# 4.0 METHODOLOGY

## 4.1 SUMMARY OF AIMS

This study set out to understand and identify:

- the benefits that green roofs offer
- the importance of extensive green roofs in effectively improving the quality of urban areas.
- the incentives to encourage green roofs and, equally, the barriers to their more prevalent use in the UK.

Several primary means of evaluating these aspects have been used: a literature review, an email questionnaire to architectural practices, four green roof case studies.

## 4.2 LITERATURE REVIEW

It is not the intention to knowingly repeat research that has already been carried out by other bodies. An aim of the Literature Review was to establish the existing state of knowledge of (and attitudes to) green roofs, trends, built examples, particularly in the United Kingdom.

This identified a growing number of interested organisations, academics and green roof activists. Notably these were Nigel Dunnett of Sheffield University, Paul Collins at Nottingham Trent University, Dusty Gedge of the London Biodiversity Partnership and groups such as English Nature and the Peabody Trust.

Paul Collins' survey of English Planning Authorities has revealed a positive outlook towards green roofs, but most particularly in London boroughs.

Notable examples of extensive green roofs have been identified throughout Western Europe and North America. Though English Nature has compiled a modest list of British green roofs, there is consensus that their numbers are small in contrast with continental Europe.

## 4.3 QUESTIONNAIRE

It was decided to attempt to independently establish current awareness of green roofs *outside of* the London area. It remained to be proven whether or not the lack of green roofs in Britain was due to ignorance on the part of building designers. Or maybe other factors were involved.

The RIBA provide a current list of RIBA registered architectural practices by location, together with postal and email addresses. This made it a more practical task to carry out a survey of architectural practices, as opposed to building clients, developers or planners.

It was hoped that a survey of architectural practices would not only reveal the state of awareness of green roofs. There would be a chance of identifying as yet unknown built examples of green roofed buildings which, possibly, could be studied more closely. Maybe some (as yet) unthought of problems within the green roof industry in the sample areas could be revealed and followed up.

In terms of immediacy, practicality and cost, a questionnaire issued by email seemed an appropriate method of information gathering. Consequently, the RIBA lists were interrogated. It was evident that an overwhelming majority of architectural practices (1197) were registered in the London area.

It was decided to survey two samples of similar size *outside* of London. Bristol lent itself as an ideal candidate, containing the largest sample of registered practices of any city. Its close proximity to Cardiff meant it would be convenient for any site visits or follow-up work.

Manchester offered a similar sized sample to Bristol. Initial inclinations had been to either target Birmingham (also involved in providing habitat for black redstarts), Leicester (well developed strategy for urban greening) or Sheffield (University central to green roof research). It was decided to compile a sample around England's second city, Birmingham.

The conurbation of the 'Black Country' (Birmingham, Dudley, Halesowen, Solihull, Sutton Coldfield, Wolverhampton) provided a total sample of 85 practices.

Those practices in Bristol and the Black Country with identifiable email addresses listed totalled 73 and 78 respectively.

It was decided to attempt to maximise the number of replies received by restricting the number of questions in the survey. There would be opportunities offered on the questionnaire to elaborate on aspects of the response.

The following chapter entitled 'Data Collection' will elaborate on the content and practicalities of the questionnaire.

## 4.4 GREEN ROOF CASE STUDIES

It seemed beneficial to study a small selection of existing green roofed buildings. It was hoped at the outset that the questionnaire survey would help identify suitable candidates (eventually this did not prove to be the case). The case studies would be intended to illustrate the variety of extensive green roof types in use. It may also help to reveal some of the current problems encountered with green roofs.

The literature review had identified a variety of exciting, unusual and seminal green roof projects, in Britain, Western Europe and North America. A decision was made to study examples of extensive green roofs in Britain. This would help identify some of the problems encountered in this field in this country. In terms of time and cost it would allow more possibility of a site visit. It would also increase the chances of being able to interrogate designers, contractors and clients in the English language.

Four examples of extensive green roofs were identified. These broadly fell under the four different classes of 'advantages' as described by Johnston and Newton in *Building Green*[40]. The categories were Financial, Amenity, Ecological and Technical.

[40] Johnston, J. and Newton, J., Op.cit., p. 47. Reproduced as Figure 3 of this study.

The four chosen examples also displayed a wide variety of geographical locations, (sub)urban settings, building types, roof structures and extensive green roof types.

Pizza Hut, Swindon

Identified initially from the website of Blackdown Horticultural Consultants, this loosely fitted the 'financial' category. It seemed to fulfil a role of attributing 'green brownie-points' to a large corporation.

32, South Collonade, Canary Wharf

Identified initially from the Nottingham Trent University webpage, this loosely fitted the 'amenity' category. It improved the view from a neighbouring tall building. In fact it was adjacent to the tall*est* building in Britain. Together with the fact the green roof was overtly 'designed', these factors made it an obvious candidate to explore further.

Laban Dance Centre, Deptford

Identified initially through Blackredstarts.co.uk, this example fitted the 'ecological' category in an interesting way. It provided nesting areas for a protected species of bird. It was also located on a very well-known example of contemporary architecture.

Jubilee Campus, Nottingham University

This broadly fitted the category of 'technical'. The campus buildings were clearly designed with technical and engineering competance to be low-energy use. The architects were well known with links to Bill Dunster, designer of the seminal BedZED ecological housing in Surrey. Possibly the green roof formed an integral part of the campus' environmental strategy.

Information on each example would be gathered from books, periodical articles and the internet where available.

It was intended to carry out visits to the sites of the green roof case studies. Photographs could be obtained and other less evident issues identified. Eventually three of the locations were visited by the author.

The aspiration was to contact contractors, advisors or designers for each of the four examples, by email or telephone. The aim was to gleen opinions, insights into problems and successes from these professionals. This eventually happened for two of the case study examples.

## 4.5 ADDITIONAL WORK UNDERTAKEN

Visits were also made to the following green-roofed locations:

- Sainsbury's Store at Greenwich (semi-intensive turf and shrub roof, *Figure 13*).

*Figure 13: Semi-intensive green roof, Greenwich*

- Charter School, Dulwich, London (visible sedum flat-roof, *Figure 14*)

*Figure 14: Attractive flat sedum roof, Dulwich*

- New Regional Council Offices, Pau, France (underground carpark with large intensive roof garden, *Figure 15*).

*Figure 15: Intensive roof garden, Pau*

- BO1 ecological community, Malmö, Sweden (several sedum roofs on outbuildings, *Figure 16*).

*Figure 16: Shallow sedum roof, outbuilding, Malmö*

The images above are illustrative of these examples. They were all interesting candidates for further study, but not deemed appropriate for broader inclusion in the body of this project.