site under the public highway. The bat roost has always been vulnerable to excavations in the highway. Breaking through the road surface into the roost chamber could result in the total destruction of this colony in minutes.

7.2 This scheme for creating a new access involves alterations to the existing road alignment affects an additional 6 metres of the culvert being exposed under the highway.

7.3 The culvert is therefore more vulnerable to damage, both in the short term during construction but also in the long term through excavations in the highway. A robust scheme of mitigation will be required to deal with both of these elements.

7.4 In addition, there are two further threats, indirectly related to this scheme, concerning future development of the site. These concern car park lighting (the need to maintain the river corridor in

darkness) and possible recreational developments involving the creation of a footpath route along the river banks (need to keep public access well away from the culvert entrance).

7.5 No excavation work should be carried out within 3 metres of the centre line of the culvert and no work should be carried out in the vicinity of the culvert that might cause significant noise or vibration, between the months of May to September inclusive, when the bats are breeding.

7.6 Excavation works over the culvert should be done with extreme care and should be done by hand. The culvert should then be protected by a reinforced concrete slab constructed over the line of the culvert below the public highway and footpath.

7.7 It is noted that the scheme has been redesigned to place the roost site beneath a new traffic island and that the island will be raised up to a height of 400mm above the existing road surface to ensure that no excavation is necessary over the roost.

7.8 Two existing manhole features along the culvert will need attention. The manhole at the centre point of the culvert offers the potential for creating an additional roosting site for the colony. A suggested design for this is attached for your consideration. The exposed manhole chamber near the entrance of the culvert should be permanently sealed for safety and to prevent disturbance.

7.8 In relation to the development of the site, the design should seek to protect the line of the culvert from future disturbance. There should also be careful attention given to car park lighting proposals to maintain the river corridor in darkness. Any proposals for new riverside footpath links should aim to avoid public access close to the culvert entrance or develop the adjacent land in such a way that public access is made more likely.

8 Recommendations

8.1 If the works can be carried out as described, without disturbance to the bats, a DEFRA licence application will not be required. This will, however, need to be kept under review, in case scheme modifications result in a need to change that advice.

8.2 If a licence application does become necessary, this process generally takes 30 working days from submission. The application would require the production of a detailed Method Statement on how the development aims can be achieved whilst maintaining the population of the species concerned. Further details of the licensing process are given in the appendices. The culvert has been confirmed as a bat roost and should not be disturbed in any way until a licence has been issued.

8.3 Building work could go ahead around the culvert provided that disturbance is not caused as described in this report. The work to the two manholes should a carried out outside the breeding season (May to September).

8.4 Timing of the works will be important. A more detailed timetable of works for this scheme will need to be devised when scheme details have been progressed sufficiently.

8.5 That in any discussions over the future details of the development to take place on the former gas site, the developers should be made aware of the need to protect the culvert in the site design, to carefully design lighting schemes to maintain the river corridor in darkness and to ensure that there is no public access to the river bank within 30 metres of the culvert entrance.

9 Appendices.

Appendix 1 Legal situation relating to bats as protected species.

1 There are two main pieces of legislation. The **Wildlife & Countryside Act 1981** covers wildlife in the UK and the **Habitats Regulations 1994** covers wildlife across all European member states. This legislation has been updated by the **Countryside & Rights of Way Act 2000.** Both pieces of legislation cover broadly the same areas.

2 **It is an offence to intentionally or recklessly kill, injure or capture or disturb bats or to damage, destroy or obstruct access to any place used by bats for shelter or protection.**

3 A breeding or resting site of any bat is known as a bat roost. A bat roost is any structure a bat uses for shelter or protection. Because bats tend to reuse the same roosts each year, legal opinion is that the roost site is protected whether or not the bats are present at the time. English Nature, (the government body for nature conservation in England) advise that it is an offence to damage or destroy a bat roost at any time of year.

4 Planning Policy Guidance Note **PPG9 – Nature Conservation**.provides that the presence of a protected species is a material consideration when a Local Planning Authority is considering a development proposal which, if carried out, would be likely to result in harm to the species or its habitat. Local Authorities should consult English Nature before granting planning permission and should consider attaching appropriate planning conditions.

5 Under the **Habitats Regulations** bats of all species are regarded as European Protected Species (EPS) and as such the level of protection is very broad. Developers need to be aware of the implications of encountering EPS's on development sites. An understanding of the legislation and the licensing procedures should ensure that any nature conservation considerations are addressed at the earliest stages of the planning process. Finding EPS's on a development site at a later stage could result in expensive delays whilst a licence is sought or even offences being committed.

Appendix 2 - Licensing arrangements in relation to bats.

1. Where development proposals are likely to affect a roost site, a licence is required from the Department for the Environment, Food & Rural Affairs (DEFRA). In determining such an application, three tests must be met.

- To preserve public health or public safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment.
- That there is no satisfactory alternative.
- That the action proposed will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range.

2 A determination of the first two tests will be made by DEFRA after consultation with the Local Planning Authority and DEFRA will expect the planning position to be fully resolved. This is usually necessary to determine whether there is any satisfactory alternative and that the work is of overriding public interest.

3 In considering the third test DEFRA will seek advice from the government's statutory nature conservation adviser English Nature. EN will base it's advice on whether the proposed mitigation work is sufficient to maintain the conservation status of the species concerned.

4 DEFRA generally expect the licensing process to take about 30 working days although contentious cases might take longer.

5 Licence applications are generally made after planning permission has been given and must include the following:-

- A copy of the full planning permission.
- Written authority from the owner/occupier to permit entry to any employees of DEFRA and English Nature for the purposes of monitoring or inspecting the work.
- Written authority from the owner/occupier stating that the Applicant is acting on their behalf.
- A report or Method Statement which clearly describes how the proposed work will be carried out. This will include information regarding the methods used and results of the survey upon which the work programme is based. All reports must include details on all the headings in the defined method statement.
- A Reasoned Statement of Application setting out the legal basis on which the application is being made.

6 DEFRA will write to the local planning authority for information but if the following items can be included in the application it may speed up the process.

- A copy of the report to Planning Committee.
- A copy of the Planning Committee minutes for the meeting at which approval was given.

7 In cases where planning permission is not required DEFRA will require the application to include more detailed information on the proposed development, the purpose of the development and the legal basis under which it may take place. The development or associated activity may result from a statutory requirement under other legislation or be permitted under a Permitted development Order.

8 The person applying for the Licence "the Applicant" has to be suitably qualified and experienced in bat matters. The Applicant is then responsible for ensuring that the measures contained in the Licence (if approved) are carried out. From 1 November 2002, all applications must also be signed by both the Developer and the Contractor.

9 A Developer cannot operate lawfully without the Licence Applicant undertaking the work specified in the Licence. Licence applications must include written authority from the site owner/occupier to permit entry for monitoring and inspection purposes. At no time should Licence Applicants be denied access to the site for the purpose of fulfilling Licence conditions.

10 A DEFRA Wildlife Adviser will contact licensees to arrange an accompanied site visit to an active licensed site at anytime. Wildlife advisers will only make unaccompanied site visits if the applicant is unable to be present and a representative cannot attend or if DEFRA considers an unannounced site inspection is required.

11 If the Applicant becomes concerned that offences are being committed on the site by the developer or a third party which mean that Licence conditions cannot be met, the Applicant has a duty to report those offences to the body that issued the licence.

Appendix 3 – New DEFRA Licensing provisions taking effect from 1 September 2003.

1 Changes to the licence application procedure were announced by DEFRA on 29 August 2003, to take effect from 1 September 2003. These changes are set out below.

2 DEFRA have joined forces with the Rural Development Service to introduce a system of compliance checks. A DEFRA Wildlife Adviser will contact licensees to arrange an accompanied site visit to an

active licensed site at anytime. Wildlife advisers will only make unaccompanied site visits if the applicant is unable to be present and a representative cannot attend or if DEFRA considers an unannounced site inspection is required.

3 There are two significant changes to the application form. Firstly a section has been included for the applicant to indicate the purpose of the licence application by use of tick boxes (ie public health or public safety, overriding public interest, prevention of damage to livestock, fisheries etc)

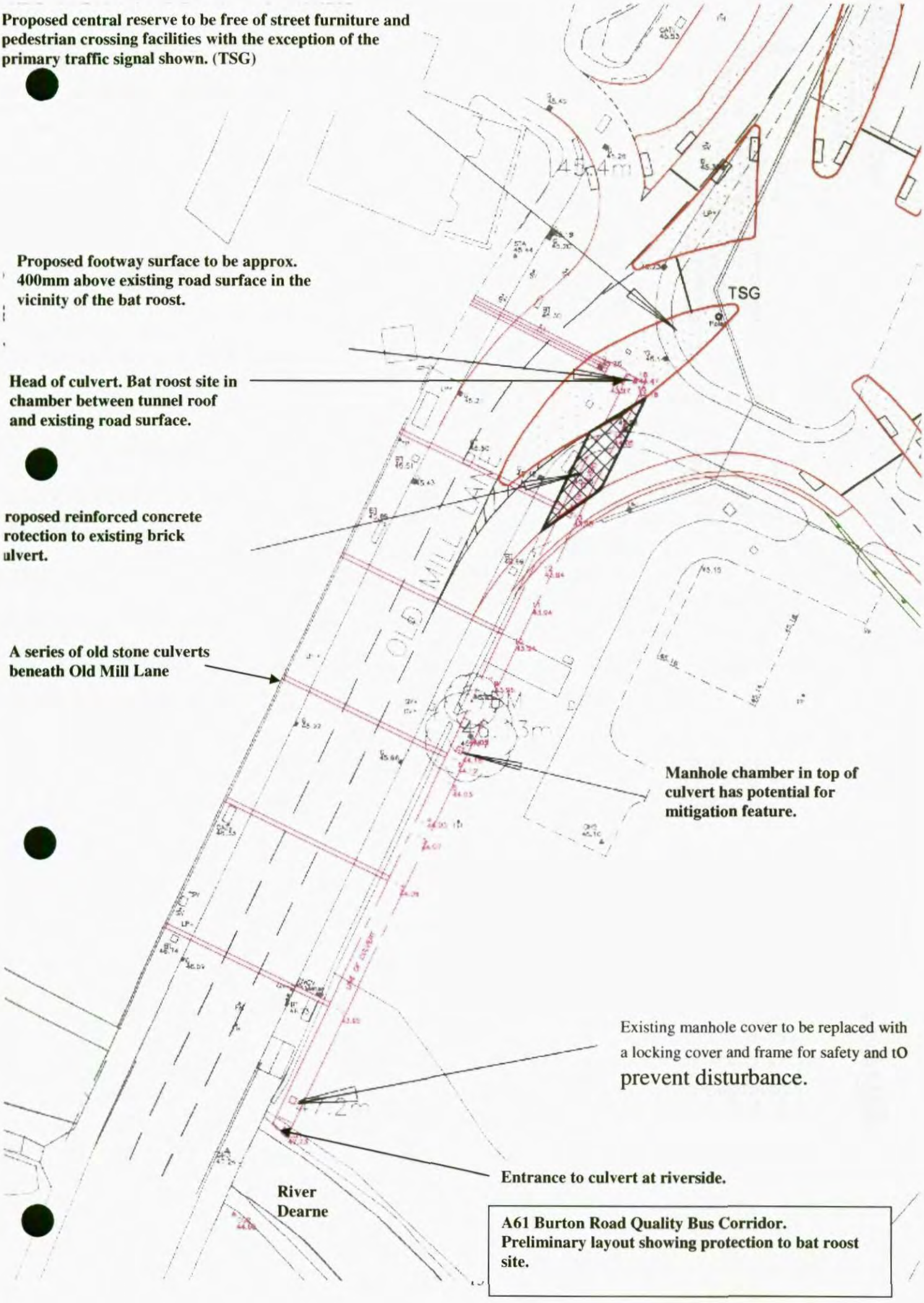
4 Secondly, a new document, known as a "Reasoned Statement of Application" has to be completed and appended to the application form. The purpose of the document is to allow the applicant (and their client) to present, in a standard format, the legal basis on which the application is being made. It will give an opportunity to the applicant (and their client) to provide their justifications as to how and why they believe the proposed development meets the requirements of the Habitats Regulations two tests of public health & public safety and no satisfactory alternative (appendix 2 (1) above.

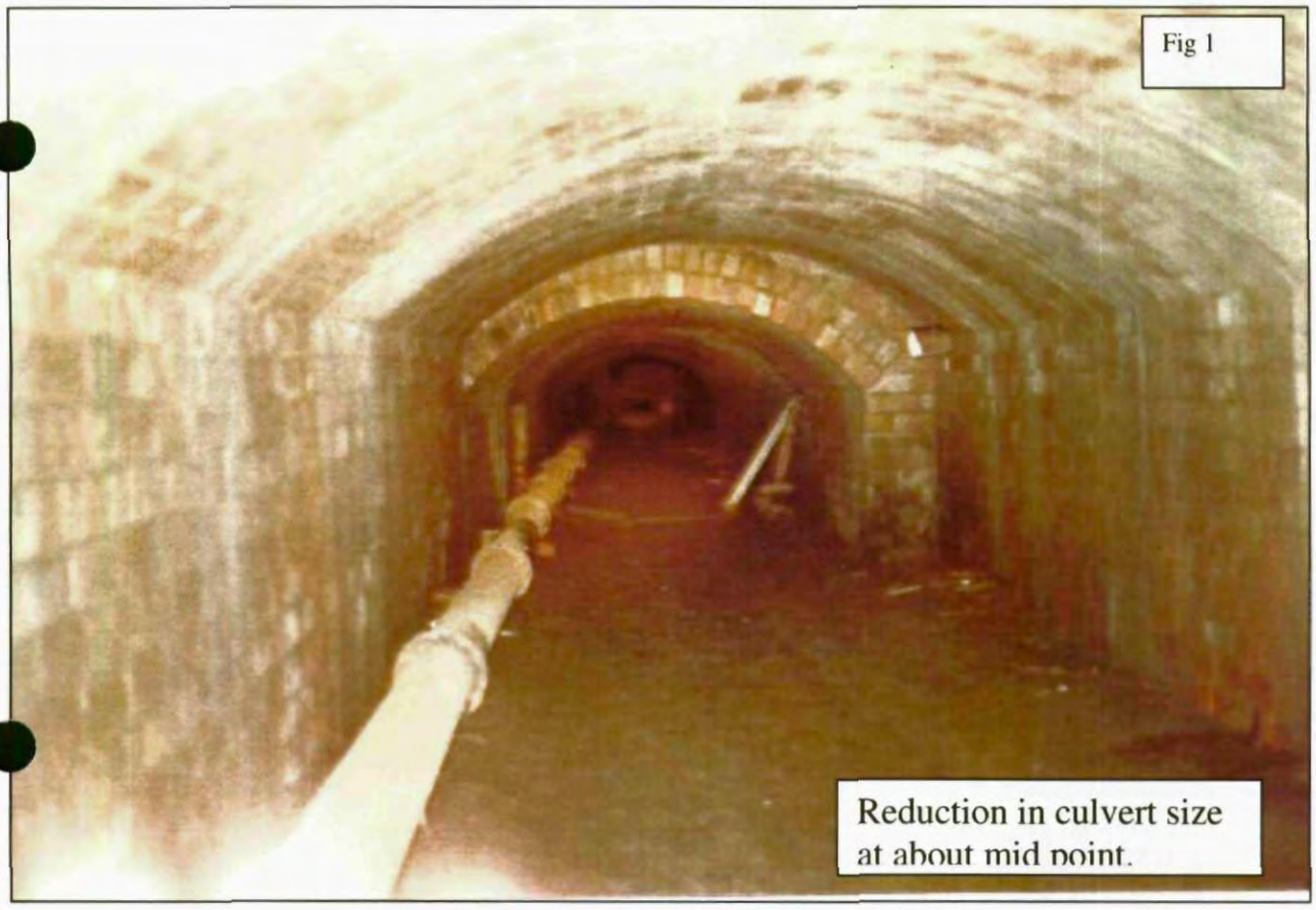
5 The reasoned statement should be clear and concise and provide rational and reasoned justifications. Information and documentation must be provided to substantiate any claims made in the statement. DEFRA will use the information given in the statement to assist in determining whether it is satisfied that the tests have been met.

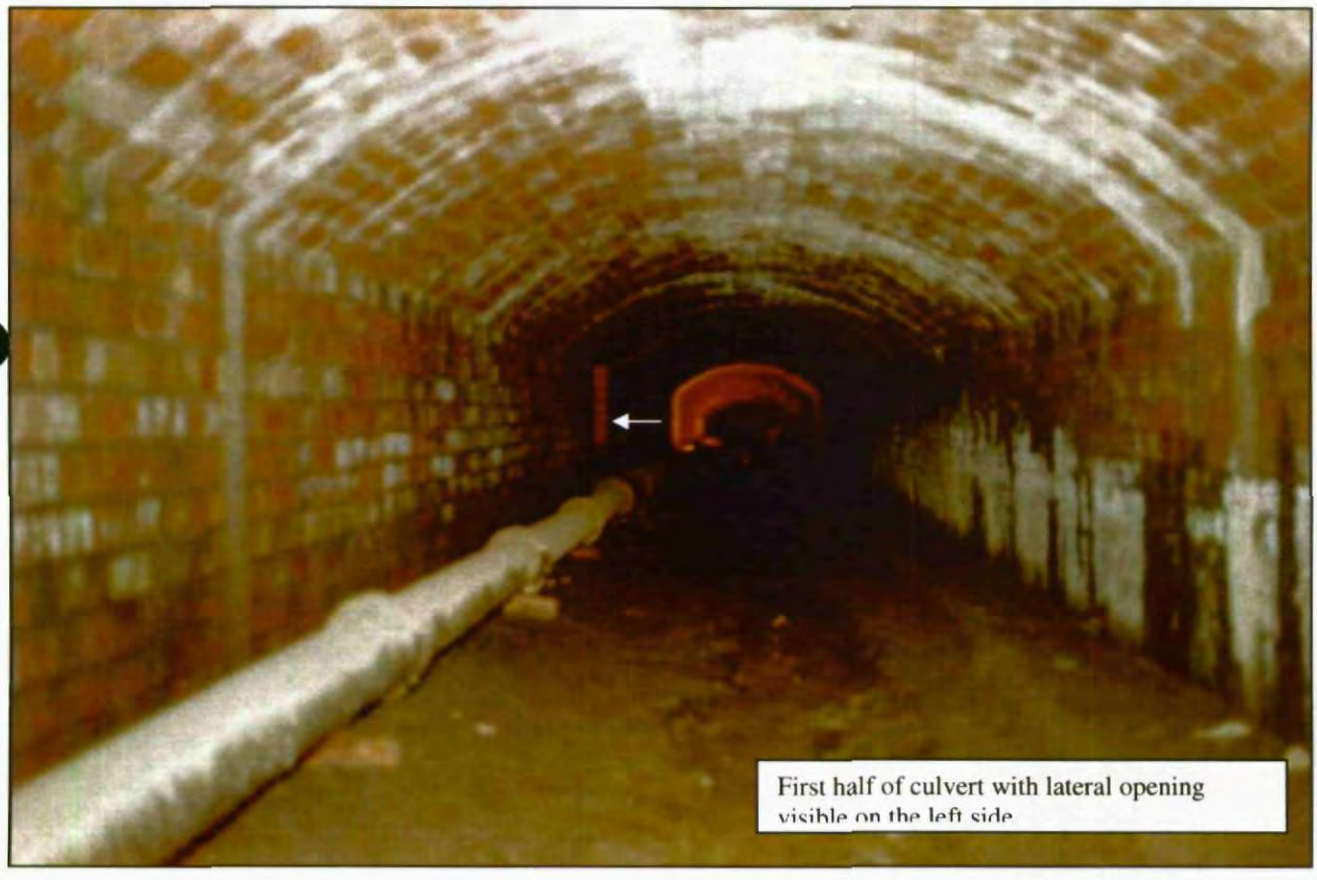
6 It is very important that the standard prescribed format is used. Failure to provide the information required may be grounds for refusal and the request made for the submission of a revised document. Applications may also be refused on the grounds that the statement contains insufficient information on which to determine the issues.

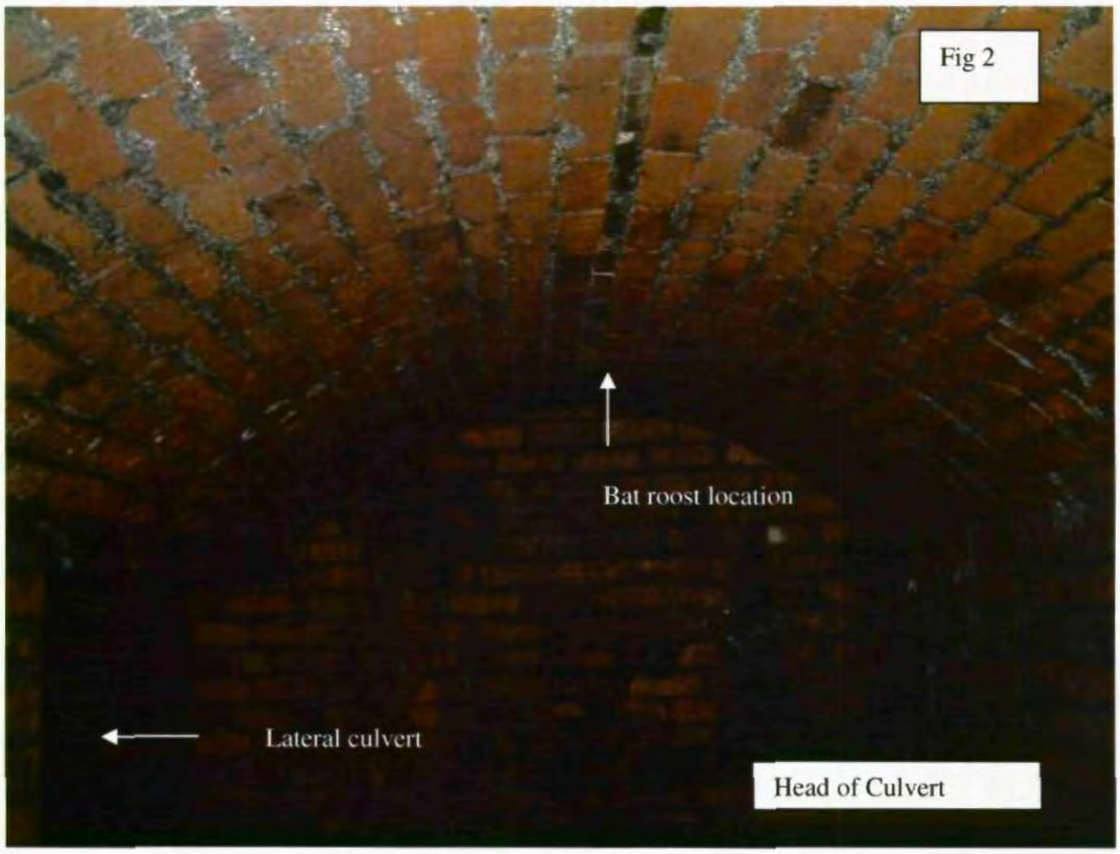
7 DEFRA will consult the Local Planning Authority on all licence applications, in addition to any other interested party, if it considers it appropriate to do so. The Reasoned Statement document will be provided to them for comment by written representations. Copies of any written representations received in response to consultations may be sent to applicants for information and further comment, if considered necessary. This may only be necessary where conflicting information is received.

8 The requirements to meet the third test, the favourable conservation status (appendix 2(1) above, will continue to be assessed through the Method Statement by English Nature.


Proposed central reserve to be free of street furniture and pedestrian crossing facilities with the exception of the primary traffic signal shown. (TSG)
Proposed footway surface to be approx. 400mm above existing road surface in the vicinity of the bat roost.
TSG
Head of culvert. Bat roost site in chamber between tunnel roof and existing road surface.
roposed reinforced concrete rotection to existing brick ulvert.
A series of old stone culverts beneath Old Mill Lane
OLD MILL LANE
Manhole chamber in top of culvert has potential for mitigation feature.
Existing manhole cover to be replaced with a locking cover and frame for safety and tO prevent disturbance.
Entrance to culvert at riverside.
River Dearne
A61 Burton Road Quality Bus Corridor.
Preliminary layout showing protection to bat roost site.


Fig 1
Reduction in culvert size
at about mid point.


First half of culvert with lateral opening
visible on the left side

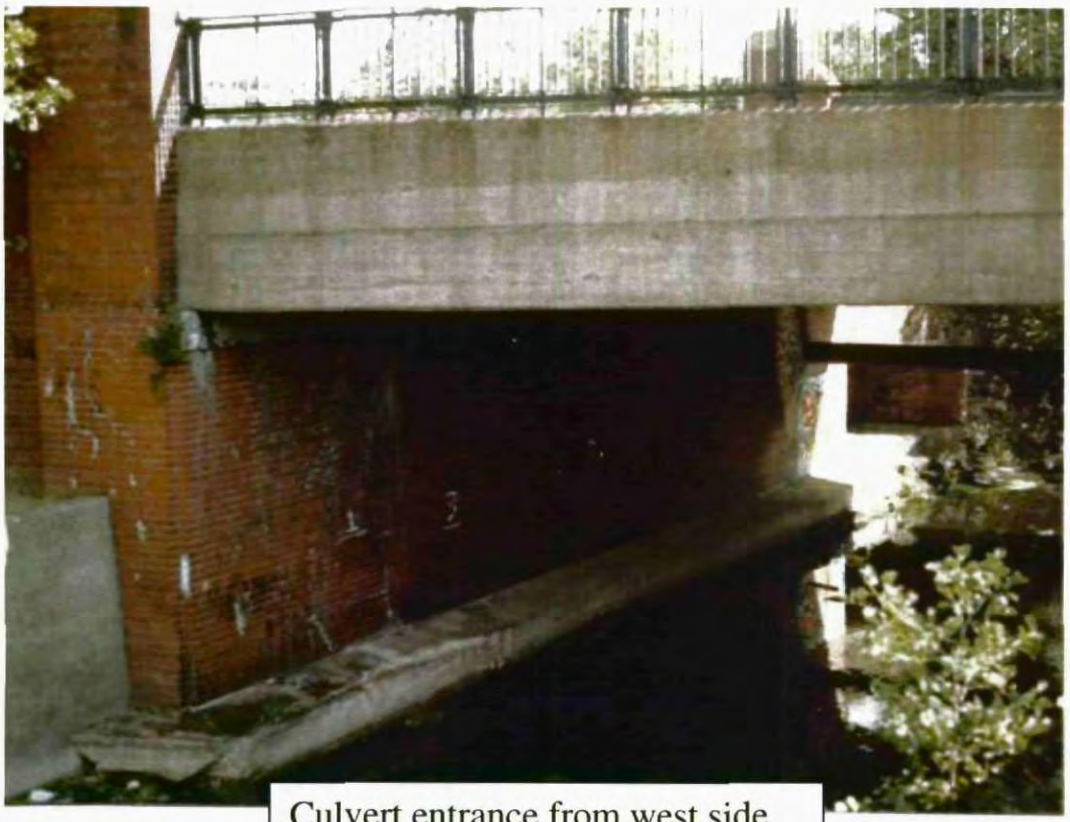

Fig 2
Bat roost location
Lateral culvert
Head of Culvert


Access through holes in steel cover.
Roost Chamber access

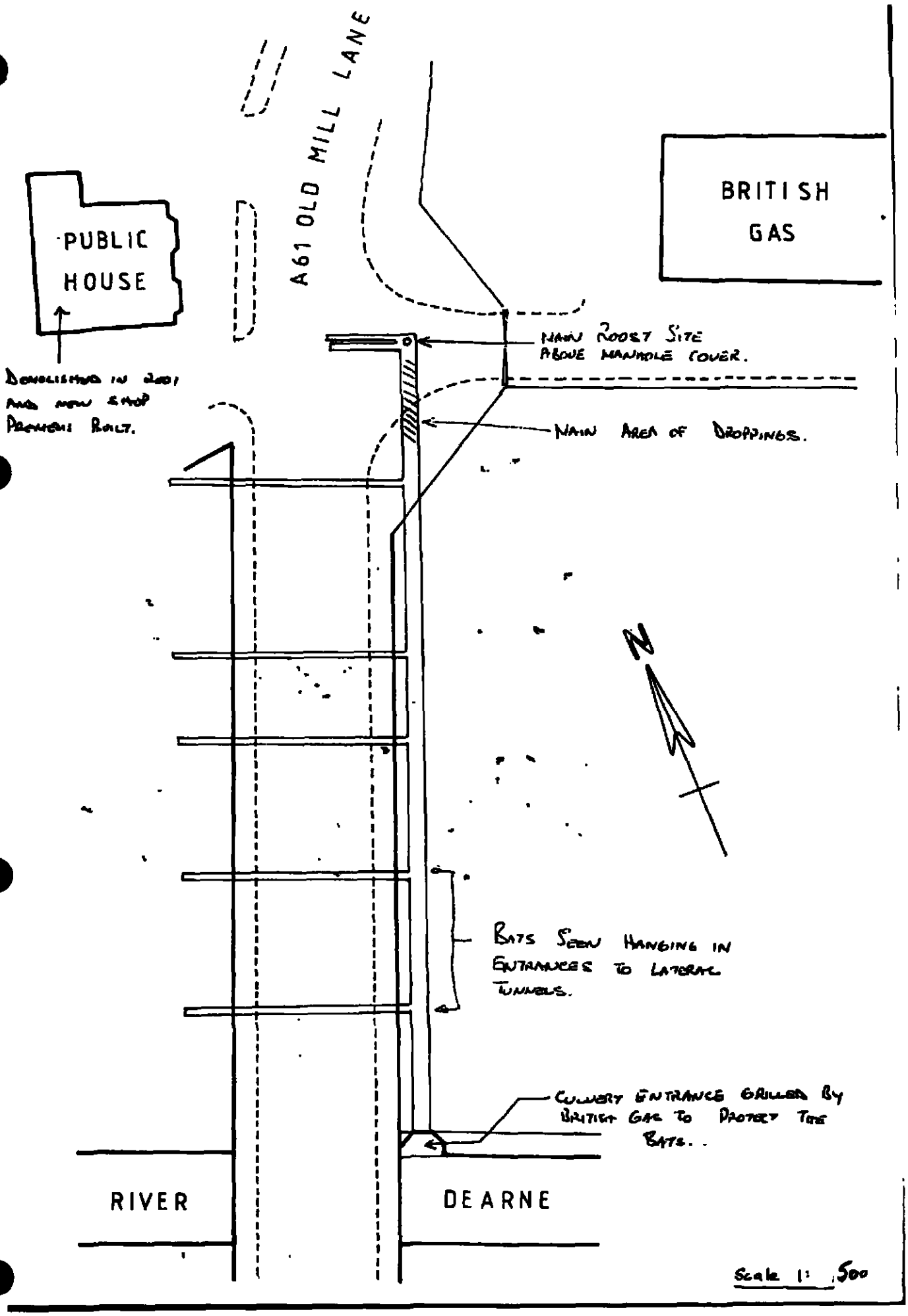
Fig 3



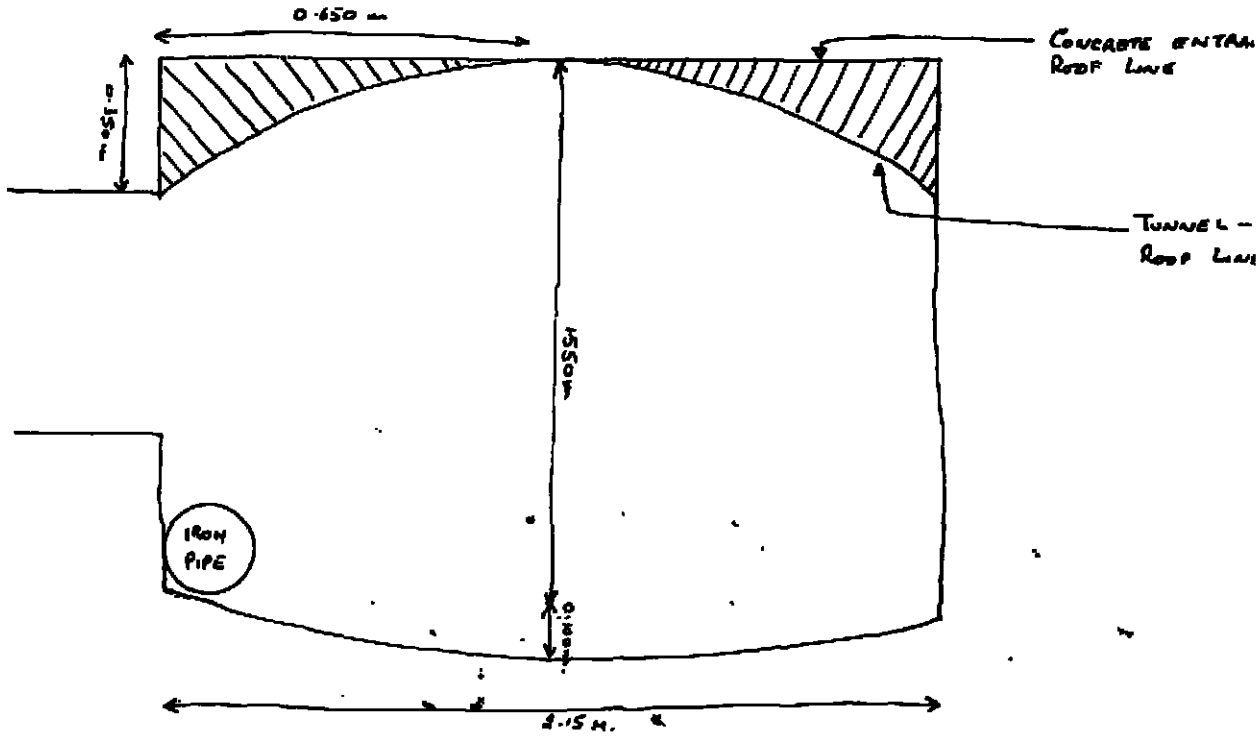
Culvert entrance prior to grilling.

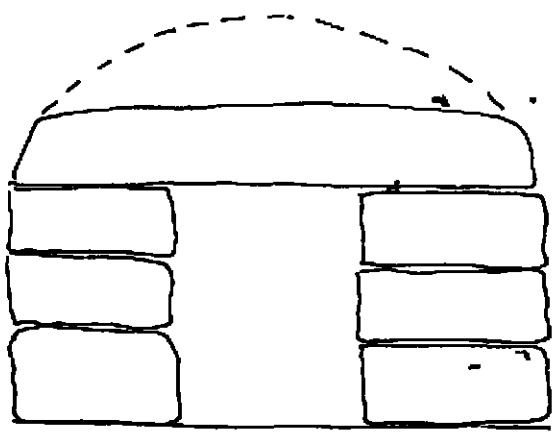


Culvert entrance from west side of Old Mill Lane.

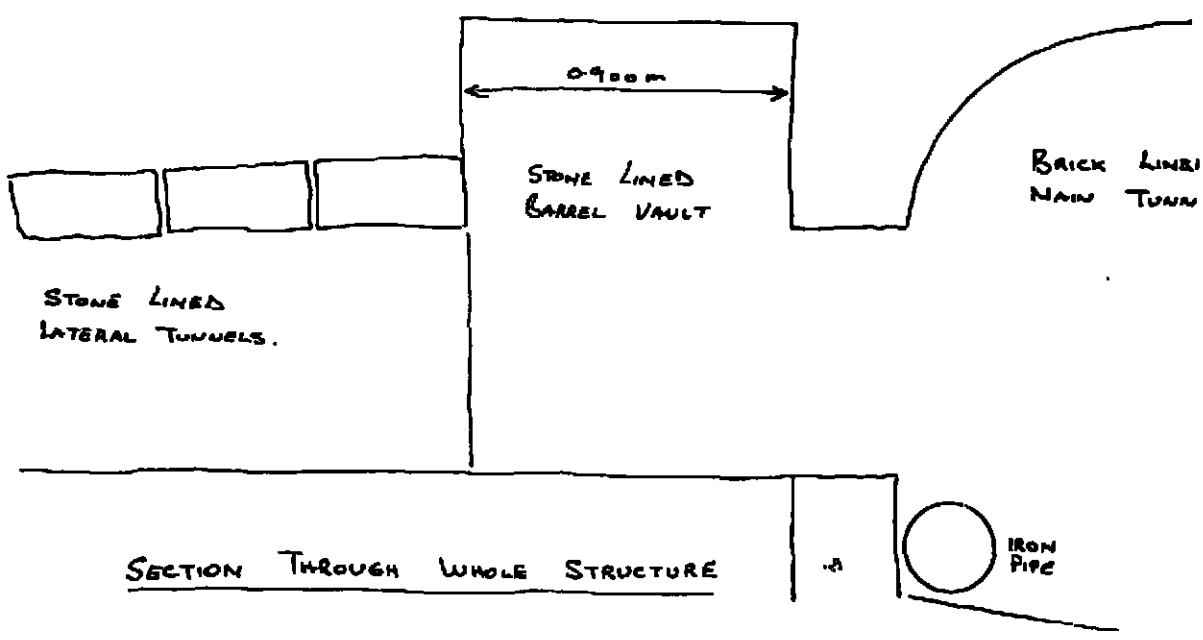

A61 OLD MILL LANE
PUBLIC HOUSE
BRITISH GAS
MAIN ROOST SITE ABOVE MANHOLE COVER.
MAIN AREA OF DROPPINGS.
BATS SEEN HANGING IN ENTRANCES TO LATERAL TUNNELS.
CULVERT ENTRANCE GRILLED BY BRITISH GAS TO PROTECT THE BATS.
RIVER
DEARNE
N
Scale 1: 500

SECTION – MAIN TUNNE





SECTION – LATERAL TUNNELS

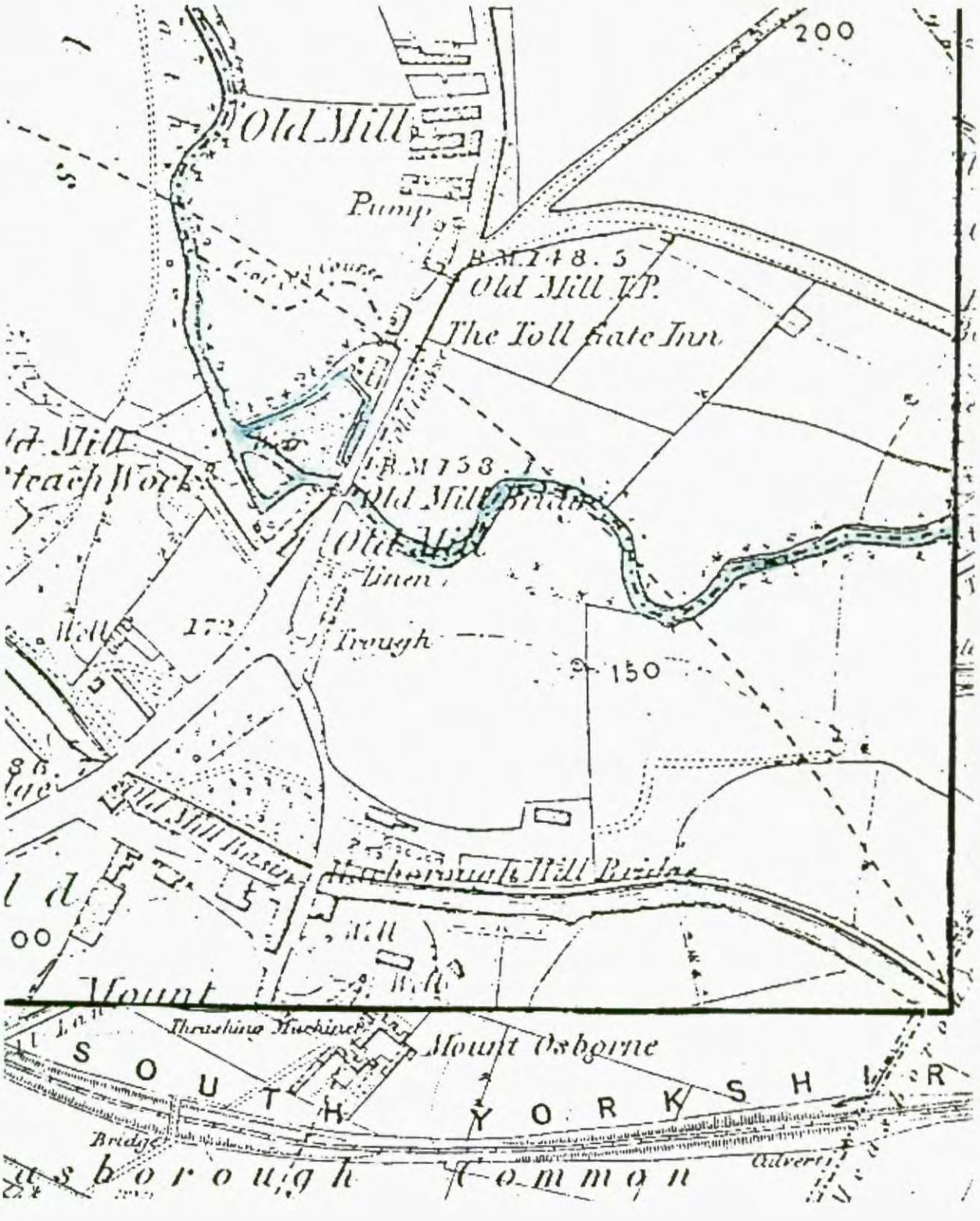


SECTION THROUGH WHOLE STRUCTURE





1850 OS


Old Mill
Pump
B.M.148.5
Old Mill T.P.
The Toll Gate Inn
B.M.138.1
Old Mill Bridge
Old Mill
Linen
Trough
200
150
172
Old Mill Bridge
Mount
Threshing Machine
Mount Osborne
S O U T H Y O R K S H I R E
Bridge
Culvert

APPENDIX 12.6: BAT REPORT (TEC)

PLANNING DESIGN ENVIRONMENT



Old Mill Lane Culvert Bat Roost (Candidate site)

NHS Assessment and Phase 1 Survey

Prepared by
TEP

for

Barnsley Metropolitan Borough Council

January 2011

(Report Ref 2481.40)

Genesis Centre
Birchwood Science Park
Warrington
WA3 7BH

T 01925 844004
F 01925 844002
E tep@tep.uk.com
W www.tep.uk.com

Site Name:	Old Mill Lane Culvert Bat Roost
Site Area:	10.27ha
Survey Date:	September 2010
Nearest Settlement:	Honeywell, Smithies
Grid Reference at Centre:	434979, 407486
Surveyor(s)	LAC, VG, RH (2010) Eric Bennett, Bat Consultancy (Mar 2004)

Site Description:

This site is located on the River Dearne, where it flows in a south-easterly direction just to the north-east of Barnsley Town Centre. The valley is crossed by the A61, heading from the town centre. The river contains a series of culverts associated with the road, the river and former mill races. The main culvert is approximately 2m wide by 1.5m and is estimated to be 90m long. It runs parallel to Old Mill Road to the former mill site and contains five side tunnels along its length which pass beneath Old Mill Road. Since 1990 this culvert has been known to support an important maternity roost for Daubenton's bat (*Myotis daubentonii*). The colony emerges from the grilled culvert entrance to feed along the river course and over the large waterbody at The Fleets (TN4), lying within the site boundary to the north-west of the A61.

The course of the Dearne is tree-lined, both upstream and downstream of the A61 bridge, with broader woodlands and plantations outside the site boundaries downstream. Downstream, the site is confined to a narrow strip along the river course where the banks have a lot of sycamore (*Acer pseudoplatanus*) and ash (*Fraxinus excelsior*) in the stretch as far east as the gasworks. Beyond that, to the south-east, the banks are lower with silver birch (*Betula pendula*) and goat willow (*Salix caprea*) dominated scrub/woodland with taller alders (*Alnus glutinosa*) along the river edge.

Upstream of the A61 the landscape of the floodplain opens out into recreation grounds and bodies of standing water. There is still a fringe of mixed deciduous tree growth along the heavily modified river banks to the north-west of the A61 bridge. Giant hogweed was noted both upstream and downstream of Old Mill Lane.

South of The Fleets there is a large area of plantation within the site (TN7), north-east of the superstore. There is also broadleaved woodland preset on the opposite bank of the Dearne (TN8). Former lagoons (TN6) that survive as tree-lined bodies of standing water are also present south of The Fleets. The Fleets is a large open waterbody with generally sparsely vegetated banks and little marginal vegetation present. The margins which are vegetated contain mainly reed sweet-grass (*Glyceria maxima*) and great willowherb (*Epilobium hirsutum*). As well as being used as a foraging resource for local bats, these waters are also fished by local anglers. There is a neutral grassland dominated bank with scattered trees and scrub (TN3, TN5) located between the large waterbody and the river. To the north scattered growth continues along the river course and there is some goat willow scrub (TN1, TN2). North-west of Smithies Lane the valley opens out into a much more rural landscape, beyond the site boundaries.

Important Species:

Daubenton's bat is a European protected species (receiving full protection in the UK under the Conservation of Habitats and Species Regulations 2010) and also receives some protection under the wildlife and Countryside Act 1981 as amended. All bats are considered as Local Biodiversity Action Plan Priority species. The Daubenton's colony which occupies the culvert near the bridge of the A61 is a maternity colony. Counts in September 2010, near the end of the maternity season, confirmed 67 bats exiting via the grilled culvert entrance. Significant proportions of the colony turned immediately to pass under the bridge, foraging along the river corridor to The Fleets. Smaller numbers also headed downstream. Common pipistrelles were also abundant and foraging upstream and downstream of the culvert. Lower frequencies of soprano pipistrelles were also noted.

Giant hogweed (*Heracleum mantegazzianum*) is a Schedule 9 listed invasive species and poses a risk to public health and safety. Japanese knotweed and Himalayan balsam, also Schedule 9 species, occur throughout the site along the river banks and under the tree cover.

Target Note:	TN1
Habitat:	Scattered scrub and trees

Species List:

Scientific Name	Common Name	Frequency
Crataegus monogyna	Hawthorn	D
Acer pseudoplatanus	Sycamore	F
Impatiens glandulifera	**Himalayan Balsam**	**F**
Rubus fruticosus agg.	Bramble	F
Salix caprea	Goat Willow	F
Salix fragilis	Crack Willow	F
Sambucus nigra	Elder	F
Urtica dioica	Nettle	F
Alliaria petiolata	Garlic Mustard	O
Angelica sylvestris	Wild Angelica	O
Artemisia vulgaris	Mugwort	O
Betula pendula	Silver Birch	O
Corylus avellana	Hazel	O
Dryopteris filix-mas	Male-fern	O
Elymus caninus	Bearded Couch	O
Epilobium hirsutum	Great Willowherb	O
Geum urbanum	Wood Avens	O
Rosa canina agg.	Dog Rose	O
Rubus idaeus	Raspberry	O
Stachys sylvatica	Hedge Woundwort	O
Symphytum x uplandicum	Russian Comfrey	O
Tanacetum vulgare	Tansy	O
Aegopodium podagraria	Ground-elder	R
Circaea lutetiana	Enchanter's Nightshade	R
Fraxinus excelsior	Ash	R
Malva moschata	Musk Mallow	R
Phyllitis scolopendrium	Hart's-tongue	R
Silene dioica	Red Campion	R
Stellaria holostea	**Greater Stitchwort**	**R**

D = Dominant, A = Abundant, F = Frequent, O = Occasional, R = Rare

Target Note:	TN2
Habitat:	Neutral grassland

Species List:

Scientific Name	Common Name	Frequency
Agrostis stolonifera	Creeping Bent	F
Arrhenatherum elatius	False Oat-grass	F
Dactylis glomerata	Cock's-foot	F
Holcus lanatus	Yorkshire-fog	F
Plantago lanceolata	Ribwort Plantain	F
Trifolium pratense	Red Clover	F
Achillea millefolium	Yarrow	O
Anthriscus sylvestris	Cow Parsley	O
Arctium minus	Lesser Burdock	O
Centaurea nigra	Knapweed	O
Elytrigia repens	Common Couch	O
Festuca rubra	Red Fescue	O
Heracleum sphondylium	Hogweed	O
Hypochaeris radicata	Common Cat's-ear	O
Lolium perenne	Ryegrass	O
Odontites verna	Red Bartsia	O
Plantago major	Greater Plantain	O
Tanacetum vulgare	Tansy	O
Taraxacum sp.	Dandelion species	O
Taraxacum sp.	Dandelion	O
Medicago lupulina	Black Medick	R
Senecio jacobaea	Ragwort	R

D = Dominant, A = Abundant, F = Frequent, O = Occasional, R = Rare

Target Note:	TN3
Habitat:	Broadleaved woodland

Species List:

Scientific Name	Common Name	Frequency
Acer pseudoplatanus	Sycamore	A
Fallopia japonica	**Japanese Knotweed**	**A**
Fraxinus excelsior	Ash	A
Arrhenatherum elatius	False Oat-grass	F
Chamerion angustifolium	Rosebay Willowherb	F
Dactylis glomerata	Cock's-foot	F
Impatiens glandulifera	**Himalayan Balsam**	**F**
Rubus fruticosus agg.	Bramble	F
Urtica dioica	Nettle	F
Alnus glutinosa	Alder	O
Artemisia vulgaris	Mugwort	O
Betula pendula	Silver Birch	O
Centaurea nigra	Knapweed	O
Corylus avellana	Hazel	O
Crataegus monogyna	Hawthorn	O
Dryopteris filix-mas	Male-fern	O
Elymus caninus	Bearded Couch	O
Festuca rubra	Red Fescue	O
Heracleum mantegazzianum	**Giant Hogweed**	**O**
Leucanthemum vulgare	Oxeye daisy	O
Rosa canina agg.	Dog Rose	O
Salix caprea	Goat Willow	O
Salix fragilis	Crack Willow	O
Sambucus nigra	Elder	O
Symphytum x uplandicum	Russian Comfrey	O

Tanacetum vulgare	Tansy	O
Cornus sanguinea	Dogwood	R
Hypericum perforatum	Perforate St John's-wort	R
Linaria vulgaris	Common Toadflax	R
Quercus petraea	**Sessile Oak**	**R**
Scrophularia auriculata	Water Betony	R

D = Dominant, A = Abundant, F = Frequent, O = Occasional, R = Rare

Target Note:	TN4
Habitat:	Open water, swamp

Species List:

Scientific Name	Common Name	Frequency
Glyceria maxima	Reed Sweet-grass	D
Epilobium hirsutum	Great Willowherb	F
Lycopus europaeus	Gypsywort	O
Salix fragilis	Crack Willow	O
Stachys palustris	Marsh Woundwort	O
Typha latifolia	Greater Reedmace	O

D = Dominant, A = Abundant, F = Frequent, O = Occasional, R = Rare

Target Note:	TN5
Habitat:	Scattered scrub, scattered trees

Species List:

Scientific Name	Common Name	Frequency	
Crataegus monogyna	Hawthorn	D	
Salix fragilis	Crack Willow	D	
Rubus fruticosus agg.	Bramble	F	
Urtica dioica	Nettle	F	
Alnus glutinosa	Alder	O	
Corylus avellana	Hazel	O	
Salix caprea	Goat Willow	O	
Sambucus nigra	Elder	O	
Acer platanoides	Norway Maple	R	
Calystegia silvatica	Large Bindweed		R
Geum urbanum	Wood Avens	R	

D = Dominant, A = Abundant, F = Frequent, O = Occasional, R = Rare

Target Note:	TN6
Habitat:	Open water, scattered trees

Species List:

Scientific Name	Common Name	Frequency
Alnus glutinosa	Alder	D
Geum urbanum	Wood Avens	F
Impatiens glandulifera	Himalayan Balsam	F
Moss sp.	Moss species	F
Rubus fruticosus agg.	Bramble	F
Salix fragilis	Crack Willow	F
Typha latifolia	Greater Reedmace	F
Agrostis stolonifera	Creeping Bent	O
Alliaria petiolata	Garlic Mustard	O
Betula pendula	Silver Birch	O
Calystegia silvatica	Large Bindweed	O

Corylus avellana	Hazel	O
Crataegus monogyna	Hawthorn	O
Fraxinus excelsior	Ash	O
Juncus articulatus	Jointed Rush	O
Lycopus europaeus	Gypsywort	O
Salix caprea	Goat Willow	O
Sambucus nigra	Elder	O
Carex sp.	Sedge species	R
Cornus sanguinea	Dogwood	R
Plantago major	Greater Plantain	R
Pteridium aquilinum	Bracken	R
Scrophularia auriculata	Water Betony	R

D = Dominant, A = Abundant, F = Frequent, O = Occasional, R = Rare

Target Note:	TN7
Habitat:	Broadleaved plantation

Species List:

Scientific Name	Common Name	Frequency
Acer campestre	Field Maple	F
Betula pendula	Silver Birch	F
Cornus sanguinea	Dogwood	F
Corylus avellana	Hazel	F

D = Dominant, A = Abundant, F = Frequent, O = Occasional, R = Rare

Target Note:	TN8
Habitat:	Semi-natural broadleaved woodland

Species List:

Scientific Name	Common Name	Frequency
Acer pseudoplatanus	Sycamore	D
Crataegus monogyna	Hawthorn	F
Rubus fruticosus agg.	Bramble	F
Epilobium hirsutum	Great Willowherb	O
Fagus sylvatica	Beech	O
Salix fragilis	Crack Willow	O
Sambucus nigra	Elder	O
Heracleum mantegazzianum	Giant Hogweed	R
Solidago virgaurea	Goldenrod	R

D = Dominant, A = Abundant, F = Frequent, O = Occasional, R = Rare

Management Issues:

Perhaps the greatest priority is to ensure that any management of the road surface, riverbanks and traffic flows does not deleteriously affect the important bat roost areas below the ground surface. It is essential to the integrity of the bat roost that suitable flyways are maintained and protected to preserve foraging and dispersal routes for the bats from the roost to the main feeding areas along the River Dearne and over The Fleets and other local waterbodies.

Invasive species occur throughout the site. Of primary concern is the presence of giant hogweed, where it occurs in locations that could be accessed by members of the public, as this species presents a risk to public health and safety.

Diversity:

This site does not hold any significant botanical diversity and the aquatic habitats are generally man-made or heavily modified. However the bat roost is of national ecological value and is the primary reason for the recommended designation of this site.

Naturalness:

The banks of the River Dearne are highly modified throughout the length of this narrow linear site. Beyond the edges of the river course there are a series of embankments and artificially created waterbodies. However, the bat roost occupies totally artificial habitat, showing how some species adapt well to unnatural structures within their habitats. Most of the plant species present here are locally native and no doubt help to support a range of native invertebrates, birds and mammals.

Rare or Exceptional Features:

An important feature is the old culvert complex and access points supporting the Daubenton's bat roost. This maternity colony is considered to be the most important for this species in the Borough and is thought to be of national importance due to its size. Previous counts have regularly recorded over 250 breeding females. The peak count was recorded in 1990 identified 412 bats and included juveniles.

Counts in 2010 may appear to be considerably lower than these earlier records, but it must be appreciated that the 2010 count was made late in the maternity season, when the colony is likely to be dispersing. The 2010 count, though likely to under record the colony size, is still above the average colony size for this species, normally counted at around 20-50 individuals.

The course of the River Dearne throughout the length of the site is also a feature of value.

Fragility:

The maternity roost is highly vulnerable to disturbance at inappropriate times of year during the course of any road management activity, redevelopment at the former mill or any changes to the river corridor. Even minor works to the road or other surfaces over the culvert could lead to significant disturbance. Any modification to the road surface above the roost chamber, which is situated very close below the surface, could potentially kill or injure a large number of bats in a very short space of time.

Development activities, including road improvements, can however be appropriately mitigated under licence. Of significant concern though is the loss of riverside trees and scrub on the other side of Old Mill Lane. Any fragmentation of the tree lined corridors that connect the maternity roost with the important feeding areas upstream could be disastrous, potentially resulting in roost failure. The stretch of river connecting the roost site to the closest primary foraging habitat at The Fleets contains a large weir. The majority of

bats have been recorded leaving the channel of the river just on the other side of Old Mill Road to fly and forage in the tree/scrub area along river bank in order to bypass the weir. These riverside habitats are therefore crucial to the maintenance of the roost.

The maternity colony is vulnerable to disturbance at the roost entrance at inappropriate times. The entrance is grilled, but the grill was unlocked at the time of the 2010 roost count.

Another threat to the integrity of the roost is fluctuating water levels. Flooding of the culvert could result in complete loss of the colony.

The river itself is vulnerable to contamination incidents along its length upstream that could spread downstream and affect this site with possibly damaging pollutants.

Typicalness:

The modified water course is fairly typical for the Barnsley area, reflecting the need to protect the nearby town centre from flooding incidents.

The use of the culvert by Daubenton's bats is not unusual for this species, but the large colony size is very uncommon. Only two or three Daubenton's roosts approaching the size supported at this site have been recorded in Britain. The roost is of high ecological value.

The range of plant species present is generally typical for urban riparian habitats.

Recorded History & Cultural Associations:

There is a long history of exploitation of the river and its banks along this stretch of the Dearne. The name Old Mill Lane relates to former milling activities here. The mill and mill race are shown on the 1779 Enclosure Map, but presumably date from long before that time.

The high slope of Burton Bank, just to the east, is the site for a Quaker burial ground established in the 1650s, indicating the length of time this section of the valley has been locally important.

The disused Barnsley Canal formerly ran parallel to the River Dearne, just to the south and west of the site. There is much social and industrial history locally that could be usefully researched to add value to the interpretation of this site.

Connectivity within the Landscape:

The River Dearne forms an integral part of this site, with strong links along the valley to other sites of wildlife value, both upstream and downstream. Beyond the flat valley bottom here the surrounds are mainly urban/industrial and built-up, being so close to the centre of Barnsley.

The bankside trees and scrub along the river are vital for the future viability of the Daubenton's bat roost.

Value for appreciation of Nature and Learning:

The Dearne Way runs along the valley, just to the west and south of the site, between the river and the course or the disused canal. There are also public footpaths along the northern bank of the river downstream of Old Mill Lane. The site is well connected by roads and pavements with Barnsley centre, just to the south-west.

The proximity of this site to Barnsley makes it very accessible for a number of local schools, however bat roosts do not lend themselves to large scale visits/disturbance.

Recommendations:

The historic records of the Daubenton's maternity colony could potential quality the site for notification as a Site of Special Scientific Interest (it having been, in the height of the maternity season, an exceptionally large roost with a long history of use at this site). Further monitoring over the maternity season (potentially over more than one season) is essential in order to verify the current size of the roost.

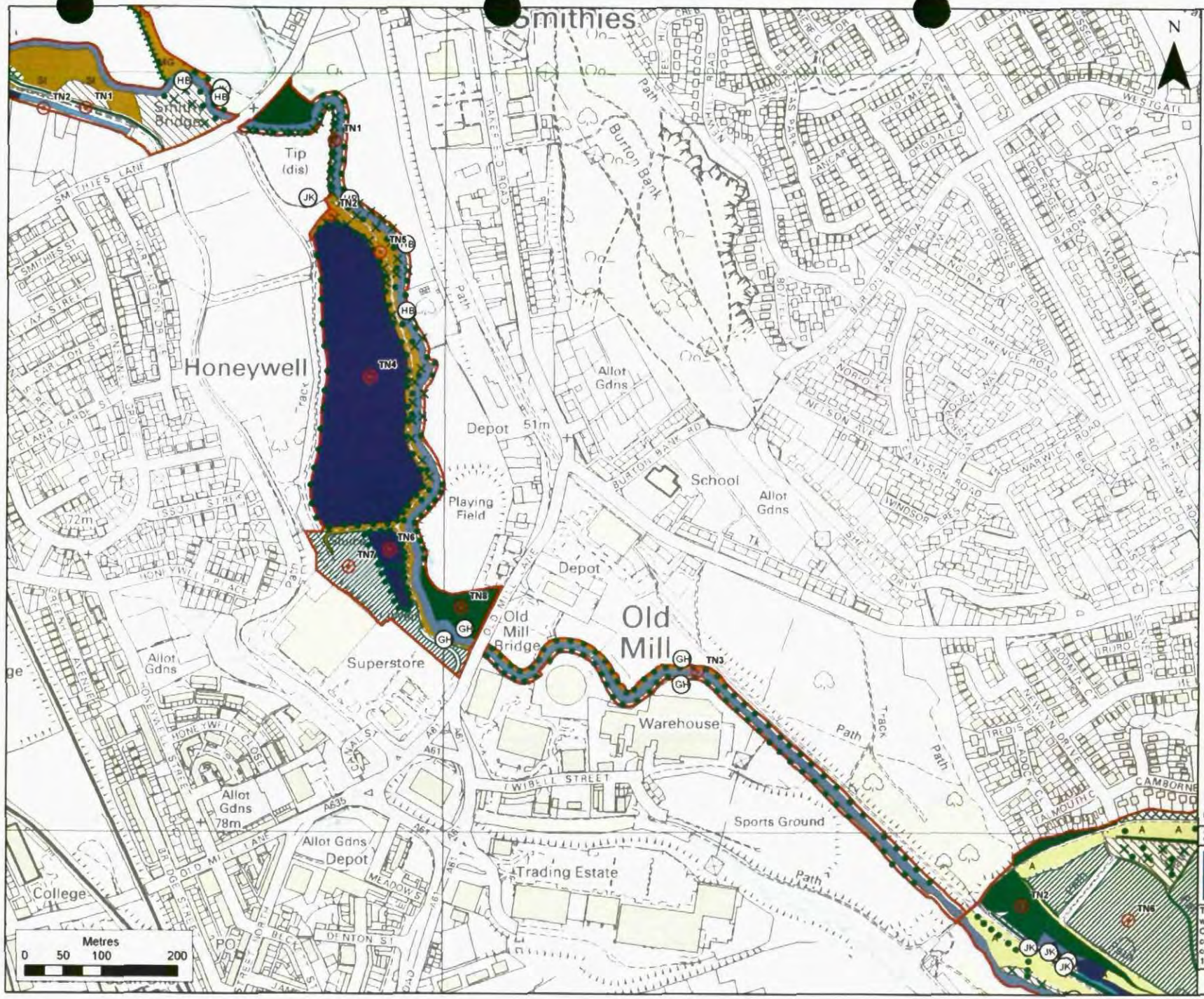
The size of the Daubenton's maternity colony is certainly sufficient to warrant designation of this site as a Natural Heritage Site under the species selection criteria. The site boundaries should include all bankside habitats leading up to Smithies Lane and down to the adjacent Cliff Wood NHS site downstream.

The future of the maternity colony is dependant upon the avoidance of disturbing or damaging activities that could affect the integrity of the culvert and of the roost chamber. Protection protocols should be established and advertised to ensure that awareness of the roost and roost chamber is raised prior to and during any road works or development activities. The potential requirement for a licence should be identified for any such works.

A management plan should ideally be formulated to encapsulate monitoring and maintenance objectives, such as inspecting the condition of the roost entrance and completing any necessary remedial works and undertaking river corridor habitat improvements that will strengthen corridors (particularly where structural habitats are missing) and alleviate flood risk.

Adjacent sites should also be monitored to establish their importance for foraging and identify other roost sites. The culvert should also be monitored seasonally to establish accurate patterns of use, particularly whether any hibernation occurs in Daubenton's bats or any other bat species.

Action: Adopt as Natural Heritage Site
Monitor maternity colony through the maternity season to determine whether the site qualifies for notification as a SSSI
Establish whether the site is use for hibernation roosting by Daubenton's bats or any other species of bat
Establish protection and management protocols for the long-term security of the roost



Natural Heritage Sites

Site Name

Old Mill Lane - Candidate Site

Area

10.27ha

Nearest Settlement

Honeywell

Key

- Study Boundary
- Target Notes
- Japanese Knotweed
- Himalayan Balsam
- Giant Hogweed
- Scattered Scrub
- Scattered broadleaved trees
- Semi-natural broadleaved woodland
- Plantation broadleaved woodland
- Unimproved neutral grassland
- Tall ruderal
- Standing water
- Running water (River Dearne)

Data Sources: BMBC

Scale 1:4,500 @ A3

TEP BARNSLEY Metropolitan Borough Council

This map is reproduced from Ordnance Survey material with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationary Office © Crown copyright. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings. 100022264 (2010)

G2481.010 | November 2010



UNITED
BY OUR
DIFFERENCE

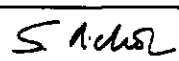
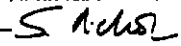
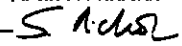
WSP

Old Mill Lane,
Barnsley,
Sustainability Statement

Peel Holdings Ltd

April 2012

QUALITY MANAGEMENT

Issue/revision	Issue 1	Revision 1	Revision 2	Revision 3
Remarks	Draft	Draft		
Date	February 2012	April 2012		
Prepared by	Russell Buckley	Russell Buckley		
Signature				
Checked by	Sean Nicholson	Sean Nicholson		
Signature				
Authorised by	Sean Nicholson	Sean Nicholson		
Signature				
Project number	20470	20470		
File reference	Birmingham	Birmingham		

CONTENTS

1	INTRODUCTION	193
2	METHOD	195
3	CONTEXT AND SUSTAINABILITY ISSUES	196
4	SUSTAINABILITY PROFILE OF THE PROPOSED DEVELOPMENT	200

1 INTRODUCTION

1.1 PURPOSE OF A SUSTAINABILITY STATEMENT

1.1.1 WSP Environmental Ltd was commissioned by Peel Holdings Ltd to prepare a Sustainability Statement to accompany an outline planning application for retail development at National Grid and Circle land, off Harborough Hill Road, Barnsley (hereafter referred to as the 'Proposed Development').

1.1.2 The site extends to an area of approximately 6.02 ha. The majority of the site is currently developed and the vast majority comprises brownfield land within urban Barnsley. The River Dearne runs through the site which effectively divides the site into two. The site is allocated for retail and commercial and employment uses, as well as for two utility companies. A small area of Urban Green Space and Green Belt runs through the site to the north of the River Dearne.

1.1.3 Several large scale retail warehouses and associated parking and servicing currently occupy the southern part of the site, alongside a large gas holder. To the north of the River Dearne is a cleared site comprising a former gasworks unit and a small wooded area. The majority of the site comprises hard landscaping associated with existing and previous commercial uses.

1.2 BACKGROUND

1.2.1 Sustainable development is advocated through international initiatives including the World Summit on Sustainable Development held in Johannesburg, 2002; national initiatives including the UK Government Sustainable Development Strategy (DEFRA, 2005 'Securing our Future'); and local initiatives such as Local Agenda 21 (LA21), developed in response to the Rio Summit in 1992. The principle of sustainable development runs throughout UK Government Strategy and planning policy.

1.2.2 Sustainable development is commonly defined as:

"*Development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (Brundtland Report, 1987 'Our Common Future').*"

1.2.3 Sustainable development is about creating solutions that meet environmental, social and economic objectives in an integrated and holistic way. The UK Government's strategy Securing Our Future - A Strategy for Sustainable Development in the UK (DEFRA, 2005) identifies five key objectives:

- Living within environmental limits;
- Ensuring a strong healthy and just society;
- Achieving a sustainable economy;
- Promoting good governance; and
- Using sound science responsibly.

1.3 SUSTAINABILITY APPRAISAL

1.3.1 Sustainability appraisal (SA) is the process used to identify the potential environmental, social and economic impacts of an activity, plan, project or decision as early as possible. It provides a systematic and auditable way to explore, justify and record significant or insignificant impacts. SA enables sustainable development objectives to be integrated into the Proposed Development and helps to identify opportunities for enhancing the performance of the Proposed Development in sustainability terms.

1.3.2 The SA undertaken for the Proposed Development has two key objectives:

- To assess the performance of the Proposed Development against a set of sustainability objectives; and
- To identify opportunities to enhance the sustainability performance of the Proposed Development;

1.4 THE PROPOSED DEVELOPMENT

1.4.1 The Proposed Development comprises:

- Development of raised food superstore (circa 1,292 sqm) to the south of the River Dearne;
- Associated car parking to be provided at ground floor level (beneath the store) with access (for both customers and service vehicles) to be taken via a road bridge over the River Dearne from a new spur to the Wickes arm roundabout off the Quality Bus Corridor;
- Landscaping is proposed along the river in order to improve the river corridor and create a community park. All landscaping matters are, however, reserved;
- A small retail unit (574 sqm) is proposed to the south of the river (and the north of the foodstore) intended as a kiosk for leisure/recreation associated with the river corridor and community park;
- A Petrol Filling Station (and car wash / retail kiosk of 73 sqm) to the north of the river with access from the new link road (QBC); and
- A third retail unit of 1,961 sqm with associated parking and service access is proposed to the north of the river, and the new link road, as a reconfiguration of existing planning permission for a retail warehouse (obtained by National Grid).

1.4.2 The remainder of this statement is structured as follows:

Section 2 Method	Describes the approach adopted for the SA
Section 3 Context and Sustainability Issues	Describes the policy context for the Proposed Development with respect to the prevailing sustainability issues from regional to local considerations
Section 4 Sustainability Profile of the Proposed Development	Describes how the Proposed Development will help to achieve the sustainability objectives
Section 5 Conclusions	Summarises the sustainability performance of the Proposed Development

2 METHOD

2.1 INTRODUCTION

2.1.1 This section sets out the approach adopted for the SA. The approach has been divided into two key tasks comprising an assessment of the Proposed Development and the preparation of a Sustainability Statement. A description of these tasks is provided below.

2.2 APPRAISAL OF THE PROPOSED DEVELOPMENT

2.2.1 The Proposed Development has been appraised to ascertain how the proposals are meeting the sustainability objectives and where further actions / enhancement measures could be integrated into the scheme.

2.2.2 The sustainability appraisal was based on the objectives set out in the Barnsley Metropolitan Borough Council *Core Strategy Sustainability Appraisal* (2010), amended to be suitable to assess a scheme of the nature of the Proposed Development.

2.3 COMPILATION OF A SUSTAINABILITY STATEMENT

2.3.1 This Sustainability Statement was then prepared to inform the Proposed Development and to accompany the outline planning application. This Statement describes the performance of the Proposed Development with respect to the sustainability issues and the policy context set out in Section 3, including the key sustainability issues identified for the area.

3 CONTEXT AND SUSTAINABILITY ISSUES

3.1 INTRODUCTION AND POLICY BACKGROUND

3.1.1 This section provides a review of the key documents that set the planning policy and sustainability context for the Proposed Development from the national, regional and the local level.

National Policy

3.1.2 The Government's National Planning Policy Framework (NPPF) was published on the 27th March 2012 and supersedes the Government's Planning Policy Guidance notes (PPGs) and its more recent Planning Policy Statements (PPSs).

3.1.3 Paragraph 1 of the NPPF sets out its purpose, which is that

"The National Planning Policy Framework sets out the Government's planning policies for England and how these are expected to be applied".

3.1.4 The NPPF states that the purpose of the planning system is to contribute to the achievement of sustainable development (paragraph 6). The policies in paragraph 18 to 219, taken as a whole, constitute the Government's view on what sustainable development in England means in practice for the planning system.

3.1.5 Paragraph 4 explains that there are three dimensions to sustainable development. These are an economic role, a social role and an environmental role. These roles are mutually dependent and should be sought jointly and simultaneously through the planning system.

3.1.6 At the heart of the NPPF is the presumption in favour of sustainable development (paragraph 14), which is stated to be 'a golden thread running through both plan making and decision taking'. However, paragraph 12 confirms that the NPPF does not change the statutory status of the development plan as the starting point for decision making, but the NPPF is a material consideration in determining applications.

3.1.7 Paragraph 17 sets out the twelve core land use principles which should underpin both plan making and development management:

- Be genuinely plan led;
- Be creative in finding ways to enhance and improve places;
- To proactively drive and support sustainable economic development and meet objectively identified development needs;
- To always seek to secure a high quality of design and amenity;
- To take account of the different roles and characters of different areas, promoting the vitality of urban areas, protecting Green Belts, recognising the intrinsic character and beauty of the countryside and supporting rural communities;
- To support the transition to a low carbon future in a changing climate;
- To contribute to conserving and enhancing the natural environment and reducing pollution. Allocations should prefer land of a lesser environmental value;
- To encourage the use of previously developed land;
- To promote mixed use developments;

3.1.8 To conserve heritage assets in a manner appropriate to their significance;

- To actively manage patterns of growth to focus significant development in locations which are, or can be made, sustainable; and
- To support strategies to improve health, social and cultural wellbeing and deliver sufficient facilities and services to meet local needs.

3.1.9 Having set out the overall approach and the core land use principles, paragraphs 18 to 149 of the NPPF provide more detailed guidance across thirteen topic areas relating to the delivery of sustainable development

Regional Policy

The Yorkshire and Humber Plan (May 2008)

3.1.10 The East of England Plan sets an environmental, social and economic framework for the future development of the Yorkshire and Humber region. Sustainable Development is at the core of the plans spatial strategy:

- **Policy YH1 – Overall approach and key spatial priorities.** This policy seeks to ensure that growth and change will be managed across places and communities in Yorkshire and Humber in order to achieve sustainable development and the Spatial Vision.

3.1.11 This is carried through to the following key thematic policies:

- **ENV1 - Development & Flood Risk.** This policy seeks to ensure that allocation of areas for development will follow a sequential approach and will be in the lowest risk sites appropriate for the development (identified by Strategic Flood Risk Assessments);
- **ENV3 - Water Quality.** This policy seeks to maintain high standards of water quality through, among other measures, preventing development that could pollute surface and underground water resources especially in Source Protection Zones and close to above ground water resources of reservoirs and some rivers;
- **ENV5 - Energy.** This policy seeks to maximise improvements to energy efficiency and increases in renewable energy capacity. It promotes securing greater use of decentralised and renewable or low-carbon energy in new development;
- **ENV8 – Biodiversity.** This policy seeks to safeguard and enhance the Region's biodiversity and geological heritage, and ensure that the natural environment functions as an integrated network of habitats. Development should aim to maintain and enhance, restore or add to distinctive elements of the natural environment in line with international, national, regional, sub regional and local importance for biodiversity;
- **ENV9 - Historic Environment.** This policy states that the Region will safeguard and enhance the historic environment, and ensure that historical context informs decisions about development and regeneration;
- **ENV10 – Landscape.** This policy states that the Region will safeguard and enhance landscapes that contribute to the distinctive character of Yorkshire and the Humber. Development should safeguard and enhance landscapes and related assets of regional, sub-regional and local importance; and
- **ENV12 - Regional Waste Management Objectives.** This policy states that development should aim to reduce, reuse, recycle and recover as much waste as possible.

Local Policy

Barnsley District Council Core Strategy (September 2011)

3.1.12 Key sustainability policies within the core strategy are:

- **CSP1 – Climate change.** This policy seeks to:
  - Reduce and mitigate the impact of growth on the environment and carbon emissions ensure existing and new communities are resilient to climate change; and
  - Harness the opportunities that growth, and its associated energy demands, brings to increase the efficient use of resources through sustainable construction techniques and the use of renewable energy.

3.1.13 The policy also states that preference will be given to:

  - Development of previously developed land in sustainable locations locating and designing development to reduce the risk of flooding;
  - Promoting the use of sustainable drainage systems; and
  - Promoting investment in Green Infrastructure to promote and encourage biodiversity gain.

- **CSP2 – Sustainable Construction.** This policy states that development will be expected to:

- Demonstrate how it minimises resource and energy consumption, compared to the minimum target under current Building Regulations legislation, and how it is located and designed to withstand the longer term impacts of climate change.
- All new dwellings will be expected to achieve at least a level 3 rating under the Code for Sustainable Homes or equivalent. This requirement will rise over the plan period and by 2013 new dwellings should achieve at least level 4, rising to level 6 by 2016.
- All non-residential development will be expected to achieve at least BREEAM standard of 'very good' or equivalent.

- **CSP3 - Sustainable Drainage Systems (SuDS).** All development will be expected to use Sustainable drainage systems (SuDS). Only in exceptional circumstances, where it can be demonstrated that all types of SuDS are impractical, will other drainage management systems be permitted. Planning applications must include an assessment to show that SuDS will work and be maintained. Measures should be taken to avoid water contamination and safeguard groundwater supply. Developers will be required to contribute to the maintenance of SuDS.
- **CSP4 - Flood Risk.** This policy seeks to minimise through risk of flooding through steering development away from high flood risk areas and requiring sustainable surface water management.
- **CSP5 - Including Renewable Energy in Developments.** All development (either new build or conversion) of 10 or more dwellings or 1000sqm of non-residential floorspace will be expected to incorporate decentralised, renewable or low carbon energy sources and other appropriate design measures sufficient to reduce the development's carbon dioxide emissions by at least 15% for applications submitted up to 2015, rising to 20% for applications submitted thereafter subject to such measures being practicable and not unacceptably prejudicing the viability of the development. Where it is not appropriate to incorporate such provisions within the development, an offsite scheme, or contribution to such may be acceptable.
- **CSP25 – New Development and Sustainable Travel.** New development will be expected to:
  - Be located and designed to reduce the need to travel, be accessible to public transport and meet the needs of pedestrians and cyclists provide at least the minimum levels of parking for cycles, motorbikes, scooters, mopeds and disabled people, and should not provide more than the maximum number of car parking spaces set out in a Supplementary Planning Document;
  - Provide a transport statement or assessment in line with the thresholds and guidance set out in Department for Transport 'Guidance on Transport Assessments' as published March 2007 (or any subsequent version); and
  - Provide a travel plan statement or a travel plan in accordance with the thresholds and guidance set out in Department for Transport 'Good Practice Guidelines: Delivering Travel Plans through the Planning Process' as published April 2009 (or any subsequent version). Travel plans will be secured through a planning obligation or a planning condition.

3.2 LOCAL AREA KEY SUSTAINABILITY ISSUES

3.2.1 The key sustainability issues for Barnsley have been identified within the Core Strategy Sustainability Appraisal Report (2010) as:

- Improving the availability and affordability of housing, particularly within central areas;
- Reducing pockets of deprivation within the Borough;
- Improving the availability of family friendly cultural and leisure activities;
- Reducing the high levels of outward commuting from Barnsley;
- Increasing the levels of cycling and walking from a low base;
- Improving transport connections between and within some towns;

- Improving the quality and variety of shops in some centres;
- Improving the appearance of some areas within the public realm, including derelict and unattractive buildings and vacant areas; and
- Enhancing and protecting natural and historic assets.

4 SUSTAINABILITY PROFILE OF THE PROPOSED DEVELOPMENT

4.1 INTRODUCTION

4.1.1 This section provides a summary of the main findings of the SA of the Proposed Development. The findings are presented in three categories; environmental, economic and social sustainability issues. To assist the reader, each section begins with a list of the relevant sustainability objectives. It should be noted that in some cases an objective could fall into more than one category, however to maintain a clear presentation of the findings, the objective has been discussed in the most relevant category, which may be a result of the objective's relationship to other objectives in the category. There are 15 objectives in total.

4.2 RESULTS

Environmental Objectives
1 Biodiversity. To converse and enhance the Borough's natural habitats and wildlife
2 Landscape character. To conserve and enhance the distinctive natural and wider landscape of the borough including the setting of settlements
3 Built environment. To maintain and enhance the quality and distinctiveness of the built environment, in terms of built form and architectural integrity
4 Cultural & historic heritage. To maintain and enhance the borough's cultural and archaeological heritage and historic environment
5 Air quality. To improve local air quality and to reduce the borough's contribution to climate change
6 Water. To improve the quality of the borough's rivers and groundwater and achieve sustainable use of water and reduce the risk of flooding
7 Land & soil. To use land efficiently by bringing vacant land back into use and retaining the openness of the countryside
8 Minerals & other raw materials. To safeguard non-renewable resources and re-use primary resources through sustainable waste management practices
9 Energy sources. To increase energy efficiency and promote renewable energy sources

4.2.1 **Objective 1 – Biodiversity**. There are no internationally or nationally designated sites present within 2km of the Site. Dearne Valley Park LNR is situated adjacent to the eastern Site boundary. The reserve has been developed from relict habitats and reclaimed colliery around the river valley. The reserve consists of ancient acidic oak woodland, mixed plantation and willow dominated woodland, as well as areas of open grassland and scrub and a mosaic of wetland habitats including two ponds. Two Local Wildlife Sites (LWS) and one proposed LWS are present within 2km of the Site.

4.2.2 The Site is largely bare ground associated with the construction of the new road to service the Proposed Development. The River Dearne flows through the Site, which has been valued as being of County significance. Along the banks of the river is a small strip of broad-leaved plantation woodland which overhangs the river forming an enclosed canopy. A number of warehouses are present to the south of the River Dearne.

4.2.3 Bat emergence and activity surveys at the Site confirmed the presence of a large Daubentons bat roost of approximately 60-80 bats within the culvert adjacent to the River Dearne and running parallel with Old Mill Lane. The bats forage upstream and downstream of the Site. No significant foraging activity was recorded across the rest of the Site. No evidence of otter or water vole presence was recorded within the Site. Given the records of otter on the River Dearne both upstream and downstream of the Site it has been concluded that otters are likely to commute through the Site. The dark corridor along the River Dearne will be maintained to mitigate the impact on bats.

4.2.4 To ensure a long-term gain in biodiversity, the plantation woodland along the banks of the River Dearne will be managed to maintain its structural integrity in the long-term through the adoption of sensitive and appropriate pruning, the thinning out or supplementary planting of appropriate woody species. This, in combination with a closeboard fence erected along the River Dearne, will maintain the River Dearne as a dark corridor for bat foraging and commuting.

4.2.5 The new bridge over the River Dearne will contain integral bat bricks (exact number to be agreed at the detailed design stage) to provide bats, in particular the Daubentons bats with additional and alternative roosting locations within Site.

4.2.6 **Objective 2 – Landscape character.** The Site is located within part of the Barnsley Green Belt, the purpose of which is to preserve the openness of the area and prevent urban coalescence. It is a planning designation rather than a landscape designation and as it falls largely within the River Dearne corridor character area (C1), the impact of the Proposed Development will be considered in relation to changes to the character of Character Area C1 rather than for the wider green belt. The Site is located within character area *C3: Upper Dearne Lowland Valley Floor* of the Barnsley Borough Landscape Character Assessment.

4.2.7 There are no listed buildings located within 500m of the centre of the Site, although there are approximately 41 located within 1km of the centre of the Site. They are located to the south-west of the Site within Barnsley town centre/ University of Huddersfield.

4.2.8 To minimise the effect of the Proposed Development on the local landscape, the use of high quality materials and design and suitable directional lighting to minimise light spill and glare will help to enhance the visual amenity of the Site. Some mature trees will be lost and as such the Proposed Development will include replacement tree planting, removal of invasive species, and creation of new habitat and planting areas, primarily alongside the river corridor.

4.2.9 **Objective 3 – Built Environment.** An assessment of the external lighting environment was undertaken to ascertain the baseline lighting conditions on Site and in the immediate surrounding area. A daytime and night time lighting survey was carried out which included readings of illuminance (light spill) and luminance (glare) at key monitoring locations, supported by night time viewpoint images to illustrate the current night time scene. The Site is an area of varying levels of lighting with predominant sources of light coming from existing construction compound in the northern section of Site and floodlighting associated with retail units in the southern section of Site. The Site is located in a well-lit urban environment with high levels of lighting to the north, west and south. There is a Local Nature Reserve to the east which is currently unlit. Once the Proposed Development is operational and mitigation measures in place, effect of light spill and glare from the Proposed Development on local residents is only considered to be an adverse issue for residents on Twibell Street.

4.2.10 **Objective 4 – Cultural & Historic Heritage.** The Barnsley Canal was approved by Parliament in 1793. It was a broad canal with 15 locks between the River Calder and the main level at Walton. A further 5 locks took the canal up to Barnby Basin. Half a mile east of Barnsley, the canal crossed the River Dearne on a high five arch aqueduct. On the south side of this aqueduct was the junction with the Dearne and Dove Canal, which opened in 1804 and ran to the River Don Navigation at Swinton. A train station was built in the town in 1850.

4.2.11 As a result of competition from the new railway companies, the Barnsley Canal was leased and later bought by the Aire and Calder Navigation Company, which improved the waterway and enlarged the locks, with trade picking up again for a number of years. In 1893, the section of canal above Barugh Locks was closed as most of the trade here had been lost to the railways Although trade on the rest of the canal continued through to World War II, the canal suffered from constant subsidence problems due to mining and following a number of breeches, the canal was closed in 1953 and the viaduct demolished a year later.

4.2.12 Despite the rich industrial history of the site and the surrounding area it is highly unlikely that archaeological remains exist in the area covered by modern retail units, such is the impact of modern construction techniques and the near total landscaping of the area. The below-ground foundations of the late 19th-century laundry house and saw mill, as seen on pre-war maps, may still exist on the east side of the site.

4.2.13 Other than possible foundations of 19th-century buildings in the east of the Site and the remains of 19th and 20th-century buildings apparent in the western boundary wall, the potential impact on archaeological remains within the development area is low.

4.2.14 **Objective 5 – Air Quality.** Local air quality is predominantly influenced by local road transport, with no local sources of industrial air pollution. A number of roads (such A61 Old Mill Lane and Burton Road) pass close to the site and these sources will have a significant influence on pollutant concentrations at the proposed redevelopment site.

4.2.15 An assessment of the potential impacts on local air quality from construction activities on the Proposed Development has been carried out. This showed that during construction activities releases of dust and PM_{10} were likely to occur. However, through good site practice and the implementation of suitable mitigation measures, the impact of dust and PM_{10} releases will be reduced and excessive releases prevented.

4.2.16 A quantitative assessment of the potential impacts during the operational phase was undertaken to predict the changes in NO_2 and PM_{10} concentrations that would occur due to traffic generated by the development. The results of this assessment are presented in Chapter 5 of the Environmental Statement submitted in support of this application. At the majority of locations concentrations are predicted to meet the statutory objectives both with and without the redevelopment. An adverse impact has been identified at the facade of one residential property.

4.2.17 In addition to the air quality assessment, an environmental noise survey has been undertaken to determine the baseline noise climate currently affecting those noise sensitive receptors in the vicinity of the site. The noise measurement locations were selected to be representative of those noise sensitive locations and focussed on existing properties around Twibell Street and Burton Road.

4.2.18 During the construction phase, noise and vibration from various activities has been assessed based on anticipated phasing and equipment types to be used on site. With the adoption of Best Available Techniques (with an emphasis on piling) and a Construction Environmental Management Plan (CEMP) these temporary impacts can be controlled to be of minor to moderate significance.

4.2.19 At the operational phase, an assessment of development generated road traffic noise on existing receptors has been undertaken. Based on available future traffic flow predictions, there is anticipated to be a long term impact of minor to moderate significance. The noise impacts associated with the use of the proposed car parking facilities, car wash and petrol filling station have all been assessed and their impacts are considered to be of negligible significance. With the provision of suitable acoustic barriers around service yard perimeters, the noise impacts from associated loading and unloading activities can be mitigated to minor significance.

4.2.20 Finally, plant design noise limits have been proposed for any mechanical and electrical plant items which may be installed as part of the Proposed Development, based on the results of the baseline noise monitoring. Provided that these limits are complied with, there is likely to be a negligible effect on existing and proposed noise sensitive receptors.

4.2.21 **Objective 6 – Water.** The Site is divided into the north and south by the River Dearne. Site levels generally slope down towards the River Dearne. The north of the River Dearne is impermeable, whilst the south of the River is currently hardstanding. There is a rough vegetated area and tree lined corridor alongside both sides of the River Dearne. The Environment Agency (EA) classifies the River Dearne as Chemical Quality 'Good' and Ecological Quality 'Moderate' and the same quality is predicted for 2015. Two surface water abstractions are located within 500m of the Site. One is located upstream licensed to Yorkshire water for an unspecified use, the other is located downstream for make-up / top up water. There are two culverted watercourses within the Site boundary, one to the south of the river and the other to the north. These ultimately discharge to the River Dearne.

4.2.22 The majority of the Site is currently impermeable. It is assumed that the existing hard standing areas drain into the private drainage onsite which discharges into public sewer network and / or culverted watercourses within the Site boundary which ultimately drain into the River Dearne. This will be confirmed at detailed design stage.

4.2.23 Flood Zone 1 is land designated as having less than a 1 in 1000 annual probability of river or sea flooding in any year (<0.1%). Flood Zone 2 is land designated as having between 1 in 1000 and 1 in 100 annual probability of river flooding (between 0.1% and a 1%) or between a 1 in 1000 year and 1 in 200 year annual probability of flooding from the sea (between 0.1% and 0.5 %) in any year. Flood Zone 3 is land designated as having a 1 in 100 or greater annual probability of river flooding (>1%) in any year. The Site is located in Flood Zones 1, 2 and 3 on the EA Flood Zone Map. The Flood Zone Map also indicates a flood storage area within the Site boundary.

4.2.24 The EA has confirmed that there are no formal flood defences or structures in the immediate area that contributes towards reducing flood risk. However, the EA Flood Zone Map indicates that there is a flood storage area upstream of the Site and also within the Site boundary.

4.2.25 The EA has recommended that the finished floor level of the proposed units should be set 600 mm above the 1 in 100 year plus climate change flood level. The main food superstore will be developed on 'stilts', providing flood mitigation. In addition, it is recommended that flood resilience measures be incorporated into the design of the buildings. Although site specific water saving measures have not been determined in detail yet, they are likely to include the following:

- Water saving fittings such as dual flush toilets and aerated taps and shower heads in the residential and public toilets;
- Rain water harvesting for the public toilets;
- Green roofs; and
- Leak detection and proximity auto water shut off will be installed in the retail units to comply with BREEAM requirements.

4.2.26 A CEMP for the control and management of potential risks at the Site will be developed for each phase and implemented by individual contractors for the preparatory and construction stages of the development. Each CEMP will incorporate the mitigation measures recommended above to reduce the significance and, where possible, eliminate the identified effects.

4.2.27 **Objective 7 – Land and Soil.** The application site presently comprises a vacant and under-utilised brownfield site. The northern area of the Site is open land; the previous buildings associated with the former gas works have been removed to ground level. A contractor office and compound area is located in the northwest corner of the site and comprised four porta cabins. There is an area for storing machinery and whilst there is equipment there, no fuel storage has been identified. However, given that machinery is used on-site the present of fuel / oils cannot be fully discounted. A sub-station is also present in within a fenced compound.

4.2.28 The southern area of the Site is occupied by warehouses, a former gas holder (still present and will be removed as a part of the Proposed Development) and an area of land which has been subject to demolition. It is understood that the gas holder will be decommissioned and removed from site prior to redevelopment. In the southeast corner of the site a former depot and warehouse is present, some of which has been demolished and demolition materials including metal remain in stockpiles. Three buildings remain in situ and have yet to be demolished. The remainder of the southern area is occupied by three large warehouse units, one of the units is occupied by Plumber Centre (western boundary) and one is occupied by Comet (on the southern boundary adjacent to Twibell Street). The central warehouse is currently vacant and was formerly occupied by Power House. Each of the warehouses has associated car parking and soft landscaping.

4.2.29 **Objective 8 – Mineral Resources.** To the North of the River Dearne ground conditions over the majority of the area comprise a variable thickness of Made Ground up to 5m thick over superficial Alluvial Clays and Silts with bedrock at depth. Residual contamination is known to be present but the site is reported to have been remediated to a level suitable for commercial end use (with vacant green space near the river) and to a level suitably protective of controlled waters. To the South of the River Dearne ground conditions are likely to comprise a variable thickness of Made Ground up to at least 3.5m thick over superficial Alluvial Clays and Silts (nearer the river) and weathered Mudstone bedrock.

4.2.30 It is recommended that an intrusive investigation be undertaken in order to better determine the potential geotechnical constraints and environmental liabilities with the site. This intrusive investigation would be designed to provide information on the general ground, groundwater and ground gas conditions at the site together with information on potential contamination sources. To the north of the River Dearne, investigation is likely to be limited to the need to confirm geotechnical ground conditions. To the south of the river, exploratory holes would be required post demolition positioned to provide general coverage and, where possible, targeted at known or suspected contamination / sources of contamination.

4.2.31 Waste arising from excavation works would be generated through foundation works on-site. Some of the material may be suitable for reuse on-site through landscaping activities, but it is anticipated that a proportion of excavated material would require off-site disposal. This material would be disposed of at appropriately licensed

facilities. Consideration will be given, where practicable, to the reuse/recycling of excavated material generated as engineered fill and poses no long term risk to end users of the Site or controlled waters.

4.2.32 During each stage of the construction process there is the potential to create raw materials that may require off-site disposal. Such waste streams may include the following:

- Packaging;
- Timber;
- Plastic;
- Inert materials;
- Concrete;
- Plaster and cement;
- Metal;
- Insulation; and
- Ceramics.

4.2.33 A Site Waste Management Plan (SWMP) will be prepared before construction work begins. SWMPs provide a structure for systematic waste management at all stages of a project's delivery. The plans are a legal requirement for all construction projects over £300,000 (excl. VAT) in England.

4.2.34 The SWMP would identify:

- The person responsible for waste management on-site;
- The types of waste that would be generated;
- Waste management options for these waste streams;
- The use of appropriate and licensed waste management contractors and sites; and
- A plan for monitoring and reporting on the quantity of waste.

4.2.35 Measures should be taken to ensure that contractors are committed to the operation of best practice measures on-site with the emphasis being on continual improvement and identifying appropriate opportunities to reduce waste, promote recycling and use recyclable materials. The ordering of appropriate, minimum amounts of building materials would be part of the materials selection strategy. The use of the online tool developed by WRAP should be considered to determine the value of recycled content used and the top ten opportunities to increase this outcome.

4.2.36 **Objective 9 – Energy.** To reduce the energy of a building below Building Regulation requirements, the energy hierarchy methodology will be used. This consists in three simple steps:

- Step 1. Be Lean: reduce energy demand;
- Step 2. Be Clean: supply energy efficiency; and
- Step 3. Be Green: use green energy.

4.2.37 Utilising energy efficiency measures under steps 1 and 2 above, it is considered that a minimum overall 5% energy reduction is considered achievable for the Proposed Development. Energy efficiency measures are considerd to include

- Low energy lighting (adjusted to meet daylight levels and occupancy);
- Roof Light Panels – reducing the need for electric lighting;
- Heat reclaim on all refrigeration units;
- Voltage optimisation units – reducing energy demand; and
- Trim Heater Control.

4.2.38 With regards to potential renewable energy sources, the technologies considered viable for the site are:

- Gas CHP;
- Photovoltaic panels (no Feed in Tariffs); and
- Biomass fuelled boilers + PVs.

4.2.39 Installation of gas CHP is considered the most viable of these three technologies. Sizing of this system is indicative at this stage; the calculation is indicative and based on the store loads and previous experience of these systems shows they can provide large carbon emission reductions and significant proportion of the overall energy demand Photovoltaic panels offer an opportunity to provide a contribution to the renewable energy generation, and offer a visible demonstration of renewable technology. These are therefore a good technical solution but still one of the most financially onerous. In order to maximise the benefits from Feed in Tariffs scheme the ideal solution is an installation below 50kW; this however will only contribute to approximately 1% of the CO2 emissions reduction required. A more extensive installation, as described in the PV section of this report, should be considered.

4.2.40 The biomass heating options offer 7% carbon emission reductions and PV would need to be installed to meet the required renewable target and might present greater logistical difficulties compare to a gas CHP system. However it is understood this solution have been already applied to a number of developments in Barnsley and is working efficiently.

Social Objectives
10 Accessibility. To enable all sections of the community to access to services, facilities and opportunities and provide travel choice
11 Health, safety & security. To improve overall levels of health (reducing disparities between different groups and areas) and reduce crime and the fear of crime

4.2.41 **Objective 10 – Accessibility.** The Proposed Development is located adjacent to an established high frequency bus route that offers access to the town centre and surrounding residential areas.

4.2.42 In addition to public transport, the application site is also highly accessible by foot or bicycle. Wide footways are provided for pedestrians on all approaches to the application site, including the new site access road (running from the new Quality Bus Corridor route). In addition, a new pedestrian / cycle bridge is proposed from Old Mill Lane, linking directly with the foodstore. Cycle parking facilities will be provided at appropriate locations within the site to encourage cycle usage.

4.2.43 The proposal will ultimately deliver accessibility and road safety benefits to residential dwellings on Twibell Street in particular by removing significant traffic generating uses through the closure of the existing site access.

4.2.44 **Objective 11 – Health, Safety and Security.** The IMD shows that a third of the Barnsley population live in the worst 10% of areas in England in terms of health deprivation and disability scores. The Joint Strategic Needs Assessment (JSNA, 2010) estimates that 28.5% of adults in Barnsley are obese, which is significantly higher than the national average of 23.6%, the JSNA also states that 20% of Year 6 children in Barnsley are obese. Obesity has been linked with Coronary Heart Disease (CHD), in Barnsley the recorded prevalence of CHD was 5.1% in 2009/10, this is 1% higher than Yorkshire & Humber and 1.7% higher than England. The Proposed Development will have a role in providing access to healthy fresh food, fruit and vegetables.

4.2.45 The Proposed Development will lead to an overall increase in green space of 0.2ha which will be appropriately landscaped to ensure accessibility and useability for all. The residents of Barnsley would benefit significantly from increased exercise and access to open space. The Proposed Development will also significantly enhance access to the River Dearne and encourage use of key footpaths along this river corridor, providing opportunities for recreation and health benefits for local residents.

4.2.46 The Proposed Development will deliver accessibility and road safety benefits to residential dwellings on Twibell Street in particular by removing significant traffic generating uses through the closure of the existing site access.

Economic Objectives
12 Employment. To maintain and enhance employment opportunities to benefit the local labour force and reduce disparities
13 Local economy. To promote economic activity and regeneration

4.2.47 **Objective 12 – Employment.** It is anticipated that the Proposed Development will lead to the creation of over 300 full time equivalent (FTE) jobs. This is particularly important in a deprived area such as Barnsley. The nature of the employment opportunities should mean that the majority of positions will be taken by the local community. The proposed will also offer opportunities for employees to up skill through vocational training and qualifications.

4.2.48 **Objective 13 – Local Economy**. The scheme will deliver significant economic and physical regeneration benefits by providing major (flexible) employment opportunities.

4.2.49 The scheme will address the overriding need for a new mainstream foodstore in the Barnsley catchment identified in the Council's own Foodstore RIA Study (May 2011). Existing mainstream foodstores (Asda and Morrison's) are significantly overtrading and a new comparable store will deliver major qualitative benefits in terms of enhancing choice and competition for local residents.

4.3 CONCLUSIONS

4.3.1 The Proposed Development presents a significant opportunity to make a positive contribution to the sustainability aspirations for Barnsley Metropolitan Borough Council and to help achieve the various sustainability aspirations from the local to national level.

4.3.2 This will be achieved through the following aspects of the Proposed Development:

- Creation of over 300 new jobs;
- Removal of the current gas holder and remediation of poor quality ground;
- Open up access to the River Dearne Valley Park, encouraging walking and cycling;
- Anticipated use of energy efficiency measures and low and zero carbon technology;
- Preservation of the sites landscape character;
- Building to BREEAM 'Very Good' standard;
- Improve consumer choice;
- Utilisation of sustainable design and construction methods to improve building efficiency; and
- Improving the existing pedestrian access to and through the Site.