ANNEX A

SPECIFICATION

DCLG BUILDING REGULATIONS RESEARCH PROGRAMME

Project Number: BD2887 **CPD reference**: CPD/04/102/010
Title: Compartment Sizes, Resistance to Fire and Fire Safety Project
Project Duration: Approximately 16 months

1. Introduction

The purpose of this project is to provide DCLG with specialist technical support and robust evidence based on research, experimental fire testing (large and small scale), computer modelling and laboratory testing (where necessary) on a number of linked workstreams in relation to fire safety and associated provisions in Part B of the Building Regulations.

The project will examine the current regulations and guidance in relation to the identified workstreams (below) and explore and present robust evidence that enables DCLG to develop policy options for possible improvements, simplification and changes of regulatory standards and guidance. Such evidence should also consider developments in construction technology to ensure Part B and the guidance contained in the approved document remains fit-for-purpose.

The proposal should include establishing an expert overarching project steering group (PSG) to support DCLG staff at a strategic decision making level of the project and assist where necessary, steering the research programme and providing feedback on the research methodology, as well as key deliverables and milestones throughout the duration of the contract. Satellite steering groups (SSG's) will also be required for each workstream – where workstreams are intrinsically linked they should form part of the same SSG.

2. Background

The Building Regulations control certain building work – principally to protect the health, safety and welfare of people in and around buildings. Part B of Schedule 1 of the regulations relates to fire safety aspects of building design and construction and Approved Document B (ADB), the supplementary guidance to the regulations which demonstrates how the provisions can be complied with.

As the regulations themselves are expressed in 'functional' terms they do not dictate how the desired level of performance must be achieved. However, for the benefits of both industry and building control bodies, advice on how the requirements of the Building Regulations may be met are contained in guidance approved by the Secretary of State (such as ADB). ADB covers some of the more common building situations, but there may well be alternative ways of achieving compliance with the provisions. However, if followed, the guidance may be relied upon in any proceedings as tending to indicate compliance with the Building Regulations.

Part B (fire safety), including ADB are fundamental to the health, safety and welfare of people in and around buildings as they cover all fire precautionary measures that are necessary to provide safety from fire to safeguard building occupants, persons in the vicinity of buildings and fire fighters. The requirements and guidance cover means of escape in case of fire, fire detection and warning systems, the control of materials used for internal linings (walls and ceilings), the fire resistance of structural elements of buildings, the acceptable spacing between buildings (fire separation), compartmentation – the separation of one fire compartment from another to prevent

the spread of fire, and access and facilities for fire fighting. These are all designed to reduce the spread and growth of fire and to facilitate safe evacuation or rescue. ADB is divided in to two volumes; Volume 1 dwelling houses [http://www.planningportal.gov.uk/uploads/br/AD_B_v1_wm.pdf] and Volume 2 buildings other than dwellinghouses [http://www.planningportal.gov.uk/uploads/br/AD_B_v2_wm.pdf].

There is a risk that by following the current guidance, some of which is based on evidence developed over 60 years ago, building designers could either be underestimating potential risks in relation fire safety or over engineering solutions which may be increasing costs of construction unnecessarily.

Part B and ADB were last revised in 2006, but could not go into great detail in relation to some issues (particularly compartmentation and periods of fire resistance) as there was little evidence available. Since then fire engineering techniques have developed that should now enable a full review in this area to be undertaken. The Department has been lobbied to indicate when it will next be re-visited. Ministers have recognised that these provisions do need to be kept under review and that research will be needed to support this. This project is intended to fulfil this need in relation to some of the emerging issues to provide the necessary robust evidence base to support the next full review of Part B (and ADB) as and when the Minister decides it should take place.

The project should consider a number of linked workstreams in relation to structural fire resistance, compartmentation and associated fire safety provisions in buildings. The project should explore options for improvement and simplification of regulatory standards and guidance, developments in construction technology across the following areas:

- Periods of structural fire resistance for different types of buildings
- Maximum fire compartment sizes
- Detailing of fire compartmentation in roof voids, cavity barriers and fire/smoke dampers
- Fire protection of basements and basement car parks
- Sprinkler provision in buildings not currently captured by Part B
- Space separation between buildings (to control fire spread from one building to another)
- Means of escape for disabled people

3. Objectives

The overarching objectives of this project are:

- To produce an initial brief scoping exercise as part of a tender proposal which looks at the identified workstreams and provides an overarching appraisal of existing evidence, the extent of the works required and whether in their expert opinion other areas that may need consideration – any additional considerations will require robust justification for their inclusion.

- To produce robust evidence and data based on research, experimental fire testing (large and small scale), computer modelling and laboratory testing (where necessary) on a number of linked workstreams in relation to fire safety and associated provisions in Part B of the Building Regulations.

- Draft proposed experimental testing regime (for approval by DCLG, supported by the steering group prior to commencement) based on the key issues identified in the initial scoping exercise and detailed research methodology.
- Draft reports setting out all findings of the research, to include all data from experimental fire tests, modelling and laboratory tests.
- Final draft report for approval.

- To produce a publishable guidance document covering the application of Requirement B3 (internal fire spread - structure) of the building regulations, which should include:
  - an explanation of the functional requirements of the regulations
  - narrative on good practice
  - practical alternative options other than detailed in the Approved Document
  - with the overall emphasis on 'buildability'.

The project has initially been broken down into 7 specific workstreams. It is expected that as part of the suppliers' tender package a scoping exercise should be included. The scoping exercise should examine the viability of each workstream, which workstreams are intrinsically linked, identify existing research that is available to support each workstream and outline the necessary research (small/large scale experimental fire testing, computer modelling and laboratory testing) required to support the required objectives for each workstream (as detailed below):

Workstream 1 – Periods of fire resistance

Resistance to fire is specified in terms of time periods that relate to a standard furnace test. The period specified for a particular building is based on assumptions about expected fire severity and the consequences of failure. ADB does this with a table which specifies minimum periods of fire resistance against the intended purpose of a building and its height.

This table is, to some extent, based on the conclusions of the "fire grading of buildings" report which was originally published in 1946. Since then the table has been modified in a piecemeal fashion. In more recent years, deterministic approaches to specifying fire resistance have been developed and have become codified in engineering standards such as Eurocode 1 (EN1991-1-2) and in BS 9999-2008. This approach can offer a more cost effective approach to fire protection but it requires specialist expertise to apply it.

This workstream should explore the potential to adopt a more flexible approach to specifying periods of fire resistance in ADB. It should examine the options, identify the costs and benefits and any risks that are associated with them, presenting robust evidence established through small and large scale experimental fire tests, computer modelling and laboratory testing (where applicable/necessary).

Workstream 2 – Maximum fire compartment sizes

Compartmentation is used to subdivide buildings so as to restrict fire size and fire spread. For non-domestic buildings the Approved Document (ADB volume 2) sets out maximum compartment sizes which vary with the height and use of the building. Compartment size is also used as a trigger to indicate where fire suppression

systems should be installed in a building. As with periods of fire resistance, much of the existing guidance on compartmentation is based on assessments made in the 1940s which have been amended in a piecemeal fashion.

Currently, there are no recognised engineering methods for establishing the appropriate compartment size for a particular building. Safety campaigners often argue that the threshold for fire suppression systems should be set lower but some industrial activities prefer the greater flexibility provided by larger spaces.

This workstream should explore the potential to develop a systematic method for determining maximum compartment sizes based principally on life risk but should also consider other factors such as environmental impact. It should explore and examine alternative options other than detailed in ADB, identifying the costs and benefits and any risks that are associated with them, presenting robust evidence established through small and large scale experimental fire tests, computer modelling and laboratory testing (where applicable/necessary).

Workstream 3 – Construction details – roofs voids, cavity barriers and fire/smoke dampers

Experience from real fire incidents and related investigations suggests that the performance of some modern buildings in relation to the provisions of fire barriers in roof voids and wall cavities is not as effective as intended.

In 2010 the DCLG published a research study in respect to fire compartmentation in roof voids (http://www.communities.gov.uk/documents/planningandbuilding/pdf/1732082.pdf). This found that information submitted for building regulations approval was often inadequate. It was also found to be common practice within the industry for only limited details to be included within the building regulations application. This puts the onus on the contractor to ensure the correct detailing which increases the risk of errors and omissions.

Similar concerns have arisen about the design of cavity barriers in wall cavities. These are often found to be missing, incomplete or incorrectly positioned. There is a growing consensus amongst experts that this is, to some extent, because the products commonly used for this purpose are not sufficiently robust or "builder proof". Whilst these concerns have not been disputed by manufacturers, there are no drivers to encourage more effective solutions to be developed.

This workstream should explore the potential to develop better [publishable] guidance, examine current practice and explore and assess alternative options other than detailed in ADB, identifying the costs and benefits and any risks that are associated with them, presenting robust evidence established through small and large scale experimental fire tests, computer modelling and laboratory testing (where applicable/necessary). The findings shall be presented in a publishable guidance document.

Workstream 4 – Fire protection of basements and basement car parks

The ODPM report, Firefighting in Under-ventilated Compartments (Fire Research Technical Report 5/2005) (http://www.communities.gov.uk/documents/fire/pdf/381213.pdf) looked at a number of issues relating to fire safety in basements and made recommendations for changes to building standards and regulations. In particular it re-stated concerns that existing guidance on smoke ventilation for basements could present unacceptable

risks to fire-fighter safety and that other options could be more effective.
Fires in car parks that spread beyond 2 or 3 cars are rare and, to date, there have been few deaths or injuries recorded in the UK. However there are growing concerns regarding new and emerging risks from modern cars, alternative fuels and mechanical "car stackers".

Since the last review of ADB the Department commissioned BRE to carry out a three year project to examine fire spread in car parks (http://www.communities.gov.uk/documents/planningandbuilding/pdf/1795610.pdf). The results of this project provided data on fire growth in modern cars and the mechanisms of fire spread. They also brought into question historic assumptions about the risk of fire spread in enclosed car parks (these findings should also be considered in workstreams 1 & 2).

This workstream should explore the options for fire protection of basements generally and basement car parks specifically. It should explore and examine alternative options other than detailed in ADB, identify the costs and benefits and any risks that are associated with them, presenting robust evidence established through small and large scale experimental fire tests, computer modelling and laboratory testing (where applicable/necessary).

Workstream 5 – Sprinkler provisions

The guidance in ADB currently provides that most buildings over 30m tall should have sprinkler protection. This is with the exception of particular purpose groups identified within the guidance for which the building is intended to be used: purpose group 2(a) – residential (institutional), 2(b) – residential (other) and 7(b) – (car parks). Safety campaigners have argued that it would be simpler and safer if this provision was applied to all types of building over 30m in height.

In 2010 the Department invited external partners to submit their ideas and evidence on ways to improve the Building Regulations. Sprinklers were raised by a number of respondents, but, it was concluded that there was not any significant new evidence on the health and safety benefits of greater sprinkler provision. However the previous cost benefit analysis work has not looked specifically at the inclusion of sprinklers in buildings that fall into the purpose groups as detailed above, nor did it look at sustainability alongside life safety as a cumulative benefit. It is unlikely that any work with regards to car parks would demonstrate a positive benefit in relation to health and safety due to the fact that fires in car parks are rare and there are few deaths or injuries recorded to date in the UK in car parks, although this will be included at scoping stage to ensure the research is robust in addressing all issues.

For those buildings not currently requiring sprinklers above 30m it is based on the assumption that a higher degree of management and control will be in place and would result in additional running costs which would be incurred throughout the life of the building. Failure to take proper management responsibility could result in prosecution under the Regulatory Reform (Fire Safety) Order 2005 which is enforced by the local Fire and Rescue Authority; however recent reservations have been raised as to whether the inclusion of sprinklers for these types of buildings could be a more effective approach.

This workstream should explore the options for fire suppression in all tall buildings (above 30m). It should examine the alternative options other than detailed in ADB (based principally on life risk), taking account of other factors such as environmental impact. It should identify the costs and benefits and any risks that are associated with them, presenting robust evidence established through small and large scale experimental fire tests, computer modelling and laboratory testing (where applicable/necessary).

Workstream 6 – Space separation

B4(1) of the Building Regulations requires that external walls of a building shall adequately resist the spread of fire over the walls and from one building to another, having regard to the height, use and position of the building. The amount of unprotected area i.e. not having the appropriate fire resistance, is dependant on the buildings relationship to the relevant boundaries of the site and an assumption that there is a building on the other side of the boundary that has a similar elevation to the one in question and that is at the same distance from the common boundary.

In ADB guidance is provided for two simple methods for calculating the acceptable amount of unprotected area in an external wall that is at least 1000mm from any point on the relevant boundary. Method 1 is for small residential buildings (which do not belong to purpose group 2a (institutional type premises)) and method 2 may be used for most buildings or compartments for which method 1 is not appropriate.

However, the original analysis of compartment fires to establish compartment temperatures that could be used in building separation calculations was based on data from small scale experiments (between 0.3m and 1.0m sides) and a few larger fires in a 3m square brick building. The limitations of the experimental data were recognised and at the time that the building separation calculations were being developed (1960) a large International experimental programme commenced to study the behaviour of fully developed compartment fires. This study, organised by the Conseil International du Batiment (CIB) investigated a number of different compartment shapes and scales with different ventilation conditions and fire loads. Measurements provided data for the development of the concepts of fire resistance as well as data directly relevant to building separation calculations (compartment temperature and radiation intensity from an opening). DCLG have commissioned a separate project that is nearing completion (BD 2862) which is reviewing third party referenced guidance that is detailed in ADB (BR 187, *External fire spread: Building separation and boundary distances*), findings of which should feed into updating the two simple methods as detailed in ADB where necessary.

Initial findings from BD 2862 suggests that further work is required in relation to highly insulated buildings, it appears that due to well insulated compartments fires in highly insulated buildings are achieving higher temperatures than original data suggest (>1200°C compared to the original values of 800°C and 1100°C). This work has also raised the issue that ADB and BR 187 permit halving the boundary distance for a building if sprinklers are installed. The effect of sprinklers is not included in the original BR187 and there currently appears to be no scientific argument to justify reducing the boundary distance by a specific amount.

Further findings suggest it could be beneficial that further research is conducted to develop a simple, practical way of including the contribution of external flaming in boundary distance calculations. In addition, in relation to the ignition of material in a compartment, for the purpose of calculating building separation within BR 187 it is

assumed that if a building has openable windows then they may be open when a fire occurs and the compartment contents would be exposed to thermal radiation from a fire in an adjacent building. If the windows are not openable then it may be possible to account for the protection provided by some forms of glazing when determining building separation, however this would require further work on the performance of glazing to thermal radiation.

This workstream should explore what effect the increased use of highly insulated panels and construction techniques have on the guidance for space separation of buildings. It should understand the feasibility and impact of a simple, practical way of including the contribution of external flaming in boundary distance calculations and develop a methodology (where appropriate). It should develop robust evidence to support and understand the inclusion of possible protection provided by forms of glazing within the current calculation method and the impact of such an approach. It should examine the alternative options other than detailed in ADB, based principally on the updated guidance produced in the BD 2862, findings from experimental fire testing of highly insulated compartments and the associated data/evidence on reduced boundary distances/increased unprotected areas through the use of fire suppression (suggested link with workstream 5).

Workstream 7 – Means of escape for disabled people

With the requirements of Part M (Access and use) and the Equalities Act 2010 the design of buildings to cater for people of all abilities has become increasingly significant. There is growing concern that the provisions of unrestricted access are not reflected in the provisions for escape.

The current ADB makes reference to BS 5588-8 [which has been withdrawn and replaced with BS 9999], particularly in relation to the use of lifts for evacuation purposes. Guidance is also provided on refuges for wheelchairs, which means that most multi-storey buildings are provided with protected refuges associated to each stair where a person who may need assistance to leave the building can wait in relative safety (enclosed in fire resisting construction) for a short period of time prior to their evacuation.

The issue of refuges is often raised as an area of concern, in particular, how many should be provided, where they should be placed (next to stairs or lifts) and how people should be assisted from the refuge to the final exit. Generally this is regarded as a management procedure but there may be built in solutions that could facilitate this process. All of which cause confusion, potential delay and additional cost/burden on industry.

ADB is clear that final exits should not present an obstacle to wheelchair users and other people with disabilities, and sets out where ramps should be provided on escape routes. This particular provision was first introduced in 2006. However, it appears that they are not being uniformly applied as the guidance intended.

In addition further concerns have been raised that due to the changing standards of living, the body dimensions of people have been increasing in many countries (including the UK) over the last few decades and whether the ergonomics are representative of up-to-date anthropometric data (human body measurements across populations), particularly with regards to sizes of wheelchairs.

This workstream should explore whether the guidance for means of escape for disabled people is sufficient to promote and support safe evacuation (unassisted where necessary) and is fit-for-purpose, along with the levels of compliance that are currently achieved to fully understand the implications. It should explore and examine alternative options other than detailed in ADB based principally on available built in solutions that could facilitate and aid means of escape. It should identify the costs and benefits and any risks that are associated with options, presenting robust evidence to support options.

4. Scope

- To provide DCLG robust data and evidence to support future policy development.
- To improve the understanding and associated impacts current guidance and regulations have on industry.
- Establish costs, benefits and impact of alternative approaches not currently detailed in the supplementary guidance.
- The final publishable guidance produced (where appropriate to the workstream) must be an integral part of the reporting process, with the intention of filling gaps in existing industry fire safety design guidance and improve the 'buildability' of cavity barriers and pathways around separating elements.
- At the completion of each milestone a suitable review will be carried out to ensure the suitability of research and allow for variations (improvements, expansion, and/or reduction). Such variations will be subject to formal change control where they include cost implications.
- To identify and indicate the possible shortfalls in the existing fire safety guidance in relation to the results of the research.
- To provide timely feedback to DCLG.
- The project will help the Department to review and revise its general policies in response to developments and changes in industry, particularly in relation to periods of fire resistance.
- The research relating to the detailing of compartmentation in roof voids, cavity barriers and dampers will be used by the Department to help formulate a greater understanding of industry practice and how to improve the level of compliance and competence, the outcomes being used to generate additional guidance/details and work with industry to stimulate and encourage innovative solutions.
- The research will also be used to inform impact assessments for future consultation proposals where evidence suggests changes may be necessary to current statutory guidance.
- The main output from the research will be an objective presentation of the results in the form of technical reports.

It is not envisaged that any specific exclusion's will be made from the scope of this project, unless otherwise stated in the research specification.

A number of the workstreams are potentially intrinsically linked within this contract. Existing data and evidence should be utilised in developing the detailed methodology.

5. Deliverables/Outputs and Performance Measures

Primary key deliverables have been identified in section 7 of this specification, the

contractor must substantiate the table of keys dates based on their specialist technical knowledge in relation to the necessary work required for each of the workstreams. The primary deliverables (milestones) should consists as follows:

- Project update reports, this must consist of a brief report (electronic and hard copy where appropriate) detailing progress against agreed objectives as set out in each workstream, works achieved to date, any necessary variables and any other issues identified for each workstream and its impact on the overall project, detailing any necessary actions required to mitigate and risks.

- Interim workstream reports must consist of the results of the fire testing, computer modelling, laboratory testing and draft technical proposals. It must also detail any other issues identified for each workstream and its impact on the overall project, detailing any necessary actions required to mitigate and risks (electronic and hard copy).

- A final research report for each workstream outlining the findings of the research and an assessment undertaken. It must detail options considered, identifying relevant costs and benefits and any risks that are associated with them. All evidence established through small and large scale experimental fire tests, computer modelling and laboratory testing must be included (where applicable) - (electronic and hard copy).

- Final research report providing and over view of the whole project detailing technical links between intrinsically linked workstream and drawing together all robust evidence and data.

- A publishable guidance document (workstream 3) covering the application of Requirement B3 (internal fire spread – structure) of the Building Regulations, with particular reference to the need for buildings to designed and constructed so that the unseen spread of fire and smoke within concealed spaces in its structure and fabric is inhibited. The guidance document must explain the functional requirements of the regulations and detail good practice and practical alternative options other than detailed in ADB with the emphasis on 'buildability'.

Format of reports

All reports must include a front cover and quality assurance sheet including:

- The report title
- The DCLG CI (contract) and BD (project) reference numbers
- The milestone identification number
- The version number and date
- Checking and approval signatures

They must be marked as draft until an approved final version is requested. The front cover may be removed and replaced when reports are prepared for publication by DCLG.

Project Update Report

A project update report must be provided as identified in the 'key dates' section below. It is intended for DCLG internal use and is needed to track project progress. It

must outline work undertaken in that period. It must identify any milestones achieved within the programme of work and any difficulties anticipated that may hinder the project's performance. Project update reports must be completed in a standard template agreed with DCLG and should:

- Define the period covered
- Describe progress against each of the key milestones for which work has been undertaken, identifying any implications/risks
- Provide interim conclusions that have been derived from the work to date
- Comment on future work, identifying any issues arising that may hinder timely progress or performance against the objectives and outlining what action is needed
- Include a list of deliverables to date as an Appendix

This report does not require an Executive Summary. Typically the length of a progress report should be:

- ½ page per task for progress against objectives
- Up to 1 page for interim conclusions
- Up to 1 page for a forward look

Interim Workstream Report

The Interim Workstream Report must cover each specific workstreams and must:

- Define the period covered
- Include a summary followed by a description of the activities and progress
- Include a detailed comparison of project milestones against actual results
- Provide an analysis of the finding/data/results to date (outputs, outcomes and deliverables).
- Detail progress towards key milestones
- Include an evaluation and conclusion of findings to date
- Provide financial statement against current spending to the resources allotted
- Detail any issues and challenges – including any risks and necessary adjustments required due to possible delays or deviations

The information contained within the reports must be sufficiently detailed to enable DCLG officials (supported by the PSG) to assess all workstreams to understand whether the projects critical path requires modification to maximize project outputs.

Final Research Report

The Final Research Report must cover the whole project and must:

- Provide a brief, no more than one page non-technical Executive Summary including advice on what stakeholders would benefit from reading the report, what they must know as a result and what the implication of the new knowledge may be for them
- Provide an introduction outlining the purpose and scope of the project and the expected outcomes in the context of the project objectives
- Describe the work carried out including the methodology adopted, the results or outcome and any dissemination or discussion with stakeholders
- Provide conclusions relating to the project objectives and a summary of the potential impact/implications for regulation and/or policy

- Be a standalone document with no cross referencing back to earlier progress or interim reports
- Refer to Interim Workstream Reports generated within the project if this is appropriate and does not compromising the requirement to be standalone

A 200 - 400 word summary suitable for publicising the results of the work in journals, newsletters, annual reports or web sites must be provided with the Final Research Report as a separate document.

Final Research Reports which provides the over view of the whole project, technical links between intrinsically linked workstream and drawing together all robust evidence and data must not contain any proposed text for a revision to an Approved Document or supporting guidance, including draft/initial impact assessments. Such material must be provided in the final research reports for each workstream as detailed in each workstream.

DCLG welcome suggestions on other possible deliverables. A dissemination plan must be included in your proposal as well as information on project management. Please allow for regular reporting to DCLG on results of this research.

6. Approach

As this contract is highly specialist and covers a large cross section of workstreams involving small and large scale experimental fire test facilities, computer modelling and laboratory testing DCLG would encourage consortium bids to ensure that the appropriate level of technical and academic expertise is adopted across all elements of the projects.

7. Key Dates

Note: The contractor is permitted to provide and/or make recommendations for additional milestones in the following table to account for the necessary work required for each workstream:

Contract Stage		
Start date		**27 July 2012**
Milestone 1	Detailed research methodology	Aug/Sept 2012
Milestone 2	Formal formation and meeting of steering group	Aug/Sept 2012
Milestone 3	Interim workstream report	Dec 2012
Milestone 4	2nd steering group meeting	Jan 2013
Milestone 5	Project update report	Jan 2013
BREAKPOINT March 2013		
Milestone 6	Interim workstream report	Apr 2013
Milestone 7	3rd steering group meeting	Jun/Jul 2013
Milestone 8	Project update report	Jul 2013
Milestone 9	Interim workstream report	Oct 2013
Milestone 10	Draft publishable guidance (workstream 3)	Dec 2013
Milestone 11	4th steering group meeting	Jan/Feb 2014
Milestone 12	Project update report	Jan 2014
BREAKPOINT March 2014		
Milestone 13	Interim workstream report	Apr 2014
Milestone 14	Project update report	Jul 2014
Milestone 15	Final draft workstream reports (stand alone documents for each workstream)	Jul -Aug 2014
Milestone 16	Final draft publishable guidance (workstream 3) and Final workstream reports	Sept 2014
Milestone 17	5th steering group meeting	Sept 2014
Milestone 18	Pre-completion project update report	Jan 2015
Milestone 18	Final research report and publishable guidance for comment	Jan/Feb 2015
End date	On acceptance of final research report and publishable guidance by DCLG contract manager	**27 Mar 2015**
Breakpoints (at no cost to DCLG) have been included in the contract, to take account for the management of funding and/or contract variations.		

8. Contract Management Arrangements

- The steering group meetings should be at Eland House.
- Feedback of performance will be provided to the contractor on acceptance of each milestone and at the end of the project, to ensure the quality of research is maintained.