

FLOOD REVIEW BOARD

Date: February 27, 2020

Time: 8:30 AM

Location: Watson Lake Conference Room, Larimer County Courthouse Office Building, 200 W. Oak St., Fort Collins, CO, 80521

Contact: Devin Traff, Larimer County Engineering Department

MEETING MINUTES

Staff Present: Devin Traff, Tina Kurtz, Amy White, Alyssa Martin

Board Members: Chad Morris, John Hunt, Chris Carlson

Applicant(s) Present: Jared Walter, Bert Johansen, Roland Riley, Justin Karkus, Angela Riley, Scott Lewis, Ima Lewis, Ron Jameson, Sarah Houghland

Mr. Carlson opened the meeting at 8:37 a.m., MST

Introductions

Item #1. 55 North Fork Variance Request

Mr. Traff introduced the item. The first item is a petition filed by Bertrand Johansen requesting a variance to Section 4.2.2 of the Larimer County Land Use Code to allow a short-term rental (STR) use within the North Fork of the Big Thompson River Floodway Zoning District. Additionally, the Flood Review Board (FRB) is requested to review follow-up items for a variance request submitted to FRB in August 2019.

This property was initially reviewed by the FRB in August 2019 as a variance request to allow a fence and deck expansion within the regulatory floodway. To make a determination, the FRB required a breakaway fence design showing tethering (which could be approved by staff) and an engineering analysis demonstrating no-rise for the deck expansion by the February 2020 meeting. The applicant submitted a design and analysis for the breakaway fence which has been approved administratively by



staff. However, a no-rise hydraulic analysis has not been submitted to staff or the FRB. The Board is requested to make a final determination regarding the deck expansion.

Secondly, the applicant is seeking a variance to use the residence as a STR property within the regulatory floodway of the North Fork Big Thompson. The applicant provided a narrative stating that the granting of the variance will not create additional threat to public safety. However, information regarding evidence of historic STR use, structure elevation, the stability of the structure or streambank has not been provided by the applicant. However, staff did include the 2016 building permit which was issued by the County to repair the cabin foundation & subfloor which was damaged in the 2013 Flood. Topographic and hydraulic data indicates flooding depths of 4-6 feet at the structure with velocity of 9 feet per second in channel for 1% Annual Chance Event (ACE). The primary access to and from the property crosses the North Fork with a 36"H x 31" W CMP arch. This crossing was blown out in the 2013 Flood and replaced with the current pipe arch.

The FRB noted the presence of two confluences with the North Fork Big Thompson near the property (West Creek and Fox Creek).

Mr. Johansen was given the opportunity to speak. Mr. Johansen stated that he would not pursue a no-rise analysis for the deck due to the infeasibility of obtaining a no-rise certification but declared his intention of obtaining a planning approval for STR use in the regulatory floodway. This is based on his determination that the location of the property does not create an additional threat to public safety. Mr. Johansen stated that there is a rock wall on the north side of West Creek that prevents his property from being affected by flooding from West Creek. Mr. Johansen stated that he interprets danger to public safety as referring to loss of human life, and that no loss of human life has occurred in his area during either of the two previous floods (1976 and 2013), and stated that the cabin never moved off its foundation in either of the two floods.

Mr. Johansen described damage to his cabin the 2013 Flood in more detail. He stated that floodwaters "popped" a window to the cabin, filled up the inner space, and pushed out the back wall, leaving 2-3 feet of sediment in the cabin. When floodwaters pushed out the back wall, it "popped" about a third of the floor joists that were attached to that wall. After the flood, he was allowed to rebuild the cabin by Larimer County and that was completed. Mr. Johansen also stated the floodwaters entered the crawlspace and "knocked over" the support posts for the cabin. The new design has 18" caissons that go down 4-5 feet.

Mr. Johansen stated that the property is only 300 feet away from CR 43 which acts as the main road through the area. Therefore, there is direct access to CR 43 in event of an emergency. Mr. Johansen also stated that there is opportunity to climb to safety in areas adjacent to the property. Also, there is a dedicated landline for the property which will notify guests of the conditions in event of a flood via the reverse 911 system. Mr. Johansen stated that the property has been run as an STR for about a year and a half. Mr. Johansen stated that the cabin is his main source of income in his retirement. He checks all of his guests in personally and provides maps and egress directions to guests, and would include a map



that shows people what to do in case of a flood (in the event the STR use is approved). Mr. Johansen reiterated the use of his landline and availability in event of an emergency.

Mr. Hunt pointed out that the report from Van Horn Engineering states that the landline at Mr. Johansen's cabin was cut during the 2013 Flood. Mr. Johansen stated that he did not know whether the phone line was cut during the flood because they didn't have a phone installed. Mr. Hunt provided background on the FRB discussion regarding the approval of STR properties located within a regulatory floodway. Mr. Hunt stated that at the January 2020 FRB meeting, the FRB determined that such determinations would consider public safety a top priority. Visitors which are unfamiliar with flash flooding in mountainous areas such as are often encountered in Colorado may not be aware of the risk associated with floodplain areas so that there is a greater burden related to public safety for STR properties in the floodway. With that in mind, the FRB decided on criteria which would need to be met for the FRB to approve STR use in the floodway. Those criteria include the provision of an elevation certificate to the FRB which shows that the lowest floor elevation is at least 18 inches above the base flood elevation

Mr. Hunt stated that CR 43 is not safely accessible during a major flood on either the North Fork Big Thompson or one of its tributaries. He reiterated that the property is situated near several confluences. Mr. Hunt then asked how climb to safety procedures could be followed if they do not know a flood is coming. Mr. Johansen replied that he would contact the guests and tell them to evacuate.

Mr. Morris asked Mr. Johansen to describe any damage to the North Fork crossing to CR 43 as a result of the 2013 Flood. Mr. Johansen confirmed that it had been damaged to the point that traffic could not pass over the crossing. Mr. Hunt asked how the reverse 911 system works and Ms. Kurtz confirmed that it operates based on rain gages, with the nearest gage located near Drake. Mr. Hunt stated that he did not know whether the reverse 911 system has enough information to capture and inform of flash flooding events in a location like Mr. Johansen's property. Mr. Carlson stated that the reverse system has not previously indicated such events at a location like this. Mr. Hunt stated that while he can relate with Mr. Johansen's desire to use the property as a short-term rental, from a flooding perspective this property scares him as a STR.

Mr. Traff showed images of the crossing to CR 43 after it was destroyed in the 2013 Flood. Mr. Hunt stated that while he believes Mr. Johansen may have the knowledge to escape from a flood event safely, he is skeptical that someone from out-of-state would be able to do so. Mr. Morris shared Mr. Hunt's concerns. Mr. Carlson stated that if one could not show that the structure is elevated properly according to County Code, it would be difficult to show there is no increase in danger to public safety by allowing a STR property at this location.



Mr. Carlson summarized his opinion stating that the approval of the property as an STR would be difficult for the FRB. Mr. Johansen asked whether the provision of an elevation certificate showing 18 inches of freeboard above the base flood elevation would allow for approval of the structure as a STR. Mr. Hunt and Mr. Carlson stated that this would be the first step, but that they would still evaluate the safety of the access to the property. The FRB affirmed that access considerations should be taken on a case-by-case basis and are not black and white. Mr. Hunt stated that the convergence of three flood sources in this location concerns him regarding the access as well. Mr. Morris mentioned that another concern is that the BFE represented in the flood study assumes that the crossing structure is functioning properly and is not plugged by debris.

Mr. Hunt stated the FRB cannot approve the STR use without an elevation certificate showing the lowest floor elevation at least 18 inches above the base flood elevation. If the elevation certificate shows an elevation below the required 18 inches, however, there may be options to raise the structure to meet that requirement. The elevation certificate will need to be stamped by a registered engineer or surveyor. Mr. Johansen stated that he will consider the elevation certificate.

Mr. Hunt asked whether the FRB should address the access criteria. It was decided that the FRB will discuss the access criteria in further detail at the next FRB meeting.

MOTIONS:

- Mr. Hunt motioned to table the request for a variance to grant STR use for the property at 55 North Fork Road in Glen Haven until the receipt of an elevation certification showing the lowest floor elevation at least 18 inches above the base flood elevation. The motion expires after 90-days (May 27, 2020). Mr. Morris seconded the motion. The motion passed 3-0.
- Mr. Hunt motioned to require removal of the deck expansion by May 31, 2020. Mr. Morris seconded the motion. The motion passed 3-0.

Item #2. 2644 Highway 34 Variance Request

Mr. Traff introduced the project. This is a request to grant a variance to use the residence as a short-term rental (STR) property within regulatory floodway of the Big Thompson River. The structure was granted a building permit in 2014 to rebuild the home which was severely damaged in the 2013 Flood on the basis that it was not within the floodway. After subsequent review by the County, it was determined that the structure does encroach within the floodway. A letter from Building Department documented this along with the FEMA floodplain map which is included in the application. The 2014 work elevated the structure on piers which was documented on an elevation certificate included with the application. The certificate seems to indicate that the floor was raised to 7382.4' (NAVD 88), which is 8.8' above the BFE reported on the elevation certificate (7373.6' NAVD 88). However, it should be noted that the top of bottom floor reported on Item C2.a in the elevation certificate appears to incorrectly provide the foundation elevation (7372.9'). The application includes a short narrative, the



2014 elevation certificate, floodplain maps (FEMA DFIRM & Workmap), Building Department Letter, Certificate of Occupancy, original plot plan & building plans, photos, and a write-up of flood safety information which the applicant would like to provide future guests. The access road to the structure does not cross the Big Thompson River.

Mr. Riley introduced the project. Mr. Riley is hoping to use his structure as an STR. He mentioned that he will provide flood safety instructions for guests. Ms. White stated that the structure was destroyed in the 2013 Flood and was replaced by the current structure.

Mr. Hunt asked for clarification regarding the elevation of the lowest floor which is reported on the elevation certificate. Mr. Traff clarified that certificate appears to indicate that the top of bottom floor reported on Item C2.a in the elevation certificate is incorrect and shows the foundation elevation (7372.9 feet NAVD 88) as the lowest floor elevation. Staff and the FRB shall consider the elevation given for the next higher floor of 7382.4' (NAVD 88) as the elevation of the lowest habitable floor of the structure.

Mr. Hunt stated a concern with the depth of the foundation piers being vulnerable to scour, as it is possible the scour depths could exceed four (4) feet at this location and the pier depth is indicated to be approximately 4 feet deep. Mr. Morris shared similar concerns with both the structure's location with respect to the floodway and erosion risk.

Mr. Hunt asked whether any data is available regarding erosion or scour along the bank line adjacent to Mr. Riley's structure during 2013 Flood. He stated that this section of Big Thompson did not experience a 100-year flood during the 2013 Flood and is only a few miles downstream of Olympus Dam. A full 100-year flood would likely have produced more damage.

Mr. Traff stated the FEMA FIS indicates about 2 feet of flood depth at the structure with 5 feet per second velocity in channel and the CDOT preliminary model indicates about 13 feet per second velocity in channel.

Mr. Carlson stated that he may have helicopter photos in the area post 2013 Flood. Mr. Hunt said he could also likely obtain data. The FRB may be able to provide information to help the discussion at a following meeting.

There was a discussion on access and warning for the property. Mr. Carlson stated that there would be buffering due to the dam at this location, so there would be some warning except in flash flooding scenarios. Only one tributary, Dry Gulch, enters the Big Thompson between the dam and Mr. Riley's property. Mr. Hunt clarified that if Dry Gulch was the only contributing factor to flooding in the Big Thompson, Mr. Riley's property may not be impacted. Mr. Carlson stated that culverts built along Dry Creek in association with past projects (Mountain Coaster) were not significant and passed the 100-year flood. Mr. Carlson suggested that the FRB discuss the access criteria in general and related to the two STR variances at this meeting during the following FRB meeting and get erosion risk information.



MOTION:

- Mr. Hunt moved to table the request for the variance until the March FRB meeting. Mr. Carlson seconded the motion. Motion passed 3-0.

Item #3. Osborne Caywood LOMR

Mr. Traff gave an introduction of the project. This is a request filed on behalf of the Osborne Caywood Ditch Company to grant community acknowledgement of LOMR for work completed to the Osborne Caywood Diversion Structure and stream restoration along the Little Thompson River. Stream restoration work included regrading and installation of boulders. The existing diversion structure was removed and replaced with a new structure which included an Obermayer Gate. The LOMR was completed to document the work using the preliminary CHAMP model as the effective model. No rise in base flood elevations was reported between as-built and effective models.

Mr. Walter presented additional information on the project. The project was completed Fall 2019 and received DOLA funding. Two property owners affected by this reach of the Little Thompson. The diversion dam diverts water into the irrigation ditch on the right bank of the river. The diversion structure was rebuilt to help alleviate sand loading along with other riparian benefits. The original structure was lowered and built with a multistage channel system and sand sluice gate to alleviate sediment loading and facilitate flow into the ditch system. The diversion gates are bladder gates which are automated via a pressure sensor at the site.

Mr. Hunt asked why there is a decrease Manning roughness values. Mr. Walter stated that there will be improved channel conveyance and riparian area. Mr. Carlson asked whether the expectation was that vegetation will not return in the channel. Mr. Walter stated that he does not expect vegetation to return in the channel.

Mr. Hunt asked about the Operations & Maintenance Plan for a LOMR containing an operable structure such as the bladder gates and stated the submission of such a plan may be a requirement from FEMA. Mr. Carlson said that FEMA would likely ask for modeling showing the bladder gate both up and down to determine the condition if the gate does not function properly. Additionally, FEMA will require notification letters to affected property owners, flood profiles in the FEMA format, and floodway runs. Mr. Morris stated that FEMA may ask about the Manning's roughness values considering potential vegetation growth in the channel.

MOTION:

- Mr. Hunt moved to recommend signature of the MT-2 Form (Community Acknowledgment Form) by the County Engineer. Mr. Morris seconded the motion. The motion passed 3-0.



Item #4. Green Bridge Stream Restoration LOMR

Mr. Traff gave an introduction of the project. This is a request filed on behalf of the Colorado Water Conservation Board and the Little Thompson Watershed Coalition to grant community acknowledgement of a Letter of Map Revision for stream restoration work and improvements for the Green Bridge/Berthoud Neighborhood Emergency Watershed Protection Project along a reach of the Little Thompson River. The stream restoration work included regrading, bank stabilization, sediment removal, and installation of boulder structure. The LOMR was completed to document the work using the preliminary CHAMP model as the effective model. No rise in base flood elevations was reported between the as-built vs. existing conditions models or the as-built vs. effective models.

Ms. Houghland presented the project in further detail. The project was originally permitted by Larimer County under the name Berthoud Project, but now includes Emergency Watershed Protection (EWP) in the name due to the survey reports that were completed earlier. Ms. Houghland stated that Enginuity was contracted to complete the LOMRs that could not be completed via the CHAMP mapping because the Little Thompson Physical Map Revision (PMR) was too far along in the FEMA mapping process. Mr. Morris stated that Tetra Tech was a designer for the project and that that, while he has knowledge of this project, his that would not influence his decision on the project for the FRB. Ms. Houghland described the location as south and west of CR 4 bridge, east of Singing Waters Court. The project length was roughly 2,600 feet. 2013 Flood created significant road overtopping and sedimentation. The project goal was to remove sediment, redefine the bankfull channel, and reestablish vegetation. There was also some boulder placement to create a riffle. Intent of the LOMR is to closeout the floodplain permit and follow through on promises that were made regarding such projects. Ms. Houghland stated the HEC-RAS 5.0.1 was used for the floodplain runs and HEC-RAS 4.0.1 was used for the floodway runs. Ms. Houghland stated that as-built information was added manually to the cross sections and few changes were made to the original Tetra Tech models. BFE comparisons show no-rise between as-built and existing conditions, and no changes to the floodway.

MOTION:

- Mr. Morris moved to recommend signature of the MT-2 Form (Community Acknowledgment Form) by the County Engineer. Mr. Hunt seconded the motion. The motion passed 3-0.

Flood Review Board Minutes

MOTION:

- Mr. Hunt moved to approve the minutes from the November 1, 2019, November 20, 2019, December 19, 2019, and January 23, 2020 meeting. Mr. Morris seconded. Motion passed 2-0 with one member (Mr. Carlson) abstaining.