

River Thames Scheme



Environmental Design Principles

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Introduction

The Environmental Design Principles (EDPs) have been written to inform the development of the RTS scheme design.

The EDPs build on the Scheme Goals and are in line with the Scheme Vision, whilst also drawing on the Environment Agency, Surrey County Council and partners’ priorities, the United Nations Sustainable Development Goals (SDGs), and collaborative work that has been undertaken by the project team and project partners during project development.

Table 1: RTS Scheme Goals

The Scheme Goals	
1	Reduce flood risk to dwellings, businesses, and infrastructure.
2	Improve access to quality green open spaces, connection with wildlife and more sustainable travel network.
3	Create a network of high-quality habitat and achieve biodiversity net gain.
4	Facilitate sustainable and inclusive economic growth.
5	Enable delivery and design that contributes to the achievement of Environment Agency, Surrey County Council and Partners’ climate goals in relation to carbon use.

The River Thames Scheme Vision is to reduce flood risk to people living and working near the Thames, enhance the resilience of nationally important infrastructure, contribute to a vibrant local economy and maximise the social and environmental value of the river.

The EDPs are grouped under the three pillars of sustainability - Environment, Social and Economic and have been used as part of the design development process. They have been used to review the performance of design options being considered in meeting the Scheme Goals, integrating an appropriate range of considerations and parameters.

The EDPs summary table below table uses colours to identify each group of EDPs within the three pillars of sustainability, running down the full list of EDPs set out later in this section. The colours are for ease of reference and are not associated with scorings or ratings.

Table 2: EDPs Summary Table

3 Pillars	Heading	Sub-headings The Principles are grouped under these sub-headings in the full table of Principles (below).
Environment Environmental Connections	Creating sustainable networks for nature	Ev1 Climate Challenge
		Ev2 Biodiversity
		Ev3 Resource use and Carbon Management
		Ev4 Landscape and Visual Connections
Social Community Connections	Creating sustainable, safe, and inclusive networks for people	Cm1 Health and Wellbeing
		Cm2 Environmental Education
		Cm3 Connecting Communities
		Cm4 Recreation
		Cm5 Safe, accessible and inclusive spaces
Economic Economic Connections	Creating innovative and sustainable networks for the economy	Ec1 Resilience
		Ec2 Natural Capital
		Ec3 Funding and grants

The Environmental Design Principles (EDPs)

The following section details each of the EDPs, describing strategic and scheme-specific principles within each sub-heading.

Environmental Connections

Creating sustainable networks for nature

Ev1: Climate Challenge

A. Achieve flood alleviation benefits in the most natural and sustainable way.

- i. Adopt nature-based solutions, which have been developed to sustainably manage and restore the river ecosystem, in order to offer flood risk protection in the future, in conjunction with a range of benefits to nature and the community.
- ii. Integrate the flood alleviation proposal within the context of the river system, as a functioning part within the wider asset of the River Thames, in order to deliver the River Thames Scheme Vision
- iii. Integrate flood alleviation proposals in a way which responds to the challenges of climate change and nature recovery, improves the situation for future generations and delivers benefits across the range of sustainable development goals.

B. Create climate resilient places (planning today's growth for tomorrow's resilience).

- i. Adopt green infrastructure solutions and natural flood management, which respond to climate challenges and offer future resilience against flooding, for example naturalised channels and functioning floodplain, which work with the dynamic system of the river, to achieve ecological benefits alongside flood risk reduction.
- ii. Integrate best practice in sustainable drainage solutions throughout the scheme, with an emphasis on permeable surfaces and planted areas.
- iii. Integrate resilient environmental systems, for example planting which tolerates both drought and wet conditions, and interventions which offer resilience to environmental issues associated with climate change, such as air and water quality.

Ev1: Climate Challenge (Continued)

C. Promote the transition to renewable energy.

- i. Future-proof the scheme, for example through the addition of electric car charging stations at nodal interchanges and through connectivity with public transport modes (utilising renewable energy) and other accessible, inclusive and equitable modes.
- ii. Incorporate renewable energy opportunities in the design of scheme operational assets.

D. Enable active travel to reduce carbon emissions and other air pollutants and improve air quality in and around the scheme.

E. Consider re-use of excavated material, to optimise biodiversity opportunities and reduce construction vehicle movements.

Ev2: Biodiversity

A. Maximise the ecological value of the new channel, the River Thames, and the connecting habitats, through an integrated design process ensuring that the design has a strong scheme-wide, integrated ecological 'base' to it.

B. Create a network of green space for the interaction between people and wildlife.

C. Apply the hierarchy principles, avoid or minimise impact to sensitive habitats and habitat fragmentation / severance.

D. Mitigate impacts on locally rare or important habitats.

E. Balance the principles and rules of the Biodiversity Net Gain Metric, with ecological expert judgement, to deliver high quality and ecologically diverse habitat creation and river restoration to support nature recovery, including habitat creation in line with developing Nature Recovery Strategies. Enhance existing and create new habitats to achieve a biodiversity net gain.

Ev2: Biodiversity (Continued)

- F. Establish native species and plants of local provenance.
- G. Integrate measures for future resilience within existing and new habitats.

Ev3: Resource Use and Carbon Management

- A. Integrate best practice for carbon and materials management within the design process, with the aspiration to deliver a net zero River Thames Scheme to support the delivery of the project Scheme Goals.
- B. Consider carbon impacts and opportunities within the design process across environmental, community and economic aspects.
- C. Seek to achieve a lower carbon footprint where this is possible, and/or identification of opportunities to reduce carbon in construction and to offset carbon.
- D. Implement carbon sequestration systems, including consideration of the role of wetlands and other habitats.
- E. Use construction materials (including innovative materials) to reduce environmental and social impact, for example by reducing the use of concrete and considering whole life cost of materials.
- F. Consider restoration of mineral sites when reviewing re-use of excavated materials.

Ev4: Landscape and Visual Connections

- A. Create visual connections within the scheme and to destinations within and outside the scheme.
- B. Create landscape connections within the scheme that link new open spaces and provide spatial continuity to link communities. Develop a wayfinding strategy and materials palette that are based on best practice in inclusive design and accessibility.

Community Connections

Creating sustainable, safe, and inclusive networks for people

Cm1: Health and Wellbeing

- A. Adopt best practice for inclusive engagement with stakeholders** and for inclusive design which is 'better for everyone'.
- B. Create a network of safe, inclusive spaces for diverse needs, which are both physically accessible and psychologically and socially welcoming**, so that all communities can use them fully and feel entitled to do so.
- C. Create the flood alleviation works, as a community asset, uniquely related to the Thames**, which integrates green multi-functional spaces, corridors and routes, to support nature connection, physical and mental health and well-being education and community value.
- D. Adopt best practice for designing an asset which furthers community value, social wellbeing and the interests of the local community**; and is informed by a participatory approach and evidence-base for establishing needs which are site-specific. Create connected active travel routes between educational and leisure facilities both in and out of the scheme and promote active travel networks wherever possible.
- E. Develop design proposals which respond to needs for access to nature and green spaces, including school and community initiatives**, promoting sustainable and healthy living, including spaces which support nature and social prescribing.
- F. Enable natural capital benefits, including improvements to air quality through pollution capture measures along the scheme and location of active travel routes**, separating people from vehicles where possible and informed by best practice and an evidence-based approach.

Cm2: Environmental Education

- A. Informed by the engagement process, create engaging opportunities for visitors and communities along the scheme to interact with the River**, its adjacent landscape of the Thames corridor and with new spaces and wildlife habitats created within the scheme, for example through the provision of visitor centres at the country parks.
- B. Ensure the use of best practice design, to promote access to nature**, through inclusive design which is better for everyone.
- C. Design and create flexible spaces and / or platforms for education within the green network.**
- D. Use the design to retain local cultural and natural heritage features and promote interpretation and education through**, for example, names of specific areas, distinctive habitats and designated sites within the scheme.

Cm3: Connecting Communities

- A. Connect communities, taking into consideration:**
 - i. Promotion of active travel between communities wherever possible.
 - ii. Modelling of existing and proposed routes to determine connectivity preferences in relation to need, and to provide analysis of routes which are likely to offer alternatives to vehicle routes, improving carbon footprint and air quality.
 - iii. Adopt best practice in inclusive design and accessibility for all, in relation to all routes and connections.
 - iv. Connect routes along and in and out of the scheme.
 - v. Futureproof connectivity through digital infrastructure, through for example the specification of ducts for utilities and services.
 - vi. The adoption of a placemaking approach to help join various other SCC schemes and initiatives together with the RTS and simplify the communications to communities. This in turn will assist in bringing together a range of interested stakeholders both internally and externally.

Cm3: Connecting Communities (Continued)

- B. Connect active travel routes to public transport hubs,** to existing public transport networks such as buses and trains, and to local car parking areas.
- C. Connect employment centres and education centres,** for example Weybridge to Staines.

Cm4: Recreation

- A. Create a network of new and improved formal and informal recreational and sports spaces,** integrating best practice inclusive design and accessibility principles.
- B. Connect the scheme to national routes including cycleways and Rights of Way.**
- C. Create a network of new and improved Rights of Way, made fit for purpose.**
- D. Connect destination sites and social infrastructure,** for example Thorpe Park to active travel routes found through the open space assessment.
- E. Integrate design interventions and habitat enhancement to support access to nature and nature-based activities,** including nature and social prescribing.
- F. Provide safe and secure bicycle hubs along the route.** Consider the use of electric bikes and the provision of electric charging points along the route.
- G. Create solutions that will help to tackle anti-social behaviour, in particular along Rights of Way,** through designs, which are both physically accessible and psychologically and socially welcoming, so that all can use them fully and feel entitled to do so.

Cm5: Safe, Accessible and Inclusive Spaces

- A. Apply best practice through the design process to create places that are safe and accessible** and foster inclusive, community-oriented behaviour.
- B. Integrate sensitive solutions** such as Secure by Design principles, passive surveillance, soft lighting, clear view-lines, regularly maintained facilities, artwork and other effective interventions.
- C. Consider the use of lighting across the scheme** whilst also being sensitive to light pollution and taking into consideration sensitive receptors identified in the environmental impact assessment.

Economic Connections

Creating innovative and sustainable networks for the economy

Ec1: Resilience

- A. Create a multi-layered design, which achieves reduction in flood risk for local communities in the project area, in conjunction with a range of benefits to nature and the community.
- B. Integrate design measures to future-proof the project area, including green infrastructure solutions, which respond to the climate challenge and offer future resilience.
- C. Integrate design measures to enable a system to prepare for potential natural and intentional threats, absorb impacts, recover, and adapt following persistent stress or a disruptive event.

Ec2: Natural Capital

(the 'stock' of natural assets from which society derives multiple values – 'ecosystems services', that is the flow of benefits from ecosystems).

- A. Consider multi-functionality across energy conservation, climate change, and flood alleviation.
- B. Explore opportunities to connect economics to environmental systems.
- C. Explore opportunities to align with the developing Nature Recovery Network and Local Nature Recovery Strategies, including the ecosystems services offered by this, such as improved access to nature and green spaces particularly in areas of need, with less provision and such as access to nature for health and well-being, including both informal access and nature-prescribing.
- D. Promote 'green' tourism. Create a safe, inclusive and accessible active travel network to connect communities and destinations, to support the local economy and promote local health and well-being, for example the provision of new cycleways and / or integration with existing active travel networks.

Ec2: Natural Capital (Continued)

- E. Enable revenue streams through the provision of electric bike and electric boat hire.

Ec3: Funding and grants

- A. Leverage natural capital by identifying alternative sources and grants for wider benefits.
- B. Explore opportunities to develop eligibility for strategic flood and drought prevention and nature recovery accreditation, for example an accreditation which links to delivery of the sustainable development goals, such as the RAMSAR Wetland City Accreditation Status, which invites cities to share skills and collaborate to protect, sustainably manage and restore natural or human-made urban wetlands, bringing local and strategic benefits, and delivery of SDGs.
- C. Integrate opportunities to extend local benefits, including educational benefits to all people through access to a network of green spaces, links with schools and adult/community education and visitor facilities.



Contact

There are lots of ways you can contact us or find out more about the scheme:

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Email: **enquiries@riverthamesscheme.org.uk**

Web: **www.riverthamesscheme.org.uk**

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If you would prefer this brochure in large text, a different format or language please contact using the details below and we will do our best to help.

Text (SMS): **07860 053 465**

(for the deaf or hard of hearing community)

Textphone (via Relay UK): **18001 03456 009 009**

British Sign Language: **www.surreycc.gov.uk/bsl**

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