Appendix 3

Guide to Environmental Risk Management

INTRODUCTION

Derby City Council is committed to managing its impact on the environment through the Environmental Policy. The Policy acknowledges how the organisation affects the environment and identifies steps to be taken to improve the overall environmental performance of the Council. Supporting this document and specifically recognising the impact of climate change and need for carbon reduction the Council adopted the Climate Change Strategy in January 2010. The Climate Change Strategy identifies how and where carbon emissions can be reduced across the Council and highlights the need for adaptation to the effects of climate change.

The actions identified within the Environmental Policy and Climate Change Strategy need to be addressed across all service areas and to be incorporated into the planning of projects and services. Much of this can be achieved through the risk management process.

There are five main risk management areas related to environmental management, these include risks related the:

- impact on the natural environment through the delivery of services
- impacts of climatic change on service delivery and the need to ensure that the Council is resilient to these impacts.
- contribution to carbon emissions through service delivery
- commitment to carbon reduction.

These risks should be addressed through everyday activities however this guidance concentrates on assessing and managing environmental risks within projects and service planning.

Note: references within the document to environmental management, environmental impacts and risks incorporate the area of carbon reduction and climate risks.

APPLICATION

This guide applies to all projects and services across the Council. The exact application will depend on the type and scale of activity and the associated level of risk to the authority.

The guide provides users with a tool to determine the level of risk related to the environmental impact of a project and so ensure that the application of risk management is proportionate to the risk generated.

Derby City Council has produced other guidance on environmental management which may assist with the risk management process including:

- Carbon Reduction and Sustainability Toolkit - the toolkit gives background information on climate change and sustainability and provides assistance to help managers deliver the Council's climate change ambitions.
- Environmental Procurement – specific guidance for the tender process and environmental product guidance
- Climate Change risk assessments – service specific risk assessments identifying specific need for adaptation to climate change.

This guide is designed as supplementary information and should be used in conjunction with the Corporate Risk Management guidance. Further support and guidance is available from the Corporate Risk Management and the Climate Change and Energy Management Unit.

THE RISK MANAGEMENT APPROACH

When developing a project the risk management approach should include the following key elements:

- Assessing the scale of the environmental risk
- Identifying the resource
- Implementing the Risk Management Process

Assessing the scale of the environmental risk

Projects vary in size and complexity. From a risk management perspective, it is not necessary to devote the same amount of resources and attention to every project. We have therefore developed a tool to determine the scale of the environmental risk and so determine the level of input required. The tool is available in Appendix 1.

Once you have completed this process you should have determined whether the project is "High" or "Low" risk.

Identify the Resource

Risk Management will not happen unless it is properly resourced. This includes the provision of people, time and in some cases finance to make it happen. Depending on the level of the project, some kind of plan for managing risk needs to be created. The plan should describe how risk will be addressed and is a document that needs to capture the agreed framework around who will lead, who will be involved, responsibilities and accountabilities, in addition to setting out the frequency of risk review. The idea is to ensure that risk is considered as an integral part of the project management.

Implementing the Process

The risk management process must be completed at the start of the project or service planning. Once the scale is assessed (appendix 1) appropriate risk management controls should be implemented.

For low risk projects there is a straightforward checklist that should be completed as a minimum to help identify and confirm that all relevant risks have been controlled – Appendix 2

For high risk projects there is a more detailed risk identification, assessment, control and monitoring process to be completed – Appendix 3

ENVIRONMENTAL RISK LEVELS

The risks can be viewed on two levels, "Strategic" and "Operational".

Strategic

Risks arising at a Strategic level relate to:

- Failing to ensure that the project meets the objectives within the Environmental Policy
- Failing to ensure that the project supports the Climate Change Strategy
- Failing to fully assess and plan for the organisational impact the potential climatic changes will have

Strategic risks should be identified as part of the overall analysis of the business need and in developing the business case. This will enable high-level threats to be assessed and researched with the aim of developing strategic management responses to secure resilience to climate change impacts and minimise environmental impacts.

It is likely that Members, Chief Officers and senior staff will be involved in considering these kinds of risks.

Risks at the strategic level will then frame the context for more detailed risk management at the operational level.

Appendix 4 provides tables showing examples of risks and control measures. Please note that these tables are for guidance only and outline the main risks to be considered but do not constitute an exhaustive list for every project or service.

Note: A full climate risk register for service areas is available from the Climate Change and Energy Management Unit.

Operational

Risks at an operational level are those that relate to factors affecting progress against the carbon emission targets and environmental impacts. This includes risks relating to suppliers and contract management for example the risk to the Council as a result of a contractor breaching environmental legislation.

Operational risk may include:

- Potential pollution incidents through works
- High energy consumption through equipment use
- Use of unsustainable resources
- Generation of hazardous waste

Appendix 4 contains a number of examples of risks.

CRITICAL SUCCESS FACTORS

For risks to be managed effectively within a service or project there are six key elements that need to be in place:

- Support for risk management from senior management
- Clear identification of potential climate change impacts and adaptation and mitigation controls
- Clear identification of environmental impacts (positive and negative) including understanding of how these can be controlled or influenced by the Council
- An organisational culture that supports well thought through risk taking and innovation
- Risk management must be fully embedded in management processes
- Monitoring and review

APPENDIX 1

ASSESSING THE SCALE

A crucial first step in the way we manage environmental risk is an initial assessment to decide what scale of project you are dealing with. This assessment process should be completed at the earliest possible stage.

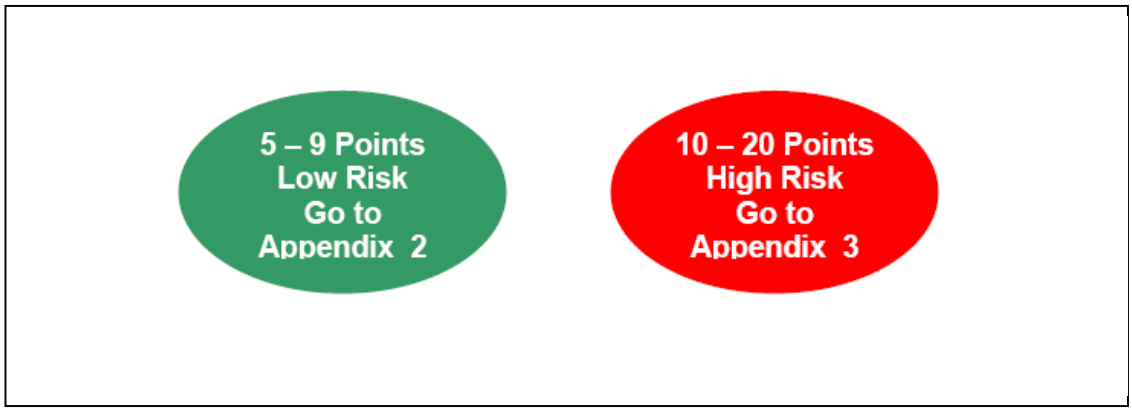
Based on the Environmental Policy and the Climate Change Strategy, the key areas of environmental risk and therefore the areas for consideration within the assessment of scale include:

- impact on the carbon reduction commitment
- the need to adapt to climate change (climate risks and business continuity)
- the potential for pollution
- high energy and water consumption
- legal requirements
- reputation

To assess the scale review the table overleaf and the additional guidance for each category and allocate a score to each element by assigning the statement that best matches the project. Each statement is assigned a score of 1 to 4.

If during this process your project fits into any one red box, then it will be deemed as high risk and therefore you should refer to Appendix 3.

If none of the statements in red boxes apply to your project, calculate the total value by adding together the scores of the statements you have selected for each category.



	score			
SCALE EVALUATION	1	2	3	**4**
Need to adapt to climate change impacts	Limited potential impact	Indirect affected by impacts	Directly affected by impacts	**Significant negative impacts**
Impact on carbon reduction target	No impact	Minimal carbon emissions	Moderate carbon emissions	**Significant contribution to carbon emissions**
Environmental impact	None or very minimal	Some local impact	Significant local or national/ International impact	**Significant spatial and/or long term impact**
Environmental standards and legal requirements	None applicable	Limited standards or legal compliance issues	Significant legal requirements	**Fundamental to achievement of policy or legislation**
Reputation	Limited/no reputation impact	Some impact on reputation	Moderate Reputation impact	**Significant reputation impact**

SCALE EVALUATION	ADDITIONAL EXPLANATION
Need to adapt to climate change impacts	Is the project long term and will it be vulnerable to long term changes in the climate, extreme weather events? Are buildings or vulnerable persons involved in the project?
Impact on carbon reduction target	Will this project make a significant contribution to or negative impact on the achievement of the carbon reduction target
Environmental impact	What impact will the project have on the local, national and global environment? i.e. is there high use of unsustainable resources, is there significant waste generation or potential for pollution incidents? Is the project vulnerable to impacts as a result of resource depletion (oil, water)?
Environmental standards and legal requirements	Is this project required to meet the specific environmental requirements laid out in a piece of legislation, mandatory central government policy directive or Audit Commission recommendation?
Reputation	Will actions result in negative media coverage if not managed? Is there an opportunity to apply best practice or be a market leader? Is it an area of significant stakeholder concern?

APPENDIX 2

LOW RISK PROJECTS

If your project has been assessed as low risk then there is no need to go through a detailed risk management process. There is however a need for robust management and provided that you are able to answer yes to the questions in the checklist below the risks should be under control.

Question	Yes	No
Does the project contribute to the Council Environmental Policy and Climate Change Strategy?		
Has energy consumption been minimised?		
Has any waste production been minimised? Particularly hazardous or waste electrical and electronic equipment.		
Has the potential to cause significant environmental pollution incident during its use?		
Has adaptation requirements been identified and managed?		
Has a means of identifying performance been agreed and defined?		
Have you identified any strategic risks and agreed control measures? *		

* Consider the strategic risks and controls outlined in Appendix 4.

If you are unable to answer yes to any question then the project could be at risk. These areas need to be addressed to ensure a positive answer and adequate risk management.

APPENDIX 3

HIGH RISK PROJECTS

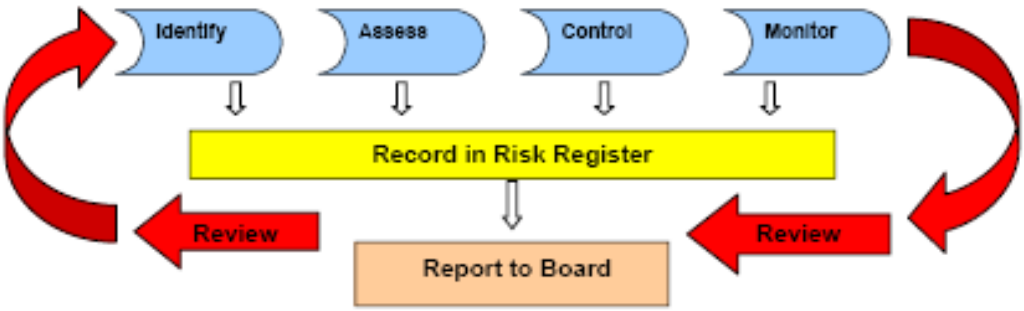
If you have assessed your project as high risk, then you should adhere to the following guidance.

Early Stage

Risk Management will not happen unless it is properly resourced. This includes the provision of people, time and in some cases finance to make it happen. You should create a plan for managing risk. The plan will describe how risk will be addressed. It will set out the agreed framework for who will lead, who will be involved, responsibilities and accountabilities, in addition to establishing the frequency of risk monitoring. The idea is to ensure that risk is considered as an integral part of the project management. Resources for the management of risk should be agreed at the outset.

Risk Management Cycle

You are now in a position to start the risk management cycle. This is a four-stage cycle involving identifying, assessing, controlling and monitoring the risks.



Identification

The identification of risks should begin at the earliest stage. It should assist in completing the business case and is crucial in determining actions to manage risks throughout the project.

All identified risks should be recorded in the risk register. A Risk Register template is available at Appendix 5.

After the initial identification of the strategic risks, it will be necessary to identify the operational risks and where appropriate involve all stakeholders. This should include all partners, suppliers and in some cases the recipients of the services being delivered.

The identification of risks should be objective driven and should clearly identify those potential events that could prevent the objectives within the Climate Change Strategy and Environmental Policy being achieved. For example does the project:

1. have the potential for high-energy consumption (energy intensive)
2. have the potential for high-waste production (particularly hazardous or electrical)
3. includes a significant element of transportation i.e. distribution of goods or need for site visits
4. have the potential to cause a significant environmental incident during its use or as a result of their activities
5. occur over a long time frame and is vulnerable to climate change
6. have the potential to result in an environmental related PR risk to the council

A number of examples of strategic and operational risks are given in Appendix 4.

Additional points to consider during the identification stage include:

- Identification of all stakeholders who may be impacted upon
- Long term impacts as a result of, and on the project
- Seek advice from the Council's Risk Management Team and Climate Change and Energy Management Unit.
- Ensure both internal and external risks and opportunities are considered

Assess

Once the risks have been identified, you will need to assess the level of risk associated with each one. This enables you to prioritise risks and identify those that pose the greatest threat (or opportunity) to the Council.

Risks should be assessed in terms of:

- Likelihood: how likely is the risk to occur?
- Impact: what would the impact be if it did occur?

Note: The assessment should be completed taking into account any control measures already in place.

Both elements should be given a score between 1 and 5 using the definitions below. These two scores can then be combined (likelihood x impact) to provide an overall risk score and category as demonstrated by the Risk Matrix.

Likelihood
The following table is used to decide on likelihood:

Score	Definition
1 - Rare	The event may occur only in exceptional circumstances
2 - Unlikely	The event is not expected to occur
3 - Possible	The event might occur at some time
4 - Likely	The event will probably occur in most circumstances
5 - Almost Certain	The event is expected to occur in most circumstances

Impact
The impact assessment table will assist in determining what level of impact a particular risk will present. The impact of the risk will be a subjective weighing up of factors including the size i.e. spatial impact, severity and duration of the potential environmental impact and will vary for the same category of impact depending on the type of project (so an element for one project may be high risk may not be for another).

As well as direct environmental impact, corporate and stakeholder concerns should also be taken into consideration and may include:

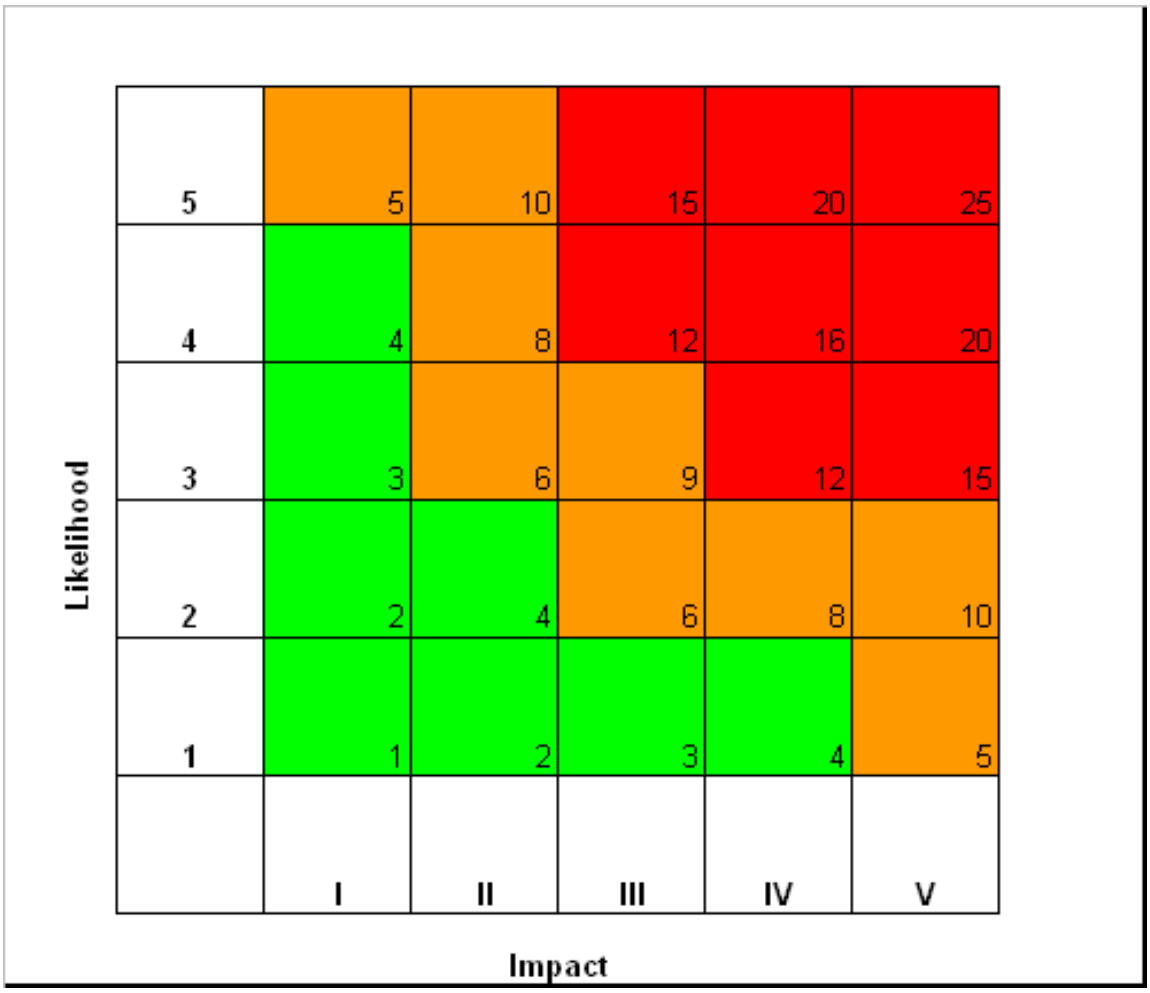
- Potential regulatory and legal exposure
- Cost of changing impact
- Concerns of interested parties
- Effect on public image

Use the following table to assign an impact score:

SCORE	DEFINITION
1 – Insignificant	• No effect on delivering carbon reduction • No damage to DCC reputation including as a result of complaints or legal actions • No or limited pollution potential • No or limited use of unsustainable resources • Low energy and water consumption, transport use or hazardous waste generation • No requirement for climate adaptation
2 – Minor	• Little effect on achieving carbon reduction target • Minimal damage to DCC reputation (minimal local press coverage) • Minor damage to local environment • Minimal energy, water, transport use and waste generation • Breaches of local procedures/standards • Unlikely to cause complaint/litigation
3 – Moderate	• Partial failure to achieve carbon reduction target • Moderate damage to DCC reputation (significant local coverage, some regional coverage) • Moderate damage to local environment • Some need to adapt to climate change • Breaches of regulations/best practice standards • Local pollution incident • High potential for a complaint litigation possible breaches of regulations/standards
4 – Major	• Major impact on achieving Climate Change Strategy and Environmental Policy • Coverage in national press • Major damage to local environment • Need to adapt to climate change • Breaches of law punishable by fine • Regional pollution incident • High energy use • Non-statutory duties are not achieved
5 - Extreme	• Non delivery of carbon emission reduction • Significant need to adapt to climate change • Extensive coverage in national press and on TV • Significant damage to local, national or international environment • Energy and water intensive • High waste creation particularly hazardous waste • High reliance on natural resources and finite resources • Breaches of law punishable by imprisonment

Risk Matrix

By multiplying the impact rating by the likelihood rating this produces a risk rating score. The risk score is plotted onto a simple Risk Matrix as shown below and the category of risk determined.



Likelihood of Risk			Impact of Risk		
5	–	Almost Certain	5	-	Extreme
4	–	Likely	4	-	Major
3	–	Possible	3	-	Moderate
2	–	Unlikely	2	-	Minor
1	–	Rare	1	-	Insignificant

RISK CATEGORY		HOW THE RISK SHOULD BE MANAGED
(12-25)	High Risk	Immediate action required, Senior Management must be involved
(5-10)	Medium Risk	Senior Management attention needed and management responsibility specified
(1-4)	Low Risk	Manage by specific monitoring or response procedures

Control
Once the risk level is established there needs to be a decision on how the risk will be controlled. Not all risks will need to be controlled in the same way and there may be instances were it is not feasible or practical to fully control the risk. Options for dealing with risks are outlined below.

To decide how the risk is controlled it is important to understand:

- what level of risk impact you are willing to accept
- who the risk affects most
- the availability and ease of intervention – i.e. may not have a feasible technical solutions

Following the decision on how to control the risk the next step is to decide upon the specific control measures. This step is essential as the intervention choices made will determine how the project or service will respond to the risks and will be used to inform the project development.

The Climate Change and Energy Management Unit are able to assist Officers completing the risk assessment and identifying the control measures.

Risk Options
There are a number of options available for dealing with risks:

Tolerate the risk
A conscious decision can be made to accept the consequences should a risk occur. Some amount of risk acceptance is likely as risks exist that will have to be accepted for example those with no feasible technological solution. It is for the manager and/or board to determine the appropriate level of risk that can be accepted / tolerated

Transfer the risk
It may be appropriate to transfer ownership and responsibility for the risk to another party outside of the authority. However this may not be possible if for example there is a statutory duty on the authority.

Methods of transfer can include:

- Insurance, performance bonds, warranties or guarantees
- Renegotiation of a contract's conditions for the risk to be retained by the other party
- Sub-contracting risks to consultants or suppliers.

Control the risk
While continuing with the activity giving rise to the risk, actions are taken to constrain the risk to an acceptable level, by:

- PREVENTIVE CONTROLS - These controls are designed to limit the possibility of an undesirable outcome being realised.
  Example: the specification of forest stewardship certified wood products within a contract to ensure wood products are from a sustainable source.
- CORRECTIVE CONTROLS - These controls are designed to correct undesirable outcomes which have been realised.
  Example: clean up procedures and kits for pollution incidents.
- DIRECTIVE CONTROLS - These controls are designed to ensure that a particular outcome is achieved.
  Example: placing a requirement that staff trained in environmental requirements.
- DETECTIVE CONTROLS - These controls are designed to identify occasions of undesirable outcomes having been realised. Their effect is, by definition, 'after the event' so they are only appropriate when it is possible to accept the loss or damage incurred.
  Example: air quality monitoring of emissions to air from a process.

Terminate the risk
Where feasible do things differently and remove the risk. Put measures in place to stop the threat occurring or prevent it having an impact. Some risks will only be treatable, or containable to acceptable levels, by terminating the activity.

Monitor

Risks will change over time and therefore continual monitoring is required. The monitoring should cover the changes in risk (impact and likelihood) and also evaluation of whether controls are effective. Risk owners are responsible for ensuring risks allocated to them are monitored and for reporting on the effectiveness of the risk response.

Operational risks must also be monitored and reviewed to:

- measure progress in risk management
- provide visible target dates for managing risks
- identify new risks and close others
- establish new priorities.

The Risk Management Plan or Framework for the project should identify clearly how the monitoring process should operate. For example it should identify the frequency of reporting by risk owners and the reporting process to the management board.

A copy of the risk register template can be found in Appendix 5

APPENDIX 4

STRATEGIC AND OPERATIONAL RISK TABLES

These risk tables are not exhaustive, they are provided to act as a guide to prompt risk identification. They should not be used as ready prepared risk registers or a definitive list of risks.

STRATEGIC RISKS

Strategic risks relate to:

- Failing to ensure that the project supports the Climate Change Strategy
- Failing to ensure that the project meets the commitments within the Environmental Policy
- Failing to fully assess and plan for potential impacts due to climatic changes
- Failure to plan for carbon reduction

Risks	**Control measures**
Objectives fail to support the Climate Change Strategy	Identify opportunities for carbon reduction and set project targets that contribute to the target at start of project.
Failure to account for climatic changes	Carry out an assessment of whether the consequences of climate change pose significant risk to a project's ability to effectively function in the future. The assessment should aim to ensure the costs of not adapting are properly considered in the design process (refer to the service specific risk assessments).
The project results in a significant (negative) environmental impact	Areas impacting on the environment are identified and controlled i.e. alternative options implemented.
The project does not have buy in for all to implement changes.	Ensure that carbon reductions and the need for adaptation are clearly stated at the outset and communicated to all concerned.
No strategies are in place for managing impacts of climatic changes	Review vulnerability and resilience of project to climatic changes as part of project initiation. Identify control measures.
No strategies are put in place for reducing environmental impact	Establish potential for environmental impact through life time of project. Identify and implement mitigation options
Failure to meet stakeholder expectations on environmental performance	Ensure expectations are understood and managed with clear communication of progress.

OPERATIONAL RISKS

Risks at an operational level are those that relate to factors affecting progress against the carbon emission targets and the management of environmental impacts. This includes risks relating to suppliers and contract management.

Risks	**Control measures**
Not being aware of availability of technology options leading to poor environmental decisions on methods of service delivery or procurement	Involve professional assistance and expertise to identify appropriate environmental technology solutions.
Inability to measure savings leading to poor management	Ensure monitoring and measurement tools are established at the start of the project.
No appropriate penalties/rewards established for project deliverables relating to environmental aspects	Identify clear environmental targets and commitment
Pressure to deliver 'quick wins' at the expense of longer term gains i.e. choosing low cost option in the short term over energy efficiency in the long term	Establish whole life costs at the start of the project and demonstrate long term savings
Failing to meet environmental improvement targets	Establish monitoring and review throughout the project to enable identification of any areas requiring further improvement.
Failure to apply an effective environmental management and monitoring system	Establish project monitoring at development stage, assign reporting responsibilities and mechanisms.
Inadequate environmental training for staff leading to pollution incidents	Review environmental training needs and implement programme of training.
Failure to future-proof technology procured	resilience of design features, construction materials and planned operational
Lack of consistent Member understanding of issues	Provide clear member updates on environmental issues
Managing expectations of Members	Provide clear updates to members on the environmental achievements of the project
Risk of damage to reputation	Ensure standards and best practices are implemented.
Failure to comply with relevant environmental laws and regulations	Identify relevant environmental legislation and carry out regular compliance checks.
Changes to the services required as a result of new or changes to existing laws or regulations	Monitor development environmental legislation to identify need for changes at earliest point possible.

APPENDIX 5

Example Project: Provision of new library facility

Environmental Risk Type	Risk Description	Likelihood	Impact	Rating	Actions to be taken
Only complete the sections that will be applicable the project. Add further types if applicable	description the specific element of the project	Enter a value of 1 to 5	Enter a value of 1 to 5		Describe the actions taken to resolve the risk
Environmental legislation	Site activities may be subject to a range of environmental legislation				Environmental register for site developed. Method of compliance checks identified.
Hazardous material use	Potential for hazardous material use during construction phase.				Identification of alternative products to reduce hazardous material use.
Energy intensive product/service	High energy usage through heating and lighting during life of building				Implement energy efficiency within the design stage. Follow BREEAM standards
Use of unsustainable products	Construction materials and aggregates, wood				Review of products and identification of environmental alternatives. Follow BREEAM standards.
Waste generation	Significant creation of waste through construction process				Implementation of site waste management plan.
Emissions to air, land or water through use	Potential for pollution incidents during construction phase				Emergency incident plan established to manage any incidents. Training provided for staff to reduce incidents. Equipment and site checks in place to improve early identification,
High transport requirements (owned & contractor vehicles)	Use of vehicles and machinery on site in addition to delivery vehicles				Scheduling of deliveries and bulk deliveries to reduce transportation where possible.
Vulnerability to climate variations	Long term impact of climatic variations and extreme weather events on building.				Design in resilience of building features, construction materials