



**National  
Oceanography Centre**  
NATURAL ENVIRONMENT RESEARCH COUNCIL

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# Outline Specification – Innovation Centre & Outbuildings Roof Refurbishment

– Lead Consultant Outline Specification

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## National Oceanography Centre, Southampton

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End users:  
NOCS/UoS



**Project Title:** Innovation Centre & Outbuildings Roof Refurbishment

**Proj Ref:** 1076

**FM No:** FM18093

**Customer: (Internal/ External):** Internal – LTM/Capital

**Project Sponsor/Customer:** NOC Estates

**Project Manager:** Information to be provided upon award/Consultant PM TBC

## PROJECT SCOPE

The majority of the roofs inspected as part of our survey had pre-coated profiled metal roof coverings with matching trims and rainwater goods. With the exception of building A8, all of the metal roofs at the site suffer from cut edge corrosion, although some are at an earlier stage than others. Areas of spot corrosion were also evident. In addition, the roofs to A10, the Workshops and Stores have aged and the soiled GRP roof lights which would benefit from replacement. The fixings to the roofs are generally in a fair condition, although consultants have noted missing fixings, missing caps, corroding fixings and highlighted areas of concern due to the number of fixings.

Node 3 had sections of flat roofs covered with a bituminous felt system forming a parapet gutter. This was in a poor condition with numerous areas of lifting and poorly installed felt. The copings had also been damaged through the installation of equipment and these require repair to prevent water ingress internally.

The feasibility study and consultant survey report recommendations have emphasised on undertaking an overhaul of the profiled metal roof coverings using a proprietary roof coating system, providing an insurance backed guarantee (typically 10 or 20 years depending on the system selected), and the replacement of the GRP roof lights. Further recommendations include the replacement of the valley gutter to the Workshops and Stores. The nodes require the same works to the metal roof coverings and the replacement of flat roof coverings. Other minor works will be required across the roofs to bring them up to a good standard.

Due to the similarities in defects observed and the recommended repairs, we have grouped the roofs based on repair priority, i.e. the period of time in which it is anticipated repairs should be undertaken. This is based on the surveyor's experience of typical material rates of decay in a given environment/location. Against each grouping we have also provided a condition rating in accordance with RICS guidance as detailed in Section 1.04 – Condition Rating within Appendix A Kendall Kingscott Roof Edge Corrosion Survey Report full .

### Workshop & Stores

The workshops and stores are formed from a large industrial style building which consists of a steel portal frame built off a concrete floor slab. The walls have a brick up-stand with profiled metal cladding above and the roofs are clad using profiled metal roofing sheets and GRP roof lights. The roofs are split between the main roofs serving the workshops and stores and a lower section forming a link to the main building. A newer extension is located to the Eastern end with matching roof coverings.

The roofs are supported off of the steel portal frame via z-purlins and consist of a pre-finished profiled metal internal lining panel and a pre-finished profiled metal top sheet. A cavity will be formed between the inner and outer sheets by a proprietary spacer system. This void may be insulated but we were unable to determine this during our inspection. The GRP roof lights also appear to be a built up system with an internal lining panel and external top sheet. The roofs are served by coated steel box gutters, which discharge to coated steel downpipes located to the perimeter of the building, and a valley gutter which drains through internal downpipes.

Solar panels are located to the Southern and Eastern pitches, mounted to a galvanised steel frame and fixed through the roof to the structure below. During our inspection we noted the surfaces of the solar panels are soiled and would benefit from a thorough clean to ensure they achieve their optimal performance. We also noted a solar water heating system installed within this location. This generally appeared to be in a fair condition.

The roof has pre-finished metal trims to the gables and ridge to match the profiled roof sheets installed. These are heavily soiled and the majority of joints have been sealed using an external grade mastic. Minor impact damage and distortion has been noted in various areas.

#### Other Outbuildings

Generally the outbuildings have a pitched roof design constructed from steel portal frames built off concrete floor slabs, with the exception of the A4 building which is an open steel framed structure with a mono pitched roof. Other outbuildings have walls with a brick up-stand/brick cladding with pre-finished profiled metal cladding above. Please refer to the 2017 survey report from Kendall Kingscott for a more detailed description of outbuildings' specification.

The roofs are covered with pre-finished profiled metal coverings with matching metal trims and coated steel box gutters. Please note that there are no roof lights installed to this building. The link section to the Northern end of the building was difficult to view due to technical difficulties with the access equipment. Internally the ceilings have been lined with a combination of fixed suspended ceilings and suspended grid ceilings. Further investigation is required to view the roof coverings and structure internally.

The coatings to the roof sheets have degraded with cut edge corrosion and additional areas of spot corrosion in various locations. The coatings are chalking and flaking, caused by exposure to UV and further accelerated by the exposed nature of the site. It should be noted that the units appear to have been extended and that some roof coverings are newer. Therefore the severity of the defects identified above varies, but the majority of the roof sheets are showing signs of deterioration and cut edge corrosion. The roofs to the North West of the block are in the worst condition overall.

The profiled metal ridge and trims to the property are in a similar condition to the roof sheets, with cut edge corrosion and deterioration of the coatings. It is also noted the joints to the ridge have been sealed using an external sealant. Whilst this may be an effective temporary repair, these sealants will break down and are not a standard detail for the installation of these trims.

#### Defects Summary and Priority

*Kendall Kingscott Roof Condition Survey Report, March 2017*

Due to the similarities in defects observed and the recommended repairs, the roofs have been grouped based on repair priority, i.e. the period of time in which it is anticipated repairs should be undertaken. This is based on the surveyors experience of typical material rates of decay in a given environment / location. Against each grouping we have also provided a condition rating in accordance with RICS guidance as detailed in Section 1.04 - Condition Rating within Appendix A Kendall Kingscott Roof Edge Corrosion Survey Report full



### **Group A (Condition Rating Category C Priority 1)**

This includes the roofs to buildings A1, A3, A10, the Workshops (excluding the newer section) and the Stores. These roofs are generally in the worst condition with:

- Cut edge corrosion.
- Areas of spot corrosion.
- Missing fixing caps and corroding fixings.
- Missing fixings to purlins.
- Soiled and contaminated roof sheets and trims.
- Heavily soiled roof lights.
- Sections of damaged and defective roof sheets, trims and gutters.
- Corroding and damaged rainwater goods.
- Splits in the liquid applied valley gutter to the workshop.
- Missing and dislodged foam packers at the ridges, hips and eaves.
- Soiled surfaces to the solar panels.

Survey recommendations include remedial works are considered for all defects in the short term to ensure that the maximum lifespan of the roof coverings can be realised. Please note that, dependant on what level of remedial works are desired, further investigations to the make-up of the valley gutter to the workshop may be required.

### **Group B (Condition Rating Category C Priority 2)**

This includes the roofs to buildings A4, A5, A6 and A9. These roofs are in a slightly better condition than those in group A, with the same defects noted, but at an earlier stage of development.

These defects include:

- The commencement of cut edge corrosion.
- Areas of spot corrosion.
- Missing fixing caps and corroding fixings.
- Soiled roof sheets and trims
- Sections of damaged roof sheets and trims.
- Corroding and damaged rainwater goods.
- Missing and dislodged foam packers at the ridges, hips and eaves.

Recommendations suggest that remedial works are considered for all of these defects in the short term to ensure the maximum lifespan of the roof coverings can be realised.

**Group C (Condition Rating Category C Priority 2)** - This includes the roofs to the various nodes to the main building. Based on our assessment of Node 3, we are of the opinion that the following defects are likely to be present throughout:

- The commencement of cut edge corrosion.
- Areas of spot corrosion.
- Lightly soiled roof sheets and trims
- Missing fixings and caps.
- Missing and dislodged foam packers at the ridges, hips and eaves.
- Bituminous felt systems in a poor condition.
- Ponding within the parapet gutters.
- Damaged coping stones from the installation of equipment.
- Corroding handrail stanchions.
- Brittle plastic coatings to tensioned wire.



- Surface corrosion to the internal steel framework.

Recommendations suggest that remedial works are considered to all these defects in the short term to prevent saturation of structural elements and water ingress which could adversely affect sensitive equipment / services contained within the nodes.

#### **Group D (Condition Rating Category B Priority 3)**

This includes the slated roof to building A7 which is in a fair condition. There are a couple of minor defects to the hip tiles requiring further investigation and remedial works. We also recommend this roof is routinely maintained, including decoration of the fascia boards, cleaning the roof coverings and clearing and cleaning the gutters and downpipes.

**Group E (Condition Rating Category B Priority 3)** - This includes the roofs to building A8 and the newer section of roof serving the Workshops where the metal roof coverings are in a fair condition and only require general maintenance. We would recommend that these roofs are routinely cleaned including the roof sheets, roof lights, trims, gutters and downpipes.

Please note, we understand a roof light to building A8 has previously leaked but there was no evidence of this during our inspection. This should be monitored and, if required, further investigations undertaken to determine the source of this ingress.

#### *Materials Recommendation –*

- The roof coating system shall be procured from an approved manufacturer/supplier as per industry standards.
- The consultant must produce detailed drawings of the existing roof frame, specifying the internal and external structures. This shall thereby be adopted and prepared by the contractor and approved before its actual use.
- Special consideration is to be given to the rainwater goods.
- Investigations are to be undertaken to finalise any insulation present in the existing structures. Where required provisions are to be made.
- The materials must conform to applicable structural materials ASTM codes, specifications and publications; which is to be determined by the structural engineer during the scope of works and tender finalisation.
- The consultant is required to ensure that all related parts, necessary accessories, devices, anchors etc. for the following requirements have been included in the schedule/bill of quantities for tender requirements
- Allow for typical specifications for critical locations and/or hydrostatic condition application, if applicable in specific areas, to ensure any leakage and gaps in the roof profile is duly rectified.
- Include details for any structural sealing joint profile and the associated physical properties requirements.
- Specify the scope requirements for any fabrication requirements as foreseen by the structural survey and engineers.



- Specify the scope requirements for the contractor execution, manufacturer's instructions (as applicable), as foreseen by the structural survey and engineers.
- Specify the scope requirements for the mode of payment; for example if it shall be made per running meter length of joint depending on the type of joint, or as recommended within the structural survey and engineers.

Noted below are the specific Scope of Works stating your terms of responsibility as the Lead Consultant/Principal Designer -

## **Project Design & Construction Stage**

### Preliminary Feasibility Study

- Review project details and notification requirements
- Brief Client relating to CDM requirements/duties
- Establish Project Brief/ Scope and CDM/H&S risks
- Assemble/Obtain Pre-construction information
- Review Consultant team appointments/competency
- Attend design team meeting
  
- Administer preliminary client review/briefing meeting
- Undertake user review meeting,
  
- Appoint sub-consultant team (stage 1) – Finalise scope and appointments.
- Undertake preliminary site surveys/inspections
- Develop scope of works (preliminary Issue)
- Develop preliminary budget cost plan
- Develop preliminary strategic programme
- Undertake preliminary risk review
- Review statutory requirements/3rd party approvals/CDM Requirements
- Review preliminary procurement strategy
- Prepare/present project delivery proposal for preliminary stakeholder liaison and review
- Undertake project team meetings (design)
- Facilitate and coordinate general correspondence/communication
- To attend a contract initiation meeting onsite following contract award to review and define the scope of works and programme for completion of the feasibility study.
- To meet with site users and complete a document review to fully understand the client requirements.
- To undertake a costed assessment of repair, refurbishment or replacement recommendations for each of the outbuildings and workshop areas, including opportunities for improvement to overall system life expectancy & resilience.
- Each recommendation is to clearly detail outline cost, option constraints and option benefits including any foreseen reduction in utility or maintenance costs.
- To summarise the risks and associated building disruption associated with the above options including consideration for project programme and requirement for any statutory/client approvals



- Feasibility findings and recommendations are to be summarised in a draft report (format to be agreed at contract initiation with the client) and issued to the client electronically for comment
- Final feasibility report to be presented to the client at a face to face meeting onsite. At this meeting the consultant and client are to agree recommendation to be progressed to the project stage.

## Detailed Design & Procurement

- Collate/review designers risk assessments
- Review tender Issue design/scope
- Provide advice on residual risks
- Review/assess contractor competency
- Update and Issue pre-construction Information
- Agree H&S plan formal/contents
- Issue HSE/F10 project notification
  
- Review Scope of Works with Client/User
- Arrange site surveys/investigations, undertake building controls visit (when applicable)
- Develop/update Scope of works for tender issue via UKSBS
- Manage design information release/issue
- Administer project schedule
- Obtain client/user sign off for proposals
- Chair and record project team meeting (Design)
- Produce/update strategic programme
  
- Review contractor competency/H&S Approvals
- Agree work packages/procurement method
- Produce Design Information for Tender Issue
- Produce Tender pricing documents
- Update Cost Plant (tender returns)
- Produce monthly progress reports
- Produce monthly cost reports
- Produce preliminary site waste management plan
- Develop site logistics strategy with multiple contractors and multiple projects running simultaneously at NOCS site between August and February.
- Review client/user programme constraints
- Produce/update detailed programme (Construction)
- Stakeholder notifications (Design updates)
- Coordinate a user meeting to discuss schedule and dates (design stage)
- Produce/update project contact directory
- Produce/update risk register
- Internal review meetings – Costs, design, procurement, programme, project progress
- Monitor Statutory/3<sup>rd</sup> Party Approvals
- Facilitate and coordinate general correspondence/communication
  
- For the agreed options, Principal Contractor is required to finalise a full detailed design and scope of works for client approval. This is to include but is not limited to:



- Recommended Method Statement and Outline Risk Assessment
  - Drawings
  - Bill of Quantities
  - Provisional Programme
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- To issue the draft design to the client and agree modifications as required before finalisation of the design package.

## Mobilisation & Construction

- Review/approve construction phase H&S plan
  - Assemble H&S file In conjunction with Principal Contractor
  - Monitor design/changes during construction stage
  - Undertake site audits/Inspections
  - Attend project team meetings
  - Review/update HSE project notification (if appropriate)
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- Develop scope of works (construction Issue)
  - Produce design Information (construction issue)
  - Manage design information release/issue
  - Administer information requirements schedule
  - Monitor/update programme
  - Chair and record project team meeting (construction)
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- Administer and record contractor pre-start meeting(s)
  - Undertake contractor inductions
  - Monitor sub-contractor procurement
  - Obtain/review contractor H&S Information
  - Obtain/review site waste management information
  - Monitor progress/works on site
  - Undertake Post-completion verifications
  - Update cost plan (final account)
  - Administer valuations final account
  - Produce monthly progress reports
  - Produce monthly-cost reports
  - Manage stakeholder notifications (construction)
  - Administer post-project review meeting
  - Administer change management system
  - Manage completion handover of works
  - Manage stakeholder notifications/liaison (completion)
  - Agree meeting schedule/dates (construction stage)
  - Update risk register
  - Undertake contractor reviews/reports
  - Undertake – administer and record Internal review meetings
  - Facilitate and coordinate general correspondence/communication
  - Manage project close down procedure
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- Coordinate and chair the project prestart meeting with the client and Contractor Project contacts. Submit scope of works, programme of works, Construction Phase Plan, risk assessments and site Health and Safety Plan to the client.



- As the Principal Designer, it is your responsibility to review & accept client input within the construction phase plan, before final approval.
- Manage the mobilisation process for the project in conjunction with the Principle Contractor and the client including statutory notifications, installation of temporary back up supplies, CDM and communication to building users as required.
- Monitor the quality of the installation against the defined cost schedule and programme of works
- Undertake regular site supervision visits, record them, resolve issues as encountered with the principle contractor and report at defined intervals on the progress of works to the client.
- This could be through Early Warning Notices and project meeting updates, the framework for which shall be confirmed during project pre-commencement.
- Ensure that the and site Health and Safety Plan & RAMS are adhered to at all times by the Principle Contractor
- Administer information requirements schedule
- Contractor to include all access equipment costs within the build costs
- Monitor/update programme
- Undertake contractor inductions
- Monitor sub-contractor procurement
- Obtain/review contractor H&S Information
- Obtain/review site waste management information
- Monitor progress/works on site
- Undertake Post-completion verifications
- Update cost plan (final account)
- Administer valuations final account
- Produce monthly progress reports
- Produce monthly-cost reports
- Manage stakeholder notifications (construction)
- Administer post-project review meeting
- Administer change management system
- Manage completion handover of works
- Manage stakeholder notifications/liaison (completion)
- Agree meeting schedule/dates (construction stage)
- Update risk register
- Undertake contractor reviews/reports
- Undertake contractor H&S and Environment audits with specific emphasis on safety while working at height
- Undertake – administer and record Internal review meetings
- Facilitate and coordinate general correspondence/communication
- Manage project close down procedure including release of retention

### Snagging & Facilities Handover

- Management, recording of and oversight of the snagging process including identification of project defects, client liaison, notifications to the Principle Contractor.
- Management of the snagging programme and issuing of completion certificate as well as the penultimate completion certificate; which shall be due to the client 12 months/ 52 weeks, after project completion date.
- Arrangement and recording of training as required for the client and end users, including the NOC Estates Site Services Operatives.
- Agreement of handover date for each outbuilding and support for client and end users



- Agreement with Principle Contractor/Client on O&M content, including updated CAD drawings. All drawings are to be issued electronically in CAD format.
- The format for O&M review must be discussed with the client before final draft is submitted for client records.

### O&M Handover

- Review, comment on and arrange for final issue the project Operations Manuals to the client.
- Update cost plan (final account) and issue to the client
- Administer post-project review meeting including review of Operations Manuals, customer satisfaction, Health and Safety Plan comments and/or incidents, lessons learnt and delivery against the project aims.
- To oversee the installation and manage any defects raised 12 months post-handover
- Administration of the project financial retention process for both the services rendered by the lead consultant, as well as the Principal Contractor.

#### ➤ Post-Handover Feedback

- Undertake end of defects Inspection
- Manage resolution of defects
- Client to issue final certificate

### General Duties

- To arrange, chair and take notes at all project meetings, interviews, client liaison groups and site visits
- To undertake routine site visits to ensure suitable supervision of contractor works
- To provide written monthly summary update reports to the client for the duration of the project including programme and budget updates. This is to include weekly project meeting minutes for client review.
- To ensure compliance with all associated H&S and Building Control statutory requirements
- To ensure effective budget, programme control, and administer a change management system as required under the NEC3 contract.
- To facilitate effective communication between the client, principle contractor, building users and other interested parties
- To issue and manage Early Warning Notices issued in accordance with the NEC3 short term contract.
- To undertake the role of principle designer as defined under CDM Regulations 2015
- To issue all notifications on behalf of the client as required under the CDM Regulations 2015
- Manage project close down procedure
- To ensure site CAD drawings are updated to reflect the new installation

### CONSTRAINTS

Contractors to note that there is no provision for on-site parking for goods vehicles. Deliveries will have to be coordinated in advance with the client. Requirements for contractor parking, compound space and welfare facilities on site shall be provided at the client.



It is thereby the duty of the lead consultant to ensure that the availability of site and manufacturer lead times is considered when offering the best value solution as part of the tender package.

## **DEPENDENCIES**

Please note - Any envisaged delay or impact on the programme will be deliberated jointly between the consultant and principle contractor and client, to ensure minimal cascade effect on overall completion of works.

Principal Designer to allow 2 working days' notice to the NOC Lead Consultant for Return and Flow of Information, before any issue of EWNs or programme slippage.