BUREAU OF ENVIRONMENT
CONFERENCE REPORT

SUBJECT: NHDOT Monthly Natural Resource Agency Coordination Meeting
DATE OF CONFERENCE: December 15, 2010
LOCATION OF CONFERENCE: John O. Morton Building
ATTENDED BY:

NHDOT
Alex Vogt
Cathy Goodmen
Christine Perron
Kevin Nyhan
Marc Laurin
Pete Stamnas
Steve Johnson
Wayne Brooks

Federal Highway Administration
Jamie Sikora

Army Corps of Engineers
Rich Roach

NHDES
Gino Infascelli
Lori Sommer

NH Fish and Game
Mike Marchand

McFarland Johnson
Mike Long
Vicki Chase

VHB
Mike Hansen
Paul Guertin
Pete Clary

(When viewing these minutes online, click on an attendee to send an e-mail)

PRESENTATIONS/ PROJECTS REVIEWED THIS MONTH:
(minutes on subsequent pages)

(When viewing these minutes online, click on a project to zoom to the minutes for that project)

NOTES ON CONFERENCE:

Finalization of November 17, 2010 Meeting Minutes

The November 17, 2010 meeting minutes were finalized.

Partially Grouted Riprap Discussion

Steve Johnson provided an overview of partially grouted riprap, a scour mitigation technique that is new to the NHDOT. The purpose of the overview was to explain the technology and learn if the resource agencies have any potential concerns so that the Bureau of Bridge Maintenance can plan ahead to determine appropriate locations to try this technique. He showed a short PowerPoint presentation from Aryes Associates on a project in Colorado.

Partially Grouted Riprap (PGR) involves placing stones for scour protection and grouting only the points of contact between the stones. This results in filling only about 50% of the voids between the stones, creating a more flexible layer of stone protection. This technique is meant to allow for settling, which allows the riprap to better conform to the stream channel and prevent future scouring. Because of the many voids, the technique should encourage sediment accumulation and may result in a rougher, more natural bottom than a standard riprap installation. The stones are smaller and the thickness of the installation is thinner than typical riprap. The grout that is used is a cementitious, flowable grout with an additive to discourage segregation. This technique is HEC-23 compliant. Because PGR uses less stone and is more flexible than standard riprap, the technique may require less frequent and less costly maintenance, although this is not yet known conclusively. S. Johnson noted that Bridge Maintenance may consider using this technique in the future in place of concrete toe walls and concrete inverts for smaller spans, which may prove to be more environmentally acceptable.

The first potential use of PGR by Bridge Maintenance would be in Westmoreland at a concrete arch bridge on NH Route 63 over Mill Brook. A recent project at this location installed riprap along the banks but did not tie it into the channel, and now the sandy bottom is scouring. S. Johnson feels that PGR would be less intrusive at this location than standard riprap.

Rich Roach said that, within his agency, he has been advocating the backfilling of riprap with sediment to encourage vegetative growth, but the Army Corps Waterways Experimental Station is not a proponent of sediment or grout on riprap. S. Johnson said that he thought an NCHRP [National Cooperative Highway Research Program] report on this issue is available [http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_593.pdf]. R. Roach said that PGR would seem to address perched bottoms.

Gino Infascelli said that he spoke with the water quality people at DES and their only concern was potential downstream impacts on water quality during installation of the grout. In G. Infascelli's conversation at DES, Steve Couture and Phil Trowbridge agreed that separating the work zone with cofferdams (and settling basins if necessary) would alleviate any water quality concerns. G. Infascelli added that the need for riprap would still need to be shown, per DES rules, but if the need was there, then the smaller stone, potential cost savings, and potential sediment accumulation

with the PGR make it a worthwhile option to try. He suggested that Bridge Maintenance take before and after photographs.

Mike Marchand stated that he spoke with John Magee prior to the meeting. Fish & Game did not have any concerns with the PGR technique, and thought that it may prove to be an improvement over standard riprap.

S. Johnson concluded by stating that Bridge Maintenance would begin working on the permit application for Westmoreland and would plan to discuss the details of that project at a future meeting.

Bedford-Manchester-Londonderry, DPR-F-0047(001), 11512

This project involves the construction of the Manchester-Boston Regional Airport Access Road. Mike Long of McFarland-Johnson presented an overview of the plans for a wildlife corridor to be constructed in the industrial zoned lands as part of the mitigation requirements. The wildlife corridor consists of an easement located to the south of the airport that is surrounded by the privately owned Tamposi-Nash property.

Vicki Chase presented the design of the corridor and stream channel restoration. She noted that an area partially within the easement was the subject of an enforcement action by the EPA for Section 404 violations. She also noted that she had reviewed the proposed stream restoration with the EPA, and they were in acceptance of the proposal.

The proposed design of the stream channel restoration includes a five-foot wide stream channel that is approximately one-foot deep with a thirty-foot wide flood plain. The design of the channel is based on fluvial studies downstream of the project area. In anticipation of the construction of the Industrial Drive extension, a crossing structure of the stream will be constructed. This structure is proposed to be seven feet high, six feet wide with the bottom 18 inches embedded. The length of the structure has been reduced to the maximum extent practicable to still accommodate for a future two-lane road.

The Town of Londonderry has future plans for the Pettengill Road extension and has designed a twelve-foot wide by six-foot tall open bottom box culvert. This culvert has already been permitted by NHDES. The proposed stream restoration design calls for native plantings along the edge of the easement and several 50-foot wide strips across the easement. The remainder of the easement will be loamed, seeded and allowed to naturalize. Geotechnical investigations identified ledge very close to the surface, which will require blasting to remove some of the rock in the stream channel. This will result in a series of benches approximately 18 inches high to step down to the ground level at the Pettengill Road crossing.

A section of the southwest end of the proposed corridor currently contains part of one of the Airport parking lots (Parking Lot G). The pavement and 8 inches of the base gravel will be removed and 8 inches of loam will be added. There will be three 50-foot wide strips of shrubs and trees planted as in the stream corridor and the remainder seeded to allow for naturalization. Lori Sommer asked about the plants. Vicki Chase noted that the plants will be native to Hillsborough

and Rockingham counties and adapted to well-drained soils. There is fencing around the parking lot and some evergreen buffer plants will be placed along this fence line. Gino Infascelli asked about snow removal from the parking lot and if it would interfere with the edge of the easement. The fence will prevent Airport maintenance from pushing snow onto the easement. In addition, Mike Long stated that the airport has a snow-melting machine that may be used in this location, which would eliminate the need for snow relocation. Vicki Chase also added that they would design some rock piles in the open areas to allow habitat for snakes.

Cathy Goodmen noted that these efforts would be part of the 11512 H contract, which is scheduled for advertising February 1, 2011, so the plans need to be finalized soon. Lori Sommer said she was nervous about the blasting and asked if the Department could work with the landowner to coordinate moving the corridor; avoiding the need for blasting. Vicki Chase and Mike Long noted that the streambed has to meet the ground level designed for the Pettengill Road extension which would still require blasting. It was also noted that the landowner is not willing to negotiate changes in the corridor location. Mike Marchand asked about the culvert at the Industrial Road extension. Vicki Chase noted that the Department would install the box culvert, but the road will probably not be built until the adjacent private land is developed. Rich Roach said it would be nice to monitor this in the future after the corridor is established and the property is developed to see if the culverts are being used by wildlife. There were no further comments or requested changes.

(*project website*) (Natural heritage: *NHB10-1451*) *This project was previously reviewed on the following dates: 11/14/1996, 4/16/1997, 5/28/1997, 8/20/1997, 12/16/1998, 1/20/1999, 10/20/1999, 12/15/1999, 2/16/2000, 3/22/2000, 6/14/2000, 3/21/2001, 4/18/2001, 1/16/2002, 8/21/2002, 6/18/2003, 3/24/2004, 7/21/2004, 9/15/2004, 10/20/2004, 12/15/2004, 9/21/2005, 3/15/2006, 5/17/2006, 8/23/2006, 3/19/2008, 6/18/2008, 4/15/2009 & 10/29/2009.*

Salem-Manchester, IM-IR-93-1(174)0, 10418C

This project involves widening Interstate 93 between Salem and Manchester. Peter Stamnas gave an update on the status of the Haigh Avenue mitigation site. The FEMA grant for the Phase 1 purchase of the nine southernmost properties was received by the Town of Salem. The Town has acquired and demolished all the houses, leveled and stabilized the disturbed areas, removed the road pavement and placed a gate at the end of Haigh Avenue. The Department has provided Betterment Funds to match the FEMA grant. The Phase 2 grant application, the acquisition of 14 additional properties, has been submitted by the Town to FEMA. P. Stamnas stated that he was fairly confident that it would be approved by FEMA in the Spring as this Phase had scored better than Phase 1.

Mike Hansen from VHB provided handouts and presented an early level mitigation design concept with plan views and typical cross-sections. VHB has been developing the mitigation plan in two phases, in the event the second phase is not approved next year. The relocation of Policy Brook and grading of the associated floodplain wetlands, to be located on either sides of the stream channel, will provide about 9 acre-feet of floodplain storage for Phase 1 and an estimated 21 acre-feet in Phase 2, for a total of 30 acre-feet. The design will be developed as a Rosgen E6 or C6 stream type and will preserve some upland areas. The relocated stream will tie back into existing

Policy Brook just prior to its confluence with the Spickett River. The existing Policy Brook ditched channel will be filed in. The length of the relocated stream is around 900 linear feet for Phase 1 with a gradient of 0.1% and will most likely total around 1,500 feet for Phase 2 (which will have a 0.2% gradient). Design is still being developed and will be modified to provide more sinuosity. Retention of additional upland areas will be further evaluated in the Phase 2 design. The stream will be constructed in the dry. The design compares favorably to the wastewater treatment plant mitigation design, which would have provided about 22 acre-feet of floodplain mitigation.

The mitigation will be included with the Exit 2 reconstruction contract (13933E), scheduled to advertise in the Fall of 2011 and will most likely be constructed in 2012. Both Rich Roach and Lori Sommer agreed that it was a good plan. The plan will be brought back for further review when the design has been more advanced.

(*project website*) *This project was previously reviewed on the following dates: 8/10/1995, 1/10/1999, 2/16/2000, 5/17/2000, 6/14/2000, 7/19/2000, 8/10/2000, 9/20/2000, 10/18/2000, 1/17/2001, 2/14/2001, 3/21/2001, 4/18/2001, 5/10/2001, 8/15/2001, 9/19/2001, 10/17/2001, 11/21/2001, 1/16/2002, 2/20/2002, 5/15/2002, 6/18/2003, 10/15/2003, 12/17/2003, 10/20/2004, 11/17/2004, 1/18/2006, 12/19/2007, 2/20/2008, 10/15/2008, 12/17/2008, 1/21/2009, 4/15/2009 5/20/2009 , 7/15/2009, 8/19/2009, 10/29/2009, 1/20/2010, 2/17/2010, 3/17/2010, 5/19/2010, 7/21/2010 & 9/15/2010.*