




Agency of Natural Resources
Department of Environmental Conservation
Watershed Management Division
1 National Life Drive, Davis 3
Montpelier, Vermont 05620

 VERMONT	
ACT 250 District Commission	# 7
Application #: 7C0627-2	
Exhibit #: 027	
Date Received: 9/11/25	

September 11, 2025

State of Vermont Land Use Review Board
District 7 Environmental Commission
374 Emerson Falls Road, Suite 4
St. Johnsbury, VT 05819-2099
Act250.StJohnsbury@vermont.gov

7C0627-2 Louis Buzzi - ANR Rivers Program Rebuttal Comments regarding Act 250
Criterion 1(D) Flood hazard areas; river corridors

Following the Commission's July 28, 2025 Recess Memo and the Applicant's August 25, 2025 response, the Agency of Natural Resources Rivers Program provides the following comments.

The Applicant has not demonstrated that the Project complies with Criterion 1(D):

(D) Flood hazard areas; river corridors. A permit will be granted whenever it is demonstrated by the applicant that, in addition to all other applicable criteria, the development or subdivision of lands within a flood hazard area or river corridor will not restrict or divert the flow of floodwaters; cause or contribute to fluvial erosion; and endanger the health, safety, and welfare of the public or of riparian owners during flooding.

The Agency's review of the project has determined that:

- **The proposed design restricts or diverts the flow of floodwaters.** The project proposes the most fill in a key floodwater path between existing constrictions.
- **The current proposal presents a particular flood risk to adjacent landowners and residents.** Where a proposal presents a particular risk such as this and proposes to restrict and divert the flow of floodwaters, hydraulic modelling is necessary to demonstrate No Adverse Impact (NAI) to neighboring properties. This is done through the analysis of impacts to flood heights and velocities due to the proposed project. The applicant has still not provided the necessary modelling.

- **No hydraulic analysis has been done to date that addresses the specific project.** proposal. While SLR International Corporation modelled flooding and mitigation alternatives in this neighborhood in the “Lyndon Flood Reduction Scoping Study” (hereafter “SLR Study”), and Nathan P. Sicard, P.E., offered his opinion on the proposal, these efforts do not demonstrate that the proposed design will not affect flood flows.
- **The applicant’s response to the Recess Memo does not provide adequate evidence that the project meets the burden of proof for meeting Criterion 1D or that it does not have an adverse impact to flooding.**

The proposed project places significant fill within the inundation floodplain which *restricts and diverts the flow of floodwater* on the north side and center of the parcel. Criterion 1D also requires that the applicant must demonstrate that the project will not *endanger the health, safety, and welfare of the public or of riparian owners during flooding*. The proposed project has not demonstrated that it will not adversely impact neighboring properties and has the potential to increase flood heights or flood velocities.

Therefore, in the absence of this information, the proposed project has not demonstrated that it will meet the requirements of Criterion 1D.

Hearing Recess memo response:

As stated in our 7/11/2025 letter to the District 7 Commission, and in response to the testimony provided at the hearing and in the Recess Memo responses, the Agency provides the following:

- **The proposed design restricts or diverts the flow of floodwaters.**

The proposed development includes the addition of 4,060 cubic yards of fill to be added to the site. While there will be the removal of some material to create stormwater treatment areas on the property, the project will add up to 5 feet of fill in the center of the parcel and 2-3 feet of fill along the Vermont Route 122 property boundary. This fill will raise the elevation of the project parcel to be roughly level with or higher than VT Route 122 along the northern boundary of the property.

Raising the site will affect how floodwater flows in this location. If the northern or central part of the parcel was simply storing floodwater like a pond, as characterized in the filed application and in testimony at the hearing, rather than conveying or allowing for water to flow through the parcel, then there would be less concern about the potential impacts of restricting or diverting floodwaters. However, the Final Report for the SLR Flood Study, dated 1/3/2025 (attached), shows that this portion of the floodplain is hydraulically connected and conveying floodwater across VT Route 122 during the SLR modeled 50-year, 100-year and 500-year flood event (see SLR Study Appendix A Existing Conditions). Flood depth maps in the report (pgs. 24-26) show how floodwater partially bypasses the Route 5 bridge, crosses Route 5 and VT Route 122, and reconnects to the river through the project parcel in the area that is proposed to be filled.

Additionally, when we look at the flood velocities for the SLR modeled 50-year, 100-year, and 500-year flood events (pgs. 28-30 of the SLR Study, and Figure 1 below), we see that the area around the subject parcel does experience higher-velocity flood flows as water is conveyed across Route 5 and VT Route 122, through the parcel, and back to the much more expansive Passumpsic River floodplain downstream.

Therefore, based on the evidence and information available regarding flooding at the site, there is no doubt that *the proposed project will restrict and divert the flow of floodwaters*.

- **The current proposal presents a particular flood risk to adjacent landowners and residents.**

The proposed fill will restrict and divert the floodwater flow path through the parcel. The deepest areas of proposed fill will reduce the available space for floodwater passage. This restriction of flood flows could have the following impacts:

- 1) *Flood depths behind (upstream of) the fill would be expected to become deeper.*
The SLR Study shows that the entire portion of the parcel located west of the former Lynburke Motel site is conveying water during the SLR-modeled 50-year, 100-year, and 500-year flood events. If the parcel is filled as proposed, the remaining available area to convey floodwater across VT Route 122 will be significantly smaller and likely convey a smaller volume of water. This will likely result in backing up floodwater behind this new pinch point. This is similar to an undersized culvert that pools or backwaters.
- 2) *Floodwater velocities are expected to increase through the more confined channel still able to convey floodwater.* This is similar to placing your finger over the end of a hose – reducing the available area for water to pass results in the water moving faster. We would anticipate that this may result in greater rates of erosion and scour during flooding along the northern and western property boundary where the water would be channeled.
- 3) *These changes have the potential to exacerbate flood risks on public roads (Routes 122/5/114) and on other parcels and buildings within the neighborhood.*

The accepted engineering standard to resolve these concerns is to use hydraulic modelling of the specific proposed design and show no impact to flood heights or velocities. This would demonstrate whether the project would present a particular flood risk to adjacent landowners and residents.

- **The proposed project still warrants hydraulic modelling to demonstrate No Adverse Impact to neighboring properties.**

To demonstrate that the project will have No Adverse Impact (NAI) on neighboring properties, modelling is needed to show no more than 0.1 foot (or 1.2”) rise in flood heights and no more than 0.3 feet per second increase in flood velocities during the base flood. These are measurable amounts of impact that can be determined through hydraulic modeling. The use of hydraulic modeling has been the standard engineering practice for assessing impacts from landscape change during flood events for more than 50 years – at least since the creation of the National Flood Insurance Program (NFIP) in 1968. It is the basis for the NFIP’s flood hazard mapping program and part of the process that FEMA uses to assess impacts and require changes to the Flood Insurance Rate Maps (FIRMs). Testimony at the hearing and in the response letters did not provide enough analysis to avoid the need for modeling.

- 1) SLR Flood Study: The interpretation of the SLR study was referenced in the testimony at the hearing and in the response letters. The SLR Study modelled existing flood conditions within the neighborhood and “flood hazard mitigation options within the study area” (page 2). The final study report shows the impacts of several mitigation options in the area on pages 16 & 17.

The SLR Study *did not* model the impacts of new floodplain development, specifically the loss of existing floodplain at this parcel or elsewhere. The Study *does*, however, indicate that under current flood conditions, the project parcel is a key area that allows for floodwater conveyance across Route 122 during the SLR modeled 100-year and 500-year flood events. Therefore, the proposed changes to the project parcel warrant careful consideration and hydraulic analysis.

- 2) Letter from Nate Sicard, P.E. (dated 7/17/25) and hearing testimony: Mr. Sicard’s letter acknowledges the complexity of hydrologic and hydraulic analyses (H&H modeling) but says this project will not have an adverse impact, or restrict or divert the flow of floodwaters without having done the modelling analysis. Mr. Sicard argues that modelling small flood impacts cannot be done without precise surface mapping in order to provide the most accurate two-dimensional hydraulic model. While the Agency agrees that very precise data can provide a more accurate model to assess impacts, the Agency disagrees that only a highly precise two-dimensional hydraulic model like that characterized can detect impacts from the proposed development. One-dimensional H&H modelling is the engineering standard that has been in effect for over 50 years as a widely accepted method to detect the impacts from a proposed action in the floodplain. More recently, two-dimensional modeling has been used to provide more precise modeling that can account for small changes in surrounding terrain or changes in floodwater timing, for example. The Agency has reviewed both two-dimensional and one-dimensional hydraulic modeling for past projects when assessing potential impacts. The key is *comparison* of the conditions during a flood of a certain magnitude. Standard practice is to compare the modeled current conditions to the proposed project conditions to assess how the project may change the localized flood heights and velocities.

Testimony from Mr. Sicard during the hearing indicated that requesting a project to provide modeling demonstrating less than 0.1’ of a foot in increase in flood heights and less than 0.3’ feet per second increase in flood velocities is not reasonable without a highly precise two-dimensional hydraulic model. Vermont is not unique in requiring that projects demonstrate no increase in flood heights

or velocities when located in the FEMA Special Flood Hazard Area outside the floodway – several other states require a similar or more restrictive standard for assessing floodplain development impacts (references available on request).

Additionally, the testimony and letter from Mr. Sicard does not address the specific project that is being proposed. The requirements of the Criterion 1D statute is not whether an existing restriction and flood water diversion exists in the entire surrounding floodplain, but rather for the applicant to demonstrate that “*the development* (emphasis added) or subdivision of lands within a flood hazard area or river corridor *will not restrict or divert the flow of floodwaters.*” His characterization of the impacts of potential flood storage projects on a downstream parcel in a different reach of river with very different flood characteristics is not comparable to the project’s localized impacts from filling and diversion of the secondary conveyance of flood water across Route 122.

- 3) Response letter from Jeff Olesky, P.E. (8/25/25): As addressed in our previous 7/11/2025 letter, the volumetric analysis does not answer the question of how the proposed fill will affect flood flows; it is not a hydraulic analysis.
- 4) The applicant has the ability to hire a consultant to provide an accurate and precise hydraulic flood model of the impacts of their proposed development on the flood impacts. This model can rely upon the SLR precise terrain LiDAR data.

Therefore, based on the evidence and information available regarding flooding at the site, the Agency finds that *the proposed project will restrict and divert the flow of floodwaters*. Additionally, without the requested hydraulic modeling data to quantify and characterize the impact of the project on localized flood conditions at the site and neighboring properties, the Agency finds that the proposed project has the potential to *endanger the health, safety, and welfare of the public or of riparian owners during flooding*.

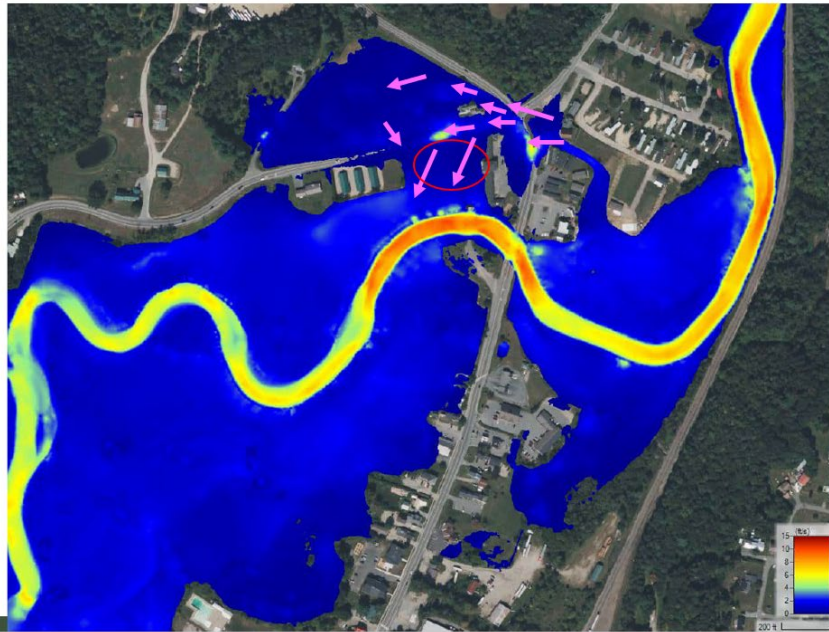
Sincerely,

Rebecca Pfeiffer, CFM, State Floodplain Manager & VT NFIP Coordinator
Sacha Pealer, CFM, Northeastern River Scientist & Floodplain Manager
Vermont ANR Rivers Program

100-Year Flood Velocity

Main Street

- 1-3 feet of water on the road at the intersection
- 1-2 feet of water on VT 122 heading west from the intersection
- Homes and businesses along Main St begin to flood



500-Year Flood Velocity

Main Street

- Up to 4 feet of water on the road at the intersection
- Water inundating road south of bridge
- Homes and businesses along Main St begin to become surrounded by water

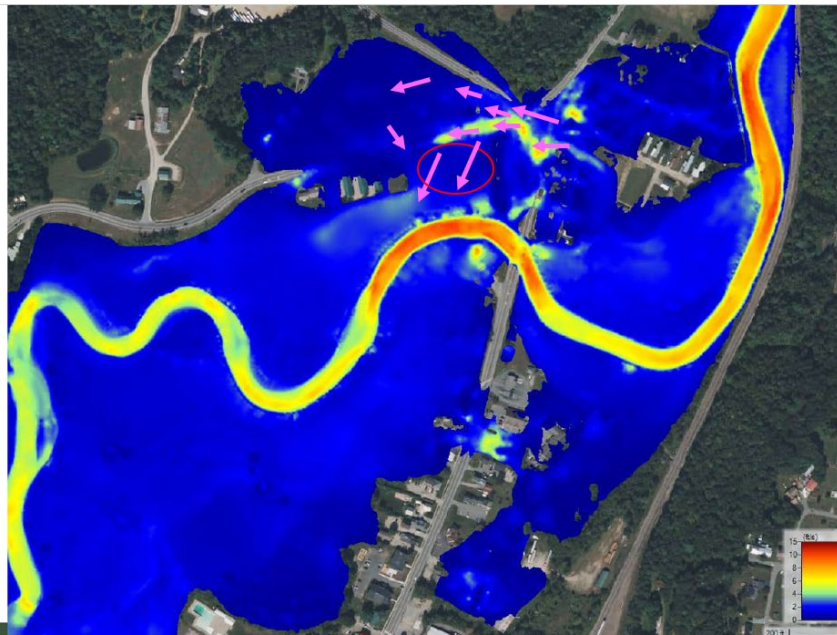


Figure 1. Flood velocity maps by SLR reveal the existing path of floodwater near and through the project area during the modelled 100-Year and 500-Year floods. Images taken from Appendix A, pages 29 and 30 of the Lyndon Flood Reduction Scoping Study (1/3/25) by SLR International Corporation. Arrows added to original image to highlight a key flood path coming into the project area from the north. Red oval added to show area of proposed fill.