

LMRLAC – March 25, 2010

LOWER MERRIMACK RIVER LOCAL ADVISORY COMMITTEE

MINUTES

March 25, 2010

Members:

- ✓ = present

- ✓ Bob Robbins (Chair) – Hudson
- ✓ Kathryn Nelson (Vice Chair) -- Nashua
- ✓ Karen Archambault (Secretary) -- Nashua
- ✓ Jim Barnes (Treasurer) – Hudson
Glenn McKibben – Litchfield
- ✓ George May - Merrimack
- ✓ David Scaer - Hudson

Associate Members:

Mildred Mugica – Nashua

Also in attendance:

- Nelson Disco, Merrimack Planning Board
- Joe Mendola, Engineering Department, City of Nashua
- Lucy St. John, Deputy Planning Manager, City of Nashua
- Kevin Webb, Environmental Affairs Coordinator, Enel North America

The meeting was called to order at 7:05pm in the media wing downstairs at the Nashua Public Library.

Minutes

The minutes of January 28, 2010 were approved.

Boott Hydropower Dam in Lowell – Discussion with Enel Representative

Members welcomed Kevin Webb, Environmental Affairs Coordinator with Enel North America. Mr. Webb mentioned that he was attending as a follow up to the LMRLAC meeting in October that Mr. Hank Sennott had attended. Mr. Webb stated that he is a biologist and had in the past served on the Lamprey River LAC.

Mr. Webb indicated that Mr. Sennott had sent him information from the discussion at the October meeting. Mr. Webb also mentioned that he had attended the meeting (in September 2009) at which a preliminary fluvial geomorphic assessment of a portion of the Merrimack River near Thoreau's Landing had been presented. He repeated the conclusion stated at the meeting that operation of the dam in Lowell, while possibly contributing to erosion at the site, is not a primary cause.

Kath expressed appreciation to Mr. Webb for Enel's efforts in providing notification about lowering the river level for dam maintenance activities. She mentioned the extended period of low river level in the late spring/early summer of 2008, and LMRLAC's concern about the level for a variety of reasons: among them recreational, aquatic life, and bank stability.

Mr. Webb handed out copies of charts indicating river flow and pond level for 2008 to present. The river flow on the charts is measured at the Hunts Falls gauge, just below the dam. He explained that 87.2 feet is the height of the cap of the dam, and that 92.2 feet is referred to as 'full pond', or water level with the flashboards at full height.

LMRLAC – March 25, 2010

Mr. Webb stated there was a lengthy investigation by the Federal Energy Regulatory Commission (FERC) in 2008, following the 2006 and 2007 floods. Several residents of the Pawtucketville neighborhood, just upstream of the dam, had submitted petitions to FERC, requesting that the flashboards be lowered one foot, from five feet to four feet. On May 28, 2008, Enel received a fax from FERC ordering the removal of the flashboards. Enel was not in agreement with that decision, and requested to be able to replace the flashboards. On June 20, they received approval to do so. By mid-July, the flashboards required repairs.

Mr. Webb briefly described the structure of the flashboards and the process for repairing and replacing them. 1-3/4" diameter steel pins are set in the dam, with sheets of plywood leaning against them. The strength or 'softness' of the flashboards is controlled by the number of pins set and the spacing between them. Currently, there are about 550 steel pins set in the dam to support the flashboards. 4-foot by 8-foot sheets of plywood are set on edge, resting against the pins. A 16-inch strip is overlaid on the plywood by 4" and nailed in place.

The flashboard repair process takes about two days with a crew of 4-5 people going out on a barge to work on the dam. It starts with removing the bent or broken pins, then setting the new pins, laying the plywood, and finally nailing the rip strip in place.

Kath asked whether Mr. Webb could characterize the 'softness' of the flashboard design, and what level of storm it is designed for. Mr. Webb indicated that the pins will start bending when the water gets to a certain elevation – currently, when the water is overtopping the flashboards by a foot. He indicated the flashboards do not give way uniformly or immediately, and that it depends on debris in the water as well as on water pressure.

Mr. Webb commented that he counted five occasions in 2009 when the water level was drawn down for repairs, followed soon after by a storm that damaged the flashboards again.

Kath asked at what flow rate is it safe for the crew to work on the dam. Mr. Webb indicated that full control of flow is needed, plus no major storms in the forecast. Mr. Webb indicated that the dam and power plant can handle about 10,000 cfs. Above that flow, the dam can no longer control the water level.

Bob asked Mr. Webb whether he knew how many dams were like this in the world that use the pin and board flashboard system. Mr. Webb replied that, of Enel's 65 projects in North America, he estimates that 12 to 18 of them use the pin and board technology.

Mr. Webb explained that their FERC license specifies minimum flow as 2,000 cfs or inflow. This minimum flow is to protect downstream. Mr. Webb briefly described the operation of the water flow through the turbines, and that the flow through the turbines counts as flow for their license.

Jim asked where the water goes when a turbine is offline or needs repair. Mr. Webb indicated that water cannot run through the turbine in that case – it has to either go over the dam or into the canal system. Mr. Webb estimated that the canal system holds about 2,000 cfs.

Jim asked for a description of notes on the chart for May 2009 that indicated flashboards were installed on May 6, and that 4-foot flashboards were installed on May 19. Mr. Webb replied that he wasn't sure if the boards got fully in before another storm came and only the 4-foot flashboards were installed, without the rip strip. In July 2009, flashboard repairs took place and the rip strip was installed.

Mr. Webb briefly described the criteria for flashboard repair, stating it depends on the lost flow. For example, if there is roughly a 5,000 cfs spillway, that would be considered minimal and less likely to result in immediate repair. If the flow approached 20,000-30,000 cfs, with more

LMRLAC – March 25, 2010

extensive flashboard damage, then that would be fixed. Mr. Webb commented that it boils down to having flashboards that are leak-free that maintain the water level.

Mr. Webb then described the Obermeyer pneumatic crest gate system in place in Lawrence. He indicated that Enel also operates the dam in Lawrence, and that Lawrence once had a pin and board system nearly identical to that in Lowell. Enel spent nearly 3 years replacing the system in Lawrence, and the crest gate system was commissioned in November 2009.

He briefly described how the Obermeyer pneumatic crest gate system works. The flashboards consist of hinged steel panels, supported on the downstream side by airbags or bladders. The water level is controlled by a computer system (that controls the air in the airbags). The airbag gradually deflates with increasing water level/water pressure, until it flattens, then the height of the water is regulated by nature. Mr. Webb indicated that the system is fully automated, requiring just occasional water level reductions for maintenance and inspection.

He pointed out the last page of the handout, which showed water levels in Lowell vs. Lawrence over the past four months, showing a more steady water level in Lawrence than in Lowell. David asked what the fluctuations were in Lawrence prior to the crest gate system. Mr. Webb indicated that it had been similar to that shown on the Lowell graph. Mr. Webb also said he would pass along a copy of the report with the technical assessment of the Obermeyer pneumatic crest gate system.

Mr. Webb indicated the two main concerns with the crest gate approach are historic and financial. He indicated that the National Park Service is not currently comfortable with the crest gate approach. He also mentioned that the crest gate system is expensive, and that Enel is carefully considering the cost. He also indicated that residents of the Pawtucketville neighborhood are currently opposed to the crest gate system. David asked about the neighborhood concerns. Mr. Webb characterized the situation as a trust issue at the present time, with concerns expressed that control of the new system would not be local. Mr. Webb pointed out that FERC will require an operations plan.

Jim asked whether Enel had approached the Federal Emergency Management Agency (FEMA) for support. Mr. Webb indicated they had not, and would look into it. He indicated they did have support from fishery agencies for the Lawrence project. He mentioned the fish ladder and fish elevator currently in place in Lowell, and indicated that a crest gate system allows better control of fish passage by better controlling the 'attraction' flows.

Jim asked about the Army Corps of Engineers. Mr. Webb replied that Enel will need a permit from the Army Corps, and stated that pouring concrete on a dam is considered a fill.

Kath asked if modeling had been done, and what cfs or water level affects the neighborhood. Mr. Webb indicated that modeling had occurred – that FERC had asked for modeling of the backwater effect if the flashboards did not fail. Mr. Webb indicated that Enel representatives had checked the neighborhood for the past two storms and observed no surface flooding. Mr. Webb stated he believes surface flooding occurred during the May 2006 and April 2007 storms, but has not seen pictures of it. He stated that peak flow during the May 2006 storm was about 96,000 cfs. He stated that, since the May 2006 flood, the flood curves have been redone and that the May 2006 flood is now considered a 40-year event.

Mr. Webb indicated that, under normal flow conditions, the pond extends to Moore's Falls (in Litchfield). The river will act more like a river nearer the top of the impoundment.

Mr. Webb indicated he intends to get on the river this spring.

LMRLAC – March 25, 2010

Kath pointed out that George coordinates water quality monitoring on the river. Mr. Webb asked what was tested. George listed dissolved oxygen (DO), e. coli, phosphorus, lead, turbidity, sedimentation, along with observations, and that sampling takes place every two weeks.

When asked about how Enel takes aquatic life interests on the river into consideration, Mr. Webb commented that Lawrence passes fish in late April, and mentioned alewife and shad as two species using the river. Mr. Webb indicated Enel tries to complete flashboard repairs in the spring before fish passage starts. Mr. Webb also mentioned how Enel tries to avoid pond fluctuation, and tries to be cognizant of the Pennichuck water intake and recreation interests. Mr. Webb also pointed out that the Pennichuck water intake, while in the millions of gallons, equates to only a few cfs for flow rates.

George asked what could be done to stabilize the flow fluctuations in the short term. He asked whether the rip strip or some of the flashboards could be pulled prior to a storm. Mr. Webb replied that the boards generally go in increments, but, once they start leaning, it's not safe. Mr. Webb indicated that removing the rip strip could actually allow the water level to go higher, comparing it to 'tucking reef' on a sail. Mr. Webb indicated that pulling some boards was an option to consider, and said he would pass the ideas along.

Kath asked what the ideal flow was. Mr. Webb replied 6,000-8,000 cfs, to as high as 10,000 cfs. Mr. Webb also stated that the dam creates a headpond level; it doesn't really increase storage. Mr. Webb stated that Enel generally doesn't cycle the pond because of downstream effects. Mr. Webb also stated that lowering the pond in preparation for a storm would delay effects, but not eliminate them.

Mr. Webb pointed out that once the bladders are deflated and the gates are flat, the crest gate system cannot control water flow. George pointed out that, in a large storm, there is nothing to be done regardless.

Mr. Webb indicated the current system will stay until FERC approves otherwise.

Mr. Webb indicated Enel is currently working on budgetary approval for the new system, then Enel will work on getting through FERC's process. Mr. Webb stated that FERC did receive a letter from NH Rep. Paul Hodes in response to a constituent letter on fluctuating water levels. George mentioned that LMRLAC has written to FERC as well.

Mr. Webb pointed out that low water levels would occur during installation of the crest gate system. Jim pointed out that it would be planned and not in reaction to a storm. Kath mentioned that there would be a long term benefit to be gained from that short term low level. Mr. Webb pointed out that the installation process could take two years.

Kath asked about a strategy to reach out to organizations and municipalities. Bob recommended that LMRLAC keep this as an ongoing agenda item. Kath suggested Enel talk to Planning Boards. Ms. St. John asked about public outreach. Mr. Webb replied that not much public outreach had occurred so far, but that it was a good idea.

Discussion turned to the historic aspect of the dam and its location. Mr. Webb stated that Lowell is the birthplace of modern hydropower, and that the Francis turbine design dates back to the Civil War and was developed in Lowell.

Kath asked for a FERC contact, and Mr. Webb indicated he would e-mail Kath with the information.

LMRLAC – March 25, 2010

Kath repeated LMRLAC's appreciation for the notifications. George added that LRMLAC would like to know when the level is expected to come back up as part of the notifications. Kath suggested LMRLAC plan to meet with Mr. Webb annually.

Members thanked Mr. Webb for attending the meeting and for the informative discussion.

CSPA Urban Exemption, Nashua

Lucy St. John briefly explained that the City of Nashua had applied for an urbanized shoreland exemption under the provisions of the Comprehensive Shoreland Protection Act. Ms. St. John pointed out that 10-12 towns in New Hampshire have applied for exemptions. Ms. St. John explained that the City had originally applied for an exemption along the Nashua River west to the F.E Everett Turnpike and east to the Merrimack River. She provided copies of a map showing the approved exemption area, which is smaller than the area requested in the City's application. The map is also available on the City's Web site.

Jim asked what the net result was of the exemption. Ms. St. John replied that the CSPA does not apply within the exemption area. When asked about the prime wetlands designation, Ms. St. John indicated that the prime wetland designation remains for the Nashua River in the exemption area. Kath mentioned that the State does have review authority for development within 100 feet of a designated prime wetland.

Ms. St. John stated that the Nashua Conservation Commission does point out the CSPA on its agenda for any applications that fall within CSPA jurisdiction. Ms. St. John also gave examples of city stormwater and water quality protections in Nashua ordinances.

Bob mentioned concerns about reducing flooding and using low impact development methods. Ms. St. John replied that the subdivision and site plan review process in Nashua do take such concerns into consideration.

Members asked Ms. St. John to keep LMRLAC informed.

Dock Permit, Hudson

Bob passed around an application for an after-the-fact dock permit at 12 Campobello St, Hudson. The dock application is for a 2-slip seasonal dock. The application also requested a waiver on removing the dock, stating that the river rarely freezes and the owner wants year-round access to his boat and to the river.

Bob pointed out that the application packet came to LMRLAC at NRPC from the engineering firm. Kath stated that DES could not track a permit number for the application.

Members discussed the appearance of the dock, whether to state a position on seasonal or permanent dock structures along the river, and what the DES policy is. Kath mentioned that she had contacted DES and found out that there is not currently a policy for permanent or seasonal docks on rivers.

Kath suggested a motion stating that LMRLAC does not support permanent dock structures on the Merrimack. George expressed a preference that LMRLAC get to see applications for any docks. He also expressed his view that such a structure probably enhances the property, may enhance the river, and that the question is what the effect on the river may be from such a structure.

Further discussion was tabled to the next meeting.

LMRLAC – March 25, 2010

Other Business

George is currently picking up LMRLAC mail at the NRPC offices. Bob pointed out that the dock permit application came to NRPC, rather than to his business address. Kath will follow up with DES to specify Bob's business address as LMRLAC's contact address for applications.

George handed out copies of the Merrimack River Watershed Council 2010 paddling trip brochure for LMRLAC members to help distribute.

Meeting adjourned 8:55pm.

Next meeting is currently scheduled for Thursday, April 22, at 7pm at the Nashua Public Library.

Respectfully submitted,
Karen Archambault
secretary