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July 17, 2019

To Whom It May Concern:

Re: Flood Protection/Mitigation Program Status for the Town of High River

Prior to the 2013 Southern Alberta high water event, the Town of High River identified the need to improve its flood mitigation infrastructure, for a variety of reasons including the age of the old model and new development around town. Leveraging river modeling that was completed only months before the 2013 high water event and funding available after the flood, the Town implemented a comprehensive plan to protect the community from future high water events, greater than the current one-in-one-hundred (1:100) measure.

The program has been extremely successful. The mitigation system has been designed, planned, engineered, and constructed in consultation with High River residents, Town Council, the Government of Alberta (including Environment and Parks, Municipal Affairs, and the Flood Recovery Taskforce), with support from river engineers at Advisian (WorleyParsons Canada), and numerous civil engineering firms. A map of this mitigation system is attached at the end of this letter, labelled *Figure 1: Mitigation Poster*. The system has been engineered to withstand a repeat of the 2013 event, illustrated by *Figure 2: Flood Model*, with an additional one metre of vertical protection, called freeboard, as shown in *Figure 3: Anatomy of a Dike*. All figures are included at the end of this letter.

The 2013 event has been estimated at a flow rate of 1,820 cubic metres per second (CMS), whereas the 1:100 event design flow according to the 1992 provincial flood hazard mapping is 750 CMS (Northwest Hydraulic Consultants Ltd. , 1992, High River Flood Risk Mapping Study) for the Highwood River. Additionally, the Town of High River has taken the exceptional measure to model flows of 3,000 CMS during which the dikes are anticipated to have remaining capacity, as indicated in *Figure 4: Flood Model of 3,000 CMS*.

Town Council's vision is that High River be protected from a flow of 1,820 CMS on the Highwood River immediately upstream of High River with a full metre of freeboard. The Town has constructed protection to a minimum level of approximately 1,200 CMS with most areas already meeting the ultimate standard. Only one additional project, being SW Dike, is required for all areas of Town to have the base level of protection of 1,820 CMS. The project is funded, designed, and is working its way through Alberta Environment and Parks' regulatory process.

As of July 25, 2019, the status of the program is as follows:

Completed Dikes		
Name	Construction Status	
Northwest Dike (Sections 1, 2, and 3)	Complete	
Northwest Bank Protection	Complete	
Golf Course Dike	Complete	
Lineham Canal Dike	Complete	
West Town Dike	Complete	
Town Dike	Complete	
CP Rail Channel Re-Alignment and Bank Protection	Complete	
Little Bow Canal Dike	Complete	
5 th Street Dike	Complete	
Road Flood Gates at Centre Street	Complete	
Highwood River Bank Stabilization / Dike Repair (Golf Course)	Complete	
Eagleview Dike	Complete	
Highwood River East Bank Protection	Complete	
Interim Dikes		
Name	Construction Status	Funding Status
12 th Avenue Interim Dike	Currently in place and reviewed on an annual basis	N/A
In Process Dikes		
Name	Construction Status	Funding Status
SW Dike	Currently acquiring necessary permits and permissions	Funded
Eagleview Bank Protection	Pending land agreement	Partially Funded

When considering the table above, the following should be noted:

1. Interim diking is to a lower standard than permanent diking and provides protection to a level of approximately 1,200 CMS with no freeboard. This is higher than all recorded events with the exception of 2013, as shown in *Figure 5: Flood Frequency Table*.
2. The only remaining project required for the ultimate level of protection (1,820 CMS with one vertical metre of freeboard) is the SW Dike. Once the SW Dike is constructed, flood modeling for the Highwood River shows that High River will be protected to a high water event of at least 3,000 CMS.
3. All areas of the community have a minimum protection level of 1,200 CMS, with the vast majority of Town already having the ultimate standard of 1,820 CMS plus one metre of freeboard.

If you have any questions or would like clarification, please contact me at your convenience and I will work with our team to respond.

Thank you,

A handwritten signature in black ink, appearing to read 'RMK', followed by a long horizontal line extending to the right.

Reiley McKerracher, P. Eng.
Director of Engineering, Planning and Operations

Figure 1: Mitigation Poster

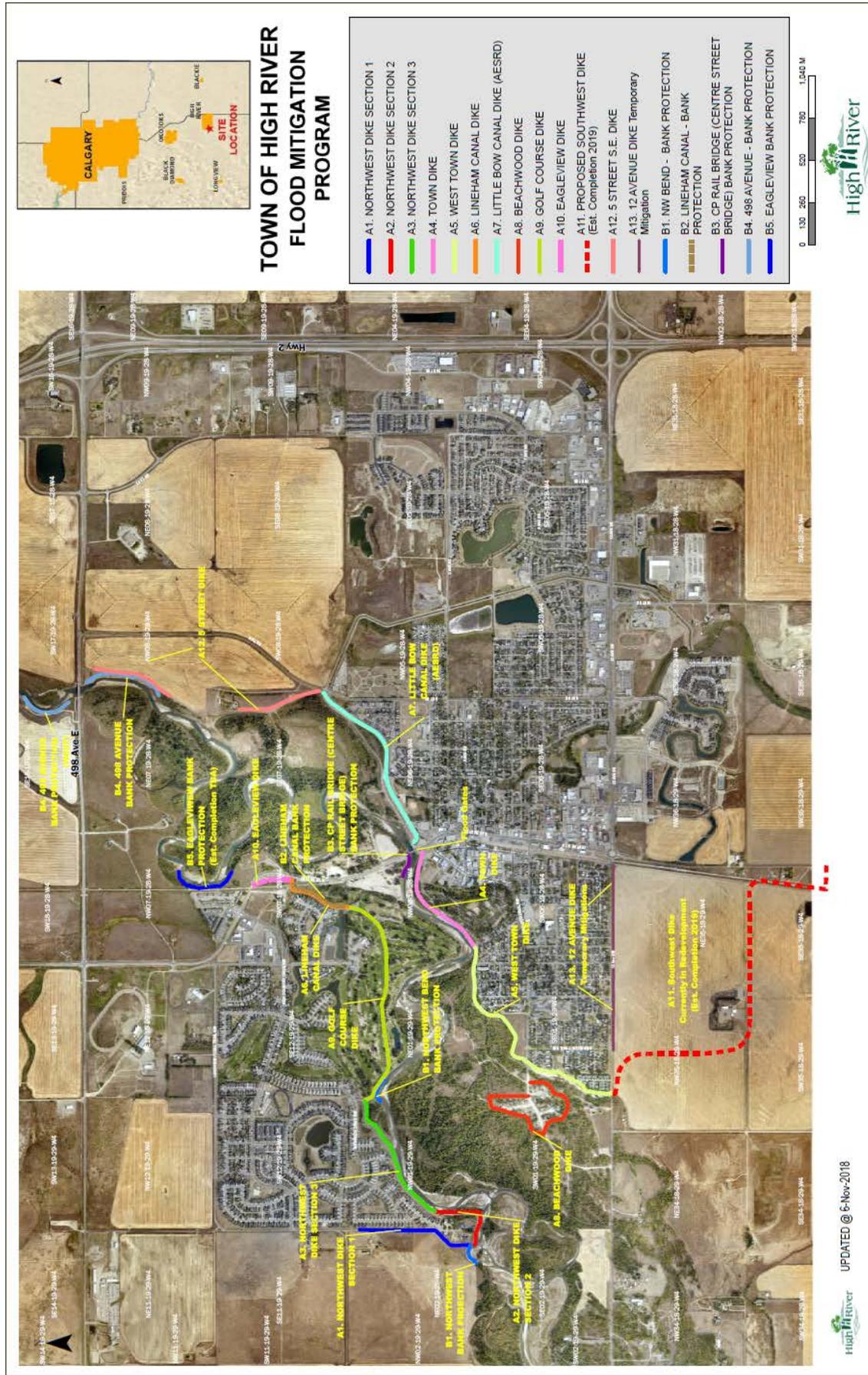


Figure 3: Anatomy of a Dike

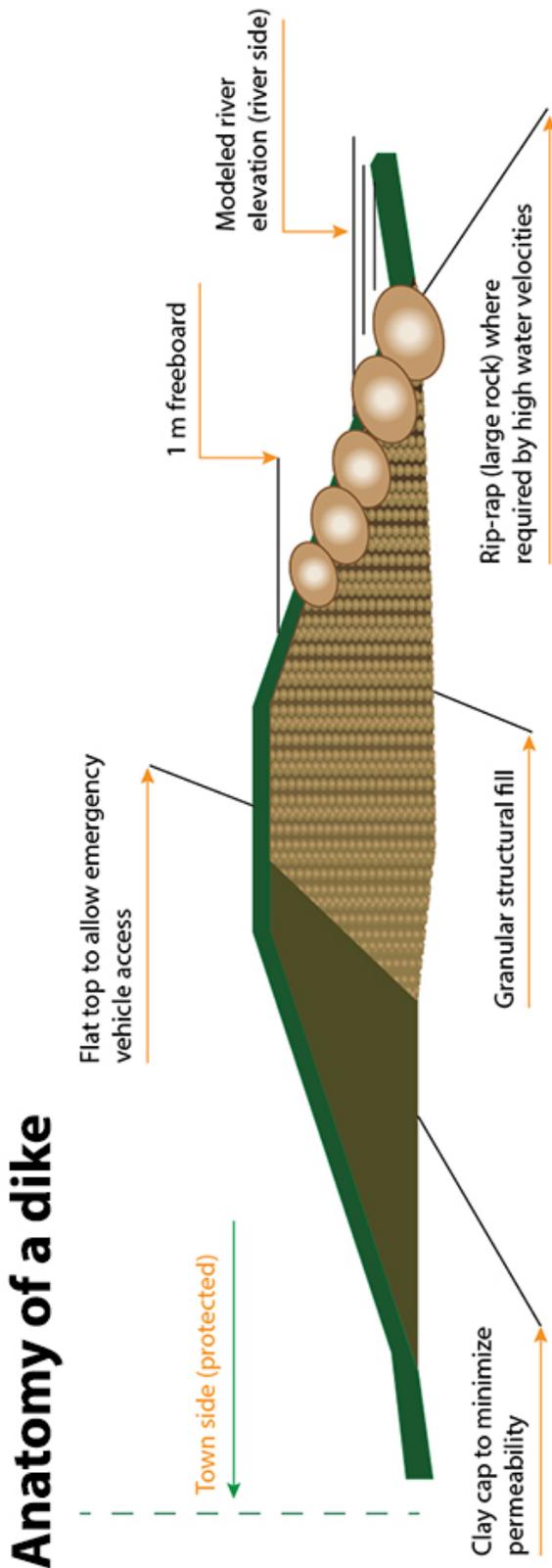


Figure 4: Flood Model of 3,000 CMS

Numbers represent amount of freeboard used, with 1.00m being one metre.

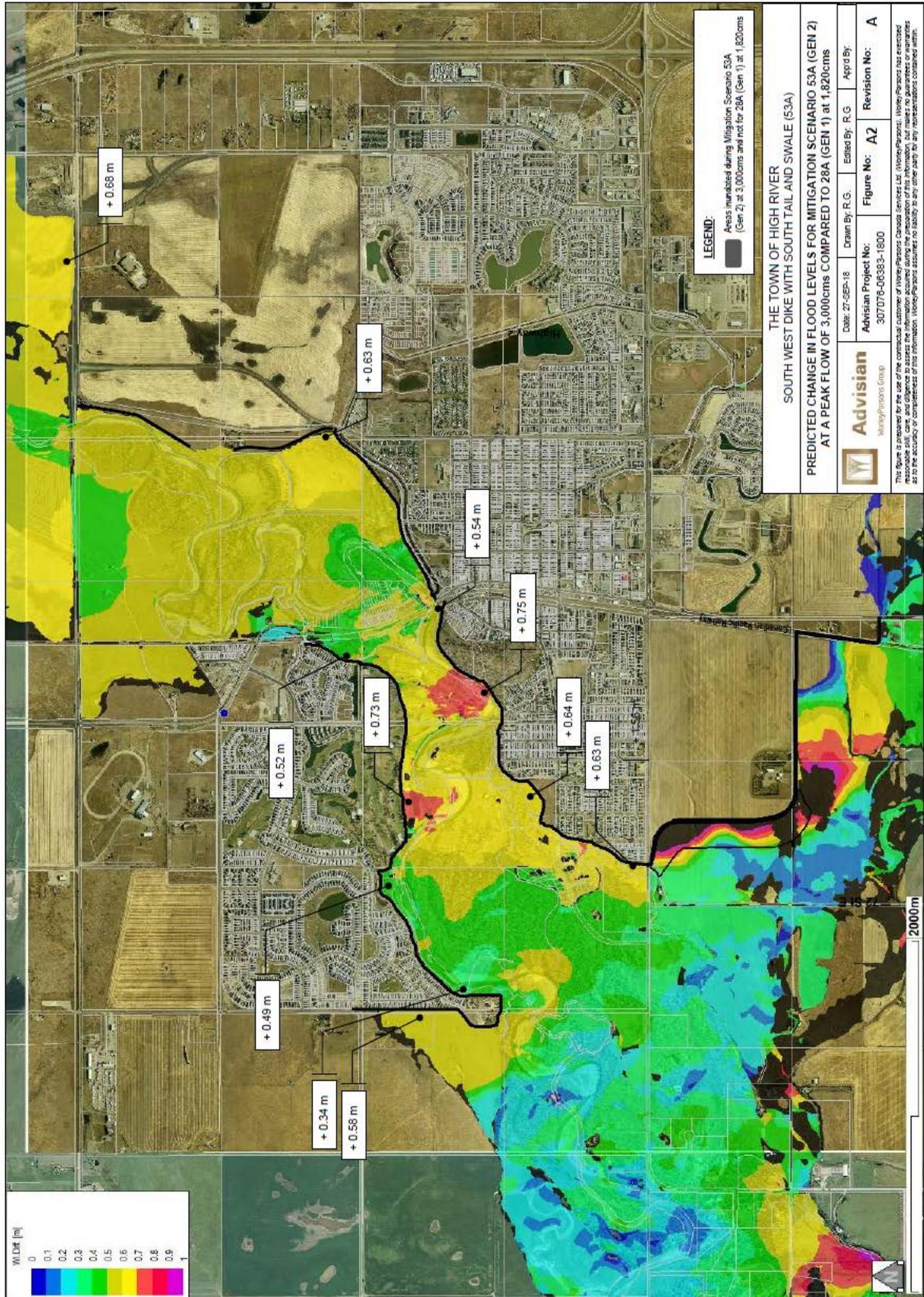


Figure 5: Flood Frequency

