

Grangemouth Flood Defence – Critical Thinking Task

Below are three scenarios that might occur on a real-life Flood Engineering Project.

- *Work with your project team to make a critical decision on which solution to choose.*
- **Consider the project timeline, cost, and environmental impacts**

Scenario One



You have planned to build a flood wall and have ordered the necessary Ecological Surveys to be conducted around the project area. The surveys find a series of badger setts (dens), located near the area of the planned flood wall.

Badgers and their setts are legally protected by the Protection of Badgers Act (1992), so if the development harms, damages or disturbs the badgers, it could be a serious offence.

Should you...

Option 1

- Apply for a species license from the government which would allow you to keep on building the flood wall.

Option 2

- Bring in a badger specialist to conduct more surveys. Work with the specialist to create a protection plan to minimise the impacts.

Option 3

- Delay the project to consider relocating the planned flood wall to be an appropriate distance from the badger setts that were discovered by the surveys.



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Scenario Two



You are constructing the reinforced concrete slabs that will make up the outside of the flood wall. While your team is preparing the concrete to be poured, there is an unexpected spill!

If the watery-concrete mix spreads into the ground or water systems, it can create a toxic environment that is harmful to wildlife. It is also a UK regulation to control pollution and establish measures to prevent this.

Should you...

Option 1

- Pause all action onsite and focus all your efforts on doing everything you can to contain the concrete spill.

Option 2

- Keep going with the project and try to sweep up any contamination you can see. It was an accident so just hope it doesn't happen again!

Option 3

- Follow the management plan that you had already prepared for scenarios like these and create an incident report to stop it happening again.



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Scenario Three



Your team is nearly finished with constructing the flood wall and is just adding the stone cladding to the outside. This will make it long-lasting and weather resistant, which is very important for a flood wall!

Unfortunately, as your team are halfway through doing this, an unexpected storm starts that was not in the forecast. Since the cladding is not properly dry or set yet, the hail could damage the materials.

Should you...

Option 1

- Try to protect the cladding using waterproof coverings. Hope that it can be fixed or finished after the storm.

Option 2

- Decide that your flood wall needs to be even more resistant to the natural elements. Order extra materials to create an extra thick layer of cladding.

Option 3

- Leave the cladding as it is and decide to start over after the storm - the materials have probably already been damaged by the storm.



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