Flood Risk Assessments (FRA)

Client: G & D Engineering

Caley Water has carried out a number of surface water Flood Risk Assessments (FRA) on behalf of G & D Engineering and other clients at proposed development sites across Scotland.

FRAs are used as part of the planning application process for new developments in order to ensure that no flooding occurs on site from surface water flows. Using the Infoworks modelling software, Caley Water is able to provide the modelling resources required to predict where flooding may occur on proposed development sites and recommend solutions required to mitigate predicted flooding.

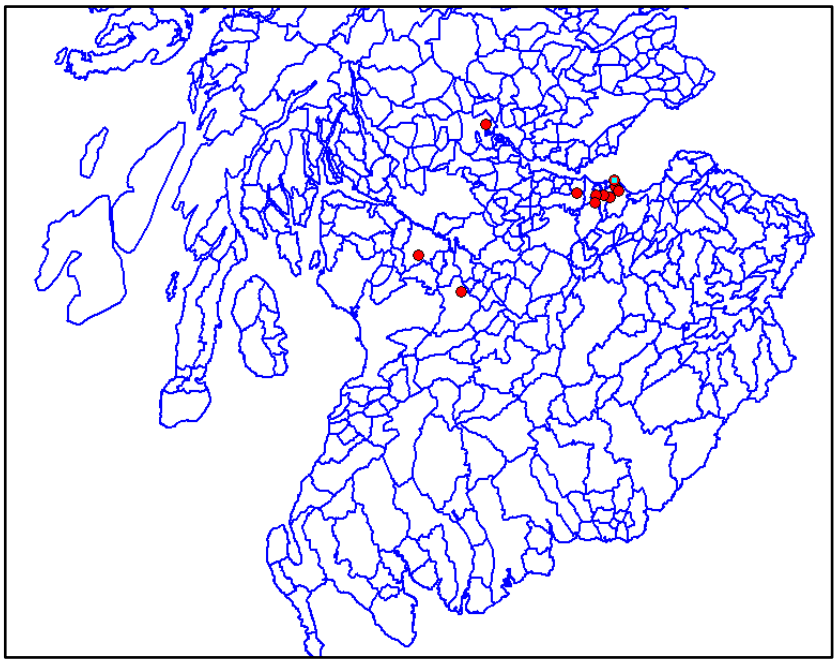

Figure 1: Location Overview of Recent FRA Studies

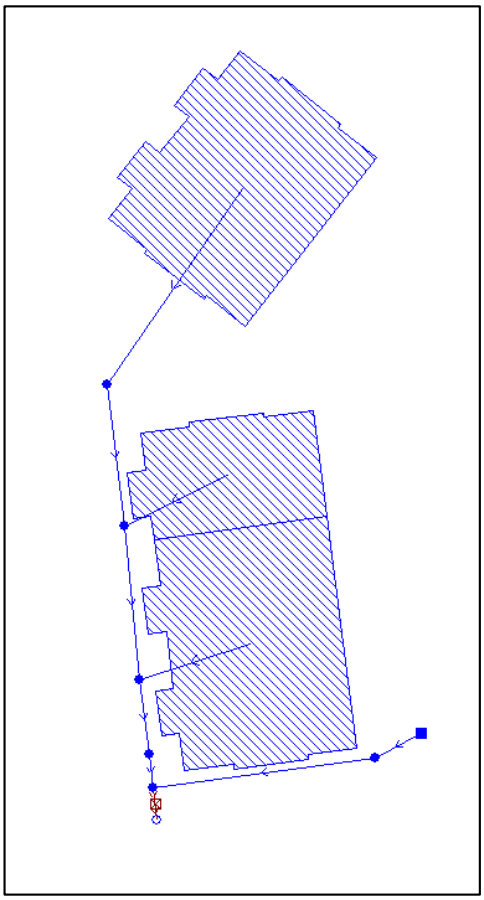

Figure 2: Schematic of Surface Water Network built in Infoworks

Services provided

- Reviewing site plans to ensure that required information is provided such as:
    - Manhole cover levels
    - Pipe diameters and invert levels
    - Storage proposals
    - Contributing areas showing roof, paved and landscaped areas
    - Details of limiting discharge devices
- Building surface water network model for proposed development site based on the above.
- Accurately modelling contributing areas based on client brief information.
- Creating Flood Estimation Handbook (FEH) rainfall data to be used in Infoworks for assessment.
- Using rainfall data to create a range of duration winter and summer storm events and applying a corresponding uplift factors to create the following return periods, in accordance with Sewers for Scotland (v3):
    - 1 in 30 year return period with 40% uplift factor to account for urban expansion and climatic change.
    - 1 in 100 year return period with 20% uplift factor to account for climatic change
    - 1 in 200 year return period with 20% uplift factor to account for climatic change
- Running all required storm simulations in model.
- Establishing flood risk based on maximum predicted flood volumes at critical duration storms for each return period.
- Calculating storage volumes required to mitigate flooding.
- Producing an electronic report for the client outlining methodology, key inputs and results including recommendations for site storage required to mitigate flood risk.

Solutions and added value

Flood Risk Assessments are key to ensuring that future development sites do not experience sewer surcharging during periods of heavy rainfall. Caley Water, using its experienced staff and modelling resources, is able to predict flooding that may occur during certain storm events. In doing so, we are able to calculate storage volumes required and/or changes to the drainage network required to mitigate predicted flooding on development sites which could otherwise cause damage.

Our professional and timely approach has and will continue to provide our clients with a tailored assessment in a timely manner. Our clients are therefore able to appropriately design mitigation measures into their designs allowing development proposals to be approved by local authorities.