

Grangemouth Flood Protection Scheme Newsletter

Issue 6: Autumn 2023



Pupils at Grangemouth High School spark their creativity on the STEM Education Programme

High school students take on the STEM Education Programme

Read about how students from Grangemouth High School have been learning all about flooding from industry experts.

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Meet the GFPS team with Alistair Dawson

We answer some of the most commonly asked questions about the scheme.

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What actually causes flooding?

Learn more about the different types of flooding and what causes them to occur.

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Grangemouth High School trials new GFPS STEM resources

Students from Grangemouth High School recently took part in a special interdisciplinary STEM (science, technology, engineering, and maths) day, designed to bridge the gap between school, higher education, and industry.

The event saw 150 'S1' students trial a series of free learning resources which were developed as part of the Grangemouth Flood Protection Scheme's STEM Education Programme.

Aimed at secondary school students from across the GFPS area, the free resources support the teaching of STEM based subjects, equipping young people with the skills required in this fast-paced and ever-changing world.

Skills-based STEM workshops

Throughout the day, students took part in five skills-based workshops centred around creativity, communication, collaboration, complex problem-solving and critical thinking. They also had the opportunity to hear from industry experts including archaeologists, engineers, environmental scientists, project managers and stakeholder engagement officers.



Grangemouth High School's GFPS STEM day kicked off with an assembly presentation



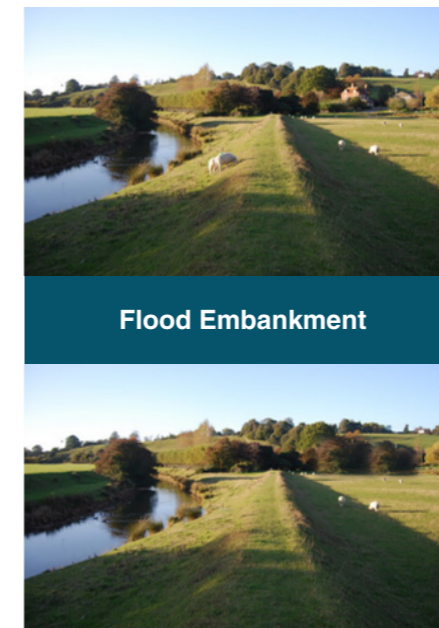
Pupils at Grangemouth High School sparked their creativity with the GFPS STEM activity

Councillor Paul Garner, spokesperson for Economic Development, said: "We are extremely proud to support the skills development of young people through our STEM Education Programme.

"A career in STEM can open up a whole world of possibilities and the event at Grangemouth High School was a fantastic opportunity to showcase the wide range of jobs available."

Flood defences - spot the difference

Flood defences are used to reduce the risk of flooding to people and properties. Can you find two differences between each type of flood defence in the images below?



Flood Embankment



Vehicle / Pedestrian Flood Gate



Culvert

The answers to the spot the difference are on the final page of the newsletter.



Got a question? Speak directly to our project team

Would you like more information about how the proposed flood defences might impact your home or business? The GFPS team has been offering one-to-one sessions with directly affected residents and businesses.

Tenants and owners of properties that will be affected by the scheme can take part in a one-to-one session which can either be a face-to-face meeting or a telephone or online consultation.



Nicole Anderson, Flood Prevention Officer from Falkirk Council, said:

"It's great to go out and speak to the people who will be directly affected by the flood defences and understand their views on the project. We're gaining some really interesting feedback that we take on board and discuss with the full project team."

If your property is being impacted by the flood defences, and you're interested in arranging a telephone consultation or face-to-face meeting with the team, please email us at grangemouthfps@falkirk.gov.uk.

Meet the GFPS team

In each issue of the newsletter, we are introducing you to a member of the GFPS team. This time it's the turn of Alistair Dawson, Infrastructure Projects Manager at Falkirk Council, who is part of the team working to deliver the Grangemouth Flood Protection Scheme. We asked Alistair some of the most common questions we're asked about the scheme.



Falkirk Council's
Alistair Dawson



Is the scheme really needed when there hasn't been any recent flooding in the area?

As the largest flood defence project in Scotland and one of the biggest in the United Kingdom, the Grangemouth Flood Protection Scheme was identified as the highest national priority given the potentially significant impacts for the community if an extreme flood event were to occur.

While other parts of Scotland have been affected by flooding over the last five years, the Grangemouth area has fortunately avoided significant flooding. However, the town and surrounding communities are at risk of fluvial (river) and coastal flooding impacts.

On average, every few years, the Grange Burn has been close to overtopping onto adjacent roads and properties. In addition to this, the largest flow on record was also measured on the River Avon in August 2020. Both the Scottish Environment Protection Agency (SEPA) and the Scottish Government have verified that Grangemouth is at risk of flooding, primarily from the sea but also due to flooding from rivers/burns caused by heavy rainfall.



Will the flood defences reduce the visual amenities of the Grangemouth area?

The appearance, finish and detailing of the flood defences have been chosen to complement the existing landscape across the scheme. These defences will vary from plain/patterned concrete walls, to walls with stone/brick cladding. They could also take the form of grass or wildflower covered embankments, although, the footprint of these is considerably larger than walls.



Will the scheme only protect the refinery?

The main purpose of the scheme is to protect around 2650 homes and 330 businesses in and around Grangemouth.



Why can't the pumping stations deal with the flooding?

Scottish Water's pumping stations in the Grangemouth area predominantly deal with foul water rather than surface water. Unfortunately, these would not be able to cope with the predicted flows of a major flood event.



Will the scheme destroy natural habitats for birds, fish, and aquatic life?

During construction of the scheme, it is of utmost importance that the natural habitat of the local area is protected. We are undertaking an Environmental Impact Assessment of all aspects of the scheme and will be proposing ways of mitigating any potential impact. We have also been carrying out a range of habitat and species surveys over the last few years.



Why do we need the scheme when we have a flood relief channel?

Flood relief channels can help take the pressure off a river's main channel, by diverting water away from areas at risk of flooding following heavy rainfall. Grangemouth's own Flood Relief Channel was built in the 1960s to

reduce the chances of river flooding to properties along the Grange Burn, which happened regularly until it was constructed. On its own, this channel is not enough to avoid flooding in Grangemouth, but it is an integral part of the flood scheme, and will be further improved to pass more water into the River Avon. Increasing the height of flood relief channel banks will accommodate higher flows in the channel and this will reduce flood risks just south of Zetland Park. The preferred scheme is a combination of linear flood defence walls and embankments, and a flow control structure to direct more of the flow in the Grange Burn into the flood relief channel.



What is a '1 in 200 year' flooding event?

It is commonly believed that a '1 in 200 year' flood event is a flood event that would happen, on average, once every 200 years. This is incorrect. In reality, floods are categorised by their likelihood of occurrence. The annual probability of a particular flood is the statistical chance (or risk) that a location will flood in any given year and relates to a particular size or magnitude of flood.

The Grangemouth Flood Protection Scheme is being designed to protect Grangemouth and its surrounding communities against flooding with a '1 in 200 year' chance of occurrence or alternatively expressed as having a 0.5% chance of occurrence in any year. The Scottish Environment Protection Agency (SEPA) also refers to this as a medium likelihood event.



Why don't you dredge the Grange Burn?

Dredging has been considered but has shown to offer only very limited benefit to reducing flood water levels in the rivers and burns. In the non-tidal sections of the rivers and burns, the additional capacity generated by dredging is minimal in comparison to the volumes of water present in an extreme flood, hence its minimal benefit. In addition, dredging is not sustainable, and watercourses would need to be frequently re-dredged. Altering a river's natural sediment movement and deposition can cause erosion of the riverbed and banks, which can lead to the failure of existing structures such as roads and bridges. In areas such as the lower Grange Burn, dredging would not reduce the risk of flooding as



Why are you cutting down trees?

We will avoid cutting down trees unless there is no other alternative. Removal is usually carried out because of the damage that the tree roots would sustain if they were left in place. In many flood risk areas, the position of existing buildings, roads, and footpaths makes them more vulnerable to flooding, but also dictates the position and type of defences which can be built. While the proportion of flood defences above ground may seem quite small, there are extensive engineering measures required below ground. Where defences are required close to trees, their roots could be damaged during the construction.

Where tree removal is absolutely necessary, we are committed to planting on average three trees for every tree removed, as well as undertaking a programme of enhanced landscaping measures tailored to each affected location. In some cases, where large mature trees have to be felled, similar large trees (c.4-5m in height) will be planted to replace them. The proposed tree planting provides opportunities for the tree stock to be more resilient for future decades, as various suitable species will be planted for their environment. Planting one single species will be avoided to prevent vulnerability should any individual tree become diseased.

A wide variety of statutory bodies including NatureScot, the Scottish Environment Protection Agency (SEPA), Historic Environment Scotland, and Marine Scotland, have been consulted to ensure all relevant concerns were raised and addressed at the earliest stage. All statutory bodies are supportive of the approach being taken to reduce flood risk and will continue to be involved in the project in a consenting role. For more information, please visit www.grangemouthfloodscheme.com/trees.

If you have any additional questions, contact the team on grangemouthfps@falkirk.gov.uk.

The causes of flooding

When Storm Babet recently hit Scotland, the Met Office issued a rare red weather warning in advance of extremely high levels of rain. This also highlighted the serious risk to life brought on by the storm. With rain such a common fixture of our weather, should we expect floods to happen more often? To answer that, it's best to consider what causes floods in the first place.

Below are some of the most common types of flooding:



Coastal flooding is when land is flooded with sea water. Extreme weather and very high tides can cause a rise in sea levels, and the water flows onto surrounding areas and causes flooding. Surges and waves can also increase the impacts of extreme tides.



River flooding usually happens when there's been a lot of rainfall. A body of water - like a river - bursts its banks when there is too much water for the river to contain so it spills out.



Groundwater flooding can happen when the level of water within the rock or soil underground - known as the water table - rises. When the water table rises and reaches ground level, water starts to seep through to the surface and flooding can happen.



Flash floods are floods that happen very quickly, and they're usually caused by very heavy rain, or when water can't be absorbed quickly enough.

Due to its low-lying ground, Grangemouth and its surrounding areas are at high risk of flooding from multiple sources, and these floods could happen at any time.

The largest floods the scheme will protect against have a medium chance of occurring, but if they did the impacts would be devastating with thousands of homes and businesses affected, road closures and the possibility of lives being lost.

The earth is warming, rainfall patterns are increasing, and sea levels are rising. As the climate of the planet changes, flooding will become more and more common. It's important that we address these risks in a proactive manner rather than waiting until after the flood event has occurred to take any action.

The GFPS team has developed flood maps to show the predicted extent of flooding in the local area and these can be accessed by visiting www.grangemouthfloodscheme.com/need-for-scheme.

How to prepare for flooding

Unfortunately, flooding cannot always be entirely prevented but being prepared and understanding the flood risk in your area can minimise the impact on your property.

Alan McGowan, Design and Consents Manager at Jacobs, says: "It's really important that if you're at risk of flooding then you know what to do if flooding hits. Thinking ahead and preparing can make a real difference to how you and your family can stay safe and deal with unexpected events."

If you have signed up to receive Alerts or Warnings from Floodline, you will have advance notice and know when and where flooding is likely. You can find Floodline at:

<https://floodlinescotland.org.uk/>.

Pay attention to the flood warnings or flood alerts and follow advice given.

Check your flood risk!



How do I prepare for a flood?

- Flooding can affect more than just your property; it may impact on your community or your route to work. Use the Scottish Environment Protection Agency (SEPA) Flood Maps to find out if you're in an area at risk of flooding caused by rivers, the sea or surface water
- Get home insurance
- Sign-up for flood alerts and warnings
- Prepare an emergency kit
- Make a flood plan/join a community flood or resilience group
- Consider extra steps if you are older or disabled for example e.g. ask to be put on the priority services register for water and energy supplies
- Consider installing property level protection for your home, such as sewage non-return valves, door and gate barriers, waterproof plasterboard
- Flooding is upsetting and can be difficult, but there are steps you can take if it happens.



When flooding is forecast you should:

- 1 Check Floodline. If you've received a message from Floodline, visit flood.sepa.org.uk for the full update
- 2 Keep your mobile phone charged
Follow your flood plan
- 3 Find warm clothes and wellies
- 4 If power fails, unplug appliances to prevent electric shock when power returns
- 5 Shut off gas, electricity and water supplies and activate any flood defences you may have
- 6 Check on vulnerable and elderly neighbours
- 7 Move pets and animals to a safe place and ensure they have enough food and water
- 8 Move sentimental and valuable smaller portable items onto higher levels if time
- 9 Prepare to evacuate if necessary
- 10 Gather emergency supplies/contact numbers and continue to follow local updates/advice.

Protecting communities in Grangemouth, Wholeflats, Glensburgh, Langlees, Carron and Carronshore



2,650
residential
properties



6km
roads



330
non-residential
properties



5,800
people

Look out for your Land Interest Questionnaire

Local residents and businesses are being asked to look out for an important questionnaire coming through their letterboxes. The questionnaire aims to help to identify all parties with an interest in land or property that may be affected by the Grangemouth Flood Protection Scheme.

Everyone who Falkirk Council believe has an interest in land or property affected by the scheme will receive the Land Interest Questionnaire. Falkirk Council wishes to confirm that the scheme has correctly identified all interests. This can be from owning/leasing the property or having a right to use/cross over the land or property. The questionnaire also needs to identify any changes in land ownership or interests. The council is also seeking any information on any other party who might have an interest in the land or premises, such as from an imminent or recent sale. Falkirk Council is expecting to notify the flood protection scheme in 2024, under the relevant Flood Risk Management (Scotland) Act and association regulations.

Alistair Dawson, Infrastructure Projects Manager at Falkirk Council, said: "With scheme notification expected to commence in 2024, we are making our preparations to ensure that all affected parties can be correctly notified. For those who we believe are affected, the Land Interest Questionnaire will be landing in your letterbox, over the next few weeks.

"We are asking that you answer the questions to the best of your knowledge confirming that the information is correct, highlighting any changes or inaccuracies to land ownership or interest, and advising on any interests that others may have with the land, such as mortgage providers."

The questionnaire is being carried out by land referencing company, Dalcour Maclaren. It is employed by Falkirk Council to help identify all parties with an interest in land and/or property affected by the proposed scheme. The contact details being used to distribute the questionnaires have all been taken from publicly available sources such as the Land Register of Scotland, and information previously provided to Falkirk Council and its agents.

If there are any issues completing the questionnaire or you think you should receive one, please contact Dalcour Maclaren on grangemouthFPS@dalcourmaclaren.com. You can also get further information by emailing grangemouthfps@falkirk.gov.uk or by contacting the Falkirk Council Contact Centre at 01324 506070.

Answers:

Right Image - extra uprights on metal fence and rabbit added to grass.
Middle Image - pattern on flood gate removed, and white sign on wall removed.
Left Image - Sheep and house missing.

If you, or someone you know, would like a copy of this newsletter in another language or format, this can be arranged by contacting our customer services centre on 01324 506070.

You can keep up to date with the scheme by visiting our website
grangemouthfloodscheme.com



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