Condition Report

Roof Condition
Various Blocks
for NOCS

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Condition Report
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Kendall Kingscott

1.00 Introduction

1.01 Instruction

KKL were commissioned by the National Oceanography Centre, Univeristy of Southampton Waterfront Campus, European Way, Southampton, SO14 3ZH to complete a roof condition survey. Instruction was received from the client on 3 March 2017 in accordance with our fee proposal dated 2 March 2017.

The Purpose of the survey was to assess the condition of the exiting roof coverings and to understand the nature of defects present. We have also provided an outline of recommended works and further investigations. It is anticipated that this report, any subsequent investigations and reports, will be used to assist the client in procuring repairs and refurbishment works.

1.02 Client Brief

The brief was to assess the condition of the roofs to the workshop and stores (excluding the recent extension) and buildings A1, A3, A4, A5, A6, A7, A8, A9 and A10. In addition, we were asked to assess the roof of node 3 to the main building and extrapolate this information to a general assumption of the likely condition of the roofs to the other nodes. The roof areas surveyed have been identified on drawing L(0)01 contained within Appendix A of this report.

The survey is to provide an overall assessment of the current condition of these roofs and provide initial outline repair options and detail any additional investigations required at this time.

Budget costs are to be provided, however it is acknowledged that, at this stage, costings will only be indicative. Further investigations will be necessary to fully understand the nature of the works and to uncover any further defects that may be present and requiring repair.

1.03 Survey

The survey was carried out on 6th & 7th March 2017.

The weather on the days of inspection was dry and overcast (6th March) and dry and sunny (7th March).

On site we met with Estates Projects Coordinator Prianka Guha Roy Healey who assisted us with access to the various roofs. The majority of he survey was completed using a mobile elevating work platform (MEWP) which was operated by a member of the on-site maintenance team.

1.04 Condition Rating

The condition rating is provided within section 4.00 on an A-DX coding system in line with RICS guidance for Surveying Assets in the Built Environment. A priority rating is also applied to assist in understanding the scheduling importance of that particular item of work. Please refer to tables 1 and 2 below for further explanation.

Condition Rating	Description
A	As new condition.
B	Sound, operational safe and exhibiting only minor deterioration.
C	Operational but major repair or replacement needed in the short to medium term (3 years).
D	Inoperable or serious risk of major failure or breakdown. Does not comply with current legislation.
DX	Inoperable or serious risk of major failure or breakdown. Does not comply with legislation and poses imminent risk of dangerous failure (and serious/major health & safety risk).

Table 1 Condition Rating and Explanation

Priority Rating	Description
1	Critical (Major impact on function, core business, safety or having serious financial consequences).
2	Essential (Maintain fundamental asset to retain investment value with a degree of possible deferment).
3	Preferable (No serious consequences or penalty arising from deferments).
4	Dispensable (Redundant asset, as new requiring no works or can be deferred).

Table 2 Priority Rating and Explanation

The priority rating is useful in understanding the nature of the element. For example roofs may be categorised as a 'C' grade condition rating requiring repair or replacement / renewal, but if these are forming a non-critical asset where a defect would not compromise the business operation, or create a health and safety issue, a priority of 4 would be applied as it can be deferred for as long as required.

1.05 Limitations

We have carried out a visual inspection of the building and roof areas to assess condition. Inspection was undertaken from ground level, safely accessed roof areas and from a Mobile Elevating Working Platform (MEWP) as provided by the client. Please note that due to technical difficulties with the MEWP, we were not able to reach full extension with this equipment. Defects have been recorded with digital cameras (where such defects are of sufficient scale that they can be recorded appropriately).

All subject roof areas have been viewed externally. Internally, ceiling voids have not been accessed due to height restrictions and the nature of construction. Recommendation for specialist access provision and further investigation have been provided within the report.

We have not inspected woodwork or other parts of the structure, which are covered, unexposed or inaccessible and are therefore unable to report if any such parts of the buildings are free from defect.

We have not opened up any concealed parts or removed render, claddings, applied finishes or vegetation growth. Our conclusions regarding the condition of the roof coverings and finishes have been drawn from visible evidence at the time of inspection from ground level.

A site plan is provided at Appendix A. This is for general roof area identification and orientation purposes only.

We have not carried out survey of the M&E services.

We have not carried out a survey of the solar panels. We have made general comments over their cleanliness and appearance only. We were also unable to view the condition of the roof coverings where these solar panels were installed.

We have not carried out a structural survey or structural calculations.

Costs provided exclude inflation and VAT.

No allowance has been made for project contingency that may be required to be added at the appropriate level to each package of work.

2.00 Executive Summary

2.01 Overview

The National Oceanography Centre in Southampton is located within a working dockyard in the centre of Southampton. The site comprises a collection of eleven buildings including a concrete framed main research building with brick cladding, slate roofs, metal roofs and bitumen felt covered flat roofs. Additional ancillary buildings are located around the site, formed from steel portal frames with a mix of brick, metal cladding and profiled metal roofs. A brick built security building is located adjacent to the front gate with a slate covered hipped roof. A number of extensions have been completed at the site including one to the main research building, two to the Workshops and Stores, one to building A1 and another to building A3.

The site is located in an exposed marine environment adjacent to Southampton Water and is contained by a security fence. The site is accessed off of European Way and a live railway line passes through the North West corner.

KKL were instructed to undertake a survey of the roofs to the workshop and stores (excluding the recent extension) and buildings A1, A3, A4, A5, A6, A7, A8, A9 and A10. In addition, we were asked to assess the roof of node 3 to the main research building and extrapolate this information to a general assumption of the likely condition of the roofs to the other nodes.

2.02 Summary of Findings

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 we did note missing fixings, missing caps, corroding fixings and 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 slate hipped roof to the security building is in a fair condition overall. The only issues noted are a cracked hip tile and an inappropriate repair to the apex of the roof.

Our recommendation is for 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. We would also recommend the replacement of the valley gutter to the Workshops and Stores. To the nodes, we would recommend 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.

All works are recommended to be undertaken within the next 5 years. To assist the client further, a roof priority drawing has been provided.

3.00 Observations and Defects

Our surveyors met with the Estates Projects Coordinator Prianka Guha Roy Healey, who provided access to the site.

Roof areas are annotated on the roof site plan provided in Appendix A for ease of reference. Each individual roof is reported on separately within this section.

Approximate timings and costs for the recommended works are provided in Section 4 of this report.

3.01 Workshops and 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

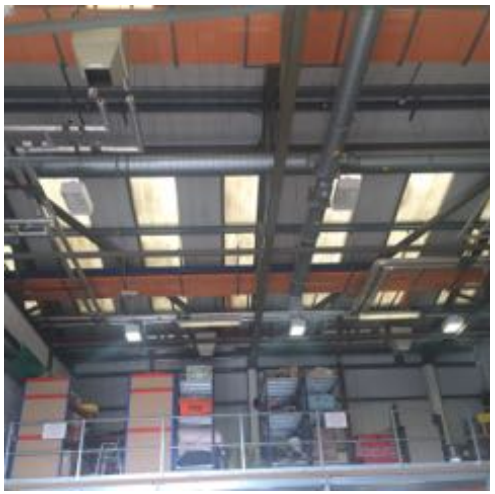


Photo 1: Internal view of the stores and workshops.

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.

No means of safe access for cleaning and maintenance of the solar panels have been provided. Most manufacturers require general cleaning of solar panels every six months to maintain optimum performance.

Photo 2: Solar panel installation.

Photo 3: Solar water heating system.

Photo 4: Cut edge corrosion to Northern roof pitch.

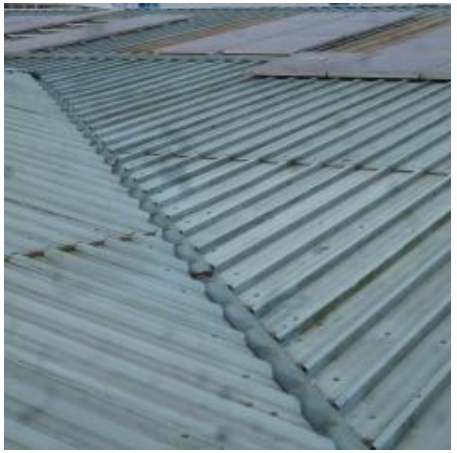


Photo 5: Cut edge corrosion to workshops and stores.

With the exception of the newer extension, we anticipate that the roof coverings are circa 20 years of age. The coatings have degraded with cut edge corrosion and additional areas of spot corrosion in various locations. Further corrosion was also noted where mechanical damage is present, likely to have been caused by general maintenance works / access. The coatings are chalking and flaking, caused by exposure to UV and further accelerated by the exposed nature of the site.

Photo 6: Cut edge corrosion at gutters to Southern roof pitch.

Photo 7: Mechanical damage to coatings.

The newer roof sheets to the extension are in a fair condition with no cut edge corrosion noticeable. However, we did note soiling to the eaves which is an indication of water collecting and drying on the edges of the sheets and could eventually lead to corrosion.

Photo 8: Roof sheets to extension.

A number of areas of deflection are evident to the coverings, with this damage seeming to be concentrated below the roof lights. This type of damage can usually be attributed to maintenance access. Where this has occurred, the trapezoidal sections of the roof sheets have been capped with a new section of coated steel riveted to the original sheet. A total of twenty caps have been installed in this way to the Northern roof pitch. These repairs have been undertaken inadequately as the profiled caps have not been tucked under the sheets above, potentially due to the fragility of the GRP roof lights. This is likely to cause further issues by allowing rain water under the cap.

Photo 9: Deflection to roof sheets with caps installed.

Photo 10: Caps are not tucked under the roof lights providing a route for water ingress.

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 was noted in various areas. The coatings to these trims appear to be the same age as the roof sheets and show signs of chalking and peeling.

Photo 11: General view of the trims to the roof.

The GRP roof lights are heavily soiled and suffering from solar degradation. The matting to the GRP is exposed and we would recommend these roof lights are treated as very fragile. Some roof lights have the solar panel framework installed over them. Whilst solar panels have not been installed within these areas, these installations will cause issues in maintaining the roof lights. Viewed internally, the light transfer through the roof lights has been significantly reduced. The exception is the roof lights to the newer extension which are only lightly soiled.

Photo 12: The solar panel framework has been installed over the roof lights in various locations.

Photo 13: The roof lights are soiled and GRP fibres are exposed.

The fixings to the roofs are in a fair condition, although a few fixings are missing their protective caps. These fixings have started to corrode which will affect their ability to resist wind loading.

The valley gutter between the roof and the newer extension has been coated with a liquid applied system, installed to the gutter, upstands and approximately 300mm up the profiled roof sheets. Ridges are starting to form within the valley, an indication of thermal movement. Whilst this has not caused any significant defects, splits are likely to form in the short term, causing internal damage. We noted the coating already had minor splits at the end of the gutter and in a couple of locations to the profiled roof sheets. Whilst these splits / tears are relatively minor at present, they will accelerate the failure of the coating.

Photo 14: Ridges starting to form to the valley gutter.

Photo 15: Tear in the membrane forming the valley gutter.

Galvanised metal flues penetrate the roofs and are sealed to the roof coverings using rubber gaskets. The flues are corroded to the South West side, with lighter surface corrosion noted to the remaining areas. The gaskets have sagged and a build up of debris surrounds them. In addition, a number of ventilation ducts penetrate the roof which are weathered but appear in a fair condition. We are unable to comment upon the servicing of these items.

Photo 16: Corrosion to flues.

The valley gutter to the main roof can be accessed via a galvanised steel CAT ladder leading from the lower section. The valley gutter, is delineated by a galvanised metal handrail, preventing unauthorised access to the roof slopes and providing protection to the fragile roof lights. The handrails and CAT ladder appear to be in a fair condition and to be a recent addition.

The lower sections of the roof form a link to the main building on the site. This roof is split over two levels and covered with a powder coated profiled metal sheet roof covering supported off of a steel structure with z-purlins as per the main roof structure. Two GRP roof lights are included within the roof coverings to the lower level. The roof is served by a combination of metal box gutters and a lined valley gutter between the roof and the external cladding of the property.

Photo 17: General view of the lower sections of roof.

The profiled metal sheeting to the roofs have surface soiling and are showing signs of cut edge corrosion. A further section of exposed sheeting at eaves level has significant surface corrosion. The roof sheets immediately adjacent to the access door are protected from the prevailing weather, with no immediate signs of cut edge corrosion. However, the surfaces do have minor soiling and we noted surface staining caused by corrosion. We suspect this has been caused by swarf from the installation of new coverings to the roof above.

Photo 18: Heavily corroded section at gutter level.

Photo 19: Staining to roof sheets caused by swarf.

The valley gutter between the roof and the cladding has been coated with a liquid applied system as per the main roof to the workshops. No significant defects were noted at this time. Please note that light soiling and build up of sediment within the valley limited our inspection of the coating.

The fixings to the roof are in a fair condition although a few of the fixing heads are missing caps. This will lead to corrosion of these fixings and could cause internal water ingress and their eventual failure. We also noted a missing fixing which could cause some minor water ingress in the future.

This lower roof has been extended over to form the new MARS building. When these works were undertaken, the roof coverings, including the roof lights, were left in position. Therefore a number of roof lights within the property have been built over but are still visible internally. A further section of this lower roof is also located between the MARS extension and the stores and is in a similar condition with heavy soiling to the surfaces and roof light.

Photo 20: View internally of roof lights which have been built over.

Photo 21: View of infill section of roof between MARS and stores.

A box gutter is located to the perimeters of both the upper and lower roofs. These discharge through a downpipes located externally to the property. During our inspection, we noted a minor layer of sediment within the gutters and that the box gutter to the lower roof is leaking at the end adjacent to the main office building. The downpipes appear to be in a fair condition, although we did note some minor impact damage, minor corrosion and soiling at the junction with the below ground drainage.

Photo 22: Leaking and corroding section of gutter to lower roof.

Photo 23: Impact damage to downpipe.

Photo 24: Corrosion to downpipes at joint with below ground drainage.

Photo 25: View of building A1.

3.02 Building A1

Building A1 is formed from two units with pitched roofs, linked at the Northern end of the block. These are constructed from steel portal frames built off concrete floor slabs. The walls have a brick up-stand with pre-finished profiled metal cladding above. 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. These prevented us being able 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. We 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.

Photo 26: Corrosion to the ridge.

Photo 27: The ridge has been sealed using a retrospective sealant.

Photo 28: A large section of sheeting with no fixings to the purlin.

The fixings are corroded and a number have missing protective caps. The fixings to the purlins were also sporadic and we are of the opinion that further fixings should be installed to ensure the roof sheets are adequately secured.

Photo 29: Vegetation growth in gutters.

Rainwater goods are in a fair condition with only a minor section of deflection noted. The gutters have some vegetation growth which requires clearing, but otherwise only minor silting was noted.

3.03 Building A3

Building A3 is constructed from a steel portal frame built off of a concrete floor slab. The walls have a brick up-stand with pre-finished profiled metal cladding above. 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. Internally, the roofs are lined with a pre-finished profiled metal internal lining panel.

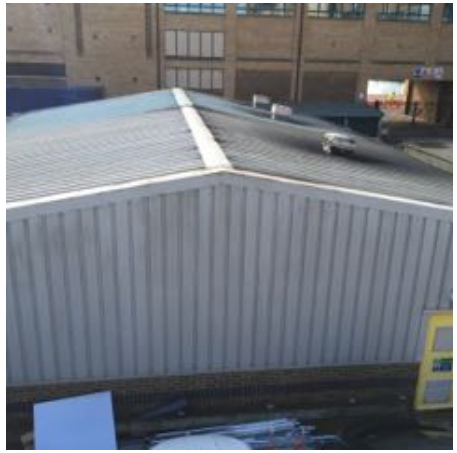


Photo 30: View of building A3

The coatings to the roof sheets have degraded with cut edge corrosion and areas of spot corrosion in various locations. The roof sheets are heavily soiled, contaminated and stained. The profiled metal ridge and trims to the property are in a similar condition to the roof sheets, with cut edge and spot corrosion alongside heavy soiling and contamination.

Photo 31: Cut edge corrosion at eaves level. Please note joint where roof coverings extended.

Photo 32: Deterioration to trims.

The fixings are corroded and a number have missing caps which could be the source of the minor water ingress noted within the internal accommodation. This represented itself as rust coloured streaks to the internal surfaces of the cladding which correlate with inadequately capped and corroding fixings.

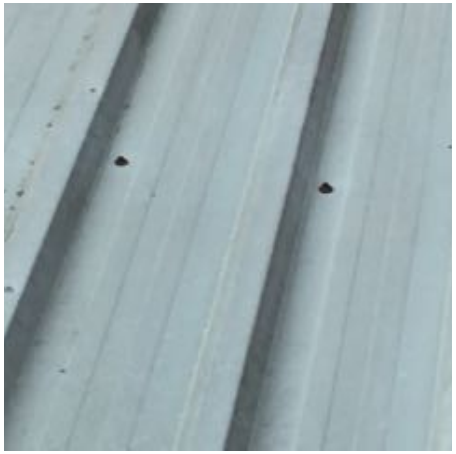


Photo 33: Corroding fixings with missing caps.

Photo 34: Typical roof vent with heavy staining and cut edge corrosion.

A total of three vents penetrate the roof coverings, all of which are heavily stained and contaminated. The roof sheets surrounding these vents are also suffering from cut edge corrosion and require remedial works.

Rainwater goods are heavily soiled and contaminated but only have minor vegetation growth and silting at present.

3.04 Building A4

Building A4 is an open steel framed structure with a mono pitched roof. The roof is covered with pre-finished profiled metal roof sheets, matching metal trims and coated steel box gutters. The external facades of the building are net lined, leaving the internal areas exposed.

Photo 35: View of building A4

The coatings to the roof sheets have degraded and cut edge corrosion was evident alongside areas of spot corrosion in various locations. The roof sheets are also soiled and stained. We did note some minor deflection to the roof sheets and minor impact damage but these do not appear to be affecting the performance of the coverings. The profiled metal ridge and trims to the property were generally in a similar condition to the roof sheets, with cut edge corrosion, spot corrosion and soiling. Some minor distortion is present to the trims but hasn't caused any signifiant issue.

The fixings are in a fair condition although a number appeared to have some surface corrosion and missing caps. A number of sheets have been riveted in place where we would have expected these to have been screwed, indicting historic repairs to the roof coverings.

Photo 36: Corroding fixings with no protective caps.

Photo 37: Minor distortion to trim and early signs of corrosion to gutter.

Rainwater goods are generally in a fair condition although some surface corrosion was noted to the corners.

3.05 Building A5

Building A5 is constructed from a steel portal frame with brick cladding, pre-finished profiled metal roof coverings, matching metal trims and coated steel box gutters. There are no roof lights installed to this building. Internally, the roofs are supported off of galvanised z-purlins and lined with a pre-finished profiled metal internal lining panel.

Photo 38: View of building A5

Photo 39: Cut edge corrosion at eaves level.

The coatings to the roof sheets have degraded with cut edge corrosion and areas of spot corrosion in various locations. The roof sheets are also soiled and stained. The profiled metal ridge and trims to the property have some minor distortion and some minor cut edge corrosion. The fixings are showing signs of surface corrosion and a number have missing caps.

A total of five vents penetrate the roof, four of which have domes wired to the roof to provide additional support in windy conditions. We did note that a number of these ties are corroding, broken or missing. A flue also penetrates the roof and is in a fair condition.

Photo 40: Example roof vent with metal ties which are corroding, missing and damaged.

Photo 41: Damaged section of gutter.

Rainwater goods are generally in a fair condition with only minor silting and a small section of impact damage located to the top edge. This damage does not appear to be affecting the overall performance of the gutter.

3.06 Building A6

Building A6 is constructed from a steel portal frame built off a concrete floor slab. The walls have a brick up-stand with pre-finished profiled metal cladding above. The roofs are covered with pre-finished profiled metal coverings, matching metal trims and coated steel box gutters. There are no roof lights installed to this building. Internally, the roofs are lined with a pre-finished profiled metal internal lining panel. Please note that due to stored items, access to this roof was limited.

Photo 42: View of roof to building A6

The coatings to the roof sheets have started to degrade with cut edge corrosion to the coverings, the worst of which is concentrated to the Southern roof pitch. The roof sheets are also lightly soiled and stained and, to the Southern pitch, one has been replaced with a new darker coloured sheet. The profiled metal ridge and trims to the property have some minor distortion but generally appear to be in a fair condition. The fixings generally appeared to be in a fair condition.

A single galvanised vent penetrates the roof and is showing signs of surface corrosion due to the exposed nature of the site.

Photo 43: Surface corrosion to roof vent.

Rainwater goods are generally in a fair condition with only minor silting and vegetation growth. No substantial impact damage was noted during our inspection.

3.07 Building A7

Building A7 is a brick built property with a hipped pitched roof, covered with a synthetic slate roof covering and dry fixed hip tiles. The roof has a large overhang from the external walls and features a fibre board soffit, stained timber fascias and PVCu rainwater goods.

Photo 44: View of building A7

Photo 45: View of slate roof coverings.

The synthetic slate roof coverings are generally soiled with considerable moss growth to the surfaces. The slates are in a fair condition with no cracks evident at the time of our inspection. We did note that one of the hip tiles near to the apex of the roof is cracked and requires replacement.

Photo 46: Cracked hip tile.

Photo 47: Lead and mastic repair to apex.

A section of lead has been retrofitted to the apex of the roof and the joints to the hip tiles below sealed with an external grade sealant. This is an inappropriate repair and we would recommend the ridge tiles are removed so further investigations can be undertaken to ascertain the condition of the dry fix system.

PVCu rainwater goods are fixed to the perimeter of the roof and served by two PVCu downpipes to the East side of the building. These are in a fair condition although they have faded with solar degradation.

The roof has a deep soffit formed from fibre board which is in a fair condition despite some minor surface staining. The fascias to the property are stained timber which have been nailed in position. These are also in a fair condition.

Photo 48: Faded PVCu downpipe.

Photo 49: Stained timber fascia and fibre board soffit.

3.08 Building A8

Building A8 is constructed from a steel portal frame built off a concrete floor slab. The walls have pre-finished profiled metal cladding and the roofs are covered with pre-finished profiled metal coverings including GRP roof lights, matching metal trims and coated steel box gutters. Internally, the roofs are lined with a pre-finished profiled metal internal lining panel.

Photo 50: View of roof to Building A8

Photo 51: Staining to roof sheet at eaves level.

This roof appears to be more modern than the majority of the buildings at the site and is generally in a better condition. There was no evidence of cut edge corrosion at the time of our inspection although there was some light soiling at the edge of the sheets which indicates water is collecting and drying in these locations. The fixings to the roof sheets also appear to be in a fair condition at this time.

The GRP roof lights are generally in a fair condition with only light surface soiling. We would therefore recommend that these are cleaned on a regular basis to prevent the build up of dirt and debris and to ensure the best possible life span is achieved. We understand that water ingress has been experienced through one of the roof lights previously, but we were unable to witness any obvious defects or internal damage at the time of our inspection. If this water ingress continues, we would recommend that further investigations are undertaken to determine the source of the leak.

Rainwater goods are in a fair condition with only minor silting within the gutters. These should be cleared on a regular basis as part of the general maintenance of the property.

3.09 Building A9

Due to a live railway line crossing the site, Building A9 was viewed from an elevated position away from the property. From an external view and our knowledge of the other buildings on this site, it appears to be constructed from a steel portal frame with brick cladding, pre-finished profiled metal roof coverings, matching metal trims and coated steel box gutters. Please note that there are no roof lights installed to this building. Internally, the roofs are likely to be supported off of galvanised z-purlins and lined with a pre-finished profiled metal internal lining panel.

Photo 52: View of building A9

The coatings to the roof sheets have cut edge corrosion at eaves level and are soiled and stained. The profiled metal ridge and trims to the property have corrosion, particularly to the apex of the roof.

The fixings to the roof appear to be in a fair condition although we did note that one fixing to the lower purlin does not appear to have been installed.

This building is located adjacent to trees and we noted vegetation growth within the guttering. This will need to be cleared to prevent damage to the guttering, roof and property, and to keep the rainwater goods free flowing. We note the gutter is only served by one downpipe which may be inadequate for the size of roof.

3.10 Building A10

Photo 53: View of Building A10

Building A10 is constructed from a steel portal frame built off a concrete floor slab. The walls have a brick up-stand with pre-finished profiled metal cladding above. The roofs are covered with pre-finished profiled metal coverings, GRP roof lights, matching metal trims and coated steel box gutters. Internally, the roof is lined with a pre-finished profiled metal internal lining panel. Solar panels are located to the South East pitch of the roof which limited our inspection. These were mounted to a galvanised steel frame secured through the roof to the structure below. The roof also links to the Stores and Workshop at high level

Photo 54: High level link to the Stores and Workshop Roof

The coatings to the roof sheets are degraded and have cut edge corrosion. The roof sheets are also soiled and stained. The profiled metal ridge and trims to the property are in a similar condition with cut edge corrosion and soiling. Some minor distortion was noted to the trims but this is unlikely to cause any signifiant issues. The fixings to the roof are generally intact, with no missing caps visible.

The roof lights are of a GRP construction and are heavily soiled and degraded by UV exposure. The matting to the GRP has been exposed through surface erosion and we would recommend that these roof lights are treated as very fragile. It should be noted that the framework for the support of the solar panels has been installed over the top of some roof lights. Whilst solar panels have not been installed within these areas, these installations will cause issues in maintaining the roof lights. Light transfer through these roof lights has been significantly reduced due to surface soiling.

Photo 55: Soiling to surfaces of solar panels.

Photo 56: View of metal roof coverings to Node 3.

Rainwater goods are generally in a fair condition although surface corrosion was noted, particularly within the corners. The gutters have some minor silting which requires clearing.

During our inspection of the roof coverings, we noted the surfaces of the solar panels are soiled and would benefit from a thorough clean to ensure they achieve their optimal performance. In this regard we refer the reader to previous safe access and maintenance comments within section 3.01.

3.11 Node 3

The roof to Node 3 is formed from a hipped pitched roof covered with powder coated profiled metal sheet roofing. This is surrounded by a parapet gutter which has been covered with a bituminous felt roofing system which is continued to the rear face of the low level parapet wall. The parapet is capped using a pre-cast concrete coping and a safety rail is installed above this, formed from steel

stanchions with tensioned plastic coated steel cables and a steel handrail.
The coatings to the roof sheets have degraded with cut edge corrosion and a few minor areas of spot corrosion. The coatings are also chalking from UV degradation. The ridge and hip cappings are in a similar condition to the roof sheets, with cut edge corrosion and chalking finishes. A number of SVP's penetrate the roof but are generally in fair condition.

Photo 57: Internal view of Node 3.

Internally, we noted a number of holes within the roof coverings and ridge / hip flashings. This was evident by clear daylight being visible within the roof void. On closer inspection, we found a number of missing fixings that require replacement. We are of the opinion these were installed under high tension and seasonal thermal movement within the metal coverings has caused their eventual failure.

Foam packers are installed at the ridge / hip cappings and at eaves level. We note a number of these packers are missing which will allow wind driven rain to enter the roof void. In addition, a number of the remaining packers show signs of weathering and consideration should be given to their replacement.

The bituminous felt coverings are generally in a poor condition. The laps to the felt sheets do not have a noticeable bitumen seal and a number of laps have de-bonded, accelerating the failure of the covering. In addition, the mineral chippings, which provide UV protection, have worn away leaving the felt bare and exposed. A patch repair was also noted at the parapet up-stand to the Eastern side of the roof where we presume water ingress issues have been experienced.

Photo 58: Poorly installed felt covering.

Photo 59: Poor laps to felt covering.

Two sections of ponding were noted to the North Western corner and the South Western corners. The ponding to the South Western corner has been exasperated by the installation of electronic equipment which is preventing the free flow of rain water to the drainage outlets and encouraging the collection of sediment on the roof. The roof is drained via two downpipes located to the southern corners of the roof. Drainage channels have been formed through the parapet wall which leads to external downpipes with debris grilles. Pre-cast concrete overflow chutes are also installed to these downpipes, projecting approximately 500mm from the external walls.

Photo 60: Ponding to felt coverings.

Photo 61: Rainwater outlet.

Photo 62: Overflow chute.

Photo 63: Damaged coping has exposed the substrate and felt up stand.

Photo 64: Corroding sections of handrail.

The copings to the parapet walls have surface soiling but the coping stone, pointing and expansion joints appear to be in a fair condition. The copings also have a robust drip detail. Where equipment has been installed on the roof, a large section of coping has been cut away. This has exposed the substrate beneath and the flashing to the felt up-stand, which will cause water ingress below the felt coverings and saturation of the sub-structure.

The handrails to the perimeter of the roof are secured to the external brick cladding. The steel corner stanchions are suffering from surface corrosion and would benefit from redecoration in the short term. The plastic coatings to the tensioned wires have degraded due to UV exposure and will be brittle. It is likely these plastic coatings will start to breakdown in the medium term and leave the steel wire exposed.

3.12 Other Nodes

As part of our instruction, KKL were asked to comment on the estimated condition of the roofs to the other Nodes at the site. We were unable to access these roofs at the time of our inspection but we were able to undertake a cursory inspection of the internal void of each node (excluding Node 9 which does not have an accessible roof void). Where possible, we also viewed the roofs from Node 3.

The construction of the roofs to the other nodes appears very similar to Node 3 with the main variances being additional plant located on the roofs and that the majority of the metal roofs have been raised with metal cladding beneath. We also note that Node 9 appears to have a flat roof with exposed plant situated above this.

Photo 65: View of Node 2 from Node 3

It is our opinion that the pre-finished profiled metal cladding, roofing sheets and trims are likely to be in a similar condition to those installed to Node 3. This will include cut edge corrosion, missing foam packers and issues relating to missing or damaged fixings. This was also confirmed by our internal inspection where a large amount of light transfer was noted at the eaves and hips.

We are also of the opinion that the felt coverings will be of a similar age and condition, with worn mineral chipping's and inadequately sealed lap joints.

We are unable to comment on the condition of the coping stones to these roofs as this could vary dependant on how the various sections of plant have been installed. We would recommend that these are regularly inspected to ensure no risk of falling masonry is present.

From our internal inspection, we noted that the steel frameworks supporting the roof sheets and cladding are showing signs of surface corrosion. We would suggest this is due to a combination of minor leaks, missing foam packers and the highly exposed location adjacent to Southampton Water exasperating these issues. Furthermore, we noted water staining to the floor within the nodes, but were unable to determine whether this was due to roof defects or historic leaks from plant located within the nodes.

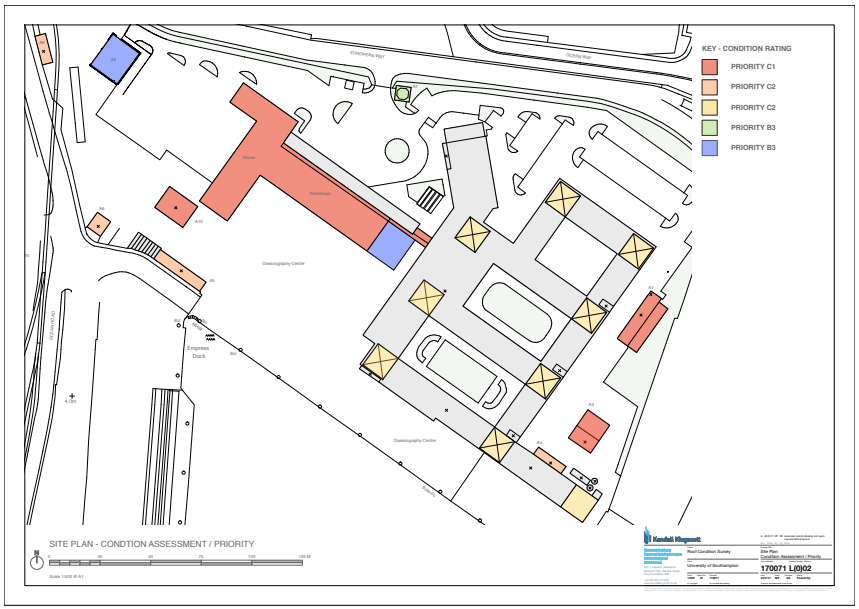
Photo 66: Corrosion to steel framework.

Photo 67: Corrosion to steel framework

4.00 Summary and Recommendations

4.01 Defects Summary and Priority

Due to the similarities in defects observed and the recommended repairs, we have grouped the roofs based on repair priority, ie 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 104 of this report.



Drawing L(0)02 Showing roof priority groups in detail. Refer to Appendix B for full size

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.

We would recommend that 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.

We would recommend 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.

We would recommend 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.

4.02 Repair Options

The following tables summaries the various options available for roof Groups A,B & C. Please note that due to the overall condition of the roofs in Groups D and E, we are of the opinion that only general maintenance works are required at this time. We have not, therefore provided costs for group D & E Roof types.

Group A & B Roofs: Condition Rating Category C Priority 1 and 2, where works are recommended within year 1 and 2 respectively.		
Option 1	**Option 2**	**Option 3**
Do nothing:	Treatment of the cut edge and spot corrosion in a localised fashion: • Repairs to the cut edge corrosion • Clean down the surfaces of the roof sheets, trims and roof lights. • The replacement of damaged or missing fixings and accessories. • Damaged sections of the roof repaired. • Patch repairs to the splits in the valley gutter. • Patch repairs to defective sections of rainwater goods. • Patch repair damaged sections of roof sheets.	A full guaranteed coating system to the roof sheets, replacement of the roof lights, damaged roof sheets, damaged trims and damaged rainwater goods. This would be the most involved repair and are likely to include: • A comprehensive coating to the roof sheets. • The replacement of the roof lights using new GRP units. • The replacement of the valley gutter lining. • The replacement of isolated damaged sections of roof sheets, trims and gutters. • The replacement of damaged or missing fixings and accessories.
Cost Estimate: £0.00*	Cost Estimate: £300,000*	Cost Estimate: £465,000.00*
Pro's / Cons: Only minor water ingress at this time. This may be an acceptable level of defect which can be managed. However, the roofs will continue to corrode leading to a larger project of wholesale replacement of the roof coverings in the future.	Pro's / Cons: This would increase the overall life span of the roof coverings, but guarantees will only cover those areas treated and the existing coatings will continue to age and fail in new locations. Companies like GIROMAX provide repair coatings with a 10 year warranty.	Pro's / Cons: This will provide the best possible life span for the existing roof coverings, with insurance backed guarantees available for the commercial coating systems. Companies like GIROMAX provide complete coating systems with a 20 year materials warranty. *** Costs exclude professional fees, statutory fees and VAT. Refer to Appendix C.**

Group C Roofs: Condition Rating Category C, Priority Rating 2, where works are recommended within year 2 to 3.		
Option 1	**Option 2**	**Option 3**
Do nothing.	Treatment of the cut edge and spot corrosion to the metal roofs, replacement of missing fixings, patch repairs to the felt coverings, isolated replacement of coping stones and decoration of the handrail.	A full guaranteed coating system to the metal roofs, replacement of missing fixings, the wholesale replacement of the felt coverings, isolated replacement of coping stones and the overhaul of the handrails. This would be the most involved repair and are likely to include: • Repairs to the metal roofs to match those outlined in Option 3 for the Group A and Group B roofs. • The replacement of the failing felt coverings. • The replacement of the damaged sections of coping. • Decoration of the handrail and stanchions due to surface corrosion. • Replacement of the plastic coated steel cables to the handrails.
Cost Estimate: £0.00*	Cost Estimate: £310,000*	Cost Estimate: £480,000*
Pro's / Cons: Dependant on the use and sensitivity of equipment, this may be at an acceptable level. However, roofs will continue to deteriorate, causing further water ingress to the internal accommodation in the short to medium term. This will lead to a larger project of wholesale replacement and potential structural repairs in the future.	Pro's / Cons: This will increase the overall life span of the roof coverings, but guarantees will only cover those areas of the metal roofs treated and the remaining sections will continue to age and fail in new locations. Companies like GIROMAX provide repair coatings with a 10 year warranty.	Pro's / Cons: This will provide the best possible life span for the existing roof coverings, with insurance backed guarantees available for the commercial coating systems and bituminous felt roof coverings. Companies like GIROMAX provide complete coating systems with a 20 year materials warranty. *** Costs exclude professional fees, statutory fees and VAT. Refer to Appendix C.**

Group D & E (Priority 4 & 5 Respectively) - Only routine maintenance is required to this group of roofs. We assume costs are already allocated for general maintenance by the client and therefore no costs have been provided. Typical work activities required are as follows:

- Cleaning all roof surfaces
- Clearing and cleaning all rainwater goods,
- Cleaning all roof lights
- Ensuring all fixings have protective caps.
- Replacing the damaged hip tile to the roof of Building A7
- Investigate the dry fix hip tile system to the roof of Building A7 and the historical repair.

Please note, the solar panels and framework will need to be detached from the roofs to undertake any works. This will provide an opportunity to clean and service them, ensuring they are working to their optimum potential.

We have not considered the wholesale replacement of the metal roof sheets. We are of the opinion the existing are repairable in their current state. If the roofs are left, or piecemeal repairs undertaken, wholesale replacement will need to be considered in the medium term.

We have provided estimated budget costs for the various options. It should be noted these are budget costs based on our existing knowledge of the buildings and does not take account of any additional works that may be deemed required following further investigations.

In all instances, Option 1 is a no cost option. However, it is not considered to be viable due to the existing defects and the likelihood of an increase in the scope and cost of repairs if left. Costs for access has been included.

It must be stressed that estimated budget costs exclude wholesale replacement of metal roof sheets and only includes an allowance for isolated repairs. It excludes the replacement / provision of insulation, repair / replacement of corroded support structures and fixings, the need for specialist welding services and the need to replace any roof plant equipment or other services. This also excludes decorations and repairs to any internal building fabric. Opening up works are required in order to identify the full extent of the works and provide more reliable and detailed budget costings. No allowance has been made for any requirements relating to work adjacent to a live railway line.

4.03 Evaluation of the Options and Recommendations

Option 1: We are of the opinion that doing nothing is not a viable option if the continued use of the properties are required in the short to medium term. The roofs will continue to deteriorate and water ingress will become a significant maintenance issue.

Option 2: Whilst this option will repair the immediately defective sections of the roof coverings, it will not provide protection to the elements which have aged but are yet to fail. This will mean a continual programme of repairs to tackle the failing roof coverings going forward.

Option 3: In our professional opinion, these remedial works will provide the most reliable and robust repairs to the roofs. The replacement and complete protection of the various elements of the roof coverings will provide insurance backed guaranteed roof coverings, reducing the overall maintenance liability for a substantial period.

4.04 The Next Step

We would recommend that consideration is given to the various repair options available, the operational requirements for the buildings, the maintenance liabilities and the budgets available for remedial works.
Following this exercise, to progress matters we would recommend further investigations and opening up is completed to fully understand the true extent of the works involved. The following provides costs to enable the recommended solution to be developed to specification stage:

Opening up works by specialist contractor £500.00 excluding VAT. Subject to further confirmation regarding specialist access and edge protection requirements.

Appendix A: Site Plan - Scope of Survey

SITE PLAN - SCOPE OF SURVEY

Scale 1:500 @ A0

0 25 50 75 100 125 M

N

KEY

Denotes NOCS land

Area denotes scope of the Survey.

Area not included within scope of the Survey.

EUROPEAN WAY

OCEAN WAY

TASMAN CLOSE

Tasman Court

1 to 33

34 to 42

43 to 54

1 to 7

WB

Mast

El Sub Sta

A1

A2

A3

A4

A5

A6

A7

A8

A9

A10

Stores

Workshops

Oceanography Centre

Oceanography Centre

3.7m

3.7m

4.0m

OCEAN ROAD

Travelling Crane

Bollard

Bol

MHW

Empress Dock

Bollards

Travelling Cranes

Tks

Ferry Terminal

No 25

El Sub Sta

HM Customs and Excise

Kendall Kingscott

Chartered Architects
Chartered Building Surveyors
Interior Designers
CDM Services

Unit 1 Lakeside, Headlands Business Park, Salisbury Road, Ringwood BH24 3PB

+44 (0)1425 472 833

www.kendallkingscott.co.uk

Project: Roof Condtion Survey

Client: University of Southampton

Scale: 1:500 | Paper Size: A0 | Filename: 170071

Rev. Date By Ap Note

Drawing Title: Site Plan Scope of Survey

Project Number: 170071 L(0)01

Drawing Number - Revision

Date: 16/3/17 | Drawn: MT | Checked: SD | Status: Feasibility

Check all dimensions and levels on site

Appendix B: Site Plan - Condition Assessment / Priority

KEY - CONDITION RATING

Group A: Metal roofs showing significant deterioration

Group B: Metal roofs showing signs of deterioration.

Group C: Metal roofs in a fair condition.

Note: See section 4.01 of Condition Report for further details.

KEY

Group D: Roofs to Nodes.

Group E: Slate pitched roofs.

SITE PLAN - CONDTION ASSESSMENT / PRIORITY

N

0 25 50 75 100 125 M

Scale 1:500 @ A0

Kendall Kingscott

Chartered Architects
Chartered Building Surveyors
Interior Designers
CDM Services

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Rev Date By Ap Note

Project: Roof Condtion Survey

Client: University of Southampton

Drawing Title: Site Plan Condition Assessment / Priority

Project Number / Drawing Number / Revision: 170071 L(0)02

Scale	Paper Size	Filename
1:500	A0	170071

Date	Drawn	Checked	Status
16/3/17	MT	SD	Feasibility

Check all dimensions and levels on site

Appendix C: Cost Summary

Budget Cost Summary
National Oceanography Centre Southampton - Roof Repairs Options

SUMMARY OF COSTS		Option 2	Option 3
Element Ref	**Element Summary**		
1	**Building A1**		
1.01	Cut edge corrosion treatment	£3,680.00	£3,680.00
1.02	Roof Coating System	£0.00	£12,705.00
1.03	Replacement of fixings	£500.00	£500.00
1.04	Repairs to roof sheets and trims	£750.00	£750.00
1.05	Repairs to guttering and downpipes	£750.00	£750.00
1.06	Clean / clear guttering	£1,000.00	£1,000.00
1.07	Clean / clear roof sheets	£3,630.00	£0.00
1.08	Replacement foam packers	£1,000.00	£1,000.00
1.09	Skips	£675.00	£675.00
1.10	Access provisions	£5,000.00	£5,000.00
1.11	Overheads & profit @ 15%	£2,547.75	£3,909.00
1.12	Contingency @ 10%	£1,953.28	£2,996.90
	Budget Estimate	**£22,500.00**	**£35,000.00**
2	**Building A3**		
2.01	Cut edge corrosion treatment	£1,280.00	£1,280.00
2.02	Roof Coating System	£0.00	£8,575.00
2.03	Replacement of fixings	£1,000.00	£1,000.00
2.04	Repairs to roof sheets and trims	£1,500.00	£1,500.00
2.05	Repairs to guttering and downpipes	£500.00	£500.00
2.06	Clean / clear guttering	£400.00	£400.00
2.07	Clean / clear roof sheets	£2,450.00	£0.00
2.08	Replacement foam packers	£750.00	£750.00
2.09	Skips	£675.00	£675.00
2.10	Access provisions	£4,000.00	£4,000.00
2.11	Overheads & profit @ 15%	£1,883.25	£2,802.00
2.12	Contingency @ 10%	£1,443.83	£2,148.20
	Budget Estimate	**£17,500.00**	**£25,000.00**
3	**Building A4**		
3.01	Cut edge corrosion treatment	£640.00	£640.00
3.02	Roof Coating System	£0.00	£2,520.00
3.03	Replacement of fixings	£500.00	£500.00
3.04	Repairs to roof sheets and trims	£500.00	£500.00
3.05	Repairs to guttering and downpipes	£1,500.00	£1,500.00
3.06	Clean / clear guttering	£250.00	£250.00
3.07	Clean / clear roof sheets	£720.00	£0.00
3.08	Replacement foam packers	£500.00	£500.00
3.09	Skips	£675.00	£675.00
3.10	Access provisions	£2,000.00	£2,000.00
3.11	Overheads & profit @ 15%	£1,092.75	£1,362.75
3.12	Contingency @ 10%	£837.78	£1,044.78
	Budget Estimate	**£10,000.00**	**£12,500.00**
4	**Building A5**		
4.01	Cut edge corrosion treatment	£1,120.00	£1,120.00
4.02	Roof Coating System	£0.00	£5,950.00
4.03	Replacement of fixings	£750.00	£750.00
4.04	Repairs to roof sheets and trims	£500.00	£500.00
4.05	Repairs to guttering and downpipes	£1,500.00	£1,500.00
4.06	Clean / clear guttering	£250.00	£250.00
4.07	Clean / clear roof sheets	£1,700.00	£0.00
4.08	Replacement foam packers	£700.00	£700.00

4.09	Skips	£675.00	£675.00
4.10	Access provisions	£2,500.00	£2,500.00
4.11	Overheads & profit @ 15%	£1,454.25	£2,091.75
4.12	Contingency @ 10%	£1,114.93	£1,603.68
	Budget Estimate	**£12,500.00**	**£20,000.00**
5	**Building A6**		
5.01	Cut edge corrosion treatment	£640.00	£640.00
5.02	Roof Coating System	£0.00	£2,765.00
5.03	Replacement of fixings	£400.00	£400.00
5.04	Repairs to roof sheets and trims	£750.00	£750.00
5.05	Repairs to guttering and downpipes	£300.00	£300.00
5.06	Clean / clear guttering	£400.00	£400.00
5.07	Clean / clear roof sheets	£790.00	£0.00
5.08	Replacement foam packers	£500.00	£500.00
5.09	Skips	£675.00	£675.00
5.10	Access provisions	£3,500.00	£3,500.00
5.11	Overheads & profit @ 15%	£1,193.25	£1,489.50
5.12	Contingency @ 10%	£914.83	£1,141.95
	Budget Estimate	**£12,500.00**	**£15,000.00**
6	**Building A9**		
6.01	Cut edge corrosion treatment	£300.00	£300.00
6.02	Roof Coating System	£0.00	£2,800.00
6.03	Replacement of fixings	£750.00	£750.00
6.04	Repairs to roof sheets and trims	£1,500.00	£1,500.00
6.05	Repairs to guttering and downpipes	£1,000.00	£1,000.00
6.06	Clean / clear guttering	£200.00	£200.00
6.07	Clean / clear roof sheets	£800.00	£0.00
6.08	Replacement foam packers	£350.00	£350.00
6.09	Skips	£675.00	£675.00
6.10	Access provisions	£2,000.00	£2,000.00
6.11	Overheads & profit @ 15%	£1,136.25	£1,436.25
6.12	Contingency @ 10%	£871.13	£1,101.13
	Budget Estimate	**£10,000.00**	**£12,500.00**
7	**Building A10**		
7.01	Cut edge corrosion treatment	£1,040.00	£1,040.00
7.02	Roof Coating System	£0.00	£9,100.00
7.03	Replacement of fixings	£500.00	£500.00
7.04	Replacement of roof lights	£0.00	£1,200.00
7.05	Repairs to roof sheets and trims	£500.00	£500.00
7.06	Repairs to guttering and downpipes	£750.00	£750.00
7.07	Clean / clear guttering	£400.00	£400.00
7.08	Clean / clear roof sheets and roof lights	£2,600.00	£0.00
7.09	Removal, clean and reinstatement of solar panels	£7,500.00	£7,500.00
7.10	Replacement foam packers	£750.00	£750.00
7.11	Skips	£675.00	£1,350.00
7.12	Access provisions	£3,500.00	£3,500.00
7.13	Overheads & profit @ 15%	£2,732.25	£3,988.50
7.14	Contingency @ 10%	£2,094.73	£3,057.85
	Budget Estimate	**£25,000.00**	**£35,000.00**
8	**Workshops and Stores**		
8.01	Cut edge corrosion treatment	£11,360.00	£11,360.00
8.02	Roof Coating System	£0.00	£98,875.00

Budget Cost Summary
National Oceanography Centre Southampton - Roof Repairs Options

8.03	Replacement of fixings	£4,000.00	£4,000.00
8.04	Replacement of roof lights	£0.00	£15,600.00
8.05	Repairs to roof sheets and trims	£5,000.00	£5,000.00
8.06	Repairs to guttering and downpipes	£5,000.00	£5,000.00
8.07	Repairs to valley gutter lining	£1,000.00	£0.00
8.08	Replacement of valley gutter lining	£0.00	£4,875.00
8.09	Clean / clear guttering	£2,000.00	£2,000.00
8.10	Clean / clear roof sheets and roof lights	£28,250.00	£0.00
8.11	Removal, clean and reinstatement of solar panels	£40,000.00	£40,000.00
8.12	Replacement foam packers	£2,500.00	£2,500.00
8.13	Skips	£675.00	£5,400.00
8.14	Access provisions	£50,000.00	£50,000.00
8.15	Overheads & profit @ 15%	£22,467.75	£36,691.50
8.16	Contingency @ 10%	£17,225.28	£28,130.15
	Budget Estimate	**£190,000.00**	**£310,000.00**
9	**Nodes**		
9.01	Cut edge corrosion treatment	£5,760.00	£5,760.00
9.02	Roof Coating System	£0.00	£40,320.00
9.03	Replacement of fixings	£4,000.00	£4,000.00
9.04	Repairs to roof sheets and trims	£6,000.00	£6,000.00
9.05	Repairs to felt coverings	£10,000.00	£0.00
9.06	Replacement felt coverings	£0.00	£50,160.00
9.07	Repairs / replacement of coping stones	£10,000.00	£10,000.00
9.08	Clean / clear guttering	£1,800.00	£1,800.00
9.09	Clean / clear roof sheets.	£11,520.00	£0.00
9.10	Decorations to handrails	£4,500.00	£4,500.00
9.11	Replacement foam packers	£8,000.00	£8,000.00
9.12	Skips	£675.00	£3,375.00
9.13	Access provisions	£180,000.00	£180,000.00
9.14	Overheads & profit @ 15%	£36,338.25	£56,612.25
9.15	Contingency @ 10%	£27,859.33	£43,402.73
	Budget Estimate	**£310,000.00**	**£480,000.00**
	SUB-TOTAL - GROUP A	£255,000.00	£405,000.00
	SUB-TOTAL - GROUP B	£45,000.00	£60,000.00
	SUB-TOTAL - GROUP C	£310,000.00	£480,000.00
	SUB-TOTAL	**£610,000.00**	**£945,000.00**
	VAT @ 20%	**£122,000.00**	**£189,000.00**
	TOTAL PROJECT COST	**£732,000.00**	**£1,134,000.00**
	Exclusions:		
	Client Contingency allowances		
	Specialist Surveys (Asbestos required)		
	Loose furniture and fittings		
	Temporary accomodation		
	Decant		
	Building Control & Planning Fees (Not required)		
	Contract Administration Fees		
	Project Management Fees		

Budget Cost Summary
National Oceanography Centre Southampton - Roof Repairs Options

	Structural Engineer Fees
	Power and Water (Assumed Contractor can utilise existing supplies free of charge)
	Specialist Access Equipment
	Preliminary Costs
	Inflation allowance (excluded)
	Notes:
	A measured survey was not undertaken as part of our instruction. The costs shown have been calculated on the information provided to us and our general assessment of the roofs.
	We have assumed that there are no restrictions on how scaffold access can be installed or supported at the site. Provisional allowances have been included for access to the roofs but this may vary dependent on the design of the scaffold required.
	We recommend a structural enginner is instructed to assess the roofs and their ability to support a scaffold structure. This assessment will influence the cost of these works.
	Provisional allowances have been included for the removal, cleaning and reinstatement of the solar panels to facilitate the works. Specialists will be required to complete these works. We have not included for any repairs to the solar panel installations.