

FLOOD REVIEW BOARD

Date: August 27, 2020

Time: 8:30 AM

Location: Virtual Meeting (Zoom)

Contact: Devin Traff, Larimer County Engineering Department

MEETING MINUTES

Staff Present: Devin Traff, Frank Haug

Board Members: Chad Morris, John Hunt, Elizabeth Ervin-Blankenheim, Chris Thornton

Applicant(s) Present: Ryan Powell (PVREA), Matt Clark (Anderson Consulting Engineers), Scott Parker (Anderson Consulting Engineers)

Public Present: Ian Mallams, Lorann Stallones, Harry Nequette, Amy Greenwell, Mark Baca

Mr. Hunt opened the meeting at 8:35 AM (MST)

Introductions

Item #1. PVREA Utility Line Floodplain Special Review (FPSR)

Mr. Traff introduced the item. The first item is a petition filed on behalf of the Poudre Valley Rural Electric Association (PVREA) for a Floodplain Special Review regarding the construction of fiber optic line within the Cache La Poudre River and Cooper Slough floodplains. The project proposes installation of 6.1 miles overhead and underground fiber optic line along Vine Drive and Mulberry Street east of Lemay Avenue. Most of the fiber line will be installed overhead on existing utility poles. No new poles or anchors are proposed for overhead installation and no vegetation clearing or soil disturbance is expected. 3.1 miles of fiber line will be installed underground via directional boring and trenching, but no trenching will occur within regulatory floodplains. Underground portions of the line would be installed at a minimum depth of 4 feet and an average depth of 4 to 5 feet in mapped floodplains. Upon completion of the project, all disturbed areas would be returned to pre-construction contours and areas revegetated. The proposed action would not result in elevation changes within mapped



floodplains. Permanent improvements would be at or below the existing grade and the completed project would not cause any rise in base flood elevations. No-rise certificate supplied with report. Scour was analyzed and it was concluded that the utility line, as proposed, would be buried below scour depth and not be at risk of exposure.

Ryan Powell described the purpose of the project. PVREA is attempting to install fiber optic for communication between substations. The project will bore directionally through the floodplain with installation of occasional bore vaults where necessary. Mr. Traff asked whether there would be trenching in the floodplain. Mr. Powell replied that bore vaults will be installed but there would be no trenching in the floodplain. Mr. Hunt and Mr. Powell further explained that the line will be underground throughout the Cooper Slough floodplain but that trenching will occur outside the floodplain north of Mulberry. The vaults will be installed below grade with a concrete lid above grade.

Mr. Hunt described his role in the application as a representative of the applicant. All work will be at or below existing grade and not cause a rise in base flood elevations (BFEs). Mr. Hunt also described that the scour analysis demonstrates that scour will not exceed 3.5 feet and the underground line is buried at a minimum of 4 feet and be protected from scour. Mr. Hunt described the scour analysis in detail for the Board.

MOTIONS:

- *Mr. Morris motioned to recommend approval of the PVREA Fiber Optic Line to the Board of County Commissioners. Ms. Ervin-Blankenheim seconded the motion. The motion passed 4-0.*

Item #2. Little Cache Headgate FPSR

Mr. Traff introduced the project. The second item is a petition filed on behalf of the Larimer & Weld Reservoir Company for a Floodplain Special Review regarding as-built construction work completed in 2007-2008 at the Little Cache Ditch headgate on the Cache La Poudre River. The work being reviewed is located along Cache La Poudre River west Overland Trail and south of CR 54G. This review is connected to a Code Compliance case that was initiated through a citizen complaint regarding work that was believed to have been done along the Little Cache Ditch headgate without approval per County floodplain regulations. As a part of that case, the County pursued the applicant regarding the complaint and was made aware that construction work was performed during 2007-2008 at the Little Cache Ditch headgate without floodplain approvals, which included: in-kind replacement of four 48"x48" slide gates that control diversions from the Poudre River, installation of retaining wall and block wingwall extensions on the east side ditch embankment, below-grade apron extension in front of the headgate, installation of a new apron for bank protection, and fill placement in the left overbank between the wingwalls. County Code requires that work of this nature be reviewed as a Floodplain Special Review by the Board, so the Board has been requested to review the work as presented with regard to the approval criteria in the County Land Use Code. The impacts of the work on the base flood elevations were analyzed using a pre and post project model, which I will allow the engineer to expand on in more detail. The hydraulic report states that the post project model incorporates the hydraulically significant



elements of the work and that construction activities other than those on the headgate and the fill placement took place at or below grade. Comparisons between pre and post project model show no rises in the base flood elevations because of the work. Also, channel stability and scour potential were determined in the report not to be significantly altered by the project since the work did not produce changes in the low flow velocities represented in the left overbank.

Mr. Hunt asked if the Board had been presented photos of the work that had been completed at the ditch headgate during the 2019 Laporte LOMR application. Mr. Clark responded that photos of the work had not been presented to the Board but mentioned that they do have some photos available. Mr. Clark described the hydraulic analysis. The hydraulic study compared what would have been the effective model in 2007 and updated the model with 2018 survey and the changes resulting from the work. A corrected effective model was produced prior to the comparison that corrected the dam crest elevation that was found to be incorrect in the effective model. They then incorporated any other topographic changes that were outside of the crest that most likely reflected any changes that were made during the 2007-2008 work to create the as-built model. The as-built model was then compared to the corrected effective model and no rises in base flood elevations were found. Mr. Hunt confirmed that the BFE comparison tables in the report show no rise in BFEs between the as-built and corrected effective conditions. Mr. Morris asked whether there is any difference in the dam crest elevation between the as-built and corrected effective models. Mr. Clark responded there is no difference.

Mr. Hunt asked if it would be a correct statement to say that the changes in the as-built condition when compared to the corrected effective condition do not change the control. The control is the dam crest, and all the changes in the as-built condition are changes that do not affect the hydraulics because the effects of the dam crest overwhelm the effects of the as-built changes. Mr. Clark stated he believed that is a correct statement.

Dr. Thornton asked if there was any fill placed upstream of the dam crest. Mr. Clark stated that no fill was placed upstream of the dam crest. Mr. Hunt asked to see the cross-section showing the fill placement downstream of the dam crest. The Board viewed the representation of the additional fill on the north bank.

Mr. Hunt opened the discussion for public comments and clarified that public comment should be limited to the scope of the Flood Review Board per the Larimer County Land Use Code for the approval of Floodplain Special Reviews. Ms. Amy Greenwell spoke first. Ms. Greenwell stated that there are photos before and after the project as well as of the trucks during construction. She stated that she feels that the project increased the risk on her property and that the water which used to go through now hits a berm and goes north through her property. She also feels like the project harmed wildlife because there is asphalt there that was illegal to place there. She also feels that it is bad precedent to permit a project that was not permitted and subverted the County process.

Mr. Hunt responded that the Board's purview is to review impacts to the Cache La Poudre River floodplain and that impacts to local drainage outside of this scope would not be reviewed by the Board. Mr. Hunt stated that there is precedent for the Board reviewing work which had been done illegally in



the floodplain. When an issue is brought to the attention of the Board, the party that did the work is made to demonstrate that it is not causing an unacceptable impact or that the impact is mitigated.

Mr. Harry Nequette spoke after Ms. Greenwell. Mr. Nequette stated that he and his wife are the property owners. Mr. Nequette stated that he sent a letter to the Flood Review Board the day prior to the meeting. According to Mr. Nequette, the ditch company holds an easement for the ditch on his property but the easement is limited. Mr. Nequette requested that the Board not approve the 2006-2007 work as submitted to the Board by the applicant. In part the project was necessary, however, portions of the project were unnecessary and quite harmful. Mr. Nequette claims that while he cannot speak to the facts of a 100-year flood, the ditch company altered the historic drainage of the area and thus poses a threat to his home and the homes of others. Please require the applicants to remove the unnecessary fill placed on their property. Mr. Nequette stated that the applicant have not presented the Board with all the facts, such as the project photos. The applicants performed the project without a permit and without any engineering data. Mr. Nequette stated that the applicant placed approximately 1000 cubic yards of fill in the floodway across a 260 foot long berm perpendicular to the floodway. The depth of the fill is over six feet in places. Mr. Nequette stated that the applicants placed hazardous materials in the floodplain and the Nequette's and their neighbors are paying a significant price for having done so. Mr. Nequette requested that the Board require the applicant to remediate the site completely.

Mr. Hunt requested Mr. Traff to display the list of approval criteria for a floodplain special review for the Board to see. Mr. Traff clarified that affected property owners were notified of the Flood Review Board meeting and the items on the agenda on October 5th via certified mailings and through a public advertisement on October 6th, and that all public comments received for the items on the agenda were forwarded to the Board for their review. The Board discussed whether higher frequency flood events should be considered in the case. Mr. Hunt clarified that the NFIP regulations focus only on the 100-year event. Ms. Ervin Blankenheim stated that it would be helpful to see photos of the project and proposed the possibility of a site visit. The Board agreed to visit the site and requested photos of the project before and after construction. The Board continued to discuss the project in relation to the approval criteria for a Floodplain Special Review.

Mr. Hunt reviewed the approval criteria and stated that the comments of Mr. Nequette and Ms. Greenwell are relevant to the criteria for whether the project is environmentally sound or will reduce stability of the floodplain (particularly the added fill on the left overbank). Mr. Hunt also commented that there does not appear to be an impact on the 100-year flood heights due to the project which is normally the purview of the NFIP and County floodplain regulations.

Ms. Ervin-Blankenheim asked about the location of the fill placement. Mr. Parker answered that the fill in question was placed behind the concrete retaining walls. Mr. Parker stated that the placement of the fill and the headwalls have been certified by him to be structurally sound and stable. Mr. Parker also stated that the analysis did not show any concern for scour or channel instability due to the work. Mr. Parker stated that regarding the impacts to the 100-year floodplain, FEMA has completed and



approved the hydraulic analysis of the LOMR which included the work. Mr. Hunt asked whether the wingwalls were raised in height and Mr. Parker confirmed that they were raised in height and lengthened.

Mr. Hunt asked the public commenters to make a concise statement regarding their opinion of which of the approval criteria have not been met for the project to be approved as a Floodplain Special Review. Mr. Nequette stated that there would be a hazard created as a result of the work in the flood events with higher frequency than the 100-year event and that the wingwalls do not contain all the fill. He mentioned that one of the wingwalls appears to be tipping as a result of the fill. Mr. Nequette stated that he believes there is a hazard to life and property.

Ms. Greenwell agreed with Mr. Nequette's statements. Ms. Greenwell stated that she believes the work poses a danger to life and property. Ms. Greenwell also stated that she believes the project is not environmentally sound and that there is a question of whether the work exacerbated the possibility for solid debris to be carried downstream. Ms. Greenwell also stated that she observed an oil slick on the river from the asphalt.

Mr. Morris expressed concern that the hydraulic modeling for the 100-year flood is not adequately representing impacts of the work and that he would like more information for his determination. He stated that he would like to see some representation of where the fill is located relative to the hydraulic cross section, and that a detailed topographic map showing this information would be needed. Mr. Hunt agreed with Mr. Morris and requested that a comparison of the pre and post project contours be provided. Ms. Ervin-Blankenheim stated her desire to see the pre and post photos and to visit the site. She stated that she would like to table the application and Dr. Thornton agreed. Dr. Thornton stated that he would like to see the pre and post topography, a topographic comparison, and the 10, 25, and 50-year floods run through the HEC-RAS model. Mr. Morris agreed with tabling the application.

Mr. Traff summarized the conclusions of the Board to this point. The Board would like to see detailed topography of the site pre and post project, a comparison of topography, a hydraulic analysis of the 10, 25, and 50 year floods, and the relevant cross section to be shown on the topographic map for comparison with the fill placement. Mr. Ervin-Blankenheim also included the request for photos.

MOTIONS:

- FIRST MOTION: Ms. Ervin-Blankenheim motioned to table the Little Cache Headgate FPSR for the Flood Review Board meeting to obtain the receipt of the following items:

Photos of the site before and after the project

Detailed topographic mapping showing the hydraulic cross sections, the conditions before and after the project, and a comparison of the topography before and after the project

Hydraulic modeling of the 10, 25, and 50-year flood events



Mr. Thornton seconded the motion. Mr. Hunt amended the motion to include a site visit following the meeting. The amended motion is as follows:

- AMENDED MOTION: Ms. Ervin-Blankenheim motioned to table the Little Cache Headgate FPSR for the Flood Review Board meeting following 90-days from this date (November 2020 meeting) to obtain the receipt of the following stipulations:

Photos of the site before and after the project

Detailed topographic mapping showing the hydraulic cross sections, the conditions before and after the project, and a comparison of the topography before and after the project

Hydraulic modeling of the 10, 25, and 50-year flood events

Site visit by the Flood Review Board

Mr. Thornton seconded the motion. The motion passed 4-0.

Item #3. Laporte Diversion Repairs FPSR

Mr. Traff introduced the project. The third item is a petition filed on behalf of the Larimer & Weld Reservoir Company for a Floodplain Special Review regarding the proposed rehabilitation of an existing diversion structure on the Cache La Poudre River. This project is in the same general location as the previous item but regards the on-channel diversion structure rather than the ditch headgate. The existing diversion structure has undergone deterioration of the concrete and other elements of the structure, along with erosion at the downstream toe. As such, repairs are being proposed by the applicant to stabilize the structure and will include armoring of the north scour hole, replacing deteriorated concrete overlay caps, installing a new overlay cap along the second tier of the diversion structure, and installing a riprap apron at the toe wall. This project follows a Letter of Map Revision (LOMR) which was approved by the FRB in November 2019, and that was subsequently reviewed and approved by FEMA this year and will become effective on October 13th. The hydraulic model for this LOMR was used as the effective model for comparison with the proposed rehabilitation of this project. The proposed condition was incorporated into the weir geometry and topography was revised at the downstream end of the dam to reflect the filling of the scour hole and the erosion countermeasures. No rises in the base flood elevations were reported between the proposed and effective condition.

Mr. Hunt asked for a report from the applicant. Mr. Clark stated that the project is to repair the dam since the surface of the dam is cracked and spalling. No elevation changes are proposed for the crest or any element of the dam and they are adding riprap protection downstream to fill a scour hole that has developed and threatens to undermine the dam. The base model for the analysis is the LOMR which was reviewed and approved by the FRB and FEMA. Mr. Parker stated that the first submittal to FEMA was to correct the incorrect effective modeling, and now the repair project is going through the FRB as a floodplain special review.



Mr. Hunt reviewed the construction drawings in the application package. Mr. Hunt stated that it appears that the work being proposed (crest, wingwalls, streambed riprap and along banks for scour hole) is not in the area under dispute per the second item of today's meeting and would not impact a decision regarding the second item. Mr. Morris agreed with Mr. Hunt on this, but cautioned the applicant to be aware that if new information surfaces which changes this understanding that the applicant may need to address that. Mr. Parker clarified that the work will abut, but not impact, the 2007 work per the second item of today's meeting.

Mr. Hunt asked if members of the public wished to comment on the application. Mr. Nequette stated that he supported repairing the dam and that the dam has needed repair for over twenty years. However, the application should not be approved as proposed. The applicants are attempting to raise the dam crest by basing their proposed crest on prior, unpermitted work. The applicants initially claimed the raised ends, or "ears", of the dam were a part of repairs to the dam completed in the 1960s. When challenged, the applicants acknowledged the ears were not a part of the crest but were hand-laid features, completed by Mr. Hoff (the irrigation company president). The dam crest was originally flat and, at some point, the ends were added. However, the ears were never permitted. Mr. Nequette stated that there is no evidence the ears were ever permitted. Mr. Nequette stated that he wants the dam repaired, but only as a flat crest to the original elevation (5076.3 feet AMSL). The applicants admitted that they performed unpermitted work. Mr. Nequette also stated that the riprap downstream of the dam will pose a hazard to tubers who float the river.

Ms. Greenwell stated that Item 2 could impact Item 3 if there are changes from the project that impact the area along the cross-sections (as discussed in the second item) or the 2019 LOMR. Mr. Morris clarified that his concern regarding the hydraulic impacts from Item 2 pertain to the area on the left overbank area which would not impact the changes due to Item 3.

Mr. Parker stated that the ears on the dam were included in the 1997 Flood Insurance Study so that, from a modeling standpoint, they have always considered them as part of the dam crest. Mr. Hunt clarified that when the FRB looks at floodplain impacts, they look at what infrastructure is present and how is it represented. If the ears were present in the first model and mapping effort which was established to set this floodplain profile and inundation limits, while there may have been a permitting process available for the ears at that time, it would not have been relevant to the purview of the FRB now. When this floodplain was first established, the weir crest was the way it is now in terms of the shape of the weir crest. Mr. Hunt clarified with Mr. Nequette that he did not claim that the dam is being raised higher than what an existing survey would show at the crest. Mr. Nequette agreed that he is not making such a claim and that what exists at this location today is what the plans show.

Dr. Thornton asked for clarification regarding the downstream riprap design. Mr. Parker and Mr. Clark clarified that the highest velocity is that associated with the 100-year discharge. Dr. Thornton expressed concern that the proposed riprap may not be stable. Mr. Clark stated that 24" riprap will replace the 12" rock in the scour hole, and Dr. Thornton agreed that would be a better choice. Mr. Clark and Mr. Parker agreed to send Mr. Traff the updated sheet with the revised design.



Mr. Hunt stated that he is not familiar with any other erosion protection more safe than riprap, and that even the Whitewater Park in Fort Collins uses this for rafting and kayaking purposes. Mr. Morris stated that the hydraulics pose the greatest danger to life and safety, and that riprap is likely not increasing that risk and may actually be decreasing it. Dr. Thornton agreed that the riprap is the lowest concern regarding safety for tubers/rafters. Mr. Hunt clarified that the hydraulics are an existing hazard that are not introduced by the project.

Mr. Hunt stated that Mr. Nequette requested that the applicant be compelled to cut down the ears of the crest. Mr. Hunt stated that he does not see a purview to require that, since for the earliest time that floodplain data for this reach has been a part of the regulatory purview of Larimer County, the crest has been represented as including the ears. The matter of the ears, Mr. Hunt stated, should not prevent the Board from approving the repairs. All members of the Board agreed.

Mr. Nequette clarified that he wished that the rocks are not sharply edged.

Mr. Morris stated that differences exist in the modeling techniques used in the second and third applications and recommended that if anything is done in the more recent modeling that is applicable to the second application, that the changes be considered. Dr. Thornton recommended that any changes be reviewed when the Board sees the second application again.

MOTION:

- *Dr. Thornton motioned to recommend approval of the Laporte Diversion Repairs FPSR to the Board of County Commissioners on the condition that the revised design for the downstream riprap and Type II bedding material is submitted to Mr. Traff. Mr. Morris seconded the motion. The motion passed 4-0.*