

## APPENDIX 2 – DETAILS OF THE WRC ROOFING WORKS

The WRC building was constructed approximately 17 years ago with roof coverings comprising a mixture of standing seam (referred to as Kalzip), single-ply PVC roofs and green roofs. The standing seam roof to the main tipping hall roof has photovoltaic panels installed. Both the main tipping hall and main office building roof have 'latch way' type man-safe systems with edge protection.

The technical consultants who carried out the WRC roof survey last year found a large number of roofing defects with the existing roof covering. To ensure the life of the roof moving forward had a long life expectancy, they recommended the following measures:

### **1. Main Plant Room Roof**

Electronic leak detection testing identified 76 No. breaches in the membrane. It was noted that most of these breaches were of minor nature although some larger splits were located. These clearly demonstrate the main issues attributable to the ongoing water ingress around the plant room. It is likely that the ongoing water leaks are exacerbated by poor construction detailing of the rainwater drainage from the main tipping hall roof and inadequate roof sheet overhang. Surface water discharges from around 50% of the tipping hall roof onto the plantroom roof acting as a large box gutter receiving significant volumes of water. The technical consultants recommendation is for wholesale roof replacement to the plant room roof including enhancements to the rainwater goods and surface water management.

Due to maintenance foot traffic, the consultants have specified a Garland Stress Ply Flex Plus Bituminous Waterproofing Warm Roof System. This system is an elastomeric modified bitumen membrane system that is made from special grade of modified bitumen with styrene-butadiene-styrene (SBS) elastomer and fillers. The SBS modifiers provides the membrane with tensile strength, tear/puncture resistance and elongation properties. In addition, the consultants propose alterations and upgrade to the rainwater goods. A full specification and pricing document will be provided for the tender documents.

### **2. Main Tipping Hall Roof**

No breaches or serious damage is noted to the 'Kalzip' standing seam roof sheets. However, there are noticeable distortions to the sheets in several areas. This is believed to be partly from the loading out of materials and personnel accessing the PV panels plus the fixing clips to the PV panels being incorrectly located between the roof purlins and therefore not allowing for the designed expansion and contraction. The consultants' recommendation is for the installation of a 'Kalzip' steel platform walkway system to be installed plus adjustments to the PV panel fixing clips. A full specification and pricing document will be provided for the tender documents.

### **3. Main Office Roof**

It is understood the main office roof is problematic with persistent leaks. There is evidence of historic patch repairs, retrospective leadwork capping over the ridge plus liquid coating overlay to the roof edges. The consultants consider the current issues to be attributable to poor construction detailing particularly at abutments and roof edges.

The consultants recommendations are for a long-term solution to provide a wholesale liquid overlay with a full warranty. They have specified a Garland Dura-Coat PUMA Waterproofing liquid applied system which provides a durable elastomeric system. A full specification and pricing document will be provided for the tender documents.

#### **4. Green Roof**

No works are considered necessary to this roof at this time.

Budget Costs

Outline budget costs for the proposed works are as follows:

##### **1. Plant Room Roof - Budget Estimate**

Improvements and upgraded construction detailing including new rainwater goods.

£50,000

Removal of the existing single ply roof coverings and wholesale replacement with high performance felt system and tapered insulation to create adequate falls to drainage outlets.

£96,000

##### **2. Main Tipping Hall Roof - Budget Estimate**

Supply and installation of a safety access steel platform walkway system.

£72,000

##### **3. Office Roof - Budget Estimate**

Liquid applied overlay to the entire roof surface.

£380,000

##### **4. Contingency**

£90,000

##### **5. Access and Security**

£100,000

Total £788,000 including fees and excluding VAT.