CONCEPT DESIGN REPORT, VOLUME 1
SUMMARY FINAL REPORT

IN RESPECT OF

THE PROPOSED REFURBISHMENT

OF

157-197 BUCKINGHAM PALACE ROAD
LONDON SW1

AS AT

30 JUNE 2006

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SECTION 1.0

EXECUTIVE SUMMARY
1.0 EXECUTIVE SUMMARY

1.1 BACKGROUND

1.1.1 Substantial work has been carried out by NAO and its advisers over the last four years to assess the future workplace strategy for the organisation.

1.1.2 This has included a detailed survey to assess the condition of NAO’s existing building and further work to explore the viability of refurbishing the building.

1.1.3 Remaining in the building in its current condition or with ongoing maintenance and piecemeal upgrading is not an option and puts the day to day effectiveness of NAO at significant risk.

1.1.4 Full replacement of the majority of the services engineering plant, equipment and distribution infrastructure is a necessity. This work would be extensive so the time is also right to now repair and refurbish the building exterior and the interior workspace so as to gain efficiencies in implementing the works.

1.1.5 A major refurbishment of the building is therefore now being considered and NAO’s team has significantly developed the concept design, budget and programme to assist this process.

1.2 AIMS AND OBJECTIVES OF REFURBISHMENT

1.2.1 To adhere to the NAO’s leasehold responsibilities in the repair and maintenance of the building and by undertaking the refurbishment to covert the existing office accommodation into the best quality space possible within the constraints of the existing building.

1.2.2 To provide NAO with cost effective, fully functional and highly productive workspace to help it attract and retain key staff, operate at reasonable cost and support its broader development as an organisation in meeting its business objectives and to extend the building’s life for a further 20 -30 years.

1.2.3 To provide modern contemporary office space that meets NAO personnel’s aspirations for their space to be airy, functional, versatile, calm, light,
professional, adaptable and open. This it is expected will assist the NAO itself to be professional, trusting, client focussed, non-hierarchical, collaborative and outward looking.

1.2.4 For the project to be well managed and to meet NAO’s high sustainability and value for money aspirations using modern materials whilst being cognisant of the heritage of the NAO and the building itself.

1.2.5 For the refurbished building to better accommodate disabled staff and visitors and to improve the health and safety aspects of the workplace generally.

1.2.6 To refurbish the building under tight management to ensure minimal disruption to day to day operations, whilst the majority of NAO staff remain in situ by decanting one third of NAO’s personnel to nearby accommodation.

1.2.7 Further information on the aims and objectives of the refurbishment project are discussed in section 4 commencing on page 26.

1.3 BUDGET

1.3.1 On the basis that the project will start on site in January 2008, that it will be undertaken in three phases over 125 weeks and based on the concept design, the team estimates the construction project cost to be £61,150,000 incl VAT.

1.3.2 The team have reviewed this construction cost against other similar public sector office refurbishment projects and found that this budget compares favourably. The budget (once costs for furniture, professional team fees and VAT have been stripped out) equates to a cost of £193/sqft across the gross internal area of the building. Using the same basis, this compares to the refurbishment of Admiralty Arch for the Cabinet Office inflated from April 1999 to 1st quarter 2008 at £193/sqft and Ripley Building / Kirkland House also for the Cabinet Office inflated from January 2001 at £223/sqft.
1.3.3 Allowing for the addition of the £10,500,000 decant budget, set out in 5.2.2 below, and a prudent level of client side contingency for this stage of the project to cover unknown elements such as increased building running costs, project scope change, change in timescale, change in decant requirements, etc, the overall project budget totals £77,000,000.

1.3.4 The overall project budget is split over the next five financial years assuming approval to proceed in July 2006, as follows:

- 2006/7: £931,000
- 2007/8: £9,660,000
- 2008/9: £25,140,000
- 2009/10: £29,224,000
- 2010/11: £11,740,000
- 2011/12: £305,000
- TOTAL £77,000,000

1.3.5 The construction costs are split by repair, restoration and enhancement thus:

- Repair: £16,613,000
- Restoration: £23,370,000
- Enhancement: £21,167,000
- TOTAL £61,150,000

A summary of the main items against each of these headings is listed in section 5 below and is further detailed in volume 2 of this report.

1.3.6 The construction cost split is set across the next five financial years as follows:

<table>
<thead>
<tr>
<th></th>
<th>Repair</th>
<th>Restore</th>
<th>Enhance</th>
<th>Total</th>
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<tr>
<td>2006/7</td>
<td>£513,000</td>
<td>£363,000</td>
<td>£62,400</td>
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<td>2007/8</td>
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<td>£1,728,220</td>
<td>£677,700</td>
<td>£6,011,920</td>
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<td>£7,628,000</td>
<td>£7,805,000</td>
<td>£21,127,000</td>
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<tr>
<td>2009/10</td>
<td>£5,226,230</td>
<td>£10,954,800</td>
<td>£8,953,920</td>
<td>£25,134,950</td>
</tr>
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<td>2010/11</td>
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<td>£2,595,000</td>
<td>£3,554,000</td>
<td>£7,634,000</td>
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<tr>
<td>2011/12</td>
<td>£85,000</td>
<td>£103,000</td>
<td>£115,730</td>
<td>£303,730</td>
</tr>
<tr>
<td>TOTAL</td>
<td>£16,613,000</td>
<td>£23,370,000</td>
<td>£21,167,000</td>
<td>£61,150,000</td>
</tr>
</tbody>
</table>
1.3.7 Further information on the construction budget is set out in section 5 commencing on page 30. Sections from the fully detailed construction cost plan are attached at appendix B for reference also.

1.4 DESIGN AND ENGINEERING CONCEPT

1.4.1 The entire interior of the building will be replaced with open plan, light, contemporary finishes giving greater visibility across the floors. New restaurant, meeting, seminar, training and auditorium facilities will be installed to replace and enhance the existing facilities.

1.4.2 The entire main plant, services infrastructure and on floor distribution will be replaced with more efficient flexible engineering solutions with improved sustainability ratings.

1.4.3 The building envelope will be refurbished with substantial repairs undertaken to the roofs, stonework, the central tower and car parking areas.

1.4.4 The design and engineering concepts have been developed in recognition of environmental and sustainability matters, Building Regulations and BREEAM.

1.4.5 Further information on the design and engineering concept is set out in section 7, 8 & 9 commencing on page 38. A selection of floor layouts and design information is attached at appendix C also.

1.5 THIRD PARTIES

1.5.1 The workplace strategy and refurbishment scheme has been developed in recognition of the aspirations of the Lyons review, however due to NAO’s unique resourcing needs and client base, the decision to remain in central London is compelling.

1.5.2 The concept design has been developed with initial consultation with OGC and the Westminster planning authority. Who have to date been supportive of the proposed scheme. Further consultation with these bodies and with English Heritage and landlord / neighbour representatives will be necessary as the designs are developed in more detail in early 2007.
1.5.3 Further information on the liaison with third party bodies is set out in section 10 commencing on page 58.

1.6 PROGRAMME

1.6.1 From a potential TPAC approval, c.18 months is required to select and appoint a design team through OJEU, to develop the detail design, select and appoint a contractor through OJEU and prepare for a site start in January 2008.

1.6.2 A period of 29 months is required for the site construction activities with the works undertaken in three similar length phases aligned to the three blocks of the building. The works would be completed by May 2010.

1.6.3 Further information on the pre-construction and construction stage programmes is set out in section 11 commencing on page 64.

1.7 PROCUREMENT

1.7.1 Having assessed NAO’s desire for control and placement of risk, complexity of design and certainty of cost, and with reference to OGC’s guidance and best practice, the project team have recommended that the project is procured on a traditional lump sum contract basis, using GC Works 1 as the building contract.

1.7.2 A full external design team should be appointed, through OJEU advertisement by late 2006, enabling the detailed design to commence in January 2007.

1.7.3 A main contractor will require short listing and appointing during autumn 2007 through OJEU advertisement.

1.7.4 Further information on design and construction procurement is set out in section 12 commencing on page 68.

1.8 PROJECT RISK

1.8.1 Detailed risk analysis has been undertaken by the combined NAO / external consultant team, highlighting the main elements of risk on the project and assessing how best these can be managed and mitigated.
1.8.2 Further information on the key project risks and the systems set in place to mitigate them are set out in section 13 commencing on page 71. The detailed project risk register is attached at appendix A also.

1.9 CONCLUSIONS AND NEXT STEPS

1.9.1 Due to the condition of the building infrastructure and the building envelope itself, doing nothing is not an option and a project to refurbish these key elements should be commenced as soon as is reasonably practical.

1.9.2 The interior office accommodation is also very dated and is hindering the development of the NAO’s aspirations for changes in working practices. The timing is therefore right to undertake a full internal refurbishment when the building infrastructure repairs are done, which should this be commenced as soon as reasonably practical.

1.9.3 There is a need to commence the selection and procurement of the design team as soon as practicable and develop the existing concept design into a full detailed design package for tendering to contractors enabling a site start in January 2008.

1.9.4 There is a need to start a search for temporary decant office accommodation by the end of 2006 to ensure that suitable premises is found, acquired, fitted out (if necessary) and ready for occupation by December 2007.

1.9.5 This report and the four further volumes detail the work that is required to refurbish the building. Throughout, the team have assumed the NAO would remain insitu during the works and this has informed the development of the phasing strategy and programme. The principles of design, engineering and budget, however are equally relevant should another programme be adopted.

1.9.6 As the team have further reviewed the risks of a phased project, they have looked again at undertaking the works in one large phase, with the NAO vacating the building. As this has been explored further, the team have become more certain that a single decant and faster construction programme would be the best route to follow, albeit at a small percentage cost premium.
1.9.7 We have therefore appraised this total decant option in a little further detail in section 1.10 below and have highlighted what the team consider to be the main risks associated with the longer phased project currently planned.

1.10 TOTAL DECANT OPTION

1.10.1 Background

From the outset of the concept design report stage, the team have presupposed that the project would be undertaken in three phases. Much of the work done by the team for this report has been developed with this in mind, however the information is equally applicable to a single phase decant option.

As the team have interrogated the risks associated with undertaking the project with the majority of the NAOs staff remaining in situ, the team have started to reassess the alternative of undertaking the works in one large phase, whereby the entire NAO staff would be decanted from the building. The main topics that this throws up are summarised below.

1.10.2 Timescale

Undertaking the works over three phases will take c.125 weeks, undertaking it in a single phase will take c.70 weeks. Both periods have been verified by contractors active in the central London office refurbishment and fitout market.

1.10.3 NAO risk

There is far greater risk to business continuity by operating across two sites for well over two years with one being a partial construction site. The main risks are in business operations, IT security, IT systems downtime, security generally and health & safety. There is however an additional significant risk to the attraction and retention of high calibre professional staff, who could be put off by disruption to the working environment in what is an increasingly competitive employment market.

1.10.4 Construction project risk

Whilst the three phase programme allows for an amount of discovery and resurvey, should an unforeseen problem with the structure, for example, be uncovered in one of the phases this will have a knock on effect to the rest of the project as the contractor has less flexibility to reprogramme the works. If the
same happens when the contractor is in control of the whole building then there is greater opportunity for reprogramming and the ability to mitigate the impact.

In addition, the project will be tendered at a time of significant activity due to the London Olympics and several other major London construction projects coming on line. As such, the shorter the project with the greater level of control passed to the contractor, the greater the interest that will be generated in the market and thereby better competition should be achieved in tender pricing.

1.10.5 Decant accommodation
A partial decant of 270 people will require c.34,000 sqft in a small search area within 10 minutes walk from the current building. A full decant of 750 people will require c.94,000 sqft within a broader search area. This is likely to give the NAO greater temporary accommodation opportunities both from the OGC surplus estate and the open market in general.

1.10.6 Cost differential
Whilst the larger decant space will cost considerably more in rent and pre-occupation, there will be significant savings in the construction works due to the shorter period and the construction efficiencies that will arise from the contractor having greater programme flexibility. It is anticipated that (excluding savings on running costs) the project budgets for the two alternatives would be c.£77 million for the three phase project or c.£78 million for the single phase.

The refurbishment cost element of the overall project budget would drop to c.£53,600,000 against the £61,150,000 budget for the three phase project noted above and would be split across financial years and the headings of repair, restoration and enhancement as follows:

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<td>2006/7</td>
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<td>£351,094</td>
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<td>2007/8</td>
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<td>2008/9</td>
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<td>£9,460,470</td>
<td>£23,570,117</td>
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<tr>
<td>2009/10</td>
<td>£3,073,554</td>
<td>£7,818,127</td>
<td>£7,428,213</td>
<td>£18,319,895</td>
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<tr>
<td>2010/11</td>
<td>£35,000</td>
<td>£165,000</td>
<td>£100,000</td>
<td>£300,000</td>
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<tr>
<td>TOTAL</td>
<td>£14,560,675</td>
<td>£20,480,018</td>
<td>£18,550,112</td>
<td>c.£53,600,000</td>
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1.10.7 Recommendation

Due to the relatively small percentage premium for the shorter project but with the significant reduction in risk and the earlier ability to occupy the completed building with the stronger benefits realisation that are bound to follow, the project team firmly recommend proceeding with the project on this basis.
SECTION 2.0

BACKGROUND
2.0 BACKGROUND

2.1 INTRODUCTION – A SHORT HISTORY OF THE BUILDING

2.1.1 Constructed on the east side of Buckingham Palace Road, the National Audit Office headquarters building comprises an office building providing a net internal floor area of c.150,000sqft.

2.1.2 The central section (block B), which is Listed Grade 2, was constructed in 1938/9 as the main headquarters for Imperial Airways with a staircase onto platform 19 of Victoria Station. The blocks either side of block B (A and C) were built consecutively between 1958 and 1965 to further extend the offices of BOAC (who had taken over Imperial Airways some years earlier).

2.1.3 The property is held on a 125 year lease from March 1981 between British Railways Board and British Airways Board (who had taken over BOAC in 1974). The interest of British Airways Board was assigned to the Comptroller and Auditor General in August 1984. The NAO paid a premium at the time of assignment and currently pay an annual peppercorn rent through to the end of the lease.

2.1.4 At the time of the NAO taking over the interest of the building in 1984, partial refurbishment works were undertaken to the external and internal elements of the building, these were the last major works undertaken to the building.

2.2 INTRODUCTION TO ACCOMMODATION REVIEWS & BUILDING SURVEYS

2.2.1 The NAO commenced consideration of their accommodation needs in April 2002 by commissioning a detailed workplace study. Following reviews of the recommendations of this report, the NAO then embarked upon a strategy to assess the condition of the building to assist in considering the viability of retaining the existing premises at Buckingham Palace Road.
2.2.2 During the subsequent reviews NAO and their appointed advisors, developed repair, refurbishment and implementation strategies leading to the current RIBA stage C (concept design) level report into the design, programme and costing aspects of a complex refurbishment project. The focus and outputs of the different reports in the evolution of this strategy are summarised below.

2.3 WORKSPACE STUDY / OPTIONS APPRAISAL JULY 2002

2.3.1 King Sturge, with their architectural sub-consultant DEGW, were appointed following an OJEU selection process to undertake a detailed review as part of the NAO's intention to “provide the NAO with cost effective, fully functional and highly productive workspace to help attract and retain key staff, operate at reasonable cost and support its broader development as an organisation”.

2.3.2 The appraisal exercise assessed what workplace scenario might provide the best solution to positively support the NAO's long term business objectives. These objectives were broadly established as; the workspace needed to be adaptable, non-hierarchical, fostering team work and creativity, supporting information and knowledge exchange and allowing greater communication access across the organisation.

2.3.3 The report reviewed the current workplace provision and determined the requirements and business objectives for the next 20-30 years. The study incorporated extensive research and consultation with staff and senior management, detailed building appraisals and market evaluation. In particular the report looked at 4 fundamental scenarios which were: do nothing, refurbish, redevelop and relocate / acquire a new building.

2.3.4 The conclusion was that doing nothing and leaving the building in its current condition and configuration was not a viable option, that relocation or redevelopment was not ideal either and that further studies should be undertaken into the existing condition of the building as a precursor to assessment of the feasibility of refurbishing the building for NAO's continued occupation for the foreseeable future.
2.4 BUILDING CONDITION SURVEY REPORT FEBRUARY 2004

2.4.1 King Sturge (with sub-consultant services engineers Hoare Lea and structural engineers Hurst Pearce Malcolm) were appointed in July 2003, following a tender exercise, to undertake a full building and services survey report covering four main elements; external building fabric, internal building fabric, core building services and secondary building services.

2.4.2 Inspections were undertaken between October and December 2003 with the report issued in February 2004. The main findings of this report were:

Stage 1: external building fabric:
- Steelwork corrosion to block B with ongoing water ingress
- Defective roof coverings requiring complete renewal within 5 years
- Defective windows requiring complete renewal within 5 years
- Renewal of external asphalt covered car park deck required
- Extensive concrete repairs required

Stage 2: internal building fabric:
- Damage to internal surfaces through water ingress
- General wear and tear to surface finishes
- Inefficient layout and dated appearance
- Improvements required for way finding and access purposes

Stage 3: core building services:
- Primary plant (boilers, chillers, air handling) nearing end of economic life
- Perimeter fan coil units in poor condition
- General inefficiency due to absence of central management system

Stage 4: secondary building services:
- Improvements required to all on floor services including security, fire alarms, CCTV and lighting

2.4.3 The final part of this appointment was for King Sturge (with their sub-consultants) to undertake a refurbishment report with associated cost appraisal study. This was issued in April 2004.
2.5 REFURBISHMENT REPORT APRIL 2004

2.5.1 The refurbishment study assessed how the building could be refurbished to provide a modern office environment which could be effectively managed and maintained. The study also assessed how the external building fabric could be improved to include stone cleaning, health and safety access, solar glazing and bomb damage limitation.

2.5.2 The cost appraisal allowed for the repair and improvement of the external and internal fabric, the core building services, the building services infrastructure and open planning of office areas with enhanced meeting facilities, etc.

2.5.3 The report concluded that the budget for the required repairs to the external fabric and core building services over the subsequent 5 years amounted to £31.6million and once combined with the required internal refurbishment works the construction budget totalled £59.5million. The total works were recommended to be undertaken over a project duration of c.24 months thus allowing a comprehensive refurbishment of the building.

2.5.4 The report suggested that the works could be undertaken with the majority of NAO staff remaining in situ for the duration of the project whilst an amount of the staff were housed in temporary decant space nearby. However the report made the recommendation for the NAO to consider a decant from the building in its entirety for the duration of the works thereby mitigating the risk to the ongoing activities of the NAO.

2.6 IMPLEMENTATION REPORT SEPTEMBER 2005

2.6.1 During discussions between NAO and King Sturge through the summer of 2005 it was decided to look again at refurbishing the building with the NAO remaining in place rather than decanting entirely. A review of the survey and refurbishment reports was therefore undertaken to assess the viability of refurbishing the building with a proportion of NAO staff remaining in situ.
2.6.2 During the same period the NAO refurbished the sixth floor of block A utilising many of the themes for the internal refurbishment suggested in the earlier reports. This, it was felt would act as a pilot for future reference and an indicator of the possible impact of an overall refurbishment.

2.6.3 The report stood by the recommendations made in previous reports over the urgency to refurbish the key elements of the building and also highlighted a growing concern that much of the building services main plant and infrastructure was becoming life expired. The report also looked at a number of practical issues surrounding an in-situ refurbishment approach.

2.6.4 The conclusion of the report was that the works could indeed be undertaken with the NAO remaining in-situ and also updated the refurbishment costs allowing for inflation to Q4 2005 to £66million including decant costs and VAT.

2.6.5 The final recommendation was for NAO / King Sturge to develop the detail of such a refurbishment scheme to the next level enabling robust design, engineering, programming and cost analysis to be made. This would effectively take the project design to RIBA stage C, concept design.

2.7 PUBLIC ACCOUNTS COMMISSION REVIEW DECEMBER 2005

2.7.1 The NAO gained approval to engage the appropriate resources to identify and report on the key tasks and risks associated with a refurbishment of the Buckingham Palace Road premises, by developing the design, specification, cost plan and programming to concept design stage (RIBA stage C).

2.7.2 The Commission approved the appointment of a combined project team under King Sturge to undertake all activities associated with project management, building surveying, architecture, work space consultancy, structural engineering, services engineering, ICT consultancy, cost consultancy, etc. It was also recommended that the NAO appoint a Project Steering Board to work closely with the external project team in the development of the report.
2.8 CONCEPT DESIGN REPORT JANUARY TO JULY 2006

2.8.1 The current appointment is therefore to review everything that has gone before and develop the feasibility thus far developed to the next level of detail and specifically to expand upon the following areas:

- The internal and external project team
- Aims and objectives of the refurbishment project
- Detailed budget review
- Benefits management strategy
- Workspace review and design concept for office & ancillary areas
- Engineering and building fabric refurbishment
- Environmental & sustainability matters
- Third party interface (Lyons, OGC, OJEU, planning, heritage, landlord)
- Programme, phasing and decant arrangements
- Design team and construction procurement
- Project risk analysis
- Conclusions, recommendations and next steps

2.8.2 This report is structured in five volumes reflecting the depth of information that the team have now developed. The five volumes are:

- Volume 1: Summary final report (this document in the above order)
- Volume 2: Cost analysis
- Volume 3: Workspace design report
- Volume 4: Services and structural engineering
- Volume 5: Programme and procurement reports (including phasing)
SECTION 3.0

THE PROJECT TEAM
3.0 THE PROJECT TEAM

3.1 BACKGROUND

3.1.1 NAO and the external consultant team, led by King Sturge have worked closely together over the last four years to develop the workplace strategy, building surveys and concept designs.

3.1.2 The NAO appointed an internal Project Steering Board to monitor the activities of the external consultant team and to act as a decision making forum and conduit to the remainder of the organisation. Details of the members of this group are noted below.

3.1.3 The NAO appointed King Sturge to lead a combined external consultant team to develop the concept design scheme. Details of the members of this team are noted below also.

3.2 NATIONAL AUDIT OFFICE PROJECT STEERING BOARD

3.2.1 This Board met on a monthly basis throughout the concept design stage and maintained regular contact through adhoc meetings and discussions with the consultant. The Board members were:

3.2.2 Jim Rickleton, Assistant Auditor General. Jim is the project’s Senior Responsible Officer and is the chair of the Board. Jim is also the representative for Human Resources and provides the interface with the NAO Management Board.

3.2.3 Martin Sinclair, Assistant Auditor General. Martin is a member of the NAO Management Board and chairs the Board in Jim Rickleton’s absence. Martin is also responsible for the accounting implications of the project.
3.2.4 Steve Doughty, Director of IT. Steve is responsible for the successful integration of new IT systems as part of the project.

3.2.5 Phil Woodward, Director of Finance. Responsible for the project's finances and the development of the project business case.

3.2.6 Carol Allen, Director of Facilities. Carol is the project director, responsible for the day to day delivery of the project and acts as an interface between the Board, the project team and the wider NAO office.

3.2.7 Graeme Foreman, head of project management at King Sturge. Graeme is responsible for the external consultant project team and the development of the concept design report and all interfaces with the NAO team.

3.2.8 Vicky Cox, NAO Facilities. Vicky acts as secretary to the Board and the wider project team.

3.3 EXTERNAL CONSULTANT PROJECT TEAM

3.3.1 King Sturge were appointed in January 2006 to bring forward the high level feasibility and detailed survey work undertaken on the building prior to that date to concept design stage. In appointing King Sturge it was acknowledge that a combined consultant team would be required to develop the various elements of the design.

3.3.2 The team have significant experience of complex project of the type planned for the NAO headquarters and over the last few years have undertaken substantial refurbishment and workplace projects for clients including The Ministry of Defence, The Home Office, DTI, HM Treasury, GCHQ, Admiralty Arch, etc.
3.3.3 **King Sturge**

King Sturge LLP is one of the largest remaining independent Property Consultants, with over 1600 personnel operating from 18 offices across the UK and mainland Europe, providing comprehensive property and construction consultancy advice.

King Sturge Project Management operates within the 160 person strong UK Building Consultancy Group. Each year this group advises on projects with a construction value in excess of £1.5bn for a cross section of end users, developers and investors in the private and public sectors.

King Sturge are on the OGC framework panel and frequently act as both project sponsor and project manager on major relocation and consolidation projects. For corporate occupiers comprehensive building consultancy advice is offered, including workplace analysis and planning, project management of base build and fit out projects and advice in relation to statutory compliance.

3.3.4 **DEGW**

DEGW is a leading strategic design consultancy, operating from twelve offices in Europe, Asia Pacific and North America. DEGW’s unique mix of architects, designers, social scientists, project managers and researchers provides the capacity to address a huge range of design issues, from the most-long term and abstract to the most urgent and practical.

DEGW’s projects strive to accommodate the changing nature of work at every scale from the workplace to the city. Knowledge is used to help clients use space more productively over time, to enhance organisational performance and to future-proof their projects. Whether working with corporate clients, government, city planners or developers, DEGW’s focus is on ‘design for change’.
3.3.5 Hoare Lea

Hoare Lea is an award-winning, leading edge firm of consulting engineers specialising in mechanical, electrical and environmental engineering. The firm is an independent partnership with a national network of 500 staff in nine offices throughout the UK.

Hoare Lea’s mission is to deliver a professional service of the highest standard, to share their experience and knowledge with others and to collaborate in improving the total design and construction process.

The firm has continually developed its innovative edge by creating specialist groups. These include: Acoustics, Communications, Engineering Management, Expert Witness, Fire, Lifts, Lighting, Public Health Engineering, Sustainability and Virtual Engineering.

3.3.6 Hurst Pearce & Malcolm

Hurst Pearce + Malcolm is one of the longer established structural and civil engineering practices in London, having been founded in 1910. The practice undertakes structural and civil engineering work of all forms with an emphasis on new construction and refurbishment schemes.

The practice provides a wide range of design and advisory services to clients from the private and public sectors with project schemes ranging in value from a few thousand pounds to over £80m. The partners are active engineers taking personal responsibility for each project throughout its course to provide clients with continuity, consistency and accountability.

3.3.7 Davis Langdon

Davis Langdon is an independent firm of construction cost and project management consultants with over 2,800 staff in 85 offices in Europe, the Middle East, Asia, Australia and USA. This international coverage and resource base enables all Davis Langdon offices to provide clients with a unique “global reach” linked to local delivery.
The firm has a large and diverse client base and each year advises on construction contracts with aggregate values in excess of £2.5billion in the UK. Davis Langdon are recognised as a market leader in their field, with unrivalled specialist knowledge and with specialist teams dedicated to the offices, retail, residential and hotel sectors. This knowledge is fuelled by ongoing research and development programmes and the determination to attract and retain the very best people – the ultimate key to service quality and commercial success.
SECTION 4.0

AIMS AND OBJECTIVES
OF THE REFURBISHMENT
4.0 AIMS AND OBJECTIVES OF THE REFURBISHMENT PROJECT

4.1 INTRODUCTION

4.1.1 The over-arching aim of the refurbishment project is to adhere to the NAO’s leasehold responsibilities in the repair and maintenance of the building and in doing so to replace redundant and failing equipment, repair the fabric of the building and to bring the building up to a good standard of repair to last a further 20-30 years. At the same time there is the opportunity to enhance the quality of the workspace to have a positive impact on the culture of the NAO, to reinforce the NAO’s profile and to assist it in meeting its broader business objectives.

4.2 BUILDING CONDITION

4.2.1 The failing building fabric (roofs, stonework, car park deck) should be repaired as a matter of urgency and refurbished to last a further 20-30 years by the application of good quality design and the employment of suitable materials.

4.2.2 The failing and redundant main plant, equipment and services infrastructure should be replaced with new equipment and infrastructure to give the building a further 20-30 years life.

4.3 INTERIOR REFURBISHMENT

4.3.1 The current internal layout and configuration of the office space is reflective of a 1980’s office layout and should now be replaced with an up to date workspace to as good a standard as is possible within the constraints of the existing building structure. The aim is also to reflect the needs of a modern office environment that is technology led and can have a positive impact on staff morale and the organisation’s culture as a whole.

4.3.2 The aspirations of NAO users uncovered during early consultation should be brought into the design to create workspace that is airy, functional, versatile, calm, light, professional, adaptable and open.
4.3.3 By improving the workspace and encouraging new ways of working the cultural change aspirations should be met, including assisting the NAO itself to be more professional, trusting, client focussed, non-hierarchical, collaborative and outward looking.

4.4 STAFF ATTRACTION AND RETENTION
4.4.1 One of the key reasons for the NAO retaining a central London base is to ensure that the high calibre of staff continue to be attracted to work for the NAO in what is an increasingly competitive professional environment.

4.4.2 An improved contemporary workspace with excellent ancillary facilities should enable NAO to compete for the best personnel against the large corporate and accountancy practices who in many cases are already in contemporary office accommodation.

4.5 SUSTAINABLE AND INCLUSIVE
4.5.1 The manner in which the building is refurbished should be cognisant of sustainability factors, such as insulation, the use of sustainable materials, low carbon designs, efficient main plant, etc.

4.5.2 The refurbishment should accommodate the needs of disabled staff and visitors wherever practicable throughout the building.

4.6 VALUE FOR MONEY
4.6.1 The project should be designed, procured, managed and constructed within a budget that is appropriate for an organisation such as the NAO.

4.6.2 The project should provide exemplary workspace and quality of finishes with value for money as a key factor, thus ensuring that the finished scheme is not overly embellished.

4.7 PROJECT MANAGEMENT
4.7.1 The project should be set up with a strong knowledgeable internal and external team and with appropriate processes to ensure that the project is well managed.
at all levels and from all perspectives of the client, stakeholders, design team and construction organisations.

4.7.2 Strong controls and reporting procedures should be established by the project team with reference to OGC and other bodies at appropriate stages of the project.

4.8 RISK MANAGEMENT
4.8.1 Risks (time, cost, quality, security and health and safety) should be considered by all members of the project team early in the project's inception and systems set in place to actively review, design out, manage and mitigate as many risks as possible.

4.8.2 The construction, design and client teams should consider construction stage logistics carefully to ensure that as little disruption as possible is made to the NAO’s day to day operations during the three main construction phases.

4.9 BENEFITS MANAGEMENT STRATEGY
4.9.1 A suitable benefits measurement strategy and system should be put in place at an early stage of the project to benchmark the outcome and successes of the project as it proceeds through the different phases, to construction completion and beyond.
SECTION 5.0

PROJECT BUDGET REVIEW
5.0 PROJECT BUDGET REVIEW

5.1 BACKGROUND

5.1.1 Davis Langdon and King Sturge have developed a concept design stage cost plan based upon the concept design work developed by the project team, with reference to survey work and previous King Sturge reports and in close liaison with the NAO team. A full copy of the cost plan is attached in volume 2 and summarised in appendix B.

5.1.2 The cost plan covers all costs associated with the Buckingham Palace Road construction project and as well as costing for the design and engineering concept design also includes appropriate allowances for; main contractors preliminaries (site set up, management, overhead and profit, etc), temporary works and phasing requirements, a contingency for unforeseen elements uncovered during the construction works.

5.1.3 The cost plan does not allow for the cost of decanting 270 NAO staff from the building, the cost of this decant space, the cost of the connection to the existing building or the increase in running costs that will result from running two buildings, one of which will be under the part control of the contractors.

5.2 OVERALL BUDGET

5.2.1 On the basis that the project could start on site in January 2008, that it will be undertaken in three large phases over 125 weeks and based on the concept design as currently developed, the team estimate that the total cost for the construction project will be £61,150,000 including VAT.

5.2.2 King Sturge estimate that the decant area to accommodate 270 people will cost a total of c.£10,500,000. This is based upon:

- an office area of c.125sqft/head,
- a commercial rental figure of £40/sqft (excl VAT),
- a fitout/enabling cost of £25/sqft (excl VAT),
- a rental of 39 months (incl 4 month set up and 6 month void after returning)
- migration costs of £574,000
- temporary IT connection cost from NAO of £1,040,000.
5.3 PROJECT CASHFLOW

5.3.1 Within the construction cost plan, Davis Langdon and King Sturge have also assessed when the costs for the project will fall, which is summarised below:

<table>
<thead>
<tr>
<th>Year</th>
<th>Construction</th>
<th>Total budget</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006/7:</td>
<td>£931,000</td>
<td>£931,000</td>
</tr>
<tr>
<td>2007/8:</td>
<td>£6,018,000</td>
<td>£9,660,000</td>
</tr>
<tr>
<td>2008/9:</td>
<td>£21,102,000</td>
<td>£25,140,000</td>
</tr>
<tr>
<td>2009/10:</td>
<td>£25,122,000</td>
<td>£29,224,000</td>
</tr>
<tr>
<td>2010/11:</td>
<td>£7,672,000</td>
<td>£11,740,000</td>
</tr>
<tr>
<td>2011/12:</td>
<td>£305,000</td>
<td>£305,000</td>
</tr>
<tr>
<td>TOTAL</td>
<td>£61,150,000</td>
<td>£77,000,000</td>
</tr>
</tbody>
</table>

Within the detailed cost plan document in volume 2 of this report we have also broken down this cash flow between the headings in 5.4 below.

5.4 REPAIR, RESTORATION & ENHANCEMENT

5.4.1 As part of the Buckingham Palace Road cost plan, Davis Langdon have split the costs for the works between these three headings giving totals as follows:

- Repair: £16,615,550
- Restoration: £26,893,450
- Enhancement: £17,618,664
- TOTAL £61,150,000

The larger items within each are noted below for reference (these figures include an apportionment of related preliminaries, contingency, and inflation costs but exclude fees).

5.4.2 Repair:

Due to the condition of the building fabric, the main plant and services infrastructure and the length of time since the last substantial refurbishment this is the main element of cost and bears out the early conclusion that leaving the building in its current condition is not an option. The main repair elements are:

- new windows and doors £5,660,000
- strip out: £1,890,000
- stonework and general fabric repairs £1,650,000
- roof repairs £790,000
- structural repairs and strengthening £770,000
• new incoming power and substation: £720,000
• works to basement plant rooms £640,000
• new risers & structural openings for services infrastructure £630,000
• car park recovering and external repairs: £535,000
• below ground drainage repairs £175,000

5.4.3 Restoration:
Much of the work also falls under this heading due to the nature of the extensive refurbishment of the building. The main items under this heading are:
• office fitout incl copy, vend, meeting rooms, breakout: £5,700,000
• power distribution and lighting: £4,585,000
• lift and stair core refurb: £1,133,000
• toilet refurb: £980,000
• ventilation to wcs, vending, kitchens, gym, etc: £750,000
• water tanks and water distribution: £730,000
• air handling ductwork: £690,000
• IT structure cabling: £660,000
• restaurant area incl toilets: £660,000
• drainage infrastructure: £650,000
• reception / business lounge areas: £650,000
• MER and SERs: £315,000
• boardroom and ballroom refresh: £290,000
• ground floor gym refresh plus toilet/shower refurb: £230,000
• library / knowledge centre: £180,000

5.4.4 Enhancement:
There are some enhancements included within the project as some areas are upgraded and a few elements are new to the building, however this is limited compared to the overall project budget. The main items are:
• chilled beams incl ventilation and chilled water: £4,900,000
• new furniture £4,540,000
• main boiler, chiller, air handling plant and platforms, etc: £2,090,000
• heating and cooling distribution: £1,788,000
• security installation: £1,084,000
• air conditioning to reception, restaurant, gym & ballroom: £980,000
• BMS: £965,000
• fan coil units to meeting rooms, etc: £894,000
• enhanced restaurant finishes/equipment: £875,000
• perimeter heating system: £840,000
• kitchen units and ancillary furniture: £640,000
• auditorium and training room fitout: £495,000
• lift repairs: £490,000
• enhanced finishes to reception / business lounge: £440,000
• audio visual equipment to meeting rooms, restaurant, etc £430,000

5.5 CONSTRUCTION PROJECT CASHFLOW SPLIT

5.5.1 The construction cost split is set across the next five financial years as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Repair</th>
<th>Restore</th>
<th>Enhance</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006/7</td>
<td>£513,000</td>
<td>£363,000</td>
<td>£62,400</td>
<td>£938,400</td>
</tr>
<tr>
<td>2007/8</td>
<td>£3,606,000</td>
<td>£1,728,220</td>
<td>£677,700</td>
<td>£6,011,920</td>
</tr>
<tr>
<td>2008/9</td>
<td>£5,694,000</td>
<td>£7,628,000</td>
<td>£7,805,000</td>
<td>£21,127,000</td>
</tr>
<tr>
<td>2009/10</td>
<td>£5,226,230</td>
<td>£10,954,800</td>
<td>£8,953,920</td>
<td>£25,134,950</td>
</tr>
<tr>
<td>2010/11</td>
<td>£1,485,000</td>
<td>£2,595,000</td>
<td>£3,554,000</td>
<td>£7,634,000</td>
</tr>
<tr>
<td>2011/12</td>
<td>£85,000</td>
<td>£103,000</td>
<td>£115,730</td>
<td>£303,730</td>
</tr>
<tr>
<td>TOTAL</td>
<td>£16,613,000</td>
<td>£23,370,000</td>
<td>£21,167,000</td>
<td>£61,150,000</td>
</tr>
</tbody>
</table>

5.6 OTHER CONSIDERATIONS

5.6.1 Business rates

During the construction period a third of the office area will be a construction site at any one time and as such will be zero rated for business rates purposes. As the other parts of the building will be impacted upon by the works there is also the possibility for a reduction in rates for these areas also, albeit to a lesser degree. As such there will be the opportunity for substantial savings on business rates through the duration of the project work which will assist to offset the rent and rates costs of the temporary decant accommodation.
SECTION 6.0

BENEFITS

MANAGEMENT

STRATEGY
6.0 BENEFITS MANAGEMENT STRATEGY

6.1 BACKGROUND

6.1.1 The NAO project team have considered in recognition of the requirements of OGC, how best to measure the success of the project. The overall aim is therefore to identify the benefits, assign ownership and determine how the benefits are to be measured and delivered.

6.1.2 Based on best practice including OGC and examples from other similar projects, the NAO benefits management approach seeks to link the enablers (a better building, better equipped) combined with the enabling benefits (better application of processes and working practices) through to the end state of the change (a highly respected organisation that attracts and retains staff and which delivers maximum impact to its stakeholders from its services).

6.2 BENEFITS

6.2.1 A number key benefits have been identified and grouped under 3 categories derived from the NAO’s project vision. These are outlined below.

6.2.2 Environment, the benefits derived from a newly refurbished building. These encompass; an improved more adaptable working environment, more flexible and accessible workspace, a better performing and more sustainable building, better space utilisation and reduced office running costs.

6.2.3 Corporate development, the benefits derived from a motivated workforce better able to use modern facilities and information systems. These encompass; better team interaction and communication, more visible supportive leadership, more people focussed management style, improved staff morale, improved information access and management, and improved knowledge sharing and creativity.
6.2.4 **Business development**, the benefits gained by business areas and the organisation as a result of exploiting the new environment to improve service delivery. These encompass; more collaborative working between teams, streamlining business processes, reduced vulnerability to loss of information, improved ability to meet political or external changes quickly, improved output quality and faster service delivery.

6.3 **OWNERSHIP**

6.3.1 The environment benefits will be owned and managed by the NAO project and facilities teams, the corporate development benefits by the NAO senior management and the business development benefits by the NAO business areas and individual teams.

6.4 **SUPPORTING TASKS & DEPENDENCIES**

6.4.1 The refurbishment / workspace project is not being viewed in isolation to other ongoing NAO change projects and business development initiatives, strategically it is being viewed as part of an integrated change programme.

6.5 **BENEFIT MEASURES**

6.5.1 There are a number of measures for each benefit, some based on quantitative and others on qualitative data. Information against these measures/indicators will be gathered before, during and after completion of the project as appropriate to ensure that progress is being monitored.

6.6 **REVIEW & ASSESSMENT**

6.6.1 Many of the anticipated benefits will not start to materialise until after the project has finished. It is therefore essential that the ownership of the benefits is maintained beyond project completion through to their realisation. There will be a need for a post-implementation review which will allow time for management of benefit realisation. This review will measure the benefits against the targets set, including an analysis of the reasons for under or over achievement and the identification of opportunities for further benefits.
SECTION 7.0

WORKSPACE AND INTERIOR DESIGN CONCEPT
7.0 WORKSPACE AND INTERIOR DESIGN CONCEPT

7.1 KEY PRINCIPLES

7.1.1 The aim of the interior design is to provide the NAO with cost effective, fully functional and highly productive workspace to help it to deliver business objectives and attract and retain key staff.

7.1.2 In the previous workplace studies and the A6 pilot, a good degree of consultation with NAO personnel took place which set out some of the main aspirations in further detail. This included comments regarding the office environment, such as the space needing to be airy, modern, functional, versatile, calm, light, professional, adaptable and open.

7.1.3 Comments were also collected regarding the cultural aspects of the interior design that would enable working practices to be improved. For example that the space should be professional, trusting, client focussed, non-hierarchical, collaborative and outward looking.

7.1.4 A full refurbishment of the NAO building enables many of these aspirations to be brought to fruition, the main elements of which are noted below and are expanded in considerably more detail with floor layouts and graphic representations of the newly refurbished areas in volume 3 of this report.

7.2 OFFICE WORKSPACE

7.2.1 The majority of the above mezzanine level floor areas will be converted to open plan accommodation following many of the interior design themes of the A6 pilot scheme undertaken in the summer of 2005. The exceptions to this are on the 6th floor of block C which will become an auditorium and training / seminar facility and an area of the 2nd floor of block C which is planned to house the Main Equipment Room (computer room).
7.2.2 The office space will be non-hierarchical with all levels of personnel housed in open plan accommodation with easy access to a variety of formal and informal meeting rooms, quiet booths, tea points and support/reprographics areas.

7.2.3 The existing suspended ceiling will be replaced with a multi service chilled beam ceiling to give a more light, airy and open feel to the space. The external fan coil unit casings will be replaced with slim-line perimeter radiator casings. New carpets will be installed with accent colours in the more enclosed areas.

7.2.4 The core lobby doors will be rationalised to improve visibility and accessibility across the floors. The existing window units will be replaced with bespoke secondary glazed units such that the windows will impose less on the office space, thereby creating a more airy feel. New corporate signage and graphics will be installed.

7.2.5 The space will be lit with natural daylight and new luminaires mounted in the chilled beams providing higher lighting levels than existing which will then be supplemented by the space being finished with light, bright contemporary colours and finishes.

7.2.6 A raised floor will be installed to provide flexibility in the occupation of the space and new furniture will improve the efficiency of desk usage and storage and will create greater flexibility in the use of the space.

7.2.7 Any enclosed meeting areas, quiet booths, tea points or support/reprographics areas will be subdivided from the open plan area using either full height glazed partitions with sliding glass doors or by the use of three quarter height glass/joinery units, all creating a feeling of space and openness.

7.2.8 Toilet areas will be upgraded with new cubicles, flooring, ceilings, sanitaryware, taps, etc to create a light contemporary feel in keeping with the rest of the office areas. Lift and stair case lobbies will be redecorated and new lighting installed.
7.3 GROUND FLOOR RECEPTION AND BUSINESS LOUNGE AREAS

7.3.1 This area will be completely refurbished and given a more modern, contemporary, bright, airy and open feel whilst making reference to the building’s history and listing status. New stone flooring, light coloured wall finishes, corporate signage and graphics, high level lighting, a new reception desk and reception area seating will be installed.

7.3.2 The block A side of the reception area will be further opened up to incorporate a client facing “business lounge” and the rear of the reception area will have the existing glazed screen replaced with a new more modern glazed screen with glass fronted meeting rooms, security room and FM areas behind.

7.3.3 The business lounge area will be beneath the mezzanine space and will be open to the reception area enabling staff and visitors to use this area both as a waiting area and for other informal meetings. The area will be welcoming and friendly and will have a coffee bar and informal seating with tables. A new client wc will be installed in the business lounge area.

7.3.4 The business lounge will open into a newly refurbished library / knowledge centre through a clear but unimposing security line formed by turnstiles or speed gates.

7.3.5 Security in the area will be heightened by all deliveries now being made to the rear of the building and new turnstiles or speed gates will be installed to monitor all staff entering and leaving the building.

7.3.6 The front of the building and covered canopy will be cleaned and the lighting upgraded to improve the entrance area.

7.4 AUDITORIUM, TRAINING AND CONFERENCE ROOMS

7.4.1 During the refurbishment of the building in the mid 1980’s, the structure at 6th floor in block C was altered and an area made column free, thus presenting a
good space for a large auditorium facility. The space will be refurbished to accommodate 120 people seated and will be provided with suitable audio visual equipment, etc.

7.4.2 The rest of the 6th floor block C area will be divided into meeting / seminar / syndicate rooms which can be used standalone or in conjunction with the main auditorium space. The area will have a finishing / prep kitchen for seminar/auditorium catering, toilets, stores and the like.

7.4.3 The partitions subdividing the space will be glass fronted with glass sliding doors and some of the intermediate walls will be sliding / folding to enable larger rooms to be created when needed. The space will be finished with a suspended ceiling, contemporary meeting room lighting, new carpets and furniture all creating a bright airy space.

7.5 RESTAURANT, GYM AND KNOWLEDGE CENTRE

7.5.1 The existing restaurant and kitchen areas will be completely stripped out and replaced with a new facility in the same location in the basement of block A. The area will be dramatically improved to create a space that encourages greater flexibility and interaction as well as a space where staff will want to take visitors for informal meetings or work for short periods of time.

7.5.2 Access to the restaurant will be improved for staff and visitors from across the building. The entrance area at the base of the existing staircase will be opened up and improved to create a more light and airy feel and the accessibility to the area will be improved.

7.5.3 The restaurant area finishes will be light, contemporary and airy with new flooring, ceilings, lighting, food hall units, decoration, furniture, signage and graphics.
7.5.4 The staff toilets serving the basement restaurant will be refurbished also, but to a slightly higher specification than that used across the general office floors with timber doors, stone counter tops and enhanced lighting. New kitchen/restaurant staff toilets, showers and rest areas will be provided adjacent to the kitchen area.

7.5.5 On the ground floor of block A the existing gym area will receive a light refurbishment with the sports hall floor sanded, relined and lacquered, the shower / toilet areas completely refurbished in line with the finishes across the general office areas and the gym area itself receiving new lighting, improved ventilation, new flooring and an enhanced audio visual system. A separate access will be available to the area assisting cyclists who require the use of a shower close to the new external bike store.

7.5.6 On the remainder of the ground and mezzanine areas of block A will be a new library / knowledge centre providing staff and visitors access to NAO documentation in hard and soft copy format in comfortable surroundings. The area is in a similar location to existing and will benefit from new ceilings, lighting, flooring, decoration, shelving, furniture, signage and graphics.

7.6 OTHER ANCILLARY AREAS

7.6.1 The remaining areas not noted above can be categorised as FM offices, stores, security room, goods in/post room, reprographics area, DTP office, ballroom, board room, computer rooms, plant rooms, workshops, etc. All these areas will receive a complete refurbishment and in several instances are relocated, a summary of the works to these areas is outlined below.

7.6.2 The various FM offices will be rationalised onto the mezzanine area overlooking the main reception in newly refurbished office space along similar lines to that mentioned above. Further FM contractor offices and stores will be refurbished and rationalised on the ground and basement floors.
7.6.3 The archive and various store rooms in the basement will be refurbished and receive new lighting, new decoration, new shelving and storage units and will be made watertight as part of the refurbishment.

7.6.4 The “livenet” and “devnet” computer rooms will be completely refurbished and re-housed in new accommodation with better quality raised floors, security, lighting and finishes with m&e services resilience and redundancy built in.

7.6.5 A new post and goods delivery strategy will be employed meaning all deliveries will now be made through the car park, past a new security check point to the rear of the building where they will be sorted and distributed through a new secure room then on through to a newly refurbished post distribution room. Both areas will receive new ceilings, flooring, lighting, decoration, furniture, etc.

7.6.6 The reprographics and DTP areas, due to their high power, cooling and IT demands will be positioned in newly refurbished spaces, again with new ceilings, lighting, flooring, decoration and furniture along the lines of the office refurbishment noted elsewhere.

7.6.7 All plant rooms and store rooms within the basement will be rationalised and the space used more efficiently where possible and will receive new decoration, new lighting, new doors, etc.

7.6.8 All non-office area corridor and stair / lift lobbies will receive new ceilings, new lighting, decoration, new signage, new security access controls and new flooring.
SECTION 8.0

ENGINEERING AND BUILDING FABRIC REFURBISHMENT
8.0 ENGINEERING AND BUILDING FABRIC REFURBISHMENT

8.1 INTRODUCTION

8.1.1 This section provides an overview of the key elements of this part of the building refurbishment and should be read in conjunction with the foregoing detailed building surveys and the supporting detailed information in volume 4.

8.1.2 The key assumption of the engineering and building fabric refurbishment is that the external building fabric is in need of significant urgent repair and that the main plant and services infrastructure has in the majority of areas reached the end of its expected life or is anticipated to do so within the next five years.

8.1.3 The main aim of this element of the refurbishment is to provide the backbone and shell of the building that will last another 20 to 30 years.

8.1.4 This section is broken into 5 key areas:
- Mechanical services main plant and infrastructure
- Electrical services main plant and infrastructure
- IT and telecoms infrastructure
- External fabric repairs including window replacement
- Structural works to support the above

8.1.5 The principles of how the plant replacement is phased to enable the building to operate uninterrupted on a day to day basis is discussed in section 10 below and in volume 5 in greater detail.
8.2 MECHANICAL SERVICES PLANT AND INFRASTRUCTURE

8.2.1 Incoming gas and water supplies
The existing gas and water capacity to the building does not need to be increased as part of the refurbishment. The gas intake position and meter will remain in its existing position whereas the water meter position will be moved alongside the new basement water tank positions.

8.2.2 Boiler plant
The existing boilers will be replaced by new boilers within the existing boiler plant room areas. The new boiler plant will be more efficient which will reduce running costs. They are sized to reflect the improvement in the building’s thermal insulation through elements of the refurbishment. The works will be phased such that any of boilers that have to be kept in operation will be replaced during summer months, to reduce disruption to the building occupants.

8.2.3 Air handling plant
The existing air handling units providing fresh air ventilation throughout the building will be replaced within the exiting air handling plant rooms across the building. The equipment will be supplied flat pack and constructed insitu to reduce disruption to the building structure. New units have been sized to better reflect the building envelope and will be more efficient than the exiting units.

8.2.4 Water tanks
The existing tanks will be replaced and the new tanks combined to provide a coordinated boosted system housed in a new water tank room in the basement which will serve all three blocks from a central location. The space vacated at roof level and elsewhere will be used for new plant rooms.

8.2.5 Chillers
The existing chillers and cooling towers will be replaced with new chillers mounted on the roofs on blocks A and C serving all office and ancillary areas across the building. Due to the high heat load, criticality and 24 hour operation,
the newly refurbished livenet, devnet and SERs will receive dedicated chilling from separate plant positioned on the roof of block C.

8.2.6 Primary mechanical services distribution
All existing chilled water pipework, ventilation ductwork and hot and cold water pipework will be stripped out and replaced with new mechanical services infrastructure throughout the building. The new pipework and ductwork will be run in the existing, vacated vertical risers wherever possible, but it is expected that some of these risers will need enlarging and two or three new risers will need constructing through the building.

8.2.7 On floor services distribution
All existing on floor services distribution will be replaced as part of the refurbishment project. The open plan office areas will be cooled through the use of a chilled beam system, with ventilation provided through ductwork run within the central bulkhead and discharged through diffusers. Slimline panelled radiators will heat the interior of the perimeter of the building thereby enabling the chilling / ventilation to work consistently across the floors.

The enclosed meeting, seminar, training, auditorium areas, etc as well as the restaurant, kitchen and all toilet areas will receive heating and cooling through dedicated ceiling mounted fan coil units hidden above new suspended and plasterboard ceilings in these areas. Fresh air ventilation and extract will be provided to these areas in the same manner as the open plan areas.

8.2.8 Drainage
The existing above ground cast iron drainage systems will be stripped out and replaced with new drainage runs throughout the building as part of the refurbishment.

8.3 ELECTRICAL SERVICES PLANT AND INFRASTRUCTURE

8.3.1 Incoming power and EDF substation
The existing incoming power supply of 850kVA is planned to be increased to 1600kVA as part of the refurbishment. An additional substation will be installed in place of an existing furniture store to facilitate this increase with the high
voltage cable serving this routed from the road through the basement of block A at high level in a fully protected armoured duct.

8.3.2 UPS and standby power generation
The existing UPS is in good condition but is undersized for the required level of power resilience and as such will be upgraded and increased in size. There is no current standby generator to the building and no permanent facility is planned however provision will be made in the provision of suitable switchgear, etc for the hire of a temporary generator should NAO wish to maintain some ongoing power to the building in the instance of a long term power outage.

8.3.3 Main low voltage switchgear
All existing switchboards will be replaced as the existing boards are either obsolete or are reaching the end of their expected life. The new boards will be placed in the same switch rooms.

8.3.4 Primary electrical services distribution
The existing armoured cable rising power mains will be replaced with a new busbar system within the existing and extended risers which in turn will feed new on floor distribution boards in dedicated electrical distribution cupboards.

8.3.5 On floor electrical services distribution
Power will be distributed to light fittings in the multi-service beams through the central bulkhead, to the areas with lights in suspended ceilings through cable trays above the ceilings and to desk positions across the floors through the raised floors and via grommets in the floors. All other final distribution to areas such as kitchens, vending machines, AV equipment, PA systems, IT rooms, etc, will be hidden in risers, above ceilings or below the new raised floors.

8.3.6 Fire alarms
The refurbishment works will include the complete replacement of all cables, sounders, detectors, ancillary devices and the main panel and repeater panel that form the fire alarm system within the building. The existing and a temporary system will be maintained throughout the phases of the project to ensure that all occupied and building areas have a fully coordinated fire alarm system in place at all times.
8.3.7 Security
The refurbishment works will include the complete replacement of all parts of the security system. The new system will connect to the new computer LAN with the main system control in the newly positioned security control room adjacent to the main reception on the ground floor of block B. The new system will incorporate access control points at the main and staff entrances, all other external doors, all stair/lift lobbies and areas of greater security such as archive stores, MER and SERs.

The system will incorporate speed lane security gates at the main reception, the business lounge and staff entrance in block C. New pan, tilt zoom cctv cameras will be positioned around the building perimeter and in the car park. A new security hut will be built at the car park entrance connected to the security room to control access to the car park deck for deliveries, etc.

8.3.8 Lifts
The lifts have been refurbished in the last 5 years and as such will require cosmetic upgrading only with new interiors and doors as part of the refurbishment. There is however one goods lift that requires complete replacement, having not been refurbished since 1985.

8.3.9 Lightning protection
The existing system will be modified to reflect the new plant and walkways, etc on the roof and any external repairs that impact on the existing conductors.

8.3.10 Sundry electrical items
A new public address system, new centralised disabled alarms and a security connection to Victoria Station will be installed as part of the refurbishment. New audio visual / video conferencing systems and induction loops will be installed in several of the meeting / seminar / training rooms as well as a number of plasma screens and projectors in areas such as main reception, auditorium and restaurant.
8.4  IT AND TELECOMS INFRASTRUCTURE

8.4.1  Equipment Rooms
The cabling and network infrastructure will be accommodated in equipment rooms: a new Main Equipment Room (MER or LiveNet) located on the 2nd floor of Block C, the Development Network Room (DevNet) in the basement of block B and 18 Secondary Equipment Rooms (SER) distributed throughout the building in vertical stacks.

8.4.2  IT fibre backbone
Fibre optic cables will be used in the vertical backbone from the incoming frame room in the basement, to the MER and DevNet rooms and from the MER to the SERs throughout the building. The fibre optic cables will be distributed from the MER to SERS in diverse routes and installed on cable trays in risers and above ceilings / below floors.

8.4.3  On floor cabling
Horizontal cabling will be category 6 distributed from the SERs to every desk positions on cables trays beneath the new raised floor and terminated at the desk positions through floor grommets.

8.4.4  Local Area Network
The data network infrastructure will provide video, data and voice connectivity and will be designed to meet the key objectives of functionality, scalability, resilience and manageability. The wired data network will be supplemented with a wireless LAN to provide continuous connectivity whilst roaming across the building, thus increasing the flexibility of the workplace.

8.4.5  Telecoms and integrated building systems
The existing telephony system will be retained and the existing PABX relocated to the new MER. CCTV, access control, intruder detection, building management and lighting control systems will be integrated onto the common LAN infrastructure of the building as part of the refurbishment.
8.5 EXTERNAL FABRIC REPAIRS INCLUDING WINDOW REPLACEMENT

8.5.1 Roof repairs
Roof finishes at all levels across the building will be stripped off and recovered with improved falls, new copings, new rainwater outlets, etc as necessary.

8.5.2 Stonework repairs
The facades of the building will undergo extensive stone repairs to make good much of the existing cracking, water ingress, etc and to extend the life of the building for a further 20-30 years. Brickwork repairs will also be undertaken where necessary to the rear elevations of the building.

8.5.3 Window replacement
All external windows across all blocks will be replaced with new double glazed window units in a similar aesthetic appearance to the existing in cognisance of the heritage and listing of the building.

8.5.4 External doors
All external doors and frames will be replaced with new solid core fire resistant doors with new ironmongery and security access systems.

8.5.5 Car park deck and fencing repairs
The entire car park deck will be recovered with new asphalt and alterations made to copings, rainwater outlets, kerb lines, parking bay lining, etc. The existing perimeter fencing and security barriers will be repaired where necessary with escape access maintained from Victoria Station.

8.6 STRUCTURAL WORKS TO SUPPORT THE REFURBISHMENT

8.6.1 Plant supports and screening
A new steelwork support frame will be positioned on block A roof bearing on the tops of the existing column heads, to support the new mechanical plant. New walkways, steps and aesthetic screening will be installed also. New concrete and steel work plant bases will be positioned in plant rooms throughout the rest of the building to support new plant positions.
8.6.2 Column strengthening

Columns in the top floors of blocks A and C will be strengthened with the installation of steel collars to accommodate increased loadings from roof mounted plant.

8.6.3 New and enlarged risers

Existing risers will be enlarged as noted above and a few new small risers will be installed across the building, these will be constructed by steelwork framing the openings and forming new enclosures at each floor level in load bearing blockwork.
SECTION 9.0

ENVIRONMENTAL & SUSTAINABILITY MATTERS
9.0 ENVIRONMENTAL & SUSTAINABILITY MATTERS

9.1 INTRODUCTION
9.1.1 During the concept design stage, a number of environmental and energy sustainability proposals and energy saving initiatives were explored and reviewed with the team. In a number of cases these could not be included due to particular constraints of the building but in many other instances there remains the opportunity in the careful selection of plant, materials and with good quality design to implement a number of these. These are outlined below.

9.2 UK GOVERNMENT'S APPROACH TO SUSTAINABLE DEVELOPMENT
9.2.1 On 12th June, The Prime Minister launched new targets for sustainable operations on the Government estate. Whilst the NAO does not necessarily have to strictly adhere to these requirements, we can confirm that the designs thus far developed take account of many of the key targets within this announcement. These are outlined below and cover aspects such as reduction in carbon emissions, improved energy efficiency and reduction in water consumption, etc.

9.3 BUILDING REGULATIONS
9.3.1 Part L of Building Regulations imposes a requirement on teams to design projects using sustainable materials where possible, to improve insulation in building fabrics, to select more energy efficient main plant, etc. In the concept design the team have worked up designs with these requirements in mind.

9.4 BREEAM
9.4.1 When undertaking new or major refurbishment projects (over £50,000), all Government Departments are expected to carry out environmental assessments using the Building Research Establishment Environmental Assessment Method (BREEAM), or equivalent. New build projects are expected to achieve "excellent" ratings and refurbishment projects "very good".

9.4.2 Whilst NAO does not strictly fall under this regime, the design team have developed the concept design with this very much in mind. The BREEAM
assessments cover a number of areas, some of which are applicable to this project and which the team have designed with awareness of:

- overall management policy and commissioning site management
- operational energy and carbon dioxide issues
- indoor and external issues affecting health and well-being
- air and water pollution issues
- environmental implication of building materials, including life-cycle impacts
- water consumption and water efficiency

9.5 DESIGN ELEMENTS ADOPTING SUSTAINABLE ISSUES

9.5.1 Main plant:
Main plant has been selected to allow for plant turn-down such that not all chillers or boilers for example are working when there is a lower loading due to seasonal variations in temperature. Stand alone plant is provided to office areas operating outside the main building working hours such that smaller more efficient elements of plant only are running during these lowest occupancy times. Boilers have been selected that are highly efficient with modulating burners to match the heating demand.

9.5.2 Services infrastructure and distribution:
Insulation is provided to ductwork and pipework, which is an industry standard although not provided to the present installation. Effective use of BMS to control plant to set points and careful selection of heating and cooling set points to the office areas. Low temperature heating circuits are provided with zone control, which allows areas within the building to be provided with heating as required throughout the day depending on the sun path. i.e. Circuits only operate in the building where there is little solar gain through the day. Lighting will be controlled by movement detectors.

9.5.3 Materials specification and selection:
The insulation of the building fabric will be improved with the installation of new insulation beneath windows that will reduce heat loss. Heat gain will also be reduced through the provision of efficient new glazing. Issues such as the use of say softwood from sustainable sources rather than MDF and the use local timber rather than some grown in another country etc. will be considered also.
During the strip out, elements such as carpets will be retained where possible and offered for use in other community based projects, etc.

9.6 DESIGN ELEMENTS CONSIDERED BUT DISCARDED

9.6.1 Ground water cooling:
This uses the natural water aquifer in an open loop system to cool chilled water systems. As the project is a refurbishment of an existing structure, including this in the existing structure is not feasible and the payback unfavourable.

9.6.2 Grey water harvesting:
This harvests used drained-off rain water and domestic non-foul water to be stored and used for flush toilers or for soft landscape irrigation. Incorporating this into the existing structure, with the limited opportunity for its application and with the inherent need for substantial tanks and pumps meant its application was not feasible and the payback unfavourable.

9.6.3 Solar panels and photovoltaic cells:
This uses panels located on the roof to collect energy from the sun to heat water for domestic water services and electricity. To provide reasonable power generation a large area of solar panels are required. The existing building structure, coupled with the additional plant required to service the refurbished building does not practically allow for the space or additional weight of the panels and the financial pay back on this is not favourable.

9.6.4 Wind turbines:
Wind turbines convert wind into electricity via a generator located within a nacelle. The existing building structure, coupled with the additional plant required to service the refurbished building does not practically allow for the space or additional weight or wind loading of the turbine. There are also issues relating to planning, financial pay back and this type of arrangement is normally best implemented on a new build scheme.
SECTION 10.0

THIRD PARTY APPROVALS AND CONTEXT
10.0 THIRD PARTY APPROVALS AND CONTEXT

10.1 BACKGROUND

10.1.1 As part of the development of the feasibility into the concept design for the refurbishment project it has been necessary to review the context of the project against the requirements and risks of third party approvals that will inevitably have to be fulfilled as part of the detailed design and construction stages.

10.1.2 The key elements of third party liaison can be summarised under four main headings of; public sector context, statutory requirements, lease requirements and neighbours. The progress of each is noted below.

10.2 PUBLIC SECTOR CONTEXT

10.2.1 The Lyons Review

There is considerable pressure and focus on all major public sector office occupiers within central London when reviewing their accommodation and real estate needs to look closely at the opportunity to relocate jobs away from central London to the provinces.

NAO have looked closely at this, as has been summarised in separate papers to the Public Accounts Commission, highlighting the unique resource requirements of the NAO, meaning that a move away from central London would not be tenable. The risk to the retention and future recruitment of quality professional staff in sufficient numbers was such that any relocation out of the South East was discounted.

10.2.2 OGC

There is a requirement for the project to be reviewed at key stages under the OGC Gateway process. Consultation has been held with OGC during the concept design stage who have stated that since the project is already well advanced and under strong management that it need not enter the process until Gate 2.
It is therefore planned to contact OGC again with the required initial project risk assessment, should the Public Accounts Commission approve the go ahead of the project, following which OGC will appoint a reviewing team ready for a Gate 2 review in late 2006 just prior to the new design team being appointed. Gate 3 would then follow in mid 2007 during the latter stages of the detail design and prior to the appointment of the main contractor.

10.2.3 OJEU

Whilst the current external consultant team have been appointed as extensions to previous OJEU advertised appointments, there will be a need, should the project proceed into detailed design and construction, for the external consultant design team and contractors to be appointed following OJEU procurement procedures.

No contact has been made with OJEU yet, however this is being prepared at present such that advertisements can be quickly placed for the design team should the Public Accounts Commission give the project the go ahead, thereby maintaining momentum with the project programme.

10.3 STATUTORY REQUIREMENTS

10.3.1 English Heritage

The building (and especially the central block B dating back to the 1930’s) is listed grade II, having been entered in the register in 1981. The listing makes reference to the exterior of the building, the stonework and windows, but does not refer to the interior. As such the external works and the window replacement in particular will require Listed Building consent through liaison with Westminster City Council and English Heritage and there is a risk also that any works to the interior of the building could fall under their view also.

Initial consultation with Westminster City Council has indicated support for the broad extent of the building’s refurbishment and supports the fact that the scheme is cognisant of the heritage of the building and much of the planned works are sensitive to this. There will however be a need to expand this consultation early in the detailed design stage to discharge this potential risk and ensure that the designs are developed in consultation with Heritage to avoid difficulties in the future.
10.3.2 Town Planning

As well as the consultation with the planning authority and English Heritage around listed building matters, there will be a need for consultation with Westminster City Council planning department on elements of the project that have an impact on the exterior of the building. In particular the concept design requires the siting of substantial new chiller plant on the roof of block A.

Initial discussions have been held with Westminster on this topic and in general the response has been supportive on the basis that the plant has been carefully sized, that acoustic studies have already been undertaken, that the plant is positioned away from the central block B and that the plant receives some form of aesthetic screen to mask it from street level. There will however be a need during the detailed design stages for this dialogue to continue to ensure that designs that are developed with the approval of the planning authority.

10.3.3 Building Control and Fire Officer

During the concept design stage, discussions have been held with the Fire Officer and with an Approved Building Inspector regarding issues of means of escape, fire and smoke control, etc. The concept designs so far developed take account of these discussions which thus far have been constructive and positive.

This dialogue will have to be maintained through into the detailed design and construction stages of the project and approval sought at key stages, however this is seen as less of a risk as the designs already take account of the key requirements thus far expressed regarding; travel distances, fire fighting shafts, compartmentation, disabled refuges, smoke detection, alarm systems, etc.

10.4 LEASE REQUIREMENTS

10.4.1 Landlord

The NAO hold a long lease interest in the building and as such there will be a need to gain Landlord’s approval from Network Rail for the proposed refurbishment works. Early dialogue has been held with Network Rail in the past which has generally been supportive of the proposed scheme, however...
there will be a need to maintain dialogue through the detailed design stage to
ensure that the information that will be required to be issued for approval
processes is issued in sufficient time and to the level of detail required.

10.4.2 Grosvenor Estate
The NAO lease, like most large sites in the original Grosvenor Estate
catchment area, has within it what is known as a “Grosvenor clause”. Whilst
Grosvenor do not have active rights over the building they have to be consulted
on any major projects to the building. This is primarily to protect against
unsightly or inappropriate major redevelopments, however there will still be a
need for the scheme once developed further to be passed by Grosvenor for
their approval.

This is not considered a significant risk on the grounds that what is proposed
will have little impact on the aesthetics or mass of the building. Early dialogue
has been held with Grosvenor in the past which supports this view.

10.5 NEIGHBOURS

10.5.1 Network Rail
As well as gaining landlord’s consent for the works it will be necessary to agree
with Network Rail some of the logistical aspects of the works and the timing of
the works to, for example, the car park deck which oversails platforms in
Victoria Station beneath. No dialogue has been held thus far as this is seen as
a low risk but one that will still have to be looked at in further detail and
consultations made as the detailed design and logistics planning of the works
develops in the detailed design stage.

10.5.2 Party Walls
The building abuts a residential block to the south of block A and as such there
will be a need to enter into party wall awards covering works in this area. This
is a relatively straightforward process and none of the works proposed to this
area of the site are anticipated to have a detrimental affect on the adjoining
property, however it is an activity that can commence as the detailed design
develops.
10.5.3 Other neighbours

Prior to commencing the works on site it will be prudent for the NAO’s appointed design and construction teams to make representations to neighbouring properties to prepare them for potential noisy or dusty works and possible road closures for crane lifts for new plant to the roof levels.
SECTION 11.0

PROGRAMME, PHASING
AND DECANT ARRANGEMENTS
11.0 PROGRAMME, PHASING AND DECANT ARRANGEMENTS

11.1 DESIGN DEVELOPMENT

11.1.1 The external project team led by King Sturge have developed the high level feasibility design and detailed building survey information up to concept design (RIBA stage C) stage where their appointment has concluded. Should The Public Accounts Commission approve the go ahead for the project, and following a period of review by NAO and the project team, there will then be a need to appoint a project team through the OJEU advertisement process as soon as practicable, so as to progress the project within the suggested timescales.

11.1.2 Allowing for the prescribed OJEU timescales, a combined team could be appointed within c.16 weeks after receiving such a go ahead, enabling the detailed design stage to commence in early January 2007.

11.1.3 An eight month detail design period would then be required to develop the scheme to the level of detail required to procure the construction activities with robust information.

11.1.4 During this detail design stage the team would work closely with NAO in consultation and communication of the scheme detail.

11.1.5 This design period could overlap with the initial stages of the construction procurement activity as required by OJEU.

11.1.6 A copy of a programme expanding these timescales a little further is attached within volume 5 of this report.
11.2 CONSTRUCTION PROCUREMENT

11.2.1 As with the design activity, the construction activity would be procured through the OJEU advertisement mechanism. The recommendation of the current project team is to procure the works on a one or two stage traditional lump sum basis and as such initial adverts should be placed in May 2007.

11.2.2 Following a prequalification and tender exercise, receipt of detailed tender returns, tender analysis, further interviews, appointment and project lead in, works could start on site at the start of January 2008.

11.2.3 During the detailed design and construction procurement stages, consultation with third party bodies would proceed and decant office space would be sourced and made ready for occupation by one third of the NAO’s 750 staff during December 2007.

11.2.4 A copy of a programme expanding these timescales a little further is attached within volume 5 of this report and detailed procurement report exploring construction procurement options in the public sector is included in volume 5 of this report.

11.3 CONSTRUCTION PHASING

11.3.1 On the assumption that the NAO will remain in occupation, the works will be undertaken in three clear phases of c.42 weeks each.

11.3.2 The works will commence with the vacation of block A in January 2008 with some of the staff housed elsewhere in the building and c.250-270 staff placed in decant office accommodation in the Victoria vicinity if possible.

11.3.3 Block A would be refurbished in its entirety including; new roofing, stone repairs and new windows, new plant, new services infrastructure, office and restaurant / gym area fit outs, etc.
11.3.4 On completion of the works to block A and successful commissioning, handovers and training of NAO staff, the occupants of block C would be temporarily decanted into the completed block A.

11.3.5 A similar 42 week period for block C would then proceed in the same order with the same content as that for block A.

11.3.6 On completion of the works to block C, the majority of the building’s occupants would be placed in their final locations in blocks A and C with some staff in block B temporarily decanted into space spaces in blocks A and C to facilitate the emptying of block B ready for the final interior phase of the works.

11.3.7 Another c.42 week period would proceed for the full refurbishment of block B along the same lines as that for blocks A and C with temporary works undertaken to enable access to be made from block C to A through block B without risk to health, safety or security.

11.3.8 On completion of the works to block B, final relocations would take place for those occupants that have remained in the building and those that have stayed in decant accommodation for the preceding 125 weeks would be returned to the refurbished building. On this basis the building would therefore be complete in by the end of April 2010.

11.3.9 The final element of the construction activity would be the recovering of the car park, fencing repairs, car park barriers, etc which would overlap with the final phase of works and be completed by the end of May 2010.

11.3.10 A copy of a programme expanding these timescales a little further is attached within volume 5 of this report.
SECTION 12.0

DESIGN TEAM AND
CONSTRUCTION
PROCUREMENT
12.0 DESIGN TEAM AND CONSTRUCTION PROCUREMENT

12.1 DESIGN TEAM PROCUREMENT

12.1.1 The appointment of the current project team led by King Sturge concludes at the end of the concept design stage when the concept design and project proposals are presented to the Public Accounts Commission for approval.

12.1.2 Assuming the project is given the go ahead there will be a need to then procure a suitable design team as soon as possible to maintain the good progress made thus far against the high level project programme periods mentioned elsewhere in this report.

12.1.3 The design fees for a project of this size are large enough to require each member of the design team to be appointed following European Union Procurement Guidelines. As such there will be a need to place advertisements in OJEU as soon as practical for project manager, architect, services engineer, structural engineer, quantity surveyor and planning supervisor.

12.1.4 There may be a requirement for other consultants later in the design stage such as kitchen designer, acoustic engineer, party wall surveyor, AV consultant, etc however it is likely that the fee for these roles individually will fall below the OJEU threshold and as such their early advertisement is not required.

12.2 CONSTRUCTION PROCUREMENT

12.2.1 In volume 5 of this report we have included a detailed report discussing the various construction procurement and contract routes open to NAO and the merits or otherwise of each. Each route differently responds to the demands of project timescale, complexity, design responsibility, speed, cost certainty and the like.
12.2.2 On the basis that substantial work has been undertaken so far, the NAO require early visibility of robust costings for the project and the design is uncomplicated, the project team have recommended a single or two stage traditional lump sum procurement route. This would lead to the appointment of the contractor on industry standard contract form such GC Works 1.

12.2.3 Like the design team, the value of the construction activity is such that the main contractor will have to be selected following European procurement regulations, so advertisements will have to be placed in OJEU to prequalify suitable contractors prior to the formal short listing and tender process following OJEU rules as early as May 2007 if a construction site start of January 2008 is to be met.
SECTION 13.0

PROJECT RISK
13.0 PROJECT RISK

13.1 PROJECT RISK

13.1.1 King Sturge have produced a detailed Project Risk Register covering all stages of the project from concept design, through detail design, procurement, construction, handovers and occupation. This register also incorporates NAO business risks defined by the Project Steering Board. This register is attached in its entirety at appendix A.

13.1.2 This register highlights the key project risks, looks at the likelihood of them occurring and the impact if they do, enabling the most important risks to be highlighted and transferred to a shorter Key Issues Log which is also attached at Volume 5 for reference.

13.2 KEY ISSUES

13.2.1 The risk register is now complete having been maintained as a live document through the concept design stage but will require further review and updating as the project proceeds into the detailed design and procurement stages of the project as further risks are identified or existing risks are further mitigated.

13.2.2 The higher weighted risks identified so far and placed in the key issues log are:

- Negative impact on NAO reputation through inadequate project delivery
- Negative impact on staff morale leading to staff retention problems
- Obtaining Public Accounts Commission approval to proceed
- Passing successfully through OGC Project Gateways
- Development of design to reflect NAO Project Board aspirations
- Coordination of refurbishment proposals with One NAO aspirations
- Obtaining satisfactory planning / heritage approvals
- Inappropriate construction phasing strategy leading to disruption
- Too high or inaccurate project budgets
- Change in decant / relocation strategy
- Plant sizing, services infrastructure routes, coordination with design
13.2.3 The team have worked throughout the concept design stage to manage and mitigate these key risks and all other detailed items identified for the detailed design and engineering, consultation, construction and procurement stages. All risks so far identified are priced in the project budget summary.
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APPENDIX A

RISK REGISTER
APPENDIX B

SUMMARY
CONSTRUCTION
COST PLAN
APPENDIX C

EXAMPLE FLOOR LAYOUTS & IMAGES