

What a Retention Basin could look like

Illustrative Montage of how the new Burn Corridor could look

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MANAGING WATER

02

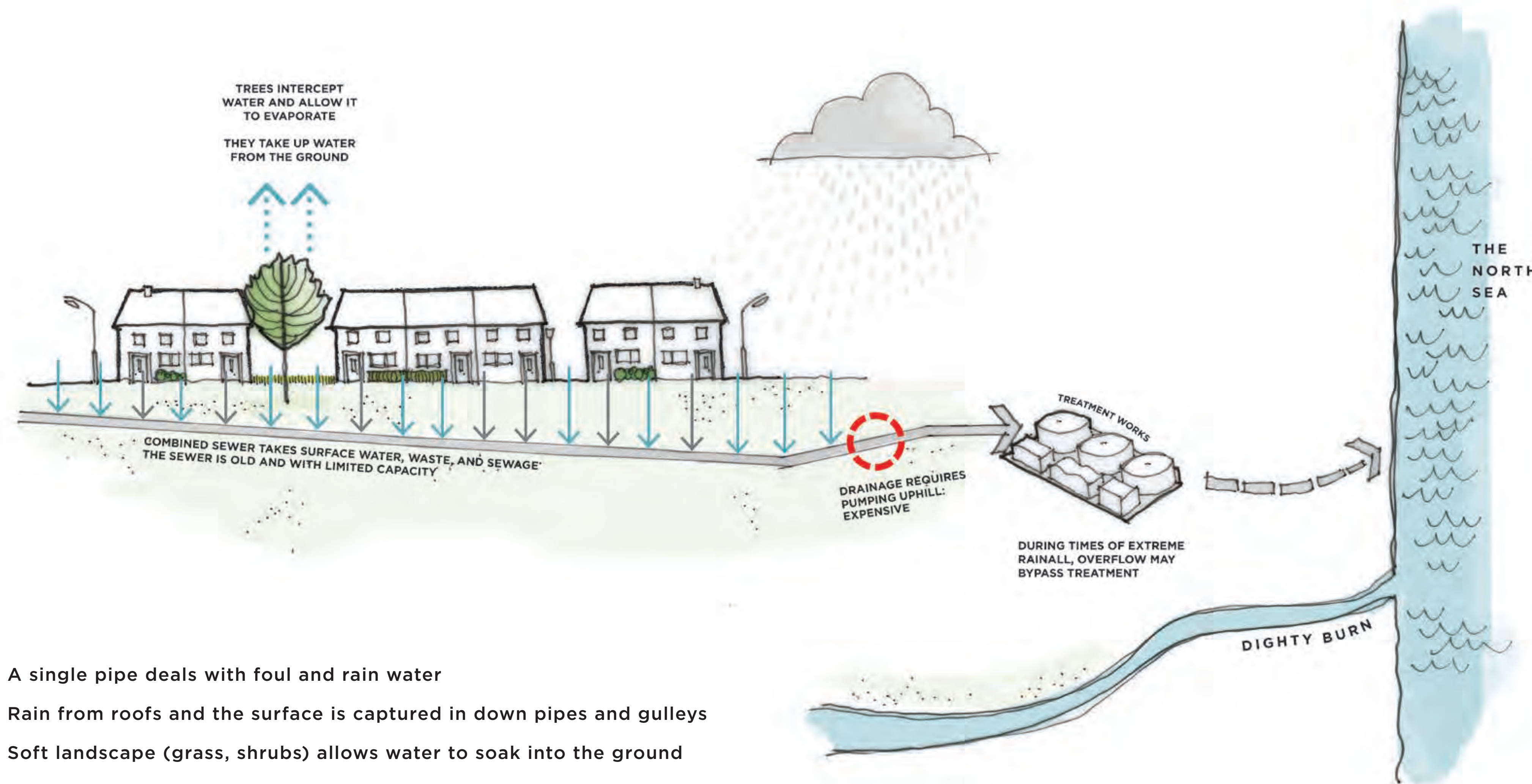
We are seeing the effects of climate change in Scotland. Our winters are warmer and wetter, and we have more extreme rainfall events when we have periods of really heavy rain. We are also seeing more periods of drought in between, when the ground becomes parched and hard. When the ground is like this it cannot absorb the large volume of water and so water runs straight into the sewer network where it quickly overflows. This is one of the main causes of the flooding we have all seen on the news in recent years.

This is what is happening in St. Leonard Park; when heavy rain occurs the drainage gullies, which are at a low point on St. Leonard Place, overflow and back up, causing flooding issues. The area around St. Leonard cannot be seen in isolation. It is part of the wider St. Mary's water catchment area, and how water moves around the whole area during rainfall is interconnected.

This situation needs to be resolved; but what might be the best solution? Several ideas have been considered, including building new pipes, but for a number of technical reasons, not just cost, these are not possible. The system cannot cope with any more water.

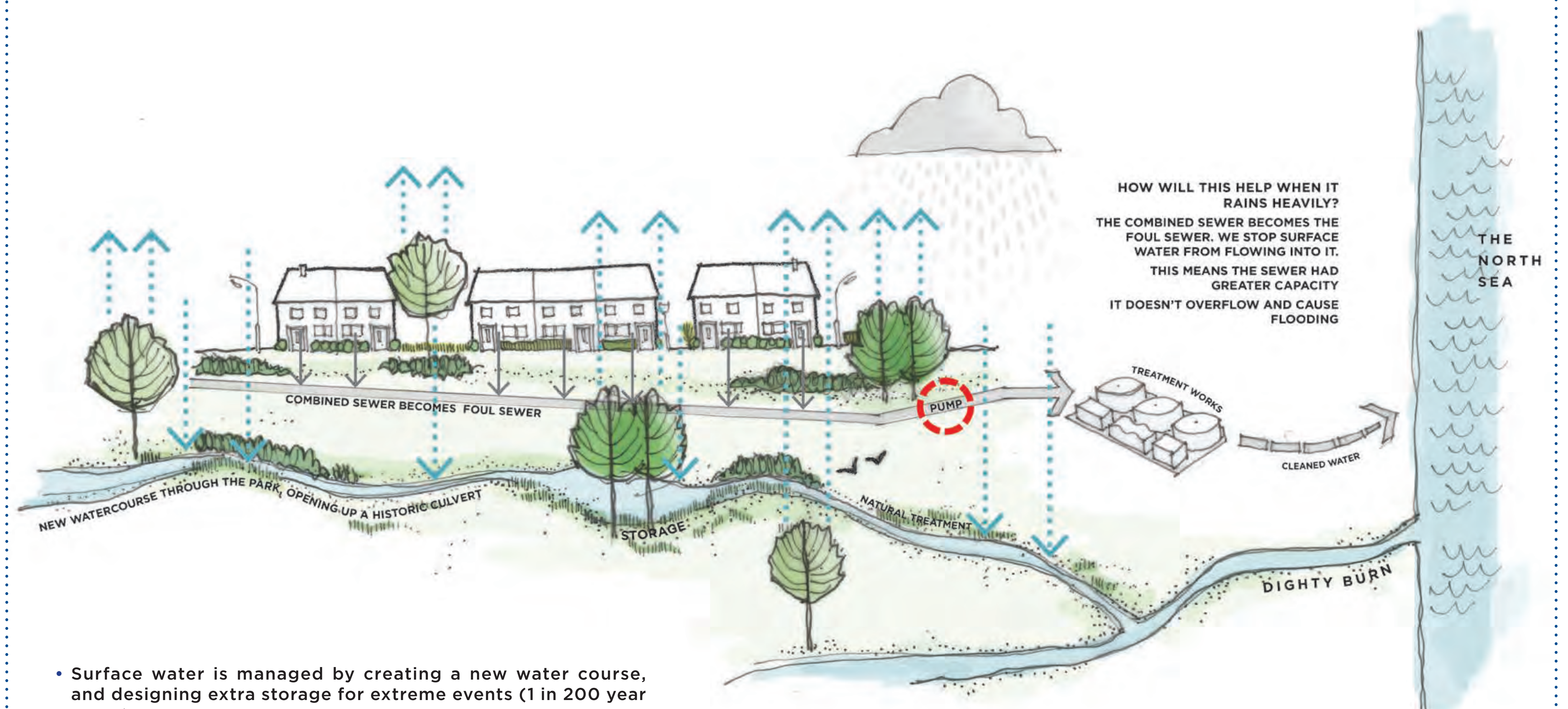
We need to change how we deal with water when it rains. The diagrams below illustrate what happens at the moment with the sewers and how this proposal could change the way the drainage works.

HOW DO WE MANAGE DRAINAGE AT THE MOMENT?



- A single pipe deals with foul and rain water
- Rain from roofs and the surface is captured in down pipes and gulleys
- Soft landscape (grass, shrubs) allows water to soak into the ground
- Hard landscape (areas of paving, roads, driveways, footpaths) don't absorb water and it runs into the pipe
- Surface and waste in the pipe travel through 26km of pipe line, 3 pumping stations and a treatment works before discharge to the Tay

HOW CAN WE STOP FLOODING AND IMPROVE DRAINAGE?



- Surface water is managed by creating a new water course, and designing extra storage for extreme events (1 in 200 year event)
- By planting up the park we improve this: trees absorb water in their leafy canopies as well as their root systems
- Shrub areas also help as water is more quickly absorbed around root systems than large grass areas which may be dry and compact due to drought

OTHER THINGS WE CAN ALL DO TO HELP ADAPT TO CLIMATE CHANGE



Collect rainwater from garages and sheds using a water butt. Water your garden with it when it's dry.



Plant up your front gardens. Paving over them significantly increases run-off, increasing flooding.



Plant a tree; it supports wildlife, stores carbon, provides shade and absorbs rain water.

SOME THINGS TO THINK ABOUT

- What do you think of the idea of having a new burn through the park?
- Do you have any ideas for how you would like a new watercourse to look?
- We will need to design other areas as overflow for times of heavier rain; some areas will hold water and some will be designed to flood only very occasionally. Would you rather see open areas of water, or planted wetland areas?
- Trees and water both capture carbon which helps us deal with climate change. Do you have any ideas on what kind of trees and shrubs you would like to see being planted?

On the following boards there are some images of other places and early thoughts for St. Leonard Park to help you imagine what the park could be like.

ST. LEONARD PARK REGENERATION PART OF THE ST MARY'S STORM WATER MANAGEMENT STRATEGY

BENCHMARKING

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The St. Leonard Park project is very ambitious and one of the biggest schemes of its kind in Scotland. There are however examples from elsewhere which offer similar approaches to how we can manage our drainage, and how we look to the future to address climate change.

To give you some ideas as to how the park could look once it has been regenerated, some of these examples are shown below.

- Bridget Joyce Square in London is an award winning scheme which has transformed an area in front of a primary school by using creative, nature based design to address flooding and traffic issues.
- Thornton Creek in Seattle is, like St. Leonard a linear park where a culverted burn was re-opened and the park was redesigned to improve management of surface water and access.
- Cults Burn Park on the edge of Aberdeen shows how a new burn can be redesigned and allow safe access.
- ForthQuarter Park in Edinburgh is a more traditional park than Thornton Creek; whilst managing the water and improving ecology it also offers large areas of open space for recreation.

BRIDGET JOYCE SQUARE - LONDON



Bridget Joyce Square is located between a school and two playgrounds, providing connection to a previously hostile and unsafe environment, dominated by traffic. The project stops surface water flooding by restricting flows and detaining water on site until downstream risks have passed. The design is playful, and by reorganising traffic it has created an attractive green gathering space within the community, with space for events and learning.



- Regeneration that addresses surface water and traffic issues to create a family space
- Example of play sensitively integrated with SUDS
- Creative and sculptural detailing integrated with drainage design
- Soft, textural planting contrasts with clean lines in the hard landscape
- Permeable paving
- Planted basins
- Rain gardens
- Tree planting
- Downpipe disconnection



THORNTON CREEK - SEATTLE



Thornton Creek Water Quality Channel is a 2.7 acre park in Seattle, with a stretch of de-culverted watercourse. The stream was brought back to the surface and a green space created to better manage extreme flooding events, treat surface water, increase biodiversity, absorb carbon, and create an attractive space for people.

The new park also acted as inspiration for sustainable development and investment in the area.



- Cleans storm water runoff from 680 acres of surrounding neighbourhood
- Uses plants to clean the water
- Native planting slows the storm water flow
- Interpretive signs teach visitors about the landscape's ability to restore ecological functions
- Pathways through the park and bridges across the channel make navigating the neighbourhood safer and more efficient



CULTS BURN PARK - ABERDEEN



Countesswells is a new planned settlement on the edge of Aberdeen, consisting of 3,500 new homes. One of the key landscape spaces is the creation of the 12 ha Cults Burn Park, which utilises a former minor watercourse and extensive field drainage on the site to combine into a new and larger burn. The burn now sits within a parkland corridor at the heart of the masterplan within a new linear park. Overlooked by new development, this generous swathe of landscape flows through the new settlement providing a park system accessible to all.



- Use of the burn, swales and retention basins to hold and manage water.
- Seasonal planting and significant meadows
- Children use the park for ecology study.
- Areas of the burn are designed for safe access including stepping stones for crossing and shallow areas for paddling.
- The park includes several connecting paths which cross the burn at key points.



FORTHQUARTER PARK - EDINBURGH



The water management infrastructure in place at Forthquarter Park is designed to collect water from the surrounding landscape and feed it back into the Firth of Forth estuary. The existing, culverted watercourse was brought to the surface, and now flows through the park, integrated with a system of wetlands, swales, detention basins, constructed wetlands, and stormwater disposal systems. Wetland planting is used for natural water treatment, and the park has a strong focus on ecological connection.



- Use of planting to clean the water
- Soft, naturalistic planting
- Minimal, low-key boardwalks do not disrupt the naturalistic character of the park, and plants can grow around them to further blend them into the wider landscape
- The new green and blue environment provides an ecological corridor, allowing animal species to move safely



ST. LEONARD PARK REGENERATION

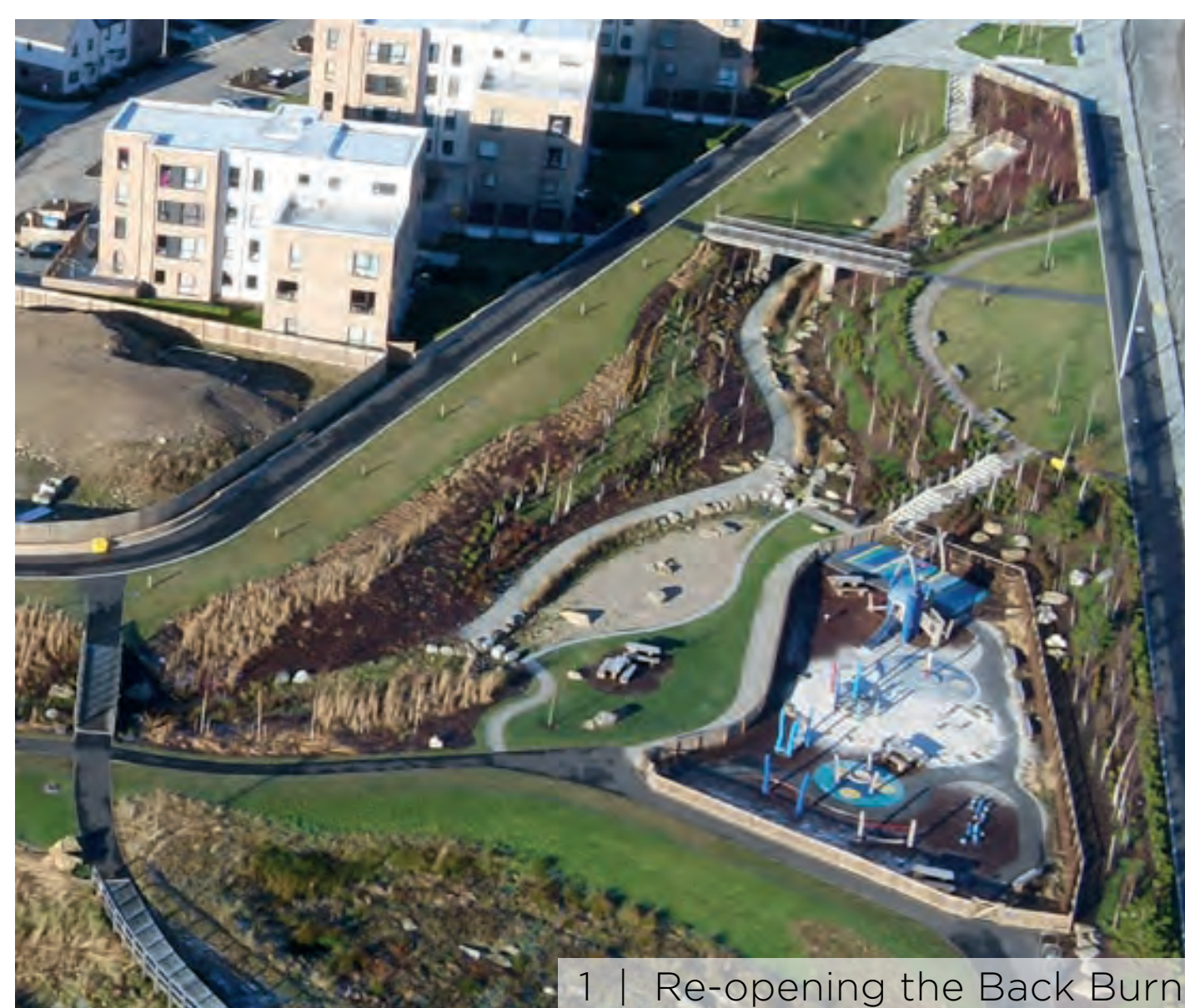
PART OF THE ST MARY'S STORM WATER MANAGEMENT STRATEGY

THE PARK: EARLY THOUGHTS

04



A sketch plan of the park corridor highlighting where some of the key changes could be made



1 | Re-opening the Back Burn



3 | Traffic calming measures in front of St Andrews Primary School



5 | Create ecologically rich planting structure which offers opportunities for natural play, wildlife, growing and foraging



7 | Play strategy along the corridor to be developed, including a location for a pump track



2 | Multi-user pathways



4 | Bridge connections over burn



6 | Improve the environment around the roundabout



8 | Drainage features to be assessed, accommodating permanent, semi-permanent and occasional wetlands

SO HOW DO WE START TO THINK ABOUT REGENERATING ST. LEONARD PARK?

As we start to design, some elements will be fixed but others will be entirely flexible. The landform, existing buildings and the historic location of the Back Burn, will influence where the new burn could be located. The burn would need to be in a low point in order to function, and the new paths need to be at a gradient which is comfortable for walking or cycling.

How we change other parts of the park, and what we include within it, are all open to suggestions. In order to help you think about this we have highlighted some of our own early thoughts. These are numbered on the plan and these correspond with the numbers on the images. These are explained a little more below:

1 | The reopened Back Burn could be designed in a number of ways. It can curve, and change in width to give different character. The aerial photograph shows what the new Cults Burn from the example on the previous page looks like.

2 | Another way of reducing the impacts of climate change is by encouraging less car use, especially for short journeys. We can make this easier by designing paths that connect places people want to go to and making them available to all.

3 | We can slow the traffic down in front of St. Andrews Primary School and make it less car dominated and more people friendly.

4 | Connections over the burn are essential and can help create a sense of place.

5 | New planting can encourage wildlife, and provide shelter; we can also design areas for growing food - community orchards for example, edible hedgerows or allotments.

6 | Strathmartine Roundabout acts as a barrier in many respects; there are opportunities to change and enhance this junction.

7 | Thinking about play will bring more life and activity into the park, and encourage a healthy lifestyle.

8 | Drainage features can be designed in a number of ways. We are still calculating how much water we need to manage but we think we will need some areas that are wet all the time, some which are occasionally wet (like this photograph) and some which are only wet in 1:200 year events.

WHAT WOULD YOU LIKE TO SEE IN THE PARK?

USING THE PARK

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BIODIVERSITY



Mown grass



Meadow grass



Bare earth



Mixed low maintenance planting



Single species wetland



Mixed wetland planting



Roadside swale



Rain garden

HOW CAN WE PLANT UP THE PARK TO IMPROVE BIODIVERSITY?

We not only have a climate crisis but an ecological emergency too. In 2019 the United Nations announced that "Nature is declining globally at unprecedented rates" which impacts on us all. Creating species-rich planting, with a focus on our native species, can help redress the balance. This will change how the park looks. Do you like these ideas? Would you be interested in getting involved with designing, planting and maintaining a greener park?

PLAY AND SPORT



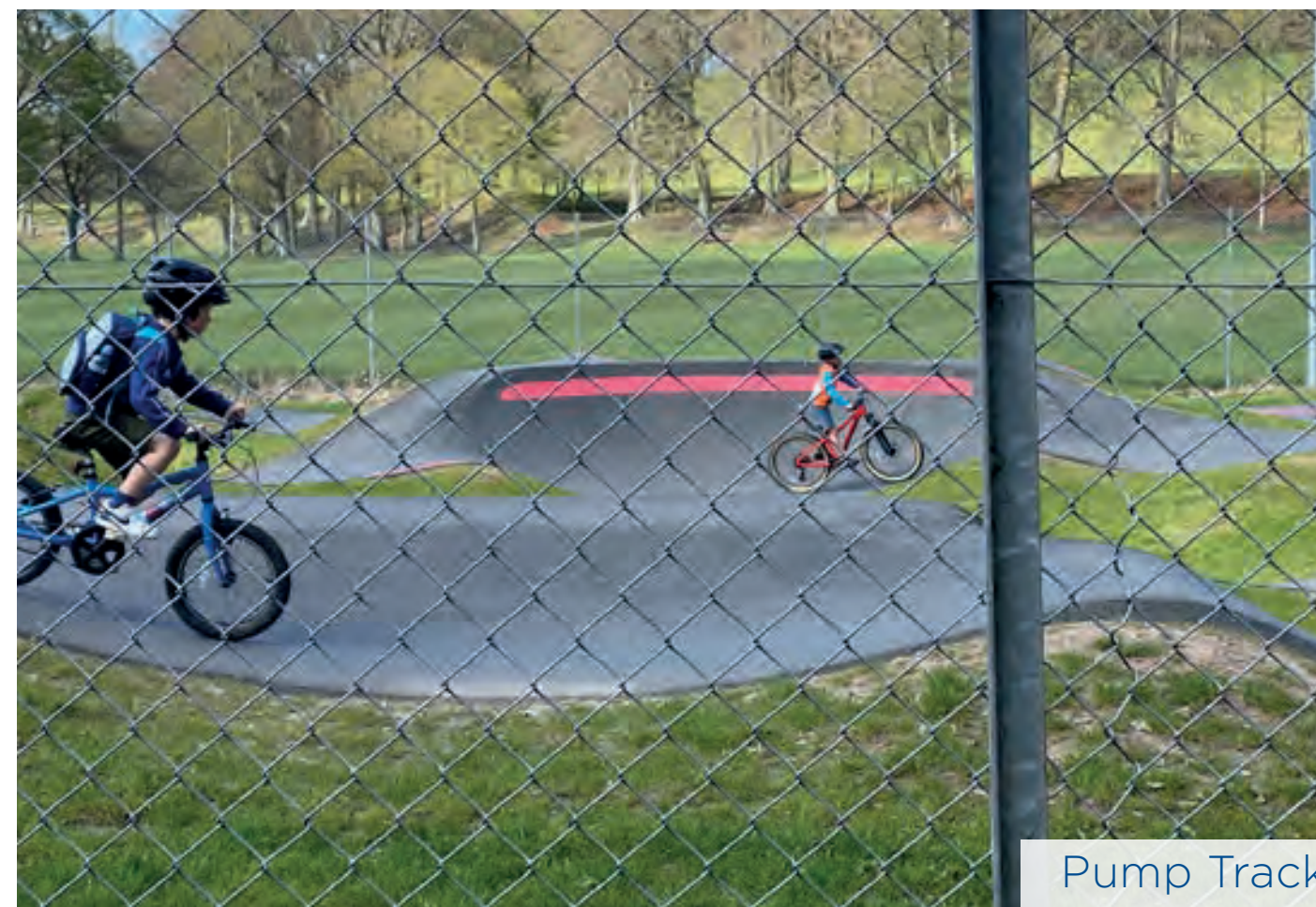
Outdoor gym equipment



Adventure play



Natural play



Pump Track



Football field



'The Daily Mile' and Parkrun



Outdoor Classroom



Field education

HOW COULD THE PARK BE USED FOR SPORT AND ACTIVITY?

There are numerous ways of improving the park for sport and activity, and these can be designed to complement the associated drainage work. New water features can offer learning opportunities. The football field can be designed to accommodate the 1:200 year flooding event. A new orchard could be a community focus: annual blossom picnics, harvesting events and sale of produce. How would you like to use the park?

ACCESS

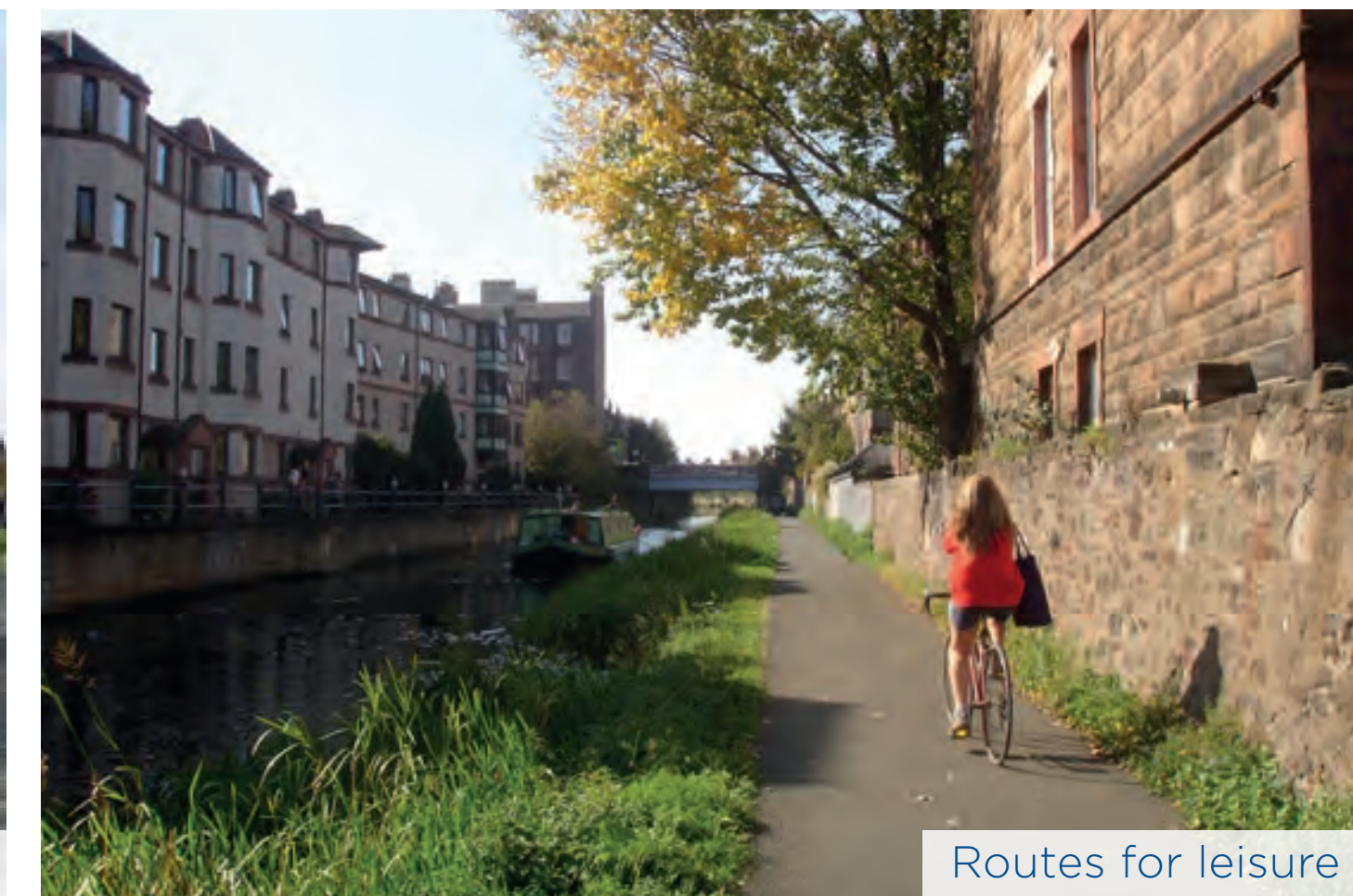
Local places where people might need to go; have we missed anything?



First thoughts on how we can improve connections



Routes for getting to places



Routes for leisure

HOW CAN WE IMPROVE CONNECTIVITY?

Good connecting routes which are easy to get to and get around, well-designed, and feel safe will encourage more people to walk or wheel. It is important that we understand where people want to go, or if they want routes for making circular walks or runs. We have all valued open space and going for walks, runs and cycles through the pandemic. How can we apply what we have learnt to St. Leonard?

ST. LEONARD PARK REGENERATION

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TELL US YOUR THOUGHTS

06



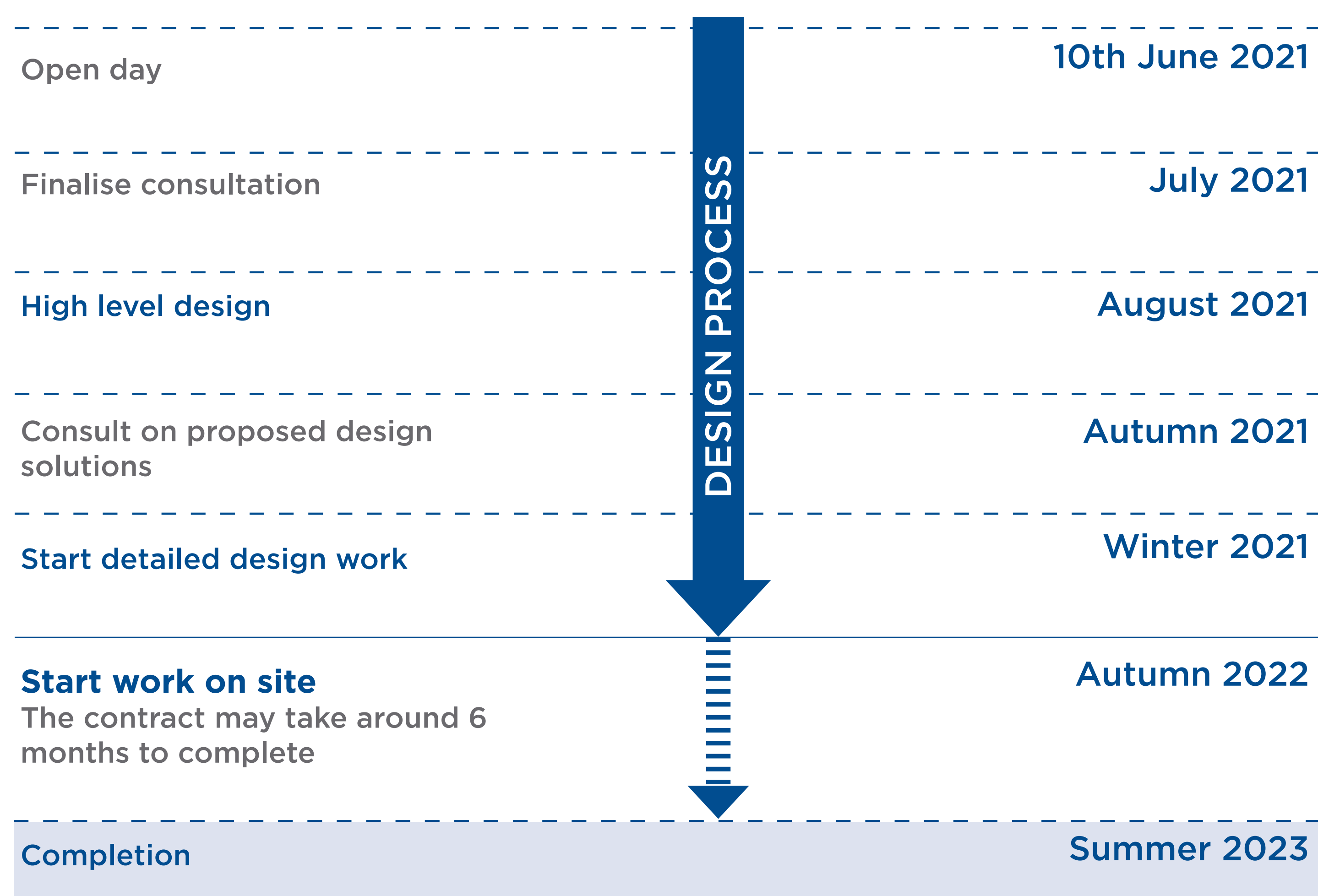
THE BENEFITS

- The flooding problem is improved
- We create a better park
- Urban wetlands provide shelter, food and breeding opportunities for a variety of wildlife species including amphibians (such as frogs), plants, insects, birds, bats and other mammals'
- Better opportunities for the community to exercise, play and socialise
- Opportunities for outdoor education
- Improved active travel connections



WHEN WILL THIS HAPPEN?

We are still finalising the programme but at the moment we are working to the following timeline:



HOW CAN YOU GET INVOLVED?

Please fill out a questionnaire. We are interested in knowing your thoughts on water features, local traffic, play facilities, the planning proposals, and activities you would like to see in the park.

The questionnaires are available via the website, or please contact us and we can send you a copy by email (website and contact details right).

If you would like to get involved in the future design, planting and maintenance of the park we would love to hear from you. Leave us your details, which will only be used for this purpose, and we will keep in touch.



CONTACT DETAILS

Please fill in the questionnaire or get in touch.

Online: www.scottishwater.co.uk/stmarys

By post: St Mary's Consultation Response, Scottish Water, Bullion House, 84. Main St, Invergowrie, Dundee DD2 5BE

or by email: stmarys@scottishwater.co.uk

The deadline for this consultation is the 23rd July 2021

ST. LEONARD PARK REGENERATION

PART OF THE ST MARY'S STORM WATER MANAGEMENT STRATEGY



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