

The Leven



Visioning and Integrated Masterplan Report



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Preface

“Scotland is renowned worldwide for the environmental quality of its rivers, lochs, wetlands and seas. They are some of the country’s greatest natural assets; attracting visitors, contributing to the health and well-being of its people, supporting a rich diversity of wildlife and providing for the sustainable growth of its economy. Maintaining this enviable reputation is important for Scotland’s continued economic success and well-being.”
The river basin management plan for the Scotland river basin district: 2015–2027

River catchments are the standard functioning unit of the landscape: water, soil, plants and animals are all interconnected within a catchment. A healthy catchment is essential for human survival. It is where our food is grown and where the water we drink comes from.

The River Leven catchment includes many burns and tributaries which merge to form a confluence at Loch Leven in Perth and Kinross before flowing downstream through Glenrothes and Levenmouth and into the Firth of Forth. This catchment unit contains both vastly differing landscapes and socio-economic conditions: from a popular tourist destination and nature reserves to post-industrial urban areas included in the most deprived 5% of Scotland.

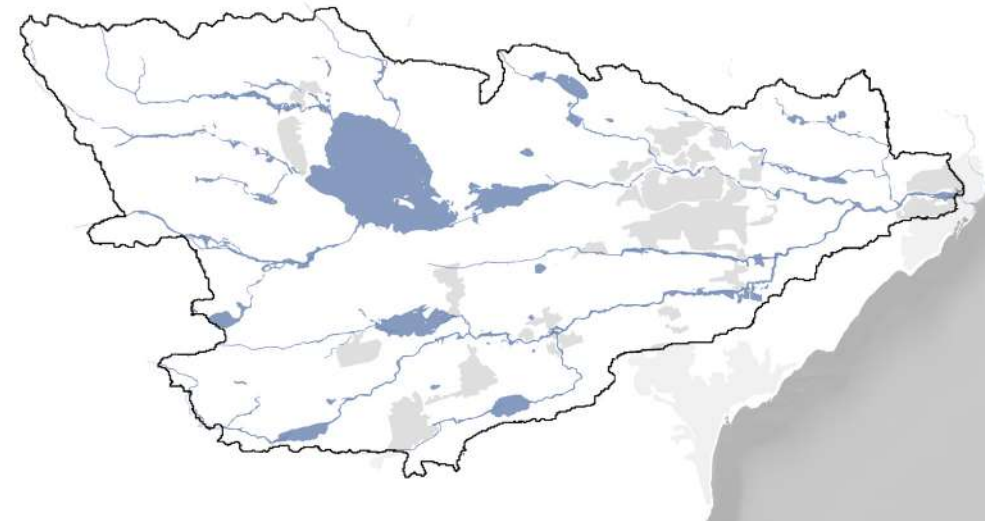
The Leven

The Leven is a multi-partnership vision for the catchment area aimed at improving the environment, increasing biodiversity, promoting active travel, providing economic opportunities and reconnecting communities along the river.

Purpose and scope of the report

This Visioning and Integrated Masterplan Report presents both a collation of existing data and suggested design proposals. It should be noted that this report and its contents outline the beginning of a masterplanning process and that the proposals in this report **are not a masterplan**. This Visioning and Integrated Masterplan Report is primarily intended as a data resource and graphical starting point for the project.

At this stage of the project, the proposals outlined at the regional scale mostly derive from current recommendations emerging from relevant organisations (Inner Forth Futures, Fife Council, Perth and Kinross Council). This document intends to bring these packages of information together in a coherent manner as a base for enlightened future design within the catchment.



The catchment: A dynamic landscape unit



The River Leven: From source to sea



The Connectivity Project: Meeting the firth

THE BRIEF

"The vision for the catchment is that by 2030, the Leven catchment will be a living, breathing example of inclusive growth, achieving environmental excellence whilst maximising social and economic opportunities."

The Leven Visioning and Masterplan Invitation to Tender

The Leven

Mid Fife, despite its history of manufacturing and tourism, in recent years has fallen into decline. In 2018, SEPA (Scottish Environmental Protection Agency) along with partner agencies, Fife Council, Scottish Natural Heritage, Sustrans, Fife College, Forth Rivers Trust and Scottish Water, identified the River Leven, and its catchment, as a means of targeting this decline and of delivering inclusive growth in the region. The Leven is the agreed vehicle to address the socio-economic decline of the area, to reference the industrial heritage of the river and create a new vision for the region through the development of a masterplan based on connectivity and green infrastructure.

To deliver this inclusive growth approach, a series of smaller projects will be undertaken to deliver this vision for the region; the first of which is the Connectivity Project which focuses on a 5km stretch of the River Leven and adjacent communities to the estuary at Levenmouth. This project will set out expectations for future development in the region, and create high standards for subsequent projects.

The Leven aims to reconnect people and place through the re-establishment of the River Leven and its surrounding catchment as a natural, national asset. The objective is to ultimately improve social, economic and environmental issues in the area.

The Leven will:

- Upgrade existing active travel networks and establish new connections to create a holistic network of safe paths and cycleways to connect the communities of Levenmouth. The long-term intention is to create new connections for communities across the water along the length of the River Leven. This cohesive sense of place would not only connect the east coast communities of Buckhaven, Methil, Methilhill, Leven and Windygates, but also Glenrothes, Markinch, Leslie and Milton of Balgonie.
- Manage and establish a high quality green infrastructure along these routes to greatly improve habitat connectivity from the river to the urban environment and create a unique nature park to attract people and employment jobs.
- Create an inspirational environment with recreational and business opportunities interlinked with a place for wildlife, learning and living. Tourism and economic growth based on long distance routes would be developed by linking the Fife Coastal Path to the Pilgrim's Way. This new path network could support and connect built and natural heritage, sports, art and culture.

- Use the working partnership to encourage economic opportunities and to tackle significant issues faced by the local communities highlighted in the Strategic Area Assessment.

- Restore and improve the river corridor, its morphology, riverbanks and habitats, as well as bringing back into productive use the vacant and derelict land along its margins to support economic development and remove barriers. River restoration and biodiversity improvements will create the spine that connects the surrounding communities - the green heart of the project. An attractive river corridor park would be a significant asset for tourism, health, well-being and leisure.

- Empower local communities through ownership and stewardship of the area, supportive involvement in decision making and project delivery. A key aspect of this will be a series of 'regeneration hubs' to support community aspirations, including educational resources and training opportunities for small businesses.

The Brief

In April 2019, Iglu Studio Ltd, an urban and landscape design practice based in Fife, was commissioned to deliver the masterplan for 'The Leven'. The brief is simple: to help build on the vision for the River Leven by "developing a strong, inclusive growth narrative and masterplan for the catchment project," the key outputs of which include;

- 1. A graphical vision for the Leven Catchment.**
- 2. A Masterplan for the project area (with core framework principles)**

The reality is more complex with multiple scales, agencies and partners for the masterplan to consider for what was initially a short timeframe to the beginning of June 2019.

Despite the complexity of the project, The Leven provides a unique opportunity to reconnect people with the river, to recollect histories and stories and to create a positive future for the next generation. Above all, this is an opportunity to encourage people to fall back in love with the river and bring it back into their daily lives.

The Leven Visioning and Integrated Masterplan Report

At this early stage of the long-term vision, The Leven Visioning and Integrated Masterplan Report covers three descending scales which progressively sharpen in design resolution: the wider catchment scale, the river scale and the Connectivity Project, the last 5km where the river meets the Firth of Forth. This 5km stretch of water allowed for a more detailed approach, with considered areas for specific intervention realised through the construction of a model, sketches and visualisations.

The report identifies broader opportunities at the catchment scale, a deeper analysis of issues along the River Leven and specific design principles for the Connectivity Project. From this point on, more informed conversations can be had with the community, stakeholders and the project partners.



River catchments

A river catchment or basin is the area of land, usually bounded by hills, where rainwater collects and drains into a river. It contains all of the rivers, lochs, wetlands and groundwater that ultimately drain into the sea. Every centimetre of land on Earth forms part of a catchment: water, soil, plants, animals and humans are fundamentally linked through catchment dynamics. We depend on healthy catchments to provide us with all of our food and water.

Scotland's waters are generally regarded as being among the best in Europe. There are 3169 waterbodies classified in the current River Basin Management Plan for Scotland (2015-2027) of which 66% are currently in a good or better condition. The remaining 34% is classified as below a good condition. The target is for 87% of all waterbodies to reach 'good' status by 2027.

In order to achieve this, SEPA has created plans for priority catchments to address areas for improvement. The Leven catchment was identified as one of the priority catchments due to the moderate or poor overall condition of most of its waterbodies. A more detailed diagram indicates the condition of each waterbody on page 23.

The River Leven catchment

At 422km², the catchment of the River Leven is relatively small when compared to other river catchments in Scotland. The River Tay catchment is the largest in the country with an area of 5200km². The Leven catchment though, is the largest in Fife with 292km of classified water courses. It crosses two jurisdictional council areas with many of its tributaries originating within Perth and Kinross.

The River Leven itself flows approximately 47km east from its source at Loch Leven to the Firth of Forth where it meets the sea. The catchment area encompasses 422km² of tributaries, burns, lochs and reservoirs, a national nature reserve, a regional park, several communities and the towns of Kinross, Glenrothes and Leven.



Remains of South Walkerton Wool Mill near Leslie

The Leven has adopted an inclusive growth approach to the environmental management of the River Leven catchment, which maximises the cultural, economic and social opportunities available on and around the river as a great regional asset.

The narrative of the river

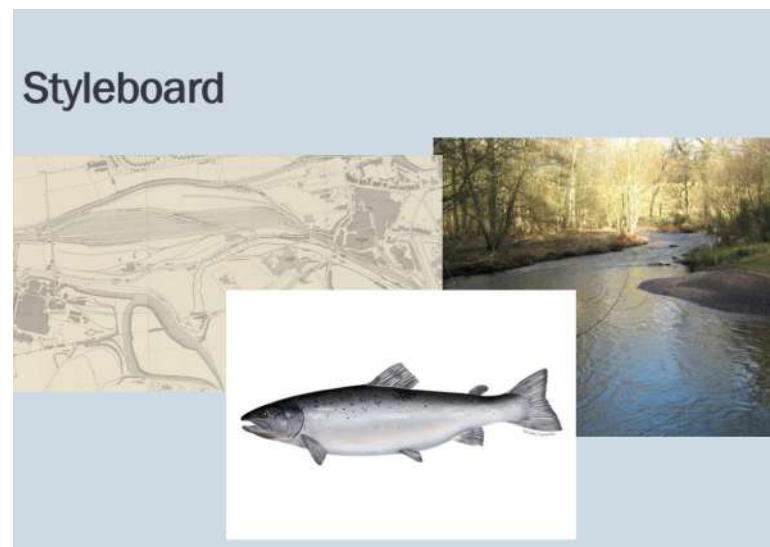
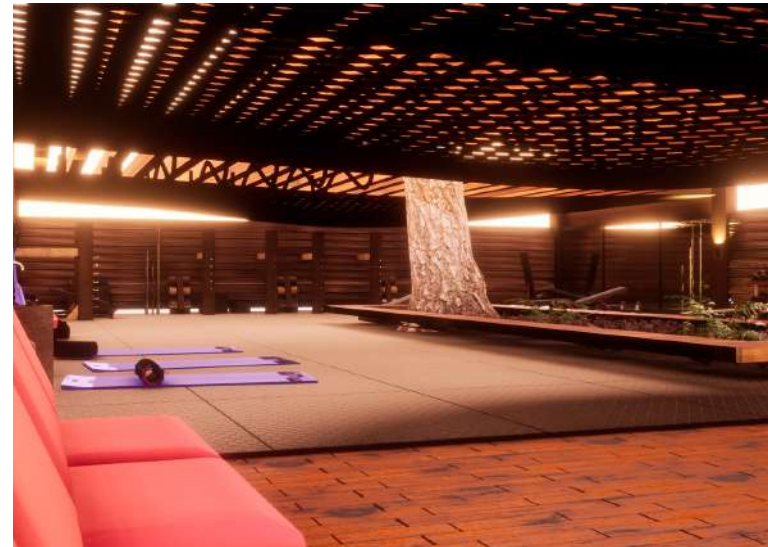
The Industrial Revolution brought huge changes to the landscape of the River Leven. Although there were previously a handful of historic settlements located along the riverbanks, the introduction of dozens of mills and factories powered by the water transformed the landscape: towns and communities developed along its length and the mills became a major source of employment in mid-Fife.

However, de-industrialisation in the 20th century had an overwhelming effect on communities, creating areas of socio-economic deprivation, limited employment opportunities and sites of vacant and derelict land. The river was essentially abandoned, stretches of the riverbanks grew wild becoming inaccessible and it is now perceived to be a barrier between communities.

These issues are undoubtedly challenges to overcome, but this estrangement from the water has also created a unique opportunity with a fascinating narrative to reveal. Much of the land surrounding the Leven has been undeveloped, left to grow without maintenance, leaving large areas of vegetation and corridors of ecological spontaneity with wildlife thriving along the riverbanks.

A catchment for the future

A holistic vision for the catchment which identifies strategic interventions has the potential to reconnect people to the river and its associated waterbodies, encourage healthier living, improve environmental conditions and generate new jobs. The Leven presents a unique opportunity to create a positive future for subsequent generations.



Storyline

- The storyline will focus around the River Leven in Fife, the player must solve the mystery of the River Leven's Industry.
- The storyline will give information about the River Leven and what happened to it's industry, how it died and what could be done to help the land that it took with it. This relates the storyline to the past, present and possible future.
- The storyline will also involve some famous locals to River Leven, such as Jean Redpath, a Scottish folk singer who was raised in Leven, Fife. As well as David Gibb who was a Scottish mathematician who attended Leven Public School.

Examples of Fife College student work from the Graphic Design, 3D Modelling and Games Design courses



Fife College student work

During the second semester of the academic year 2018/19, Fife College students in graphic design, 3D modelling and games design were tasked with developing graded course work to respond to set briefs.

The work was generally of a very high standard and addressed aspects of The Leven such as landscape identity, branding, imagery, ecology and inclusivity.

Highlighted projects

The selected logo (see above) subtly reflects the industrial heritage of the river while referencing the three key drivers of the project (social, environmental and economic issues). Shortening the original title of the project (The River Leven Catchment Project) to simply, The Leven will make it more suitable for future use online and through social media (key platforms for attracting interest in the project). It is hoped that removing the technical terms from the title will make the project more user-friendly and accessible.

The 3D modelling work involved the design of an Eco Cafe and a Nature Gym. These ideas were selected for their focus on health and leisure, sustainability and tourism, strong drivers behind The Leven.

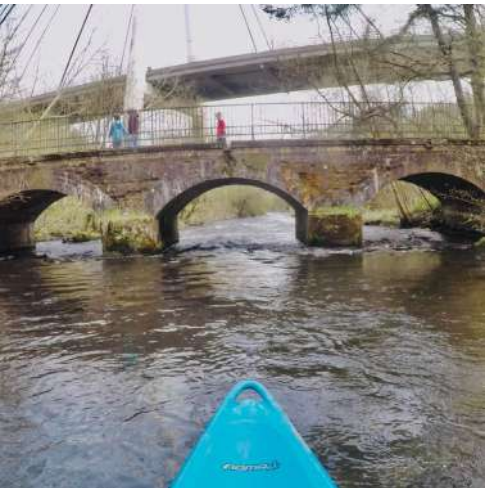
The Games Design project included an interactive game aimed at solving the mystery of the River Leven's forgotten industry. This approach could prove well suited to the educational sector.



Conceptual visualisation

The graphic on the adjacent page is a combination of imagery intended to represent some of the key concepts of the Leven Project: bringing people back to the river, encouraging active travel and referencing industrial heritage.

A former linseed works as viewed from the Sawmill Bridge, the still standing chimney at the former Prinlaw Works - a flax-spinning and bleach works located near Leslie - are two emblematic elements visible in this image.



River perspective: ruins, crossing points and tributaries

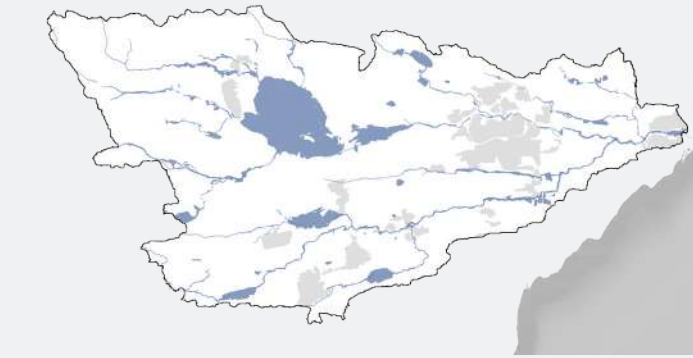
It was decided that part of the initial site research should include experiencing the river from the water by kayaking. Despite the numerous barriers it was possible to kayak most of the river in a day. This exercise allowed a deeper understanding of the riverbank vegetation, the physical state of the existing crossing points, the tributaries which meet the Leven and the visible remnants of the former mills.

The fall of 300m from source to sea creates stretches of fast flowing water to negotiate though there are also large stretches of relatively calmer flow for less experienced kayakers. The selective removal of natural and manmade barriers could make kayaking the River Leven a popular activity and boost tourism in the area.



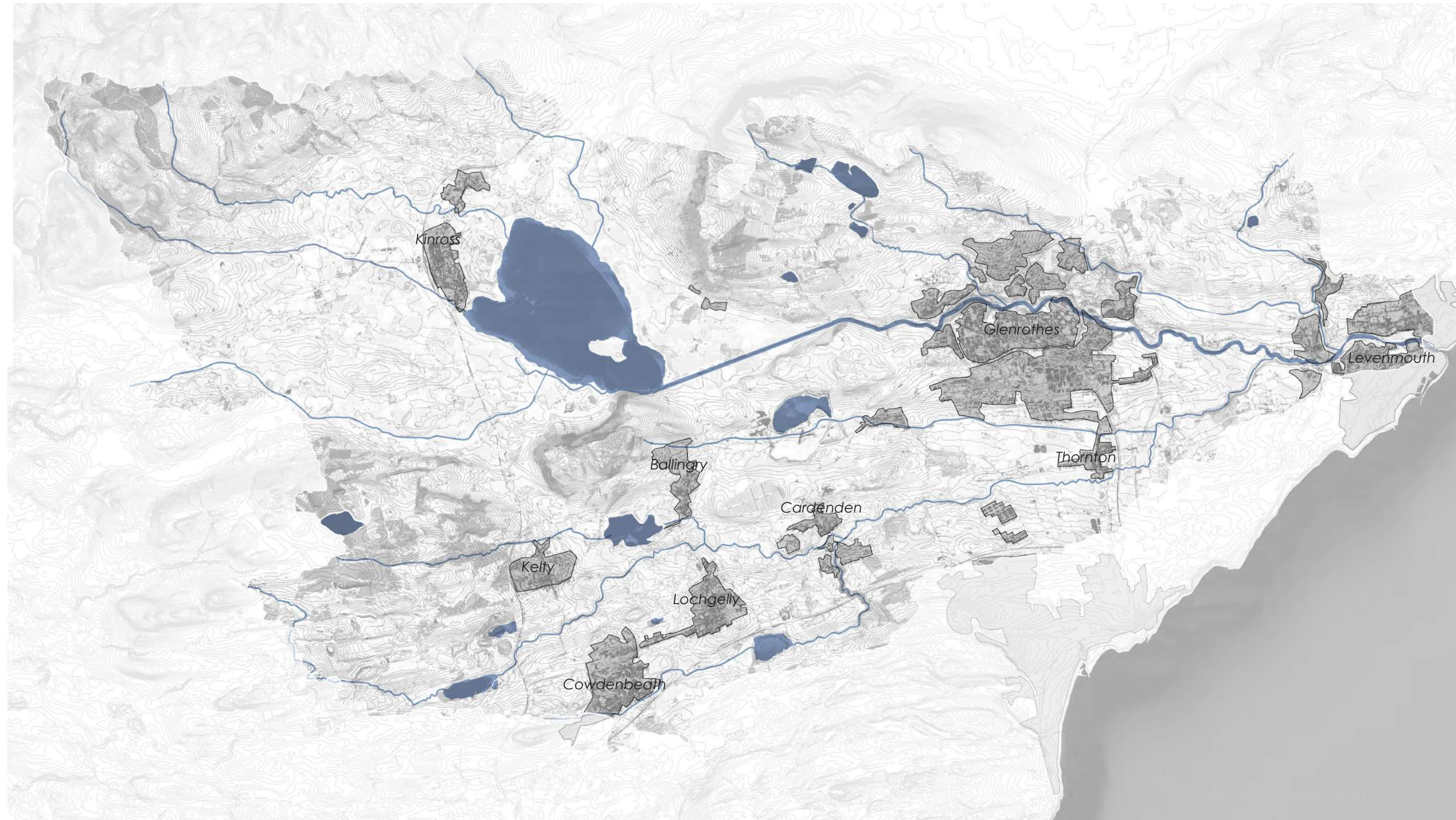
View of Scotlandwell and Lomond Hills Regional Park

THE RIVER LEVEN CATCHMENT □



The catchment: A dynamic landscape unit

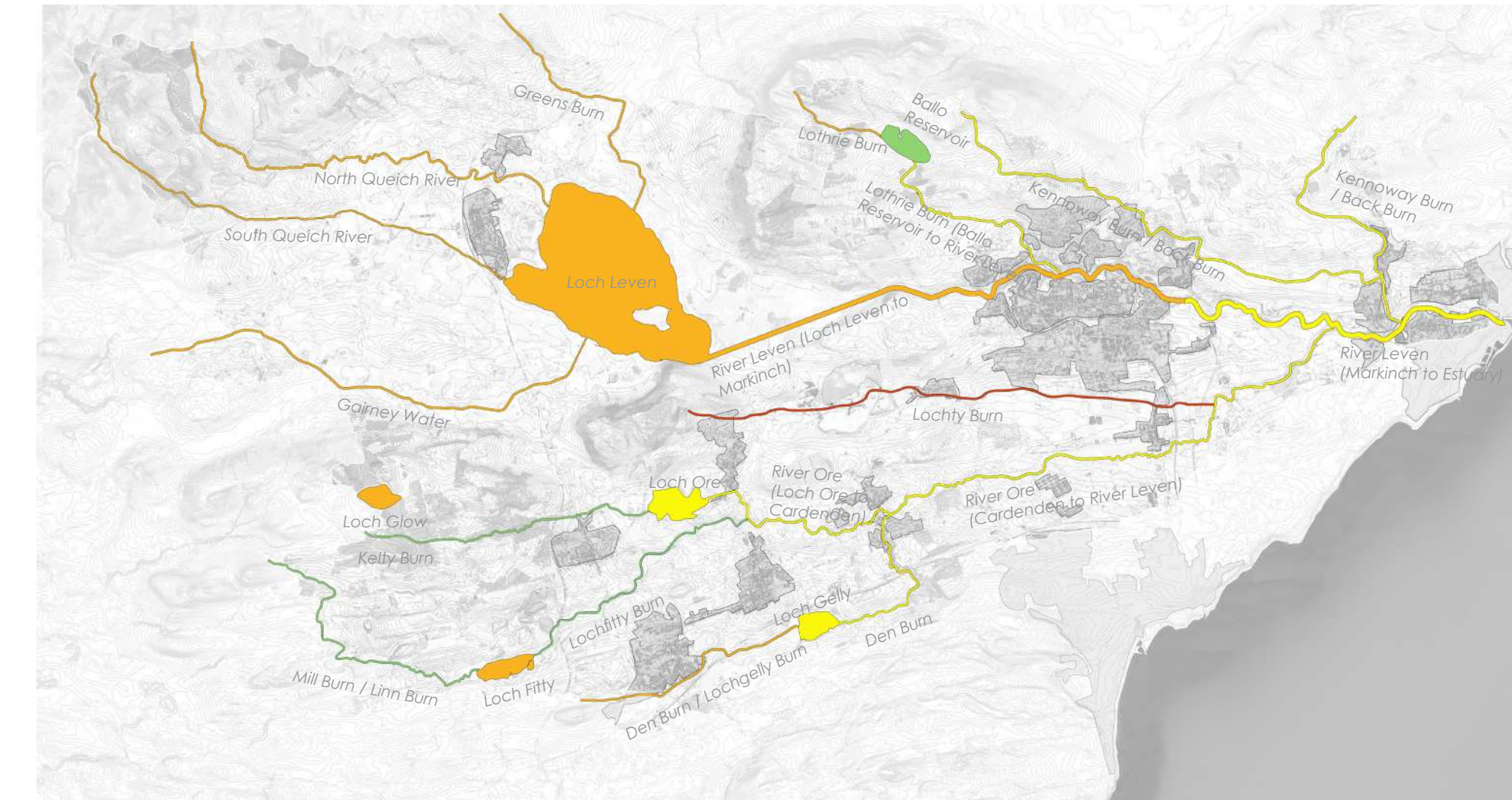




Waterbodies and settlements within the River Leven Catchment (source: SEPA)

- Waterbody
- Settlement

THE RIVER LEVEN CATCHMENT | EXISTING CONDITION



Overall condition of waterbodies in the River Leven Catchment in 2014 (source: SEPA)

- Good
- Moderate
- Poor
- Bad

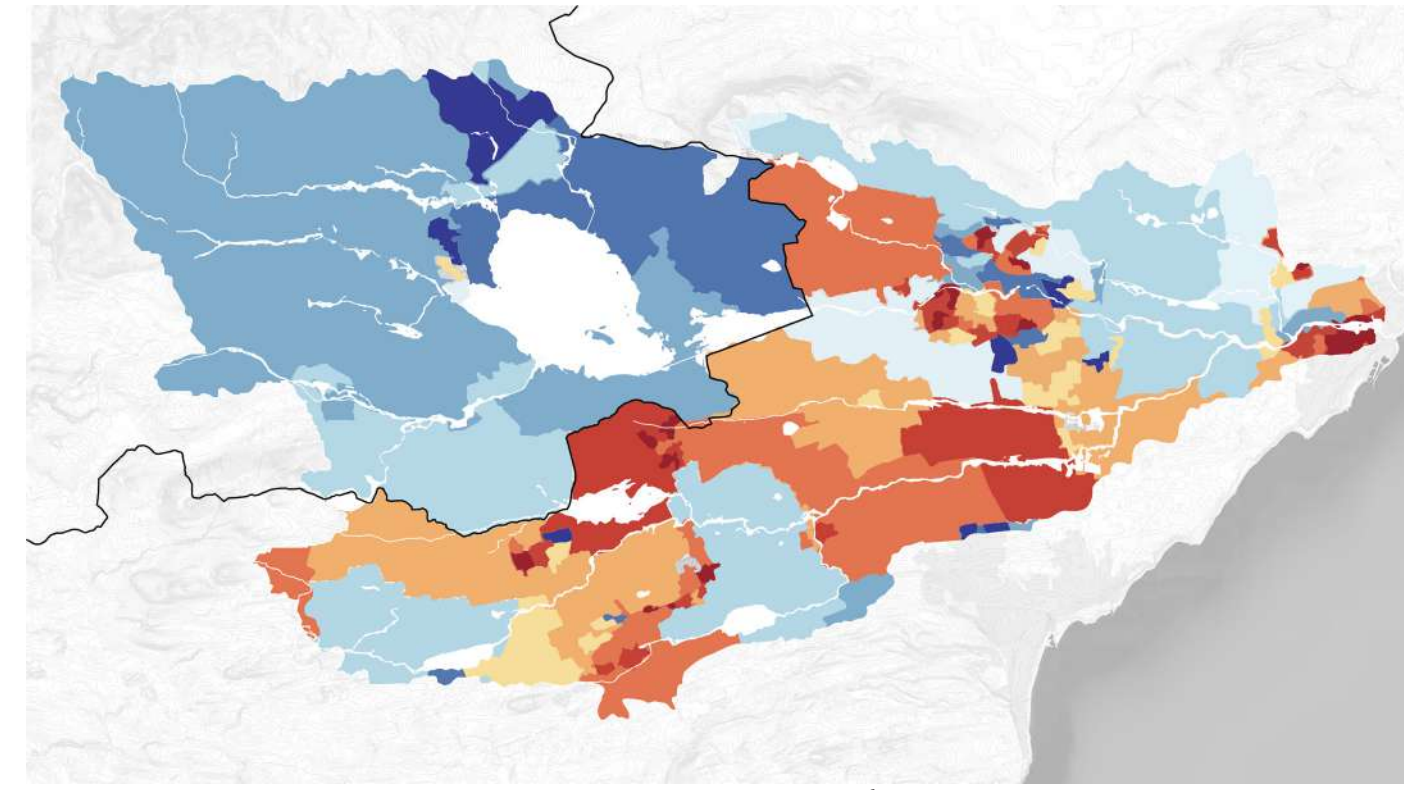
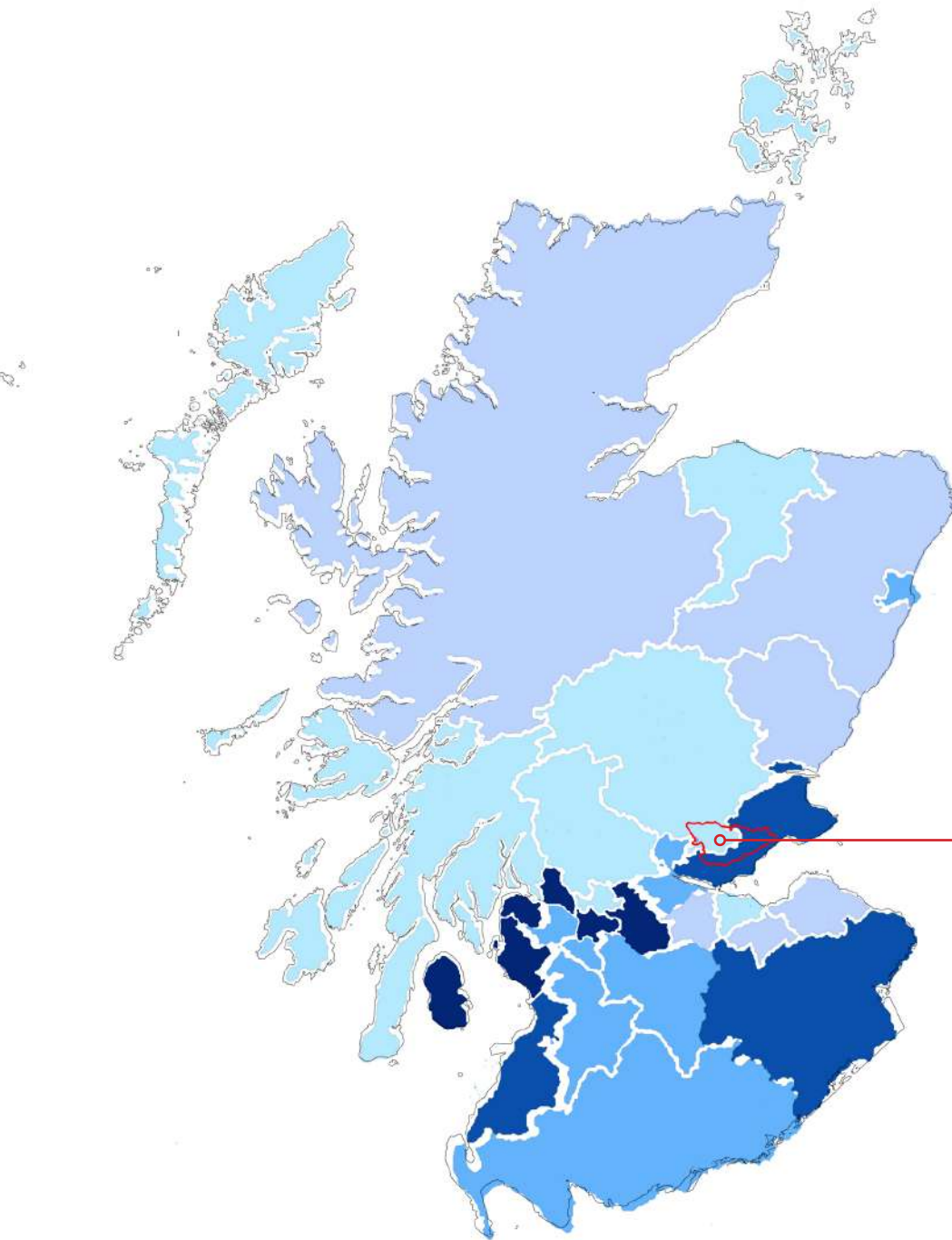
The River Leven Catchment condition

Most of the waterbodies within the Leven catchment were classified in 2014 (most recent data) as either being in a moderate or poor condition. Three waterbodies were classified as being in a good condition (Ballo reservoir, Keltie Burn and Lochfitty Burn). One of the key drivers for The Leven Project is to improve the ecological condition of the catchment.

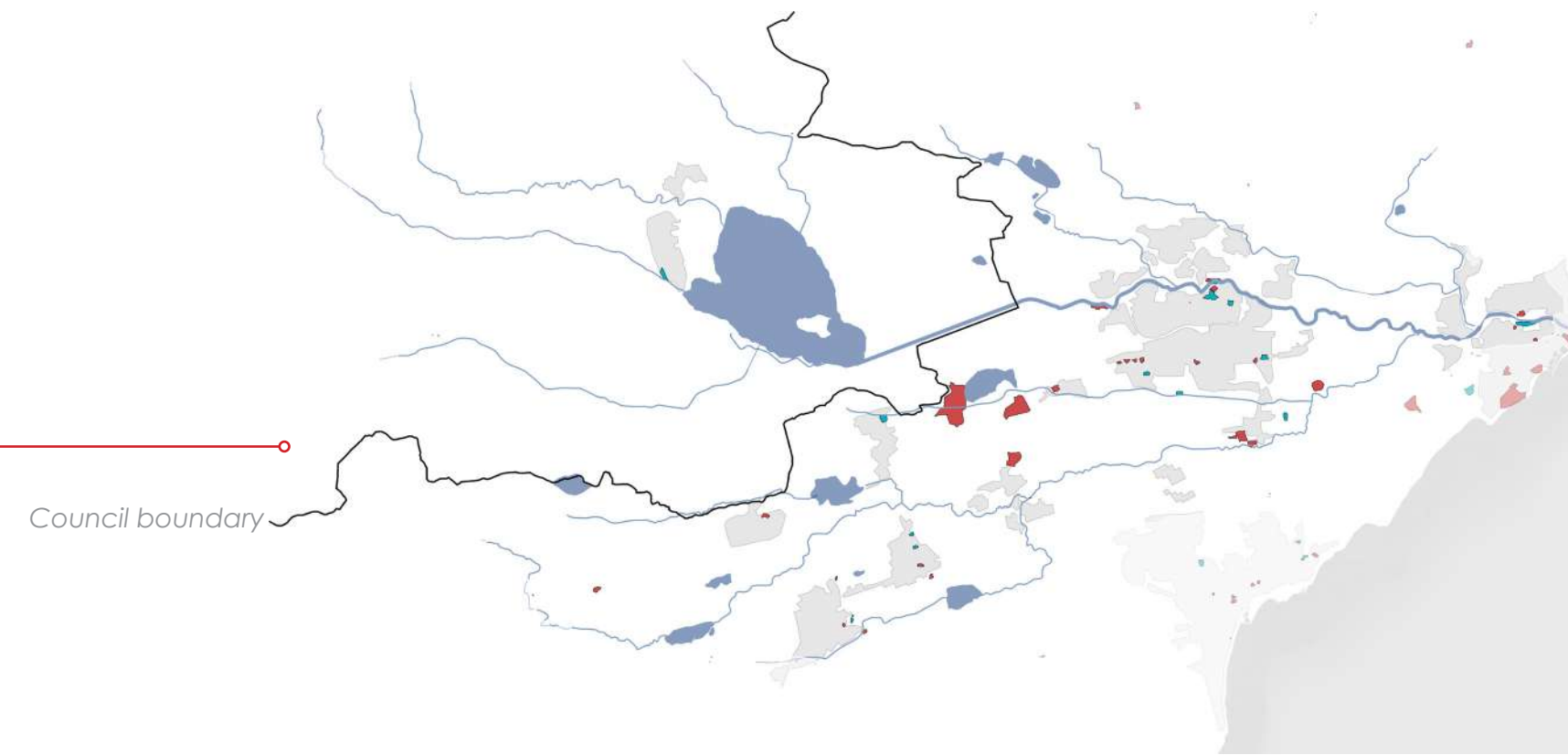
The following section is intended as an introduction to some of the key issues to be considered at the catchment scale.

Percentage of population within 500m of a derelict site 2018 (source: The Scottish Government)

- 40% or more
- From 30% to 40%
- From 20% to 30%
- From 10% to 20%
- Less than 10%



Scottish Index of Multiple Deprivation 2016 (source: The Scottish Government)
 Most deprived 1st 2nd 3rd 4th 5th 6th 7th 8th 9th 10th Least deprived

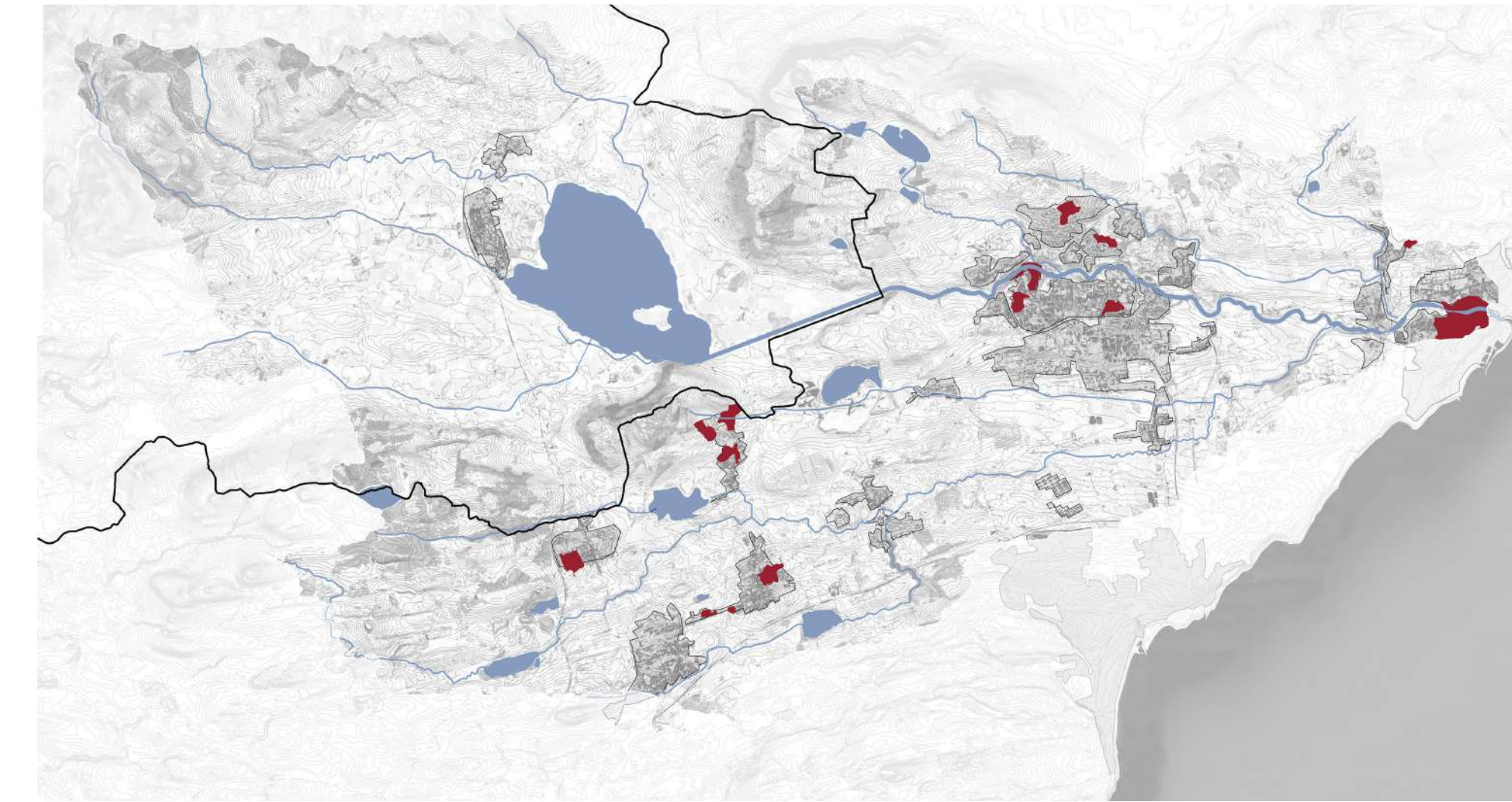


Vacant and derelict land audit 2018 (source: Fife Council / Perth and Kinross Council)

- Waterbody
- Settlement
- Derelict land
- Vacant land

THE RIVER LEVEN CATCHMENT | VACANT + DERELICT LAND AND SIMD

- Waterbody
- Settlement
- Most deprived 5%



The River Leven Catchment waterbodies and most deprived 5% areas

Vacant and derelict land

Vacant and derelict land in Scotland is a deeply rooted problem, particularly across the Central Belt. As previously noted, the catchment falls across two council areas, Fife and Perth and Kinross. Between 30% and 40% of the population of Fife live within 500 metres of derelict land compared to less than 10% of the population of Perth and Kinross.

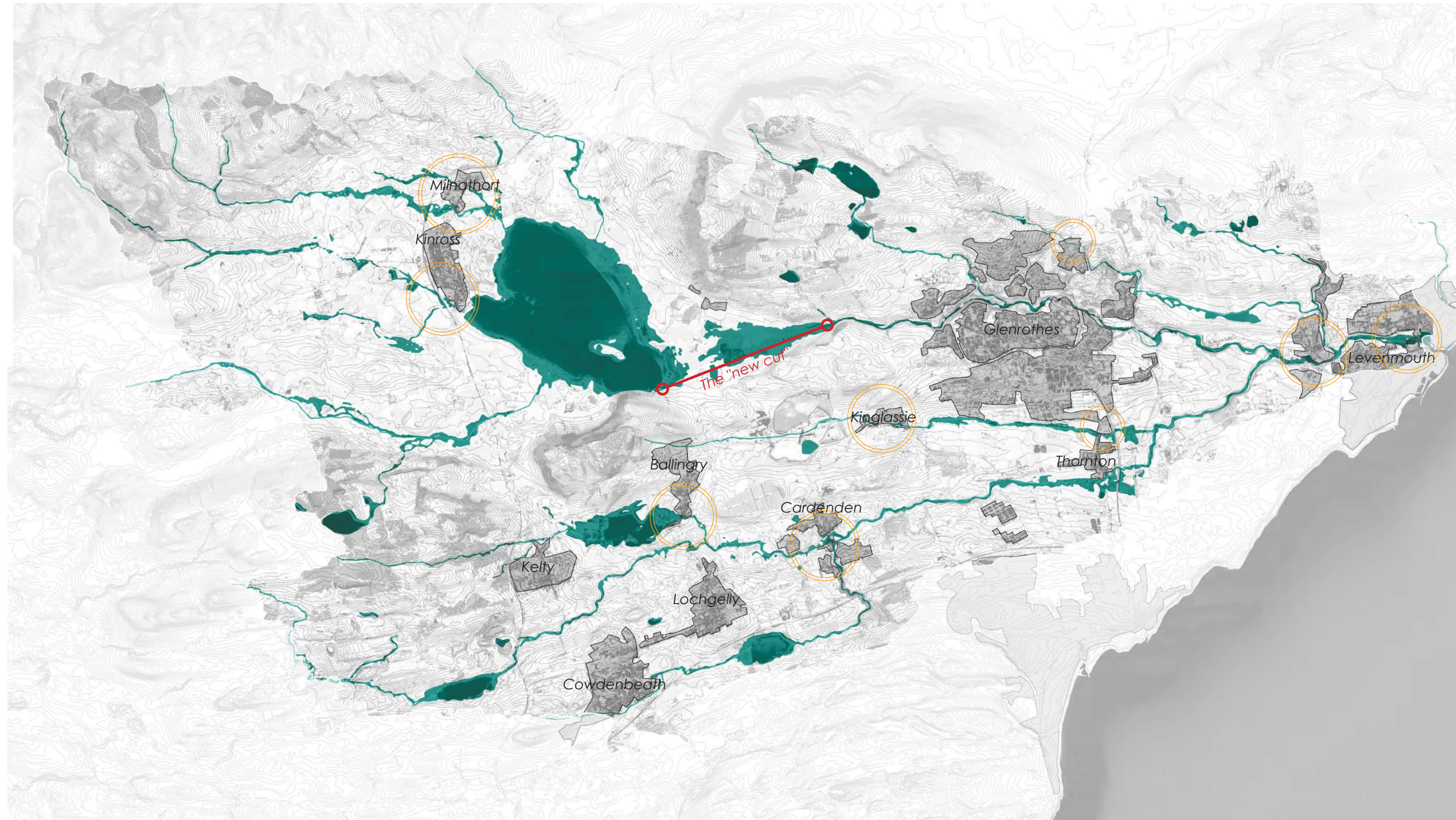
The impact of vacant and derelict land can have serious social, economic and environmental implications for an area including links to physical and mental health issues and deprivation.

However, these sites also offer unique opportunities for large scale strategies aimed at creating connected greenspace networks which could address social inequalities, environmental fragmentation and even issues such as climate change.

Scottish Index of Multiple Deprivation (SIMD)

The SIMD looks at multiple deprivation; deprivation is not solely defined by poverty or low income. It also looks at communities with less opportunities in employment, education, health, less access to services, more crime issues and housing standards.

The juxtaposition between the two council areas indicates that there is a far greater number of more deprived areas in Fife than in Perth and Kinross. In particular there are many areas in Fife which constitute the 5% most deprived areas in the country. That several of these highly deprived areas are located near the River Leven and its tributaries underlines the huge potential for The Leven to improve the quality of life for these communities by addressing social, economic and environmental issues.

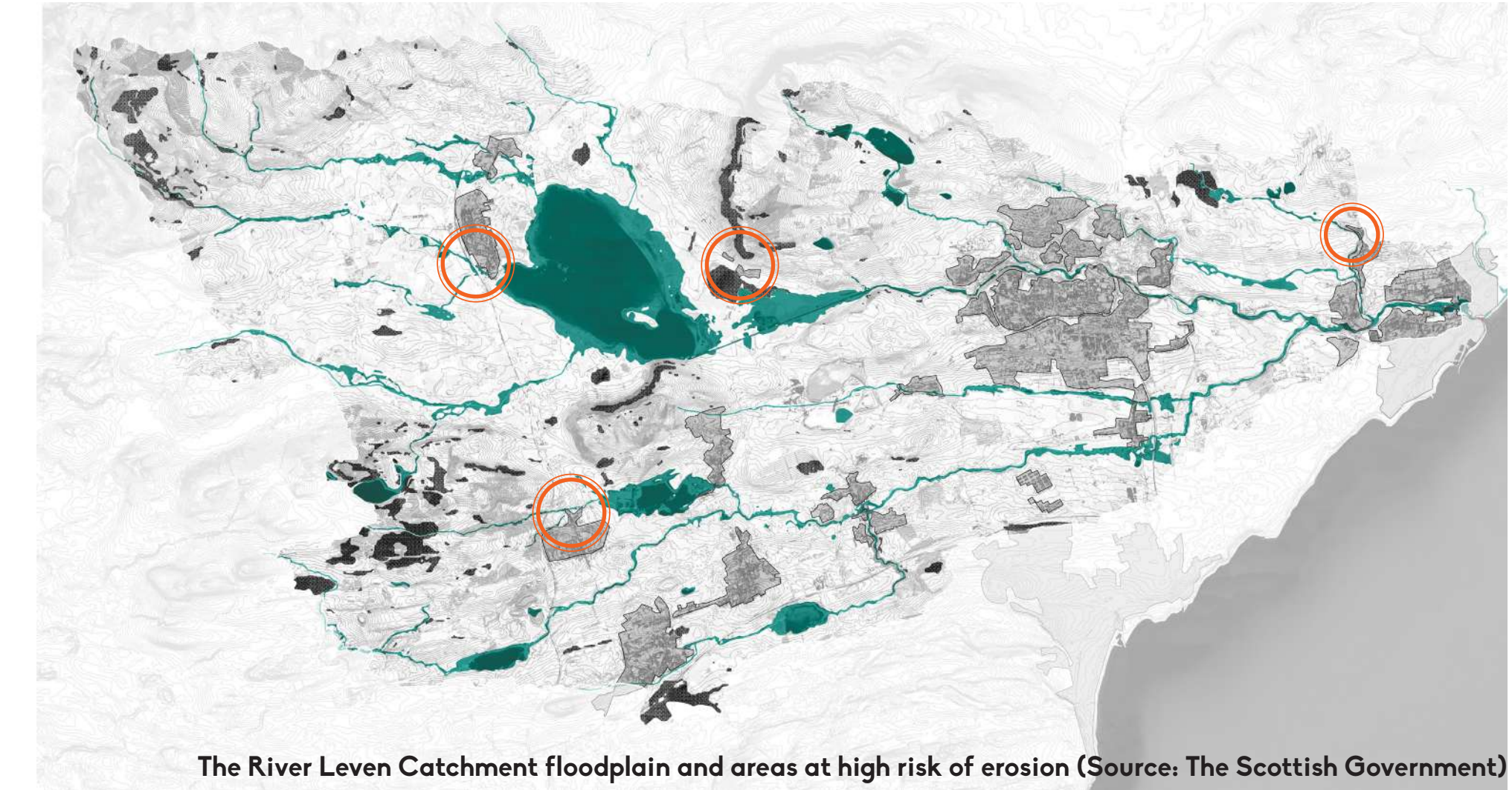


Floodplain of the River Leven Catchment

- Floodplain
- Settlement
- Settlement/inhabited areas within the floodplain
- The "new cut"

THE RIVER LEVEN CATCHMENT | FLOODPLAIN AND HIGH RISK EROSION

- Floodplain
- Settlement
- High risk of erosion
- Settlement at risk of intensified flooding



The River Leven Catchment floodplain and areas at high risk of erosion (Source: The Scottish Government)

An extended floodplain

A floodplain is the generally flat area of land adjacent to a river. It stretches from the riverbanks to the outer edges of the valley and is naturally subject to periodic flooding. The extent of floodplains can expand or contract depending on human intervention (for example, channelisation in some cases can increase the size of floodable areas).

The floodplain of the River Leven catchment was extended by the channelisation of the "new cut" (indicated on the adjacent page). The original intention for this channelisation was to maximise the outflow speed of water to supply hydropower to the various mills based along the river. However, the reduction in the area of natural retention has created an increased risk of flooding around the new cut. This has led to regular dredging in this area as farmers struggle to drain their land during extreme rainfall events.

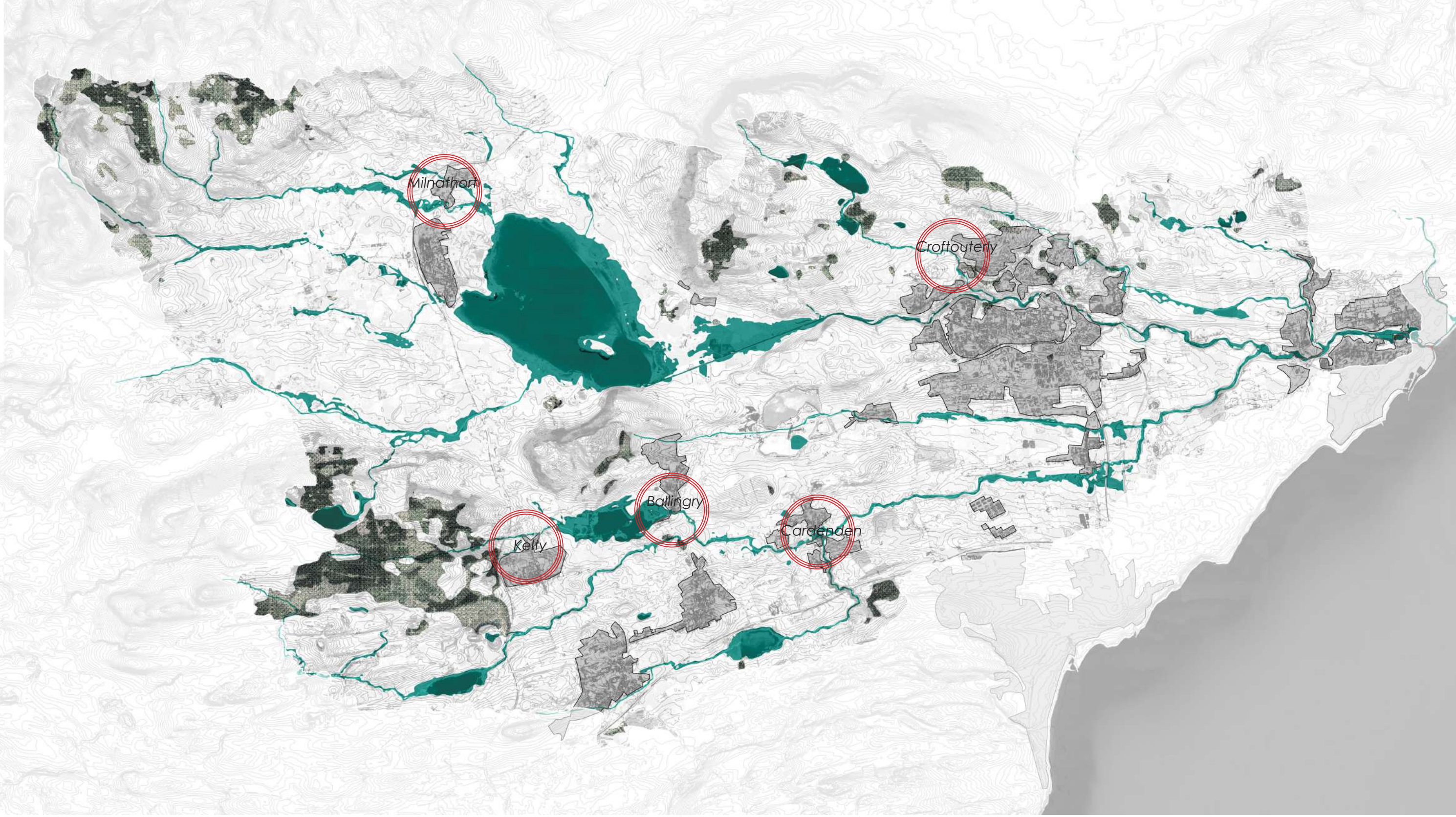
This issue is worth identifying at the early stage of the project, as achieving a resolution which suits the landowners whilst alleviating the risk of flooding downstream could prove to be a complex matter.

Settlements at risk of flooding

In addition to the risk of flooding for agricultural landowners many settlements within the catchment sit within the floodplain and are at risk of flooding. The areas range from settlements in proximity to a tributary to urban areas within Glenrothes and Levenmouth itself (particularly near the estuary at the confluence with the sea). Measures such as rainwater storage upstream through constructed wetlands could reduce the risk of flooding for settlements sitting within the floodplain.

Settlements at risk of intensified flooding due to erosion

There are several settlements which are located on the floodplain in a valley below slopes with a high risk of erosion (in particular Kinross, Keltie, Scotlandwell and Kennoway). Some of the soils on these steep upland slopes have a low absorption capacity which causes excess rainwater to flow downhill instead of into the earth, often causing large scale flooding. Furthermore, in areas of rough grazing in Lomond Hills Regional Park the lack of tree cover reduces the potential for rainwater storage and the soil compaction from sheep hooves increases the flow of rainwater down the slopes.



Conifer plantations within the River Leven Catchment

- Floodplain
- Conifer plantation
- Settlement at greater risk of flooding due to post-deforestation erosion

Deforestation and erosion

Once the conifer plantations identified in the upland areas have reached an economic maturity level they will be deforested. This process dislodges the top layer of soil, destabilising its structure and reducing its capacity to absorb water. The increased surface run-off can significantly increase the risk of erosion which in turn leads to faster silting up of watercourses, lochs and reservoirs as sediments are rapidly washed downstream. These excessive sediment deposits reduce the area available for water storage in extreme weather events.

The settlements of Ballingry, Kelty, Cardenden, Milnathort and north-west Glenrothes could be at risk of intensified flooding due to their location downstream of areas of potential deforestation.

Densely vegetated drainage basins can drastically reduce the severity and frequency of floods through an increased capacity to absorb rainwater via both transpiration and root networks. See potential reforestation strategy on the following page.



Potential woodland network within the River Leven Catchment

- Floodplain
- Proposed woodland

Woodland opportunities

The areas highlighted for woodland expansion on the adjacent page have been extracted from Perth and Kinross Council's Environmental Report 2017 and the Inner Forth Habitat Network Pilot 2018. A collaborative approach to regional woodland planning is of particular importance for the River Leven catchment as it crosses a jurisdictional boundary.

Reforestation Scotland will be a key aspect of the drive towards net-zero emissions by 2045 as recently outlined by The Scottish Government. As of 2019 approximately 18% of Scotland is woodland. The Scottish Forestry Strategy has set an aspirational target of 25% woodland cover in Scotland by 2025.

Furthermore, the Committee on Climate Change recently indicated that 20% of existing agricultural land needs to be used for tree planting to offset greenhouse gas emissions.

In addition to addressing climate change and improving biodiversity, woodlands help support the regional economy through timber production (providing it is managed sustainably) and by attracting tourists through recreational opportunities.

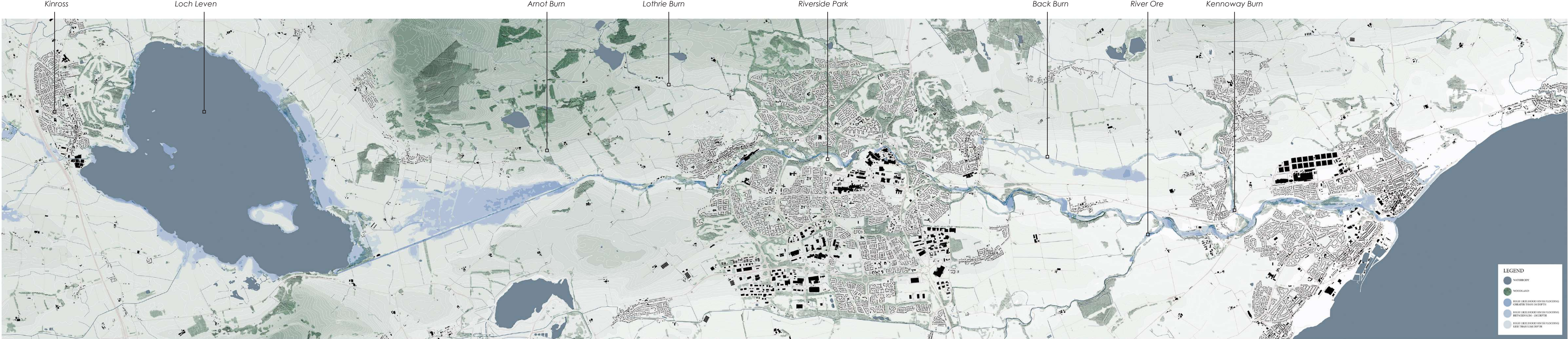


THE RIVER LEVEN



The River Leven: From source to sea





Woodland, tributaries and high likelihood river flooding

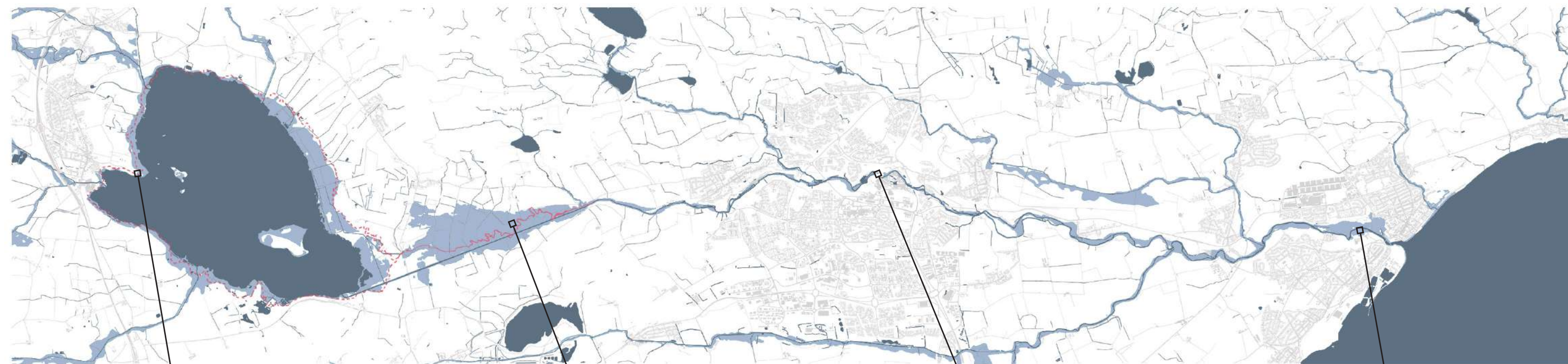
The Environment Agency in England is advising a forest strategy approach to flood mitigation. By foresting the area around a tributary the stream is allowed to create its own meanders and dead wood from the woodland when it falls will naturally slow the flow before it meets the river.

This could prove a particularly effective flood mitigation strategy if implemented along the tributaries of the Leven which are upstream of areas at a high risk of river flooding as indicated on the map above: the Arnot Burn, Lothrie Burn, the Back Burn, Kennoway Burn and the River Ore.

These new riparian corridors would also provide a welcoming habitat for wildlife such as birds, beavers and others.

Hydrology

Waterbody
 Floodplain
 Original level of loch
 Original river meander



Issue: Excess nutrients from diffuse pollution restrict biodiversity

Potential solution: Plant more reeds by loch edge to absorb excess nutrients and allow more space on the floodplain for potential rising loch levels

Photo shows existing conditions



Issue: Floodplain with high likelihood (1:10 year flood) of 1m depth extent of river flooding

Potential solution: Discontinue dredging and allow river to naturally meander over time and/or implement constructed wetlands to act as rainwater storage in extreme events

Photo shows existing conditions



Issue: Invasive non-native species are out-competing native woodland along the river corridor

Potential solution: Instigate targeted removal strategy of rhododendron and encourage local volunteers to assist

Photo shows existing conditions



Issue: Poor drainage causing pooling

Potential solution: Increase extent of existing wetlands

Photo shows existing conditions

THE RIVER LEVEN | ECOLOGY

Woodlands

Issue: Conifer plantation on poorly drained peat soil is vulnerable to severe damage from weather events. This monoculture limits the development of an understory community

Potential solution: Restore tree-free peat dome and surrounding fen, increase biodiversity through planting a mix of native woodland

Photo shows existing conditions



Issue: Unmanaged woodland restricts access to the river

Potential solution: Create accessible routes through woodland to the river

Photo shows existing conditions



Issue: Unmanaged young woodland plantation is too dense to allow an understory to develop

Potential solution: Selectively thin out existing woodland to encourage understory to flourish

Photo shows existing conditions



Issue: Riverbank erosion

Potential solution: Plant deep-rooted flood-tolerant trees (eg Salix caprea) which will improve slope stability and mitigate erosion

Photo shows existing conditions





Issue: Mown verges offer limited biodiversity

Potential solution: Sow wildflower seeds to create pollinator corridors as part of a "differential greenspace management strategy"

Photo shows existing conditions



Issue: Gardens constitute 30% of Scotland's urban greenspace though they can be poorly managed

Potential solution: Promote urban garden strategies to encourage habitats for pollinators, invertebrates and birds

Photo shows existing conditions



Issue: Regularly mown grass limits biodiversity

Potential solution: Implement a wildflower meadow strategy across urban grassland areas

Photo shows existing conditions

Agriculture - Currently all farmland in Scotland must assign 5% of its land for Ecological Focus Area (EFA) options through the three identified options highlighted below. Could, and should the proportional area of EFA's be increased to 10%?

This report suggests the efficacy of agroforestry as a further alternative, one with the potential to diversify farm income through timber production.

Option 1: Fallow land

Strategy: Land left to recover for one year of crop cycle will produce green manure (often mustard, clover or buckwheat) which restores nutrients and organic matter to the soil

Photo shows precedent example



Option 2: Buffer strip

Strategy: Grass buffer strips can provide new habitats for wildlife and improve water quality through trapping pollutants from being transported in surface water runoff

Photo shows precedent example



Option 3: Hedgerow

Strategy: Traditionally used as a source of food, fuel and timber, this habitat provides food and shelter for birds, butterflies and mammals

Photo shows precedent example



Further option: Agroforestry

Strategy: The integrated use of trees and herbivores provides shelter for the animals, improves animal welfare and diversifies farm income among many other benefits

Photo shows precedent example





A transformed watercourse and industrial heritage

As identified above and on page 44, during the most productive stage of the industrialised 19th century, there were dozens of mills along the river providing hundreds of jobs throughout Mid Fife.

Since de-industrialisation, almost all of the mills have closed and the river, for the most part, contributes a fraction to the local economy that it once did.

However, as the The Scottish Government has identified tourism as a growth sector in its current economic strategy, there is the potential to revitalise the river and the landscape to the benefit of the local economy.

Local development plan proposals (selected)

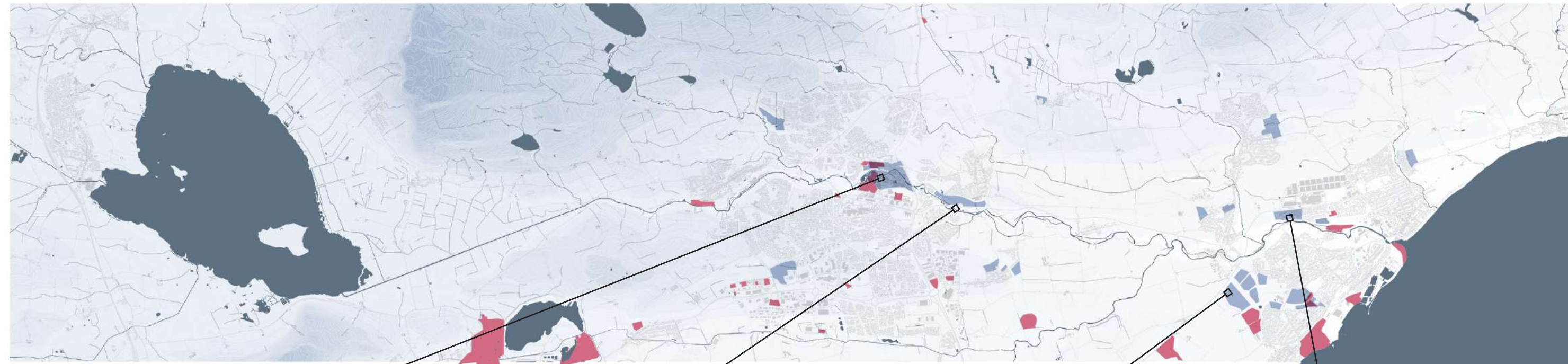
The four major planned settlements below alone have an estimated capacity for 2350 more people to live in close proximity to the River Leven. It is crucial for each of these planned developments to ensure pedestrian and cycle connections to the water and link proposed greenspace to the extensive existing greenspace.

Of particular strategic significance is the former Tullis Russell site (Ref: GLE004) and the Markinch South site (Ref: MAR001). Both of these sites are located approximately halfway along the length of the river and any future connection from Loch Leven to Levenmouth is dependent upon an accessible, inviting and environmentally thriving river corridor.

In addition, the Sea Road, Muiredge, Percival Road site (Ref: LVA001) has a unique opportunity to provide immediate links to the river and the associated greenspace to the south of Kirkland Dam.

Finally, there are several vacant and derelict sites along the river which could provide future opportunities for employment, greenspace, recreation or housing.

Planned development Vacant and derelict land



Ref: GLE004
Area: 9.9ha
Description: Housing
Estimated capacity: 200
Lead agency: Private sector

Ref: MAR001
Area: 13.8ha
Description: Housing
Estimated capacity: 300
Lead agency: Private sector

Ref: LVA001
Area: 107.5ha
Description: Strategic Land Allocation
Estimated capacity: 1650
Lead agency: Private sector

Ref: LEV002
Area: 11.0ha
Description: Housing
Estimated capacity: 200
Lead agency: Private sector

THE RIVER LEVEN | ECONOMY

Tourism

One of the key drivers to boost local economy is the promotion of tourism.

The area around Loch Leven is already a well established outdoor attraction for tourists, with the National Nature Reserve in Kinross, the RSPB Nature Reserve on the south shore and the Loch Leven Heritage Trail which loops around the entirety of the loch.

Both Glenrothes and Levenmouth present considerable opportunities to boost the local economy through different forms of tourism: historic, outdoors and activity-based.

As the diagram below illustrates, the implementation of the Pilgrim's Way trail provides a significant opportunity to link a connected riverside path through Glenrothes to attract walkers, families and visitors into the town. Further attractions such as viewing platforms, playparks and cafes along the new route could be developed to appeal to visitors. This 'walking history' could be created through interpretative work with local residents and artists to reveal hidden stories and memories of the river. There is also a potential connection between the Pilgrim's Way and the Fife Coastal Path which could attract visitors to Levenmouth.

Further to pedestrian walking trails, the strategic implementation of cycle routes beside and around the river could attract additional visitors to the area. Cycling in Fife is already a popular activity with many traffic free routes and quiet B roads to explore. The provision of well connected public transport is fundamental for cyclists, hikers and indeed any visitors to the area.

One particular new cycle route could connect the existing 12 mile loop around Loch Leven to Glenrothes along the river. For further detail see the diagram in the Connectivity section on page 46.



Outdoor attraction Golf course Historic landmark / attraction Hiking trail Potential connection

Sites of industrial heritage

The diagram below illustrates the considerable number of mills located along the river; of the forty mills indicated there are still visible remains or ruins of over a dozen former sites of industry.

An interpretation strategy as part of a wider path network to highlight and guide visitors to significant remnants of the industrial heritage by the river could provide an increase in tourism.

● Former industrial site



Remnant: South Walkerton Wool Mill ruins

Photo shows existing condition



Remnant: Prinlaws Mill chimney

Photo shows existing condition



Remnant: Prinlaws Mill ruins

Photo shows existing condition

THE RIVER LEVEN | ECONOMY

Scottish Index of Multiple Deprivation (SIMD)

As the diagram below indicates, the most deprived areas at the river scale are located in Levenmouth and Glenrothes.

Many of these communities are located in close proximity to vacant and derelict land. As previously noted, the correlation between communities with issues of poor mental and physical health living near areas of vacant and derelict land has been intrinsically linked. This suggests that the communities in and around Methil are particularly deprived and represent the areas most in need of addressing.

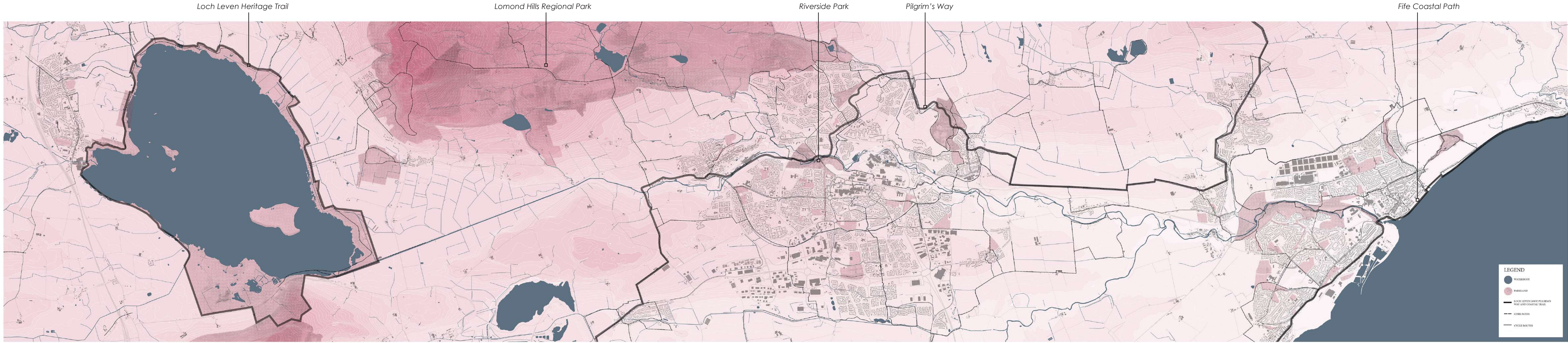
Many recent studies have evidenced the reciprocal relationship between regular access to safe and pleasing greenspace and improved mental and physical health, especially for children. The Connectivity Project aims to improve accessibility to the thriving natural greenspace around the river with the implementation of a coherent path network which brings people to the water.

Many of the existing playparks and greenspaces around the river are unmanaged, uninviting and in a state of disrepair. There are several potential solutions to provide a welcoming and safe environment for all: an improved path network

with street lighting, robust play equipment and a scheduled maintenance programme. It is envisaged that these initial steps would encourage people to feel safer outdoors in their communities and in general improve the quality of the built environment.



● Vacant and derelict land ● Most deprived 5% ● Most deprived 10% ● Most deprived 20%

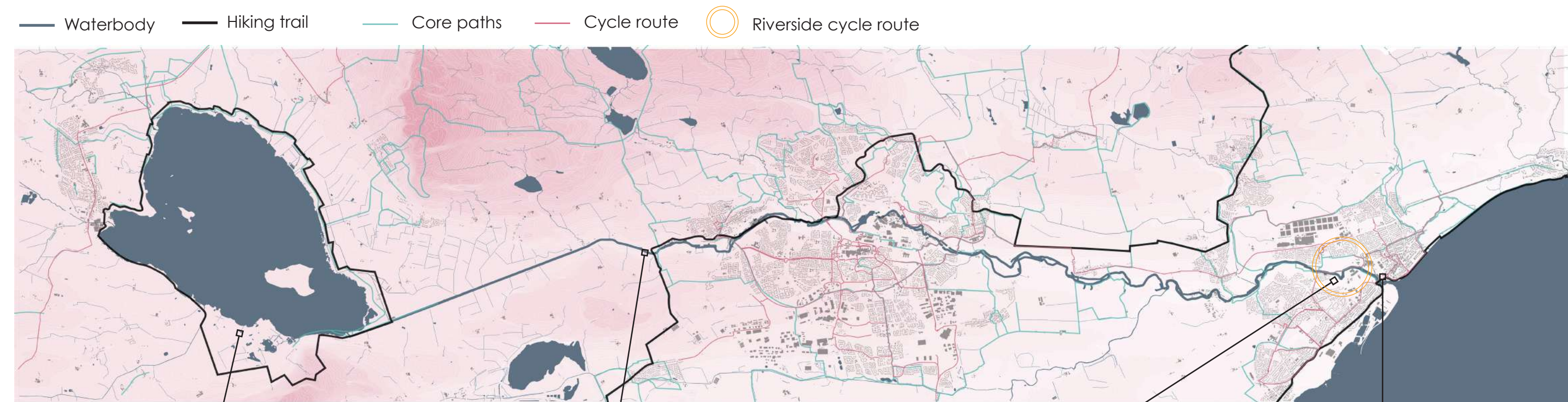


Hiking trails, core paths and cycle routes

As previously noted in the Tourism chapter in the Economy section, there are many opportunities to create new connections to existing trails, walking routes and cycle routes.

Incorporating the existing Loch Leven loop, Pilgrim's Way and the Fife Coastal Path into a proposed path network is fundamental. A coherent wayfinding strategy along the river would help identify routes suitable for cyclists, pedestrians and accessible for all.

Currently only a small section by the riverside is identified as a cycle route (see below). Where feasible, a riverside cycle route connecting the loch to the coast has huge potential for both communities and visitors alike.



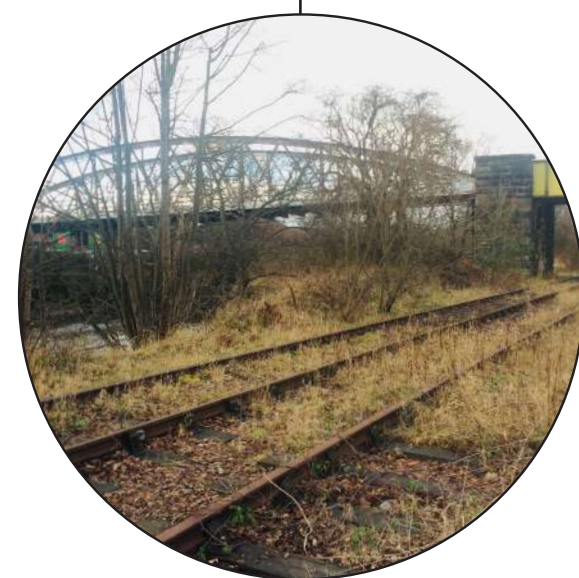
Existing condition/proposal: Install raised boardwalk across wetlands



Existing condition/proposal: Connect Pilgrim's Way signage/path with new footpath along the river.



Existing condition/proposal: Upgrade existing footpaths within Dam Wood to be accessible for all



Existing condition/proposal: Repurpose existing traintracks as footpaths (e.g. infilled with Type 1 or woodchips)

THE RIVER LEVEN | CONNECTIVITY

Rural parks and urban greenspace

In Kinross, Glenrothes and Levenmouth, as is often the case throughout much of Scotland, rural country parks are often just a quick trip out of town. However, accessibility to these types of landscapes for people living in deprived areas can prove problematic; the public transport route for a distance of 20km from Methil to Loch Leven involves several buses and takes over 2 hours.

This underlines the importance of quality urban greenspaces. Some of the greenspaces within Glenrothes and Levenmouth are inaccessible either due to their proximity to major infrastructure (motorways and A roads), poor quality path networks or a lack of visible signage. An upgraded path network with a coherent wayfinding strategy has the potential to reconnect people in the city with nature.

Furthermore, as indicated in the diagram below, there is an abundance of greenspaces within both Glenrothes and Levenmouth. A city-wide 'differential greenspace management strategy' could connect these greenspaces through wildflower meadows and pollinator corridors, increasing biodiversity, reducing strain on maintenance and making them more appealing to the public.

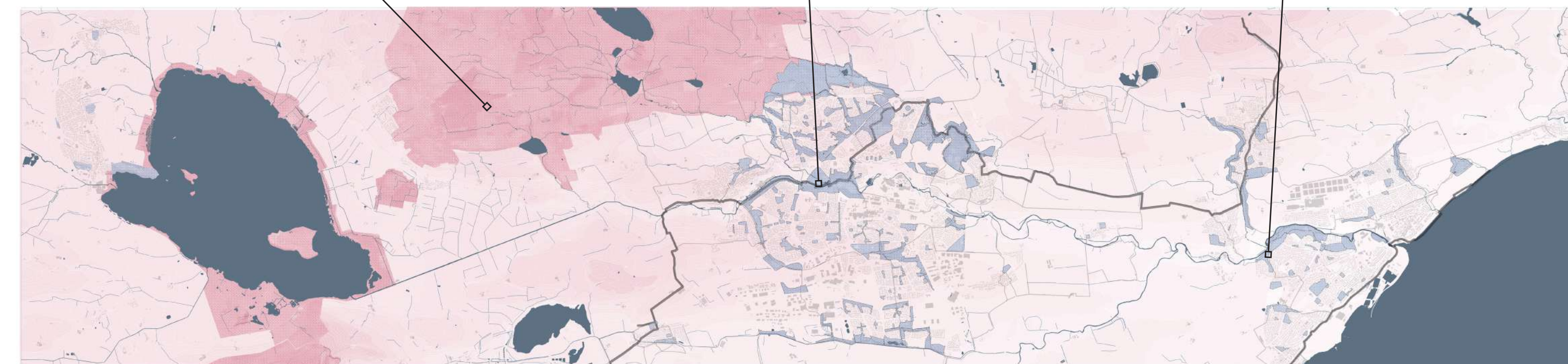
Existing condition: Example of the character of the Lomond Hills Regional Park



Existing condition: Example of the character of Riverside Park



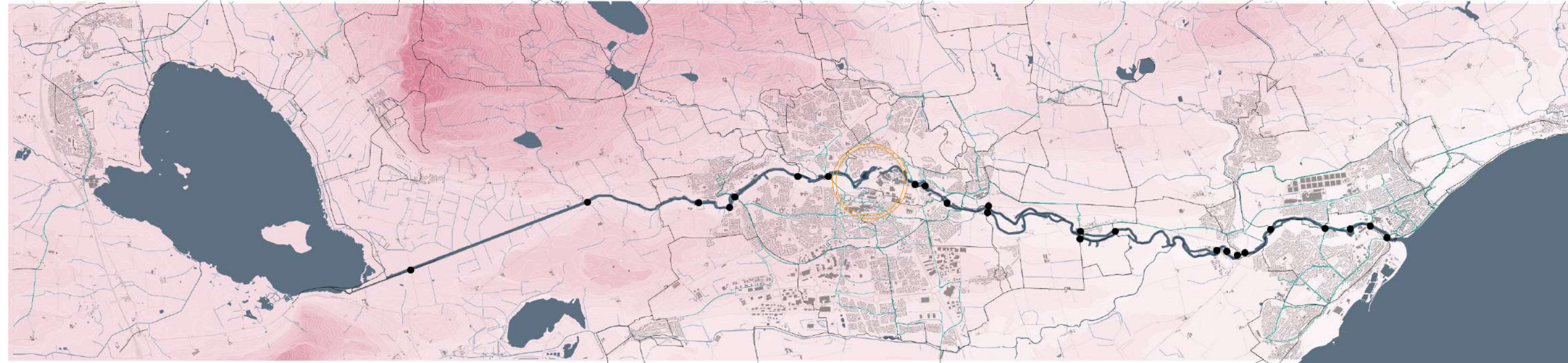
Existing condition: Example of maintained greenspace in Levenmouth



● Rural park/reserve ● Urban greenspace

Crossing points

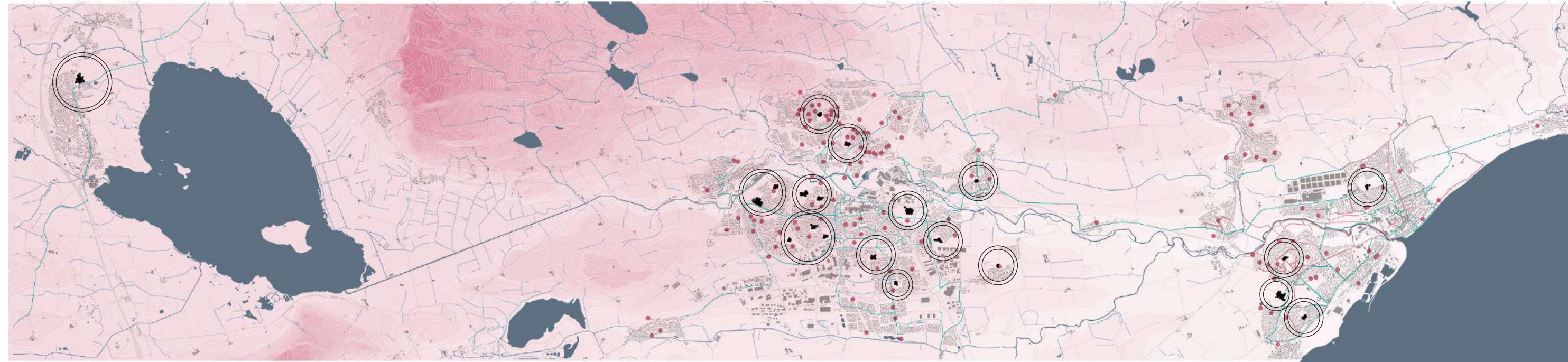
— Waterbody — Core paths — Cycle route ● Crossing point ○ Tullis Russell site



A more in-depth study of the existing crossing points along the length of the river is needed, including differentiating between pedestrian friendly crossing points and vehicular crossing points. It should be noted that well connected crossing points as part of the Tullis Russell site development are crucial to the overall connectivity across the river in Glenrothes.

Schools and playparks

○ School ● Playpark/playground — Core paths



A more in-depth study of the schools and safer-routes along the length of the river is needed as well as further research into play strategies for Kinross, Glenrothes and Levenmouth

THE RIVER LEVEN | FIRST STEPS

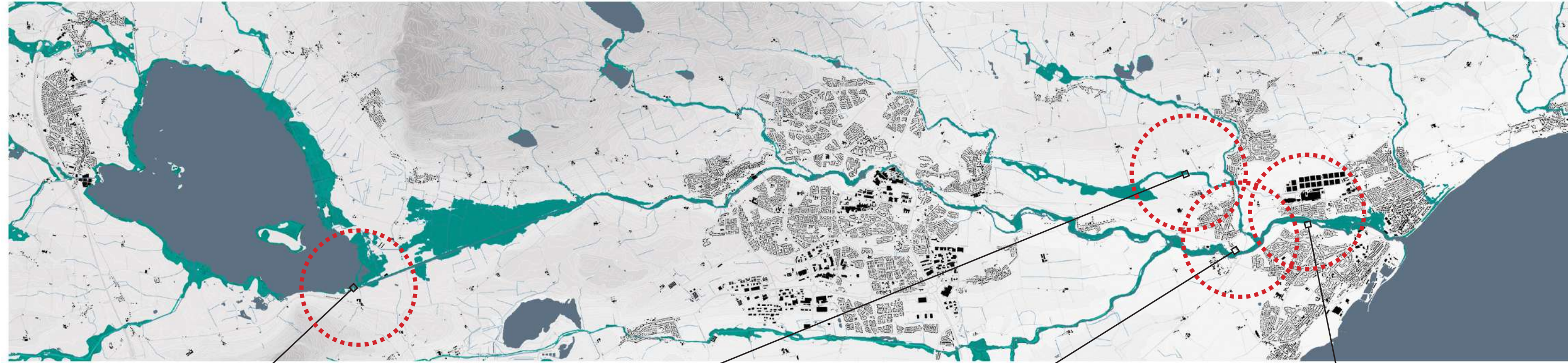
Key to the wider River Strategy is the support, and integration, of existing projects and programmes along the Leven, by SEPA, Fife Council, Forth Rivers Trust etc. A number of first steps relevant to the River Strategy have been identified through conversations to date. These include the following:

- Backburn / Kennoway Burn – removal of fish barriers

and study on-going by SEPA. Underpins and needs to be connected into The Leven (crosses deprived areas similar to Leven)

- Diageo distillery – screens
- Diffuse Pollution Walk-over – SEPA (Needs to include discussions with farmers about connection corridor and inclusion of path / cycle routes in buffer strips. Issues include compensation, restoration, land ownership

- Fife Council Integrated Catchment Study (ICS), Flooding review and stopping water getting in to system key for Scottish Water. Opportunity for data collection.
- Works to make fish barriers passable. Both Methilhill and Kirkland Dams within the Connectivity Project area have been classified by SEPA as un-passable.
- SEPA local team priorities, source to mouth of The Leven.



Site: Loch Leven sluice

Issues: Conversation to be had with the Leven Trust concerning water levels in the loch and river, as well as outflow from the loch.



Site: Kennoway Burn / Backburn

Issues: De-watering of river through hydro and existing lade



Site: Diageo Distillery

Issues: Screens have been identified as a requirement at the plant



Site: Methilhill and Kirkland Dams

Issues: Classified by SEPA as un-passable fish barriers

THE RIVER LEVEN | FORWARD THINKING

Arising from early discussions with the project team / stakeholders was a need to think and act long-term. These brought into focus a number of key sites and landscapes, each impacting on the future vision for a connected river with their own particular problems relating to the core tenets of The Leven: Ecology, Economy and Connectivity. These major projects are complex and diverse in nature, a number of

which have been identified below.

In addition to these major projects, discussions with the project team identified other long-term potential proposals for The Leven through existing programmes and discussions with landowners and farmers.

SEPA are currently carrying out a 'Diffuse Pollution Walk-over' looking at methods and means to minimise polluted sediment from farms entering water courses. The potential of path or cycle connections within the buffer strip is seen as offering benefits to the long-term connectivity of the River Leven. Potential issues include compensation, restoration and land ownership.

Site: Channelised river section immediately east of Loch Leven

Issues: Flooding, lack of biodiversity, connectivity



Site: Fettykill Paper Mill

Issues: Dewatering of river is a major fish barrier



Site: Tullis Russell

Issues: Redevelopment of site raises potential problems in respect of connectivity along and across river



Site: TLS Balgonie Hydro

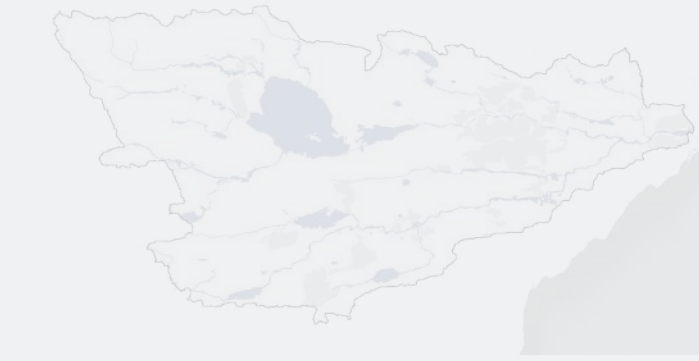
Issues: Dewatering of river through hydro and existing lade



Site: Where the River Ore meets the River Leven

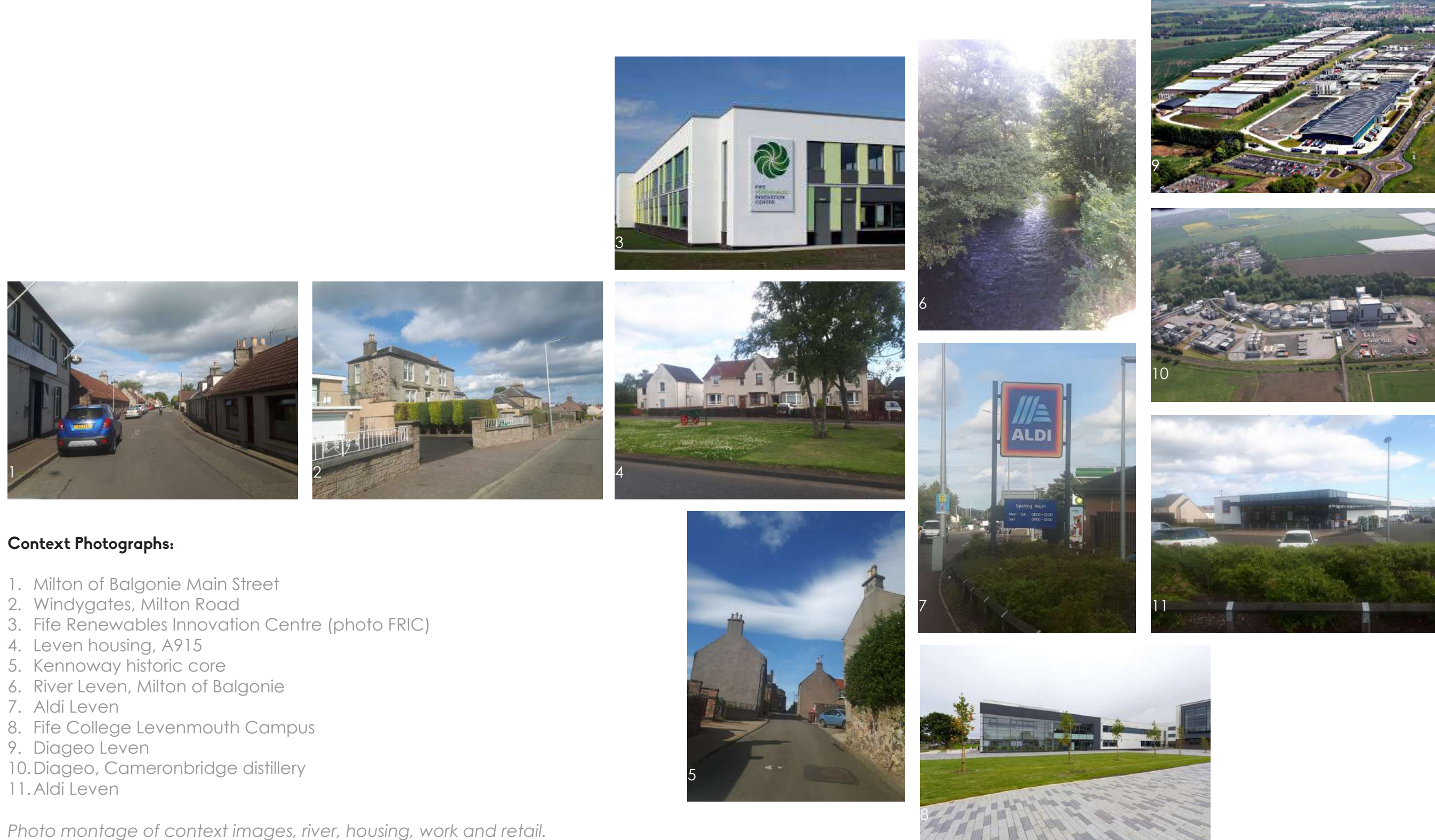
Issues: Sources of contamination discharging from the Ore into the Leven.





The Connectivity Project: Meeting the firth





Context Photographs:

1. Milton of Balgonie Main Street
2. Windygates, Milton Road
3. Fife Renewables Innovation Centre (photo FRIC)
4. Leven housing, A915
5. Kennoway historic core
6. River Leven, Milton of Balgonie
7. Aldi Leven
8. Fife College Levenmouth Campus
9. Diageo Leven
10. Diageo, Cameronbridge distillery
11. Aldi Leven

Photo montage of context images, river, housing, work and retail.



View of the river from the southern edge below Windygates

Introduction

The Connectivity Project comprises the 5km stretch of the river from Windygates as it empties into the Firth of Forth at Leven. The following section of the report outlines some of the key information that has been considered in the assessment of the site area. From the baseline information, walking the site, and meetings and discussions with groups and individuals a constraints & opportunities plan has been realised, which subsequently underpins principles and proposals for the restoration of the river corridor. A broad 'masterplan' is provided as a starting point only, to enable conversations to be had with stakeholders, the community and the wider project team.

The Masterplan is not a Masterplan, but a start.....

Local Context

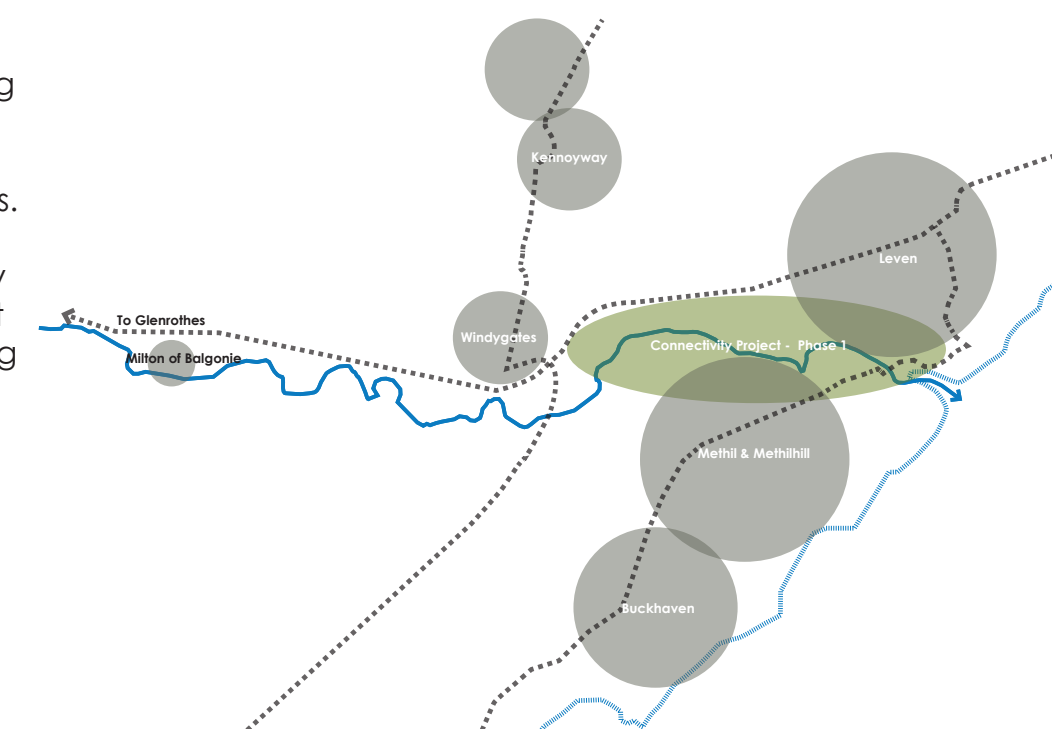
The Connectivity Project of The Leven, lies within the heart of a group of towns and villages located in southern Fife. Whilst too small to be profiled individually on Scotland's Towns Partnership website, the group is detailed as an 'industrial complex'.

The industrial complex consists of Leven, Buckhaven, Methil, Methilhill and 10 other towns. The complex was originally based on traditional industries such as coal mining which were subsequently replaced in the 20th century with an oil rig construction yard, Diageo and the Fife Energy Park.

Social and council housing are common in these large towns. Manufacturing and construction are the dominant forms of employment. Health and social work services are particularly active. There is a relatively high level of unemployment whilst educational attainment is low. Car ownership is low, meaning that many residents in these towns are reliant on public transport.

Significantly the site sits in the centre of just over 24 thousand

people (24,474 in 2011) with the potential to connect and improve the lives of these people. It also has the potential to act as a catalyst to address the issues of social and economic deprivation within the wider mid-Fife area.





Key designations from Fife Council Local Development Plan

- Protected open space and Existing Green Network Asset
- Housing Proposal
- Indicative Proposed Green Network
- Green Network Opportunity

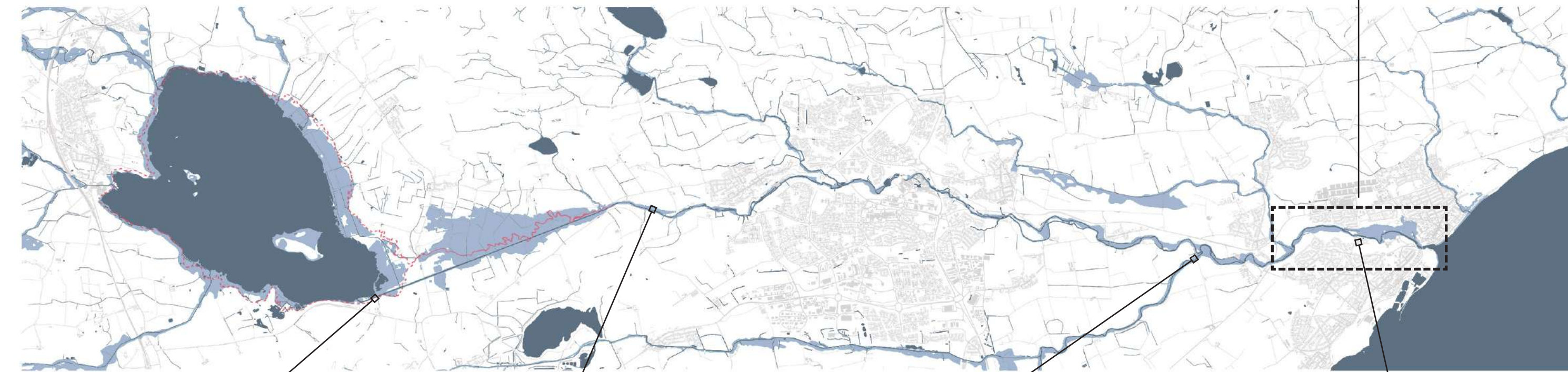
Local Development Plan & Designations

The first point of investigation was the information held and identified in the Fife Council Local Development Plan, adopted September 2017. Opposite left are the key designations and proposals for the Connectivity Project area. Of particular note are the green network structures and opportunities.



High likelihood depth of fluvial flooding in Connectivity Project area (1:10 - Once in every ten years or 10% chance in any given year)

- Greater than 1m
- Between 0.3 - 1m
- Less than 0.3m



Issues: Control of water flow from loch

Issues: Diffuse pollution and surface water run-off from fields and land along river

Issues: discharge / pollution entering the River Leven from the River Ore

Issues: Opportunities for data collection

Flooding

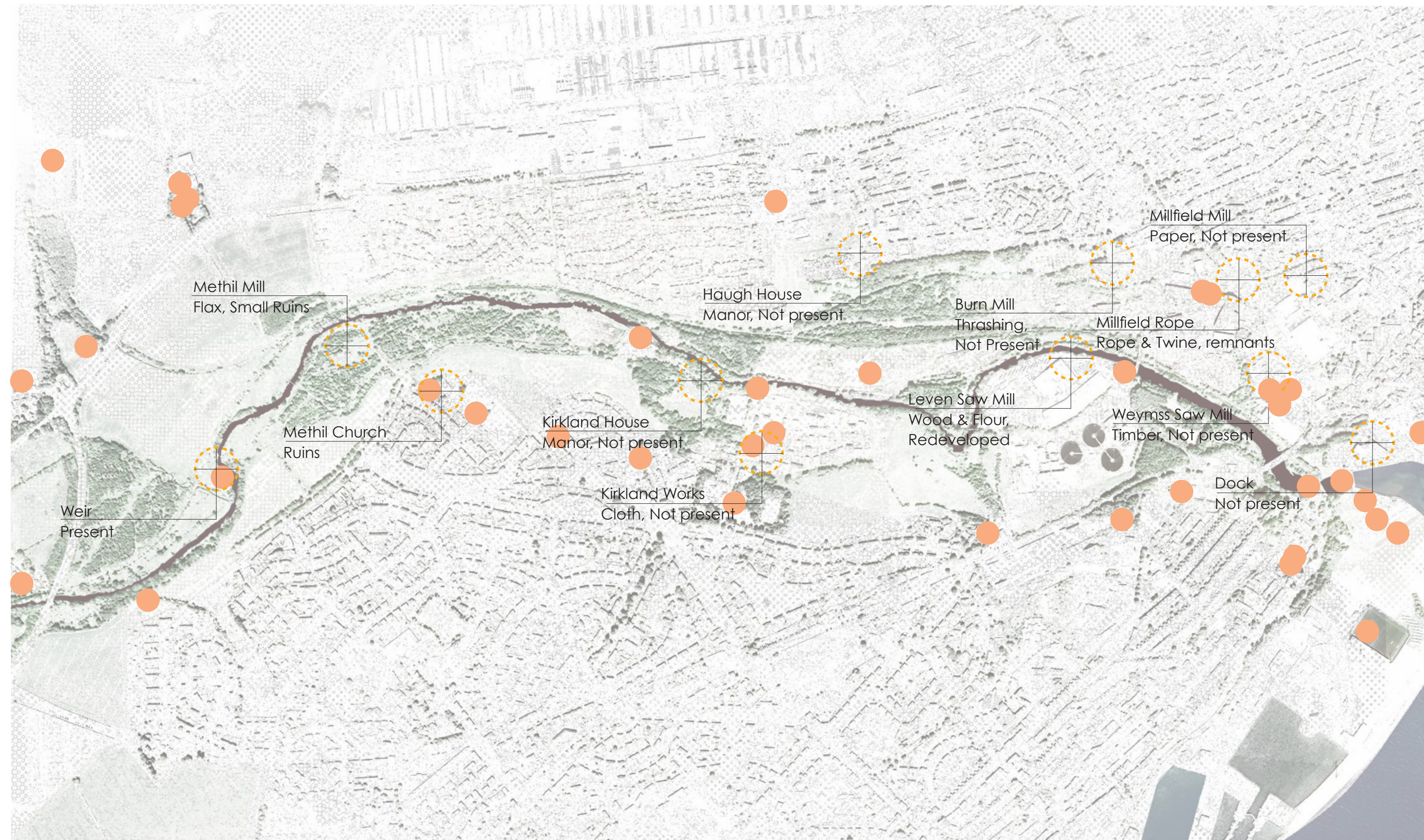
Taking guidance and information from the Scottish Environmental Protection Agency (SEPA), the likelihood of a flood event is likely to occur in the Connectivity Project area on average once in every ten years, or a 10% chance of happening in any one year. The plan opposite left shows the indicative depth and extent of the flood event.

In discussions with SEPA the need for dialogue within the organisation about flooding, preventative measures and design solutions / programming in the area was identified. These conversations need to be had early on in the design process and continued throughout the project.

Discharge & Pollution

In conversations with SEPA and the Forth Rivers Trust it was made evident that issues relating to flooding within the Connectivity Project area need to be addressed upstream. The following initial issues have been identified:

- Diffuse Pollution
- Discharge / Pollution from the River Ore
- Control of water flow
- Surface water run-off



Heritage and Archaeological sites identified within the Connectivity Project

- Industrial heritage sites
- Archaeological sites identified in Heritage Interpretation Assessment (as listed on the National Monuments Record)

THE CONNECTIVITY PROJECT | EXISTING CONDITIONS

Heritage

From our desk research and site visits there is a clear body of heritage assets within the Connectivity Project study area. The diagram (left) illustrates the considerable number of mills and heritage sites located along the river. Whilst many of the mills are not visible some historical remnants still remain.

As part of a wider river strategy, an interpretation strategy to highlight and guide visitors to significant remnants of the industrial heritage by the river could add to a sense of local identity and character, and provide an increase in tourism.

The River Leven was an important artery for communication and trade. From the 12th century the river was vital for eel, salmon and sea trout fishing, along with flax retting. Later the river became the engine for industrial growth and manufacturing along with mining, boat building and maritime industries such as rope and herring-net making dominating the history of the area.

Heritage Interpretation Assessment

As part of the investigative process for the Connectivity Project a Heritage Interpretation Assessment was carried out in March 2019 by Fife Council. The assessment looked at the river valley and the wider urban context including Leven, Windygates, Buckhaven and Kennoway.

The assessment identified the historical assets of the Levenmouth area which date back to the prehistoric period, although none of the archaeological sites exist as outstanding monuments. There is a reasonable count of Bronze Age sites, and a number of medieval sites within the wider path network linking to the nationally significant collection of coastal caves at East Wemyss.

There are a number of listed buildings within the study area but none of sufficient architectural or historic character to justify interpretation. The report proposed that "given the modern urban character of the area and the scarcity of notable heritage sites and buildings, it is considered that any interpretation plan should consider not only site specific interpretation, but also a thematic approach to the interpretation of the area's cultural history, the key themes being:

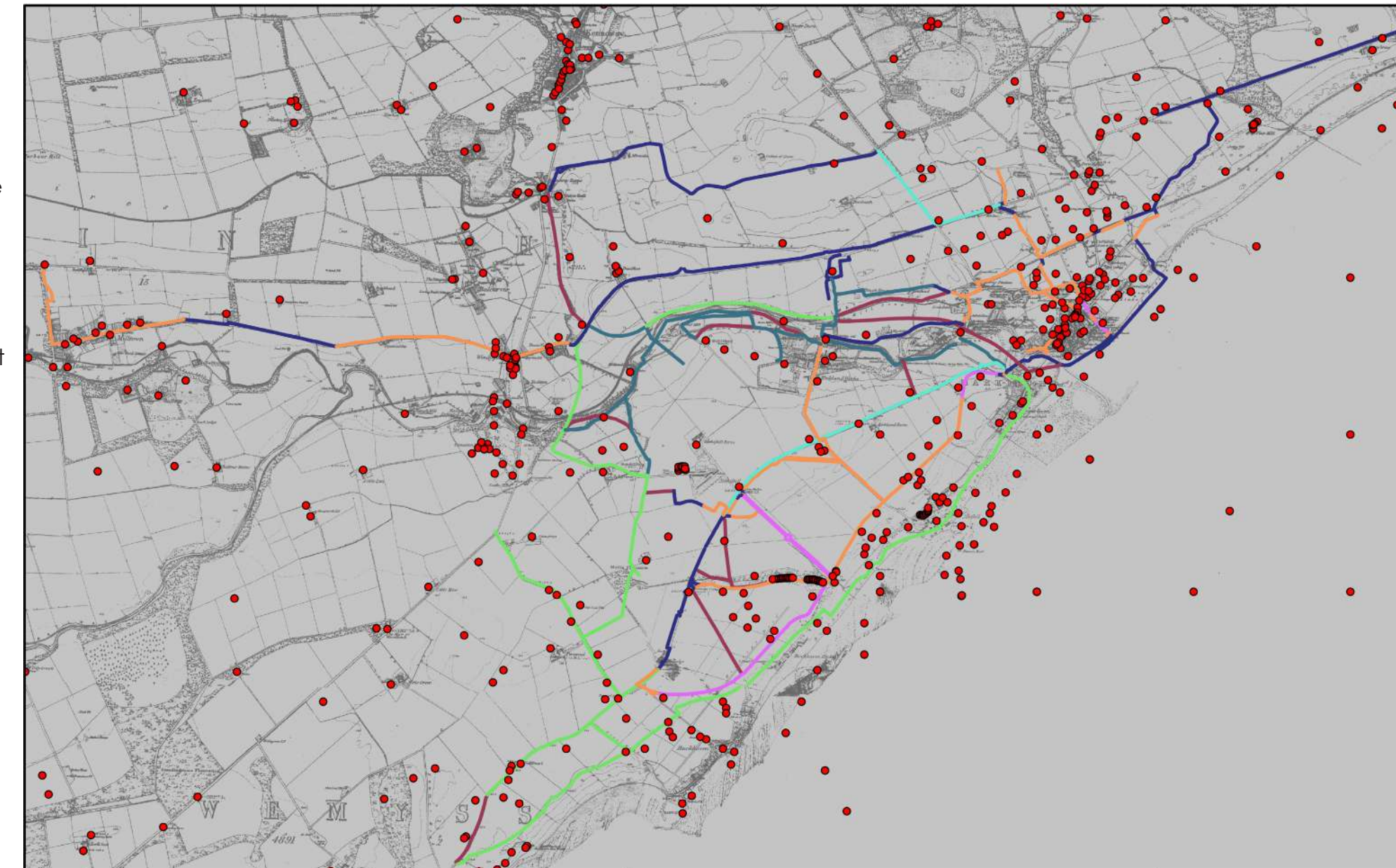
- The River Leven

- Industrial heritage (mills, mines and ship building)
- Urban history (the origins, evolution and characteristics of settlements)
- Medieval history (Pictish, Gaelic and early Scots place-names, Scoonie stone, castles and baronies)
- Prehistoric archaeology (cropmarks, finds and Ashgrove excavations)
- Leven as a tourism destination."

The report recommended that when the path network is finalised, a detailed interpretation plan should be produced

identifying key sites, themes, messaging, audience and communication vehicles in the form of static interpretation boards, leaflets, community projects and QR codes.

The report concluded that, **"there is an interesting archaeological and historical dimension to the Levenmouth area which offers considerable scope to add interest and legacy to the project by the inclusion of cultural heritage interpretation and volunteer archaeological projects"**.



<p>● Archaeological Site Listed on the National Monuments Record</p> <p>Use PastMap https://pastmap.org.uk for further details of each site</p>	<p>N</p> <p>1:22,000</p>	<p>Archaeological Sites and Proposed Path Network on OS First Edition 1854 Map Base</p>	
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Archaeological sites identified from Archaeological Interpretation Assessment



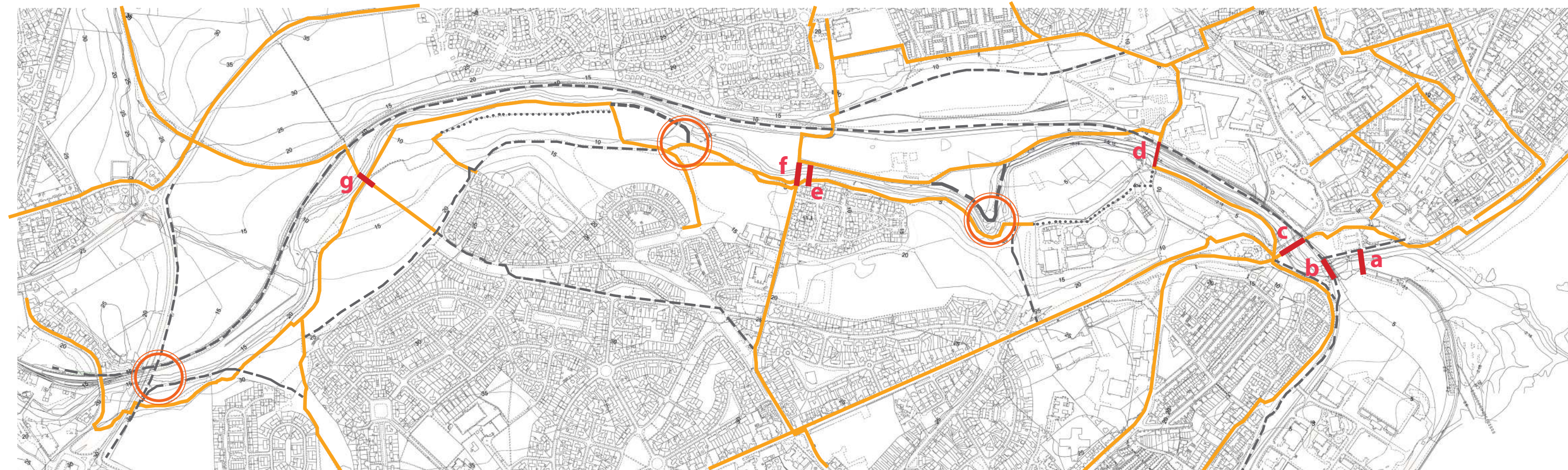
Photos:

Paths

1. Waters edge at mouth of river
2. Access route under Bawbee Bridge
3. Informal pathway along northern side of river, alongside former Levenmouth rail line
4. Informal footpath along northern side of river behind Sainsburys
5. Desire line through wooded edge to space in to Fife Heritage Railway
6. Raised concrete walkway over pipeline alongside river at western end of Creosote site
7. Access route into open green space behind Mulberry Crescent housing
8. Narrow walkway along south western section of river on concrete capping to water pipeline

Bridges

9. Bridge a: Existing concrete bridge
10. Bridge b: Metal bridge
11. Bridge c: Bawbee Bridge
12. Bridge d: Iron Brig, vehicular bridge
13. Bridge e: Disused pedestrian bridge
14. Bridge f: Concrete vehicular bridge
15. Bridge g: Pedestrian timber and metal bridge



Plan illustrating identified routes through the site based on information from Fife Council's Paths & Cycle Feasibility Study report and plans.

- Existing path and cycle routes: to be retained and improved (see Cycle Network Levenmouth p68)
- Suggested additional routes - (see Cycle Network Levenmouth p68)
- Existing river path routes considered unsuitable (see Cycle Network Levenmouth p68)
- Existing bridge / river crossings
- Proposed bridge / river crossings

Connectivity

Connectivity through and across the site is limited in extent and mixed in quality. The plan above illustrates the extent of paths through the site, whilst the photographs, opposite left, provide a snapshot of the existing state and quality of the paths and bridges. All need upgraded in detail, design and construction to meet current standards and realise the potential functionality of the site.

Paths

At present there is not a single route within the Connectivity Project area that accords with current Sustrans standards. The majority of paths range from grass, dirt or crushed stone (Photographs 2, 3, 7). There are a couple of key strategic routes (Photographs 6 & 8) that have a concrete surface. These are situated on top of the mains water pipe that winds its way through the area, adjacent to the Creosote site and along the southern embankment to the west of the site. Even these path sections require improvement, either widening to

accommodate mixed modal movement or improvement in terms of health and safety protection measures.

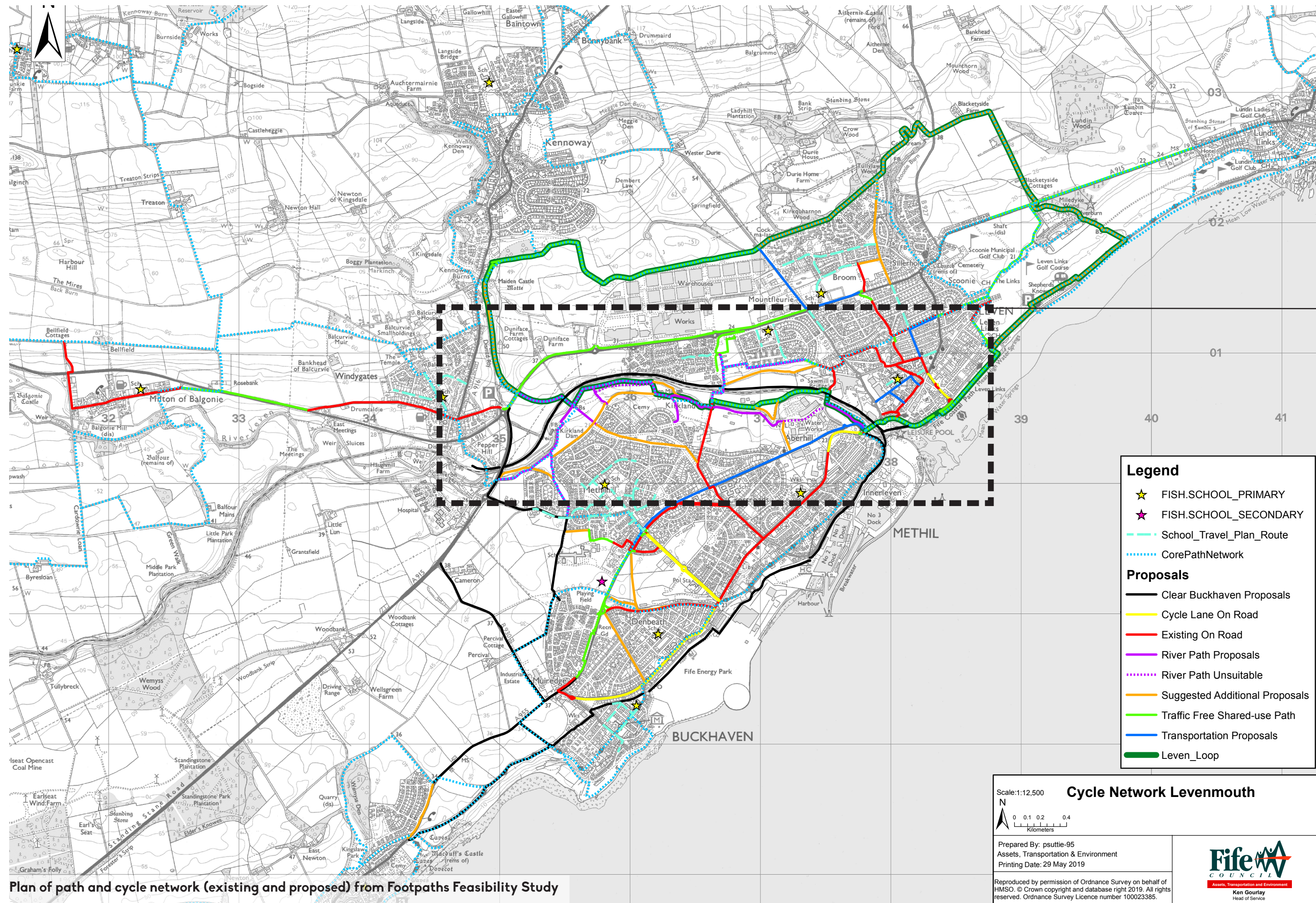
Fife Council's Roads & Lighting Contracts team (Fife Resource Solutions) have walked and reviewed the existing paths and cycleways within the site and the wider setting. They have assessed all paths and cycle routes and have produced a path network which outlines recommendations and proposals for improvement in terms of function and connectivity. These proposals are set out on the Cycle Network Levenmouth Plan on page 68.

Bridges

There are seven bridges that cross the river in the Connectivity Project area but only six are accessible. Of the seven bridges five are currently in use but from visual assessment all have physical and structural problems and are in need of remedial works or even complete replacement.

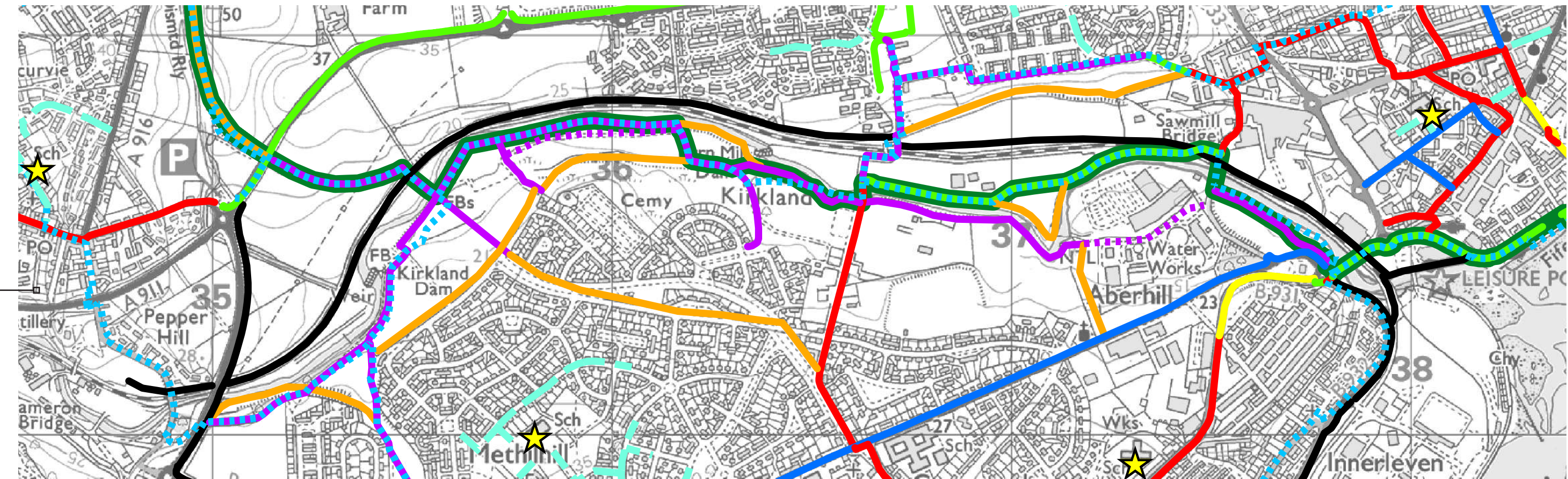
Photographs 9 - 15 show the character and condition of the various bridges:

- Bridge a: Existing concrete bridge at mouth of river connecting Levenmouth Sports Centre / Town centre to dock area. The bridge is in poor condition and needs replacement. The question is about whether the bridge is superfluous to need.
- Bridge b: Metal bridge at mouth of river connecting Sports Centre / northern embankment with southern side of river & Methil. Currently in poor condition but has been discussed as potential pedestrian 'Green Bridge'.
- Bridge c: Bawbee Bridge connecting Methil with Leven. Currently in the process of redesign and construction.
- Bridge d: Iron Brig, vehicular bridge connecting Leven



Plan of path and cycle network (existing and proposed) from Footpaths Feasibility Study

THE CONNECTIVITY PROJECT | EXISTING CONDITIONS



Extract of Connectivity Project area from Paths & Cycle Feasibility Study

Leven Connectivity - Feasibility Study

Vale to Methilhaven Road. Structural condition has been questioned and does not have much traffic crossing. Visually striking and potential for improved pedestrian crossing if rail line is reinstated.

- Bridge e: Disused pedestrian bridge near Steelworks Brae. Removal?
- Bridge f: Bridge connecting Steelworks Brae to Creosote site and housing beyond. Assessment required to assess structural integrity but currently access is limited for vehicular traffic due to anti-social activities.
- Bridge g: Timber and metal pedestrian bridge at western end of site. Bridge is narrow and in poor condition. Replacement required.

From the site assessment, and stakeholder discussions to date, potential alternative crossing points (supplementary) were identified for further investigation. These are identified on the plan on page 68.

As part of the Footpaths study conducted by Fife Resource Solutions, the review of the existing paths and cycleways within the wider setting of the Connectivity Project covers approximately 35km of existing and suggests potential new shared use paths.

A path network, along with outline recommendations, has been produced and set out on the Cycle Network Levenmouth Plan opposite. The network integrates existing and proposed shared use paths, core paths and those proposed by Clear Buckhaven. In addition the Leven Loop as proposed by local elected member, Cllr Davidson, has also been included. The path system links Buckhaven, Methilhill, Methil, Lower Methil and Leven with trip activators, such as shops, parks, schools and the River Leven. All paths are proposed to be a minimum of 3m wide, but where feasible 4m.

The conclusions and recommendations of the feasibility study, set out in the cycle network plan opposite, should

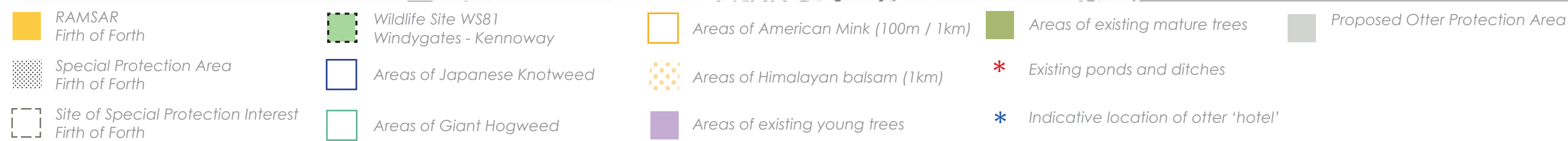
be considered and incorporated into a future detailed Connectivity Project Masterplan.

Note: The study identified a number of 'early wins', projects that do not require any land purchase and can be delivered in the short to medium term. Early wins include at least one of the main west/east routes linking to some of the more popular trip activators, such as shopping areas. Potential early wins recommended are;

1. Wellesley Road - College Street to Bawbee Bridge
2. Methilhaven Road - West LMA to Percival Road
3. Wellesley Road - Percival Road to College Street
4. Sandwell Street - Wellesley Road to LMA
5. Sea Road - Full length
6. Methil Brae to Kirkland Drive



Plan of a number of the core features and ecological markers identified in the Green Network Report



Green Network / Ecology

One of the key aspects of the Connectivity Project area is the extent and diversity of the landscape vegetation. This section of the report gives a glimpse of the richness and complexity of this landscape, with the primary information extracted from the Forth Rivers Trust Green Network Report.

Walking the site the diversity of the landscape becomes clear. The vegetation, topography and the morphology of the river corridor has created a series of areas with distinctly identifiable landscape characters. These landscape characters have been used to form the basis of the Connectivity Project proposals, see Programming The Park, further in the report.

Green Network Report

Forth Rivers Trust (FRT) were tasked with undertaking a Green Network assessment, and producing a report, of the Connectivity Project area. The report details and interprets the preliminary baseline ecology of the paths network area. The aims and objectives of the report are:

- To encourage people to use the paths network by interesting and engaging them with the great wildlife that can be found in and around the River Leven valley, and further afield, and ultimately enriching their lives.
- To bring people and wildlife together providing an extra impetus to health & well-being.
- To identify teaching and training opportunities and help people to care about wildlife and the environment and to get out into nature more often,
- To get people exercising their brains and bodies together to raise enthusiasm and involve them practically in protecting

and improving their environment,

- To identify any constraints to development presented by the presence of wildlife and ensure any works carried out to the paths network do not fall foul of the conservation legislative framework.
- To enhance the value of the network through learning, engagement, training/skills development, community cohesion, social interactions, intergenerational exchanges, and investment to the benefit of local communities as well as visitors from further afield.

The extent and breadth of the features and wildlife present meant that the FRT considered the Connectivity Project area as a hidden gem of a river valley. It was felt that the site was being used without common acknowledgement of the biodiversity present or of the unique inherent value of the river valley, but that there was potential to engage and interest people, provide teaching opportunities, and promote sociable occasions and intergenerational exchanges.

The Connectivity Project area sits at the centre of a wider network within mid-Fife, joining Leven, Windygates, Methil and Kennoway. The river valley could potentially link the surrounding towns and countryside through greenspaces and pollinator corridors.

The river corridor, and its constituent biodiversity are protected by the shape of the landscape, the steep gradients of the valley slopes, large sections being inaccessible or not accessed, and with housing set well back (35m between river and housing to the north and 175m to the south). This provides breathing space which protects wildlife from disturbance and allows it to thrive in relative peace.

Users of the space generally stay on the paths as the riverbanks can be heavily vegetated and difficult to access.

Conclusion:

The conclusion of the Green Network Report is that the Connectivity Project area is a hidden and under-rated wildlife haven.

Any development beside the river and on the river corridor should ensure the preservation of the area. Before carrying out any development works within the river valley area the report stated that there is a need to consider species with conservation protection. The report even suggested that an alternative route for the reinstated railway line might be considered to avoid "ploughing directly through wildlife havens on the north riverbank".

The paths network and surrounding landscape is such that people can access the area by path but would be less likely to go 'off-road'. This contributes to the protection of the area. In addition the wide range of habitats present further promotes biodiversity, including a rich source of insect pollinators present along the river "that could populate the proposed pollinator corridor branching into the wider urban and rural area".

Finally the report's conclusion proposed that the wildlife found on the site carries with it a range of opportunities for learning, engagement and positive activities. Many different types of local groups and volunteers could be engaged with through the wildlife present on site.

The plan opposite left, identifies a number of the core features and ecological markers from the Green Network Report. These should be taken forward into the design development of any detailed masterplan proposals.



Wildlife Surveys

A series of surveys, carried out by specialist partners, completed April to June 2019, underpin the FRT Green Network report. The surveys established the range of wildlife on site and any associated factors involved. The primary species are:

Otters & Water Voles: Otters are present and use the area heavily. The river provides a good food source, cover and shelter with the river banks providing for holts and rest sites among the trees and in the grass. The concentration of otter activity is in inaccessible, undisturbed areas. These areas are marked on the map on p70 and are recommended to be maintained as such. Water Voles are not present on site. (Note: American Mink, are present in the area)

Breeding Birds: The bird survey identified that habitats within the Green Network are very diverse providing a high quality site for wildlife. 50 species were recorded during May and June. The vast majority of birds were spread evenly throughout the entire area. The conclusion of the survey was that the diverse habitat mosaic of the Green Network should be preserved in order to allow the bird fauna to persist. The lack of mature trees can be improved by the installation of nest boxes.

Bats: Three species of bat were recorded, common, pipistrelle and Daubenton's. The river provides an excellent commuting route with plenty of insects but roost sites are not readily available as there are large areas of young planting and few mature trees.

Amphibians: Ponds, marshes and ditches within the Green Network include a SUDs pond, Methilhill wetland, an old lade, a flooded path. Furthermore, ditches and farrows within the woodland areas provide good habitats for toads and frogs. No newts are present within the area, or in the wider setting.

Terrestrial insects and pollinators: A great diversity of insect life, and flowering plant community, is present in the area. Habitat is important for supporting these invertebrates, in particular the steep south facing banks and the creosote site.

Fish: There is a diverse fish community within the River Leven including salmon, brown / sea trout, lamprey, eels, flounder. Dams create barriers to fish migration upstream, requiring removal or the fitting of a fish pass.

Aquatic insects: Aquatic insect life is considered 'not too bad'.

There is some pollution resulting in sensitive species being either absent, or present in very low numbers.

Roe deer: Roe deer have been observed on site, no other species. They have a low impact on site vegetation and any new planting could be protected through conventional measures.

Invasive Non-Native Species: All three common Invasive Non Native Species (INNS) of weed are present in the Leven Green Network; Giant hogweed; Japanese knotweed; Himalayan balsam. The locations of hogweed, knotweed and balsam within the Leven Green Network are shown on the adjacent plan.

The hogweed in the site has already been treated by FRT in June this year. INNS management should be considered at a wider spatial scale than these isolated sites, promoting connectivity at large spatial scales.



Photos:

1. Mature riparian woodland
2. Young woodland plantation
3. Methilhill wetland
4. South facing banks and slopes
5. Railway aggregate ballast
6. River channel
7. Open Mosaic Habitat on Previously Developed Land (OMHPDL)
8. Vegetated walkway along southbank of river at western end of site
9. Green corridor along former rail line within northern sector of site
10. New housing under development above steep southern slopes and wetland at rivers edge
11. River set below wooded edge of rivers riparian margin
12. Kirkland Dam
13. Open meadow / grassland landscape at south western edge of site

Habitats

The site possesses a diverse mixture of habitats which have benefitted greatly from sporadic recent management of the site. The key habitat types are described below:

Mature riparian woodland: Mature woodland and trees are good for biodiversity. Within the site of particular note are the existing ancient willows in place on the north bank which the FRT recommend that under no circumstances are to be removed as they create a home and shelter for a huge amount of wildlife.

Young woodland plantation: Existing young plantations on site need management and improvement.

Species-rich riparian grasslands: High quality areas of tall grasses and wildflowers on the north bank.

Methilhill wetland: Ideal for wading birds, insects and amphibians. Excellent opportunity for engagement with high platform overlooking the wetland from the east, providing potential for an outdoor classroom, a cycling hub / venue and café.

South facing banks and slopes: Warm, steep, sunny slopes provide an undisturbed landscape, encourage wildflowers which in turn attracts pollinating nectivorous insects. Excellent bee bank.

Railway aggregate ballast: Stones and interstice are ideal for insect life, basking butterflies and spiders.

River channel: The river provides a home for a variety of fish, salmon, sea trout, brown trout, eels, flounder and lamprey. The dams along the river are a problem for migrating fish.

Open Mosaic Habitat on Previously Developed Land (OMHPDL): Brownfield / Creosote site. Contains a patchwork of hard landscape, wetland, species-rich grassland and scrub.

Opportunities

From the Green Network Report a plethora of ideas and opportunities were derived, the most pertinent are set out below:

- Install interpretation materials covering otters, bats, fish, insects, amphibians and roe deer, forming a recommended wildlife walking circuit and walks. This would include information on spotted animals, Roe deer, otters and bats.
- Create and promote up to 32km of pollinator corridors using a huge range of local groups and volunteers. Butterfly, bee and other nectivorous insects including a 'B-way', a pollinator corridor with wildflowers and flowering shrubs connecting green and wildlife areas together and offering forage for pollinators (i.e. nectar).
- Engage schools in Fish in the Classroom, planting the pollinator corridor, pond dipping, kick sampling, tree planting and Introduction to angling. An outdoor classroom by the riverbank would facilitate all these activities.
- Train local volunteers in traditional conservation methods such as scything grassland and producing hay eel ropes for the dams, building hibernacula, creating strategically placed dead wood piles, building bat roosting and bird nesting boxes and creating new ponds.
- Train local anglers to become angling coaches.
- Engage local people in recording wildlife (bird, butterfly or roe deer counts) and reporting to appropriate databases.
- Potential for strategically placed hides as well as identified walking routes and locations for bird watching. Local environmental groups or schools could be involved in bird surveys and reporting, building, placing and monitoring nest boxes.

- Improve environment for bats by, retaining old trees along river and within site, succession tree planting, and instigating a programme of installing bat boxes etc.
- Existing ponds could be made safely accessible for children from the local primary schools to go pond dipping.
- Thin out and under-plant woodland plantations to allow more light in, to allow habitats to become more complex and diverse.
- There are many opportunities to use fish to engage people;
 - Learning to fish on the river (the pool above Methilhill Dam). Potential opportunity for training as members of the local angling club to become angling coaches?
 - Project with Primary Schools, Fish in the Classroom, where trout eggs are reared by children in their Interpretation provided in the right place could really increase the chances of path network users seeing salmon on the move.
 - Telling the story of the fish and the river, their history and use.
 - Traditional method of weaving hay into a rope that is used to help eels get up over dams, eel ropes, made by local groups of people such as environment groups or anglers.
- FRT special accredited weed management training courses and coordination of volunteers treating non-native invasive species.



Vacant and Derelict Land

The aerial plan (right) illustrates areas of Vacant and Derelict Land (VDL) within the locality of the Connectivity Project. Within the immediate river valley are two sites, with another just outside of the valley immediately to the north.

The primary VDL, Mayfield Sawmill Leven, locally know as the creosote site, has been preliminarily risk assessed by Fife Council. The summary of the report is set out below.

Current Condition: The site is approximately level throughout, bounded to the south by a brick wall, narrow road and encased sewer. To the north the site is defined by a low embankment and the former Leven & East Fife Section Leven Dock Branch of the North British Railway.

The site is currently vacant, although observation and desire lines indicate frequent use by foot and bike traffic. No buildings remain on the site but there is evidence of widespread foundations and hardstanding.

Vegetation is mostly mosses, grasses, shrubs and small trees of pioneer species.

Risk Assessment: The site appears to have operated as a timber treatment and storage area for about one hundred years between about 1910 and 2010 when it is believed to have closed. The processes undertaken on site were the manufacture and use of creosote. High risk was identified for groundwater and medium risk for human health and surface water. It is considered that the site is unlikely to present an acute risk to human health but there is potential for contaminants to be present. The site is currently given a HIGH Overall Risk ranking and a MEDIUM Human Health Priority ranking.

The water environment risk assessment may have to be revised depending on the specific hydrogeological setting. It is also considered that the site will require further consideration under Fife Council's Contaminated Land Inspection Strategy.

This assessment was based on the site's current use as derelict / disused land. If the site-use were to change in the future, the risk assessment would need to be revised.

Further investigation, including intrusive investigation, was recommended by the assessment to characterise adequately the various potential pollutant linkages associated with its former use.



● Vacant and Derelict Land



Photos:

1. Anti-motorbike gate
2. Anti-motorbike gate vandalised
3. Fly tipping near the creosote site
4. Graffiti
5. Vandalism underneath the Bawbee Bridge

Disturbance & Anti-social issues

Disturbance

Increased access to sensitive locations could lead to an increase in disturbance and loss of sensitive or fragile species and habitats. As such, routing and construction of footpaths and boardwalks requires careful consideration.

Anti-social issues

There are already problems with motorbike misuse across the site, particularly around the former steelworks. Barriers are in place at access locations connecting to Methilhill (photo 1), some of which have been cut back (photo 2) with an angle-grinder. Fly tipping, graffiti (photos 3 + 4) and vandalism (photos 5 + 6) are also visible throughout the site and are having a negative impact on the general area. If opening up the area to more people, more use and new functionality, then this potentially opens up further anti-social problems.

Damage to habitats has occurred as a result of vandalism throughout the area but especially to woodland where approximately 50% of mature trees in some areas have been lost as a result of vandalism. Unauthorised fishing has also taken place with camp fires built from wood from adjacent trees. A bird hide in the vicinity of Woodend Loch was apparently destroyed by fire.





Exemplar Community Engagement Workshop for Rosefield Mills, Dumfries, 2018

"Engagement with local people is essential to the Programme's success and that of the Connectivity Project: to ensure that their knowledge and an understanding of their needs and aspirations informs the Programme, and that they can participate in its delivery".

SYSTRA - The Leven Programme Engagement Strategy Draft.

Engagement

Community input and discussion will be a vital part of the development and delivery process for the Connectivity Project.

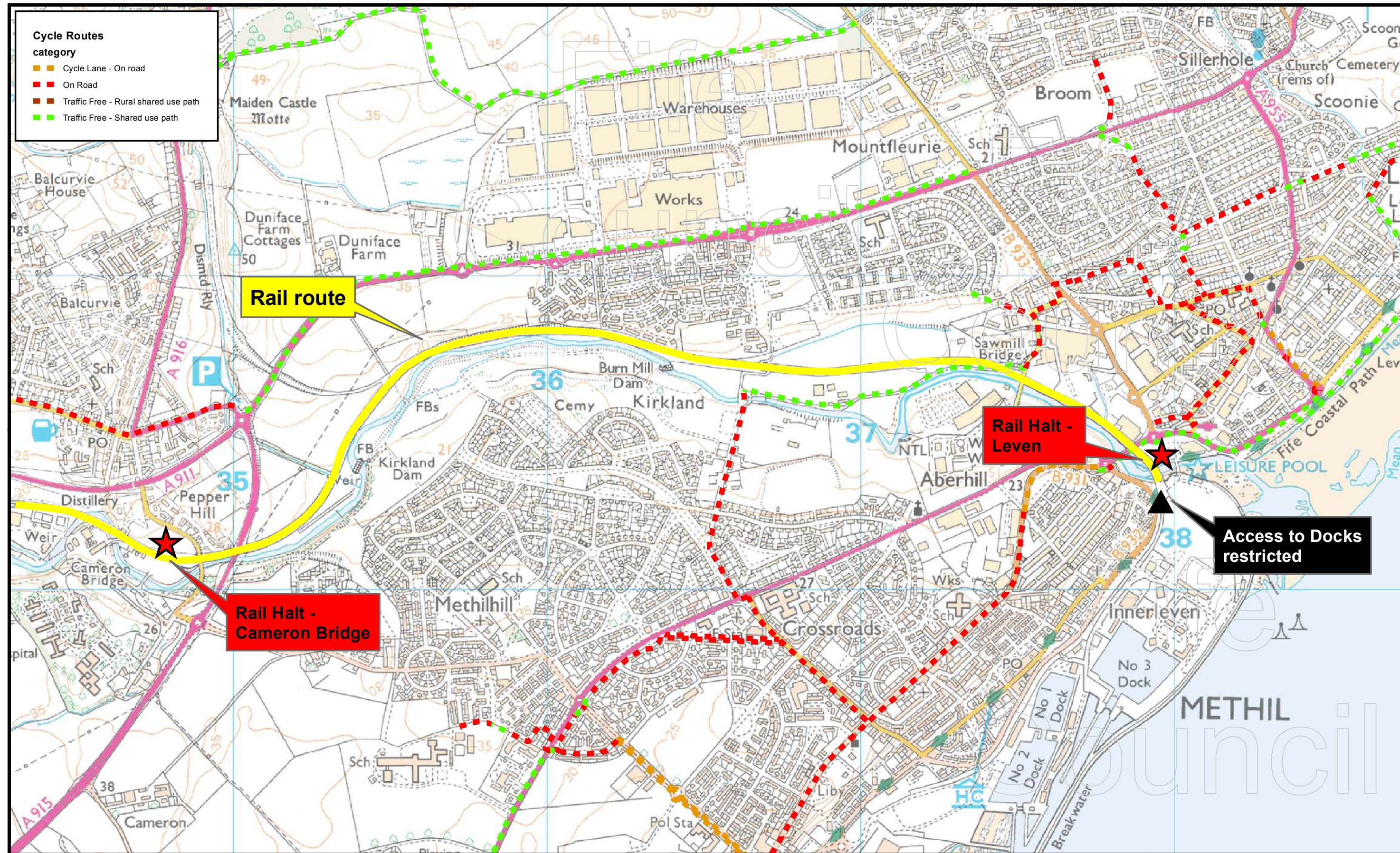
SYSTRA consultancy have been appointed to develop an Engagement Strategy and Action Plan for The Leven programme. The broad principles for the engagement strategy are outlined below.

Targeted and effective engagement with a wide range of committed partner organisations and all residents of the River Leven catchment area will be carried out. A programme board will be set up comprising of the key personnel below, and all engagement activity shall follow national standards for community engagement.

- A Programme Lead
- Engagement Steering Group
- Engagement Co-ordinator
- Engagement Staff

A broad and diverse range of engagement mechanisms will be developed and delivered to ensure all parts of the community are reached. This will inform the board of key local issues and enable the residents to express their needs and aspirations for the area.

The Leven programme board will monitor and evaluate the engagement processes and outputs from the engagement strategy. The outcomes will provide focus for the delivery of priority projects thereafter. These projects would focus on largely, but not exclusively, the first of a number of emerging projects, the Connectivity Project. An Action Plan for the early delivery with timescales for engagement through 2019 into early 2020 has been produced.



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THE CONNECTIVITY PROJECT | THE 'ELEPHANT IN THE ROOM'



Levenmouth Rail Link Proposals overlaid on Connectivity Project site with 20m wide offset corridor (40m total width)

Levenmouth Rail - Potential Reinstatement

A major factor in the regeneration of the Connectivity Project area is the possible re-instatement of the former Levenmouth rail line. The rail line would run along the existing disused rail track which weaves it way through the northern sector of the site. The line, (and a 20m offset corridor) would have a significant impact on any proposals for the Connectivity Project, whether ecological, economic or infrastructural.

A recent Scottish Transport Appraisal Guidance document (STAG), an initial appraisal of the multi-modal transport options for Levenmouth, considers the re-opening of the rail line as a potential option. Option 6 opposite right highlights the alignment of the existing, disused, line between Thornton North Junction and Methil Docks.

The STAG appraisal identified that the option scored positively against the five STAG criteria, particularly Economy, Integration / Accessibility and Social Inclusion. It also contributed to several national, regional and local policy objectives, including sustainable modes of transport over private motorised vehicles and environmental and health

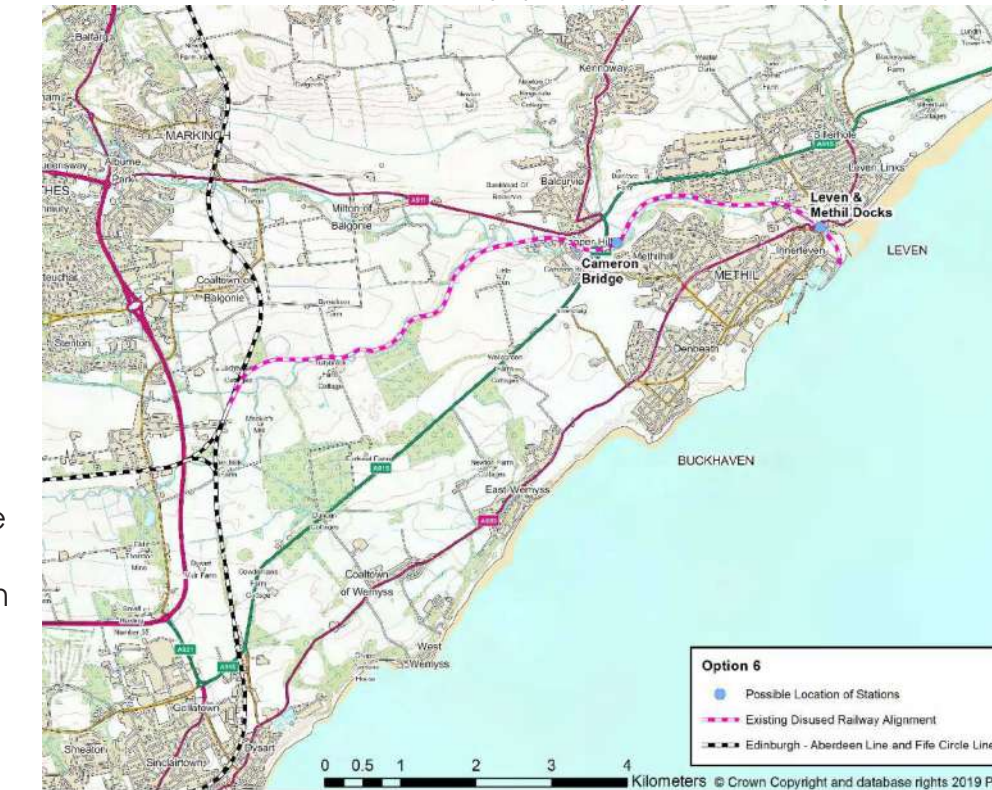
considerations.

It would also have a positive impact on many identified social and economic problems including educational, cultural, leisure, health and employment issues to attract people with the necessary job skills and experience to work in the area.

Whilst the benefits of the re-opened line would be substantial for the economy and accessibility of the area, there are potential adverse impacts, notably on movement through the site and connectivity. This would have an impact on the Masterplan development.

The reason for the use of the 'Elephant in the Room' reference is because whilst there is the potential that the rail line will re-open, it is not definite. The Masterplan has to be designed with and without it.

Levenmouth Rail Link Proposals (Option 6) from STAG report





Photograph at eastern end of Connectivity Project area showing a number of key features and assets that provide interest and character to the site - Bridge, rail, ballast, green corridor, rich ecology and habitat.

THE CONNECTIVITY PROJECT | CONSTRAINTS & OPPORTUNITIES

CONSTRAINTS

The Connectivity Project has a wide range of issues (constraints) that require to be addressed in any masterplan or regeneration process. Specific constraints that are general across the site include, but are not exclusive to,

- All paths and pedestrian movement routes need to be upgraded to accord with Sustrans requirements.
- There is a lack of any formal cycleways within the site
- There is the potential for the former Levenmouth rail line to be reinstated.
- Potential flooding along the river - an issue that needs to be addressed upstream as much as within the site.

- Contamination at former rail yard (creosote site)
- Anti-social activities including motorbike use
- Lack of accessibility to river
- Restricted access into and through the site
- Poor condition and quality of bridges / river crossings, as well as restrictive

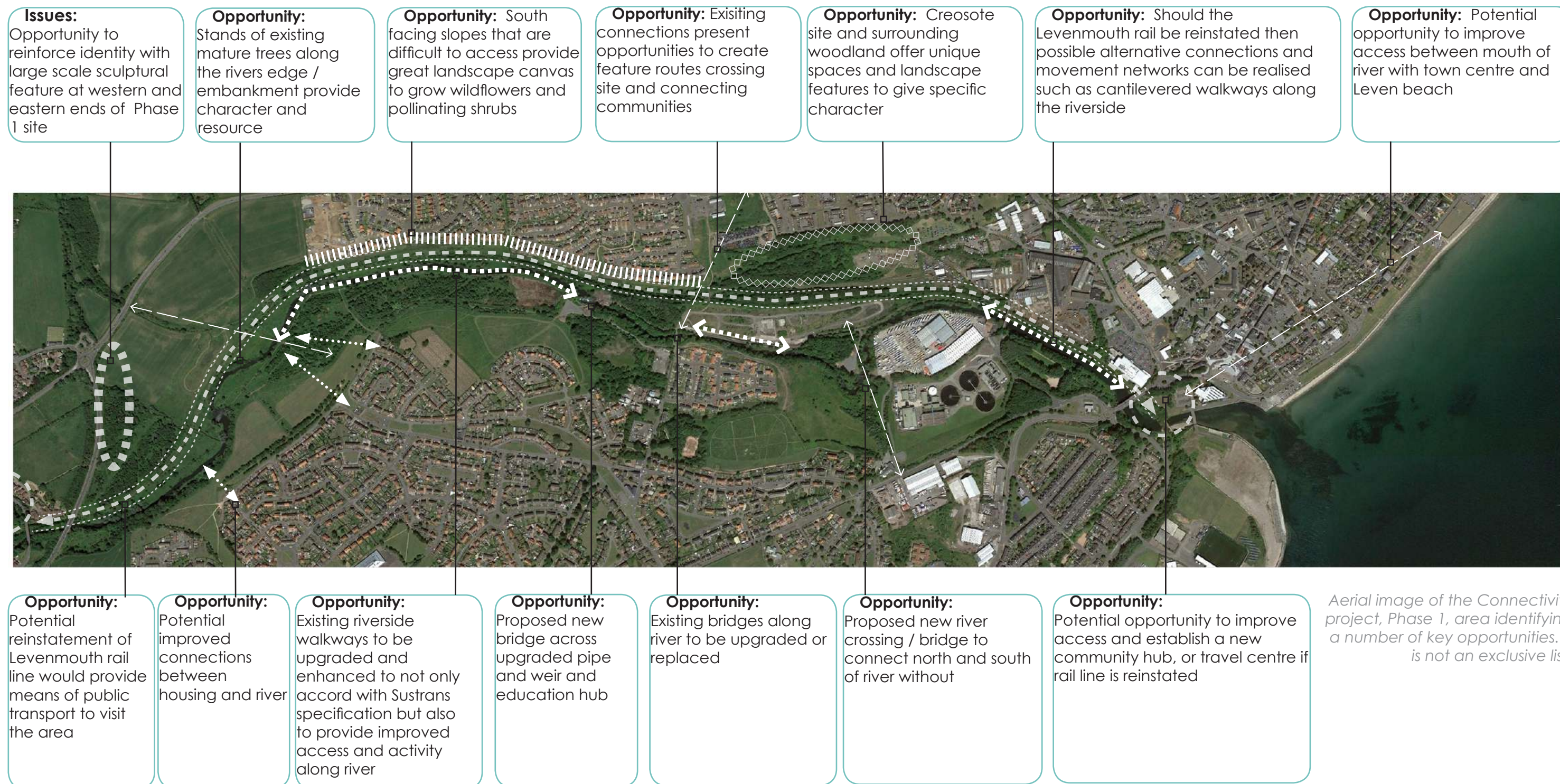
These issues have been exacerbated by a lack of maintenance, a key aspect that needs to be addressed in any proposals for the site and the wider river base.

It is important to note that to fulfil the scope and vision of the project, a human presence is actively encouraged within the site, despite restrictive access having previously allowed the flora and fauna to thrive. Increased access to sensitive locations could lead to an increase in disturbance and loss of sensitive or fragile species and habitats. As such, routing and construction of footpaths and boardwalks requires careful consideration.



Opportunities

The Connectivity Project area has a unique landscape that presents specific constraints but also specific opportunities. Some general site wide opportunities are noted below. This list is not exclusive.



Aerial image of the Connectivity project, Phase 1, area identifying a number of key opportunities. It is not an exclusive list.

Strategic Proposals:

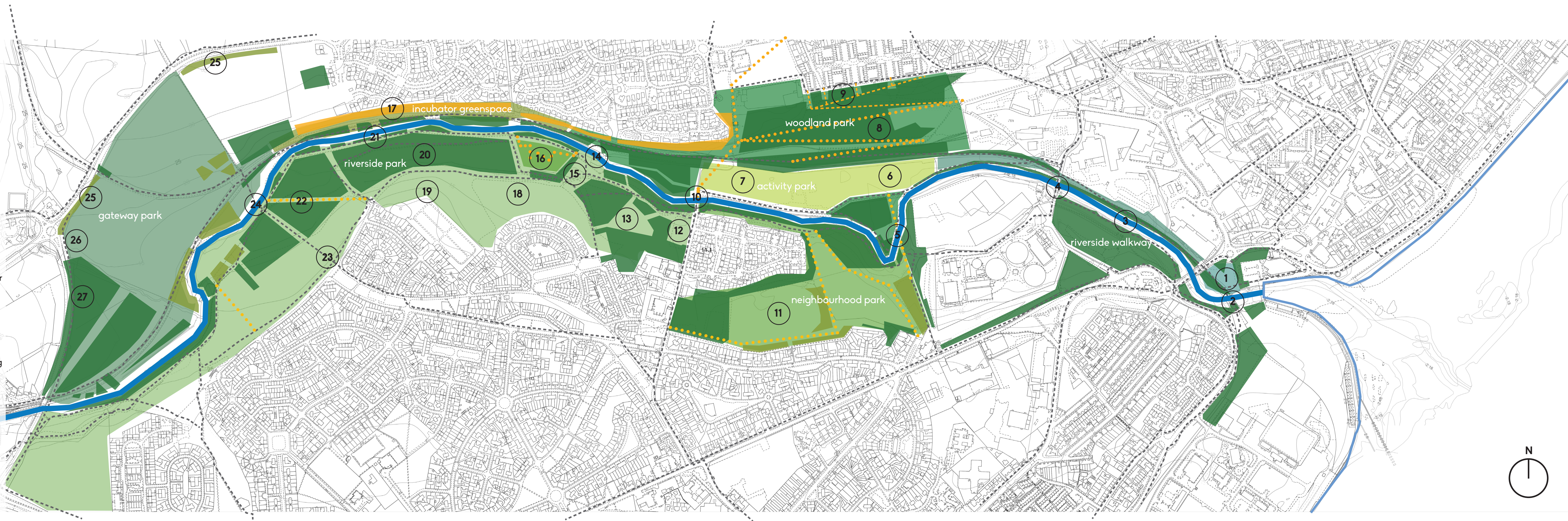
- Upgrade footpaths and establish a multi-layered movement network focused on upgrading existing network, creating additional paths (secondary and tertiary), boardwalks and cycle routes.
- Protect and enhance the existing riparian edge, wetlands and woodlands including the cultivation of these habitats to ensure key areas of habitat are retained and continue to thrive.
- Introduction of facilities to attract locals and visitors alike including shelters, seating, bird hides, dipping platforms, information boards, signage, community facilities & visitor facilities including a cafe with toilets.
- The provision of an effective management and implementation programme is intrinsic to the success of many proposed elements of the park, such as bird hides, dipping ponds, and educational and recreational strategies.
- Enhance the sense of place through prominent features such as sculpture at western and eastern entrances to the park.
- Raise awareness of the project with stakeholders, businesses and community and change the perception of the place.
- Connect 'The Place' - the extension of the principal routes of the park into surrounding communities.
- Enhancement of the existing path network from surrounding villages and towns to provide significant local opportunities for health and well-being, education, and training which, could potentially be a driver for regeneration in adjacent areas.
- The development of a coherent and inclusive management plan for the conservation and / or enhancement of the ecological resources of the park (tying in to existing site management plans for the SSSIs, habitat networks etc) as a lack of integrated long-term management and protection will threaten its sustainability.

- In-depth surveys of topography, habitats, ecology etc of area to be carried out.
- Coordination of the Connectivity Project with the wider long-term flood management of the catchment area.
- Promoting local use through an extensive programme of community engagement and education through local groups, schools. Implement specific projects and activities such as path restoration, community woodland, school activities, guided nature walks or bird watching groups.
- Improve perceptions of the project area and discourage existing anti social behaviour.
- The Connectivity Project should be designed to combine wildlife and habitat preservation with a strong emphasis on recreation and education. Structural elements such as bird hides and observation towers can also be incorporated in order to sustain a visitor programme of walks and educational tours.

Strategic Projects

- The Green Network Report outlined a plethora of project opportunities, including the following:*
- Install interpretation materials covering otters, bats, fish, insects, amphibians and roe deer, forming a recommended wildlife walking circuit and walks.
 - Create and promote up to 32km of pollinator corridors using a huge range of local groups and volunteers. Encourage butterflies, bees and other nectarivorous insects through pollinator corridors, a 'B-way', wildflower meadows and flowering shrubs connecting green and wildlife areas.
 - Engage schools in Fish in the Classroom, planting the pollinator corridor, pond dipping, kick sampling, tree planting and introduction to angling. An outdoor classroom by the riverbank could facilitate all these activities.
 - Train local volunteers in traditional conservation methods such as scything grassland and producing hay eel ropes for the dams, building hibernaculum, creating strategically placed dead wood piles, building bat roosting and bird nesting boxes and creating new ponds.
 - Engage local people in recording wildlife (bird, butterfly or roe deer counts) and reporting to appropriate databases.
 - Strategically placed hides as well as identified walking routes and locations for bird watching. Local environmental groups or schools could be involved in bird surveys and reporting, building, placing and monitoring nest boxes.
 - Improve environment for bats by retaining old trees along river and within the site, implement succession tree planting, and instigate a programme of installing bat boxes etc.
 - Existing ponds could be made safely accessible for children from the local Primary schools to go pond dipping.
 - Thin out and under-plant woodland plantations to allow more light in to allow habitats to become more complex and improve biodiversity.
 - There are many opportunities to use fish to engage people;
 - Learning to fish on the river.
 - Training local anglers to become angling coaches.
 - Project with Primary Schools, Fish in the Classroom, where trout eggs are reared by children.
 - Telling the story of the fish and the river, their history and use.
 - Traditional method of weaving hay into a rope that is used to help eels get up over dams, eel ropes, made by local groups of people such as environment groups or anglers.

1. Arrival hub
 2. Green bridge
 3. Improved access to water
 4. Existing bridge upgraded
 5. New river crossing
 6. Ecology lab
 7. Community activity space
 8. Woodland walk
 9. Look-out platforms
 10. New path and upgraded river crossing
 11. Neighbourhood pitches and amphitheatre
 12. Community space / hub
 13. Community growing / activity space
 14. New river crossing
 15. Interpretation centre
 16. Wetland walkways
 17. Wildflower terraces
 18. Wildflower meadows
 19. Heritage focal spot and viewpoint
 20. Woodland play and learning rooms
 21. Riverside walkway and platforms
 22. New secondary and tertiary routes
 23. Improved connections between housing and river
 24. Existing bridge replaced
 25. Reinforced edge to valley
 26. Framed view
 27. Sculptural feature
- Existing vegetation / woodland to be restructured and reinforced with new planting
 - Proposed new blocks of structure planting
 - Ruderal vegetation retained
 - New wildflower planting and seeding to southern embankments
 - Existing route to be upgraded and improved to create path network for pedestrians and cycles
 - Proposed new paths / cycle routes and connections





Programming the park

Walking the Connectivity Project area allows a clear understanding of the differing landscape character types. In conjunction with site assessments, in particular the Green Network Report, the character, functions, features and context of the site have been studied to form the basis of a series of landscape spaces and types (8No in total).

The following pages outline the proposed spatial framework of the Connectivity Project, the existing character, the overarching principles of the spaces and the potential features that may be realised within.

The proposals set out in these pages are intended for discussion, to start a conversation. They are not fixed or defined as they require to be tested, to be opened up to the community, and to be moved forward in a co-creative process.

By identifying zones which relate to the way the park is used by local residents on a daily basis, it is hoped that community engagement with the Connectivity Project will be strengthened, engendering a sense of ownership, and encouraging the long term sustainability of the overall park.



1. Timber look-out tower
 2. Pedvale Open-air art , near Sabile, Latvia
 3. Kaipara District, Auckland, New Zealand - Kapoor sculpture
 4. Wanås Castle, Östra Göinge, Skåne, Sweden
 5. Vicar Water Country Park

Gateway Park

Existing

The western most sector of the site sits immediately adjacent to the A915 (north and west). At its eastern edge new residential development is encroaching and enclosing, whilst the southern edge is bounded by the Leven. Access is primarily from an underpass to the north west, along a former rail line.

The main land use is arable farming, the fields slope down to the river and the former Levenmouth rail line which runs (and may do so again...) along the riparian southern edge, an area that is relatively undisturbed and where otters and waterfowl thrive in the river margins.

Proposed

The sloping site affords wide open views across the valley to the housing at the northern edge of Methilhill. These views should be maintained, although they could be more controlled with selective stands of trees and woodland planting. There is most significantly an opportunity to give identity and a sense of place through the introduction of a large scale sculpture or series of sculptures or visual markers that reference the site's history. The most familiar example of this is the Kelpies at Falkirk but the images left show some other exemplars of sculpture parks and wetland / river margins.

The south facing aspect of the site provides a great opportunity for people to stroll through the fields, to sit, relax, take the sun and enjoy an interactive landscape of sculptural landforms and cultural artworks. As such the landscape could retain the existing arable use or mix with wildflower meadows and improved river margins. The existing access and pathway needs upgrading, and a new layer of more informal paths could criss-cross the southern slopes.

The river margins should take guidance from the Green Network Report and provide a protected space for otters and other wildlife. This should include selective riparian planting and succession tree planting.





Existing



Proposed



Riverside Park

Existing

The existing landscape largely consists of a public green space that appears to be used primarily at the margins: this could be a result of the north facing slopes or due to a lack of interest throughout the central areas.

The northern edge of the park is bounded by the Leven, whilst the southern edge is defined by the housing of Methilhill. The western end is truncated by the A915. The eastern end filters further down the river to the new housing on the former steel works at Steelworks Brae.

The landscape of the park area has three layers. The southern layer is open grassland edged by formal trees. This is enclosed to the north by a band of woodland trees and scrub, beyond which there is a thin riparian strip along the river margin.

Proposed

Whilst the essence of these landscape types are not fundamentally proposed to change, there is an opportunity to re-programme and activate these spaces.

Across the park the existing footpaths need to be upgraded for multi-modal use, walkers, cyclists and those who are more active. This can only be realised by upgrading the existing routes and overlaying a variety of path treatments with a structured maintenance schedule for different activity areas. Specific works should include upgrading the riverside walk, making connections between the housing and river edge, and less formal paths through the woodland areas and through wildflower meadows (to be installed). Programmes could also include for both active and passive measures from BMX to a stepped amphitheatre.

There are several historical traces and ruins visible within the area. These should be celebrated and realised through viewpoints, interpretative panels and trails, which lead to an interpretation centre located by the Methilhill Dam. Here the stories of the river can be told, along with educational opportunities realised through wetland walkways and dipping

platforms, improved riverside access, seating and resting platforms. Across all landscape areas improved planting and management programmes are required to reinforce existing landscape types and habitats, from woodland and meadows to riparian margins.



- 1. Lavender Pond Nature Park, London
- 2. Montevrain, France
- 3. Vicar Water Country Park
- 4. Saltholme Reserve, Cleveland
- 5. Saltholme Reserve, Cleveland



Incubator Greenspace

Existing

The proposed 'Incubator Greenspace' is at present a thin strip of landscape wedged between the south facing slopes of the new housing to the north of the site and the river. The former Levenmouth rail line runs within this strip. At present the inaccessible south facing slopes, the disused rail line with its associated aggregate ballast and the riparian river edge are all welcoming habitats providing for wildflowers, pollinating insects and river fauna including otters.

Proposed

The natural landform of this area, and the difficulty in accessing the area except at the very eastern and western ends, means that this space naturally lends itself to a place that can harbour and nurture flora and fauna for the river and the wider setting - think 'Beeway'.

A maintenance track or boardwalk should be introduced to provide provision for management. This should be separate to the rail line track and aggregate as at present this is a valuable resource for wildlife and should the Levenmouth rail line be realised then there is no requirement to replace and reconstruct.

Key to the success of the incubator space would be a detailed survey and proposed management plan to determine the most appropriate measures to continue to allow this area to thrive. Measures could possibly include new riverside planting (including climax species), wildflower plug planting on the south facing slopes, and suitable structures for the protection and encouragement of bats, insects and birds.



- 1. Flanders Moss, Stirling
- 2. Flanders Moss, Stirling
- 3. Dams to Darnley Country Park, East Renfrewshire
- 4. Colne Valley Regional Park
- 5. Colne Valley Regional Park





Existing



Proposed



Woodland Park

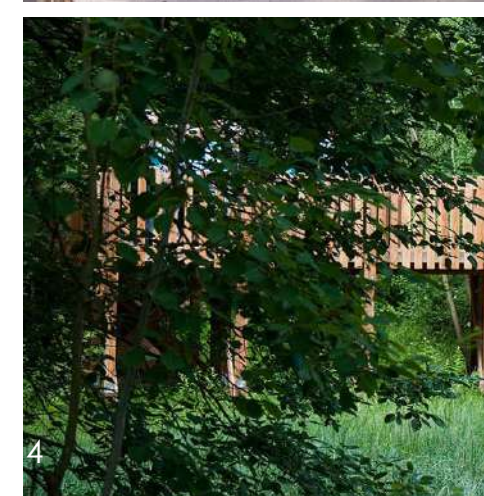
Existing

The existing stands of woodland at the northern edge of the site and Dam Wood/Millennium Forest are the main constituent parts of this proposed park zone. The area has suffered from a lack of management and maintenance and requires rationalisation and regeneration.

Proposed

The Woodland Park takes the existing stands of woodland at the northern edge of the site and looks to strengthen it through a strategic connection with Dam Wood/Millennium Forest. Whilst the core of the proposals would be an extensive programme of tree planting, there is an opportunity here to be more ambitious and aspirational by breaking the interfaces of housing and woodland, by bringing people into the woodland areas and getting the community not just to manage the wood but to participate and engage under the canopy. Key measures are identified within the following Design Principles section, and include the following:

1. Create visual relationship to the river by selectively removing tree barriers and introducing visual markers such as observation towers or platforms accessed off Montgomery Drive.
2. Create new accessible (switchback pathway) route for all, through the existing wooded slopes north of the Creosote site.
3. Manage existing woodland to improve biodiversity
4. Introduce activity programmes and learning spaces within the woodland areas such as at Dams to Darnley Country Park in East Renfrewshire (see photograph 1 left).



1. Dams to Darnley Country Park, East Renfrewshire
2. Park am Gleisdreieck, Berlin, Germany
3. Park am Gleisdreieck, Berlin, Germany
4. Exhibition in the Forest, Berlin, Germany



Activity Park / Testing Grounds

Existing

The proposed Activity Park is essentially constituted by the Creosote site. The site is low lying, predominantly flat with large areas of hard standing (concrete). The site has an identified degree of contamination but more detailed investigation is required to establish the exact extent and scale. To the south the site is edged by the river whilst to the north are wooded slopes leading to residential housing beyond.

The site notably provides the main linking route between the north and south sides of the river connecting housing, communities, retail and employment.

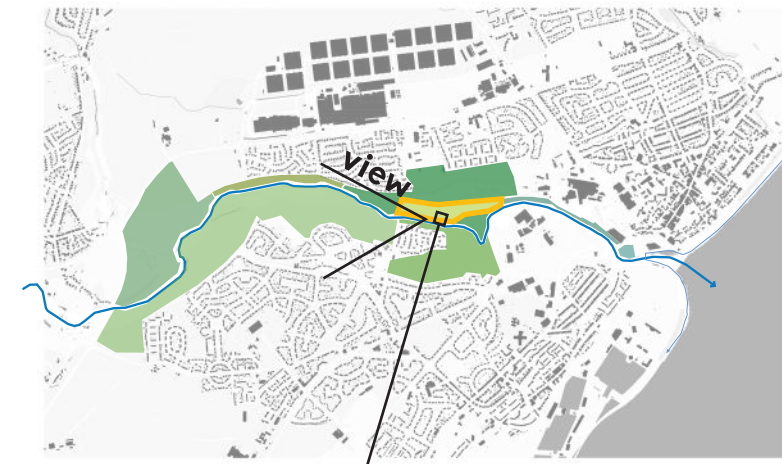
Proposed

There is a balance to be realised across the entirety of the Connectivity Project area between better pedestrian links and utilising the assets of the site, whilst at the same time controlling disturbance of the site and its habitats. Nowhere is this more obvious than at the Creosote site. It is an obvious (and current) area for activity, due to its location at the crossroads on communities north and south as well as its physical character of a flat open landscape with substantial areas of hard standing. Yet it is also an area of fascinating spontaneous ecological vegetation with ruderal plants colonizing the open areas between the hard-standing. This could provide the inspiration for areas of the site to be used as 'testing grounds', either through the use of specific planting to remediate polluted soils or mass planting of pollinating plants such as buddleia (often associated with post-industrial spaces).

The images of exemplar spaces (left) may provide guidance of how this can be achieved in the detailed design phase of the masterplan.

The space could accommodate:

- An open air cinema
- Festivals
- Seasonal events - ice skating
- Local markets and hobby groups
- Bike activity, BMX, motor bikes etc



1. Flanders Moss, Stirling
2. BMX / Skate park Beveridge Park, Kirkcaldy
3. Duisburg Nord, Germany
4. London, UK
5. Park am Gleisdreieck, Berlin, Germany



Existing



Proposed

- Heritage trails tied in with Fife Heritage Railway
- Stands of regenerating woodland and flowering vegetation

It should be noted that should the Levenmouth Rail Line be reinstated this opens up the requirement, and potential, for a new sculptural bridge to connect across any future rail line.



Neighbourhood Park

Existing

This southerly located public open space already functions as a basic neighbourhood park for walking dogs, running and taking exercise. However the space has the potential to provide much more for the neighbourhood if properly programmed, and in particular if the community were meaningfully engaged with. Housing backs on to the western and southern edges, whilst the eastern aspect of the site is blocked by a timber mill, a storage business and water treatment plant. Access into the space is gained from a number of residential streets including Steelworks Brae, Kirkland Walk and Den Walk.

The nature of the park is primarily grassland, with some flat areas and some sloping, edged with trees and vegetation of various age profiles. Whilst there is a proximity to the river, access is difficult.

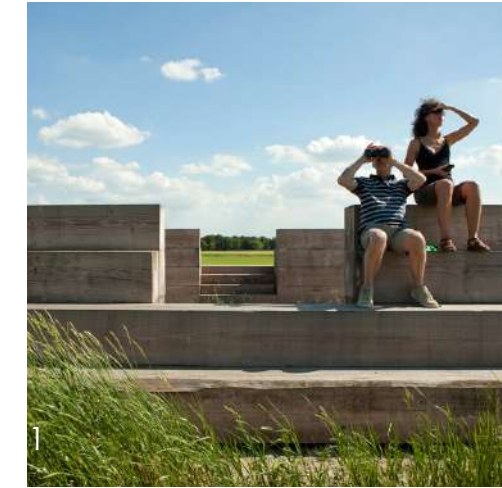
Proposed

The focus of this space is seen as very much about the local community. The images and exemplar projects, left, are intended to give a flavour of the potentials this space presents, but local input, agreement and drive is fundamental here more than almost any other area of the programme. Potential ideas may include:

- Play spaces - free play and more formal play
- A community noticeboard and scribble walls
- A sensory garden
- A community productive space
- Activity and educational facilities for all youth ages
- Exercise, health and well-being facilities such as outdoor gym



1. Craigtoun Country Park, Fife
 2. Free play/ recycled play
 3. Dymaxion Sleep, Canada - community gardens/productive landscape
 4. Espace Libre playground, Paris, France
 5. Community walls including scribble walls



Riverside Walkway

Existing

The Riverside Walkway section is a complex space to programme. It is a narrow corridor joining the eastern end of the site with the mouth of the River Leven, the coast (and beach beyond), the heart of Leven (High Street, sports centre, and bus station) and the Fife Energy Park.

The space is constrained by the river to the south and by industrial and retail development to the north. The former Levenmouth rail line dominates the space, a visual and physical reminder of a long-lost past. Vegetation is mostly self-seeded, sporadic although dense in places, but without shape or form as it has not been maintained.

Should the Levenmouth rail line be reinstated the functionality and character of this space will be changed substantially, particularly in terms of access and use.

Proposed

Without a defined decision for the Levenmouth rail line the approach to the riverside space has been to focus on the functional aspects that the space provides - that of connectivity. As a consequence the primary feature of the space would be a walkway / cycleway. The initial programme would consist of a temporary route, perhaps taking a reference from the Park am Gleisdreieck example (left) by infilling the former rail track with either Type 1 or woodchips from cleared vegetation providing the base for any new walkway. Should the Levenmouth rail line be approved then the walkway / cycleway could be moved to the riverbanks, maybe even cantilevered off the edge of the space.

In addition to the walkway, access down to the river will be a key priority, from a series of platforms and steps, whilst viewing decks and seating will encourage passive engagement with the river.



1. Belvederes Drentsche Aa, Holland
 2. Gießen, the Lahn River, Germany - Riverside decking and steps
 3. Park am Gleisdreieck, Berlin, Germany
 4. Park am Gleisdreieck, Berlin, Germany
 5. Timber boardwalk, Stockholm, Sweden



Existing vegetation will be bolstered and reinforced by new tree planting where required.



1. Dulwich Park, London
 2. Colne Valley Regional Park
 3. M5 linear Park, Como Oatley, Australia

River Edge

Existing

The Leven and its riverbanks provide a rich and biodiverse environment. The Green Network Report presents the picture of a river with a riparian corridor which provides a wide variety of flora and fauna - wildflowers, reeds, native shrubs, mature trees, fish, otters, birds, amphibians and deer.

The river and its edge are clearly the primary assets of the site and have been allowed to thrive through a lack of human access and disturbance. However, a greater degree of access and presence will be required in order to realise the objectives of the Connectivity Project: to connect communities, engage with locals and visitors, improve the appearance of the site, protect the habitats and to maximise the significant potential of the place. The key will be achieving the right balance.

Proposed

The protection measures outlined in the Green Network Report (GNR) should be taken on board including other protection areas and adherence to legislation and regulations in respect of any future surveys or development work.

In addition to the statutory requirements there were a great number of worthwhile recommendations in the GNR to consider. Of particular interest to the masterplan approach are the:

- Upgrading and improvement to existing footpaths and walkways.
- Introduction of riverside and wetland boardwalks, dipping platforms and viewing platforms.
- Installation of interpretation materials, signage and panels telling the story of the river, its history and the flora and fauna.
- Planting, and management of planting, along the river margins and across wetland areas.
- Reinforcement of wildlife corridors including the 'Beeway' and bat routes
- Introduction of accessible for all fishing and education spots





Design principles

The scale and complexity of the landscape of the Connectivity Project covers large to small scale development. Whilst the majority of the work to date on the masterplan has been strategic, broad scale, it has been important to start looking at the smaller scale programme.

To start this process a 4m long 1:1250 scale model was constructed to further understand the site, the place, the space and the setting.

The model is an effective base around which conversations can be had and it will be of further use for future engagement with the community.

The following pages illustrate some of the initial design principles for the site.



Model scale - 1:1250
Model dimensions - 3564mm x 841mm

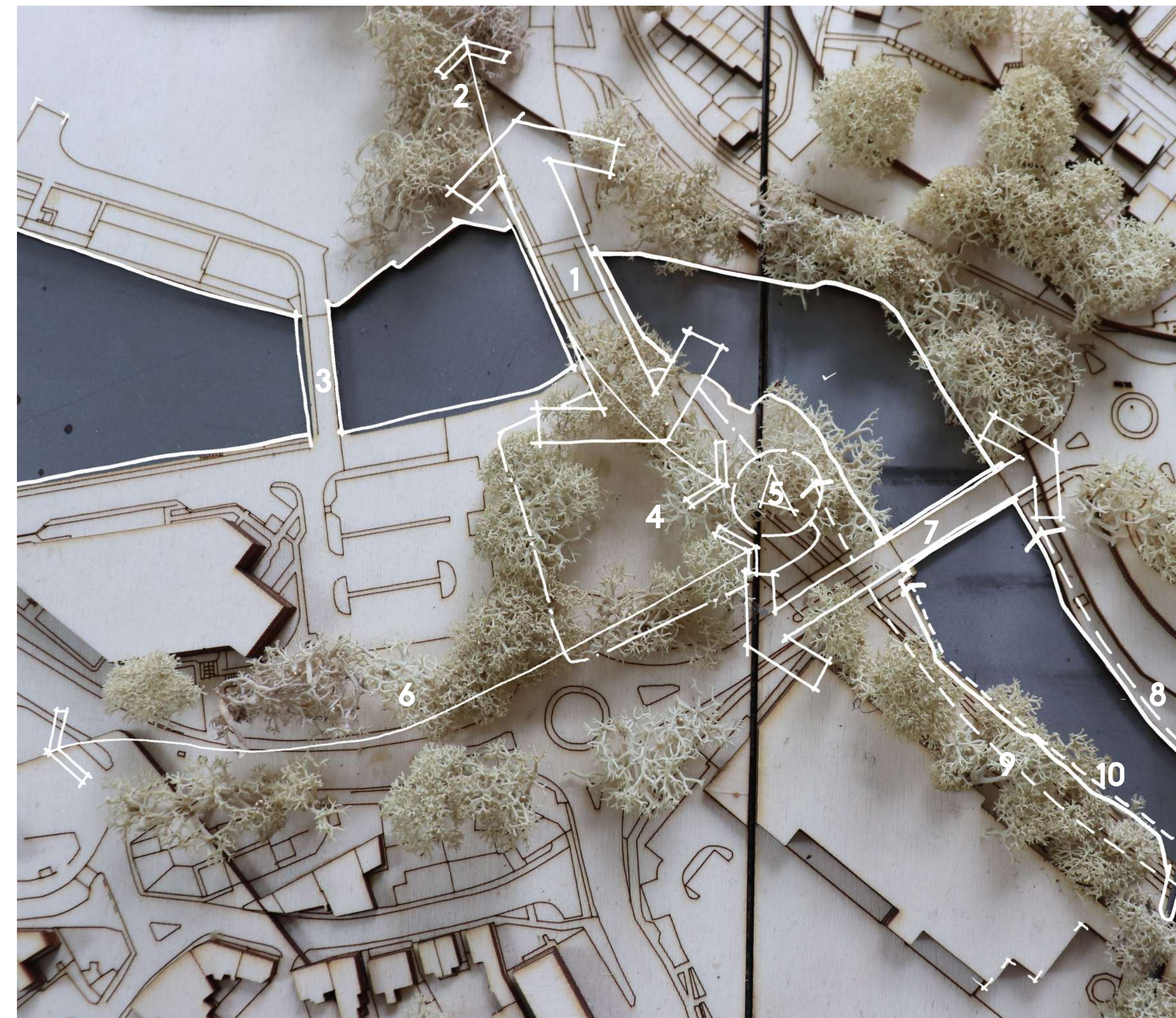


River - Beach - Main Street connections

1. Existing bridge to be redeveloped as a Green Bridge joining the Connectivity Project area with the Innerleven Docks and Fife Renewables Innovation Centre.
2. Existing footbridge to docks. Bridge is in poor condition, requires structural assessment, and reassessment of its purpose in the regeneration proposals.
3. Proposed future hub / main gateway into Connectivity Project. Also proposed station stop for reinstated rail line (should approval be granted by the Scottish Government).
4. Main gateway at southern end of Connectivity Project.
5. Existing route between River Leven and High Street to be improved and made clearer to encourage movement between the two areas.
6. Look out points / seating spots along coastal walkway. Also act as visual markers and termination points to connecting routes from High Street.
7. Connecting routes and streets between High Street and sea front, to be improved and upgraded.
8. Sea front to be improved and upgraded to encourage safe movement between Connectivity Project area and beach.



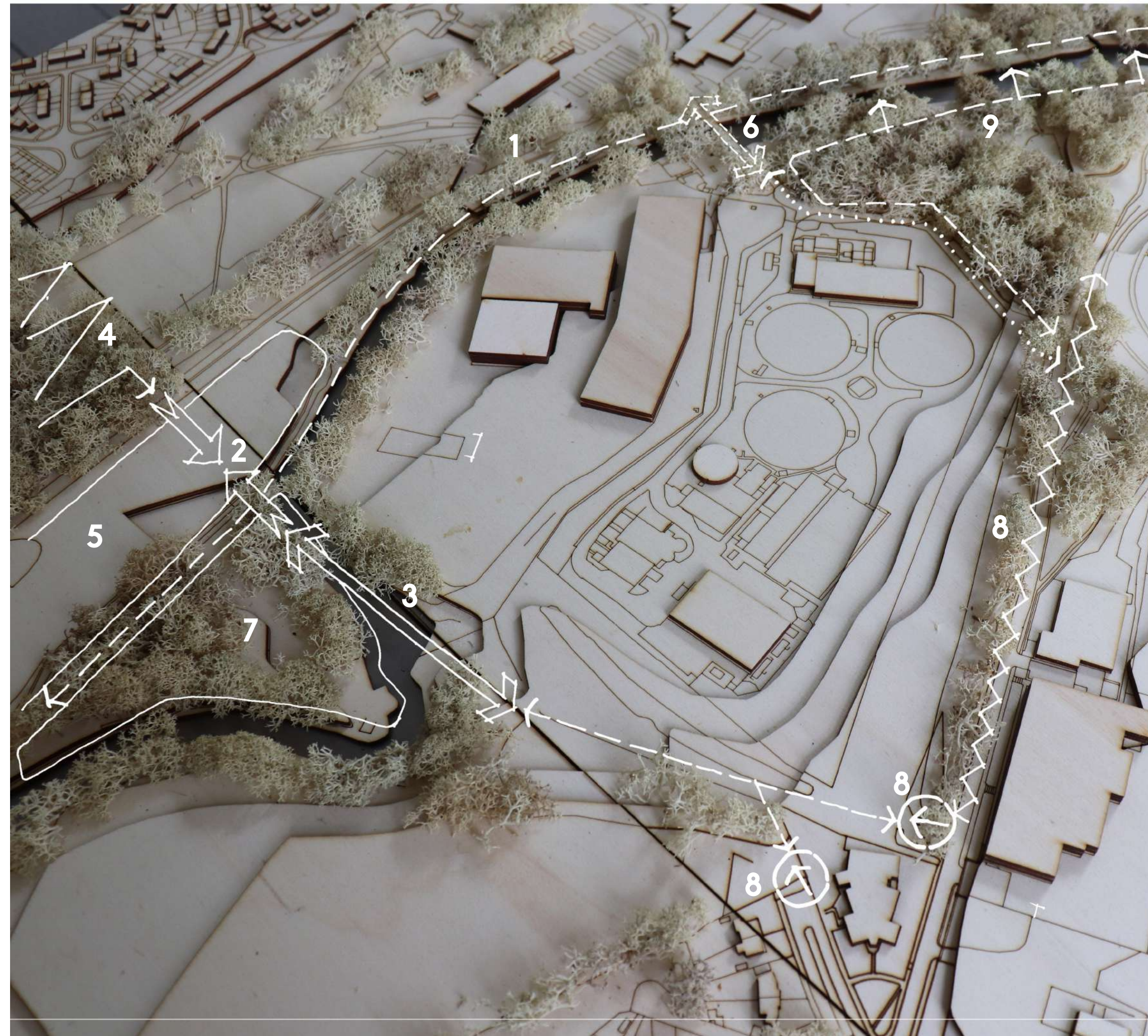
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Eastern river hub

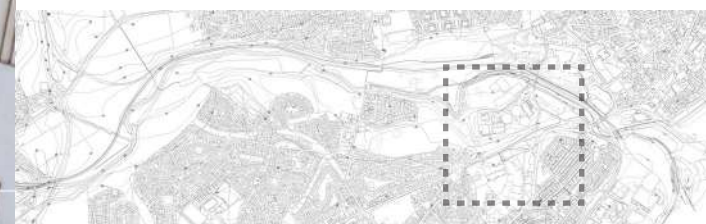
1. Existing bridge to be redeveloped as a Green Bridge joining the Connectivity Project area with the Innerleven Docks and Fife Renewables Innovation Centre.
2. Improve connections to and through Fife Energy Park, and make better connections with Fife Renewables Innovation Centre
3. Existing footbridge to docks. Bridge is in poor condition, requires structural assessment, and reassessment of its purpose in the regeneration proposals.
4. Proposed future 'Hub' area and main gateway into Connectivity Project. Potential for community events area and associated activity space, could be co-managed by Levenmouth Sports Centre.
5. Potential station stop for reinstated rail line (should approval be granted by the Scottish Government).
6. Existing route between River Leven and Main Street to be improved and made clearer to encourage movement between the two areas.
7. Bawbee Bridge to be improved (structurally and physically) to aid traffic movement and connections between Leven and Methil.
8. Existing pedestrian route along western side of river to be improved with rest spots, lighting and widened footpath / cycleway.
9. Existing rail line / tracks to be designed and developed as new footpath and cycleway route. Design to be temporary to accommodate potential reinstatement of former Levenmouth rail link.
10. Suggested riverside walk should Levenmouth rail be reinstated.



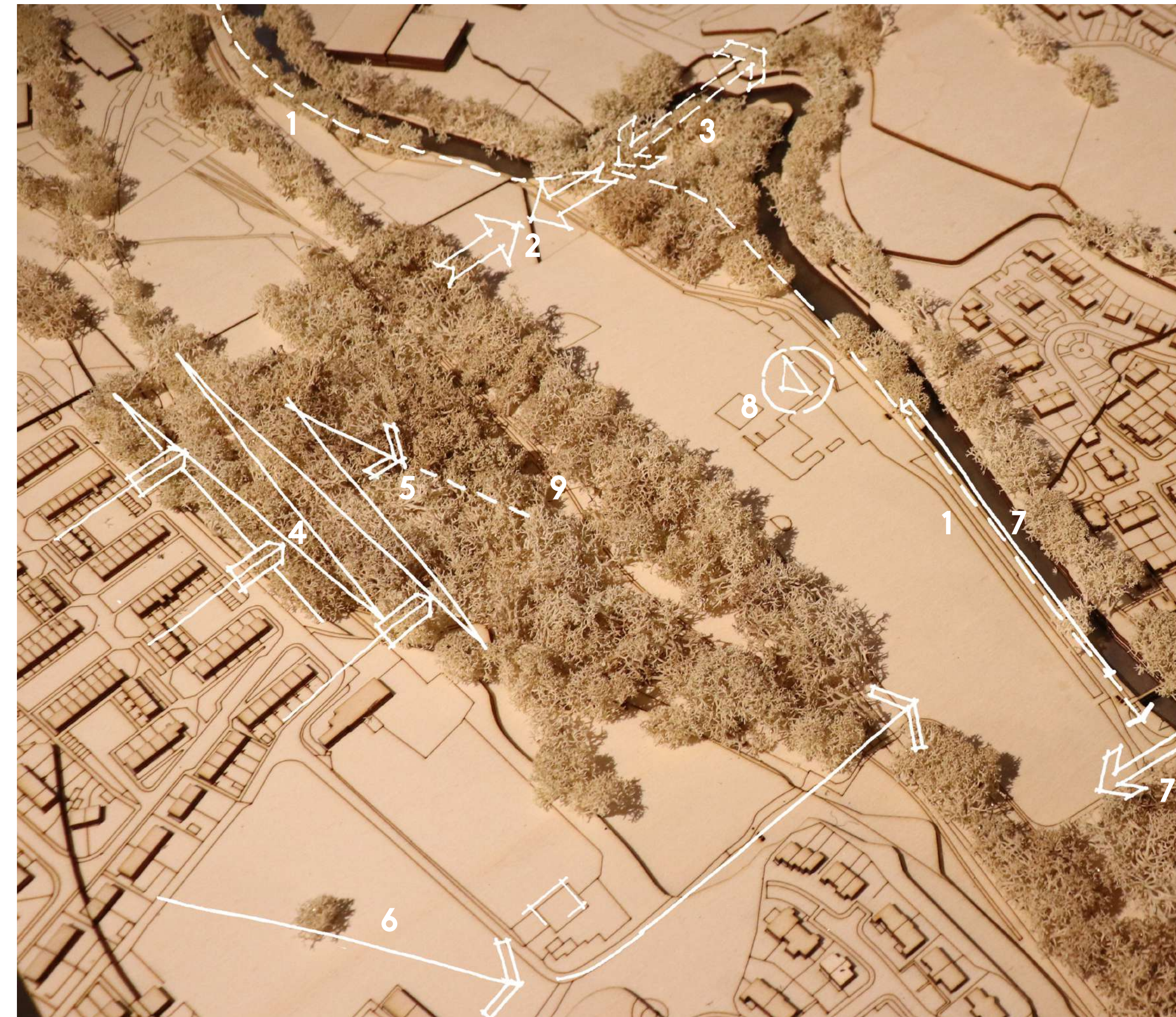


Western Industrial Area

1. Enable accessible pedestrian route along river. Initial phase to develop disused rail line. Proposals to be temporary (Gravel / crushed stone / woodchips - see p94) to accommodate potential reinstatement of Levenmouth rail line.
2. Connect Dam Wood to the woodland at the northern edge of the site. Potential to introduce succession tree planting.
3. Proposed new crossing (over existing pipeline) to better connect Methil to retail area (Aldi) and Diageo. Also provides improved access to river for Aberhill Primary School.
4. Create new accessible route for all (switchback pathway), through the existing wooded slopes north of the Creosote site.
5. Existing Creosote site to be revitalised with new programmes and activities. Care to be taken not to impact existing assets and qualities of space.
6. Upgraded bridge and improved pedestrian route across river.
7. Manage existing woodland to improve biodiversity
8. Existing route along Methilhaven Road is narrow and poor in terms of quality, experience and dimension. Route to be assessed and redesigned to accord with Sustrans requirements and set pedestrian and cycle movement away from heavy traffic
9. Existing park to be better used and accessed including viewing platforms along rivers edge.

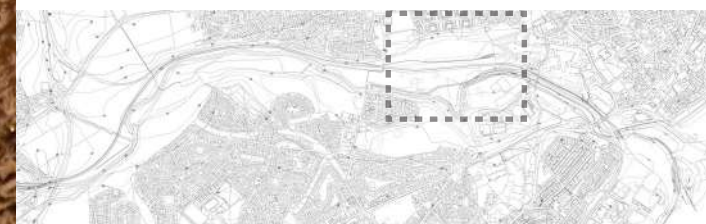


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Creosote Site

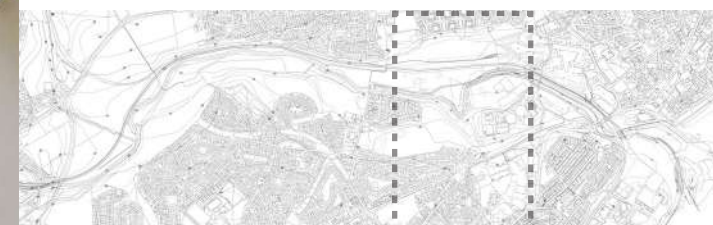
1. Enable accessible pedestrian route along river. Initial phase to develop disused rail line. Proposals to be temporary (Gravel / crushed stone / woodchips - see p94) to accommodate potential reinstatement of Levenmouth rail line.
2. Connect Dam Wood to the woodland at the northern edge of the site. Potential to introduce succession tree planting.
3. Proposed new crossing (over existing pipeline) to better connect Methil to retail area (Aldi) and Diageo. Also provides improved access to river for Aberhill Primary School.
4. Create visual relationship to the river by selectively removing tree barrier. Potential for visual markers to orientate users of new park areas the industrial themed structures such as observation towers (accessed off Montgomery Drive).
5. Create new accessible (switchback pathway) route, for all, through the existing wooded slopes north of the Creosote site.
6. Create new route through vacant site to north of creosote site.
7. New bridge and improved pedestrian route across river.
8. Suggested location for train shed should the Levenmouth Rail be reinstated.
9. Manage existing woodland to improve diversity





East to West - proposed new connection

1. Enable accessible pedestrian route along river.
2. Connect Dam Wood to the woodland at the northern edge of the site.
3. Proposed new crossing (over existing pipeline) to better connect Methil to retail area (Aldi) and Diageo.
4. Create visual relationship to the river by selectively removing tree barrier. Potential for visual markers / industrial themed structures such as observation towers to orientate users through the woodland (accessed off Montgomery Drive).
5. Create new accessible route for all (switchback pathway) through the existing wooded slopes north of the Creosote site.
6. Manage existing woodland to improve biodiversity
7. Existing open green space to be re-designed and laid out as a Neighbourhood Park to maximise community use and benefit through playing pitches, new screen planting, free-play and new paths and seating.

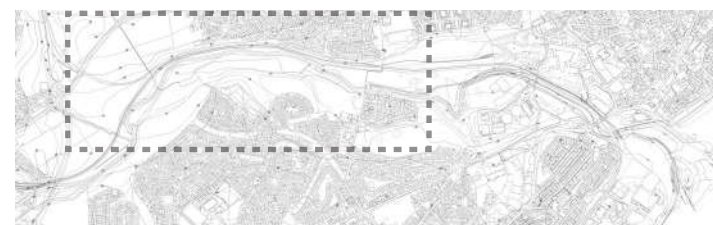


THE CONNECTIVITY PROJECT | DESIGN PRINCIPLES



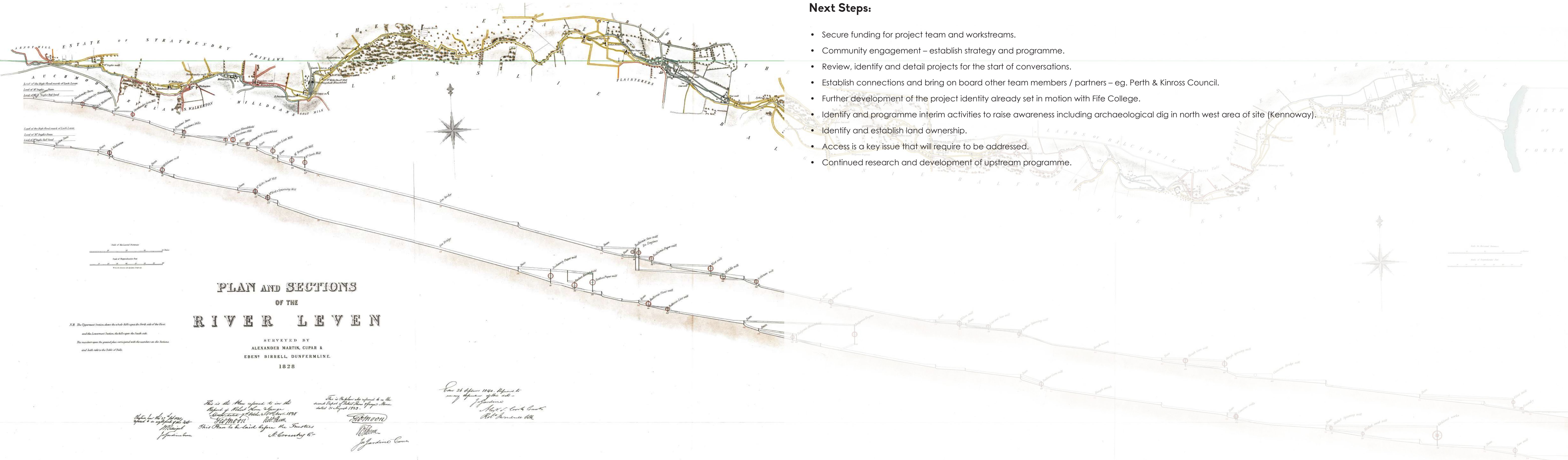
Western parkland

1. Proposed community hub / space
2. Methilhill dam location. Potential to create an educational hub including new-build shelter, information panels, demonstration spaces and viewing / fishing platform.
3. New bridge, utilising recent works to water pipe to improve connectivity across water.
4. Existing wetlands to be maintained and improved to maintain existing habitat profile. Installation of timber boardwalks and 'dipping platforms'.
5. Improve connections between housing and parklands, including wildflower meadows, gateway markers, artworks and hard landscape materials.
6. New wildflower meadows and swathes of bulb planting to introduce colour, seasonality and flowering plants for nectarivorous insects. Informal paths to be mown through grasslands for summer activities and connectivity.
7. Manage existing woodland to improve biodiversity including informal paths and routes.
8. New routes made through existing woodland to improve connections between housing and river.
9. Enhanced Riverside Parkland area through wildflower meadows and new play equipment.
10. Existing bridge to be replaced.
11. Incubator green space to be managed and plug planted to improve biodiversity of riparian corridor.
12. Existing pathways to be upgraded to adhere to Sustrans guidance and specification. Pathway over existing pipeline to be widened with access platforms and new riverside planting.
13. Proposed riverside boardwalk.
14. Proposed otter protection area along river margin.



Next Steps:

- Secure funding for project team and workstreams.
- Community engagement – establish strategy and programme.
- Review, identify and detail projects for the start of conversations.
- Establish connections and bring on board other team members / partners – eg. Perth & Kinross Council.
- Further development of the project identity already set in motion with Fife College.
- Identify and programme interim activities to raise awareness including archaeological dig in north west area of site (Kennoway).
- Identify and establish land ownership.
- Access is a key issue that will require to be addressed.
- Continued research and development of upstream programme.



PLAN AND SECTIONS
OF THE
RIVER LEVEN

SURVEYED BY
ALEXANDER MARTIN, GUPAR &
EBEN^r BIRRELL, DUNFERMLINE.
1828

