Reading Borough Council
Local Flood Risk Management Strategy

Strategic Environmental Assessment (SEA)

Scoping Report

On behalf of **Reading Borough Council**

Project Ref: 27560/3001 | Rev: 01 | Date: October 2014

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Document Control Sheet

Project Name: Reading Borough Council Local Flood Risk Management Strategy

Project Ref: **27650**

Report Title: **SEA Scoping Report**

Doc Ref: **27650 – 3001 v1**

Date: **October 2014**

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Revision	Date	Description	Prepared	Reviewed	Approved

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1 Introduction

1.1 Background

1.1.1 Peter Brett Associates LLP (PBA) has been appointed by Reading Borough Council (RBC) to carry out a scoping exercise as part of a Strategic Environmental Assessment (SEA) of the RBC's Draft Local Flood Risk Management Strategy (LFRMS).

1.2 Regulative Context

Flood Risk Management Strategies

1.2.1 The Flood and Water Management Act (FWMA) 2010 establishes the requirement for a national strategy for flood and coastal erosion risk management (FCERM) in England, the ultimate aim of which is "to reduce the likelihood of [flooding] incidents happening as well as managing the potential consequence to people, business, infrastructure and services"[1].

1.2.2 In line with the national strategy for FCERM, the FWMA requires RBC as a Lead Local Flood Authority (LLFA) to produce, apply and maintain a Local Flood Risk Management Strategy (LFRMS). The local strategy must cover measures to manage the risk of:

- Surface water flooding;
- Groundwater flooding; and/or
- Flooding from ordinary watercourses (including lakes and ponds).

Strategic Environmental Assessment

1.2.3 Strategic Environmental Assessment (SEA) aims to identify significant environmental effects that are likely to result due to the implementation of a statutory plan, programme or strategy. The main objectives of the SEA process are "to integrate environmental considerations within policy development at the earliest opportunity and to provide an 'audit' trail of option development and environmental mitigation made to demonstrate that the strategy has, as far as is practicable, met environmental concerns".[2] The results of an SEA are finally presented in an Environmental Report.

1.2.4 The legislative requirement to carry out SEAs on certain plans and programmes is set out in the European Union's Strategic Environmental Assessment Directive (2001) EC Directive 2001/42/EC (the 'EC SEA Directive') which is implemented in the UK through the Environmental Assessment of Plans and Programmes Regulations 2004 (the SEA Regulations).

1.2.5 Local strategies are statutory plans and are subject to the requirements of SEA. As such, the development of an LLFA involves applying SEA to local strategies particularly when environmental effects are not evident in the early stages of plan development. SEA is an iterative process, i.e. the assessment will be reviewed as the detail of the strategy develops.

1.2.6 As there is no prescribed format or scope beyond the legislative requirements contained in the FWMA, the Local Government Association (LGA) has produced a framework to assist with the

[11] http://www.local.gov.uk/local-flood-risk-management/-/journal_content/56/10180/3618366/ARTICLE

[2] http://www.local.gov.uk/c/document_library/get_file?uuid=ac7cd7c8-3388-4707-b4c2-10a7ab0f0940&groupId=10180

development of local strategies[3]. This Framework explains the process of developing a LFRMS as well as the role of an SEA in this process.

1.3 The Purpose and Structure of this Report

1.3.1 An essential part of the SEA is the scoping stage, the "process of deciding the scope and level of detail of an SEA, including the environmental effects and alternatives which need to be considered, the assessment methods to be used, and the structure and contents of the Environmental Report" (ODPM, 2005).

1.3.2 The scoping process includes identifying relevant objectives, indicators and (where appropriate) targets, describing the baseline environment, describing links to other plans and programmes, identifying problems and finally, defining the scope and content of the Environmental Report.

1.3.3 It is a statutory requirement to engage certain Consultation Bodies and the public in this process by seeking their view on the scope and content of the Environmental Report.

1.3.4 The purpose of this report is to present the findings of the scoping process in order to provide Consultation Bodies with sufficient information to form an opinion of the proposed scope of the Environmental Report.

1.3.5 The structure of this report loosely follows the format of the 5 tasks comprising stage A of the SEA process (i.e. Setting the context and objectives, establishing the baseline and deciding on the scope; for further details see **section 2.3**) as detailed in the SEA Guidance (ODPM, 2005):

- Chapter 2 SEA Process & Methodology – describes the SEA Process and Methods used to identify relevant objectives
- Chapter 3 Legislative and Policy Context
- Chapter 4 Baseline Information
- Chapter 5 Environmental Issues and Process
- Chapter 6 The SEA Objectives Framework
- Chapter 7 Consulting on the Scope of the SEA Scope
- Chapter 8 Conclusion – Structure of the Environmental Report

[3] See more at: http://www.local.gov.uk/local-flood-risk-management/-/journal_content/56/10180/3618366/ARTICLE#sthash.8XQTVCcl.dpuf

2 SEA Process & Methodology

2.1 Introduction

2.1.1 This chapter provides details of the guidance used as well as an overview of the SEA process and methodology used to carry out the tasks covered in this report.

2.2 SEA Screening

2.2.1 Screening is "the process of deciding whether a plan or programme requires SEA" (ODPM, 2005). The requirement for an SEA to be applied to RBC's LFRMS is established in Art. 3.2(a) of the SEA Directive stating that "an environmental assessment shall be carried out for all plans and programmes, which are prepared SEAs must me prepared […] water management […] and which set the framework for future development consent of projects listed in Annexes I and II to Directive 85/337/EEC".

2.3 SEA Guidance

2.3.1 This report has been prepared considering the following guidance documents:

- Framework to assist with the development of local strategies (LGA, 2011)
- A Practical Guide to the Strategic Environmental Assessment Directive (OPDM, 2005);
- Planning Practice Guidance: Strategic Environmental Assessment and Sustainability Appraisal [online document]

2.4 Stages of the SEA Process

2.4.1 SEA is implemented parallel to the development of the bespoke plan or programme. It is intended to inform and shape the preparation of the LFRMS. The SEA process can be distinguished into 5 Stages:

- Stage A: Setting the context and objectives, establishing the baseline and deciding on the scope;
- Stage B: Developing and refining alternatives and assessing effects;
- Stage C: Preparation of the Environmental Report;
- Stage D: Consulting on the Draft Plan or Programme and the Environmental Report;
- Stage E: Monitoring the significant effects of implementing the plan or programme on the environment.

2.4.2 This report presents the results of Stage A of the SEA process, which is detailed in the following section.

2.5 Methodology for Stage A of the SEA Process

2.5.1 Stage A of the SEA Process comprises the following five tasks:

- Task A1: Identifying Other Relevant Policies, Plans and Programmes, and Environmental Protection Objectives;

- Task A2: Collecting Baseline Information;
- Task A3: Identifying Environmental Issues and Problems;
- Task A4: Developing the Strategic Environmental Assessment Objectives and Framework;
- Task A5: Consulting on the scope of the SEA.

2.5.2 The purpose of each of those tasks and the method applied to achieve each of them is described in the following.

Task A1: Identifying Other Relevant Policies, Plans and Programmes, and Environmental Protection Objectives

2.5.3 Establishing the existing legal context relevant to the LFRMS is an essential step in forming the SEA objectives. This task may lead to the identification opportunities for synergies and helps to address potential inconsistencies and constraints.

2.5.4 A list of national and local relevant policies, plans and programmes relevant to Reading Borough Council has been collated using an indicative list of plans, programmes and environmental protection objectives provided in the Practical Guide to SEA (ODPM, 2005). Further, LFRMS Environmental Reports of other LLFAs where reviewed to identify the policy framework of strategies, plans and programmes relevant to this subject.

Task A2: Collecting Baseline Information

2.5.5 Establishing the baseline, i.e. the existing environmental condition helps to identify environmental issues and serves as the basis for identifying ways of addressing and monitoring them.

2.5.6 Both qualitative and quantitative information has been collected to establish the baseline. Types of information considered in establishing the baseline includes aspects listed in Annex I of the SEA Directive as relevant for the purpose of assessing flood risk management strategies.

Task A3: Identifying Environmental Problems

2.5.7 A further step in forming the SEA objectives is the identification of environmental issues. The collected baseline information forms the basis for this task. A review of flood risk history in the area as well as consultation with the statutory consultation bodies and the public will help to identify significant environmental issues relevant to the LFRMS.

Task A4: Developing the Strategic Environmental Assessment Objectives and Framework

2.5.8 Establishing SEA objectives is a key task of the scoping exercise. SEA objectives can coincide with the LFRMS objectives. Their purpose is to test whether the LFRMS will be beneficial for the environment.

2.5.9 To achieve this task, certain targets have been formed and indicators have been identified to measure their success.

Task A5: Consulting on the scope of the SEA

2.5.10 Consulting relevant stakeholders on the scope of the SEA helps to reduce the risk of missing potentially significant effects.

2.5.11 The SEA Regulations establish the legal requirement for certain statutory consultation bodies to be consulted on the scope of the SEA. For England, these include the Historic Monuments and Building's Commission (previously English Heritage), Natural England and the Environment Agency.

2.5.12 Consultation will be open for a period of 5 weeks following issue of this Scoping Report. The report will be submitted to the respective consultation bodies by email.

3 Legislative and Policy Context

3.1 Context and Limitations

3.1.1 The SEA Directive requires:

3.1.2 "an outline of the plan or programme's relationship with other relevant plans and programmes"; Annex 1(a) and

3.1.3 "the environmental protection objectives, established at international, Community or Member State level, which are relevant to the plan or programme and the way those objectives and any environmental considerations have been taken into account during its preparation." Annex 1(e)

3.1.4 A list of plans, programmes and policies relevant to the Reading Borough is included in Appendix A. It should be noted that this list of plans, programmes and policies is not exhaustive; however, this report aims to identify the key documents relevant to the development of the LFRMS, using the methods described in section 2.5.

3.2 International, National Policies and Legislation

3.2.1 The principal documents which form the legislative context for the Strategy are as follows:

3.2.2 At the European level, **the Water Framework Directive (WFD)** is the most substantial piece of EC water legislation to date and replaces a number of existing Directives including the Surface Water Abstraction Directive. It establishes a framework for the protection of inland surface waters, transitional waters, coastal water and groundwater and is designed to improve and integrate the way water bodies are managed, including encouraging the sustainable use of water resources. The key objectives at European level are general protection of the aquatic ecology, specific protection of unique and valuable habitats, protection of drinking water resources, and protection of bathing water. In accordance with Article 4(1), the Directive objectives for surface water, groundwater, transitional and coastal water bodies are to: prevent deterioration; reduce pollution; protect, enhance and restore condition; achieve good status" by 2015 or an alternative objective where allowed; and comply with requirements for protected areas. The WFD adopts the "polluter pays principle" in seeking to ensure that the costs and benefits of discharging pollutants to the water environment are appropriately valued, and that implementation of the Directive is achieved in a fair and proportionate way across all sectors.

3.2.3 **The Flood Directive 2007/60/EC** aims to provide a consistent approach to managing flood risk across Europe. The approach is based on a six year cycle of planning which includes the publication of Preliminary Flood Risk Assessments, hazard and risk maps and flood risk management plans. The Directive is transposed into English law by the **Flood Risk Regulations 2009**.

3.2.4 In England, the implementation work related to the **Water Framework Directive** is undertaken by the Environment Agency. The Environment Agency was required to develop a national strategy for England. This describes what needs to be done by all risk management authorities involved in flood and coastal erosion risk management to reduce the risk of flooding and coastal erosion, and to manage its consequences. Every other agency with a flood risk management function across England and Wales must take account of this strategy. There are 11 River Basin Districts in England and Wales which each require (under the Water Framework Directive) a River Basin Management Plan (RBMP) including objectives for surface water, groundwater, transitional and coastal water bodies.

3.2.5 **The Flood and Water Management Act 2010** sets out which bodies are responsible for managing flood risks. The Environment Agency (EA) has been given a strategic overview role

while local authorities have a new leadership role in local flood risk management. Local Authorities are defined as Lead Local Flood Authorities (LLFAs) under the Act. Local authorities across England and Wales are required to develop, maintain, apply and monitor a strategy for local flood risk management in their areas. These local strategies must include the risk of flooding from surface water, watercourse and groundwater flooding.

- Lead local authorities must establish and maintain a register of structures which have an effect on flood risk management in their areas.
- The Act introduces a requirement to improve the flood resistance of existing buildings by amending the Building Act 1984.
- The Act introduces the provision for residential landlords to be charged the cost of their tenant's unpaid water bills should the landlord fail to pass on the tenants details to the respective water company for the local area.
- The Act introduces the requirements for developers of property to construct Sustainable Drainage Systems (SuDS).
- Local authorities may have a responsibility to adopt sustainable drainage systems in accordance with the requirement of Schedule 3 of the Flood and Water Management Act.

3.2.6 Section 9 of the Flood and Water Management Act 2010 details the statutory requirements for Local Flood Risk Management Strategies. It states that an LLFA must develop, maintain, apply and monitor a strategy for local flood risk management in its area for the following forms of flood risk: surface run-off; groundwater; and ordinary watercourses. The Strategy must set out:

- the risk management authorities in the authority's area;
- the flood and coastal erosion risk management functions that may be exercised by those authorities in relation to the area;
- the objectives for managing local flood risk (including any objectives included in the authority's flood risk management plan prepared in accordance with the Flood Risk Regulations 2009);
- the measures proposed to achieve those objectives;
- how and when the measures are expected to be implemented;
- the costs and benefits of those measures, and how they are to be paid for;
- the assessment of local flood risk for the purpose of the strategy;
- how and when the strategy is to be reviewed; and
- how the strategy contributes to the achievement of wider environmental objectives.

3.2.7 **The National Planning Policy Framework (NPPF) (2012)** expects the planning system to contribute to conserving and enhancing the natural environment and reducing pollution, and take full account of flood risk. In particular, the planning system is expected to prevent new development from contributing to unacceptable levels of water pollution. Local planning authorities are expected to set out the strategic priorities for their area in the Local Plan including strategic policies to deliver the provision of infrastructure for water supply, wastewater, flood risk and coastal change management. In preparing the evidence base for

their Local Plans, they are expected to work with other authorities and providers to assess the quality and capacity of the existing infrastructure and its ability to meet forecast demands. Public bodies have a duty to co-operate on planning issues that cross administrative boundaries particularly those which relate to strategic priorities.

3.2.8 The NPPF expects inappropriate development in areas of flood risk to be avoided and sets out how this should be achieved through the preparation of Local Plans and in determining planning applications. Supporting technical guidance has been provided to ensure the effective implementation of the policy. The Technical Guidance to the NPPF (2012) provides additional guidance to local planning authorities to ensure the effective implementation of the planning policy set out in the NPPF on development in areas at risk of flooding and in relation to mineral extraction.

3.3 Draft Objectives for Reading's Local Flood Risk Management Strategy.

3.3.1 The objectives for Reading's Local Strategy and Local Flood Risk Management are currently being developed. The draft objectives are shown in Table 3.1 below. These objectives reflect the requirement of the FWMA and the NFCERMS.

Table 3.1: Reading Borough Objectives for Local Flood Risk Management

	Objective
1.	To improve knowledge of Local Flood Risk within Reading Borough including collating and mapping all existing flood risk data.
2.	To identify areas where flood risk is high or identify where there is future flood risk as a result of development or climate change.
3.	To engage with local communities to increase community awareness of local flood risk, consultation on potential solutions and inform them of the work RBC undertake as a LLFA in managing this risk.
4.	To decrease flood risk from local sources within Reading
5.	To inform planning strategies and policies to facilitate flood risk management and mitigation from all local sources of flood risk
6.	To prevent an increase in flood risk as a result of new development within Reading
7.	To improve co-operation between Reading Borough Council and the Risk Management Authorities (RMAs)
8.	To aid RBC as LLFA to undertake their duties and responsibilities under the FWMA and the Flood Directive
9.	To set out the guiding principles for SuDS in Reading
10.	To promote sustainability of Flood Risk Management through Water Framework Directive compliance, Climate Change Adaptations, Land Management and Habitat Protection.

4 Baseline Information

4.1 Scope of Baseline and Study Area

4.1.1 As a first approach to collecting baseline data the study area and type of information was defined.

4.1.2 The Study Area is focussed on the area within the administrative boundary of Reading borough. However, for the purpose of assessing flood risk and management strategies it is also regarded essential to consider areas beyond the Council's boundary, in particular those of the Rivers Kennet and Thames and where large water bodies are located.

4.1.3 The type of information was selected considering the aspects set out in Annex I (f) of the SEA directive, namely biodiversity including fauna and flora, soil (geology), water, air & climatic factors, material assets, cultural heritage including architectural and archaeological heritage, landscape and the interrelationship between the above factors. However, the SEA Directive requires authorities to consider "relevant" aspects of these topics (Annex I (b)). Therefore, no baseline information on Air Quality was collected as this aspect by its nature is considered unlikely to be affected by or have influence on the LFRMS. Information on the remaining aspects was subdivided into the subsection "context" and "environmental conditions" and is presented in the following section.

4.1.4 Quantitative and qualitative information was collected as regarded relevant for the purpose of developing the LFRMS. References to other plans and programmes addressing the identified aspects are made were possible.

4.1.5 The data presented in the following sections was primarily obtained from existing baseline reports that have informed other plans and policies provided by RBC as well as from service providers such as Thames Water.

4.2 Context – Population, Human Health and Material Assets

Population and Human Health

4.2.1 The Strategy should consider population trends and potential impacts on human health as a result of flooding. Fear of flood incidents or flooding of residential properties can cause stress; the latter can also affect physical health of residents. Severe flooding can put people's life at risk.

4.2.2 Population growth may lead to increasing pressure in the housing market and increased urbanization which ultimately may influence the risk of flooding due to permeable areas being made impermeable and new developments being built in areas at risk of flooding.

4.2.3 Reading Borough has an official population of approximately 155,700 people (Census 2011). This a 9% increase compared to the 2001 census figure. The increase in population is mainly made up of younger age groups (under 59) with the most significant increase in the 0-19 age group. The net growth in the 60-74 age group since 1991 is 0% and there has been a slight decrease in the 75+ age group since 2001.

4.2.4 Reading's average population of young people is greater than the average in England and the South East. However, the 10-14 year olds and over 45's age bands are lower than at the national and regional level.

4.2.5 The vast majority of Reading's population is reported to be of at least "good" health. The percentage of people reporting to be of "good" or "very good" health has risen by 13% since

2001 to 85.5% in 2011. This figure is slightly higher than for England. 10.8 percent of Reading's GP registered patients stated their health is 'fair' and 3.8 very bad/bad.

4.2.6 About one third (32.5%) of Reading's households are deprived in one dimension, and a further 21.5% of households a deprived in 2-3 dimensions.

4.2.7 Reading's strategic goals for Health and Wellbeing for the period 2013-2016 are:

- To promote and protect the health of all communities particularly those disadvantaged;
- Increase the focus on early years and the whole family to help reduce health inequalities;
- Reduce the impact of long-term conditions with approaches to focus on specific groups;
- Promote health-enabling behaviours & lifestyle tailored to the differing need of communities.

4.2.8 In summary, Reading's population has grown by 9% over the past decade, particularly in the age bands of the young, working age adults (20-39). The percentage of Reading's population reporting to be of 'good' or 'very good' health has also increased by 13%.

Material Assets

4.2.9 Flooding may lead to damage of material assets both in the private and public sector. Housing strategies, the transport infrastructure as well as minerals and waste sites within RBC have been reviewed in order to identify material assets potentially vulnerable to flooding.

4.2.10 Reading has the second highest concentration of Small and Medium sized Enterprises (SME's) (after London) with 364.6% per 10,000 population in 2013 (*Centre for Cities Small Business Monitor 2014*).

4.2.11 Reading has a number of Retail Parks, Shopping Centres and Business Parks. Among existing allocations, i.e. sites suggested for development, the largest sites that are constrained by flood risk to some extent are[4] presented in **Table 4.1**.

Table 4.1: Development Sites Allocations with flood risk constraint.

Development Site	Site Area (ha)	Proposed Use
NHS Land at former Battle Hospital	3.0	C3 Housing (up to 95 units)
Forbury Retail Park	6.7	605 dwellings
Forbury Business Park	2.1	C3 Housing (up to 392 units)
Cattle Market	2.5	Mix of edge of centre retail uses including C3 Housing (ca 324 units)
Great Knolly's & Weldale Street	2.5	C3 up to 346 units

[4] Strategic Housing Land Availability Assessment (SHLAA), February 2011.

Development Site	Site Area (ha)	Proposed Use
North of Station Retail Park	5.85	Mix of uses including C3 residential at upper floors of ca 455 units
Berkshire Brewery	26.8	A mix of uses including C3 housing of between 400-750 units

Minerals & Waste Sites

4.2.12 The Minerals and Waste Local Plan is currently being reviewed. Among the preferred areas for sand and gravel extraction identified the saved Replacement Minerals Local Plan Map dated 1995 only Smallmead (to the south west of Reading near Green Park) falls within the Reading Borough boundary.

Transport Infrastructure

4.2.13 Reading is situated along the M4 corridor with infrastructure links and in close proximity to major transport hubs allowing access to national and international destinations. Heathrow airport and London lie within a 40 minute drive of Reading.

4.2.14 Reading Station is one of the 10 busiest stations in the country (outside London) with 15 million passengers arriving at or departing from Reading station every year. Reading Station has undergone major improvements in recent years and will be served by CrossRail which is currently scheduled to commence operations in 2018. London-Paddington is within a 30-minute train journey from Reading Station. The bus interchange north and south of Reading Station is served by most local bus services making the station directly accessible by public transport from most urban and rural communities.

4.2.15 Reading's cycle network connects all the town's major public facilities, employment and leisure areas with almost 37 miles of principle routes, of which 17 miles are segregated from general traffic. Cycling routes and footpaths along the Rivers Kennet and Thames provide links from the suburbs to the town centre and rail station. RBC has recently launched its bike hire scheme as part of the sustainable transport programme. The scheme provides 27 hire stations across Reading.

4.2.16 Reading's prominence as a commercial location and major transport hub in the Thames Valley places considerable and increasing pressure on its transport infrastructure and despite the well utilized public transport system (both road and rail) high levels of private car use contribute significantly to congestion and pollution.

4.3 Existing Environmental Conditions in Reading

Geology

4.3.1 Aspects of the geology such as the type, consistence and permeability of the soil as well as the topography can influence an areas vulnerability to flooding.

4.3.2 The topography of Reading has been considered in the flood zone map provided by the EA[5]. The geology of Reading widely is composed of river terrace deposits, including sands and gravels within the vicinity of the River Thames corridor as well as overlying Reading Beds and London Clay. Although impermeable soils such as London Clay limit the risk of groundwater

[55] (Zone 2 Medium Probability) (SFRA)

flooding; however, they can raise issues with surface water drainage. Further reference to the impacts of the geology on flood risks is provided in the following section.

Water

4.3.3 The identification of main rivers, other natural as well as artificial surface water bodies and ground water bodies helps to identify both, areas that are vulnerable to flooding as well as potential sites for the establishment of flood risk management options. Water Management and Water Abstraction and Quality may also affect or be affected by flooding, so information of these aspects was collected as part of the baseline. The Strategic Flood Risk Assessment (SFRA) Report for Reading provides key information on the existing water supply in Reading (Jacobs, 2009).

Water Bodies

4.3.4 The main Rivers within the RBC boundary are the Rivers Thames and Kennet. The River Thames runs west-east through the council area, separating Caversham to the north from Reading Town Centre. The River Kennet enters Reading to the south-east parallel to the Holy Brook and ends in the River Thames in the north east of Reading. Further Watercourses within Reading are the Foudry Brook, a tributary of the River Kennet, as well as the Kennet and Avon Canal, a tributary of the River Thames.

4.3.5 Only few of the identified water bodies within Reading are of relevance to flood risk management. These include Whiteknights Reservoir as well as Green Park and the Oracle, which both provide flood storage areas. There are also several large artificial water bodies just beyond the boundary of RBC. The Reading Marina, an artificial water body east of Caversham located within the administrative boundary of South Oxfordshire District. To the south east of the RBC boundary, north of the M4 Motorway and west of Burghfield Road there are several ponds formed of former gravel extraction sites.

4.3.6 There are very few recorded incidents of groundwater flooding in Reading. However, the river terrace deposits along the water courses in Reading, in particular along the River Thames consist of gravel and sand. The water table beneath such soils can rise with rising river water levels and thus result in localised groundwater flooding through permeable gravel 'lenses'. However, this issue is to be addressed at project level within the planning process, through FRAs for future developments.

Water Quality and Management

4.3.7 Reading contains important resources of groundwater that are used for public water supply and some boreholes in the Reading vicinity yield groundwater chemistry indicative of urban groundwater contamination.

4.3.8 In general, river water quality within Reading is good in terms of its biological and chemical content. According to the General Quality Assessment Scheme (GCA) of the EA, most rivers in Reading achieved classifications of Good to Fairly Good (B-C) in the period 1995-1997 with the exception of sections of the Clay Hill Brook and Thames near the Sewage Treatment works Brughfield and Whitchurch, respectively. In terms of nutrient status, all of the watercourses within Reading contain high levels of nitrates and orthophosphates. The EA is required by the Water Framework Directive to ensure that all rivers reach Good Ecological Status or Potential by 2027 demand (Reading Climate Action, 2013).

4.3.9 Thames Water is responsible for Reading's water supply, sewage treatment, and much of its surface water drainage. The Kennet and the Foudry Brook which end into the River Thames are important for drinking water supply and waste water treatment. Further, several groundwater abstraction licences exist within Reading for public water supply. Waste water is

treated at Burghfield Sewage Treatment Works in the east of Reading (Reading Climate Action, 2013). Further sewage treatment works include Whitchurch and Stratfield Mortimer.

4.3.10 Overall, Reading is well supplied by both, ground and surface water sources, currently showing a surplus in Water availability over demand (Reading Climate Action, 2013). The water quality of most rivers in Reading is good to fairly good. Water Quality could be affected by flood risk management options (e.g. Maintain water quality in rivers and groundwater).

Flooding

4.3.11 There are different types and causes of flooding that may present a risk to sensitive receptors in Reading. Different types of flooding, including fluvial (river), groundwater, sewerage and surface water flooding have been addressed in the Strategic Flood Risk Assessment (SFRA) for Reading (Jacobs, 2009). Key risks identified in the SFRA mainly result from surface water flooding.

Flood Defences

4.3.12 Flood defences can be distinguished into "formal" and "de facto" defences. Formal flood defences are structures that are maintained by a public or private stakeholder for their purpose as a flood defences. The Environment Agency Flood Map only identifies the flood storage area at Green Park to the South East of Reading as a flood defence.

4.3.13 Further, the railway embankment that separates the town centre from the River Thames banks acts as informal "de-facto" flood defence (Jacobs, 2009).

Climatic Factors

4.3.14 The changes in climate are inevitable and 'PPS4: Planning and Climate Change' acknowledges that in the future "*we are likely to see more extreme weather events, including hotter and drier summers, flooding and rising sea-levels increasing the risk of coastal erosion*" in the UK.

4.3.15 These increased risks will have to be taken into consideration when developing the LFRMS. The National Planning Policy Framework (NPPF) (2012) establishes a method for incorporating a climate change allowance into the design of surface water strategies. Following advice be the EA and trends in the Reading area, this allowance typically accounts for a 30% increase in rainfall intensity.

4.3.16 The SFRA considers climate over the next 100 years in their modelling of the Rivers Thames and Kennet and concludes that the effects of Climate Change will not significantly affect the extent of flood areas, however those properties in existing flood areas may experience more frequent flood more frequently.

Cultural Heritage

4.3.17 Heritage assets in the built environment, such as buildings or historic monuments that are valuable either for their historical or architectural interest can be affected by floods or the cultural setting can be affected by of flood risk management options such as newly constructed defences.

4.3.18 Within Reading there are 880 listed buildings or monuments. 27 of these are listed Grade I and Grade II* (RBC, 2014), most of which are located in the historic town centre of Reading above the floodplain, between the Rivers Kennet and Thames. However, since the mid-19th century development has expanded to the floodplain areas of both rivers and it is predominantly these areas which are at risk (Jacobs, 2009).

Biodiversity and Landscape

4.3.19 Flood risk management options can have an effect on biodiversity and landscape, both positively and negatively. Flood defences can alter or enhance existing green spaces and it is important to identify existing sensitive habitats and landscapes to ensure that these can be protected and enhanced where possible in the LFRMS.

4.3.20 Most of the RBC area is urbanized; however, there are some designated statutory sites that are valued as habitats for certain species and/or for the unique landscape.

Nature Conservation

4.3.21 The study area was reviewed for Sites of Special Scientific Interest (SSSIs), National Nature Reserves (NNR), Local Nature Reserves (LNR) and Local Wildlife Sites (LoWS), sites designated as Special Protection Areas (SPAs) under the Birds Directive (SPA) and the Habitats Directive (SAC) or the Ramsar Convention (Ramsar Sites) as well as Special Areas for Conservation.

4.3.22 There are no SSSIs, NNRs, SPAs, SACs or Ramsar sites in Reading. There are numerous Local Nature Reserves (LNR) and Wildlife Heritage Sites (WHS) designated which are afforded protection by the adopted Local Plan policy whereby no development is permitted which may destroy or adversely affect them.

Designated Landscapes

4.3.23 Reading is located to the south of the Chilterns, an Area of Outstanding Natural Beauty (AONB).

5 The Proposed Scope

5.1 Proposed SEA Objectives

5.1.1 Based on the current baseline conditions and key issues described in (section 4) and the objectives proposed for the Strategy (outlined in Section 3) a series of SEA objectives has been developed.

5.1.2 The following objectives have been devised and are proposed to be the basis of the subsequent environmental assessment of the Strategy;

i. To protect and improve the quality and condition of water resources in the Reading.

ii. To conserve and enhance biodiversity.

iii. To protect and conserve soils and reduce their ability to act as pollution sources and pathways.

iv. To promote the adaptation to the effects of climate change within Reading.

v. To safeguard existing and future material assets and critical infrastructure in Reading.

vi. To protect the health and wellbeing of local people and communities in Reading.

vii. To safeguard and enhance sites, features and settings of cultural heritage, archaeological, historical value across Reading.

5.2 Proposed Assessment Framework

Geographic Scope

5.2.1 The SEA will consider potential effects across the Reading Borough area.

Short, Medium and Long-Term Timescales

5.2.2 When considering the timing of potential effects of the draft Strategy, the effects will be classified as "short", "medium" or "long term". For the purposes of this assessment durations are defined as in Table 6.1.

Table 6.1: Duration of Short, Medium and Long Term

Length (years)	Length (years)
Short	0-10 years
Medium	10-25 years
Long	25 + years

Assessment Process

5.2.3 In line with the ODPM (now CLG) Practical Guide to the SEA Directive the assessment process will seek to predict the significant environmental effects of the draft Strategy. This is

done by identifying the likely changes to the baseline conditions as a result of implementing the proposed plan (or reasonable alternative). These changes will be described (where possible) in terms of their geographic scale, the timescale over which they could occur, whether the effects would be temporary or permanent, positive or negative, likely or unlikely, frequent or rare.

5.2.4 Where numerical information is not available, the assessment will be based on professional judgement and with reference to relevant legislation, regulations and policy. More specifically, in undertaking the assessment, consideration will be given to:

- baseline information including existing environmental problems and their evolution;
- the likely activities and potential effects arising from the interventions outlined in the Strategy;
- the regulatory framework; and
- the SEA objectives and guide questions.

5.2.5 Each proposal that comes forward from the Strategy will be considered against each of the SEA objectives. This will be informed by the baseline data and evidence gathered as part of the Scoping Report. It will also be informed by expert judgement from various technical specialists including key stakeholders and consultees. The assessment will be reported in a series of tables, an example of which is provided in **Table 6.2**.

Table 6.2: Example Assessment Table

SEA Objectives	Guide Questions		Timescale			Commentary/Explanation	
			Short term	Medium term	Long term		
To protect and improve the quality and condition of water resources in Brighton and Hove	Will the Strategy impact on water resources across Brighton and Hove and beyond? Will the Strategy protect and improve surface and groundwater water quality? Will the Strategy contribute towards achievement of Good Ecological Potential/Status? Will the Strategy mobilise known areas of contamination?		**+** Minor Positive	**+** Minor Positive	**+** Minor Positive	**Assessment of effects**: **Mitigation**: None **Assumptions**: **Uncertainties**:	
Key	**++** Significant Positive Effect	**+** Minor positive effects	**0** No overall effect	**-** Minor negative effect	**--** Significant negative effect	**?** Score Uncertain	
NB: where more than one symbol is presented in a box it indicates that the SEA has found more than one score for the category. Where a box contains a ?, this indicates uncertainty over whether the effect could be a minor or significant effect. A conclusion of uncertainty arises where there is insufficient evidence for expert judgement to conclude an effect.							

6 Next Steps - Consultation

6.1 Statutory Consultation Bodies

6.1.1 This report forms part of the SEA, a process aimed at identifying and minimizing potential environmental or policy issues to achieve the development of a robust LFRMS for Reading.

6.1.2 It will be published on Reading Borough's website (www.reading.gov.uk) and copies will be provided to Historic Monuments and Building's Commission (previously English Heritage), Natural England and the Environment Agency during October and November 2014 for comment and replies to the following questions;

- Do you agree with the scope of the proposed assessment?
- Do you agree with the main issues identified?
- Do you agree that the objectives cover the breadth of issues appropriate for assessing the effects?

6.1.3 Comments should be addressed to:

Sam Shean

Assistant Highways Manager

Highways Section, 2-4 Darwin Close, Reading, RG2 0RB

Tel. 0118 937 2138

Sam.Shean@reading.gov.uk

6.2 Next Steps

6.2.1 The Draft Local Flood Risk Management Strategy will be published for public consultation, accompanied with the Environmental Report.

6.2.2 Changes to the Strategy to reflect the consultation response will then be made and a corresponding SEA Statement made (if necessary) to accompany the Adopted Strategy.

References

ODPM (Office of the Deputy Prime Minister) (2005) A Practical Guide to the Strategic Environmental Assessment Directive. London

DCLG (Department for Communities and Local Government) (2012) National Planning Policy Framework (NPPF). March 2012, n.l.

RBC (2008) Revised Sustainability Appraisal Scoping Report: October 2008

RBC (2006) Reading Borough Council Local Development Framework Submission Draft Core Strategy Dcoument. Environmental Protection Background Paper. November 2006.

Reading Climate Action (2013) *Reading Means Business on Climate Change 2013-2020.*

RBC (2014) http://www.reading.gov.uk/businesses/Planning/HistoricEnvironment/listed-buildings/

Appendix A Plans, Programmes and Policies

SEA Topic Area	Scoping Report Topics	Typeof Document	Document	Link	Notes
Biodiversity	Geodiversity	Information	Berkshire Geoconservation Group	http://berksgeoconservation.org.uk/reports.php	
Biodiversity	Biodiversity	Local Policy	Reading BiodiversityAction Plan 2005 - 2015	http://www.reading.gov.uk/leisureandvisitors/outdoors/Biodiversity/biodiversity-action-plan-useful-links/	The Reading Biodiversity Action Plan 2005 - 2015 was adopted by the Council on the 30th March 2006 with the aim of conserving and enhancing those species and habitats identified as priorities within
Biodiversity	Biodiversity and Geodiversity	Information	National geographic biodiversity and geodiversity website- DEFRA	http://magic.defra.gov.uk/MagicMap.aspx	authoritative geographic information about the natural environment from across government. The information covers rural, urban, coastal and marine environments across Great Britain. It is presented in an interactive map which can be explored using various mapping
Human Environment	Population and Human Health	Local Policy	Reading's Health and Wellbeing Strategy 2013-2016	http://www.nwreadingccg.nhs.uk/images/publications/PDFs/ReadingHealthandWellbeingStrategy.pdf	
Human Environment	Population and Human Health	Information	Reading and Ward Profiles	http://www.reading.gov.uk/council/profile-of-reading-borough/ward-profiles/	Information on Citizen Health per Ward
Human Environment	Population and Human Health	Information	Joint Strategic Needs Assessment for Reading Unitary Authority Area 2009	http://www.reading2020.org.uk/GetAsset.aspx?id=fAAxADMANgB8AHwARgBhAGwAcwBlAHwAfAAwAHwA0	
Geology and Soils	Geodiversity	Local Policy	Replacement Minerals Local Plan 2001-2006	http://www.reading.gov.uk/businesses/Planning/planning-policy/minerals-and-waste-planning-policy/mineralslocalplan/	The Joint Strategic Planning Unit of the six Berkshire Unitary Authorities was closed in 2010. Each unitary authority is now responsible for minerals and waste planning in its own area. Reading
Geology and Soils	Geodiversity	Information	Joint Minerals and Waste Local Development	Joint Minerals and Waste Local Development Scheme, April 2010	This document as well as the undelying core Strategy and Minerals and Waste
Geology and Soils	Biodiversity and Geodiversity	Local Policy	Reading Borough Council's Contaminated Land Strategy (2011)	http://www.reading.gov.uk/council/strategies-plans-and-policies/contaminated-land-strategy/	
Water	Water (including river catchments, rivers, sea)	Local Policy	Reading Borough Council (2011) Perliminary Flood Risk Assessment	http://www.reading.gov.uk/council/strategies-plans-and-policies/emergencyplanning/preliminaryfloodriskassessme/	
Water	Water (including river catchments, rivers, sea)	Local Policy	Reading Borough Council (2011) Surface Water Management Plan	http://www.google.co.uk/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&cad=rja&uact=8&ved=0CCAQFjAA&url=htt	
Water	Water (including river catchments, rivers, sea)	Regional Policy	Water for life and livelihoods (2009) River Basin Management Plan- Thames River River Basin District	https://www.gov.uk/government/publications/thames-river-basin-management-plan	
Water	Water (including river catchments, rivers, sea)	Regional Policy	Thames Catchment Flood Management Plan (CFMP) Summary Report 2009	http://www.walthamforest.gov.uk/Documents/ke81-thames catchment-flood-management-plan-summary-report.pdf	
Water	Water (including river catchments, rivers, sea)	Local Policy	Strategic Flood Risk Assessment (2009)	http://www.reading.gov.uk/businesses/Planning/planning-policy/research--monitoring-and-technical-reports/strategic-flood-risk-assessment/?acc.contrast=0&acc.size=1	
Water	Water (including river catchments, rivers, sea)	Information	Waste water treatment in the United Kingdom-	https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69592/pb13811-waste-water-2012.pdf	
Air Quality	Air quality	Local Policy	Reading Borough Council (2009) AirQuality Action Plan	http://aqma.defra.gov.uk/action-plans/ReadingBC%20AQAP%202009.pdf	
Air Quality	Air quality	Local Policy	2012 Air Quality Updating and Screening Assessment for Reading Borough Council	http://www.reading.gov.uk/residents/environmental-health-and-protection/AirQuality/local-air-quality-management/	
Climatic Factors	Climatic Factors	Local Policy	Reading's Climate Change Strategy 2013-2020	http://www.readingclimateaction.org.uk/GetAsset.aspx?id=fAAxADkAMgA5AHwAfABGAGEAbABzAGUAfAB8ADIAMwB8AA2	
Climatic Factors	Flooding (includingflood risk)	Local Policy	See Water Documents- flood risk assessment etc. above.		
Climatic Factors	Climatic Factors	Information	UK Climate Predictions	http://ukclimateprojections.metoffice.gov.uk/21708	
Climatic Factors	Climatic Factors	Information	READING'S CLIMATE CHANGE STRATEGY 2013-2020 THEME ACTION PLANS DRAFT NOVEMBER 2013	http://www.readingclimateaction.org.uk/GetAsset.aspx?id=fAAyADEAOAAwAHwAfABGAGEAbABzAGUAfAB8ADIAMwB8AA2	Draft

SEA Topic Area	Scoping Report Topics	Type of Document	Document	Link	Notes
Climatic Factors	Flooding (including flood risk)	Information	Environment Agency- Flood Map for Surface W	http://watermaps.environment-agency.gov.uk/wiyby/wiyby.aspx?topic=ufmfsw#x=314391&y=227569&scale=3	
Climatic Factors	Flooding (including flood risk)	Information	Flooding in England: A National Assessment o	https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/292928/geho0609bqds-e-e.pdf	
Material Assets and Resource Use	Material assets: Waste and Water	Regional Policy	Joint Minerals and Waste Local Development	Joint Minerals and Waste Local Development Scheme, April 2010	This document as well as the underlying core Strategy and Minerals and Waste
Material Assets and Resource Use	Material Assets: Economy	Regional Policy	Berkshire Local Investment Plan 2011-2014	http://www.bracknell-forest.gov.uk/berkshire-local-investment-plan-2011-to-2014.pdf	
Material Assets and Resource Use	Material Assets- Housing	Local Policy	Affordable Housing - Alteration to the Local Plan DRAFT	http://www.reading.gov.uk/businesses/planning/planning-policy/affordablehousing/	Consultation on draft closed May 2014, final document pending
Material Assets and Resource Use	Material Assets- Housing	Local Policy	Firm Foundations: Housing Strategy 2009-2014	http://www.reading.gov.uk/council/strategies-plans-and-policies/HousingStrategiesandPlans/firm-foundations-housing-strategy-2009-2014-docume/	
Material Assets and Resource Use	Material assets: Transport infrastructure)	Local Policy	Reading Borough Council (2011) Local Transport Plan 3: Strategy 2011-2026	http://www.reading.gov.uk/council/strategies-plans-and-policies/TransportStrategy/local-transport-plan-3-2011-onwards/	
Material Assets and Resource Use	Material assets: Waste and water)	Local Policy	BRACKNELL FOREST BC, READING BC AND WOKINGHAM BC RE3 JOINT MUNICIPAL WASTE MANAGEMENT STRATEGY (2008-2013)	http://www.re3.org.uk/Data/Page_Downloads/15.re3JMWMStrategyReport2008-2013.pdf	
Material Assets and Resource Use	Material assets : housing	Information	Reading Borough Council. Core Strategy Local Development Document Housing Background Paper (2006)	http://www.google.co.uk/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&cad=rja&uact=8&ved=0CCIQFjAA&url=http%3A%2F%2Fwww.reading.gov.uk%2Fdocuments%255Cservingyou%255Cplanning%255Clocal_development_framework%2F20366%2FSubmission-Housing-Background-Paper.pdf&ei=0IC9U-G2MoKN7QaArYDICQ&usg=AFQjCNHR46oyGsIwws6cCHQKxVB1GOebQA&bvm=bv.70138588,d.ZGU	
Material Assets and Resource Use	Material assets: housing	Information	Reading Borough Council: Housing Needs Assessment and Affordable Rent Review, February 2012	http://www.reading.gov.uk/businesses/Planning/planning-policy/research--monitoring-and-technical-reports/shma/	
Material Assets and Resource Use	Material assets: economy	Information	Reading Borough Business Improvement Distr	http://www.reading.gov.uk/businesses/businessdevelopment/economic-development/	
Cultural Heritage	Cultural Heritage	Information	Reading Borough Council (2006) Local Development Framework SUBMISSION DRAFT CORE STRATEGY DOCUMENT HISTORIC ENVIRONMENT BACKGROUND PAPER	http://www.google.co.uk/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&cad=rja&uact=8&ved=0CCUQFjAA&url=http%3A%2F%2Fwww.reading.gov.uk%2Fdocuments%255Cservingyou%255Cplanning%255Clocal_development_framework%2F20365%2FSubmission-Historic-Environment-Background-Paper.pdf&ei=3Im9U4msOozH7Abr34HYCQ&usg=AFQjCNFeqLKGXi_WmtJktJEBx5Q43q8a6Q&bvm=bv.7013858	
Cultural Heritage	Cultural Heritage	Information	National Character Areas NCAs- description o	http://publications.naturalengland.org.uk/category/587130	
Landscape	Landscape	Local Policy	Reading Borough Council (2011) Local Development Framework OPEN SPACE AND GREEN NETWORK BACKGROUND PAPER Information to support the Sites and Detailed Policies Document	http://www.google.co.uk/url?sa=t&rct=j&q=&esrc=s&source=web&cd=3&cad=rja&uact=8&ved=0CCsQFjAC&url=http%3A%2F%2Fwww.reading.gov.uk%2Fdocuments%255Cservingyou%255Cplanning%255Clocal_development_framework%2F20048%2FOpen-Space-Green-Network-Background-Paper-0711.pdf&ei=Z1i9U_7UO4bb7Aaa0IHACQ&usg=AFQjCNFTnKtZ-	
Other Documents	Other	Local Policy	Reading Borough Council: Local Development Scheme (2013)	http://www.reading.gov.uk/businesses/Planning/planning-policy/general-information-on-planning-policy/lds/	
Other Documents	Other	Regional Policy	READING CENTRAL AREA ACTION PLAN TO 2026 (2009)	http://www.reading.gov.uk/businesses/Planning/planning-policy/reading-central-area-action-plan/	
Other Documents	Other	Local Policy	Reading Borough Council Sustainable Community Strategy (2011)	http://www.reading.gov.uk/council/strategies-plans-and-policies/reading-s-sustainable-community-strategy/	