

# INGLEWOOD BERM REPORT

## Bowness Responsible Flood Mitigation (BRFM)

### Background:

The City constructed flood barriers in Inglewood circa 2007 on 16 properties, of which the City owned or acquired at least 1. The City proposed this barrier as saving 724 other Inglewood properties. Since the City is proposing barriers for Bowness, some Bownesians thought it would be useful to canvas Inglewood homeowners regarding their experiences with the construction process and the results. Inglewood residents enjoy riparian rights as we do in Bowness.

The ratio of berm/wall to riverfront is approximately 1.2 to 1. At the western portion, the barrier follows the floodway, however in the eastern portion it runs close to the houses. The berm to wall ratio is estimated at 1.1 to 1, meaning there was close to the same amount of wall as berm built.

The City moved a garage on one property because it was in the floodway. There was some discussion about lifting one house, but it was never done.

All homeowners with the exception of one were able to negotiate agreements with the city. The landowner who did not have successful negotiations with the city could not be reached for feedback. Ultimately, an easement was expropriated on his lands. After construction was completed this resident began legal proceedings at the Land Compensation Board. Ultimately, he won financial compensation due to rights expropriated (due to easement), severance damage (loss of access to river), and reduction in market value (of remaining

### Inglewood Resident Feedback

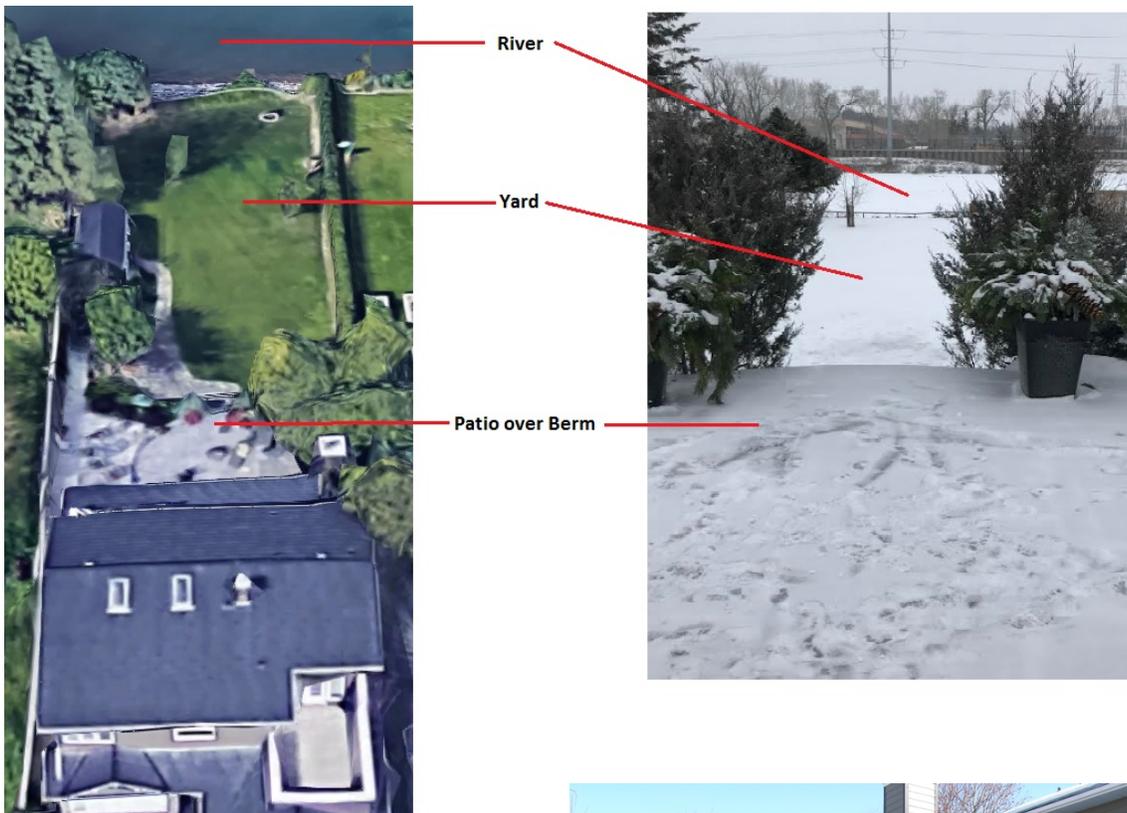
1. The barrier was effective at preventing overland flooding in 2013. The barrier was not effective at preventing groundwater flooding. There was up to 3 feet of basement flooding in numerous homes. In addition to the high groundwater table, there were also issues with backup of the stormwater/sanitary system. The residents believe this latter cause has been corrected (with pumps) but these opinions are unverified and untested. At least one resident witnessed groundwater flooding from the high-water table. Those without backflow preventers had issues with sewer backup.
2. Most residents had their river views maintained, however this was primarily a result of either new builds or the barrier being constructed close to their houses.
3. The Inglewood barrier did not increase public access. Moreover, the barrier is constructed such that a future pathway would be impossible. Similar to Bowness, the residents have occasional presence of rafters & fisherman along the riverbank.
4. It is unclear how the Inglewood barrier has affected property values, however the consensus seems to be between neutral & increased.
5. Buildings and trees are not allowed on the earthen berm portion. Construction of patios on the berm were done by the city as negotiated with the owners. The owners would have not been allowed to build patios after completion of the barrier project.
6. The negotiation process with the City was a long struggle, but in the end the residents essentially got what they wanted in terms of barrier type and location. This does not include the one holdout, which based on legal proceedings, clearly did not get what he wanted.
7. Overall the residents spoken with are very happy with the outcome despite a long and difficult process. The one holdout's opinion of the berm/wall is not known, however based on legal proceedings, it is likely he is not happy with the outcome.
8. The main recommendation from Inglewood residents to Bownesians was to communicate with adjacent neighbours to coordinate the type and location of the barrier.

land). He also negotiated an undisclosed amount of damages paid by the City separate from the land compensation board ruling. A more detailed summary of the legal proceedings and history of the property is located at the BRFM website.

The City also purchased a property, built a berm, and then resold the property. The City paid for new landscaping over and around the berm on all properties (e.g. a new patio built overtop of the berm).

### Construction Observations:

The following compares a 3D Google Earth view of a property in Inglewood with a photo from January, 2018. In this particular instance, the berm was constructed quite close to the house.



The berm is under this patio.



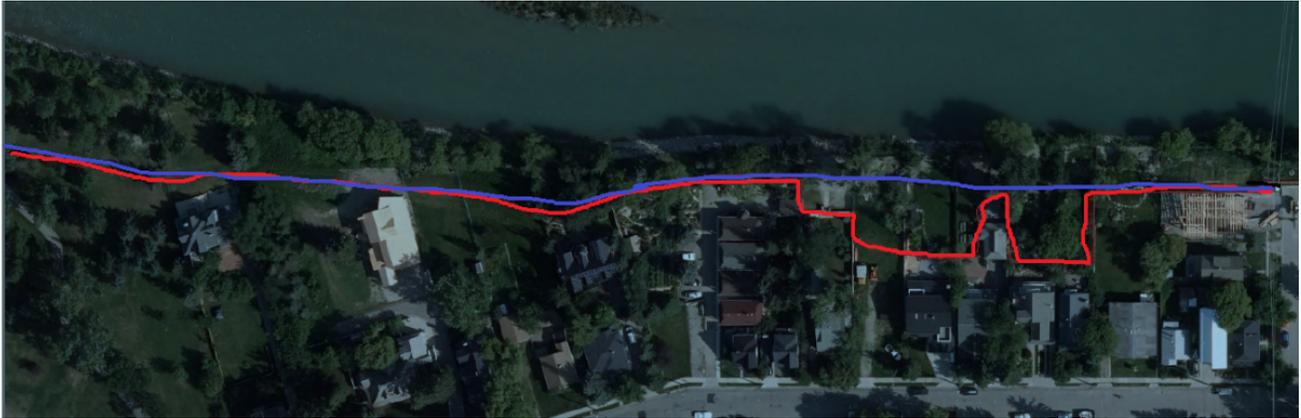
The following shows a concrete wall alternative to an earthen berm. The berm goes around a garage, and subsequently tied into a berm:



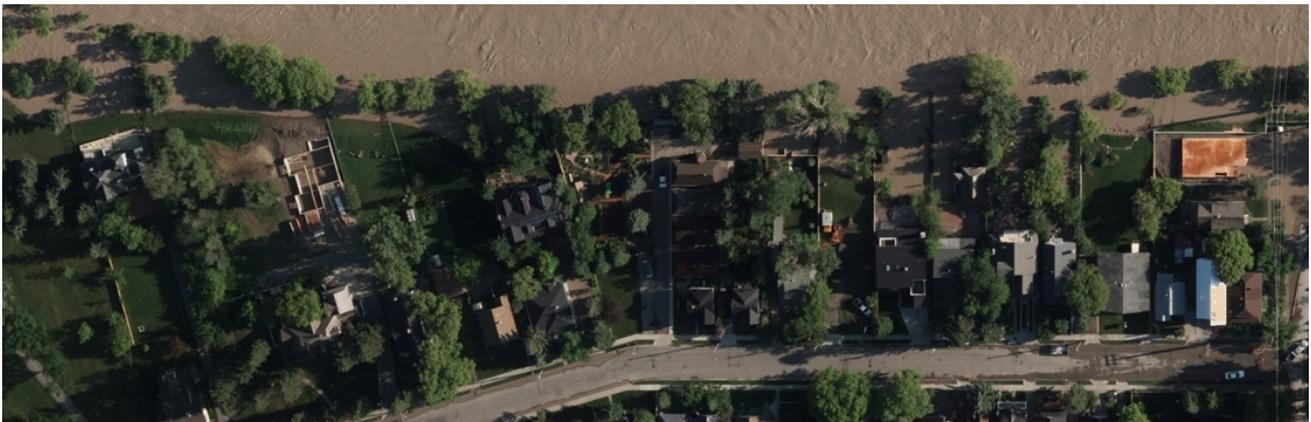
Concrete wall around back garage



The following shows the approximate floodway location(blue) with the approximate barrier location (red).



The following shows the same area during the 2013 flood. Notwithstanding groundwater flooding, the photo does seem to illustrate the effectiveness of the barrier in mitigating against overland flooding, as confirmed by the residents



## Differences to the proposed Bowness Barrier

Based on the current known information from the City the following highlights the differences between the Inglewood barrier and the proposed Bowness barrier:

	Inglewood Barrier	Bowness Barrier (Proposed)
Residents can choose between berm or wall?	Yes	No
Wall to Berm Ratio	50% (estimated)	7% (estimated)
Residents can choose the location/routing of the berm or wall on their properties?	Yes	No
City to move buildings in the Floodway?	Yes (a garage was moved)	There are no known homes or garages in the floodway in Bowness.
Ratio of homes disrupted to homes protected	2.2%. Construction on 16 properties in order to protect 724	22.5%. Construction on 90 properties to protect ~400
Duration of construction	10 years to construct on 16 properties	The City is proposing 4 years of construction on ~90 properties
Shape/dimensions of berm	Triangular with a rounded top, thus having a smaller footprint and resulting in a smaller easement and less destruction of trees.	The City is designing for a 9m wide berm with a ~3m flat-top. This would undoubtedly result in the loss of much of the tree canopy.

## What's Next?

BRFM are quite interested in whether the City will design and cost for the proposed Bowness barrier such that it will give Bownesians equal treatment to Inglewood residents, as the current known information from the City is it is simply designing for a berm at the end of riverfront properties. Specifically, will the City:

- allow property owners to determine the placement of the berm/barrier on their properties? (even if this involves 'dog legs', as they allowed in the Inglewood barrier construction)
- allow property owners to determine whether a berm or flood wall should be used on their properties?
- minimize the loss of mature trees?
- minimize construction headaches?
- landscape over and around the berm/barrier according to the property owner's wishes?

BRFM plans to address these questions with the City, and to formalize a list of requirements to ensure that Bownesians are treated equally and fairly in this process.

This is NOT to be construed as acceptance of the berm, but rather ensuring equal treatment and ensuring the cost is commensurate with equal treatment.

It is also being done to ensure any cost benefit analysis is adjusted for the equal treatment. The current known information from the City is the Bowness barrier has a benefit cost ratio of 2 to 1, however the City has not provided the cost or benefit detail. The City has also not yet responded to questions on why the Inglewood residents were given wide discretion on location and type, whereas in Bowness, the City is not currently planning for homeowner input to barrier location(routing) and type (wall vs berm).