



To: Vermont Gas Systems / Addison Natural
Gas Project ("ANGP") Phase 1 Project File

Date: May 9, 2016

Memorandum

Project #: 57563.00

From: Joshua Sky, Senior Scientist/GIS Manager

Re: ANGP Phase 1 – Geprags Park Route Comparison

INTRODUCTION

VHB has prepared this memorandum for Vermont Gas Systems ("VGS") to provide a comparison of two routes of the Addison Natural Gas Project Phase 1 ("ANPG") through Geprags Park in Hinesburg, Vermont ("LLN 104"). This comparison evaluates the route approved by the Public Service Board per the Certificate of Public Good issued in Docket 7970 (December 23, 2013), which is located on the Western edge of LLN 104 ("Approved Route") with a route ("Alternate Route") along the western edge of the existing VELCO right-of way ("ROW"). This memo provides a comparison of natural and cultural resources present along both routes.

The Approved Route is depicted in the ANGP Erosion Prevention and Sediment Control Plan Set dated April 2, 2015 and the Alternate Route is based on a pipeline alignment located 10-feet inside of the western edge of the VELCO ROW with an assumed 50-foot corridor centered on the pipe. Both routes are shown on the Geprags Park Routes Map (see Page 1 of the Attachment). As a linear project, the selection of the Alternate Route would also affect the pipeline alignment on neighboring parcels LLN 102 and LLN 103 to the north and Parcel LLN 106 to the south as well as the location where it crosses Shelburne Falls Road. The comparison evaluates the two routes for the entire re-aligned segment on LLN 102, 103, 104 and 106.

The Approved Route and the Alternate Route are both within the VHB natural resource study area for ANGP and thus have been fully evaluated in the field. A complete summary of the resources within these areas is provided in the ANGP Natural Resource Report ("NR Report") and subsequent supplemental memoranda. The evaluation of resources relies on the data included in the NR Report. An archaeological Phase I Survey of the Approved Route and of the Alternate Route was conducted by the University of Vermont Consulting Archeology Program ("UVM CAP"). The cultural resource assessment relies on the Phase 1 study.

ROUTE DESCRIPTIONS

Approved Route

The entire Approved Route located outside of the VELCO corridor on LLN 102, 103, 104 and 106 is approximately 5,900 feet long between Station 955+00 and Station 1014+00. The Approved Route avoids several smaller wetlands and a large wetland. The Approved Route extends approximately 2,000 feet through LLN 104 from Station 979+50 at the northern border to Station 999+50 at Shelburne Falls Road. It traverses the western edge of the open area on Geprags Park with a variable construction corridor width from 50 to 75 feet and a permanent ROW 50-feet wide centered on the pipe. It also provides 175 feet of separation from a house site located just outside of the western edge of the VELCO ROW on LLN 106.

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Alternate Route

The entire Alternate Route, along the VELCO ROW through LLN 102, 103, 104 and 106 is approximately 5,450 feet long and would pass within 40 feet of the house site on LLN 106. The Alternate Route extends approximately 2,100 feet through LLN 104 from the northern border of Geprags Park to Shelburne Falls Road. The Route is located on the western edge of the VELCO ROW as described above. The Route would pass through an access road to the Geprags Park parking area.

ROUTE COMPARISON

Wetlands and Waters

The Approved Route passes through a single Class II wetland on LLN 104 (ID 2012-JB-33/34/35). Individual Vermont Wetland Permit No. 2012-184 ("VWP") authorizes wetland impacts of 1,832 square feet ("SF") and 739 SF of buffer impact which is consistent with the approved design. For comparison, under the method used to calculate VWP impacts, the Alternate Route would impact 3,320 SF of wetlands and 1,449 SF of buffer on LLN 104, an increase of 1,488 SF and 710 SF, respectively. Under the methods used to calculate impacts for the Section 404 U.S. Army Corps of Engineers ("USACE") Permit (#NAE-2012-0123)¹ ("404"), the Approved Route wetland impacts on LLN 104 total 18,059 SF while the Alternate Route would increase impacts by 13,960 SF to 32,019 SF. VWP method wetland impacts for the Approved Route on LLN 102, 103, 104 and 106 would total 1,832 SF compared to 5,652 SF for the Alternate Route. USACE wetland impacts for the Approved Route on LLN 102, 103, 104 and 106 total 21,690 SF compared to 59,077 SF for the Alternate Route. Overall, the Alternate Route includes impacts to six different wetlands while the Approved Route impacts only four wetlands. Wetland and Stream impacts for the Approved and Alternate Routes are provided in the attached VWP Impact Table (Page 2 of the Attachment) and 404 Impact Table (Page 3 of the Attachment).

The Approved Route and Alternate Route would both cross a single perennial stream (ID 2012-SC-JB-10) located on LLN 104. The impacts associated with the stream would increase from 264 SF for the Approved Route to 627 SF for the Alternate Route.

¹ The USACE considers any project activity within the corridor an impact while the VWP tabulates trenching only.

The Approved Route is consistent with the avoidance and minimization requirement for wetland impacts per Section 9.5(b)(1-3) of the 2010 Vermont Wetland Rules:

b. Mitigation Sequencing

An adverse effect on any protected function, other than a minimal impact, shall be presumed to constitute an undue adverse effect unless:

- (1) The proposed activity cannot practicably be located outside the wetland or on another site owned or controlled by the applicant or reasonably available to satisfy the basic project purpose; and
- (2) If the proposed activity cannot practicably be located outside the wetland, all practicable measures have been taken to avoid adverse impacts on protected functions; and
- (3) If avoidance of adverse effects on protected functions cannot be practically achieved, the proposed activity has been planned to minimize adverse impacts on the protected functions and a plan has been developed for the prompt restoration of any adverse impacts on protected functions.

Rare, threatened and endangered species Comparison

The Approved Route would not impact any rare, threatened or endangered species but does include impacts to two occurrences of an uncommon plant (Ids: 2012-RTE-CT-080 and 2012-RTE-CT-081; State Rank S3). These impacts are considered temporary and subject to mitigation and monitoring measures as outlined in the ANGP Vegetation Management Plan dated September 13, 2013. The Alternate Route would not impact any uncommon plants or rare, threatened or endangered plant species. Both routes would pass through potential Golden Winged Warbler (State Rank S3B) habitat with potential special vegetation management practices required and time of year construction limitations to mitigate potential impacts.

Cultural Resources Comparison

Based on the Phase I archaeological survey, the Approved Route avoids any significant archeological sites. One of the reasons the Approved Route was selected was to avoid recorded significant archeological sites along the Alternate Route that were identified during survey and site evaluation conducted along the original alignment (the Alternate Route). The Alternate Route would require Phase III data recovery archaeology prior to construction on one or more archaeological sites.

CONCLUSION

The Approved Route avoids and minimizes impacts to natural resources, specifically wetlands and waters, when compared to the Alternate Route. The Approved Route impacts significantly less wetland and wetland buffer areas than the Alternate Route. The Approved Route is an example of one area that the ANGP demonstrates avoidance and

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minimization of impacts required in order to meet the required regulatory criteria for issuance of a VWP or 404. The Approved Route does include temporary impacts to two uncommon plant whereas the Alternate Route would not impact any protected plants. Both routes include potential Golden Winged Warbler breeding habitat. The Approved Route is also approximately 135-feet further away from a house site than the Alternate Route. In addition the Approved Route contains no archeological resources whereas the Alternate Route does include significant sites. Therefore, we conclude that the Approved Route is the preferred route through Geprags Park with less natural and cultural resource impacts than the Alternate Route.

ATTACHMENTS

Page 1: Geprags Park Routes Map

Page 2: VWP Impact Summary Table

Page 3: 404 Impact Summary Table

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ATTACHMENT

VG5 Addison Natural Gas Project (ANGP) - Phase I
Route Comparison - Approved Route versus Alternate Route
Geprags Park, Hinesburg, Vermont
Prepared by VHB
May 5, 2016



Wetland Feature ID	Town	VHB Natural Resource Map Series #	CHA EPSC Sheet #	Impact Exhibit #	Landowners (s) (LLN #)	Wetland Impacts			Wetland Buffer Impacts		
						Approved Route Wetland Impact Area (sq. ft.)	Alternate Route Wetland Impact Area (sq. ft.)	Change in Wetland Impact Area (sq. ft.)	Approved Route Wetland Buffer Impact Area (sq. ft.)	Alternate Route Wetland Buffer Impact Area (sq. ft.)	Change in Wetland Buffer Impact Area (sq. ft.)
2012-JB-33/34/35	Hinesburg	17	ANGP-EPSC-038	53, 54	104 (Town of Hinesburg)	1,832	3,323	1,491	739	1,449	710
2012-JB-38	Hinesburg	16, 17	ANGP-EPSC-037	51	103 (Ballard)	0	342	342	668	1,777	1,109
2012-CM-222	Hinesburg	17	ANGP-EPSC-038	52	103 (Ballard)	0	0	0	169	0	-169
2012-JB-36	Hinesburg	17	ANGP-EPSC-038	#N/A	103 (Ballard)	0	88	88	0	531	531
2012-JB-37	Hinesburg	17	ANGP-EPSC-038	#N/A	103 (Ballard)	0	319	319	0	548	548
2012-JB-33/34/35	Hinesburg	17	ANGP-EPSC-038	53, 54	103 (Ballard)	0	1,580	1,580	0	972	972
2012-CM-232	Hinesburg	17	ANGP-EPSC-039	54	106 (Fortin)	0	0	0	432	0	-432
Totals:						1,832	5,652	3,820	2,008	5,277	3,269

Note: Alternate Route assumes a 50 ft - wide project corridor centered on a pipe located 10 ft. inside the western edge of the VELCO Right of Way.

VGS Addison Natural Gas Project (ANGP) - Phase I
Route Comparison - Approved Route versus Alternate Route
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Feature ID	Town	VHB Natural Resource Map Series #	CHA EPSC Sheet #	Impact Exhibit #	Landowner (LLN#)	Approved Route Alignment Impact Area (sq. ft.)	Alternate Route Impact Area (sq. ft.)	Change in Impact Area (sq. ft.)
2012-JB-33/34/35	Hinesburg	17	ANGP-EPSC-038	61,62	104	18,059	32,019	13,960
2012-SC-JB-10	Hinesburg	17	ANGP-EPSC-038	62	104	264	627	363
2012-JB-32	Hinesburg	17	ANGP-EPSC-039	N/A	104	0	2,879	2,879
2012-JB-38	Hinesburg	16, 17	ANGP-EPSC-037	96, 97	103	0	3,887	3,887
2012-JB-36	Hinesburg	17	ANGP-EPSC-038	95	103	0	637	637
2012-JB-37	Hinesburg	17	ANGP-EPSC-038	97	103	0	3,246	3,246
2012-JB-33/34/35	Hinesburg	17	ANGP-EPSC-038	N/A	103	0	15,782	15,782
2012-CM-232	Hinesburg	17	ANGP-EPSC-039	62	106	165	0	-165
2012-CM-233	Hinesburg	17	ANGP-EPSC-039	63	106	3,202	0	-3,202
Total Change in Impacts (sq. ft.):						21,690	59,077	37,387

Note: Alternate Route assumes a 50 ft - wide project corridor centered on a pipe located 10 ft. inside the western edge of the VELCO Right of Way.