

VT 78 • Swanton NH 036-1 (9)SC



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Contents

EXECUTIVE SUMMARY & INTRODUCTION	1	ALTERNATIVES PRESENTATION MEETING	21
PURPOSE AND NEED	2		
PROJECT LOCATION	3		
BACKGROUND INFORMATION:		RECOMMENDATIONS:	
General	4	Introduction	22
Existing Roadway Information	4	Recommended Alternative	22
Roadway	4	Detailed Summary of Recommendations	22
Right-of-Way	5	Cross Section	22
Signing	5	Clear Zone / Guardrail	23
Horizontal and Vertical Alignments	5	Signing	24
Drainage	5	Profile Modifications	24
Sight Distance	6	Further Environmental Studies	24
Intermodal	6	Project Coordination	25
Alternate Routes	6	Funding	25
Accidents	7		
Traffic Information	8		
VT 78 Accident Summary	9	REGULATORY AND PERMITTING PROCESS	26-28
Resources Information	10		
Historic	10	PLANS OF RECOMMENDED ALTERNATIVE	
Archaeological	10	Plans	1-27
Visual	10	Cross Sections	28-39
4(f) & 6(f) Properties	10		
Rare, Threatened & Endangered Species & Significant Habitat Types	11	APPENDICES:	
Fisheries and Wildlife Resources	11	Traffic Diversion Alternatives Study	A
Wetlands	12	Historic Resources Report	B
LOCAL CONCERNS	13	Archaeological Resources Report	C
ALTERNATIVES		Visual Resources Analysis	D
Alternative A	14	Meetings	E
Alternative B	14	Relevant Correspondence	F
Alternative C	15	Conceptual Cost Estimates	G
Typical Cross Sections	16-18	VAOT Route Log	H
RESOURCE IMPACT REDUCTION OPTIONS	19	Addendum to Initial Scoping Report	I
WETLAND IMPACTS & EVALUATION MATRIX	20	Project Definition Team Meeting Notes	J
		VT Secretary of Transportation Approval	K
		Categorical Exclusion Environmental Analysis Sheet	L



EXECUTIVE SUMMARY

This Scoping Report is a joint effort by the Vermont Agency of Transportation (VAOT), the Federal Highway Administration and the Town of Swanton to develop alternatives to address transportation and safety needs along a portion of VT 78 in Swanton. The scoping report has been developed with input from local officials, residents, VAOT officials, Vermont Agency of Natural Resources, the Northwest Regional Planning Commission, other concerned agencies, past studies, and field observations. Three alternatives were developed during this process. These included the no build option, an alternative which widens VT 78 about its existing centerline, and a third alternative which widens VT 78 about a new centerline that includes minor shifts to avoid constraints and reduce impacts to important resource areas. These alternatives were presented to the Town on October 21, 1997 and the Project Definition Team on December 11, 1997. The third alternative was endorsed on both occasions.

INTRODUCTION

This scoping report has been prepared to identify and develop alternative solutions which satisfy the project purpose and need. It identifies key issues and evaluates potential solutions. Included are plans, construction cost estimates, an evaluation matrix which summarizes the impacts and benefits of each alternative, and detailed recommendations. A separate Environmental Resource Inventory Report, dated November, 1997, has previously been developed and distributed to supplement this scoping report and to begin the environmental inventory process for this project.

PURPOSE

The purpose of this project is to improve public safety along a 10 km segment of VT 78 in Swanton between the Missisquoi Bay Bridge and the Swanton Village limits.

NEED

VT 78 provides a vital link on the National Highway System (NHS) between Canada, New York State and Northern New England. Locally it provides a connection between the villages of Swanton and Alburg. VT 78 is also a key trucking route as evidenced by the high (14.5%) volume of trucks. The regional importance of this route magnifies the deficiencies which define the project need. Those deficiencies are summarized as follows:

Clear Zone / Roadside Hazards:

There are segments along VT 78 within the project limits where there are unprotected hazards within the clear zone. These hazards primarily include large diameter trees, and steep embankments. There are segments of the roadway where the steep embankments terminate in the Missisquoi River.

Sufficiency Rating

This segment of roadway received a 1992 VAOT sufficiency rating of approximately 50 out of a best possible score of 100. The sufficiency rating is compiled from ratings of roadway Structural Condition, Safety, and Service. The Structural Condition rating indicates that the existing pavement is in relatively poor condition as confirmed by VHB field observations which revealed apparent roadway subsidence, cracking, and sub-base failure.

Narrow Pavement Width

The existing pavement is approximately 7 meters (23 Ft.) wide. Given the functional classification (NHS, principal arterial), traffic volumes (4170 ADT), posted speed (50 MPH), and truck volumes(14.5%), the pavement width is inadequate. The 1994 AASHTO Policy on Geometric Design of Highways and Streets prescribes 7.2 m (24 Ft.) travel way width, plus two 2.4 m (8 Ft.) paved shoulders, for two lane rural arterials with the above characteristics. (*Table vii-2, pp. 488*) For NHS roadways, the current Vermont Standards are in agreement with the AASHTO standards.

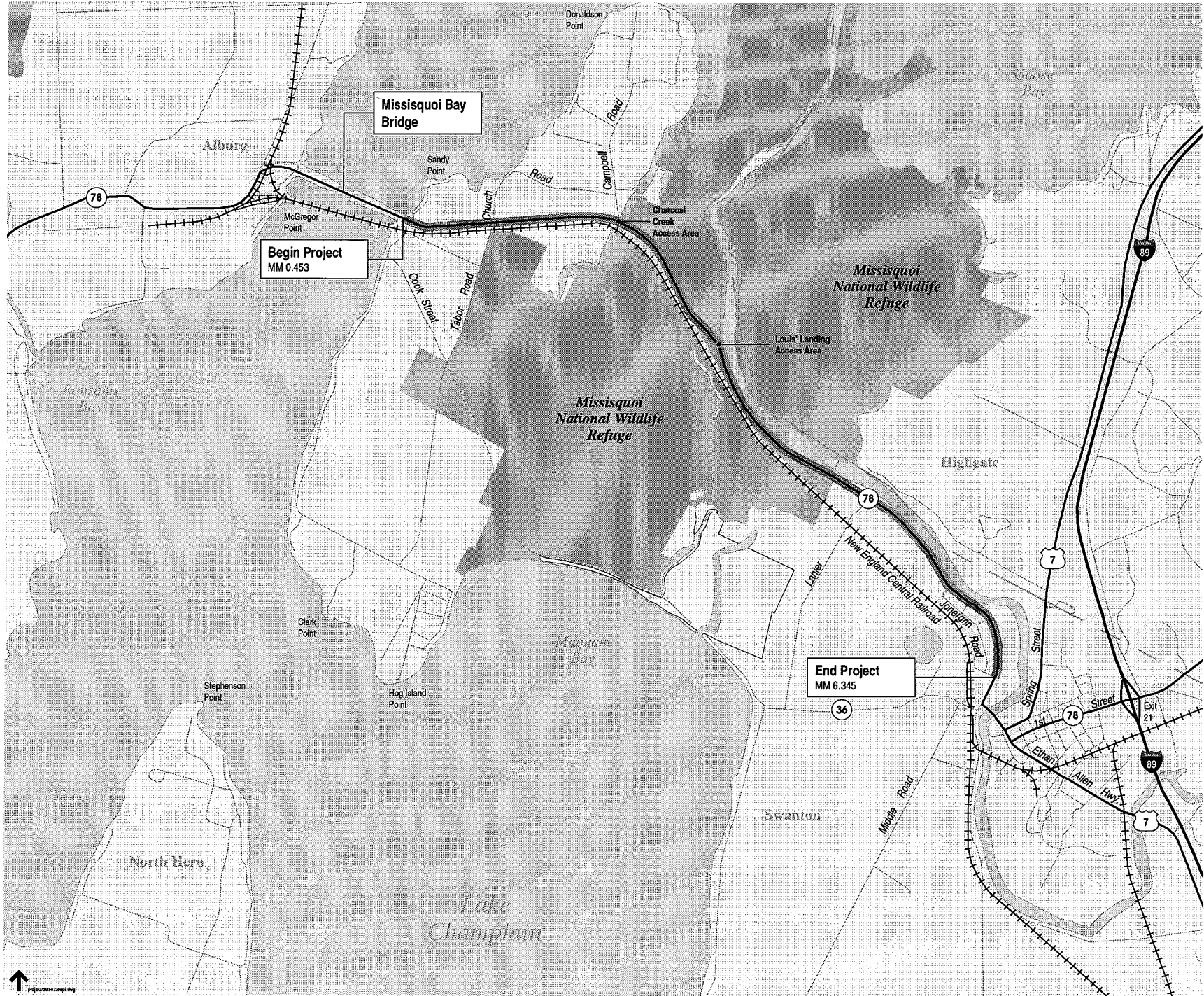
Lack of Shoulders

Paved and unpaved shoulders are predominantly non-existent over the entire project. There are several safety implications due to the lack of shoulders. These include lack of space for maneuvering around errant oncoming or disabled vehicles, lack of a breakdown area, and unsafe bicycle and pedestrian access.

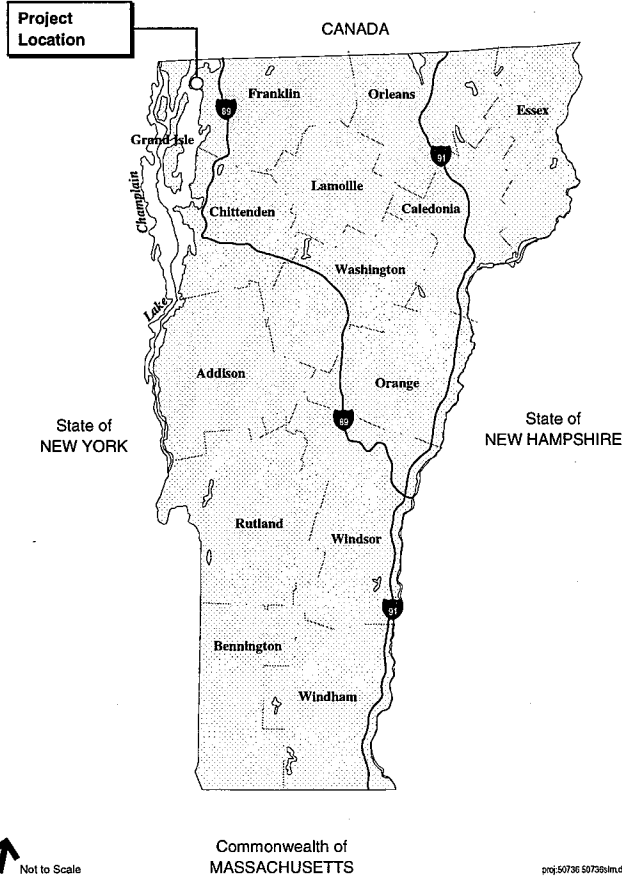
The safety concerns discussed above are primarily the result of a sub-standard roadway cross section. The perceived safety concerns are punctuated by the local official's observation that in recent years there have been severe accidents involving multiple fatalities within the project limits. VAOT accident data supports these observations.

For the study period of 1991 through 1995 there were 36 reported accidents which resulted in 30 injuries and 2 fatalities.

Project Location



VT 78 is a 34 kilometer rural highway in Franklin County which extends from US 2 in Alburg to VT 105 in Sheldon Junction. The project under consideration is a 10 km segment of VT 78 in the Town of Swanton. The project begins near the eastern end of the Missisquoi Bay bridge causeway (MM 0.453) and ends at the Swanton Village line (MM 6.345). The project corridor passes through the Missisquoi National Wildlife Refuge, and alongside portions of the Missisquoi River.



Background Information

GENERAL

In 1995, the Transportation Planning Initiative identified the top fifty transportation problem areas which were subsequently submitted for Project Scoping. The VT 78 project ranked thirty-third statewide, and first in the region. To date, the VT 78 project remains the region's number one transportation priority, among current unmet transportation needs.

In September of 1995, Donald Hamlin Consulting Engineers delivered a final draft of the US Route 2 and VT Route 78 Transportation Corridor Study to the Northwest Regional Planning Commission (NRPC). That study examined the entire corridor and made recommendations to address the observed deficiencies. The segment of VT 78 that is the subject of this scoping report falls within the confines of the 1995 corridor study, and as a result the corridor study has served as an initial and useful source of information.

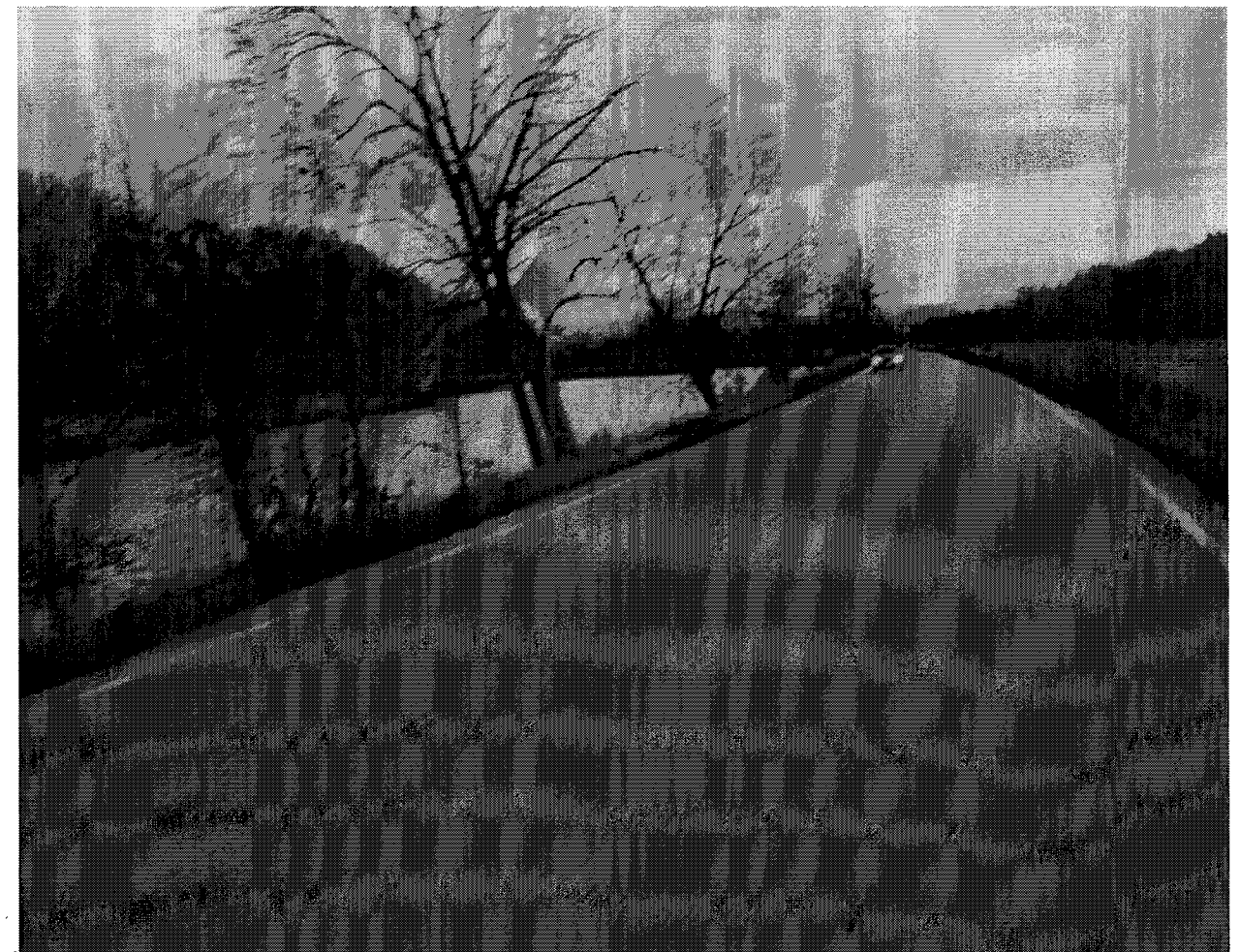
VT 78 is a corridor which is heavily traveled by people, goods and services moving between northern Vermont, New York State, New England and Canada. VT 78 is on the National Highway System (NHS) and provides a vital link between two interstate highways, I-87 in New York and I-89 in Vermont. Within the project area, VT 78 is classified as a principal arterial. Locally, VT 78 provides the only route between Swanton and Alburg.

Lake Champlain presents a regionally imposing north-south physical barrier which makes US2 / VT 78 the only uninterrupted east-west crossing of the lake within many miles. In New York State, Route 11, which is also on the National Highway System, provides a similar function as an exclusive east-west corridor through the northern tier of New York. Route 11 connects directly to US 2 at the Champlain/Alburg border, and this connection continues eastward via US 2 and VT 78. The fact that VT 78 provides the only northern lake crossing, as well as an unparalleled link between other principal highways, dictates that VT 78 serves as an integral and vital component of the regional transportation network.

EXISTING ROADWAY INFORMATION

Roadway

VT 78 is a two lane paved rural highway. The travel lanes vary in width from 3.0m to 3.6m (10' to 12'), and the paved shoulders vary in width from 0 to 0.6m (0' to 2'). There is also a general lack of gravel shoulders along the project corridor. Much of the roadway is built up above the surrounding ground, and the lack of paved or unpaved shoulders is considered the most serious safety related deficiency within the project. The photo below shows a typical section on VT 78 with a lack of paved or unpaved shoulders, as well as trees within the clear zone.



The latest VAOT sufficiency rating for this segment of VT 78, which was performed in 1992, assigned a score of approximately 50 out of a possible 100. The Structural Condition rating of the roadway was poor. Field observations by VHB suggest that there are areas of apparent sub-grade subsidence. These areas are generally adjacent to wetlands where it is likely that the original roadway embankment was founded on, or adjacent to, unstable soils. There are also large segments of the roadway where the sub-grade regularly becomes saturated during spring floods. This saturation, combined with the heavy truck traffic, has probably contributed to the degradation of the roadway structure.

Right-of-Way

The existing VT 78 right-of-way varies in width from approximately 14m to 18m (45' to 60'). The VT 78 right-of-way is bordered by private residential and agricultural lots, by a few small businesses, by the Missisquoi National Wildlife Refuge, and by the New England Central Railroad. The 1937 State Highway construction plans depict the proposed highway right-of-way in relation to the 1937 proposed highway centerline. The right-of-way lines shown on the plans contained in this report are based on a best fit of the information contained in the 1937 highway plans, and are approximate only. The right-of-way geometrics described within the 1937 plans do not exactly correlate to the existing roadway centerline geometry, and a right-of-way survey would be required to more accurately establish the existing right-of-way in the event that land acquisition is required.

Signing

Signing along VT 78 consists of warning, regulatory, and route markers. Typical signs that may be found include speed limit signs, roadway curve warning signs, and passing regulatory signs. There is a general lack of advance warning signs at intersecting roadways and turnouts for recreational use such as at Charcoal Creek and Lois' Landing.

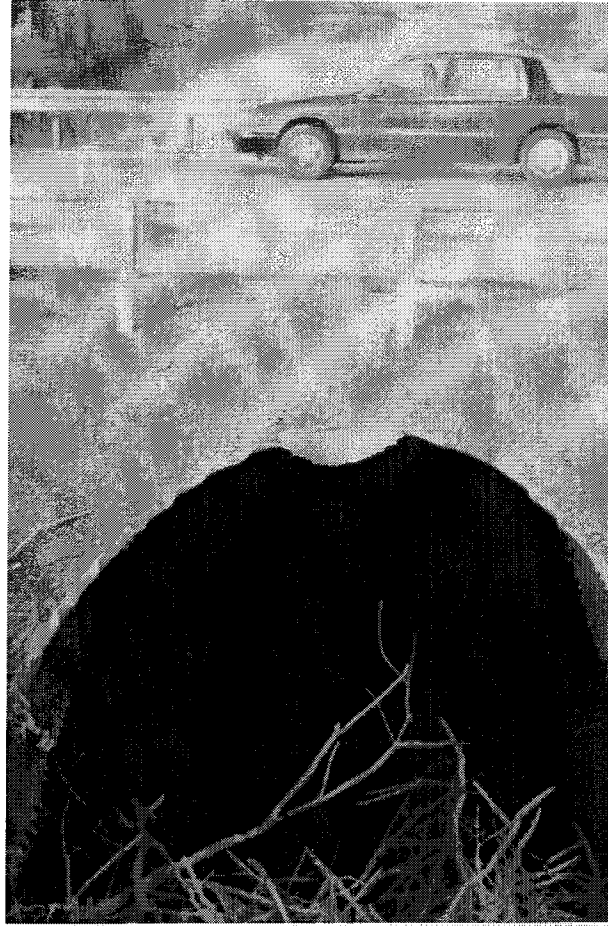
Horizontal and Vertical Alignments

VT 78 is extremely flat within the project limits. The profile is largely controlled by the adjacent railroad and river gradients. There is one location close to the cemetery near the eastern project limit where the vertical alignment is of minor concern, however the profile is adequate for the design speed.

The horizontal roadway curvature is sufficient for the design speeds throughout the project. It is recognized that this roadway is subjected to fairly harsh weather conditions. In the winter, blowing snow is commonplace, and in any season the lake can cause foggy conditions. At the Alternatives Presentation meeting it was questioned whether the curves could be improved to reduce the winter hazards. It was noted that the design standards that dictate minimum curvatures take into account an average of surface conditions. It appears that the existing superelevation is deficient in some areas, possibly due to years of resurfacing as well as subgrade subsidence. Since inadequate superelevation can contribute to loss of control on slippery pavement, it may be less costly and disruptive to fix the superelevation deficiencies rather than straighten the curves.

Drainage

There is no curbing within the project, and as a result, the roadway runoff is allowed to flow off the sides of the pavement. Much of the roadway is elevated above the surrounding ground so the water either flows overland away from the road or it collects in drainage swales that run along the bottom of the embankment. Most of the storm runoff eventually finds its way to adjacent wetlands or the river. There are a number of culverts under VT 78 that allow the drainage that collects in the swales along the south side to flow to the river and wetlands on the north side. It is believed that these culverts also provide some degree of equalization between the river and the flat land south of VT 78 during river flooding.



There is a 14 foot span steel multi-plate culvert under VT 78 at Charcoal Creek (MM 2.0). The structure was built in 1975 and a VAOT rating was performed in 1993. The results of that rating were that the structure is in relatively good condition. The rating report predicted that the structure has a remaining life of 40 years. It should be noted that the rating system only considers the structure's condition and whether there has been any scour or slope erosion. It does not consider whether the structure is still hydraulically adequate. A hydraulic study has not been performed as part of this scoping effort, however it is noted that the original 1937 culvert was a 10 foot span, and the surrounding areas have not been urbanized to the extent that flows would have been expected to increase.

Sight Distance

The flat profile and reasonably shallow horizontal curves provide very good sight distances for the majority of the project.

Intermodal

VT 78 is on the National Highway System and is therefore a critical route for the transportation of goods and services. Commercial bus routes travel VT 78 daily providing service throughout Northern Vermont, Northern New York and Canada.

Through observations and discussions with local representatives it appears that bicycle traffic is nearly nonexistent along the project. This is in large part due to the hazardous conditions presented to cyclists by the lack of paved shoulders, high vehicle speeds and the high percentage of trucks. There are currently no sidewalks or pedestrian paths within the project. This is not to say that bicycle demand does not exist on this route. The lack of alternate east-west roadways would likely place this route along the desire lines of a good number of touring and recreational cyclists. VT 78 would provide important regional bicycle connectivity, and the attractive natural surroundings would make it a very enticing route as well. It is likely that the National Wildlife Refuge and Lake Champlain would become frequent local destination for a number of cyclists from both Alburg and Swanton. VT 78 in Alburg has paved shoulders, and portions of US 2 through Grand Isle are also "bicycle friendly". The section of VT 78 being studied is an apparent missing link in the local and regional bicycle network.

Alternate Routes

At the request of ANR and representatives of other agencies, a study was conducted on whether it would be productive and feasible to improve alternative routes such that the improvements to this stretch of VT 78 would not be needed. Three "traffic diversion" alternative routes were examined. These included a route from Montreal to I-89 in Highgate, US 2 from Alburg to Chimney Corners, and I-87 in NY to the ferry at Plattsburg to I-89 in Chimney Corners. Origin /destination data was utilized in the study, as well as information from various sources involved with the trucking industry. The results were conclusive that an effective and feasible diversion alternative does not exist that would relieve traffic on VT 78 to the extent that the envisioned safety improvements would not be required. The contents of that study are included as Appendix A.

Accidents:

The accident data provided by the VAOT Traffic Research Section for the years 1991 through 1995 listed 36 accidents with 30 injuries and 2 fatalities. It should also be noted that accident data for the year 1996 has not yet been provided, but Town officials have indicated that there have been at least 2 additional fatalities during 1996.

An analysis of the accident data shows that segments of VT 78 within this project are categorized as high accident locations based on number of accidents per million vehicle miles for the period. Copies of the actual accident reports were obtained for the study period, and a tabular summary of the information furnished in those reports is enclosed. The following is a tally of the types and causes of accidents that were reported.

Accident types:

Head on	2	Rollover	7
Sideswipe, Opp. Dir.	1	Hit Guardrail	1
Rear End	4	Hit Tree	4
Turning Opp. Dir.	1	Hit Utility Pole	2
Turning Same Dir.	6	Pedestrian	1
Broadside	6	Other	3

Accident Causes and Major Contributing Factors :

Excessive Speed:	8	Roadway Conditions	3
Failure to Yield R.O.W.	7	Avoided Other Vehicle	2
Left of Center	3	Defective Vehicle	1
Alcohol	3	Animal in Road	1
Following Too Close	4	Driver Illness	1
Improper Passing	4	Attempted Suicide	1
Careless and Negligent	4	Other (pedestrian)	1

In studying these accident reports it is not possible to say with certainty which accidents would have been prevented by improving the roadway width to NHS standards. It is, however, possible to generalize about how increased roadway width would reduce the likelihood of certain types of accidents.

Accidents where motorists had no room to avoid other vehicles would likely benefit most from the addition of shoulders, as would accidents where motorists lost control of their vehicles and left the pavement. Paved shoulders provide far better recovery space than no shoulders.

Approximately 15 accidents occurred at intersecting roadways or driveways. At these locations there were usually rear end, broadside, or turning accidents. Added roadway width might have helped in a few of these instances since shoulders often provide improved sight lines to and from the side streets. Shoulders would also add more lateral room on VT 78 for accident avoidance. Some of the rear end accidents might have been avoided if the overtaking vehicle had a paved shoulder to escape to.

The 7 rollovers are also noteworthy. These were generally due to excessive speed, alcohol, and failure to yield right-of-way. The narrow roadway and steep unprotected embankments may have contributed to the rollover condition in a few of these cases. One of the police statements from a rollover accident indicated "There is very little shoulder in the area of the accident which leaves less room for driver error."

Excessive speed was listed as the most frequent accident cause. In a few cases this meant excessive for the conditions, such as ice and snow, but the majority were motorists who were not operating within the speed limit. Adding shoulders would not do anything to slow vehicles down. In fact, perceptible increases in traveling speeds are expected if the roadway width, condition, and clear zone are improved. It is expected that the dangers associated with the increased speeds will be offset by the added safety due to the addition of the shoulders. It has also been noted by local representatives that speed enforcement by police is difficult along this corridor because the lack of shoulders makes it very unsafe to pull vehicles over. The best way to deal with excessive speed is to enforce the speed limits, and providing safe shoulders for the police to perform enforcement operations would assist in making this possible.

A 1992 Federal Highway Administration publication titled "Safety Effectiveness of Highway Design Features" gives useful information on the amount of accident rate reduction that can be expected for incremental increases in travel lane and shoulder widths. The following observations were made for two lane rural highways:

Percentage of Accident Reduction for Lane Widening Only
(for accidents related to lane width such as head-on, sideswipe, run off road, etc.)

<u>Amount of Lane Widening</u>	<u>Percent Reduction in Accidents</u>
1'	12%
2'	23%
3'	32%

The lane widths on VT 78 vary from 10' to 12', so the amount of widening would likely be 0' to 2'

Percentage of Accident Reduction for Shoulder Widening Only
(for accidents related to lane width such as head-on, sideswipe, run off road, etc.)

<u>Amount of Shoulder Widening</u>	<u>Percent Reduction in Accidents</u>	
	<u>(paved/unpaved)</u>	
2'	16%	13%
4'	29%	25%
6'	40%	35%
8'	49%	43%

From the above it can be seen that the 8' shoulders that VT 78 would receive under Federal standards would be expected to result in a substantial reduction in width related accidents. Even the 6' shoulder widening is of substantial benefit. Note that VT 78 currently has minimal paved or unpaved shoulders.

Traffic Information

The VAOT supplied traffic volume information is as follows:

	<u>1997</u>	<u>2017</u>
Average Daily Traffic :	4,170	5,730
Design Hour Volume :	570	755
% Trucks (Peak Hour)	9%	11.0%
Average Daily Truck Traffic :	605 (14.5%)	990 (17.3%)

This information was derived from traffic counts in November of 1994, and regional growth factors were applied. Roadway Classification: Principal Arterial - National Highway System

A Level of Service (LOS) analysis was performed using the above traffic data. The analysis was performed on both the existing roadway cross section and three upgrade cross sections.

<u>Cross Section</u>	<u>1997 LOS</u>	<u>2017 LOS</u>
1'-11'-11'-1 (existing)	D	D
4'-12'-12'-4'	C	D
6'-12'-12'-6'	C	D
8'-12'-12'-12'	C	D

Level of service is used as an indicator of how well a transportation facility is handling traffic, more specifically, it is a measure of expected delay. The best possible result is LOS A, where the roadway has ample capacity to handle traffic, and there are no delays. The low end of the scale is LOS F, where the facility does not have adequate capacity and delays are excessive. LOS C is considered fair, and LOS D for a roadway segment is generally acceptable. In the case of VT 78, delays within the project are not expected because the capacity of the intersections within the village and within Swanton will tend to be the limiting factors on how many vehicles will be able to feed onto VT 78 for a given time period. It should be clearly understood that the above information is provided for background purposes, and that the intent of this project is to address safety concerns, not to add capacity.

These figures indicate that traffic volumes on VT 78 are moderately high for rural two lane highways, and the 14.5% truck traffic percentage is also considered high.

VT 78 ACCIDENT SUMMARY

1991 thru 1995

#	VAOT Seq. #	Mile	Direction		Intersect.	Date	Time	Weather	Vehicles				Driver's Address		Accident Type											Accident Cause or Major Contributing Factor												Misc.							
			East	West					Cars	Trucks	Injuries	Fatalities	Driver 1	Driver 2	Head On	Sideswipe Opp. Dir.	Rear End	Turning Opp. Dir.	Turning Same Dir.	Broadside	Roll Over	Hit Guardrail	Hit Tree	Hit Utility Pole	Pedestrian	Other	Excessive Speed	Alcohol	Left of Center	Improper Passing	Following Too Close	Failure to Yield ROW	Careless & Negligent	Defective Vehicle	Roadway Conditions	Animal in Road	Attempted Suicide		Driver Illness	Avoided Other Vehicle	Other	Rest In Marsh or River			
1	3722	0.49	1		1	8/27/91	2100	clear	2		2		Florida	Burlington			1												1													1			
2	2617	0.50	1		1	6/20/92	1200	cloudy	2		1		Quebec	Swanton								1																				1			
3	811	1.09	1		1	2/3/91	800	clear	2				St Albans	Alburg					1																										
4	3306	1.18	1			8/19/92	1700	cloudy	2				Swanton	Windsor, CT														1																	
5	3890	1.98	1		1	9/14/94	1500	clear	1	1	1		Alburg	Winooski					1									1																	
6	2413	1.98	1		1	6/4/93	2200	clear	2				St Albans	Champlain, NY					1																										
7	362	1.98	1		1	9/19/94	1600	cloudy	2		1		Alburg	Quebec																															
8	2162	1.98	1		1	5/19/92	1800	clear	2		1		Swanton	Swanton					1																										
9	759	2.48		1		1/31/92	1600	snow	1		1		Alburg									1																							
10	4082	2.53		1		10/16/93	1400	cloudy	1		2		Alburg								1																								
11	3596	2.70		1		12/1/95	1100	snow	1	1	1		Swanton	Quebec					1																										
12	93	2.90	1			11/26/95	1900	clear	1			2	Isle Lamotte, VT																																
13	2312	3.00	1			5/19/91	1600	clear	1		1		Swanton																															1	
14	2264	3.00		1		5/31/92	100	cloudy	1		1		Alburg	Ontario																															
15	2568	3.87	1			6/6/91	500	clear	1	1	1		Swanton								1																								
16	4918	4.20		1		12/10/92	1000	cloudy	2				St Albans	Champlain, NY																															
17	5071	4.40		1		12/1/92	1500	rain	1	1	1		Alburg	Fairfield, VT																															
18	2758	4.56		1		7/1/93	1100	clear	2		2		Herman, NY	Moers, NY																															
19	3152	4.95		1		8/9/94	1600	cloudy	1		2		Montreal																														1		
20	1335	4.96	1			2/9/92	1600	cloudy	1				Isle Lamotte, VT																																
21	3212	5.10		1		6/25/91	1400	clear	1		1		Swanton																																
22	4734	5.17		1		11/13/92	1600	clear	2		1		Alburg	Quebec																															
23	3972	5.37		1		11/22/95	1300	clear		2			Alburg	Colchester, VT																															
24	4471	5.60		1	1	10/21/91	1100	clear	2		1		Alburg	Ontario																															
25	3754	5.61		1	1	9/19/92	1600	clear	2				MA	Essex Jct., VT																															
26	1238	5.80		1		3/2/91	1000	rain	2				Highgate	Swanton																															
27	5224	5.80	1			11/20/91	100	cloudy	1		2		Highgate																																
28	3971	5.84	1	1		9/7/91	1700	cloudy	2		2		Burlington	Swanton																															
29	3020	5.90		1		7/7/94	1800	rain	2	1			Northfield, VT	Alburg / Swanton																															
30	1248	5.90		1		1/17/94	1600	snow	2				Montreal	Franklin, VT																															
31	688	5.90		1		2/9/94	1600	snow		2			Enosburg, VT	Highgate, VT																															
32	1202	5.90	1		1	3/16/94	1700	sleet	1	1	1		St. Albans	Swanton																															
33	2694	6.12		1		5/28/91	1500	clear	1		1		Fairfield, VT																																
34	3695	6.22		1		8/27/92	1200	cloudy	2		1		Rouses Point, NY	S. Richford, VT																															
35	1239	6.25		1		3/2/91	1500	rain	2				Swanton	Alburg																															
36	4961	6.32	1			11/28/92	2300	cloudy	2		2		Swanton	Isle Lamotte, VT																															
			16	21	10				53	10	30	2																																3	0

RESOURCES INFORMATION

Following is a description of the environmental and cultural information that has been collected and assessed to date on this project. It is recognized that additional study will be required in some of these and related areas in order to compile a more complete inventory of existing resources. An initial listing of additional studies is contained within the detailed recommendations section of this report.

Historic

A review of this area performed by The Burley Partnership, Inc. concludes that VT 78 contains only three structures of any historical significance. These include:

- The railroad track that follows the southern edge of the corridor,
- The cemetery near the village line,
- The small one room school house near the intersection of VT 78 and Church Road.

The report by Burley concludes that the project will not impact any of these known historic features. See Appendix B for the Historic Resources Report.

Archaeological

A preliminary Phase IA archaeological assessment of the study area was performed by The Archaeological Consulting Team, Inc. Their report is included as Appendix C. Based on the current settlement model developed by the Vermont Division for Historic Preservation (VDHP), the study area is highly archaeologically sensitive for early Native American sites, and has been identified as being potentially sensitive for European American Sites. This is due in part to the study area's proximity to Lake Champlain and the Missisquoi River.

The recommendation of The Archaeological Consulting Team, Inc. is to conduct a phase IA level archaeological site sensitivity study within the proposed project area prior to construction activities.

Visual

An analysis of existing visual resources was conducted in September of 1997 by Dunn Associates. This report, which is contained as Appendix D, references mile markers in its characterization of the visual resources within the project corridor.

The report concludes that based on the degree of intactness, uniqueness, and diversity, many of the views along this corridor should be considered highly significant. The report goes on to note that opportunities for viewing these landscapes from other than passing vehicles are available, and may increase as improvements are made to the corridor.

4(f)/6(f) Properties

Under Section 4(f) of the Department of Transportation Act, publicly-owned parks and recreation areas, wildlife or waterfowl refuges, and historic sites can not be impacted by federally funded highway projects unless there is no feasible or prudent alternative to such use of the land. In the project area the Missisquoi Wildlife Refuge would be classified as a 4(f) property and proposed impacts to it would require the preparation of a formal Section 4(f) Evaluation. This document would describe the alternatives analysis which was performed and would identify the mitigation which is proposed for any impacts.

Under Section 6(f) of the Land and Water Conservation Fund Act, money is provided through the National Park Service to public parks and recreation areas for improvements. There are no such properties listed within the project area.

Rare, Threatened and Endangered Species and Significant Habitat Types

Information on rare, threatened and endangered species was obtained from the Vermont Agency of Natural Resources (VANR) Nongame and Natural Heritage Program. There are four known occurrences of such species in the immediate vicinity of the project corridor (Town of Swanton Significant Habitat Map, 1997, VT Dept. Fish & Wildlife). In the area of Charcoal Creek there are three known occurrences: the Red-headed woodpecker (*Melanerpes erythrocephalus*) - state status of special concern (SC); the black tern (*Chlidonias niger*) -state status of threatened (T); and the lance leaved loostetrife (*Lysimachia hybrida*) - no federal or state status but which is ranked very rare (S1). The fourth record is for the Eastern sand darter (*Etheostoma pellucidum*) - state threatened (T) - at the confluence of Dead Creek with the Missisquoi River. Additional records of state rare, threatened or endangered species exist in the vicinity of the project area (see *List of Rare, Threatened and Endangered Species and Significant Natural Communities for the Missisquoi Delta Area*, September 1997; Appendix D, *Environmental Resource Inventory Report*, VHB, November 1997). Discussions with Everett Marshall, VANR, indicate that the additional point locations shown on the Significant Habitat Map may represent ranges or general areas where the species occurs. In particular, several riverine species including fish, reptile and mussel species may be more widespread. Rare marsh-nesting birds such as the sora (*Porzana carolina*) and pied-billed grebe (*Podilymbus podiceps*) are likely found in emergent marsh habitat scattered throughout the refuge. Therefore all of the listed species of plants and animals can be assumed to occur in sufficient proximity to the Route 78 corridor to be of concern and will require further study.

There are three significant habitat or natural community types located in the project area (Town of Swanton Significant Habitat Map, 1997, VT Dept. of Fish & Wildlife). A Deep Rush Marsh is identified on the Significant Habitat Maps as being south of Route 78 on the Missisquoi Refuge. This community type is characterized by water depths greater than 6 inches and typically dominated by species of *Scirpus* but also frequently having pickerel weed (*Pontederia cordata*), wild rice (*Zizania aquatica*) or burreed (*Sparganium spp.*). A Floodplain Forest is shown as occurring within the Refuge north of Route 78. This latter type is typically dominated by silver maple (*Acer saccharinum*). Field work conducted by VHB in the summer of 1997 suggests that both community types may be more wide spread and lie along the highway itself. A Pitch Pine

Bog is also listed for the project area, though none was observed during the on-site investigations immediately adjacent to VT 78.

The Significant Habitat Map (1997) also indicates a deer wintering area north of Route 78 and the Missisquoi River and west of Dead Creek. Because of its location away from the highway it is not likely to be affected by the project.

With the exception of occasional transient bald eagles (*Haliaeetus leucocephalus*) or peregrine falcons (*Falco peregrinus*), there are no federally-listed or proposed threatened and endangered species known to occur in the project area (M. Barlett, US Fish and Wildlife Service, letter dated September 25, 1997).

Fisheries and Wildlife Resources

Information on the fisheries and wildlife resources in the project area was obtained from the Missisquoi Wildlife Refuge. The most common fish species from a public fishery standpoint are walleye (*Stizostedion vitreum*), northern pike (*Esox lucius*), brown bullhead (*Ameiurus nebulosus*), and yellow perch (*Perca flavescens*) (*Fishing on the Missisquoi Delta*, US Fish and Wildlife Service, 1995). Other species include burbot (*Lota lota*), grass carp (*Ctenopharyngodon idella*), white catfish (*Ameiurus catus*), bowfin (*Amia calva*), white sucker (*Catostomus commersoni*), redhorse sucker (*Moxostoma carinatum*), American eel (*Anguilla rostrata*), chain pickerel (*Esox niger*), muskellunge (*Esox masquinongy*), sheepshead (*Archosargus probatocephalus*), black crappie (*Pomoxis nigromaculatus*), longnose gar (*Lepisosteus osseus*), pumpkin seed (*Lepomis gibbosus*), smallmouth bass (*Micropterus dolomieu*), largemouth bass (*Micropterus salmoides*), rock bass (*Ambloplites rupestris*) and land-locked Atlantic salmon (*Salmo salar sebago*).

No existing sources of information on amphibian or reptile species for the project area have been found to date. Discussions with Marc Ferguson of the Vermont ANR indicate that the provision of amphibian or reptile passages (i.e., tunnels or culverts) under the highway to mitigate for mortality during migratory movements is an issue which will need to be addressed. VAOT has indicated that this will be considered later in the project development.

A total of 200 species of birds and 35 species of mammals have been identified on the Missisquoi Wildlife Refuge and the surrounding area (*Birds Missisquoi National Wildlife Refuge*, US Fish and Wildlife Service, 1993; *Mammals*, *ibid*, 1995). Waterbirds including herons, ducks, geese, sandpipers and plovers provide the greatest diversity of bird species because of the predominance of wetland and deep water habitats. The mix of field, shrub and upland habitats interspersed with the wetland types also promotes a high diversity of song birds.

The most frequently observed mammal species in the vicinity of the project area are white-tailed deer (*Odocoileus virginianus*), muskrat (*Ondatra zibethicus*), raccoon (*Procyon lotor*), red squirrel (*Tamiasciurus hudsonicus*) and gray squirrel (*Sciurus carolinensis*). Other common but less frequently observed species include the white-footed mouse (*Peromyscus leucopus*), meadow vole (*Microtus pennsylvanicus*), woodchuck (*Marmota monax*), and beaver (*Castor canadensis*). Signs observed during VHB's field work in the summer of 1997 also suggest that coyotes (*Canis latrans*) are very common. Provision for the passage of mammal species under the highway was also identified as an issue during scoping for this project (M. Ferguson, Vermont ANR, pers. com.), and this item should be addressed during final design.

Wetlands

Wetlands within the project area include both palustrine and riverine systems (*Classification of Wetlands and Deepwater Habitats of the United States*, US Fish and Wildlife Service, Cowardin et al., 1979). The most common types are wooded swamps (scrub/shrub and forested wetlands) and emergent marsh. During the summer of 1997 VHB conducted functional evaluations of all wetlands potentially affected by the project (*Environmental Resource Inventory Report - Transportation Improvements VT Route 78, NH 036-1(9) SC*, VHB, October 1997). Since many of the wetlands evaluated were within the Missisquoi Wildlife Refuge and are actively managed to maximize wildlife production, wildlife habitat was an important or principle value function common to the majority of wetlands. Other important functions performed by the wetlands included fish and shellfish habitat, floodflow alteration (flood storage), sediment /toxicant retention, nutrient removal, and aesthetics. Depending on the availability of public access within the Refuge, recreation and education/scientific value were also considered important values.

The Vermont Wetland Rules (Title 10 VSA Chapter 37 Section 905 (7)) identify three classes of wetlands. Class I and II wetlands are considered "significant wetlands" requiring specific levels of protection under the Rules. There are no Class I wetlands within the project area. Class II wetlands do exist within the project area and include those shown on the National Wetland Inventory maps and those wetlands contiguous to those shown. Further field work and detailed mapping will be necessary to determine which wetlands are in fact contiguous with the mapped wetlands. All other wetlands in the project area are Class III and are not under the protection of the Rules. These latter wetlands do fall under the jurisdiction of the Army Corps of Engineers, however.

Mitigation for impacts to existing wetlands will follow a sequential approach of avoidance, minimization and mitigation. Potential sites for compensatory mitigation including wetland restoration, enhancement, creation or preservation have not been identified under this scoping process, but will be during subsequent phases of project development.





LOCAL CONCERNS

A Local Concerns meeting was held on February 4, 1997, at the Swanton Town Offices as part of the Swanton Selectboard meeting. The meeting notes and a list of attendees may be found in Appendix E. The objectives of the meeting were to introduce the project, explain the scoping process, and to solicit input from the local officials, residents, business owners, the regional planner, and agency representatives on their concerns relative to the study area. Based on the information that was gathered at the Local Concerns meeting, the project Purpose and Need Statement was developed (see page 2). The local concerns are listed as follows and are more fully explained in the notes from the meeting:

- Narrow Roadway Width
- High Vehicle Speeds
- High Accident Rate
- High Percentage of Trucks
- Roadside Hazards
- Flooding
- Bicycle Use
- Proximity of Railroad Tracks
- Recreational Access and Practices
- Minimization of Impacts from Roadway Improvements
- Maintenance

ALTERNATIVE - A : DO NOTHING / CONTINUE REGULAR MAINTENANCE

This alternative leaves the roadway in its current condition, and it assumes that normal maintenance would continue.

Advantages :

- Low initial Costs,
- No new direct social or environmental impacts.

Disadvantages :

This alternative does not satisfy the purpose and need statement for this project. The following needs would not be addressed:

- Motorist safety. This is the primary reason for considering this project.
- Bicyclist and pedestrian access and safety.
- Roadway condition.

It is noted above that there are no new direct environmental impacts associated with the do nothing alternative. There may be indirect impacts however. The narrow pavement width, lack of shoulders, and steep roadside embankments all contribute to the incidence of vehicles unintentionally leaving the roadway. There are no statistics on how often vehicles leave the road since this occurrence probably goes unreported the majority of the time because it generally does not result in injuries or damage above \$4,000. During VHB's field investigations in the resource areas there were numerous locations where it was apparent that vehicles had unintentionally left the roadway and gone down embankments into resource areas. Conversations with local residents confirmed that this type of occurrence is common. The potential therefore exists for significant environmental damage to localized ecosystems as well as downstream environments if such an accident results in the discharge of hazardous materials. With the high volume of trucks using this route, the probability that a cargo of hazardous materials will someday be involved should not be discounted .

ALTERNATIVE - B: ROADWAY WIDENING - ON LINE

This alternative primarily involves widening the existing pavement about the existing VT 78 centerline. The widening essentially amounts to adding paved shoulders which are absent from the majority of the existing roadway. The proposed travel lanes would be 3.6m (12') wide and the proposed paved shoulders would be 1.8m (6') wide in the vicinity of resource areas, and 2.4m (8') wide in most other areas. The Federal (and Vermont) design standards that would normally be used on an NHS roadway of this type specify the use of 2.4m (8') shoulders. A design exception must be sought to provide shoulders less than 2.4m wide in the resource areas.

Advantages :

This alternative satisfies the purpose and need. It is expected that the proposed widening would significantly reduce accidents. Guardrail would also be employed where necessary to reduce the clear zone hazards that currently exist.

Disadvantages :

This alternative severely impacts the Missisquoi River and the Railroad. This is because the widening would occur about the existing roadway centerline without regard or adjustment for adjacent features. Along with the river bank, the mature trees that line the river would also be destroyed. The segments where the railroad bed is very close to VT 78 would be problematic because it would be difficult to maintain proper drainage ditches between the road and the railroad. In addition, the roadway improvements would likely encroach onto the railroad right-of-way. The impacts to the river and the railroad are considered limiting.

Alternative - C : roadway widening - modified geometry

This alternative is similar to Alternative B in that VT 78 would be widened to achieve the desired travel lane and shoulder widths of 3.6m (12') and 1.8m (6') respectively. This alternative differs from Alternative B in that the proposed centerline will be shifted off of the existing centerline in areas where it is desirable to avoid or minimize certain impacts. The segment along the Missisquoi River is a primary example where the roadway would be shifted to avoid or minimize impacts. In that area, the roadway will be shifted such that the river bank will not be severely impacted and the majority of the trees will be saved. The second primary shift will occur where the widening toward the railroad would otherwise be prohibitive. In that segment the roadway will be shifted to account for drainage and clear zone concerns between the railroad and VT 78.

It is understood that during final design the alignment may need to be further refined to minimize impacts. This will be possible only after further environmental studies are conducted so the sensitivity of impacted areas can be fully evaluated. It should also be noted that the final paved shoulder widths may be reduced further in non-guardrail sections during final design to discourage speeding. This reduction in paved width would only be accomplished with an equal increase in unpaved level granular shoulder width such that the overall shoulder width still meets the 1.8m (6') minimum.

Minor vertical geometry modifications are envisioned. These would include a minor raising of the roadway profile in the vicinity of Charcoal Creek in order to reduce roadway flooding. This would technically be required since the roadway is on the NHS, but the potential flooding impacts to upstream properties should first be evaluated.

Advantages :

This alternative satisfies the project purpose and need. It is expected that the proposed widening would significantly reduce accidents. The proposed shifts in alignment make this

alternative more feasible than Alternative B since the types of impacts are less severe. This is especially true along the river.

Disadvantages :

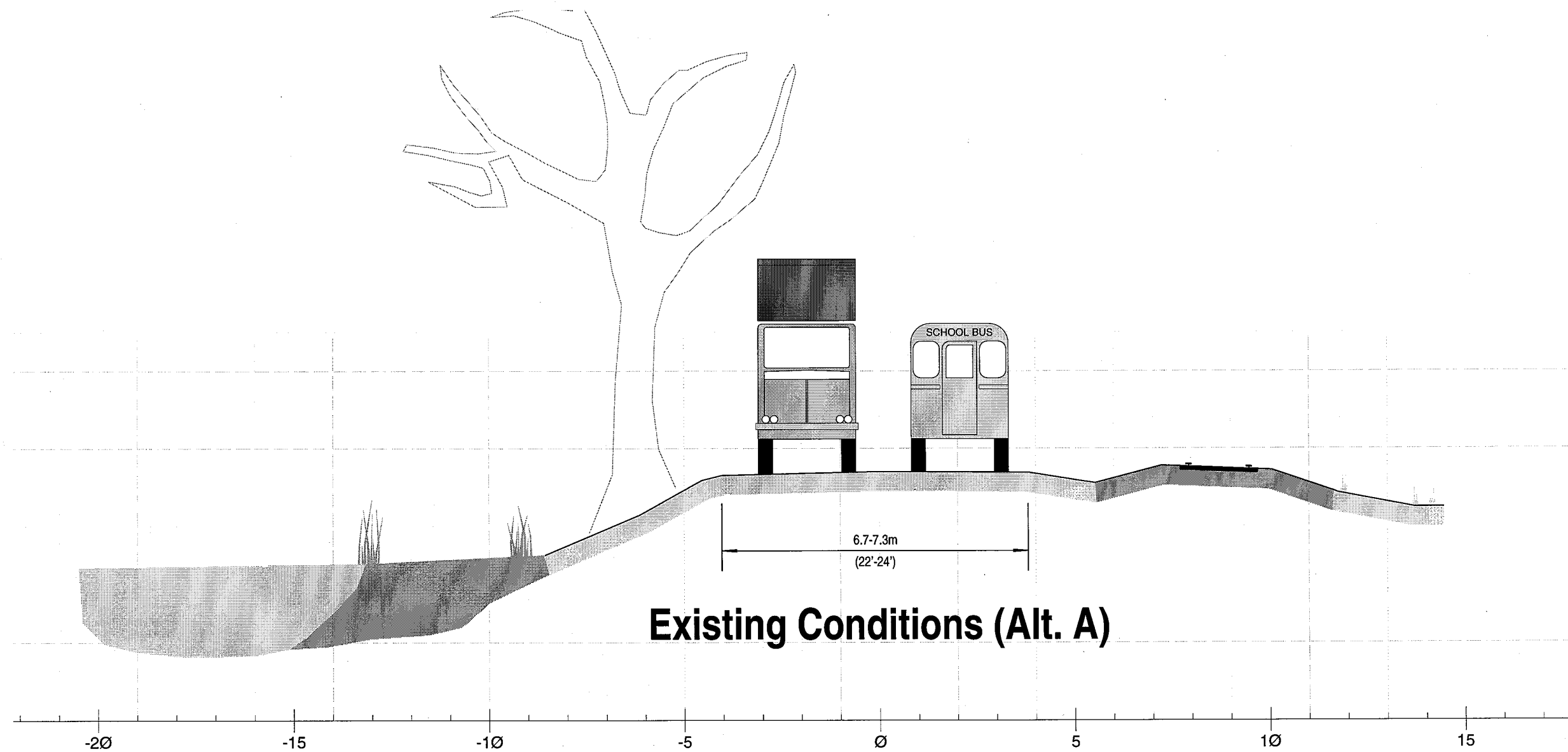
Both alternatives B and C will impact environmental resource areas as well as National Wildlife Refuge property. Alternative C will be slightly more expensive to construct than alternative B, primarily due to the realignment of the roadway.

TYPICAL SECTIONS

The following three pages illustrate typical standard cross sections for the three alternatives being considered. The first typical section shows Alternative A, the No Build Alternative which is essentially the existing condition. The two build alternatives are then compared for their treatments beside the railroad and along the river.

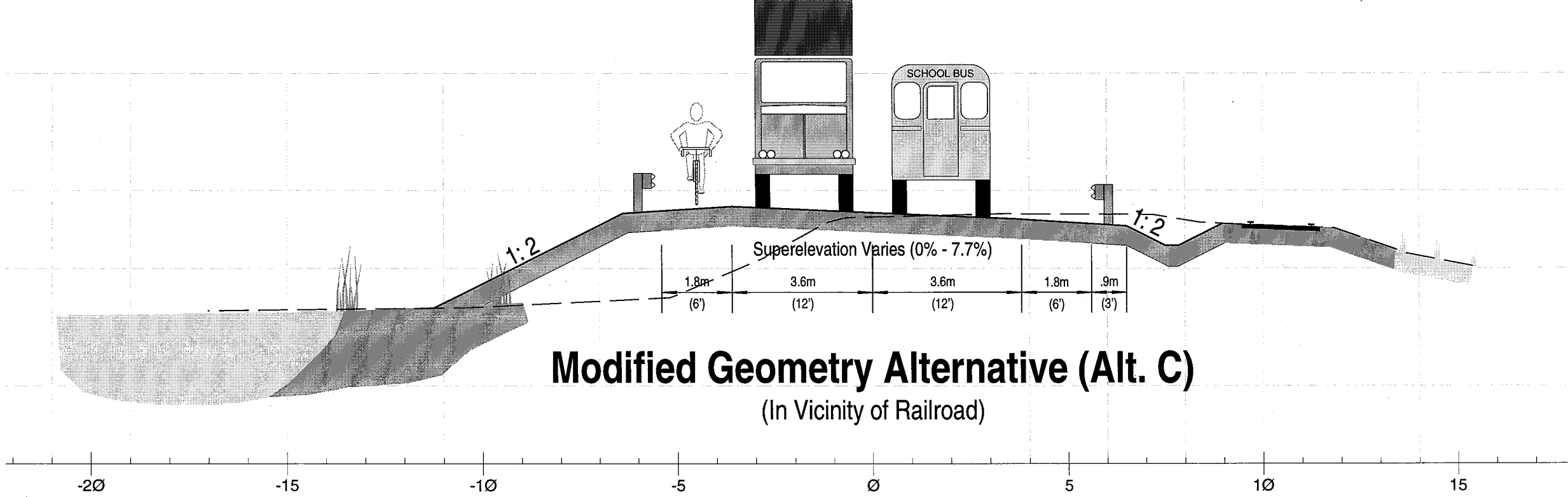
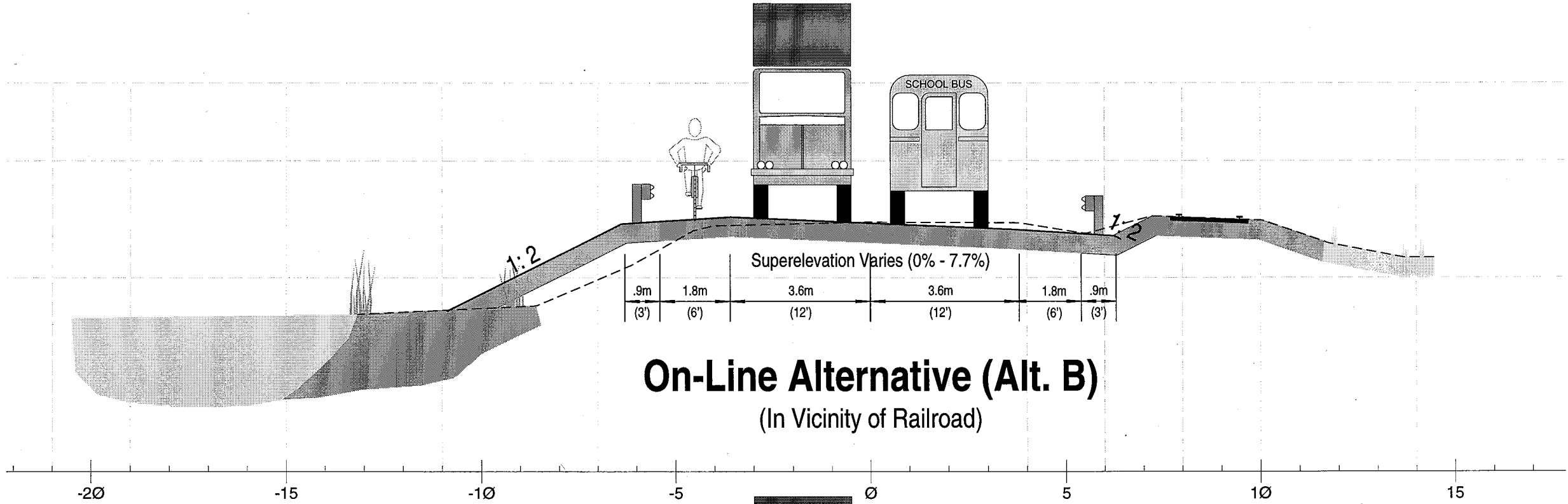
Typical Cross Sections

VT 78
Swanton, Vermont



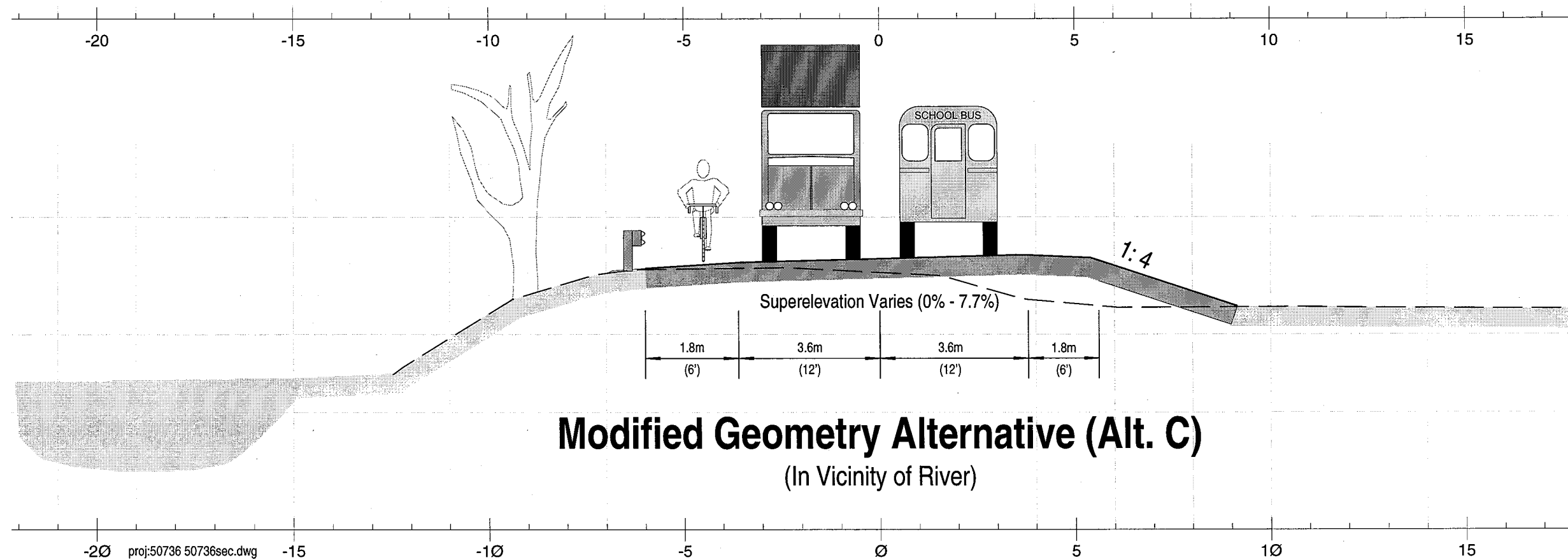
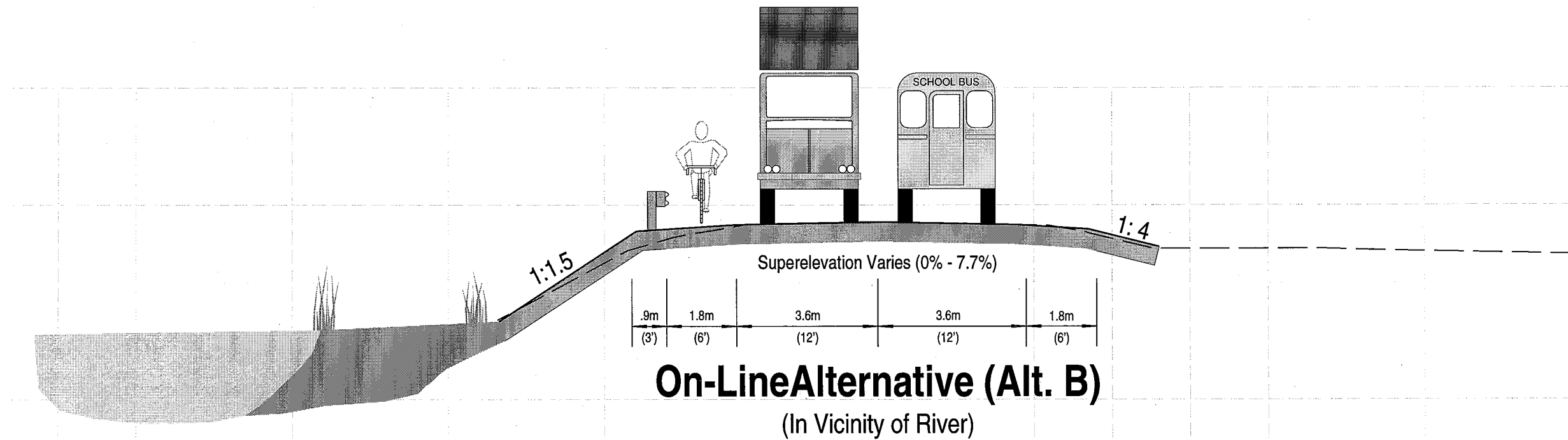
Typical Cross Sections

VT 78
Swanton, Vermont



Typical Cross Sections

VT 78
Swanton, Vermont



INTRODUCTION

The application of the standard typical sections shown on the preceding pages will result in a variety of impacts to adjacent resources. The close proximity of the resource areas to the existing roadway make avoidance impossible if the desired improvements are to be accomplished. As a result, minimization of impacts must be pursued. The VAOT has expressed a commitment to pursue impact reduction options during subsequent phases of the design. The impacts that have been estimated thus far for the two build alternatives should be considered a conservative starting point, and it is expected that the implementation of innovative design and construction techniques will result in measurable reductions in the impacts. The following are some of the impact reduction options that may be applicable:

Slope Retention Systems

In order to reduce the footprint of the improvements, without reducing the proposed paved widths, it will be necessary to retain and/or steepen the roadway embankments. A variety of methods are available to reduce slope impacts. For this project they may include:

- rip-rap to stabilize slopes steeper than 1:2
- concrete or stone masonry retaining walls
- stone gabion walls
- sheet piling

These systems generally result in lower permanent impacts than simple fill slopes, and they are generally accomplished at considerable cost. One subtle benefit of constructing slope retaining systems is that it may be possible to refine the roadway alignment to further reduce resource area impacts. This would be an expected outcome in the areas adjacent to the railroad where decreasing the separation distance between the track and the roadway through the use of retaining systems would allow the road to be shifted away from the Wildlife Refuge.

Guardrail

The use of highway guardrail along significant portions of the project is envisioned since steep slopes and slope retaining systems will require slope protection. The Vermont standard guardrail has steel rails and steel posts. Concern has been expressed over the impacts to the visual resources. VAOT has agreed to pursue alternative, more aesthetically acceptable, guardrail for this project. There have been examples in other instances where steel backed wooden guardrail has provided a pleasing alternative to the standard steel guardrail. This improvement for the sake of visual resources impact mitigation would certainly add to initial and maintenance costs.

Wildlife Crossings

VAOT has agreed to provide wildlife crossings to the extent practical to provide a means for certain types of wildlife to cross VT 78 without harm. Further study will be necessary to determine the need, but it is expected that these crossings would be in the form of culverts beneath the roadway, and they would most likely serve amphibians and rodents. During recent field visits, evidence of coyotes using the existing cross culverts under VT 78 was also observed.

Incorporation of Wildlife Refuge Master Plan

VAOT has strongly expressed a desire to pursue a collaborative process with the US Fish & Wildlife Service such that the VT 78 design incorporates elements of the Wildlife Refuge master plan. This is seen as an opportunity to enhance the public's access to the Wildlife Refuge.

Flexibility in Design

The above resource impact reduction options illustrate the VAOT's commitment to be responsive to the needs of the natural resources in the area, and it is apparent that a certain amount of design flexibility may be employed in the spirit of the Vermont design standards, and within Federal guidelines.

Wetland Impacts & Evaluation Matrix

WETLANDS IMPACTS						
ALTERNATIVE C : MODIFIED GEOMETRY ALTERNATIVE						
LEFT SIDE						
START Sta.	END Sta.	WETLAND #	AREA (Sq M)	HECTARES	AREA (SF)	AREA (Acres)
21+012	21+032	1 LT	8.2	0.001	88	0.002
21+046	21+178	2LT	484.2	0.048	5,211	0.120
21+255	21+377	3LT	297.4	0.030	3,202	0.073
21+404	21+486	5LT	324.8	0.032	3,496	0.080
21+510	21+540	6LT	51.1	0.005	550	0.013
21+569	21+924	7LT	1,298.3	0.130	13,974	0.321
22+217	22+326	9LT	302.8	0.030	3,260	0.075
22+366	22+491	10LT	461.1	0.046	4,963	0.114
23+094	23+126	13LT	58.8	0.006	632	0.015
23+318	23+340	14LT	91.9	0.009	989	0.023
23+464	25+116*	15LT	7,548.2	0.755	81,249	1.865
23+797	24+002	16LT	1,239.9	0.124	13,346	0.306
26+622	26+708	17LT	31.9	0.003	343	0.008
28+612	28+613	18LT	4.8	0.000	52	0.001
29+168	29+173	19LT	6.3	0.001	68	0.002
* impact not contiguous						
Left Side Total:			12,210	1.2	131,423	3.0
RIGHT SIDE						
START Sta.	END Sta.	WETLAND #	AREA (Sq. M)	HECTARES	AREA (SF)	AREA (Acres)
21+006	21+214	1RT	244.5	0.024	2,632	0.060
21+271	21+477	2RT	459.5	0.046	4,946	0.114
21+520	21+937	3RT	915.4	0.092	9,854	0.226
21+967	22+002	4RT	38.4	0.004	413	0.009
22+121	22+493	5RT	963.8	0.096	10,375	0.238
22+728	22+760	6RT	49.7	0.005	535	0.012
22+816	22+818	7RT	3.9	0.000	42	0.001
22+869	22+906	8RT	53.8	0.005	579	0.013
23+071	23+140	9RT	199.1	0.020	2,143	0.049
24+780	24+984	10RT	637.3	0.064	6,860	0.157
28+608	28+613	13RT	7.8	0.001	84	0.002
28+669	28+700	14RT	149.3	0.015	1,607	0.037
29+083	29+086	15RT	6.1	0.001	66	0.002
29+139	29+172	16RT	84.5	0.008	910	0.021
29+355	29+370	17RT	15.6	0.002	168	0.004
29+519	29+669	21RT	215.4	0.022	2,318	0.053
30+310	30+315	22RT	4.8	0.000	52	0.001
Right Side Total:			4,049	0.4	43,582	1.0
Project Totals=			16,258	1.6	175,005.4	4.0

EVALUATION MATRIX - VT 78 in Swanton				
The following evaluation matrix contains a list of all potential issues and concerns with all possibly affected parties who may have a concern with a proposed alternative. (A "No" in a space indicates that there are no concerns, impacts or permits required, and a "Yes" indicates that there is concern associated with the alternative, or a permit is required.)				
NH 036-1(9)SC		Alternative A	Alternative B	Alternative C
		Do Nothing	Widen VT 78 On Existing Alignment	Widen VT 78 Modified Geometry
COST	Roadway	\$0	\$3,473,442	\$3,822,098
	Structure	\$0	\$0	\$0
	Temporary Structure	\$0	\$0	\$0
	Traffic and Safety	\$0	\$100,000	\$100,000
	Construction Subtotal =	\$0	\$3,573,442	\$3,922,098
	Prelim. Engineering (12%)	\$0	\$428,813	\$470,652
	Right of Way Acquisition	\$0	To be Determined	To be Determined
	C. E. + Conting. (15%)	\$0	\$536,016	\$588,315
	ROUNDED TOTALS * =	\$0	\$4,538,000	\$4,981,000
	ENGINEERING	Traffic Safety	No Change	Improved
Alignment Change		No	None	Minor
Bicycle Access		No Change	Improved	Improved
Hydraulic Performance		No Change	Improved	Improved
Utility		No Change	No Change	No Change
IMPACTS		Agricultural Lands : Soils :	No	Yes
	Active Farmland :	No	Yes	Yes
	Archaeological	No	Yes	Yes
	Historic Structures, Sites, and Districts	No	No	No
	Hazardous Materials	No	No	No
	Floodplain	No	Yes	Yes
	Fish & Wildlife	No	Yes	Yes
	- Deer Wintering Areas	No	No	No
	Rare, Threatened & Endangered Species	No	Possible	Possible
	Public Lands 4(f)	No	Yes	Yes
	LWCF - Section 6(f)	No	No	No
	Noise	No Change	No Change	No Change
	Wetlands	No	0.95 Ha., 2.35 Ac.	1.63 Ha., 4.02 Ac.
LOCAL & REGIONAL ISSUES	Addresses Concerns	No	Partially	Yes
	Community Character	No	No	No
	Economic Impacts	No	No	No
	Conformance to Regional Transportation Plan	No	Yes	Yes
	Satisfies Purpose and Need Statement	No	Partially	Yes
PERMITS	Act 250	No	Yes	Yes
	401 Water Quality	No	Yes	Yes
	404 COE Permit	No	Nationwide	Nationwide
	Stream Alteration	No	Yes	No
	Conditional Use Determination	No	Yes	Yes
	Storm Water Discharge	No	No	No
	Lakes & Ponds	No	Yes	Yes
	T & E Species	No	Yes	Yes
	SHPO	No	No	No
	NEPA : Categorical Excl.	Yes	Yes	Yes
	OTHER	Land Acquisition	No	2.17 Ha., 5.36 Ac.

* Total Costs do not include Right of Way costs at this time.

ALTERNATIVES PRESENTATION MEETING

On October 21, 1997 a presentation of the three alternatives being considered was made to the State, local and regional representatives at the Swanton Central School. This meeting was intended to demonstrate how the information that was gathered at the Local Concerns Meeting has been interpreted and addressed.

Two build alternatives were presented at the meeting. These consisted of Alternative B: Widen VT 78 - On Line, and Alternative C: Widen VT 78 - Modified Geometry. The traffic diversion alternative study, which may be found in Apendix A, was also explained at the meeting.

Meeting notes from the Alternatives Presentation Meeting may be found in Appendix E.

Following the presentation of alternatives, as well as a public comment period, the Selectboard conducted a vote on a preferred alternative. The attendees overwhelmingly endorsed Alternative C, and support for the project was strong.

A copy of the Town of Swanton Selectboard's endorsement letter appears at the right. A copy of a similar endorsement from the Northwest Regional Planning Commission's Traffic Advisory Committee is included in Appendix F - Relevant Correspondence.

TOWN OF SWANTON

P.O. BOX 711
SWANTON, VERMONT 05488

Tel. (802) 868-4421

October 29, 1997

Mr. Christopher Magnan
Project Manager
Vermont Agency of Transportation
Local Transportation Facilities
133 State Street
Montpelier, VT 05633

Re: VT 78 Safety Improvement Project

Dear Mr. Magnan:

The Selectboard would like to thank you for your October 21, 1997, presentation of VT 78 improvement alternatives. We were very relieved to learn that the environmental agencies found your arguments to not seek alternate improvement corridors to be convincing, and we wholeheartedly support your efforts to complete this scoping phase of the project.

Your presentation included two alternatives within the existing VT 78 corridor. The first alternative proposes to widen the roadway about the existing centerline. The second alternative proposes widening the roadway to include 12 ft lanes and 6 ft shoulders, but it also includes minor shifts in alignment to reduce impacts to the Missisquoi National Wildlife Refuge and the Missisquoi River. Following your presentation, a show of hands by those in attendance indicated overwhelming support for the second alternative.

Please allow this letter to serve as formal endorsement by the Swanton Selectboard for the improvements described under the second alternative. Though there were comments from the audience at the meeting about traffic issues within the Village, the Selectboard remains focused on expediting the VT 78 project, and will do everything in our power to help make this important safety improvement project a reality.

Sincerely,

Earl Fournier, Chairman
Swanton Town Selectboard

INTRODUCTION

The alternative that is recommended herein is established by evaluating all factors associated with the project in relation to the objectives of the Purpose and Need Statement. The factors that are considered in selecting a recommended alternative include public benefit (safety), cost, local concerns, and impacts to private property, environmental resources and historic resources.

RECOMMENDED ALTERNATIVE :

Alternative C: Widen VT 78 - Modified Geometry

This alternative satisfies the project purpose and need and is selected because of the following:

1. This alternative has been formally endorsed by the Town of Swanton Selectboard following the Alternatives Presentation Meeting.
2. This alternative improves safety, primarily by adding pavement width, while modifying the alignment to reduce impacts to environmental resources and to avoid roadside features such as the railroad tracks and the mature trees along the river bank.

Detailed Summary of Recommendations:

The following is a detailed listing of recommendations to accompany the preferred alternative:

Cross Section:

- Travel Lanes:
3.6m (12') throughout. The high truck volumes and the travel speeds are not compatible with narrower travel lanes.
- Shoulders:
1.8m to 2.4m (6' to 8') paved. The 1.8m shoulders are proposed for the vast majority of the project, especially where it is desirable to reduce the cross section width to minimize impacts to resource areas. The 2.4m shoulders are intended for the approach to the proposed Missisquoi Bay Bridge, and possibly at some of the intersecting roadways where

lateral clearance and sight lines are important. The 1.8m width is significant because it represents the minimum width that a stopped vehicle can reasonably occupy without intruding into the adjacent travel lane. It is also build to this width for traffic management during future maintenance operations, and it also allows easier and safer speed limit enforcement by law authorities.



The above photo was taken on a recently improved section of US 2 through the Sand Bar Wildlife Area near Chimney Corner. That section of roadway has 3.6m (12') travel lanes and 1.8m (6') shoulders, as are proposed for most of VT 78.

It should be stressed that the travel lane and shoulder widths discussed herein are those that are recommended at this point in time, and it is fully expected that during the final design and permitting process these widths may fall under additional scrutiny by both FHWA and concerned environmental resource agencies. The assumptions made in setting the above widths are based on both sound engineering judgment and sensitivity to the project surroundings. It is felt that for this stage of project development these assumptions are appropriate for setting a conservative footprint of the planned improvements.



Note that the sport utility vehicle in the above photo fills the 1.8m (6 foot) paved shoulder on US 2, but it remains safely out of the travel lanes. Maintaining at least this minimum width will be critical on segments of VT 78 which require guardrail to protect against steep embankments or other roadside hazards like those shown in the photo of VT 78 at the right. The section of US 2 through the Sandbar Wildlife Area in the above photo is useful in illustrating the pavement section that is proposed for VT 78, and a trip through that corridor is encouraged for those that have the opportunity.

- **Embankments:**

1:2 slopes (1 vertical to 2 horizontal) or steeper with guardrail in areas of resource impacts. Side slopes steeper than 1:2 may be attainable through the use of earth retaining systems such as gabions, retaining walls, reinforced earth walls, and sheet piling. It is recommended that reductions in wetland impacts be sought through these retaining measures as opposed to reductions in pavement width since the latter tends to compromise the safety enhancements that the project is trying to achieve.

Slopes flatter than 1:2 may be used, some without guardrail, where impacts to resources are avoided and impacts to individual properties are minimal.

- **Design exception:**

This stretch of VT 78 is designated as part of the National Highway System (NHS). The Vermont State Standards are identical to the AASHTO guidelines for this classification of highway. Both standards call for a typical section with 3.6m (12') travel lanes and 2.4m (8') paved shoulders. A design exception will therefore be required for the proposed 1.8m (6') shoulders. The design exception should be applied for at such time that there appears to be concurrence by the applicable state and federal environmental reviewing agencies that the width is acceptable.

Clear Zone /Guardrail:

The use of steep embankment slopes adjacent to the roadway will require the installation of significant lengths of highway guardrail. Guardrail will also be required in areas where



hazards exist within the roadway clear zone. Examples of this include the mature trees along the river which are to remain, as well as the river itself as shown in the previous photo.

It is recognized that the installation of large amounts of new guardrail will have an impact on the visual character of the roadway. This is the unfortunate tradeoff that is necessary if wetland impacts are to be minimized through the use of steep fill slopes. It is recommended that all known crash tested guardrail types be compared on a cost vs. aesthetics basis during final design. As an example, there is information available from the Oregon Department of Transportation on steel backed wood rail guardrail that presents an attractive alternative to Vermont's standard steel rail with steel posts.

Signing:

Signing along the corridor is somewhat sparse. Given the great open spaces and adequate sight distances, caution is advised against over signing for aesthetic reasons. Certain signing improvements are recommended however. It has been noted that a high percentage of accidents occur at side streets. One theory for this is that there are so few side streets that motorists do not expect other vehicles to be stopping, turning or entering until it is too late to avoid them. It is felt that properly placed warning signs at all of the side streets, as well as identifying signs at any attractions such as the Wildlife Refuge entrances, boat ramps, and turn outs, would be beneficial.

Profile Modifications:

It is recommended that the reported seasonal flooding of VT 78 be studied further during final design to determine the impacts of raising the roadway to prevent closure due to flooding. The low area in the vicinity of Lois' Landing was identified as an area of flooding by VAOT maintenance personnel. In order to raise the roadway surface above the 50 year flood elevation it is necessary to raise the profile between one and two feet in that area. The concern with this is that the roadway may hold back sufficient volumes of water to create worse than normal flooding to residences further upstream. In recognition of the NHS status of VT 78 it is

recommended that the road be raised to keep it open during such flooding, but it is also recommended that solutions such as large diameter equalization culverts beneath the road be investigated. It may even be necessary to protect or acquire the affected residences if the flood waters can not be equalized since the FHWA may determine that guaranteeing mobility is paramount.

Further Environmental Studies:

In the summer of 1997 the VT 78 project was presented to a joint meeting of various environmental agencies in an effort to inform them of the improvements being considered, as well as to become familiar with their individual concerns. It became obvious from this meeting that environmental studies beyond those that were included in the scoping contract would be required. The primary environmental study effort that has taken place to date included wetlands delineation with an assessment of wetland functions and values, performed by VHB, and included in the accompanying report dated October, 1997. Data has also been included from ANR staff on the threatened and endangered plant and animal species that are likely to exist in the vicinity of the project.

It is recommended that further studies be completed to more fully understand the existing resources, and to more completely evaluate the potential impacts of the proposed VT 78 improvements. The studies should identify the current use of the areas adjacent to the road for such aspects as habitat, feeding, reproduction, and migration of waterfowl, furbearers, and amphibians. It is recommended that provisions be included in final design for providing animal passages under the roadway as necessary according to the results of the studies that are conducted. Studies of certain threatened shellfish may also be required in the vicinity of large culverts such as at Charcoal creek. A more complete description of ANR's initial inventory recommendations may be found in the enclosed September 11, 1997 letter from the ANR regulatory Review Coordinator, Gina Campoli, to John Narowski of VAOT. It is recommended that continued coordination take place with the applicable regulatory agencies when advancing additional environmental inventory programs.

Project Coordination:

There are two known projects that warrant coordination during the VT 78 project development. These are:

- **Missisquoi Bay Bridge Replacement:**

This project will affect the final alignment of VT 78 at the eastern end of the causeway. There must also be coordination of schedules between the two projects during construction since both projects will introduce a certain amount of traffic disruption.

- **Missisquoi National Wildlife Refuge master plan:**

It has been reported that such a master plan is forthcoming. It is suspected that certain enhancements to the refuge may be planned adjacent to the roadway. Examples of this may include improved recreational access points as well as parking facilities. These enhancements would best be planned in concert with the final design and permitting of the VT 78 improvements, and the converse is also true .

The photo at the right is of a recent enhancement project that was constructed along the Missisquoi River. The project included a new boat ramp (shown), paved parking, rest rooms, and handicap accessible river overlook.



Funding:

At this time it is anticipated that this project will be funded by 80% Federal funds, and 20% State funds.

Regulatory and Permitting Process

Project development for the proposed VT 78 safety improvement project consists of engineering studies and project design; studies to determine specific degree of environmental impacts related to the engineering features; studies to determine the degree of impact reduction possible by changing engineering features; preparation of reports that document unavoidable impacts and finally permit preparation, application, and right-of-way acquisition.

The upgrade of 10 kilometers of VT 78 will be funded in part with federal funds (i.e. is a "federal action") which requires that the project be reviewed subject to the National Environmental Policy Act (NEPA). The Federal Highway Administration (FHWA) reviews appropriate project documentation for compliance with NEPA regulations. Project Development proceeds through identification and quantification of environmental constraints. Coordination of Interagency reviews at the state and federal level are accomplished. Public informational hearings are also planned to obtain public comment. This information and feedback allows the development of project constraints and identification of the Least Environmentally Damaging and Preferred Alternative (LEDPA). When the LEDPA is determined and the level of proposed impacts become more defined, development and preparation of environmental permits can begin.

Conceptual and preliminary project engineering design is developed concurrently with the environmental studies and information gathering phase of project development. NEPA documentation is begun at the conceptual stage (project definition) and permitting is generally begun during preliminary design and concluded with semi-final plan completion. FHWA review of the NEPA documentation is generally completed at this time. The Project Development Process diagram (which follows page 27) illustrates permitting as it exists within the project development process. The scope of environmental permits that may be required for this project, based upon current knowledge of the project, can be divided into state and federal jurisdictions. It should be noted that there exists an overlap of federal and state jurisdictions for some resources.

FEDERAL PERMITS:

National Environmental Policy Act of 1969 (NEPA)

NEPA requires the Federal Highway Administration (FHWA) to consider all environmental impacts for federally funded projects. Environmental issues may include air, noise and water quality; wetlands; water bodies; wildlife; floodplains; Threatened & Endangered species; historic and archaeological resources; social impacts; aesthetics etc. Based upon current information from meetings with the FHWA, resource agencies and the Vermont Agency of Transportation, a Categorical Exclusion will be prepared to satisfy the requirements found in 23 CFR Part 771. The VAOT's Categorical Exclusion Environmental Analysis Form will be utilized in the preparation of the document.

Categorical Exclusion documentation begins during the resource identification and review period in the Project Development Process, concurrently with the 4(f) review. Documentation begins with identification and review of all resources present on the project site. Resource agencies are contacted for comment on a conceptual basis and a list of project constraints can be developed and addressed early in the project.

Section 106 of the National Historic Preservation Act of 1966.

Section 106 involves the identification and protection of potentially significant historic and/or archaeological resources. Section 106 permits consist of documentation and preservation if a resource is identified and determined to be significant or if no resources are found the project is cleared ("clearance") from further investigation. Investigations and reviews of documentation by state (State Historic Preservation Office) and federal (Advisory Council on Historic Preservation) agencies begins during resource identification and review.

Section 4(f) of the Department of Transportation Act of 1966.

Section 4(f) protects lands including public parks, recreation areas, historic houses, structures and districts on or eligible for the National Register, etc. from transportation impacts. Section

4(f) prevents the “use” of public lands for transportation projects unless “there is no feasible and prudent alternative”. The Missisquoi National Wildlife Refuge represents a Section 4(f) land therefore a Determination of No Feasible and Prudent Alternative must be achieved before this land can be used for the project.

This study will be initiated during the resource identification and review phase of project development.

Section 404 of the Clean Water Act of 1972.

A Section 404 permit, administered by the Army Corps of Engineers (ACOE) regulates the discharge of dredged or fill material into waters of the United States. Two types of permits are issued which include General Permits and Individual Permits. General Permits are issued for minor projects with specific qualification requirements. An Individual Permit will be required for larger projects that do not meet the criteria of a general permit. Early indications are that an individual permit would apply to this project, but it is premature for a position on this as yet. ACOE representatives will be involved with the development of this project and will be consulted to determine the most appropriate permit coverage.

Section 404 permits are generally submitted later in the process due to the short life span of the permit however, submission should occur prior to semi-final plan submission.

Section 401 of the Clean Water Act of 1972

A Section 401 Water Quality Certification is required prior to issuance of a Section 404 permit. This certification is actually issued (or waived) by the Vermont Agency of Natural Resources (ANR) which assesses the project for water quality impacts. The certification usually requires the implementation of Best Management Practices (BMPs) to protect the quality of adjacent water resources.

A Section 401 Water Quality Certification is generally issued by the ANR as part of a Stream Alteration Permit, a Conditional Use Determination or Lakes and Ponds Permit.

STATE PERMITS:

Title 10 VSA Chapter 37 Section 905 (7) (Vermont Wetland Rules)

The Vermont Wetland Rules protect significant wetlands which are determined to be so significant that they merit protection under the Rules. Class I and Class II wetlands are significant wetlands which must be evaluated for wetland functions and values. A Vermont Agency of Natural Resources Water Quality Division (ANR) Wetlands Biologist will review a wetland to determine what functions the wetland provides. The Rules list certain activities in significant wetlands which are considered Allowed Uses. If the activity is not an Allowed Use then it is a Conditional Use and a Conditional Use Determination (CUD) is required. Conditional uses can occur within a significant wetland or within the buffer zone of that wetland. Meetings with the ANR early in the permitting process for informal reviews will allow identification of impacts requiring a CUD.

It is expected that a CUD application will be required for the project. Project impacts will be cumulatively considered under one application. Application will be made after preliminary plans are completed.

Title 10 VSA Chapter 41 Regulation of Stream Flow

This law protects all waters of the state and establishes the ANR as the certifying agency for the Section 401 Water Quality Certification that is required for obtaining Federal Section 404 permits. This permit is usually included with the CUD permit or a Stream Alteration Permit (SAP).

Consultation is required under Chapter 41 regulations when activities are proposed which alter or modify the course, current or cross-section of waters of the State. The Stream Alteration Permit process satisfies this requirement. The permit is obtained after preliminary plans are completed. The permit will be required for any work near Charcoal Creek or the Missisquoi River and will require the implementation of Best Management Practices (BMP's) to protect the water quality of the water ways.

Title 29 VSA Chapter 11 Section 403 and 404, Management of Lakes and Ponds

This law protects public waters and lands below mean water level. A Lakes and Ponds Permit is required from the Water Resources Board if construction is proposed below the mean water level of the associated water body. Both temporary and permanent impacts require a permit and documented proof that the encroachment will not adversely effect the public good. The mean water level of Lake Champlain within the vicinity of the project will be determined and areas subject to potential impact will be identified. This permit will be initiated during the preliminary resource area review.

Act 250 Land Use Development Law

This law was established to protect and conserve lands and valuable resources and insure that the States resources are utilized in ways that are not detrimental to the public interest. The state environmental board and district environmental commissions review and regulate the use of lands under Act 250. Act 250 permits are granted only after it has been determined that the project meets the 10 criteria found in the Act. For transportation projects, if the activities are determined to be normal maintenance activities or the area of impact is under 10 acres then the project is most likely to be exempt from Act 250 review. A determination of jurisdiction from the District Environmental Coordinator can be obtained to ensure compliance with the Act 250 review process.

The Act 250 review process is initiated with a determination of jurisdiction at the resource identification and review phase of project development.

Endangered Species Act of 1981

This law protects threatened and endangered plants and animals from development impacts. The Nongame and Natural Heritage Program supported by the Agency of Natural Resources Division of Fish and Wildlife maintains a data base of rare, threatened and endangered plants, animals and habitats in the state. If a threatened or endangered species is found within the project area a Threatened and Endangered Species (T&E) permit must be obtained prior to moving the plant or animal. The Route 78 corridor contains a number of rare, threatened or endangered species of plants, animals and habitats. An investigation and inventory of each known area may be performed to document the existence of the known occurrence and

determine a means for avoidance or minimization of project impact. The investigation will be coordinated through the Nongame and Natural Heritage Program and the U.S. Fish and Wildlife Service (USFWS). Initial coordination and investigations have begun and will continue as the project develops.

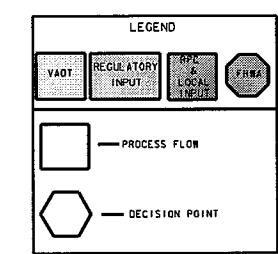
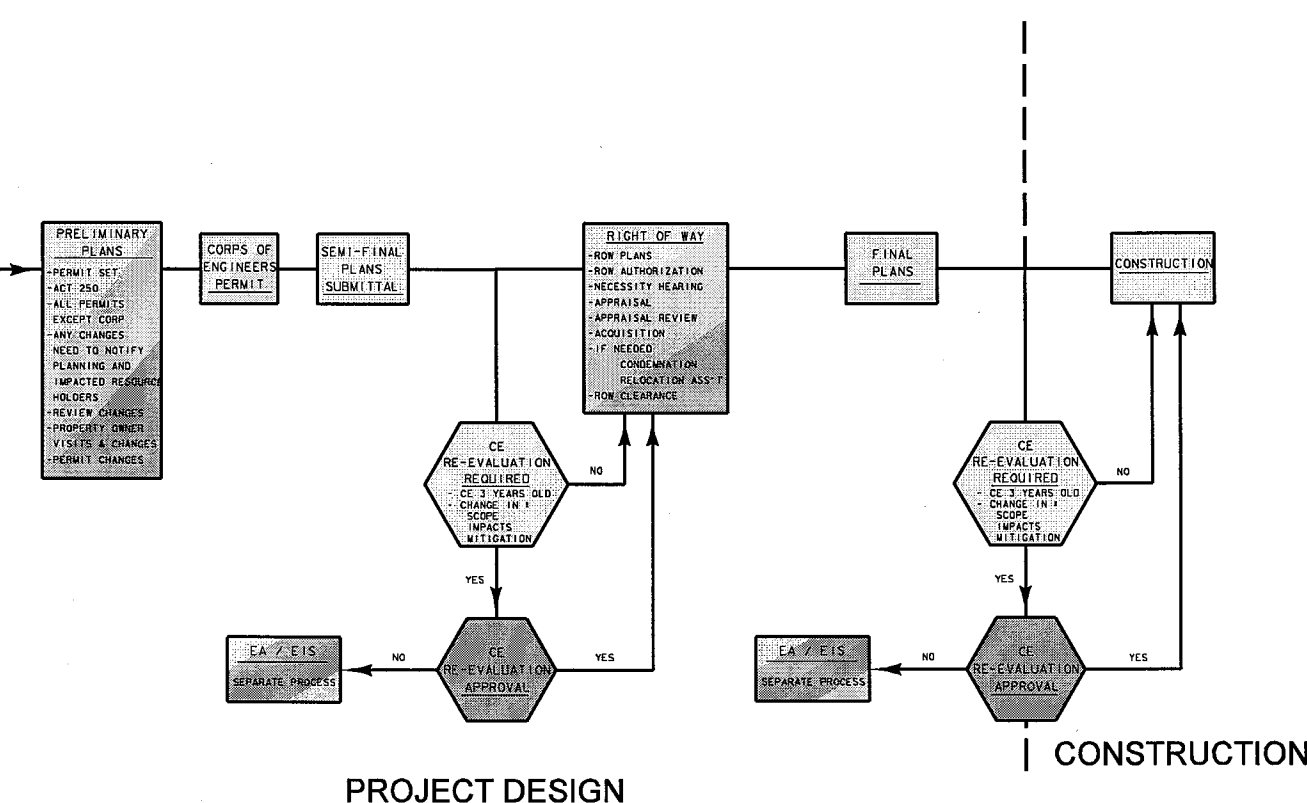
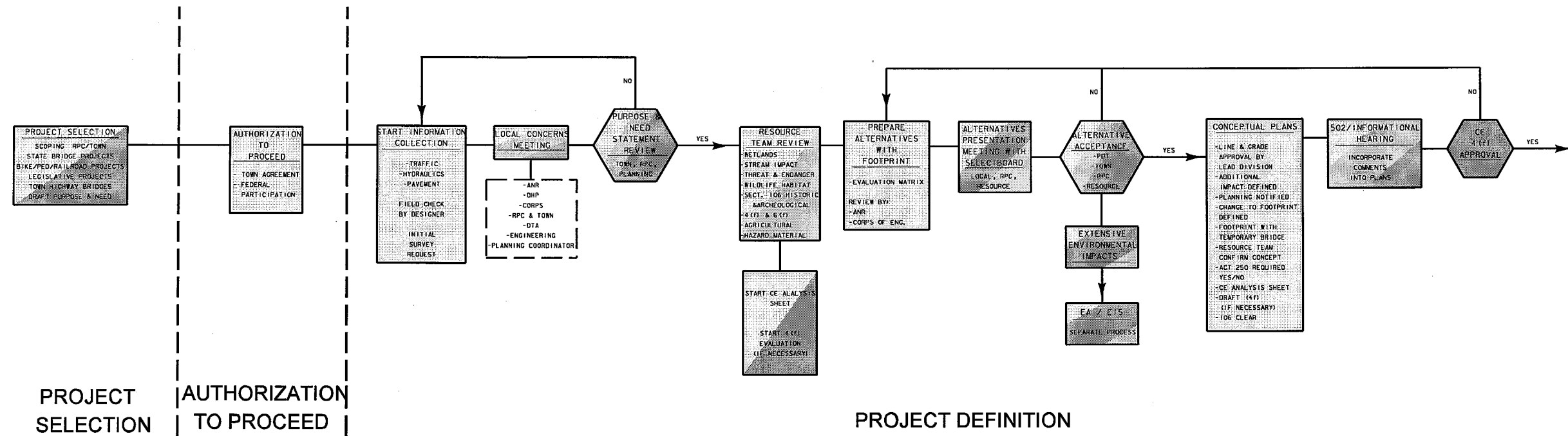
Executive Order No. 52-80, 3 VSA App. Chapter 3

This Order requires coordination with the Vermont Department of Agriculture Land Use Planner to minimize impacts to agricultural lands that are designated as Prime Agricultural Farmland. The Agriculture Land Use Planner has indicated minimal concern with impacts to Prime Agricultural Land for the current project concept.

Permitting for this project will begin with a review of all available resource data collected during field investigations (see Environmental Resource Inventory Report, Transportation Improvements, VT Route 78 NH 036-1(9) SC VHB, October 1997) and correspondence with resource agencies and meeting notes. Further progress in permitting and documentation will include preparation of the appropriate NEPA documentation. This is expected to include a Categorical Exclusion document, a Section 4(f) evaluation to identify the areas of use, and documentation and initiation of the Section 106 investigations of the project area. The project area has already been identified as an area of high archaeological sensitivity (Routes 2/78 Transportation Corridor Study, WAC, June, 1995). Further study of the rare, threatened and endangered species in the area may require systematic inventories of listed species to determine presence or absence within the project corridor. Additional coordination with the Nongame and Natural Heritage Program will occur as the project develops.

When the LEDPA has been agreed upon and preliminary plans are completed, the environmental permits will be prepared and submitted for the applicable state and federal permits.

PROJECT DEVELOPMENT PROCESS















PROJECT DEVELOPMENT PROCESS






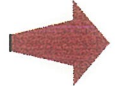





AGENCY OF TRANSPORTATION
PLANNING DIVISION
PROJECT DEVELOPMENT SECTION

DATE: JUNE 27, 1997

NOTE: STEPS IN PROCESS NOT SEQUENTIAL, CAN BE CONDUCTED CONCURRENTLY




Wetland I.D.	Total Acres	Impacted Acres	
			   
			   
			   
ES			




VHB

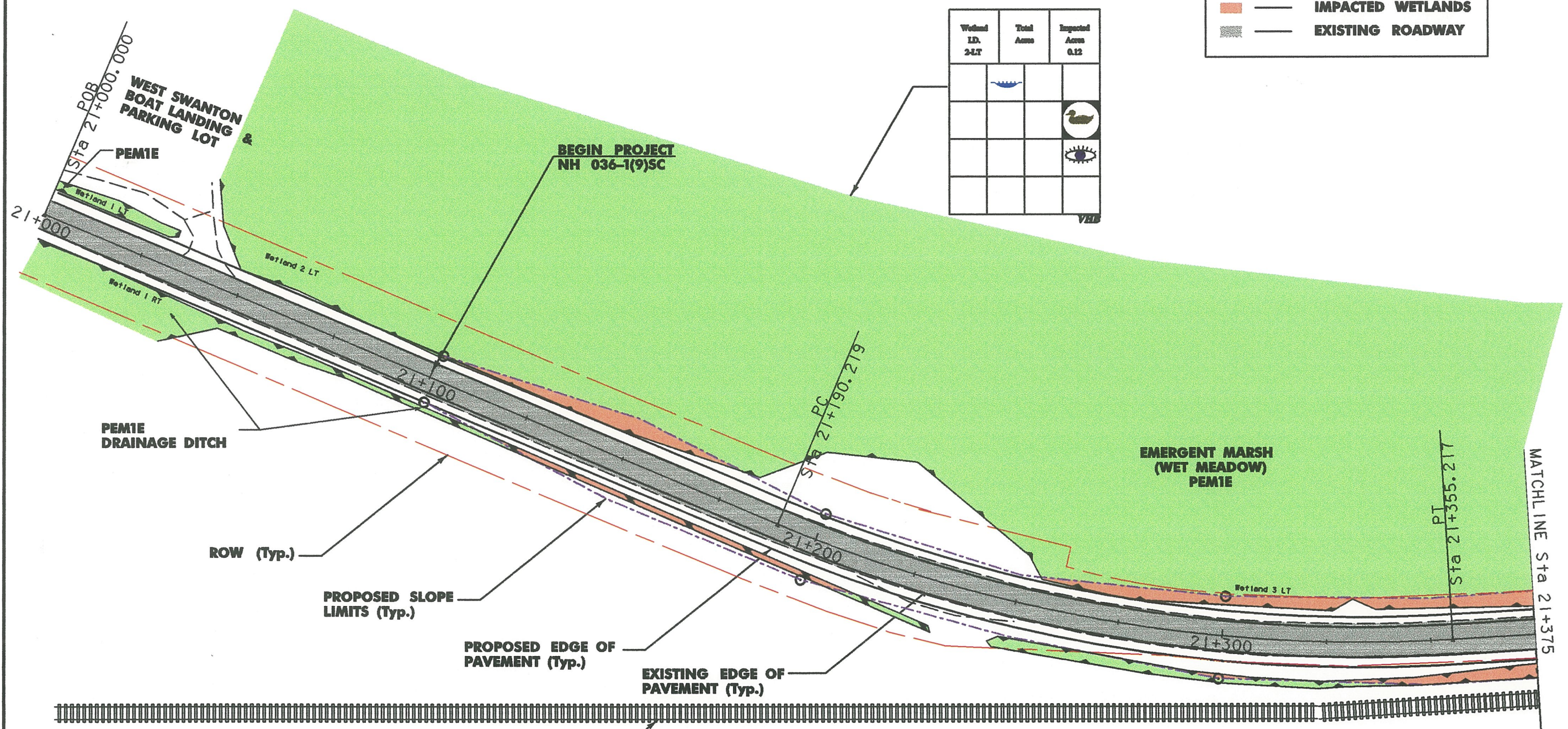
-  — Groundwater Recharge/Discharge
-  — Floodflow Alteration (Storage & Desynchronization)
-  — Fish and Shellfish Habitat
-  — Sediment/Toxicant Retention
-  — Nutrient Removal/Retention/Transformation
-  — Production Export (Nutrient)
-  — Recreation (Consumptive & Non-Consumptive)
-  — Education Scientific Value
-  — Uniqueness/Heritage
-  — Visual Quality/Aesthetics
-  — Indicates Principal Function or Value
- ES — Endangered Species

WETLANDS SYMBOLS LEGEND

KEY

	—	EXISTING WETLANDS
	—	IMPACTED WETLANDS
	—	EXISTING ROADWAY

Wetland ID	Total Area	Impacted Area
2-LT		0.12
		
		
		






ALTERNATIVE C






VHB Vanasse Hangen Brustlin, Inc.

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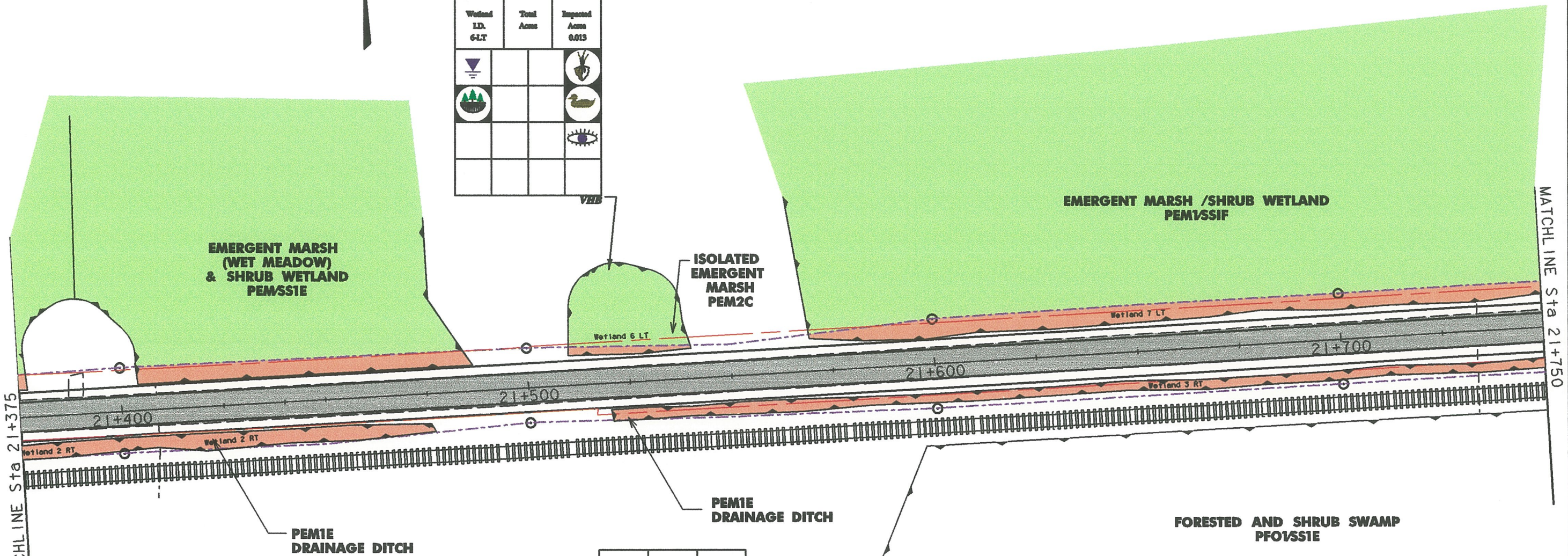
KEY




	—	EXISTING WETLANDS
	—	IMPACTED WETLANDS
	—	EXISTING ROADWAY



Wetland ID	Total Acres	Impacted Acres
6-LT		0.013
		
		
		

VHB



Wetland ID	Total Acres	Impacted Acres
3-RT		0.226
		
		

VHB



ALTERNATIVE C

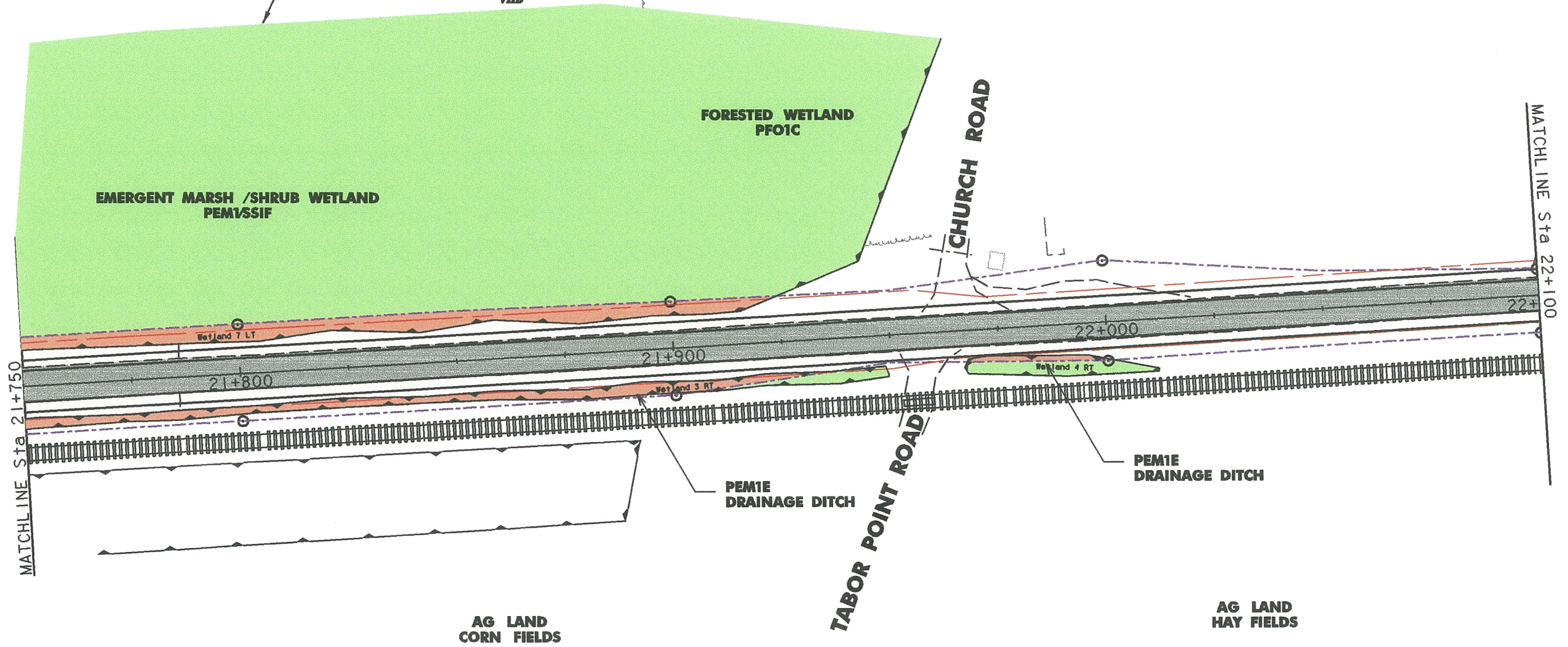
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SURVEYED BY:	DRAWN BY:
SQUAD LEADER:	SHEET: 2 OF 27
VHB PROJECT NO.: 50736	



Wetland ID: 7-LT	Total Area	Impacted Area 0.321


KEY	
	EXISTING WETLANDS
	IMPACTED WETLANDS
	EXISTING ROADWAY

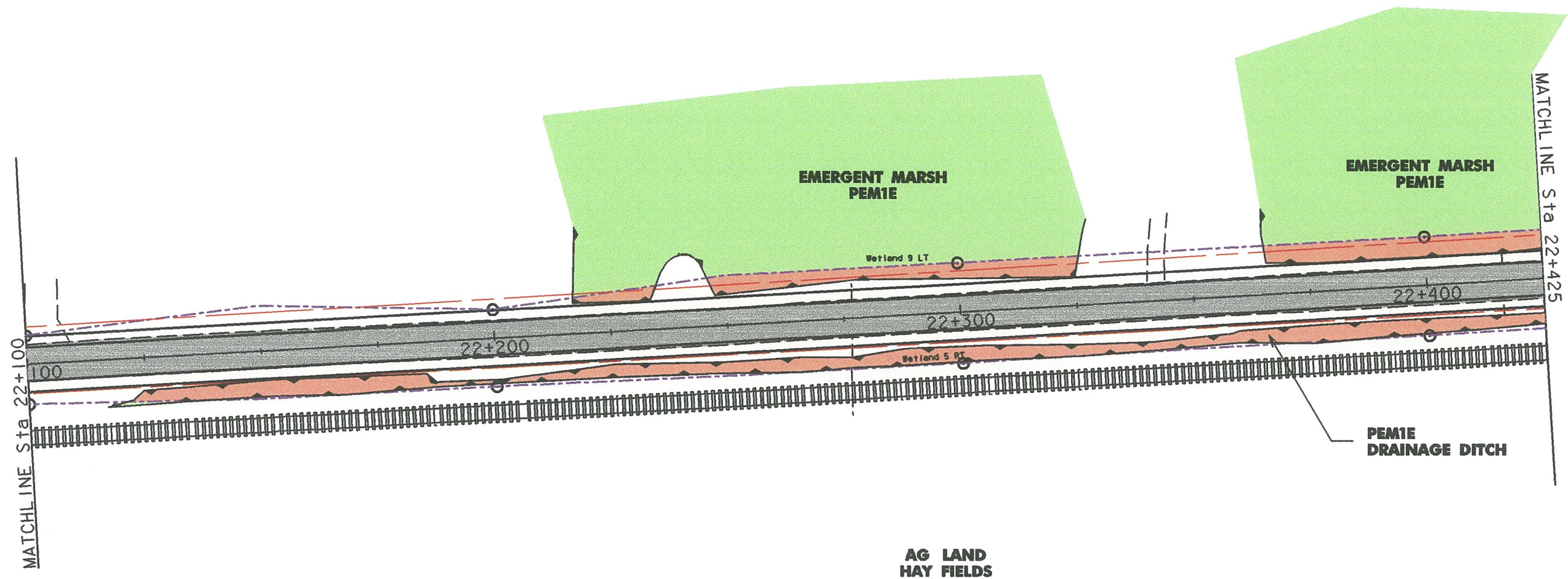


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VHB Vanasse Hangen Brustlin, Inc.

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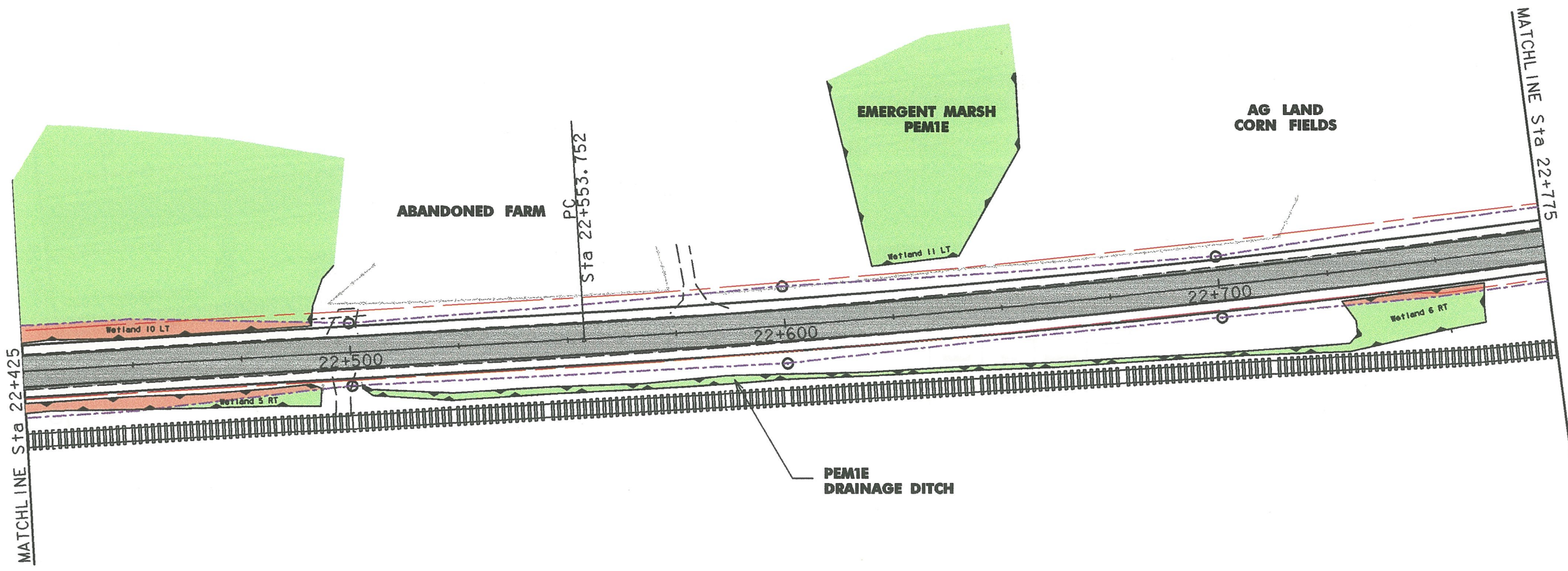
	EXISTING WETLANDS
	IMPACTED WETLANDS
	EXISTING ROADWAY



ALTERNATIVE C

VHB Vanasse Hangen Brustlin, Inc.

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DESIGN FILE NAME: IPARM FILE NAME: SURVEYED BY: SQUAD LEADER: VHB PROJECT NO. : 50736	PLOT DATE: ϕ DATE ϕ SURVEY DATE: MDH DRAWN BY: SHEET: 4 OF 27



ABANDONED FARM

EMERGENT MARSH
PEM1E

AG LAND
CORN FIELDS

PEM1E
DRAINAGE DITCH

MATCHLINE Sta 22+425

MATCHLINE Sta 22+775

PC
Sta 22+553.752

22+500

22+600

22+700







Wetland 10 LT

Wetland 5 RT

Wetland 11 LT

Wetland 6 RT

KEY

		EXISTING WETLANDS
		IMPACTED WETLANDS
		EXISTING ROADWAY

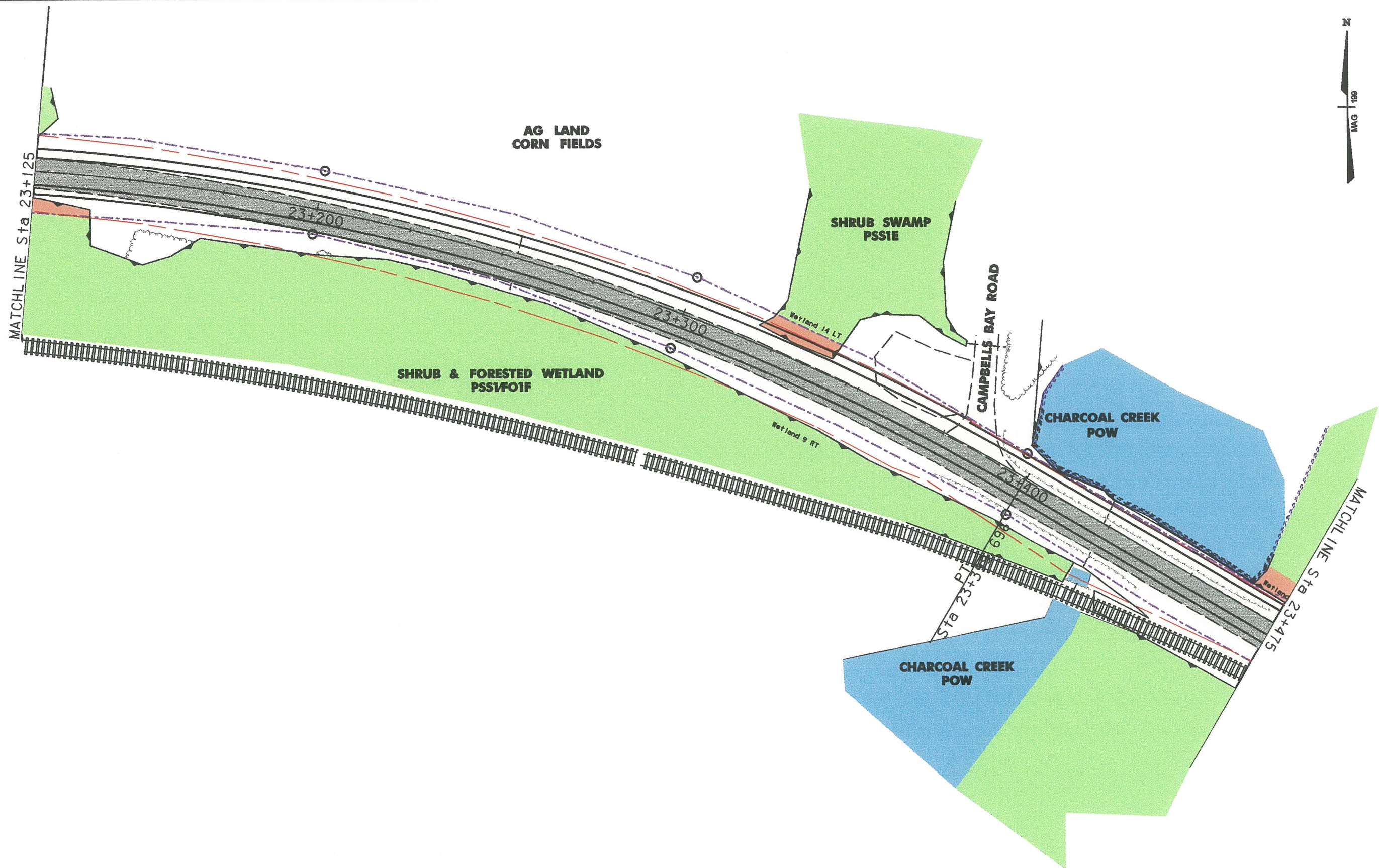


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VHB PROJECT NO. : 50736	



KEY

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	—	IMPACTED WETLANDS
	—	EXISTING ROADWAY



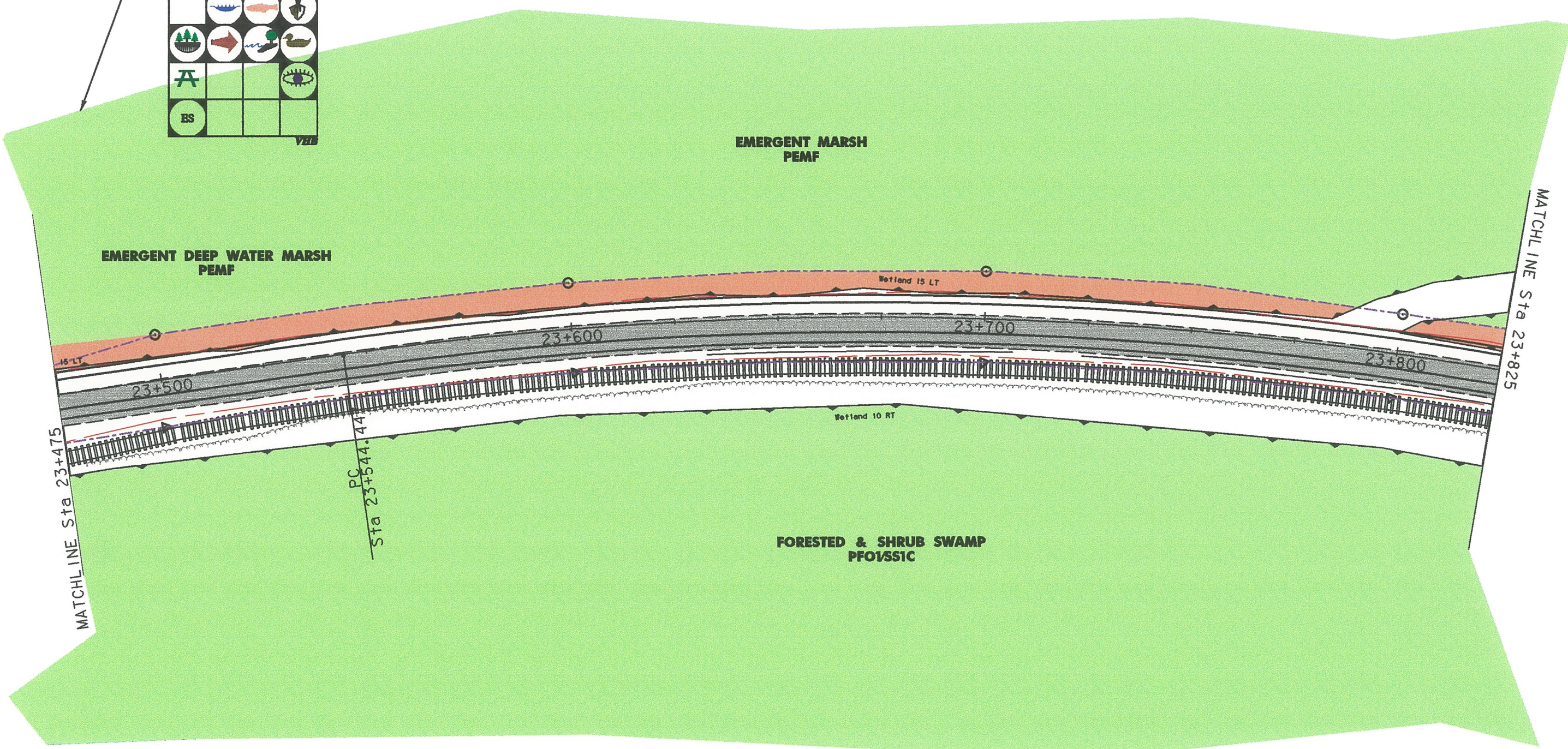
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VHB Vanasse Hangen Brustlin, Inc.



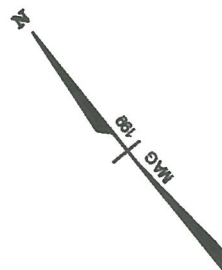
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Wetland ID.	Total Area	Impacted Area
15-LT		1.865
ES		



KEY

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		IMPACTED WETLANDS
		EXISTING ROADWAY

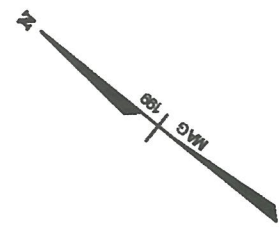


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SQUAD LEADER:	SHEET: 8 OF 27
VHB PROJECT NO. : 50736	



SHRUB & EMERGENT MARSH
PSS/EMIF

FORESTED & SHRUB SWAMP
PFOVSS1C

MATCHLINE Sta 23+825

MATCHLINE Sta 24+175

Wetland 16 LT

23+900

Wetland 10 RT

24+000

PT
Sta 24+077.4

24+100

Wetland 15 LT

Wetland ID.	Total Acres	Impacted Acres
10-RT		0.114
ES		

VHB

KEY

- EXISTING WETLANDS
- IMPACTED WETLANDS
- EXISTING ROADWAY









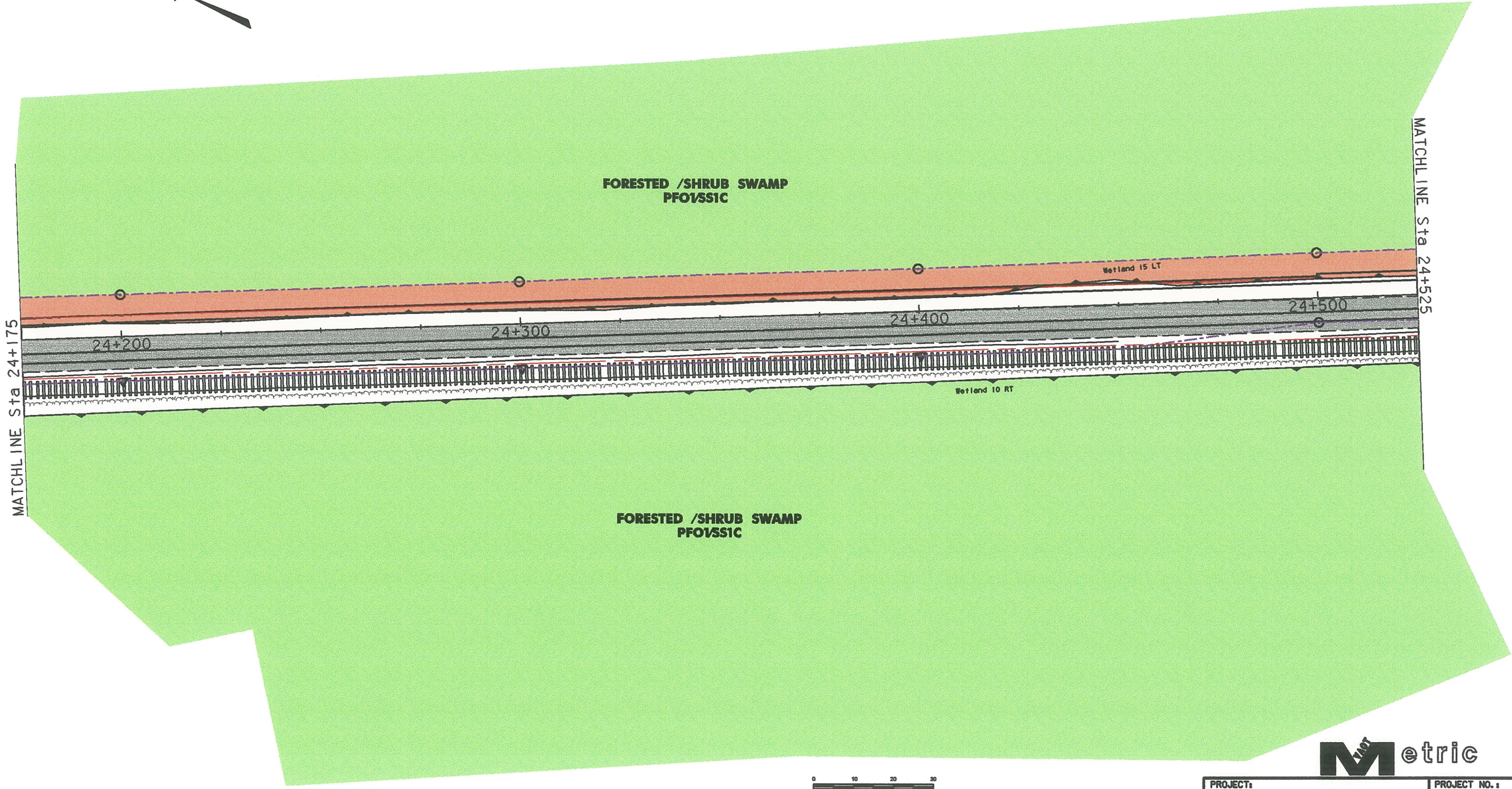
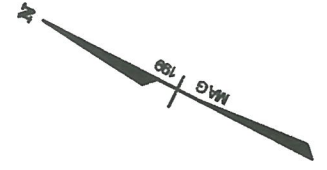
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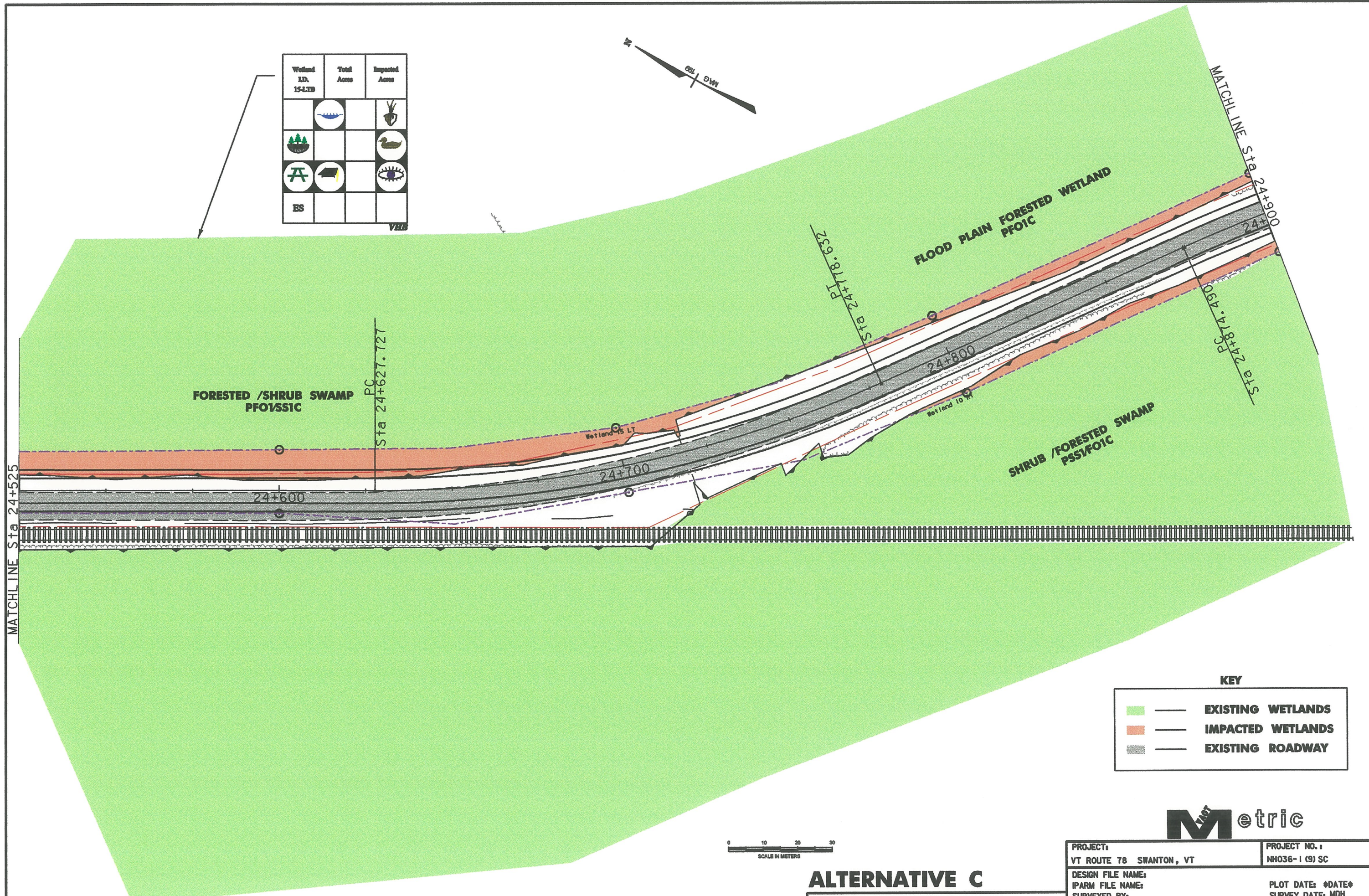
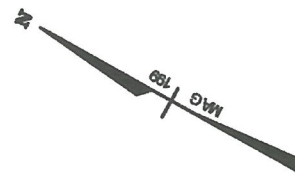
		EXISTING WETLANDS
		IMPACTED WETLANDS
		EXISTING ROADWAY



ALTERNATIVE C
VHB Vanasse Hangen Brustlin, Inc.

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VHB PROJECT NO. : 50736	

Wetland ID	Total Acres	Impacted Acres
15-LTB		
ES		



KEY

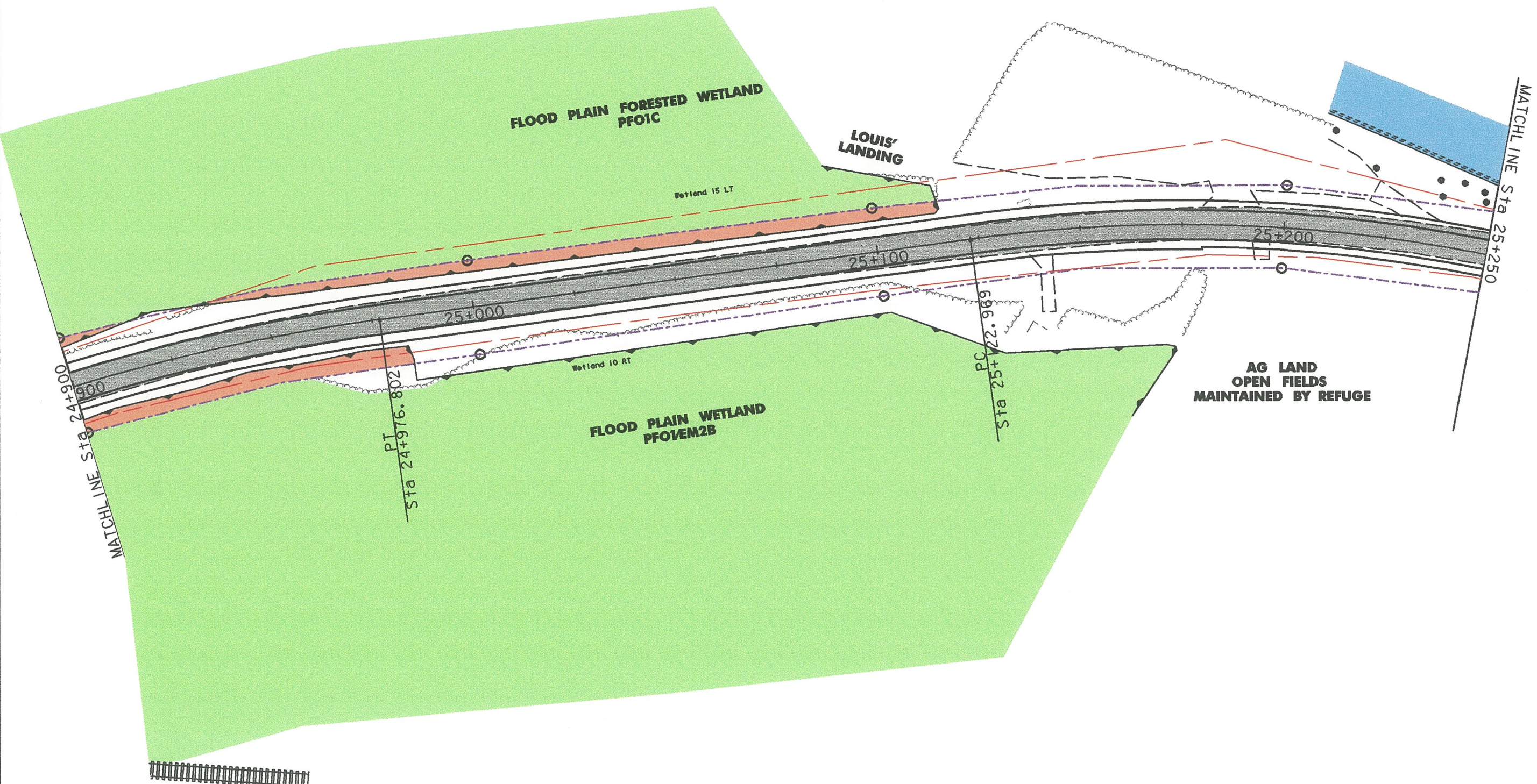
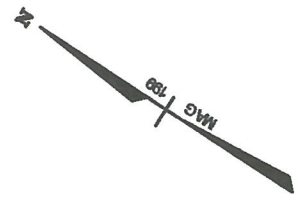
		EXISTING WETLANDS
		IMPACTED WETLANDS
		EXISTING ROADWAY









ALTERNATIVE C

VHB Vanasse Hangen Brustlin, Inc.

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KEY

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		IMPACTED WETLANDS
		EXISTING ROADWAY

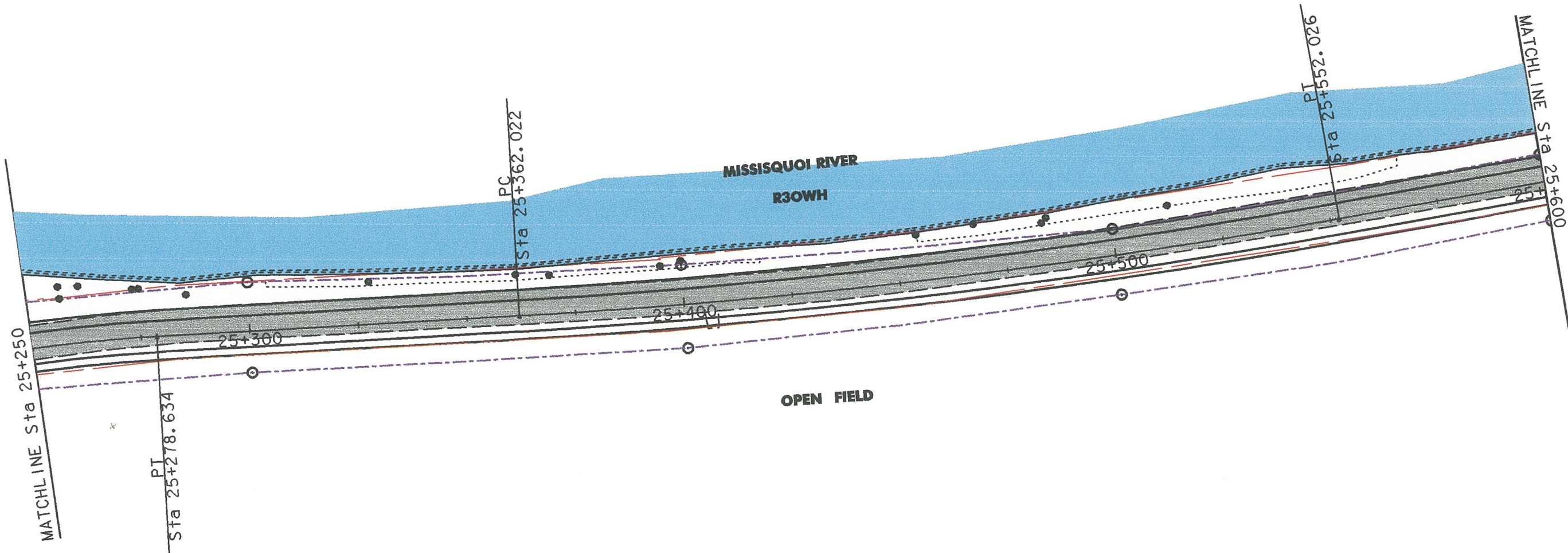


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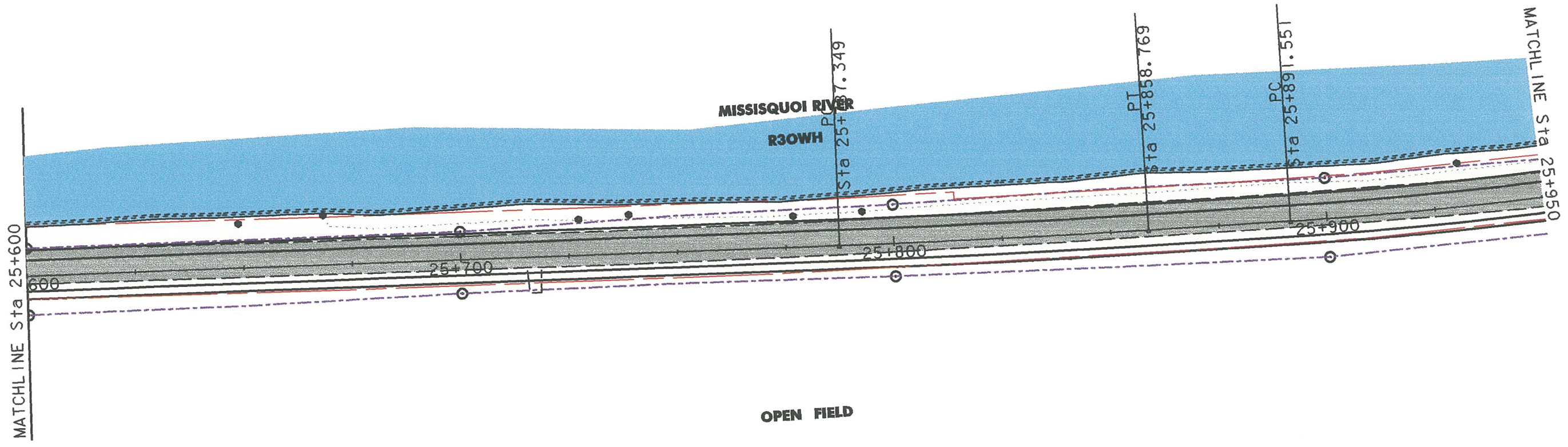
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	—	IMPACTED WETLANDS
	—	EXISTING ROADWAY



ALTERNATIVE C

VHB Vanasse Hangen Brustlin, Inc.

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VHB PROJECT NO.: 50736	



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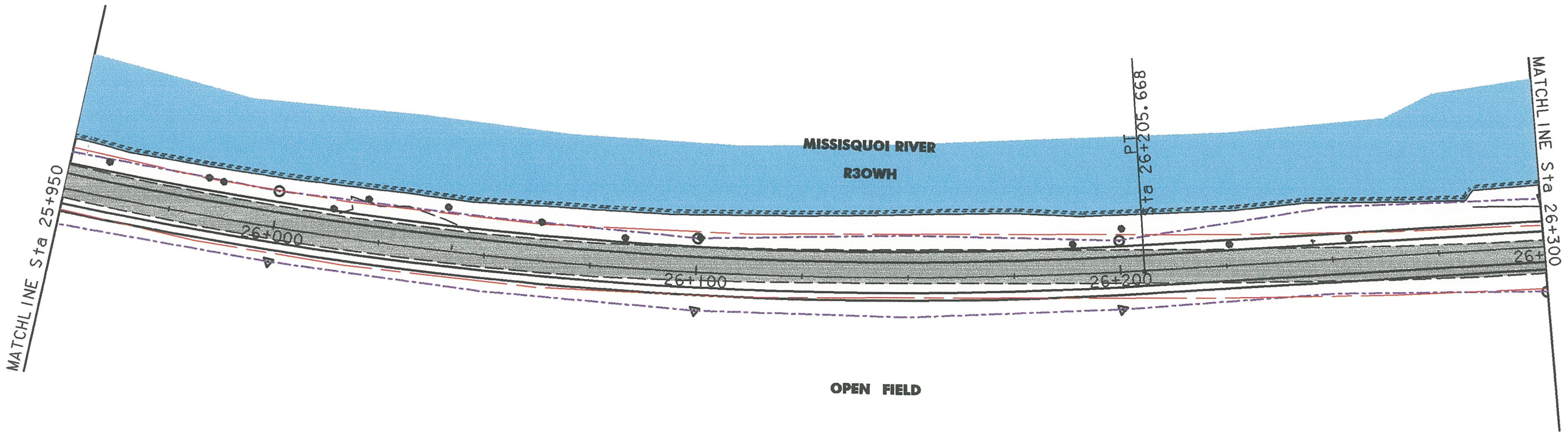
	EXISTING WETLANDS
	IMPACTED WETLANDS
	EXISTING ROADWAY



ALTERNATIVE C

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SQUAD LEADER:	SHEET: 14 OF 27
VHB PROJECT NO.: 50736	



MATCHLINE Sta 25+950

MATCHLINE Sta 26+300

MISSISQUOI RIVER
R3OWH

PT
Sta 26+205.668

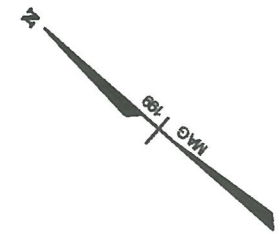
26+000

26+100




26+200

26+300

OPEN FIELD



KEY

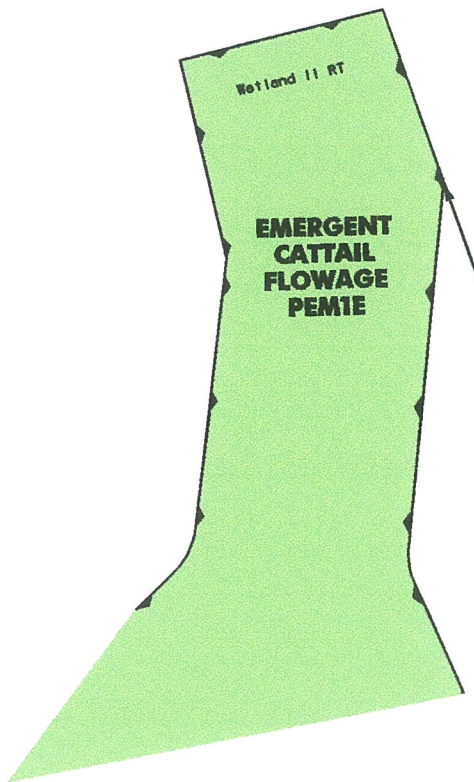
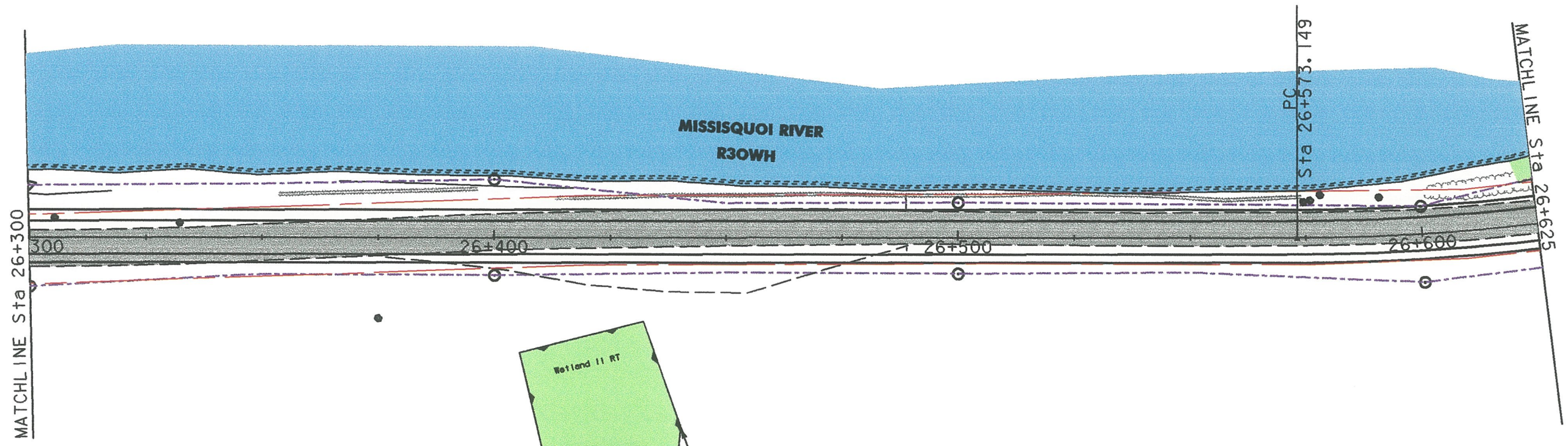
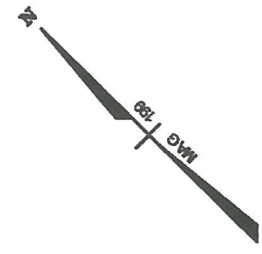
	—	EXISTING WETLANDS
	—	IMPACTED WETLANDS
	—	EXISTING ROADWAY





ALTERNATIVE C




VHB Vanasse Hangen Brustlin, Inc.

PROJECT: VT ROUTE 78 SWANTON, VT	PROJECT NO.: NH036-1 (9) SC
DESIGN FILE NAME: #FILEABBREV#	PLOT DATE: #DATE#
IPARM FILE NAME:	SURVEY DATE: MDH
SURVEYED BY:	DRAWN BY:
SQUAD LEADER:	SHEET: 15 OF 27
VHB PROJECT NO.: 50736	



Wetland ID.	Total Acres	Impacted Acres
11-RT		
		
		

KEY

	—	EXISTING WETLANDS
	—	IMPACTED WETLANDS
	—	EXISTING ROADWAY



ALTERNATIVE C

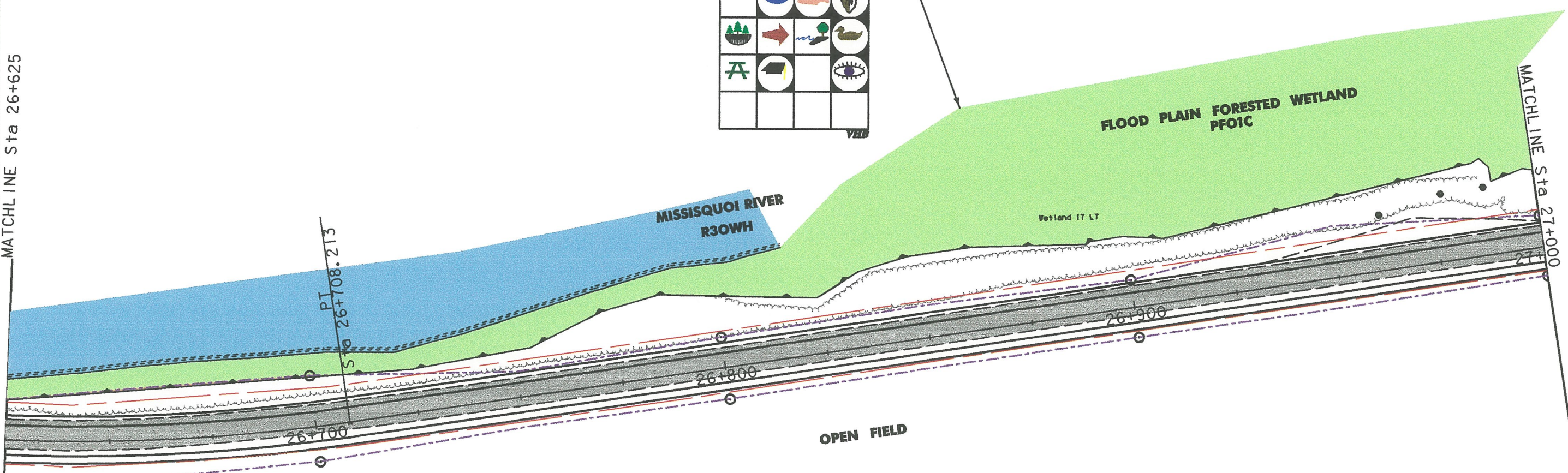
VHB Vanasse Hangen Brustlin, Inc.

PROJECT: VT ROUTE 78 SWANTON, VT	PROJECT NO.: NH036-1 (9) SC
DESIGN FILE NAME: #FILEABBREV#	PLOT DATE: #DATE#
IPARM FILE NAME:	SURVEY DATE: MDH
SURVEYED BY:	DRAWN BY:
SQUAD LEADER:	SHEET: 16 OF 27
VHB PROJECT NO. : 50736	

MATCHLINE Sta 26+625

MATCHLINE Sta 27+000

Wetland ID.	Total Area	Impacted Area
17-LT		0.004



PT Sta 26+708.213

26+700

26+800

26+900

27+000

MISSISQUOI RIVER R30WH

FLOOD PLAIN FORESTED WETLAND PFOIC

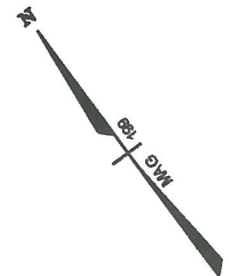
Wetland 17 LT

OPEN FIELD

Wetland 12 RT

EMERGENT/SHRUB DRAINAGE PEM1SSIE

Wetland ID.	Total Area	Impacted Area
12-RT		



KEY

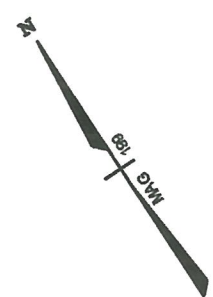
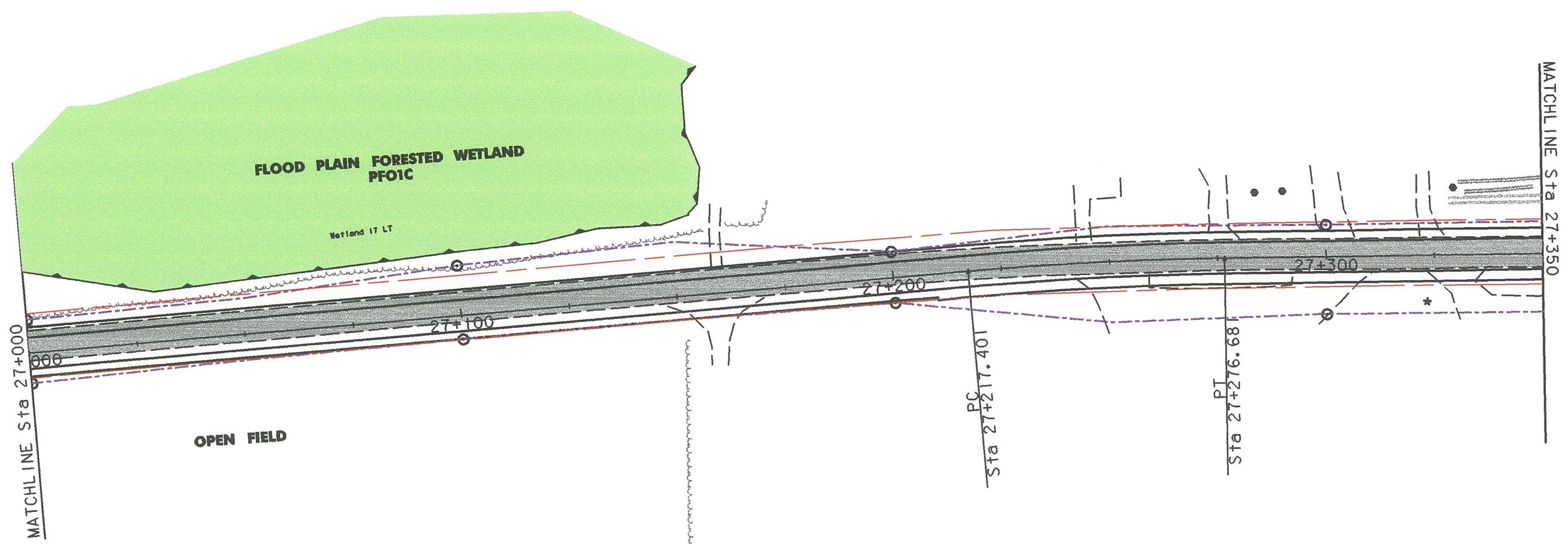
	EXISTING WETLANDS
	IMPACTED WETLANDS
	EXISTING ROADWAY



ALTERNATIVE C

VHB Vanasse Hangen Brustlin, Inc.

PROJECT: VT ROUTE 78 SWANTON, VT	PROJECT NO.: NH036-1 (9) SC
DESIGN FILE NAME: #FILEABBREV#	PLOT DATE: #DATE#
IPARM FILE NAME:	SURVEY DATE: MDH
SURVEYED BY:	DRAWN BY:
SQUAD LEADER:	SHEET: 17 OF 27
VHB PROJECT NO. : 50736	



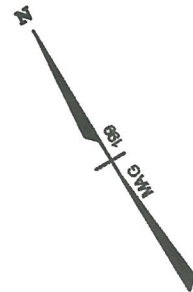
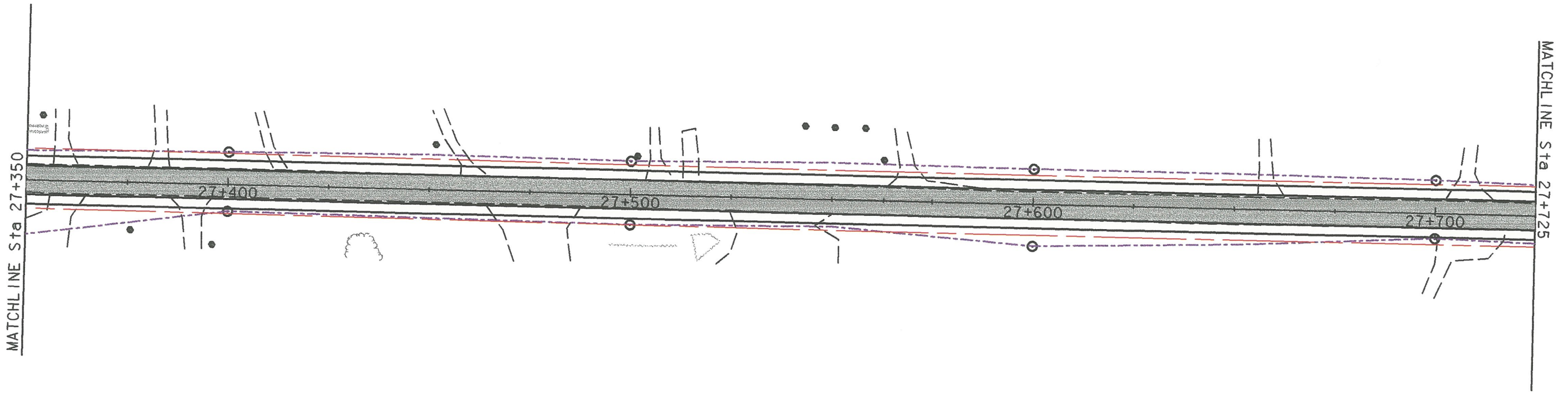
KEY

	—	EXISTING WETLANDS
	—	IMPACTED WETLANDS
	—	EXISTING ROADWAY






ALTERNATIVE C
VHB Vanasse Hangen Brustlin, Inc.

PROJECT: VT ROUTE 78 SWANTON, VT	PROJECT NO.: NH036-1 (9) SC
DESIGN FILE NAME: #FILEABBREV#	PLOT DATE: #DATE#
IPARM FILE NAME:	SURVEY DATE: MDH
SURVEYED BY:	DRAWN BY:
SQUAD LEADER:	SHEET: 18 OF 27
VHB PROJECT NO.: 50736	



KEY

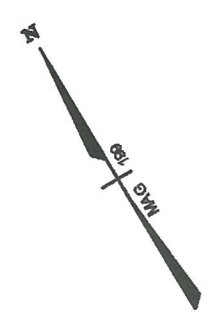
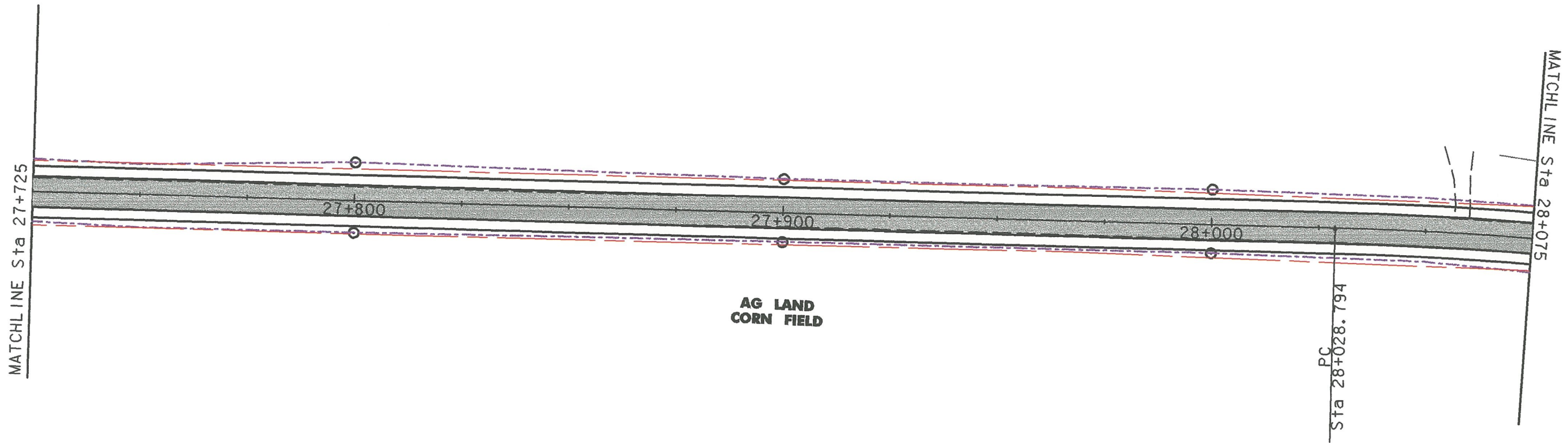
	—	EXISTING WETLANDS
	—	IMPACTED WETLANDS
	—	EXISTING ROADWAY



ALTERNATIVE C

VHB Vanasse Hangen Brustlin, Inc.

PROJECT: VT ROUTE 78 SHANTON, VT	PROJECT NO. : NH036-1 (3) SC
DESIGN FILE NAME: ϕ FILEABBREV ϕ	PLOT DATE: ϕ DATE ϕ
IPARM FILE NAME:	SURVEY DATE: MDH
SURVEYED BY:	DRAWN BY:
SQUAD LEADER:	SHEET: 19 OF 27
VHB PROJECT NO. : 50736	



KEY

		EXISTING WETLANDS
		IMPACTED WETLANDS
		EXISTING ROADWAY






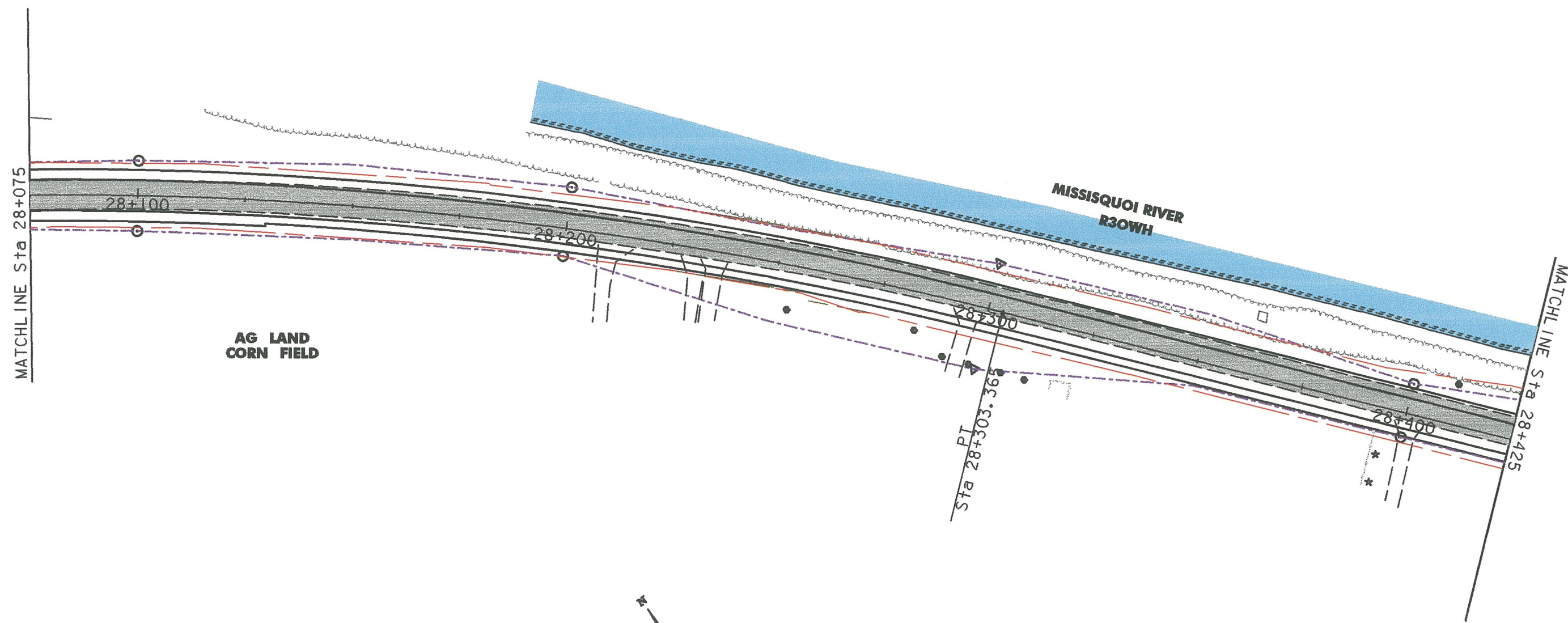
ALTERNATIVE C

VHB *Vanasse Hangen Brustlin, Inc.*

PROJECT: VT ROUTE 78 SWANTON, VT	PROJECT NO.: NH036-1 (9) SC
DESIGN FILE NAME: #FILEABBREV#	PLOT DATE: #DATE#
IPARM FILE NAME:	SURVEY DATE: MDH
SURVEYED BY:	DRAWN BY:
SQUAD LEADER:	SHEET: 20 OF 27
VHB PROJECT NO.: 50736	

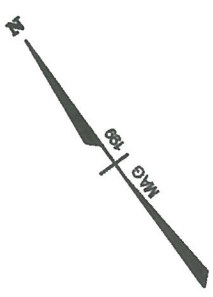
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	EXISTING WETLANDS
	IMPACTED WETLANDS
	EXISTING ROADWAY



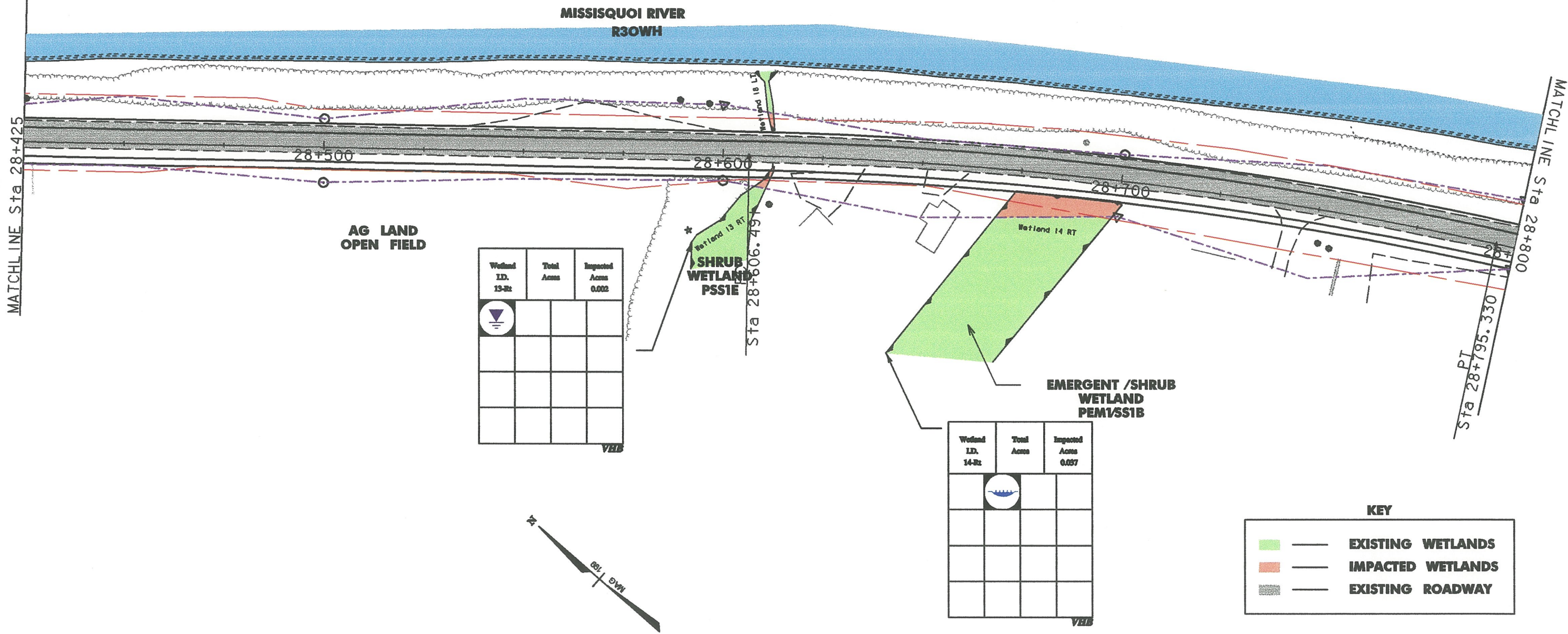
**AG LAND
CORN FIELD**

**MISSISQUOI RIVER
R30WH**



ALTERNATIVE C
VHB Vanasse Hangen Brustlin, Inc.

PROJECT: VT ROUTE 78 SWANTON, VT	PROJECT NO.: NH036-1 (9) SC
DESIGN FILE NAME: Φ FILEABBREV Φ	PLOT DATE: Φ DATE Φ
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SURVEYED BY:	DRAWN BY:
SQUAD LEADER:	SHEET: 21 OF 27
VHB PROJECT NO. : 50736	

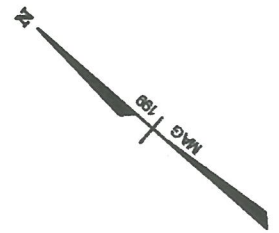


Wetland ID.	Total Acres	Impacted Acres
13-Rt		0.002

Wetland ID.	Total Acres	Impacted Acres
14-Rt		0.057

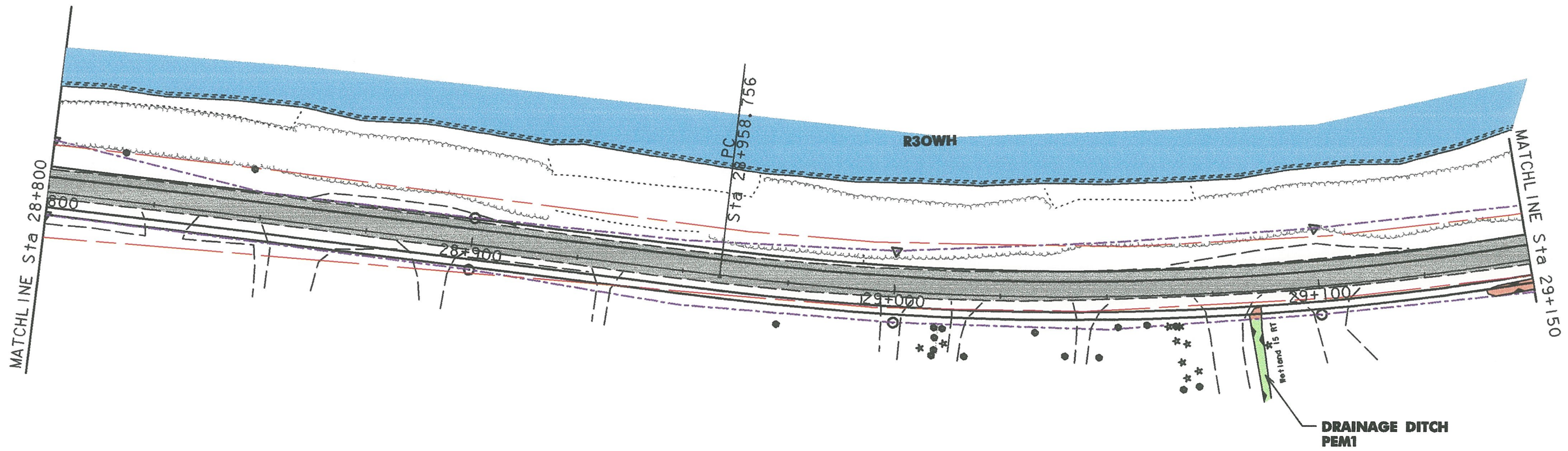
KEY

	EXISTING WETLANDS
	IMPACTED WETLANDS
	EXISTING ROADWAY



ALTERNATIVE C
VHB Vanasse Hangen Brustlin, Inc.

PROJECT: VT ROUTE 78 SWANTON, VT	PROJECT NO.: NH036-1 (9) SC
DESIGN FILE NAME: #FILEABBREV#	PLOT DATE: #DATE#
PARM FILE NAME:	SURVEY DATE: MDH
SURVEYED BY:	DRAWN BY:
SQUAD LEADER:	SHEET: 22 OF 27
VHB PROJECT NO. : 50736	



KEY

	—	EXISTING WETLANDS
	—	IMPACTED WETLANDS
	—	EXISTING ROADWAY






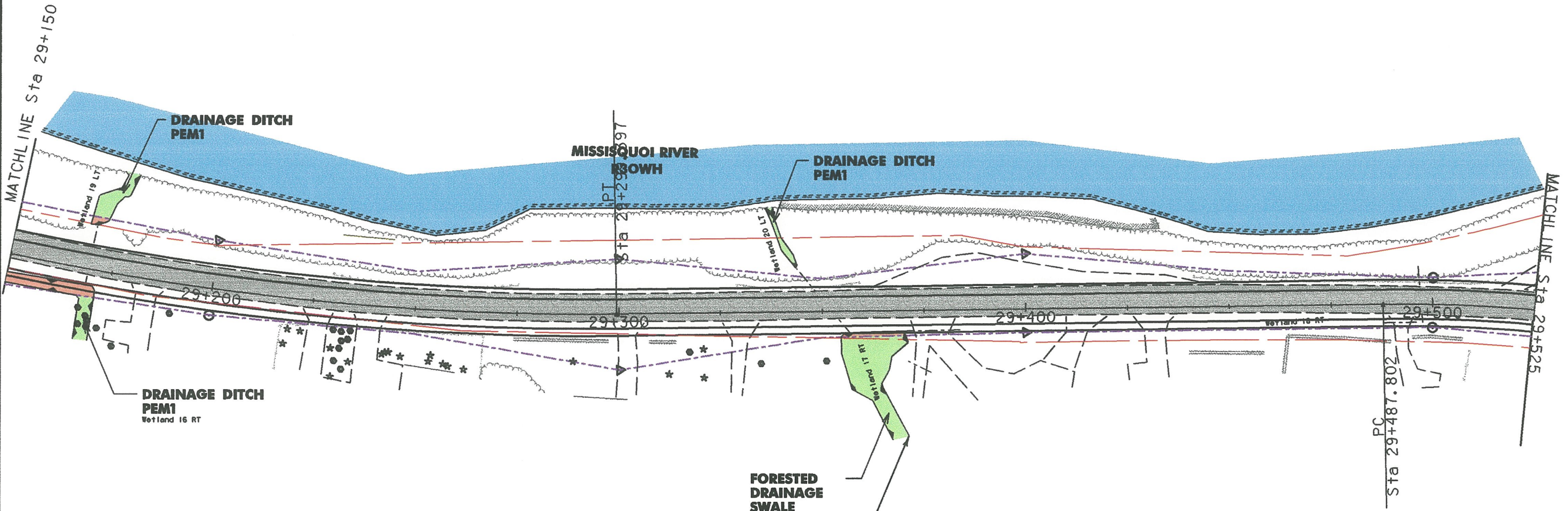
ALTERNATIVE C

VHB Vanasse Hangen Brustlin, Inc.



PROJECT: VT ROUTE 78 SWANTON, VT	PROJECT NO.: NH036-1 (9) SC
DESIGN FILE NAME: #FILEABBREV#	PLOT DATE: #DATE#
IPARM FILE NAME:	SURVEY DATE: MDH
SURVEYED BY:	DRAWN BY:
SQUAD LEADER:	SHEET: 23 OF 27
VHB PROJECT NO.: 50736	

KEY

	—	EXISTING WETLANDS
	—	IMPACTED WETLANDS
	—	EXISTING ROADWAY



**FORESTED
DRAINAGE
SWALE
PFO1B**

Wetland ID.	Total Acres	Impacted Acres
17-2t		0.004
		
		






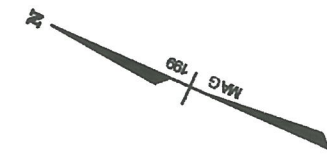
ALTERNATIVE C

VHB Vanasse Hangen Brustlin, Inc.

PROJECT: VT ROUTE 78 SWANTON, VT	PROJECT NO.: NH036-1 (9) SC
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PARM FILE NAME:	SURVEY DATE: MDH
SURVEYED BY:	DRAWN BY:
SQUAD LEADER:	SHEET: 24 OF 27
VHB PROJECT NO.: 50736	

KEY

	EXISTING WETLANDS
	IMPACTED WETLANDS
	EXISTING ROADWAY



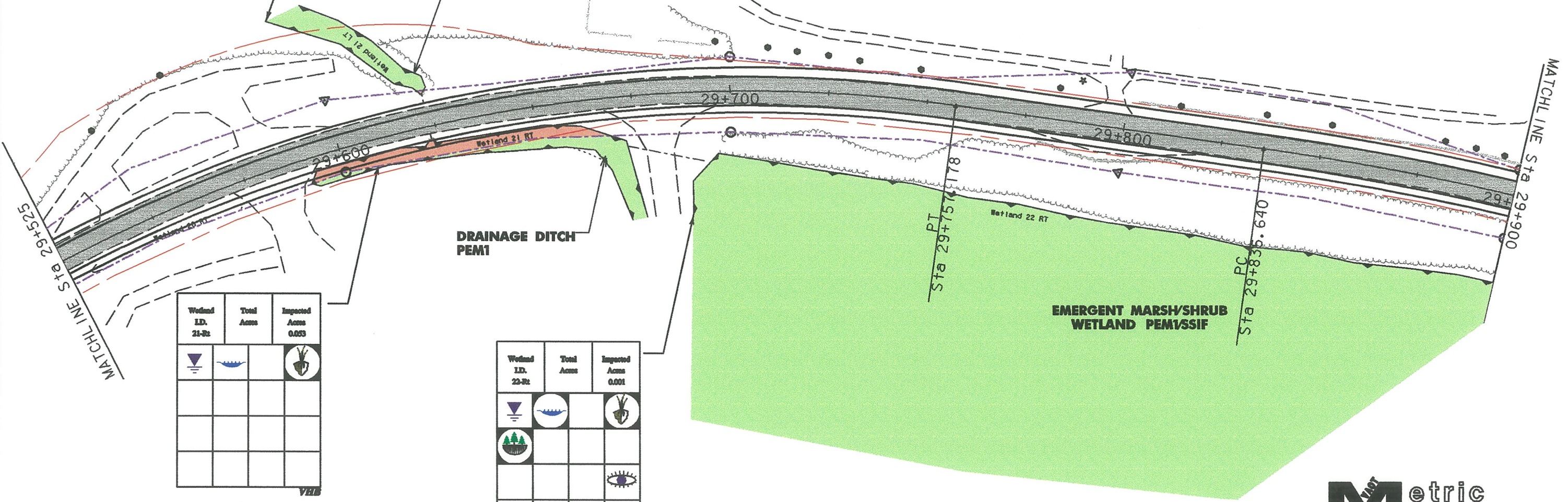
Wetland ID.	Total Acres	Impacted Acres
21-Lt		

DRAINAGE DITCH PSS1

DRAINAGE DITCH PEM1

Wetland ID.	Total Acres	Impacted Acres
21-Rt		0.053




Wetland ID.	Total Acres	Impacted Acres
22-Rt		0.001

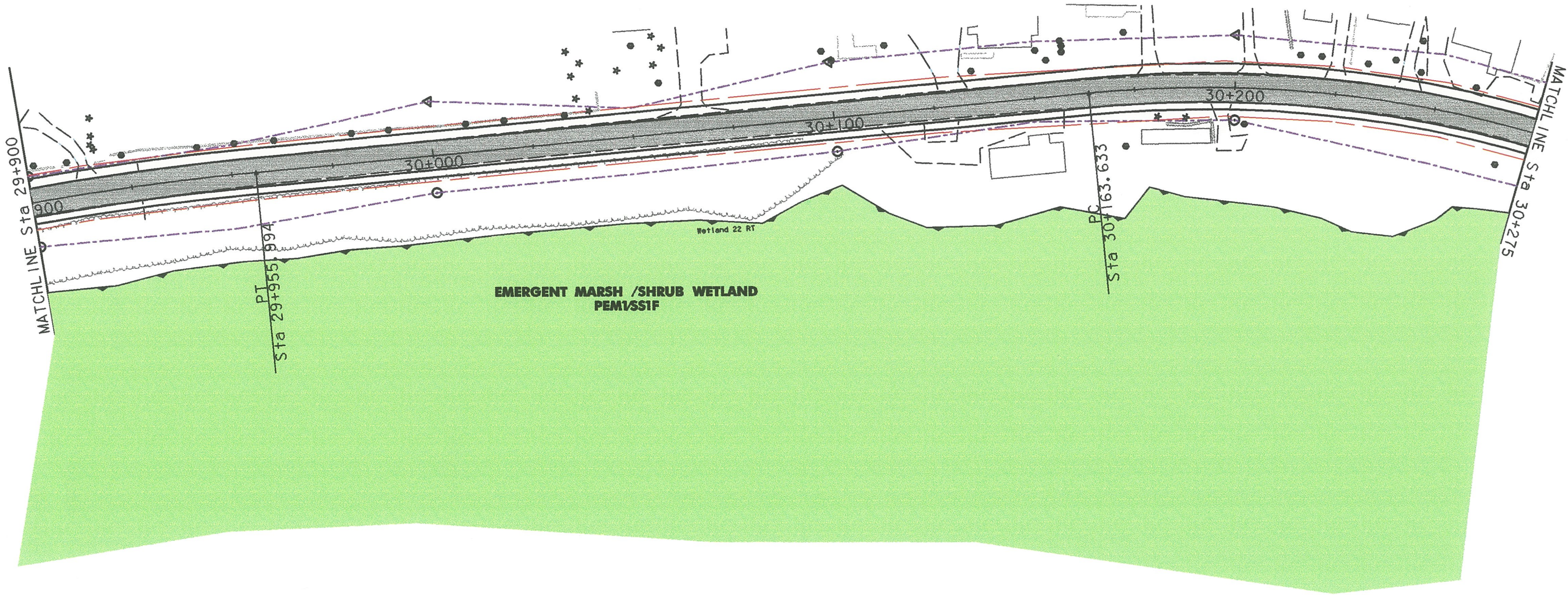


ALTERNATIVE C

VHB Vanasse Hangen Brustlin, Inc.

PROJECT: VT ROUTE 78 SWANTON, VT	PROJECT NO.: NH036-1 (9) SC
DESIGN FILE NAME: #FILEABBREV#	PLOT DATE: #DATE#
IPARM FILE NAME:	SURVEY DATE: MDH
SURVEYED BY:	DRAWN BY:
SQUAD LEADER:	SHEET: 25 OF 27
VHB PROJECT NO.: 50736	

KEY	
	EXISTING WETLANDS
	IMPACTED WETLANDS
	EXISTING ROADWAY









ALTERNATIVE C

VHB Vanasse Hangen Brustlin, Inc.

PROJECT: VT ROUTE 78 SWANTON, VT	PROJECT NO.: NH036-1 (9) SC
DESIGN FILE NAME: #FILEABBREV#	PLOT DATE: #DATE#
IPARM FILE NAME:	SURVEY DATE: MDH
SURVEYED BY:	DRAWN BY:
SQUAD LEADER:	SHEET: 26 OF 27
VHB PROJECT NO. : 50736	



KEY

		EXISTING WETLANDS
		IMPACTED WETLANDS
		EXISTING ROADWAY

**END PROJECT
NH 036-1(9)SC**

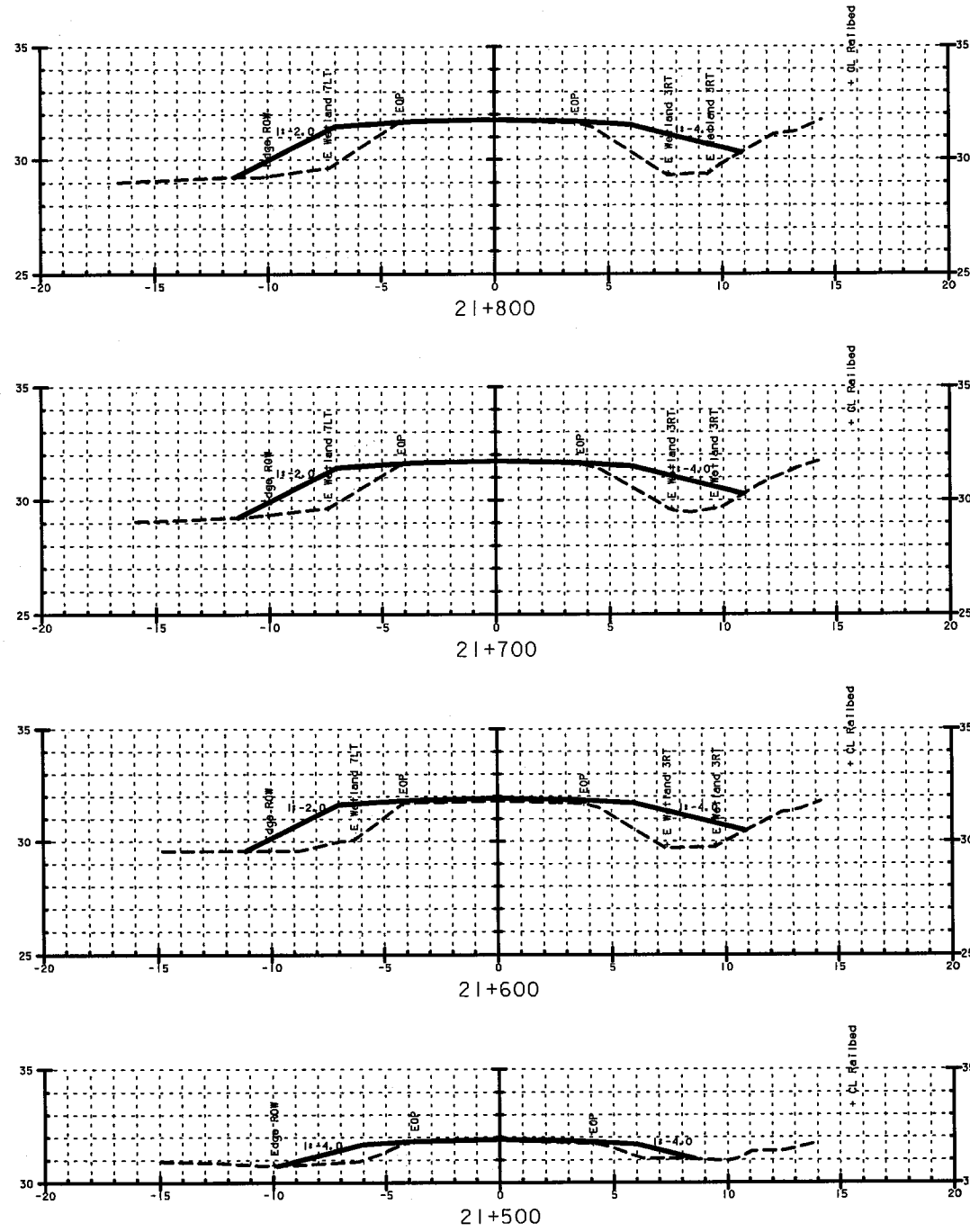
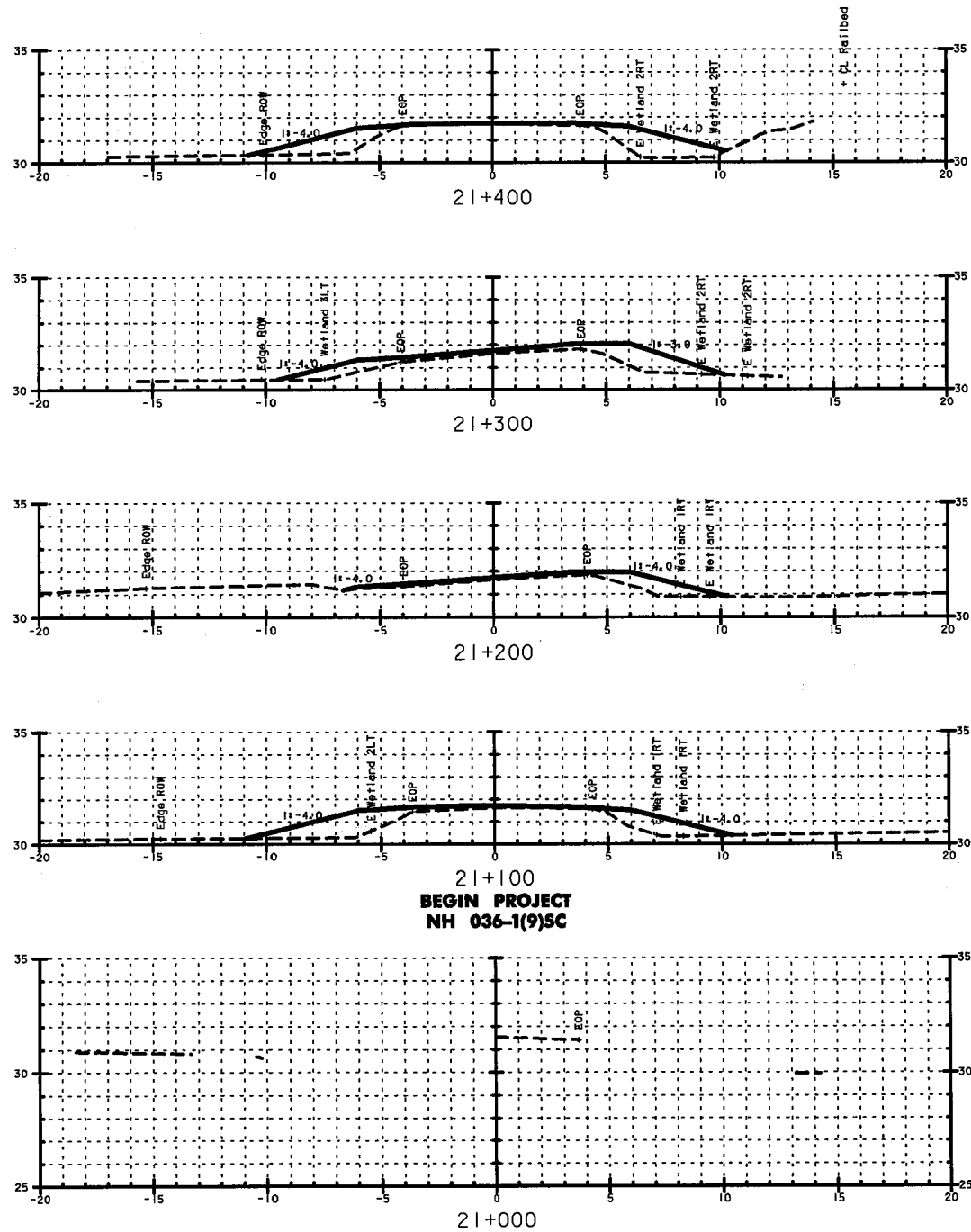
**EMERGENT MARSH /
SHRUB WETLAND
PERMISSIF**



ALTERNATIVE C

VHB Vanasse Hangen Brustlin, Inc.

PROJECT: VT ROUTE 78 SWANTON, VT	PROJECT NO.: NH036-1 (9) SC
DESIGN FILE NAME: #FILEABBREV#	PLOT DATE: #DATE#
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SURVEYED BY:	DRAWN BY:
SQUAD LEADER:	SHEET: 27 OF 27
VHB PROJECT NO.: 50736	

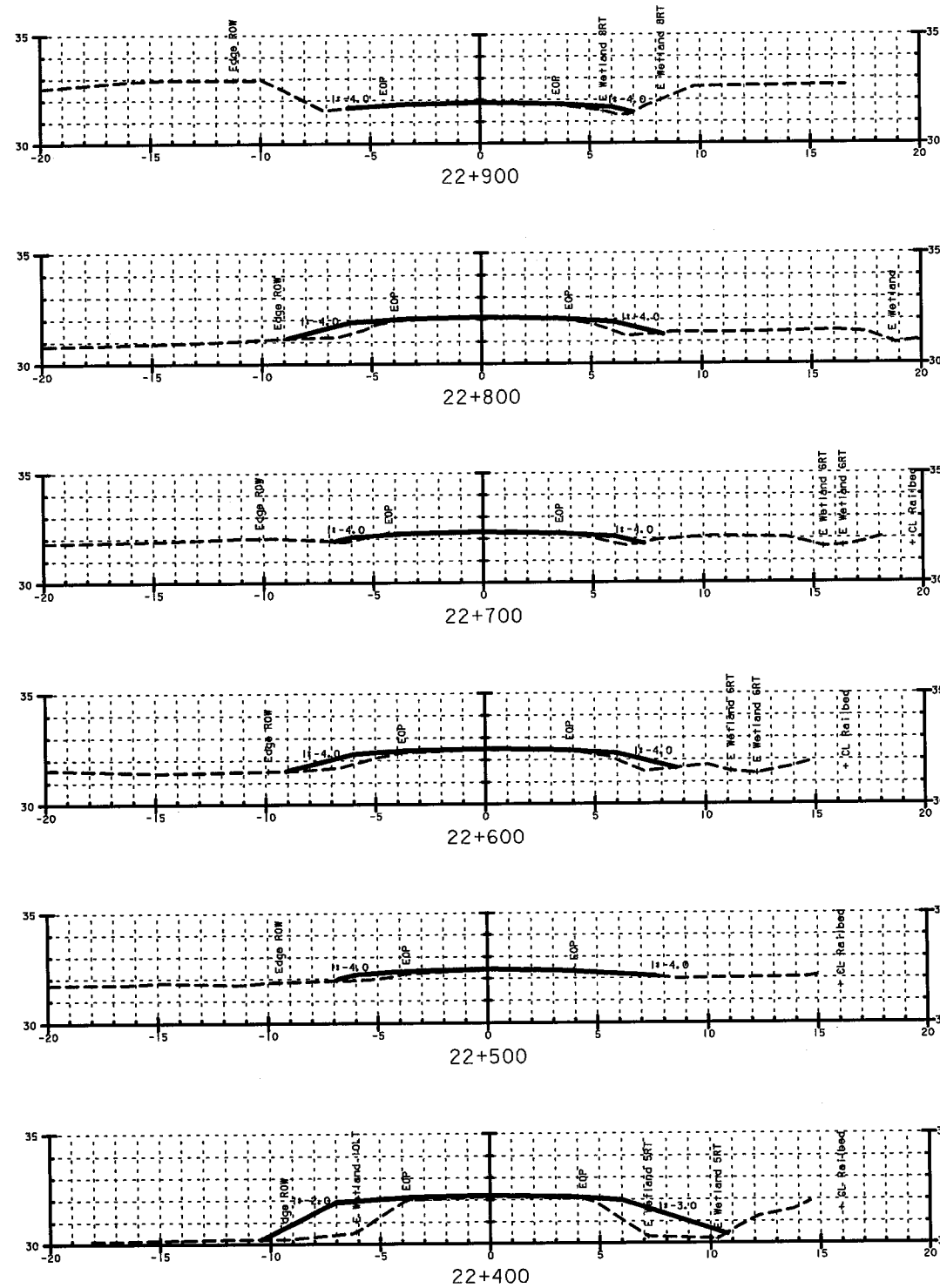
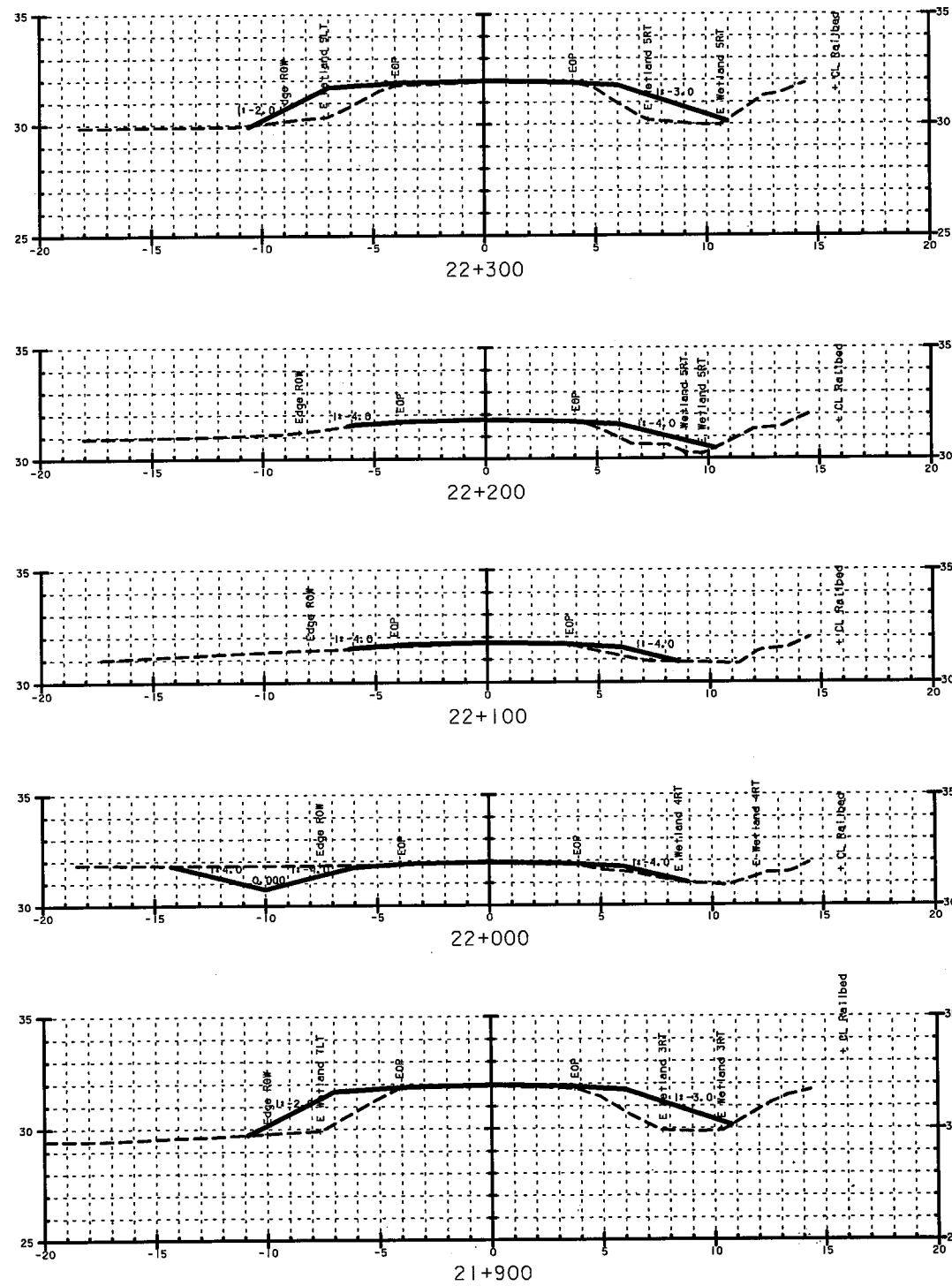


ALTERNATIVE C

VHB Vanasse Hangen Brustlin, Inc.

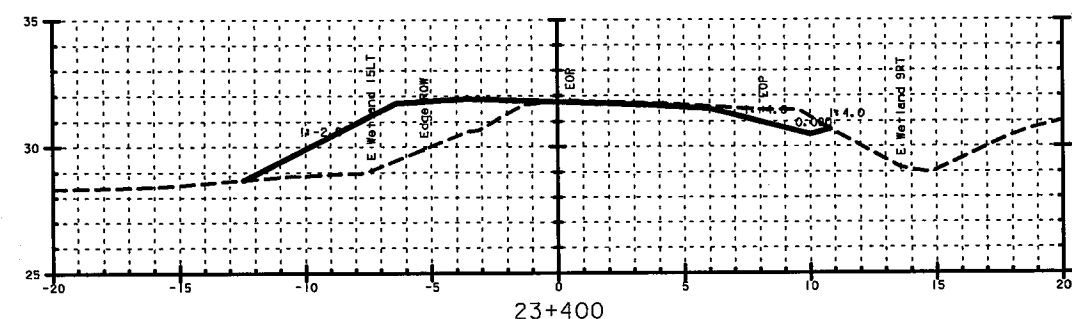
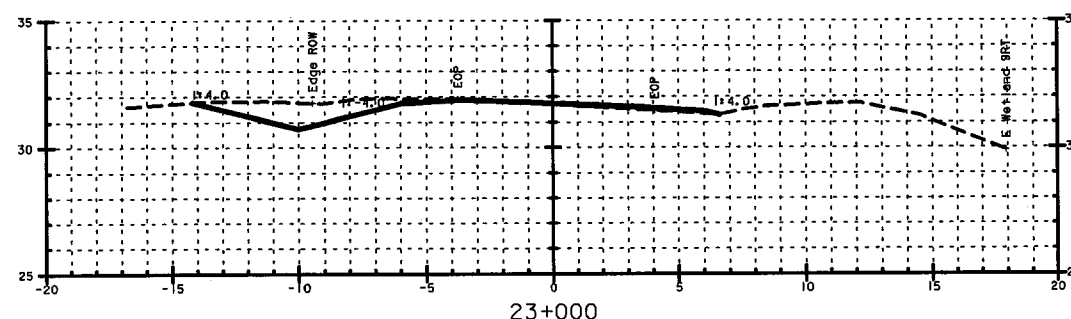
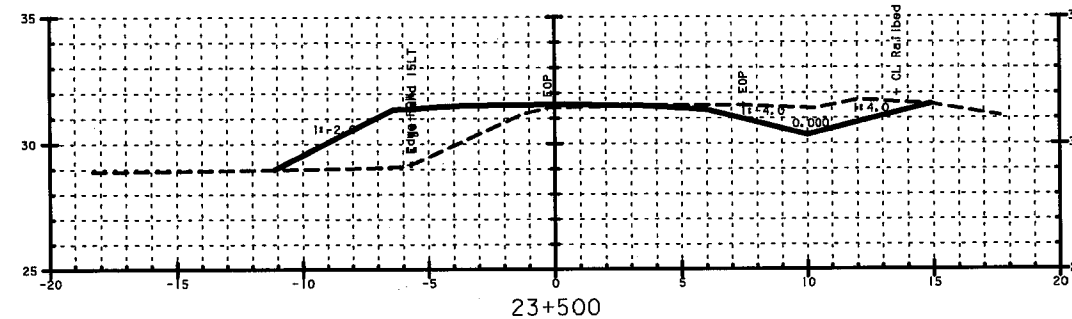
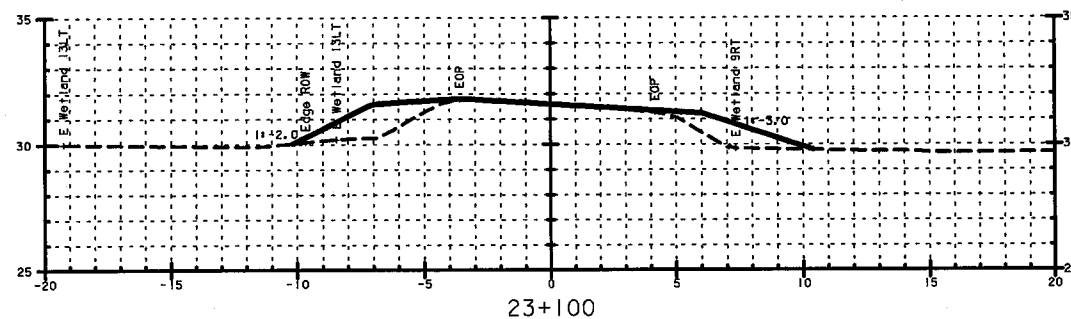
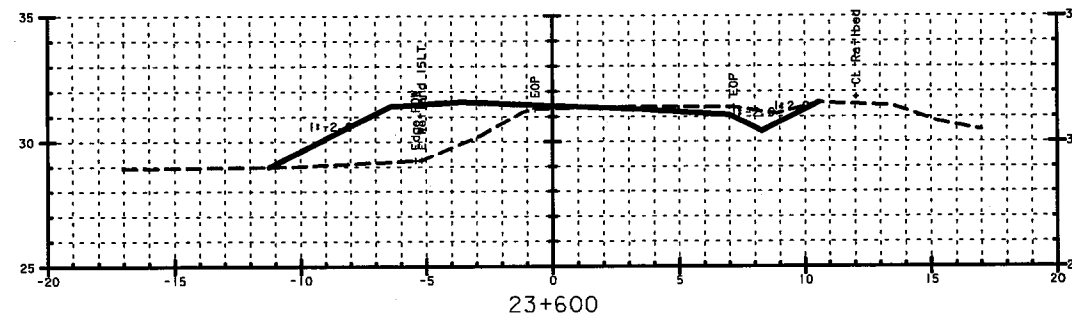
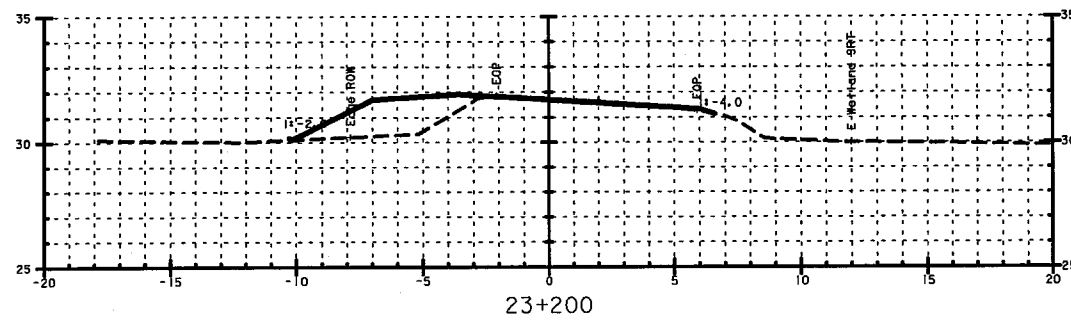
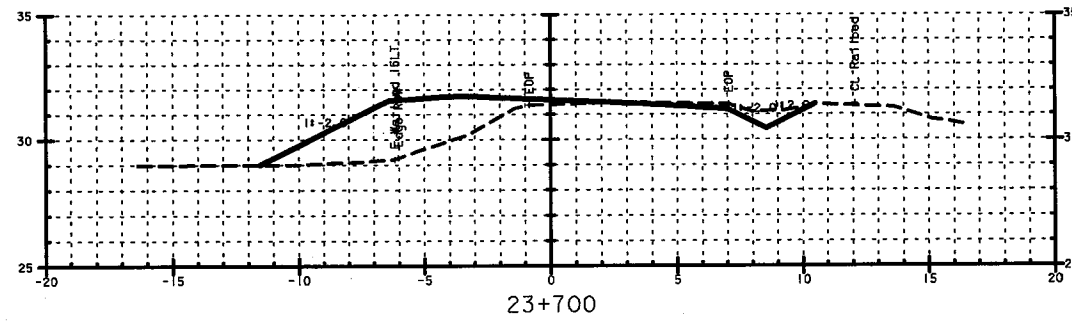
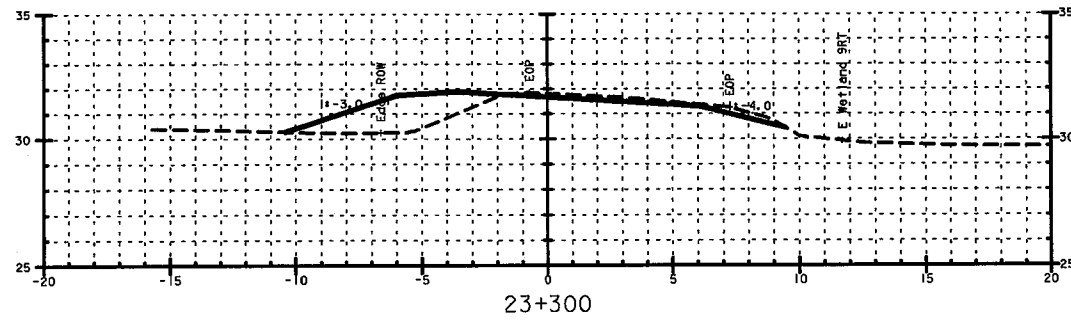


PROJECT: VT ROUTE 78 SWANTON, VT	PROJECT NO.: NH036-1 (9) SC
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IPARM FILE NAME: SURVEYED BY:	SURVEY DATE: MDH
SQUAD LEADER: VHB PROJECT NO. : 50736	DRAWN BY: SHEET: OF



ALTERNATIVE C
VHB Vanasse Hangen Brustlin, Inc.

PROJECT: VT ROUTE 78 SWANTON, VT	PROJECT NO.: NH036-1 (9) SC
DESIGN FILE NAME: 50736\oad\te\ustation\o032xe5.dgn	PLOT DATE: #DATE#
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SQUAD LEADER: VHB PROJECT NO. : 50736	DRAWN BY: SHEET: OF

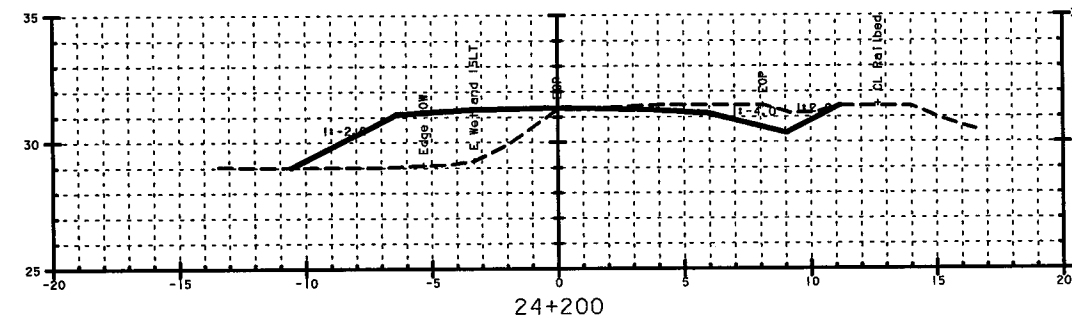
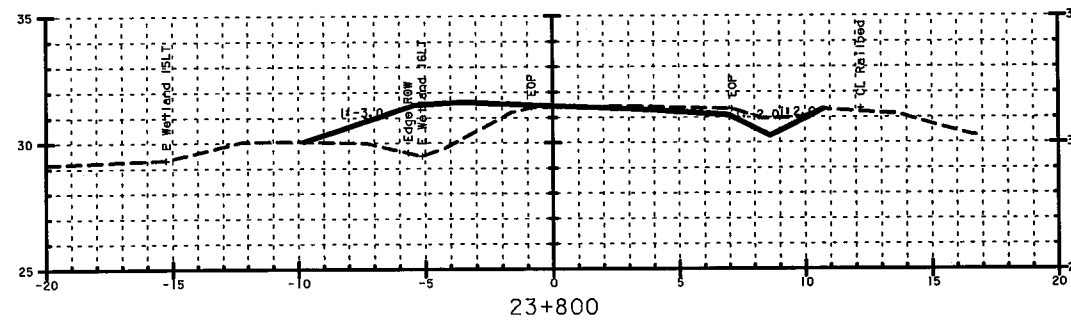
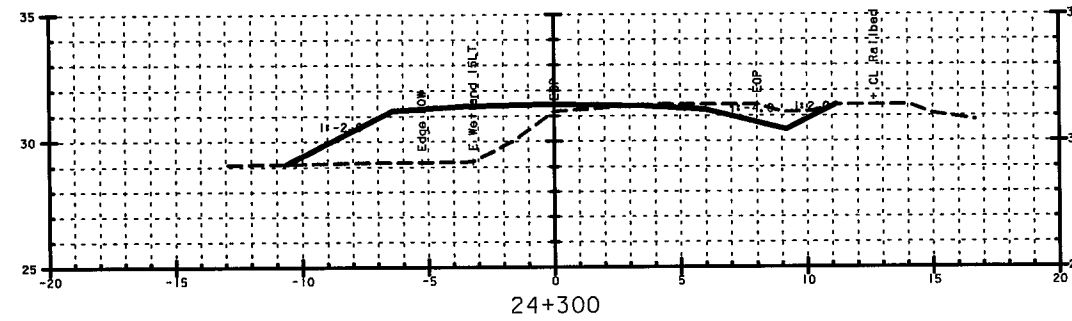
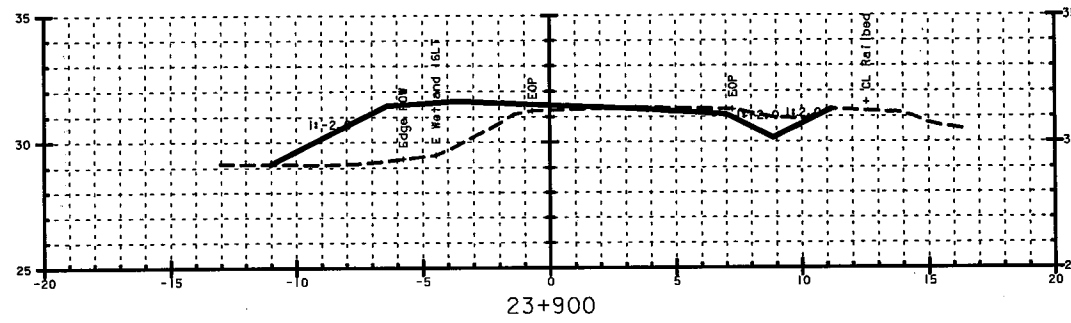
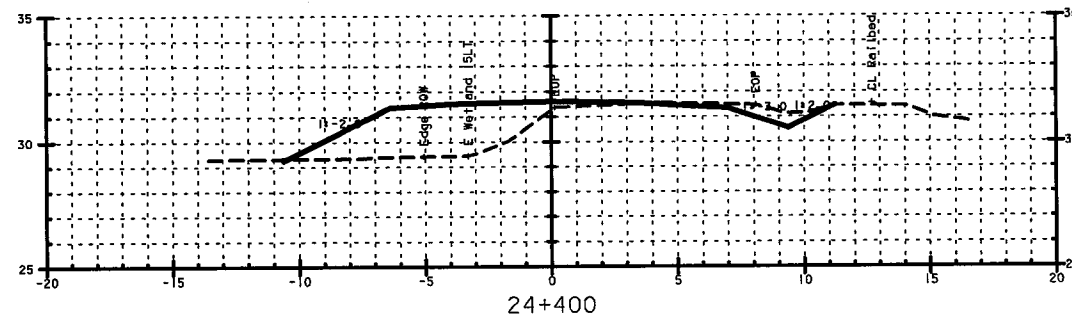
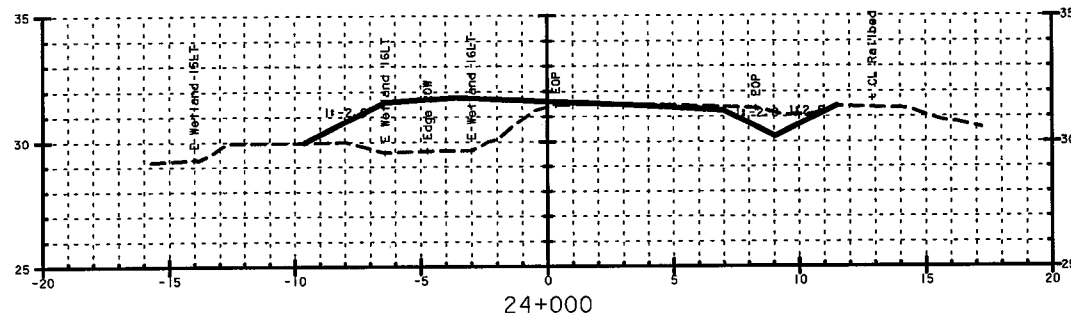
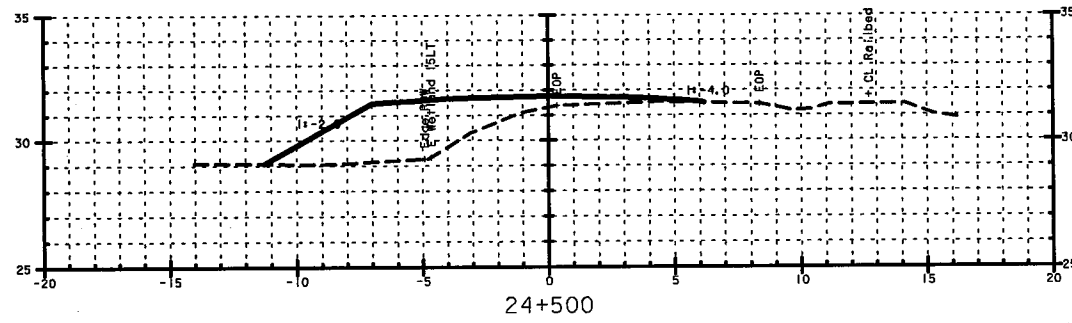
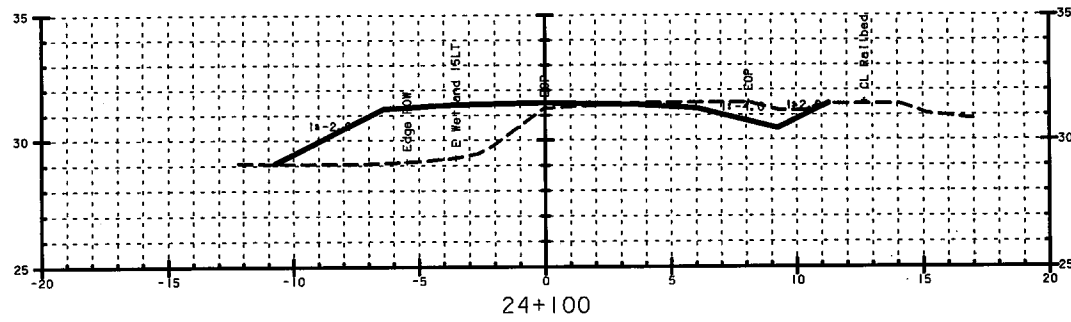


ALTERNATIVE C

VHB Vanasse Hangen Brustlin, Inc.

Metric

PROJECT: VT ROUTE 78 SWANTON, VT	PROJECT NO.: NH036-1 (9) SC
DESIGN FILE NAME: 50736\oad\te\ustation\No032xe5.dgn	PLOT DATE: #DATE#
IPARM FILE NAME: SURVEYED BY:	SURVEY DATE: MDH
SQUAD LEADER: VHB PROJECT NO. : 50736	DRAWN BY: SHEET: OF

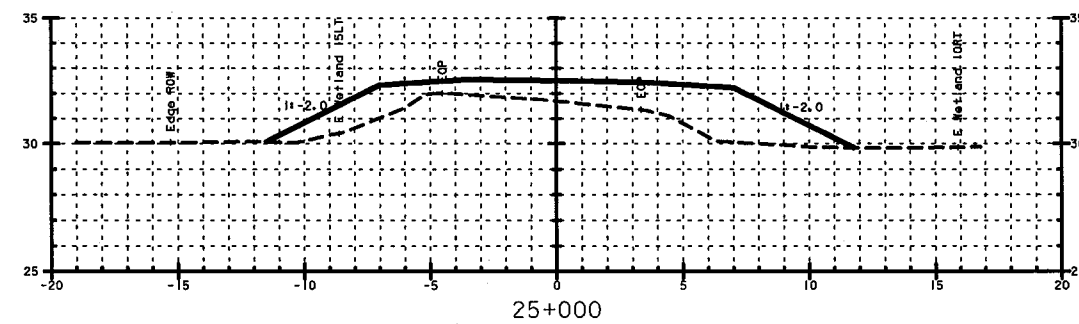
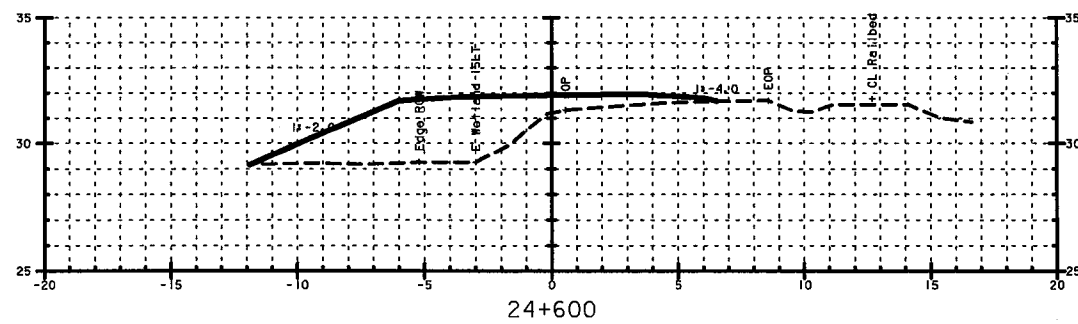
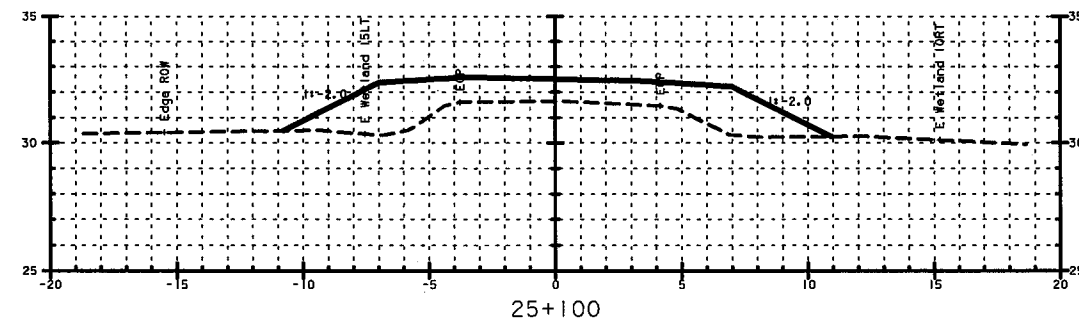
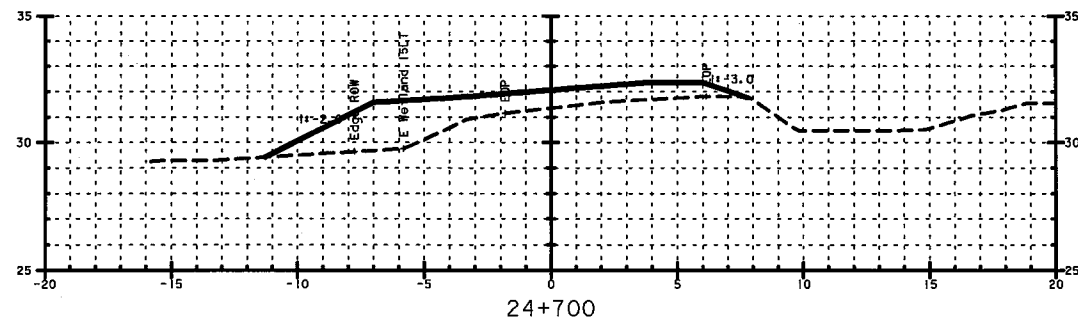
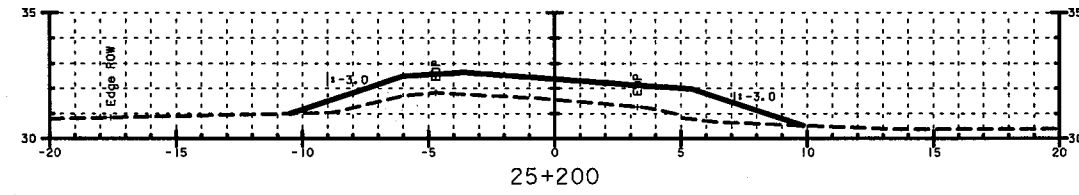
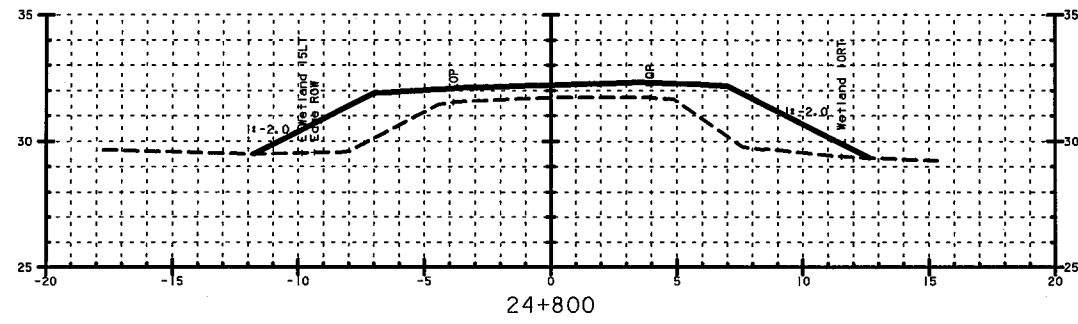
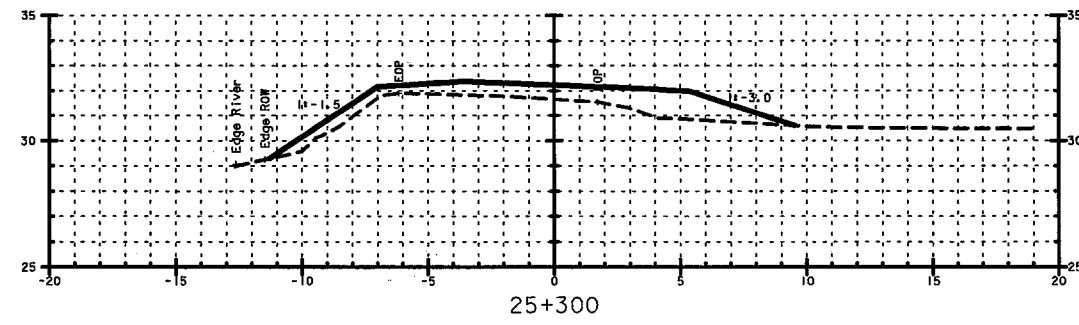
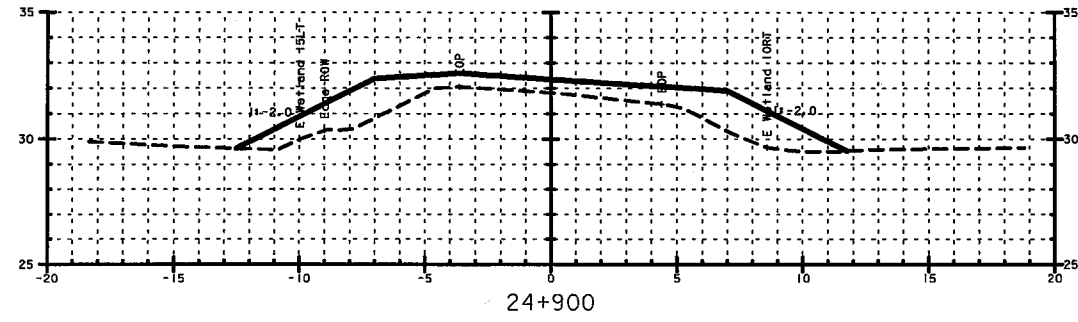


ALTERNATIVE C

VHB Vanasse Hangen Brustlin, Inc.



PROJECT: VT ROUTE 78 SWANTON, VT	PROJECT NO.: NH036-1 (9) SC
DESIGN FILE NAME: 50736\cad\te\ustation\c032xe5.dgn	PLOT DATE: #DATE#
IFARM FILE NAME: SURVEYED BY:	SURVEY DATE: MDH
SQUAD LEADER: VHB PROJECT NO. : 50736	DRAWN BY: SHEET: OF

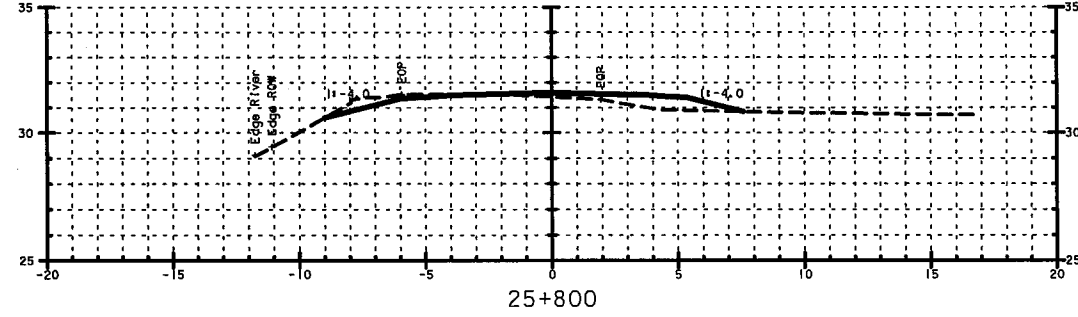
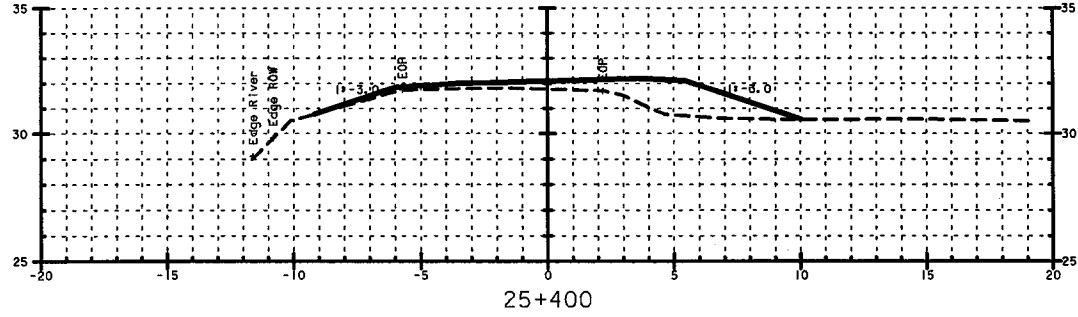
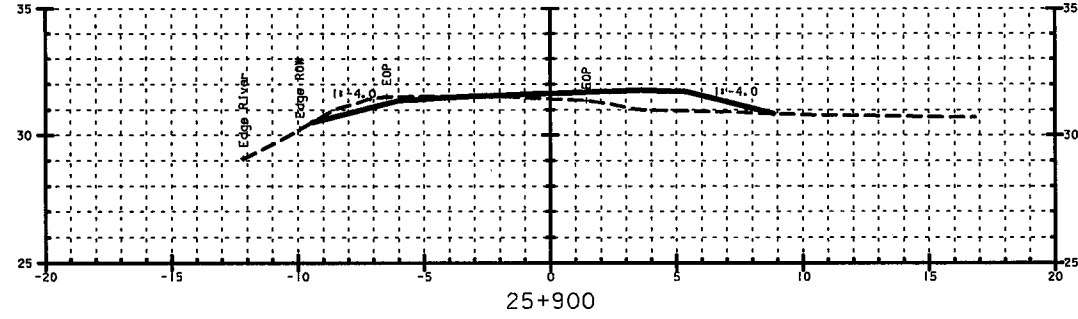
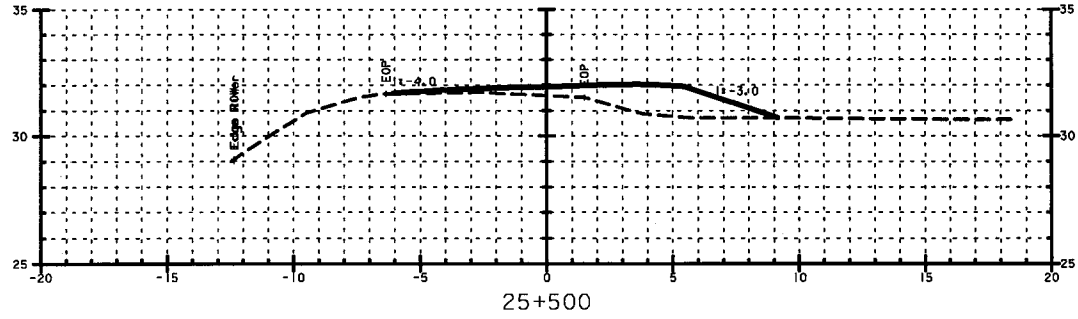
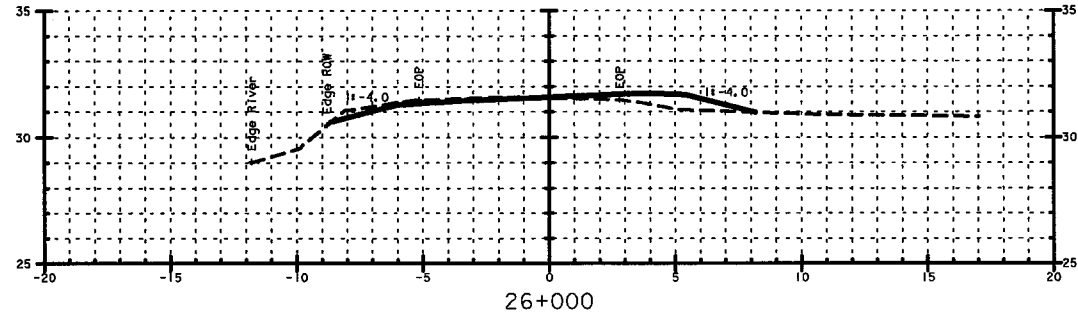
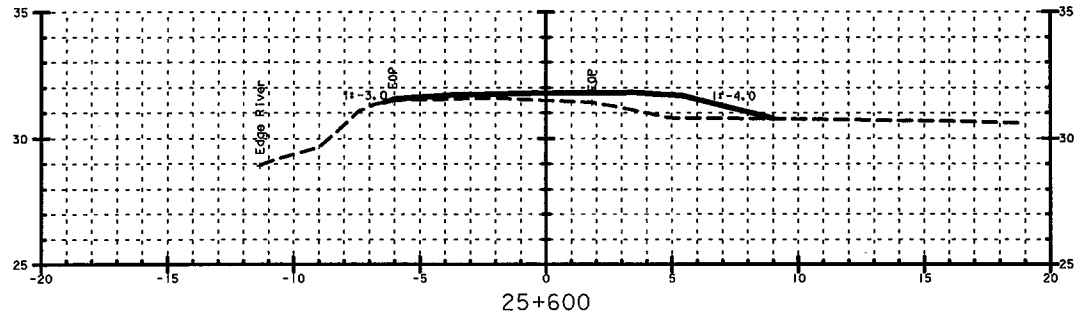
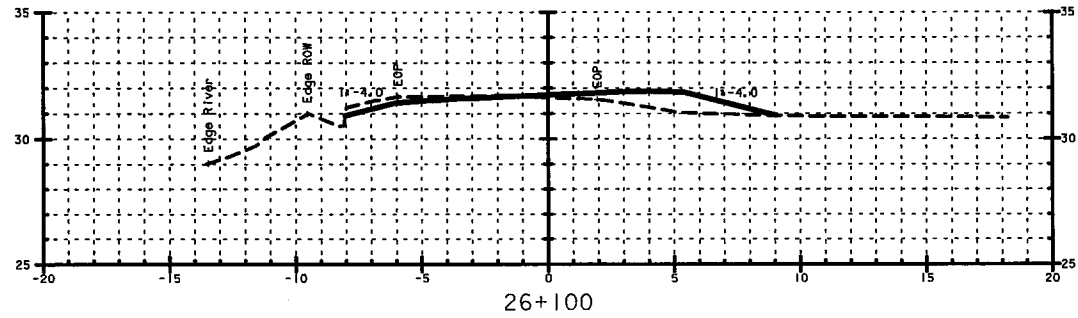
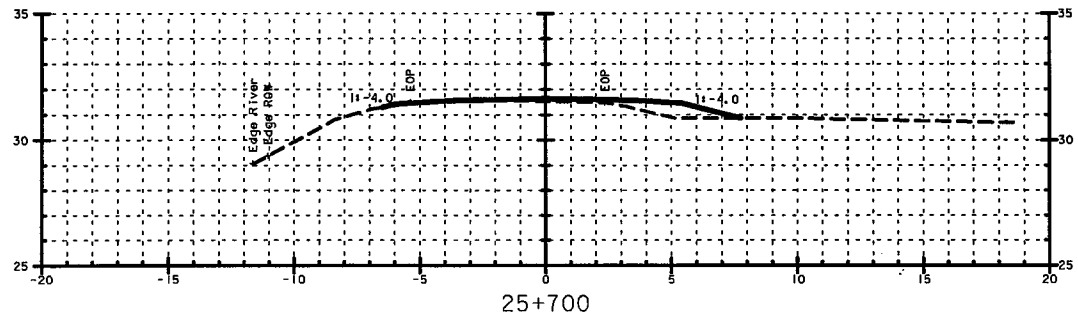


ALTERNATIVE C

VHB Vanasse Hangen Brustlin, Inc.



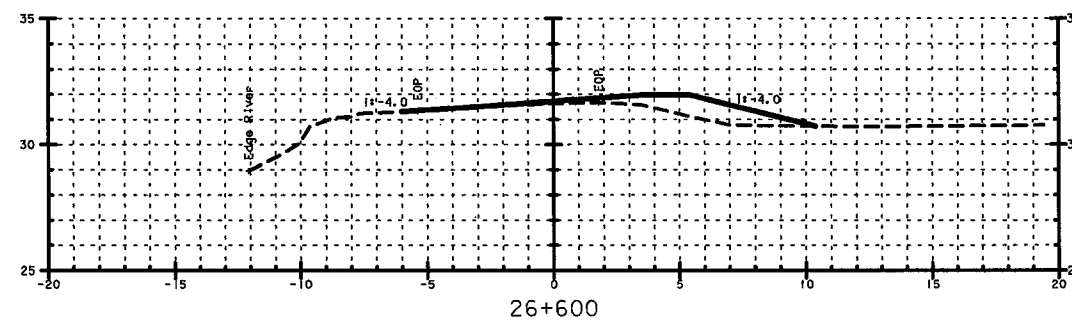
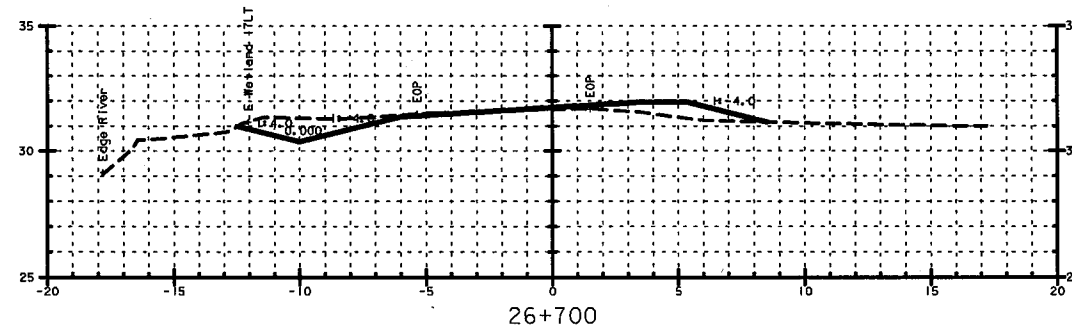
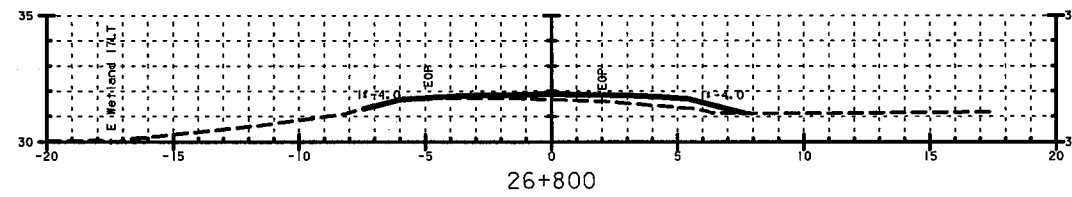
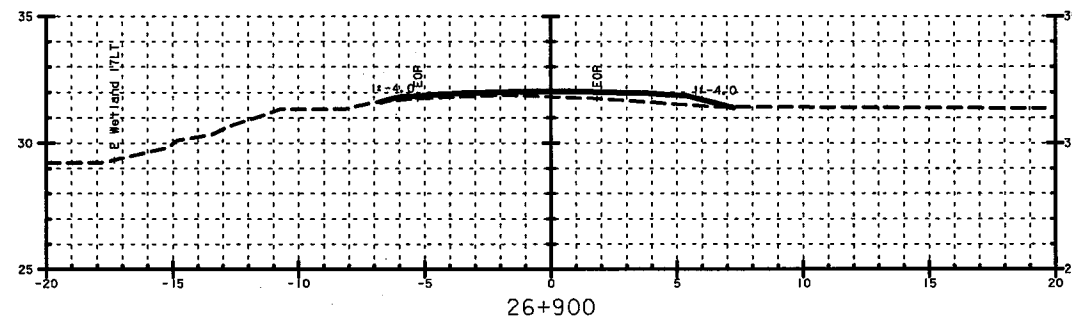
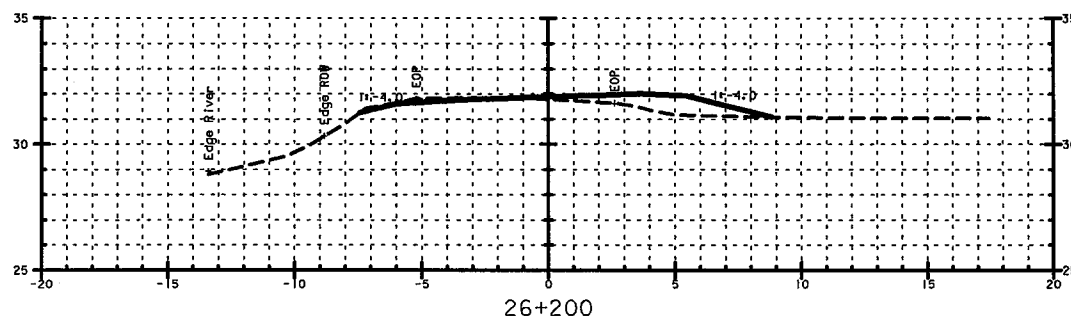
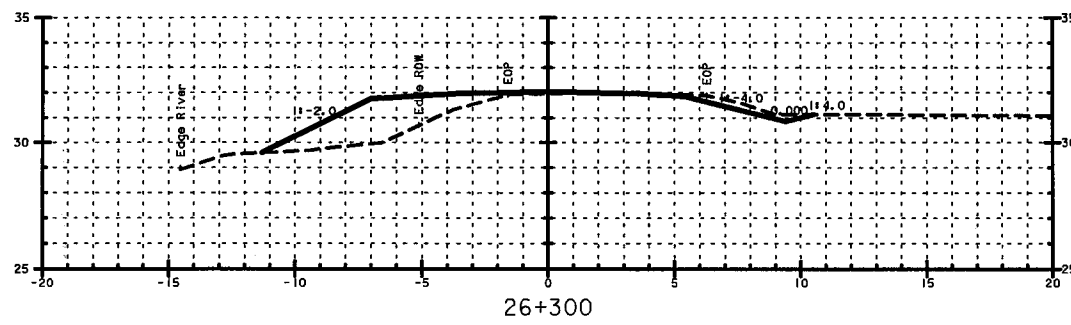
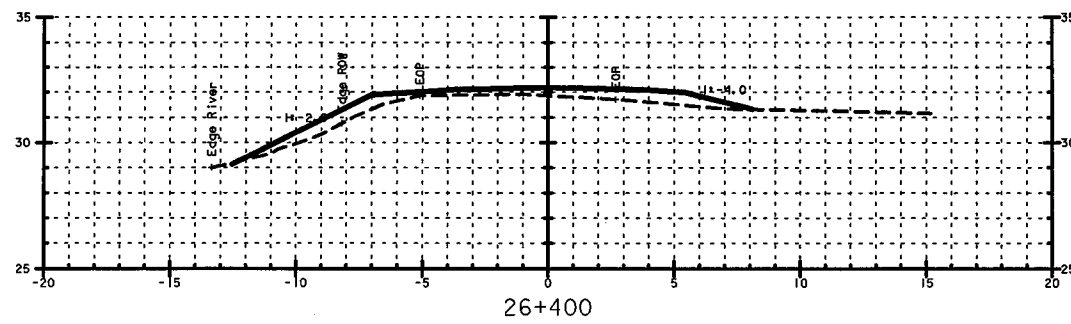
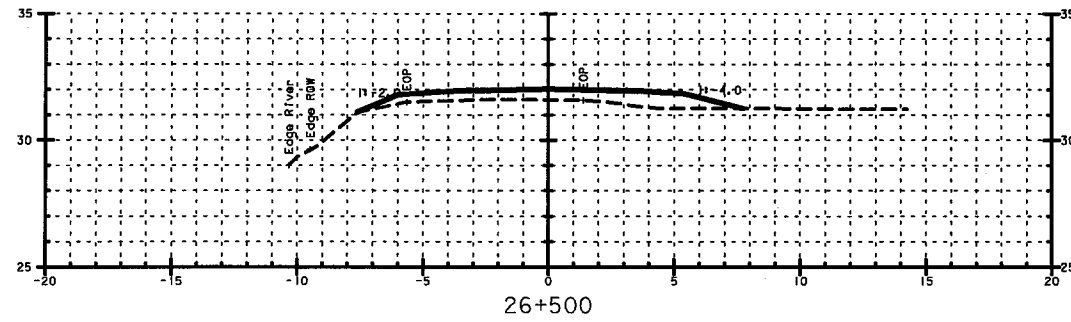
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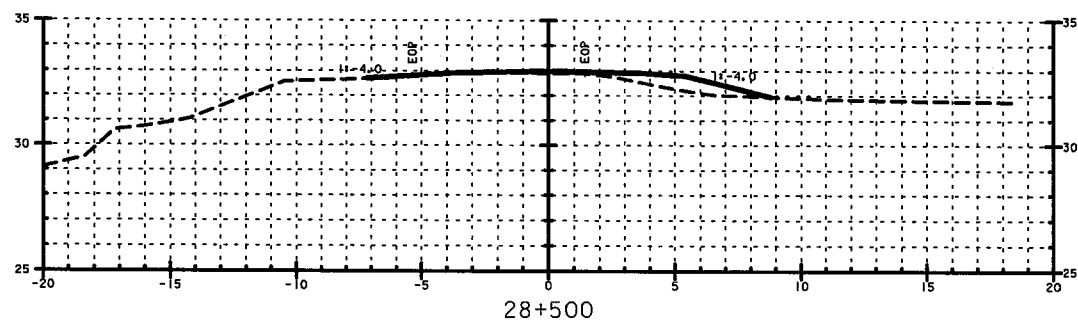
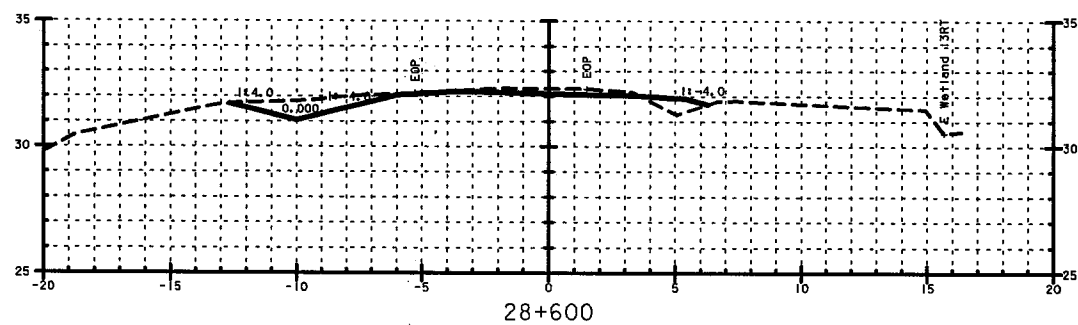
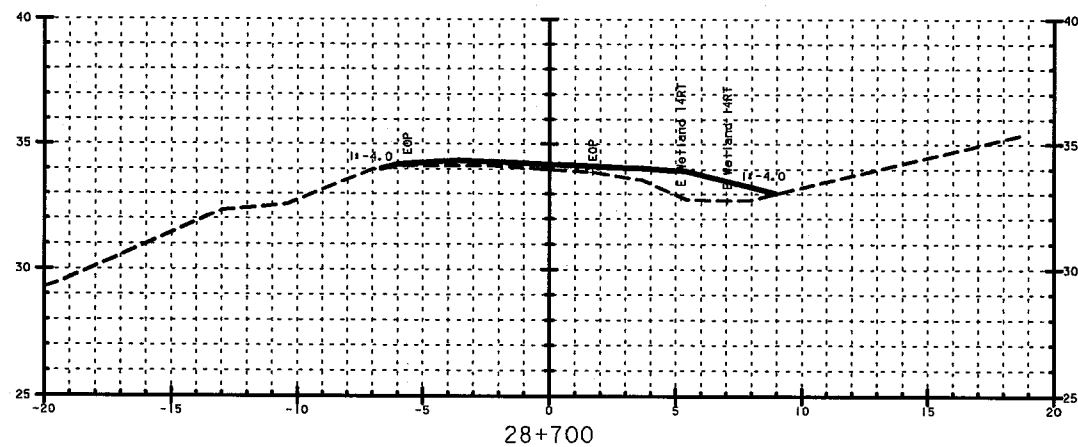
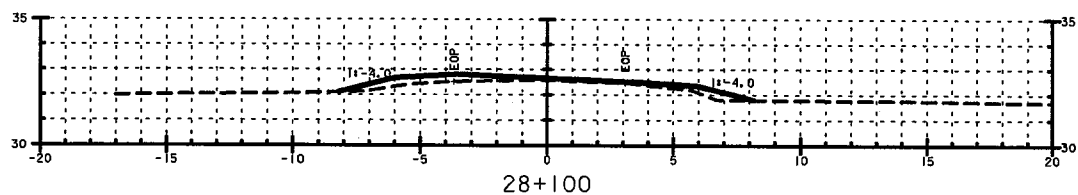
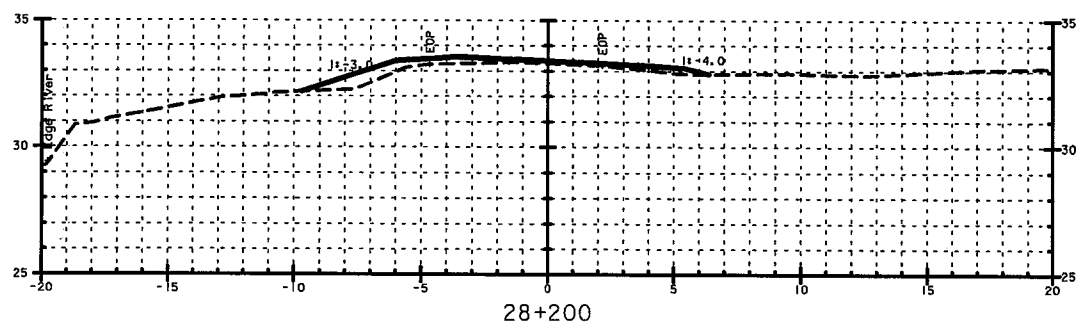
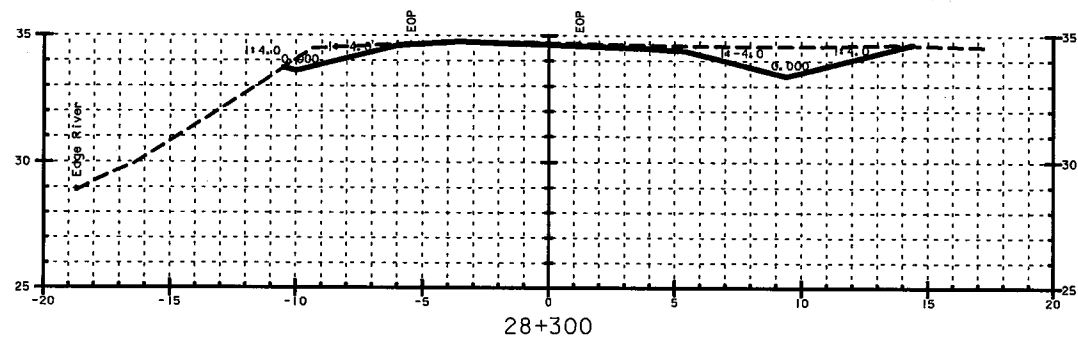
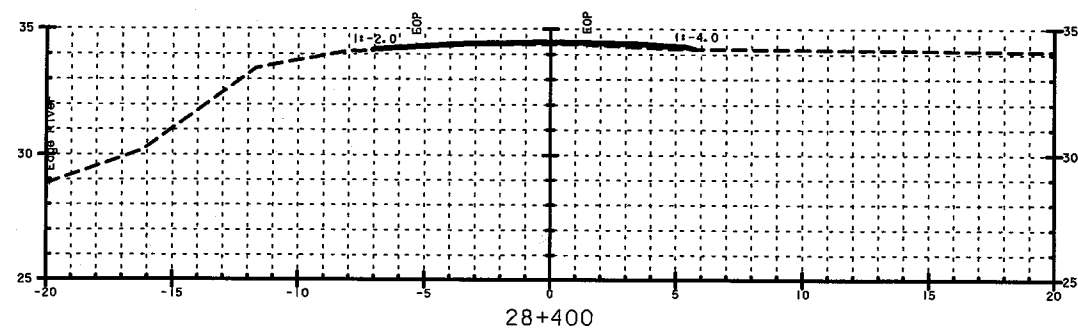


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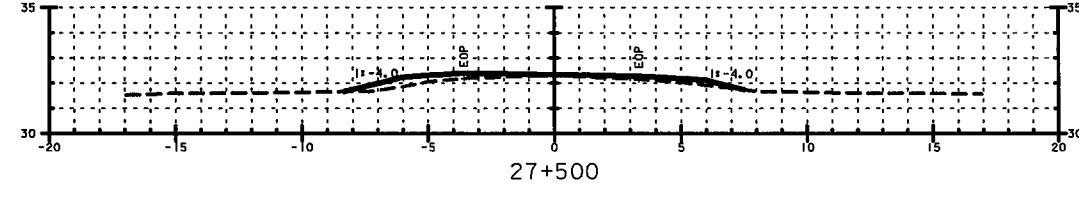
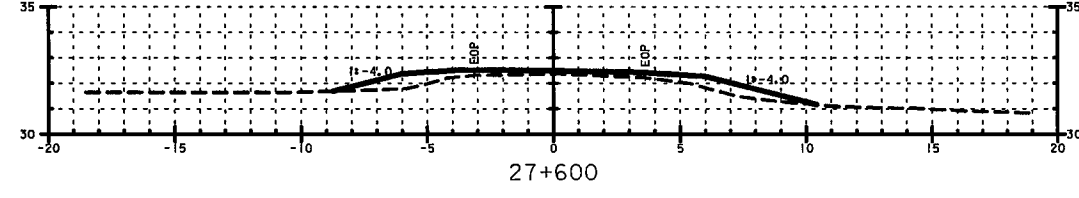
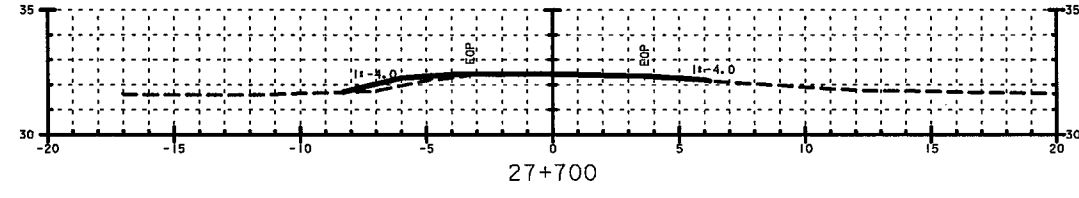
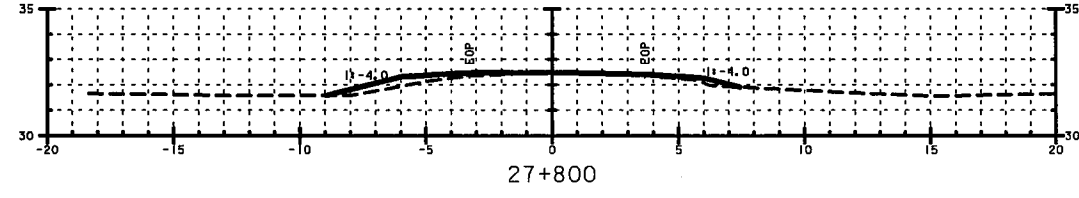
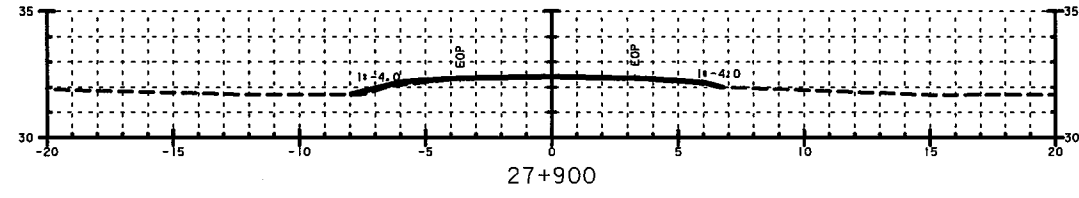
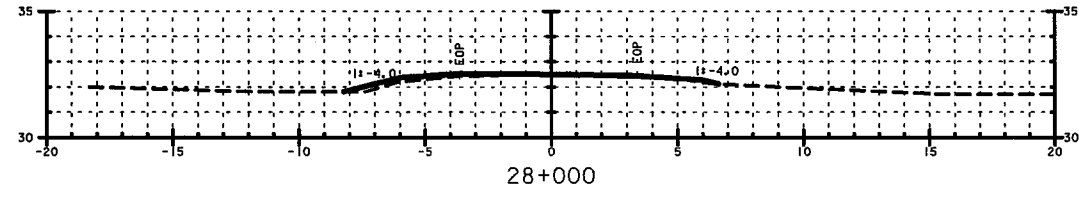
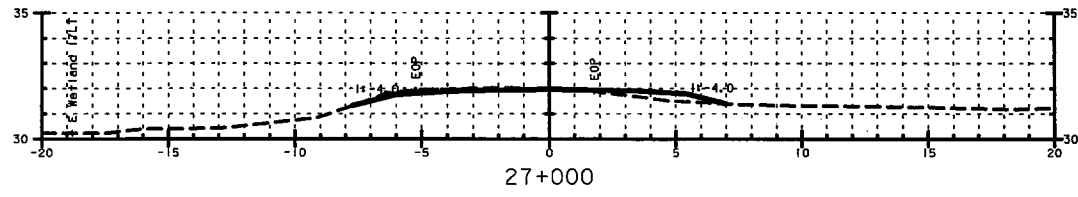
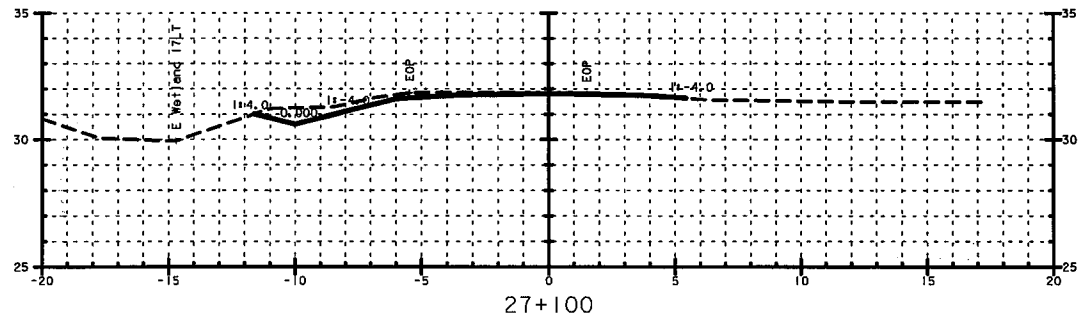
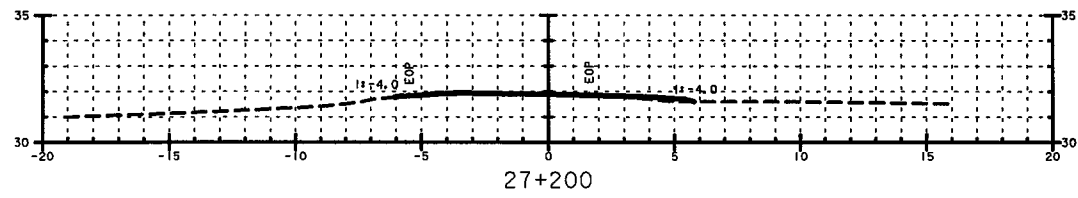
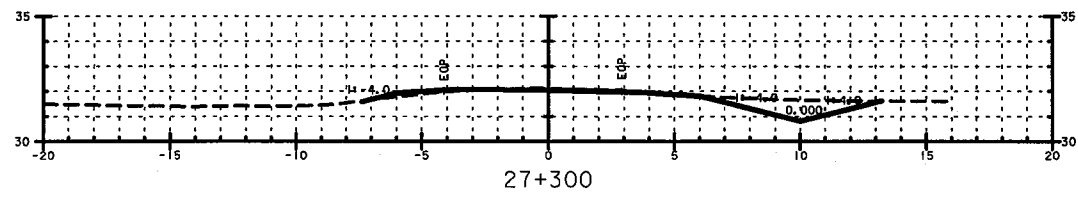
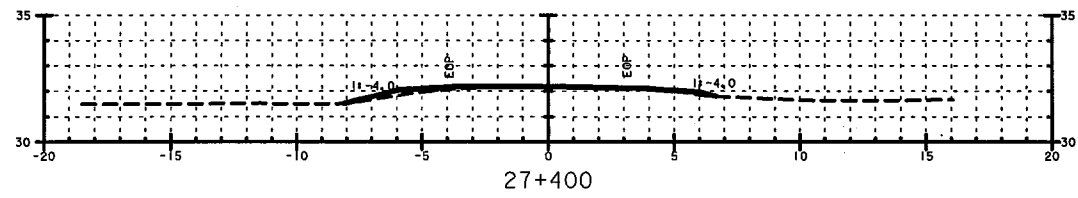


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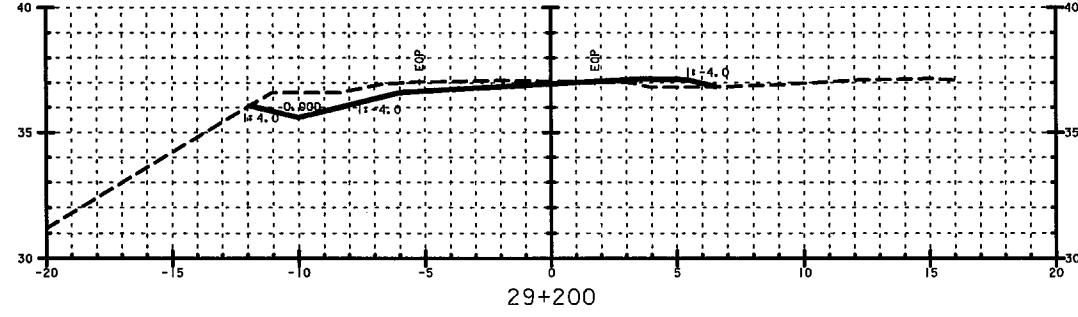
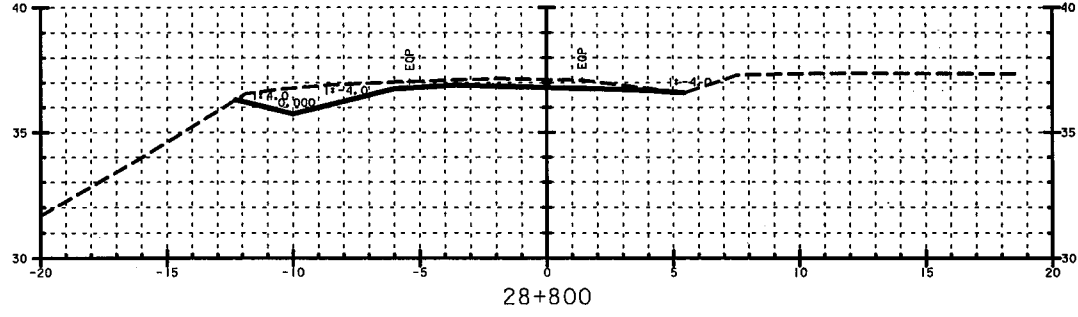
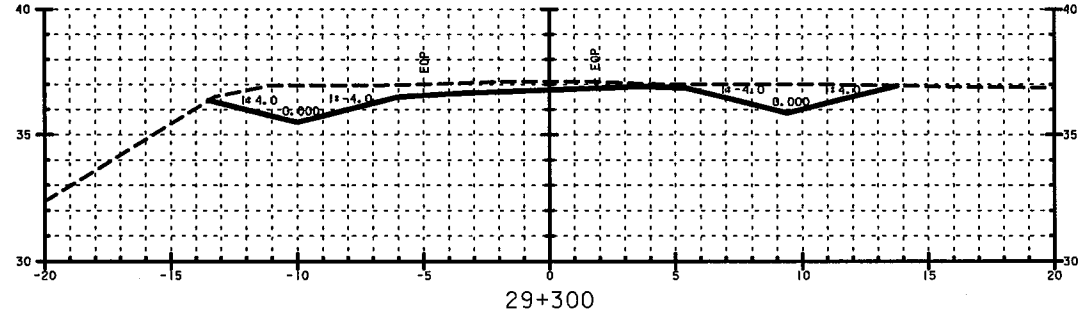
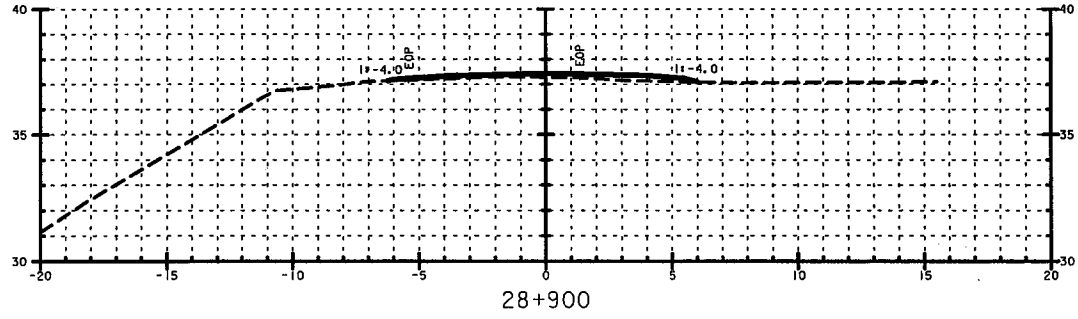
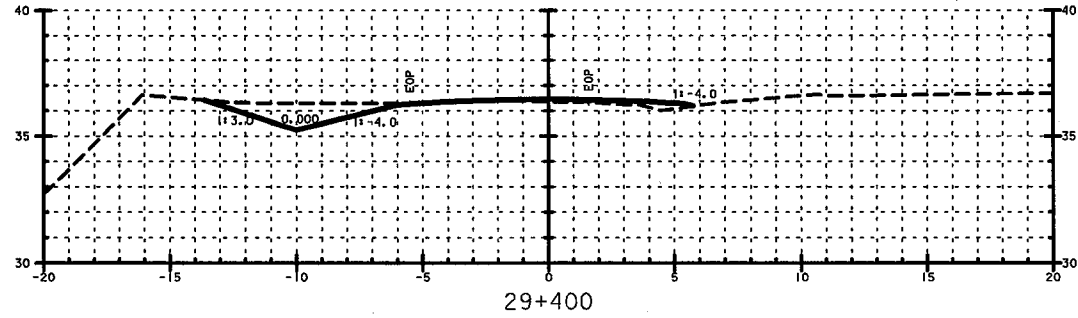
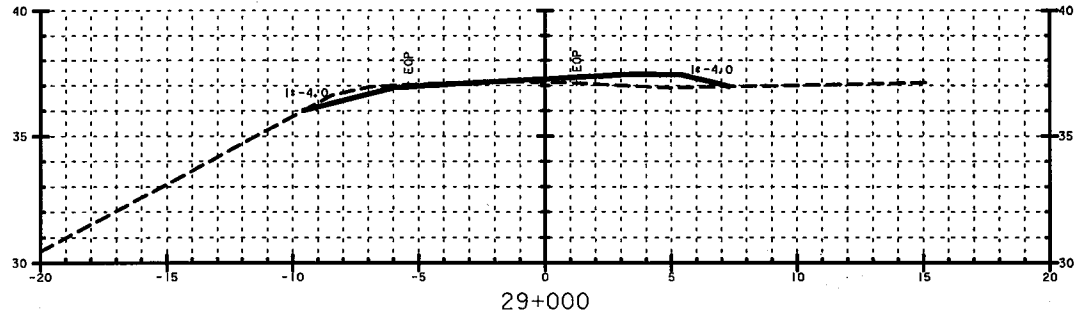
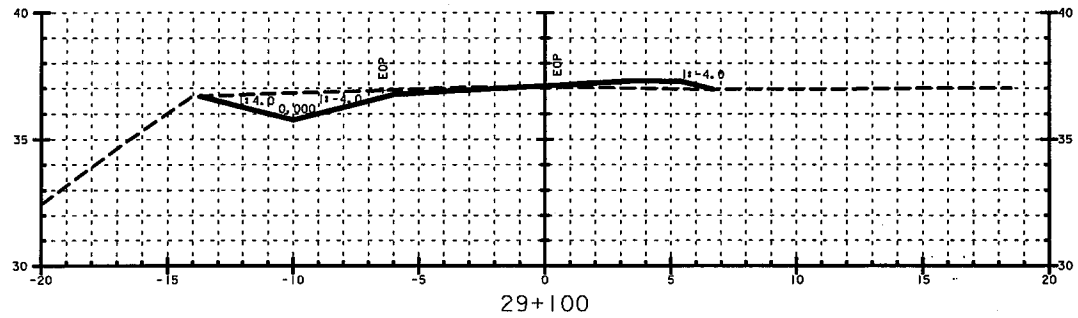
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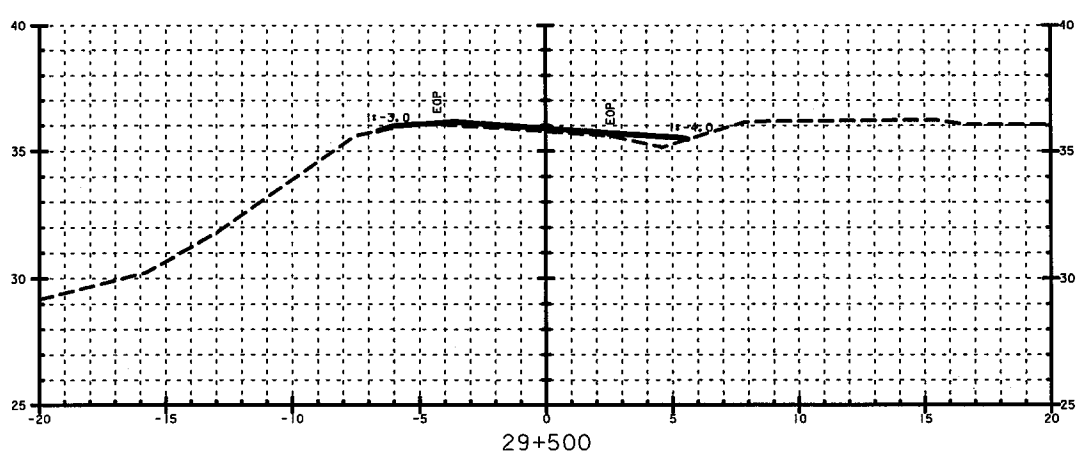
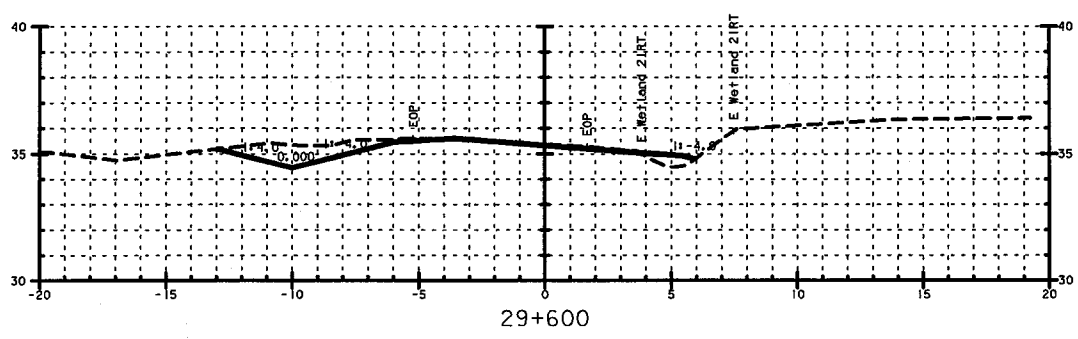
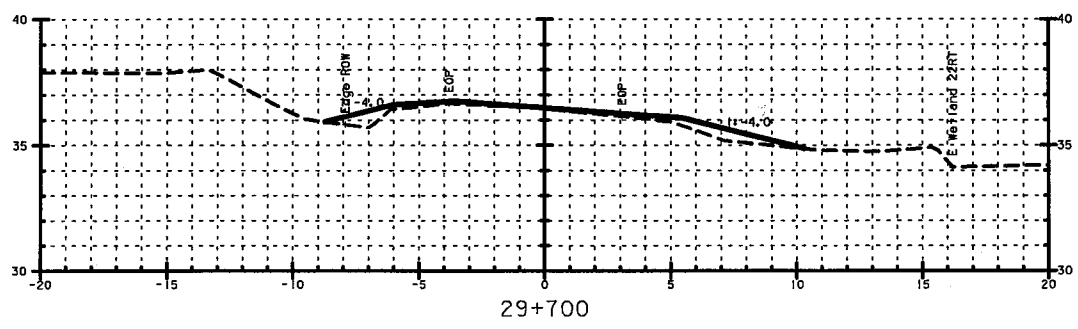
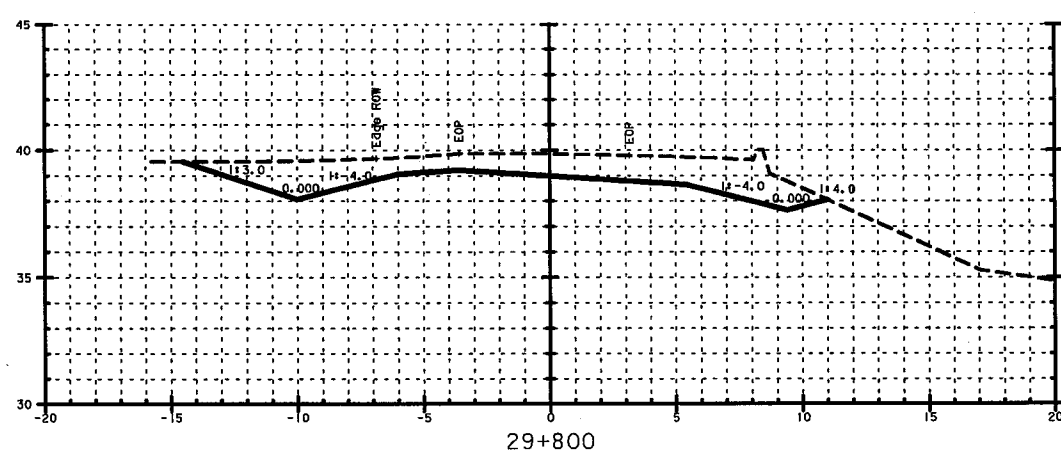
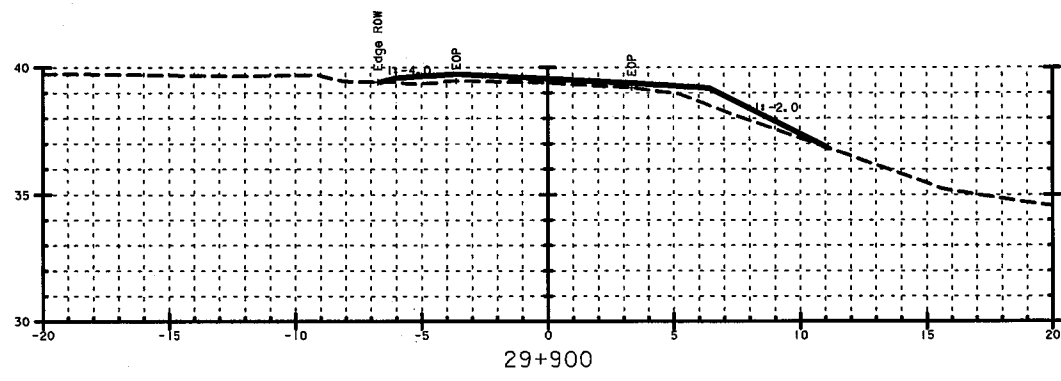
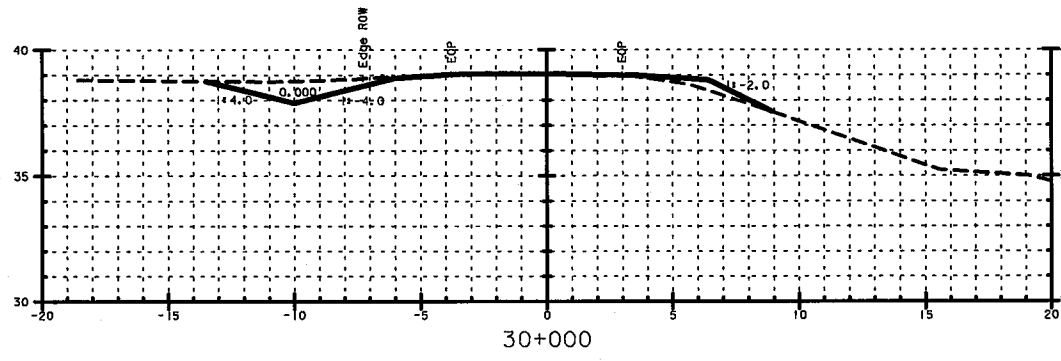
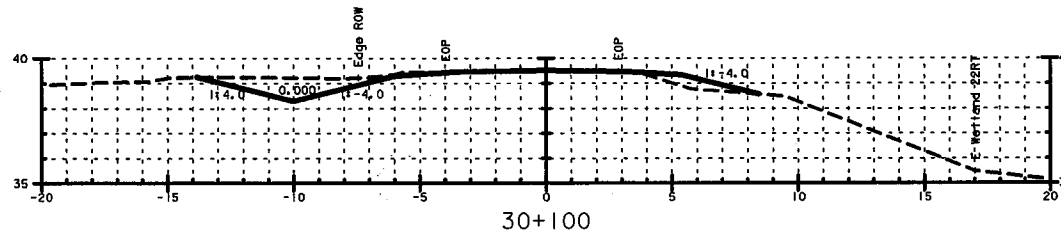
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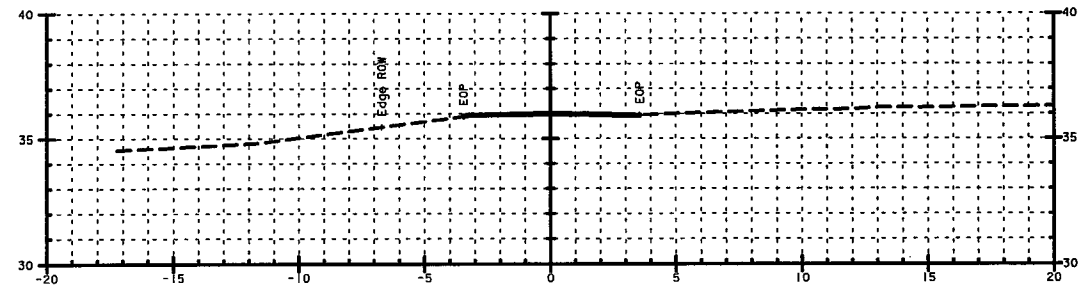


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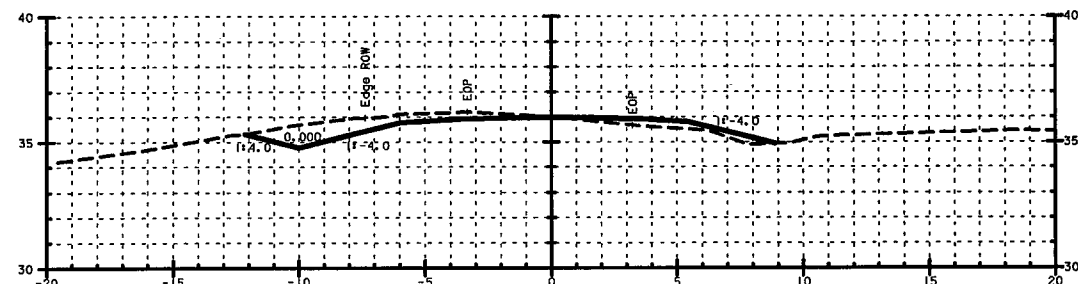


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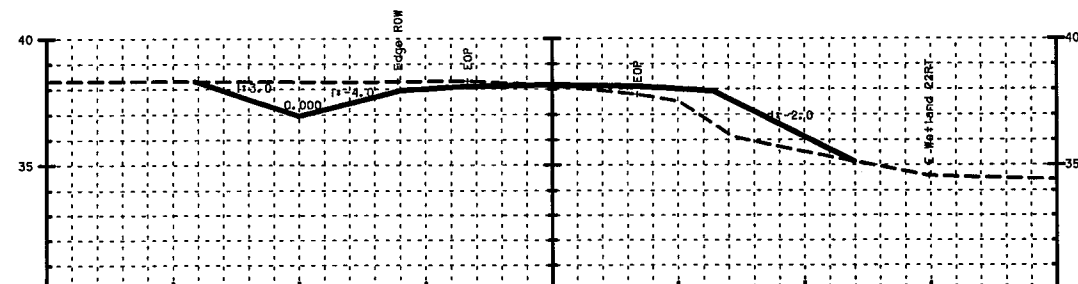
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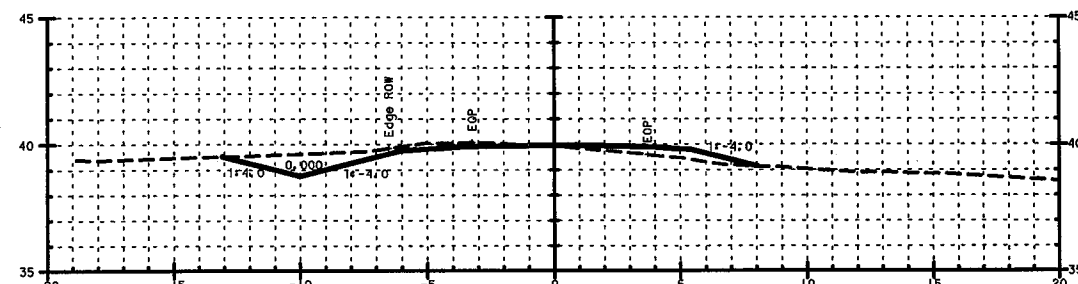
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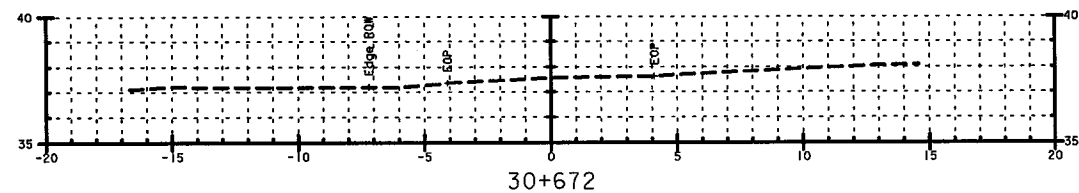
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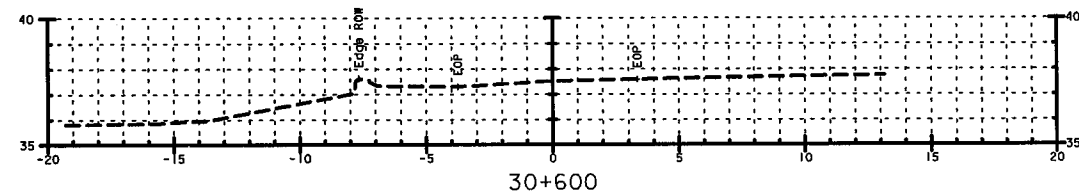
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TRAFFIC DIVERSION ALTERNATIVES STUDY

The following study was conducted by VHB in the Fall of 1997 to address concerns by ANR and other resource agencies that there may be alternatives to improving the VT 78 corridor.

TRAFFIC DIVERSION ALTERNATIVES

The 10 kilometer VT 78 corridor under study between the Missisquoi Bay Bridge and the Village of Swanton passes through approximately 3.5 kilometers of the Missisquoi National Wildlife Refuge, as well as alongside approximately 4 kilometers of the Missisquoi River. Due to the environmental importance and sensitivity of the surrounding land, the Agency of Natural Resources requested that a study be conducted of the effect and the feasibility of diverting traffic away from the VT 78 corridor.

The basic premise of this effort is that it may be possible to upgrade another route of travel such that it becomes the preferred route for a significant portion of the vehicles that are currently using VT 78. Once these diversion alternatives are evaluated, it will be possible to determine whether the diversions would reduce or eliminate the need for improvements within the VT 78 study corridor.

Alternate Routes:

There are three alternate routes that should be examined for their potential to divert traffic away from the VT 78 corridor in Swanton. These alternate routes are as follows (also refer to the attached plan) :

1. Montreal to I-89 in Highgate, VT:

This alternate route originates at I-15 in Montreal and follows I-10 to Routes 35 and 133 to the VT border in Highgate. This is not the preferred route for travel between Montreal and New England since it is characterized by two and three lane roads with predominantly

uncontrolled access. This route also travels through several village centers which add to the total travel time. A customs broker from St. Albans explained that the truckers avoid Route 133 because they feel it is unsafe, especially in the winter. The three lane sections with the

center dual turning lane ("suicide lane") plus the numerous curb cuts were noted as safety concerns.

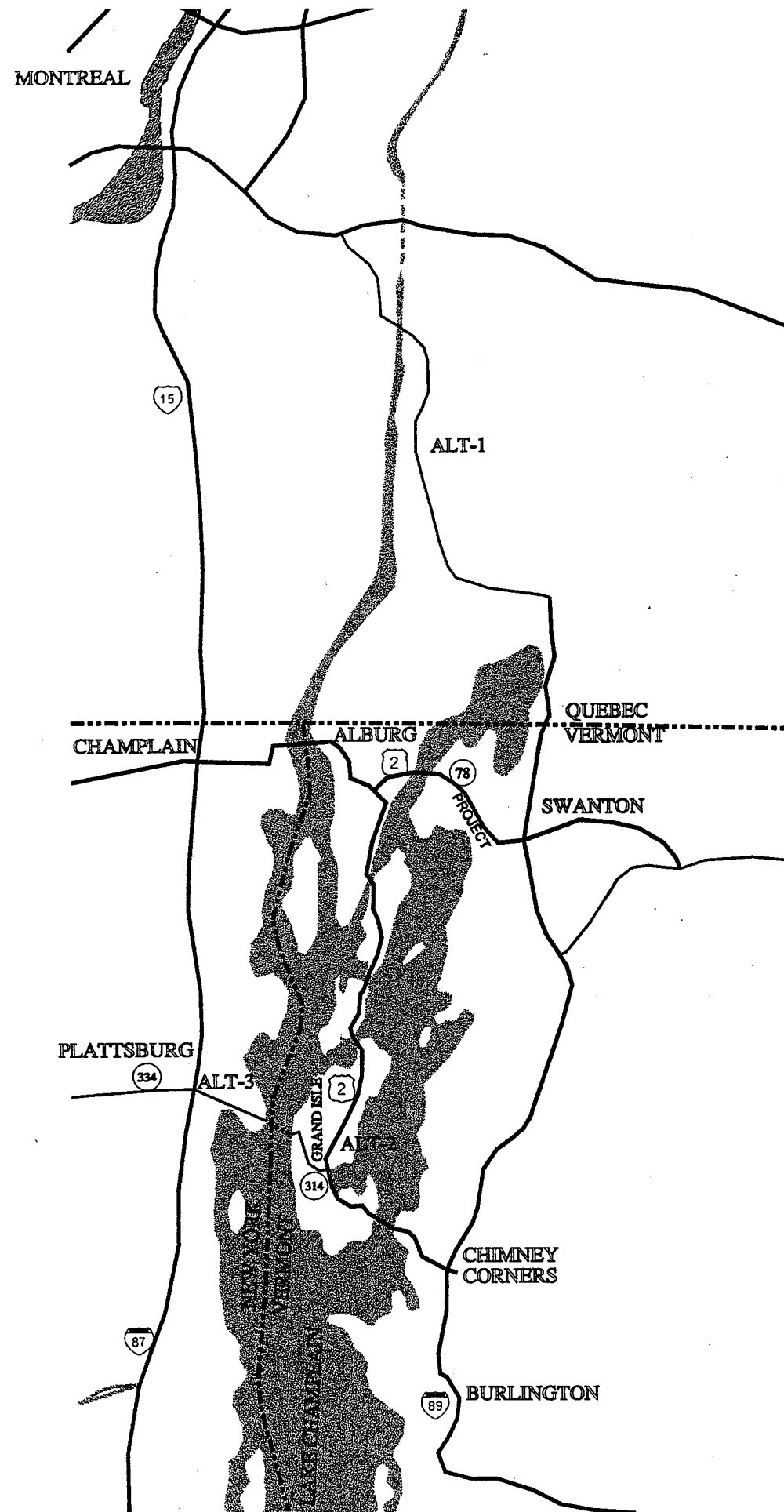
The faster and more direct route from Montreal to New England is via Rte 15, I-87, US 2 and VT 78. Though a travel time study was not conducted, this route is presumed to be the faster route because it is predominantly interstate. Discussions with local officials have reinforced this presumption.

It should be noted that the customs facility at the border in Highgate is not a full service facility. This means it does not possess the ability to inspect all types of cargo, and as a result trucks are occasionally turned away. This results in truckers avoiding this border crossing if there is any chance that they will be turned away. By contrast, the customs facility in Champlain is a full service facility, and has become the preferred point of entry for trucks.

2. US 2 through Grand Isle to I-89:

This is an alternate route for the vehicles that wish to travel between Alburg and I-89 in Burlington and points south.

US 2 from Alburg to I-89 via Grand Isle is a two lane road with uncontrolled access for approximately 52 kilometers. By comparison, VT 78 from Alburg to I-89, which is also two lanes, is only about 16 kilometers in length. The total trip distance from Alburg to, say, Burlington is about the same over either route, but the VT 78 to I-89 route produces noticeably shorter travel times since it is primarily comprised of interstate highway.



3. Ferry crossing at Plattsburg, NY to I-89:

There are very few east-west routes across Lake Champlain, and most of them are ferry crossings. The ferry crossing at Plattsburg is one of the shorter crossings, however compared to the east-west VT 78 corridor it is a more costly and time consuming alternative. It has been reported by the ferry service that the average ferry crossing time, including loading and unloading, takes 20 minutes. This adds significantly to the total trip time which makes this route less attractive than the VT 78 to I-89 route, particularly to trucks.

Origin / Destination Information

Data has been collected concerning the origin and destination (O/D) characteristics of the traffic that passes through the northwest region of Vermont. An actual O/D study has not been performed on VT 78 alone, but sufficient O/D data is available at the primary Vermont border crossings to allow meaningful conclusions to be drawn. This O/D information is useful in evaluating whether there are alternate routes of travel which could be improved such that improvements to VT 78 would no longer be needed. In order to evaluate which optional routes could serve this purpose it is first important to understand where the vehicles on VT 78 are coming from, and where they are going.

In 1994, VHB collected O/D information at the primary VT state border crossings. In northwestern Vermont, data was collected at the US 2 point of entry in Alburg, and at the VT 314 ferry crossing at Grand Isle / Plattsburgh, NY. The O/D data will be examined in relation to the three alternative routes described above:

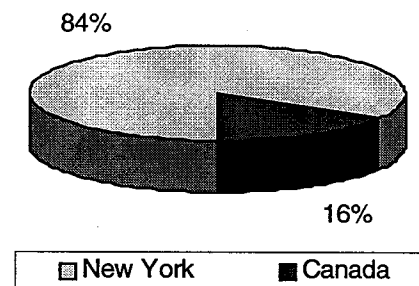
1. Montreal to I-89 in Highgate, VT:

At the Alburg VT/NY border it is most meaningful to determine the portion of the entering vehicles that originated in Canada and then traversed eastward via VT 78. This would provide a good approximation of the number of vehicles that could potentially be diverted away from VT 78 by the alternate route from Montreal to I-89 at the Highgate point of entry.

Results:

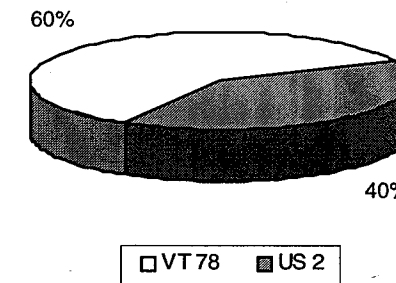
16% of the vehicles that enter Vermont on US 2 in Alburg originated in Canada. The vast majority (84%) were from New York or points west. US 11 in New York provides an east-west connection to I-87 and US 2. US 11 is one of the higher grade east-west highways in the region, and it is on the National Highway System. US 11 connects directly to US 2 in Champlain, and as a result, US 2 provides a natural continuation of the east-west route.

Origin of VT Border Crossings at Alburg



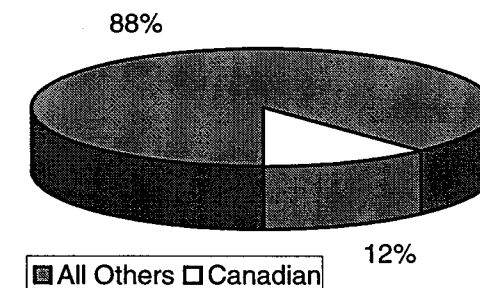
Of the 16% of vehicles that entered Vermont at Alburg from Canadian points of origin, approximately 60% continued eastward via VT 78. These are the vehicles that would be targeted for diversion to the Rte 133 / Highgate alternate route.

Percentage of Canadian Vehicles that Entered Vermont in Alburg and Continued East on VT 78 to Swanton



It is estimated that the 1997 average daily traffic on US 2 at the VT/NY border crossing will be approximately 5,000 vehicles per day (vpd). Therefore, 16% of the trips would equal 800 vpd going to or from Canada. 60% of that 800, or 480 vpd, would travel the VT 78 corridor in Swanton. This represents approximately 12% of the 4,170 vpd that travel on the VT 78 corridor in Swanton. Therefore, the maximum expected reduction in traffic on VT 78 would be 480 vpd, or 12% if all of the Canadian traffic that uses VT 78 were diverted to the Rte 133 / Highgate alternate route.

Origin / Destination of Vehicles on VT 78



One point of interest is that 86% of the trucks from Canada that entered Vermont on US 2 in Alburg then traveled over VT 78 in Swanton. This reinforces several points:

- Trucks prefer the customs station in Champlain vs. Highgate since Champlain is full service. The customs office has supplied truck data which shows that there are almost three

times as many trucks entering via the Champlain point of entry vs. the one at Highgate. It was also interesting to note that approximately 20% of the vehicles entering the US at Champlain via I-87 were trucks.

- The majority of the truck traffic to Montreal is from the west, and the majority of the truck activity is in the western section of Montreal. As a result, there is little incentive for trucks to use anything but Route 15 out of Montreal to the Champlain crossing.
- VT 78 is currently on the fastest route from Montreal to I-89.

Feasibility:

This alternative route would require two primary improvements to take place in order to divert traffic away from the VT 78 corridor. These are:

- improve the Canadian route from Montreal to I-89 in Highgate to a multi-lane, controlled access facility,
- improve the border crossing at Highgate to a full service facility.

The feasibility of improving the highway from Montreal to Highgate to interstate standards is unlikely for several reasons. The first is that the Canadian government would need to be convinced that they have a reason to do so. It is questionable whether the Canadian government would expend considerable amounts of their resources to help divert traffic off of a roadway on the US National Highway System for the sake of less than 4 acres of impact in a US Wildlife Refuge. It is also unlikely that the US would substantially participate in funding such a project outside of its own borders. It should also be noted that constructing improvements of this magnitude in Canada would not be without environmental, social, and economic impacts. Though a study in Canada has not been conducted, it is likely that the level of improvements necessary to improve the Canadian route would produce impacts to wetlands, agricultural land, private property, and/or historic and visual resources.

Improving the border crossing at Highgate to a full service facility is not recommended if the Canadian highway improvements discussed above are not also implemented. This is because the existing border crossing may not have the traffic to warrant the upgrade, and driving conditions on the roads between Montreal and Highgate would suffer from the added truck traffic. It should be noted that the 1997 upgrade to the Highgate border crossing did not include an upgrade to a full service inspection facility.

Conclusion:

The feasibility of improving this alternate route is considered very low for economic and social reasons, and the probability is considered even lower due to the level of cooperation and participation required between national and state governments. The fact that the maximum expected benefit is only a 12% decrease in traffic on VT 78 shows that these improvements would not divert enough traffic to reduce or eliminate the need to improve VT 78.

Recommendation:

In consideration of the limited benefits, expected high costs, environmental and social impacts, and political hurdles, it is recommended that this diversion alternative be considered no further.

2. US 2 through Grand Isle to I-89:

In Alburg, VT 78 splits off of US 2 and heads easterly to Swanton and I-89. US 2 continues south down Grand Isle through North Hero, Grand Isle, and South Hero, and eventually connects to I-89 near Chimney Corners, about 16 kilometers north of Burlington. In examining the origin /destination data from the US 2 NY/VT border crossing, it is possible to approximate the number of vehicles that travel to the Chimney Corners US 2 / I-89 junction

and points south. It is assumed that the majority of the vehicles that originate in Alburg and pass through Chimney Corners currently take the VT 78 to I-89 route since it is the faster route. These are the vehicles which could potentially be diverted off of VT 78 and onto US 2. US 2 would therefore need to be improved to the point that the majority of the traffic currently using VT 78 would notice a benefit of using US 2 to Chimney Corners through the islands.

Results:

The origin /destination results show that approximately 28 percent of the vehicles that enter Vermont on US 2 in Alburg continue over VT 78 to I-89 and proceed southerly on I-89 past the point where US 2 connects to I-89 in Chimney Corners. This means that 28% of the 5,000 vehicles per day (vpd) crossing in both directions at the VT /NY border could potentially be diverted off of VT 78 and onto US 2. This 28% is conservative on the high side since it assumes that a full 100% of the vehicles traveling from Alburg to Chimney Corners would choose the VT 78 to I-89 route because it is faster. In reality this number may be lower since some of the vehicles may have intermediate stops in Grand Isle, or they may prefer the scenic nature of US 2 to the predominantly interstate character of the VT 78/I-89 route.

The 28% of entering vehicles is 1,400 vpd (bi-directional) which equates to 34% of the 1997 average daily traffic on VT 78. This is the highest possible diversion percentage that would be attainable from VT 78. This percentages is of course unrealistically high since it would be necessary to upgrade US 2 to near interstate standards in order to attain 100% diversion off of VT 78. It is more reasonable to expect the improvements along US 2 to consist of roadway widening, improved horizontal and vertical alignments, and implementation of access control measures. This upgrade would reduce travel times on US 2 to some degree since speeds would be allowed to increase, but it is expected that these improvements would not divert 100% of the traffic off of the VT 78 route since it is predominantly interstate. If half of the targeted traffic is diverted to US 2 it would reduce traffic on VT 78 by 17%, which represents a decrease in VT 78 traffic from 4,170 vpd to 3,461 vpd.

Conclusion:

This diversion alternative would result in at most a 34% reduction in traffic on VT 78. It is expected that the actual diversion would be less since there is a practical limit to the degree to which US 2 could be improved. For US 2 to divert a high percentage of the through traffic away from VT 78 it would have to be widened and straightened for about 48 kilometers, and access would need to be controlled. Recall that the VT 78 /I-89 route consists mainly of interstate which supports high speeds and no stopping.

Feasibility:

For motorists to be enticed away from the current route, US 2 would need to be upgraded substantially for 48 kilometers to safely provide for the increased speeds and greater volumes. There is definitely a question of affordability of this option since a 48 kilometer upgrade would be many times as costly as the 6 kilometer upgrade that is planned for VT 78. US 2 is also reportedly being considered for Scenic Byway designation, and the type of upgrade that would be necessary to divert traffic from VT 78 would likely degrade the scenic character along portions of its 48 kilometers. This upgrade would be difficult to accomplish without impacts to natural and historic resources since US 2 crosses water at several locations, and passes through several small town centers with residential surroundings. In addition, there would undoubtedly be public outcry from the affected communities along Grand Isle if traffic is diverted from VT 78 to US 2.

Recommendation:

In consideration of the limited benefits to VT 78, expected high costs, environmental impacts, social impacts, and political hurdles, it is recommended that this diversion alternative be considered no further.

3. Ferry crossing at Plattsburg, NY to I-89:

This route would potentially divert traffic away from the VT 78 connection to I-89 in a similar way that the US 2 diversion alternative would. The vehicles that would be targeted are the same ones that were considered for the US 2 diversion since their destinations would be I-89 at Chimney Corner, and points south. Therefore, the maximum expected diversion would result in a 34% reduction in traffic on VT 78. For this high effectiveness rate to be realized, the ferry crossing and the VT 314 and US 2 connection to I-89 would have to be improved to the point where this becomes a faster route than the VT 78 / I-89 route. Due to the nature of the ferry service, this is not likely to occur. The Lake Champlain Transit Co. provided the following information on the capacity and reliability of the service:

Capacity: 2 boats: 120 vehicles/ hour
3 boats: 160 vehicles/hour

Minimum Trip time: 20 min. incl. Loading/unloading

Hours of service: 5:00 AM to 1:00 AM

1997 Daily Traffic: 1,800 vpd (2-way)

1997 Truck Traffic: 200 /day = 11%

It was noted that adding a fourth boat would produce diminishing returns since the loading and unloading capabilities would become a limiting factor, and boats would frequently have to stand off from the pier while others loaded. It was also noted that there is currently some excess capacity on the ferry with 3 boats running. Therefore, adding capacity at the ferry crossing would not increase usage of this route. The ferry is reported to be very reliable.

Weather and ice conditions only shut down the ferry for at most one full day a year. Reliability therefore does not appear to be a factor in the utilization of this route.

Another component of this route is the highway connection from I-87 in NY to I-89 in VT, which include VT 314 and US 2. These are two lane rural highways which would need to be improved significantly to reduce the travel time for this alternate route. This entire route traverses roughly the same amount of interstate and rural highway as the VT 78 to I-89 route, and therefore the ferry crossing becomes the obstacle that currently makes the VT 78 route the faster alternative. A twenty minute delay due to the ferry roughly equates to thirty two kilometers that could be traveled on the interstate.

Conclusion:

It appears that the primary reason that this route is not as heavily traveled as the VT 78 route is the delay that the ferry introduces. Based on the information that was provided by the ferry service, the existing ferry is not operating at full capacity, and there is little that can be done to reduce the trip time. The only improvements that could be made for this diversion alternative would be upgrades to VT 314 and US 2 between the ferry and I-89. It is not felt that these improvements would be sufficient to divert motorists away from VT 78. The only improvement to this route that would be considered effective is if the ferry were to be replaced with a bridge. The potential visual and environmental impacts of such a solution are presumed to be prohibitive.

Recommendation:

In consideration of the limited benefits to VT 78, expected environmental and social impacts, it is recommended that this diversion alternative be considered no further.

HISTORIC RESOURCES REPORT

THE BURLEY PARTNERSHIP

Architecture Planning Interior Design Historic Preservation

Waitsfield, Vermont 05673
FAX 802-496-6204 PH 802-496-3900

Historical Impact Analysis of Swanton, Rt 78, continued

2

March 12, 1997

Mr. Greg Bakos
Vanasse Hangen Brustlin, Inc.
Kilton Road, Six Bedford Farms, Suite 607
Bedford, New Hampshire 03110-6532

RECEIVED

MAR 17 1997

VHB, INC.

RE: Swanton, VT 78;
VHB # 50736

Dear Greg:

I completed a site inspection of Route 78 north of Swanton on March 6, 1997, but was unable to access the files at the Division for Historic Preservation until today due to their staff's reorganization of them; hence the delay between site visit and report.

The southern end of the project area begins at the northern edge of the Swanton Historic District, but contains no buildings that are in the district itself. There are a very few houses near the southern end of the project area, but none are historically significant, and none are identified as such on any State historic register. See Photos #1 and #2.

Along the entire stretch of road in this project area there are only three significant historic structures: one is the railroad tracks that generally follow along the western edge of the road; one is the cemetery between the highway and the river, just south of the Missisquoi National Wildlife Refuge (Photo #3); and the third is a small one-room school house at the intersection of Church Road and Rt 78, near the northern end of the project area (Photo #4).

There is also a very small one-room camp in the middle of the Missisquoi National Wildlife Refuge (Photo #5), and newer camps and homes just south of the Refuge, but quite far back from the road (Photo #6). None of these have any significant architectural features or historical value, except perhaps to their owners.

Conclusion of Historic Impact Assessment

The proposed widening or realigning of this road will have no effect whatsoever on any historic resource in the project area. The school house and the stones at the edge of the cemetery are all set back well away from the edge of the road. For the most part the railroad is also some distance away from the road. In the short area where it is close to the road as it crosses wetlands, there is still enough room to add shoulders to the highway without affecting the railroad.

Please let me know if I can be of further assistance in the historic impact assessment of this proposed project.

Sincerely,
THE BURLEY PARTNERSHIP

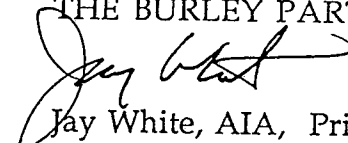

Jay White, AIA, Principal



Photo #1: View looking south from edge of project area.



Photo #2: Houses at south end of project area.



Photo #3: View of cemetery on right, looking north.



Photo #4, Historic school house at Intersection of Church Road and Rt 78.



Photo #5, Small isolated camp in center of National Wildlife Refuge area.



Photo #6, Newer camps and houses just south of National Wildlife Refuge area.

ARCHAEOLOGICAL RESOURCES REPORT

PRELIMINARY PHASE IA ARCHAEOLOGICAL ASSESSMENT
OF THE
SWANTON NH 036-1(9)SC PROJECT
VERMONT ROUTE 78 UPGRADE
SWANTON, FRANKLIN COUNTY, VERMONT

PREPARED FOR:

VANASSE HANGEN BRUSTLIN, INC.
SIX BEDFORD FARMS, SUITE 607
BEDFORD, NEW HAMPSHIRE 03110-6532

PREPARED BY:

DOUGLAS FRINK
PRINCIPAL INVESTIGATING ARCHAEOLOGIST
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FEBRUARY 1997

Acknowledgments

The authors wish to thank Charity Baker of Archaeology Consulting Team, Inc. for her contributions towards the completion of this report.

Abstract

The Vermont Agency of Transportation (VAOT) is performing the scoping phase of Project NH 036-1(9)SC which is intended to develop solutions to identified transportation problems on Route 78 in Swanton. The project corridor includes 6.345 miles of VT Route 78, from the southern end of the Swanton-Alburg Bridge, through the Missisquoi National Wildlife Refuge, to the Village of Swanton (Figure 1).

The Archaeology Consulting Team, Inc. of Essex Junction, Vermont conducted a preliminary Phase IA archaeological assessment of the project corridor in January of 1997. The project corridor was found to be potentially archaeologically sensitive for early Native American sites along its entire length. The project corridor was found to be potentially sensitive for European American sites in areas defined during archival research.

Table of Contents

INTRODUCTION	1
PROCEDURES.....	1
RESULTS.....	2
ENVIRONMENTAL SETTING	2
NATIVE AMERICAN SITE SENSITIVITY.....	5
EUROPEAN AMERICAN SITE SENSITIVITY.....	6
RECOMMENDATIONS.....	13
REFERENCES	14
APPENDIX A: KNOWN ARCHAEOLOGICAL SITES IN THE AREA.....	17
<i>Native American Sites within 500 meters of VT Route 78</i>	18
<i>European American Sites within 500 meters of VT Route 78</i>	18
<i>Additional Native American Sites within the Hog Island-Missisquoi Delta Area</i>	18

List of Figures

Figure 1: VT Route 78 Upgrade Project Location Map, Swanton, Vermont (1964 USGS <i>East Alburg, VT 7.5 Minute Quadrangle, Photoinspected 1972</i>)	3
Figure 2: VT Route 78 Upgrade Project Location Map Showing Reconstructed Forest Communities (Based on 1964 USGS <i>East Alburg, VT 7.5 Minute Quadrangle, Photoinspected 1972</i>)	7
Figure 3: Beers 1871 <i>Atlas of Franklin County, Vermont</i> , VT Route 78 Upgrade Project Area, Potential European American Archaeologically Sensitive Areas Indicated.....	11
Figure 4: Beers 1871 <i>Atlas of Franklin County, Vermont</i> , Detail of Village, VT Route 78 Upgrade Project Area, Potential European American Archaeologically Sensitive Areas Indicated.....	12

List of Tables

Table 1: List of Structures from Walling's 1857 <i>Map of Franklin County, Vermont from Actual Surveys</i> with Corresponding Structure Identifications from Beers' 1871 <i>Atlas of Franklin County, Vermont</i>	10
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**PRELIMINARY PHASE IA ARCHAEOLOGICAL ASSESSMENT
OF THE
SWANTON NH 036-1(9)SC PROJECT
VERMONT ROUTE 78 UPGRADE
SWANTON, FRANKLIN COUNTY, VERMONT**

Introduction

The Vermont Agency of Transportation (VAOT) is performing the scoping phase of Project NH 036-1(9)SC which is intended to develop solutions to identified transportation problems on Route 78 in Swanton. The project corridor includes 6.345 miles of VT Route 78, from the southern end of the Swanton-Alburg Bridge, through the Missisquoi National Wildlife Refuge, to the Village of Swanton (Figure 1).

On January 9, 1997, Archaeology Consulting Team, Inc. was contracted by Vanasse Hangen Brustlin, Inc. to perform a preliminary Phase IA archaeological assessment. A preliminary Phase IA assessment is conducted to determine if potentially significant cultural resources, defined as any material remains of human activity that are eligible for inclusion on the national and/or state registers, may exist within a project area.

This study was conducted in accordance with Section 106 of the National Historic Preservation Act of 1966 and 36 C.F.R. 800 standards. This study also complies with Criterion 8, 10 V.S.A. Chapter 151 (ACT 250) and follows *Guidelines for Archeological Studies* (VDHP 1989).

Procedures

The record of known archaeological sites in the vicinity of the project area was examined through the inspection of the *Vermont Archeological Inventory (VAI)* at the Vermont Division for Historic Preservation (VDHP) in Montpelier, Vermont. The *Centennial Geologic Map of Vermont* (1961), the USGS *East Alburg, VT. 7.5 Minute Quadrangle* (1964, photoinspected 1972), the USDA *Soil Survey of Franklin County, VT* (1979), and aerial photographs were examined. The 1871 *Beers Atlas of Franklin County* and the 1857 *Walling Map of Franklin County, Vermont from Actual Surveys* were also consulted.

The primary issue addressed at the preliminary assessment level concerns the integrity of potential archaeological deposits. The effects of past extensive farming in the project corridor need to be evaluated in order to determine the potential for surviving archaeological sites.

Starting from John's Bridge in Swanton, the project corridor runs northwest along the bank of the Missisquoi River for approximately 3.5 miles, and continues northwest along the bank of Charcoal Creek for roughly another mile. The corridor then crosses Charcoal Creek and proceeds west across Hog Island to the Swanton-Alburg Bridge,

generally following the Lake Champlain shoreline (Figure 1). The entire corridor falls within 400 feet of former or existing major drainage or lake shoreline, suggesting an *a priori* determination of high archaeological sensitivity for Native American sites.

Results

Environmental Setting

The underlying bedrock in the project area consists of the Iberville Formation, composed of noncalcareous black shale with occasional beds of dolomite. This relatively flat surface is mantled with recent Pleistocene glacial till soils. Soil associations consist of Limerick-Rumney Variant-Winooski in the Missisquoi floodplain, Georgia-St. Albans and Kingsbury-Covington on Hog Island, and Carlisle-Terric Medisaprists underlying much of the fresh water marshes (USDA 1979).

The Swanton-Hog Island-Missisquoi River delta area is the result of several dynamic processes. Glaciers covering Vermont prior to 14,000 years before present (ybp) scraped the land clear, providing a clean slate for biological recolonization and subsequent human occupation. The enormous weight of the glaciers depressed the land surface hundreds, perhaps thousands, of feet below current sea levels. As the climate warmed, glacial melt was trapped in the Champlain Valley by the Laurentian ice dam to the north, forming a glacial lake. This Lake Vermont, as it is now known, had water levels 400 to 700 feet higher than the present Lake Champlain, covering the current project area (Haviland and Power 1994).

As the glacier retreated farther north, the St. Lawrence seaway opened. The combination of the depressed land and rising sea levels due to worldwide glacial melting allowed an invasion of salt water into the Champlain Valley, forming an inland sea, the Champlain Sea, about 12,000 ybp. Originally, the Champlain Sea's water levels were higher and extended farther to the west, covering the project area. As the land began its isostatic rebound, the water levels of the Champlain Sea dropped and the shoreline receded, eventually exposing the project area (Haviland and Power 1994). The Windsor-Missisquoi soil association, just west of the project area, reflects the fact that the area now occupied by Swanton Village was temporarily a beach on the Champlain Sea.

The land continued to rebound, eventually raising the Champlain Valley above sea level around 10,000 ybp. The salt sea water drained out of the valley and was replaced by a fresh water lake, Lake Champlain, although the level of the lake was much lower than today. Water levels in the Missisquoi Bay area are calculated to have been about 30 feet lower (Beblowski 1980; Vogelman 1972).

Forest communities, rich in resources for Native Americans, would have expanded over the newly exposed land. The landform called Hog Island may not have been an island, but a peninsula covered with a Northern Hardwood-White Pine (Oak, Ash, Hickory Dominant) forest community that provided acorns, hickory nuts, and to a lesser extent, beechnuts and walnuts (Frink 1996). The marsh area may have been an extensive Perpetually Juvenile Forest (deer yard) (Frink, Knoblock and Baker 1994). The

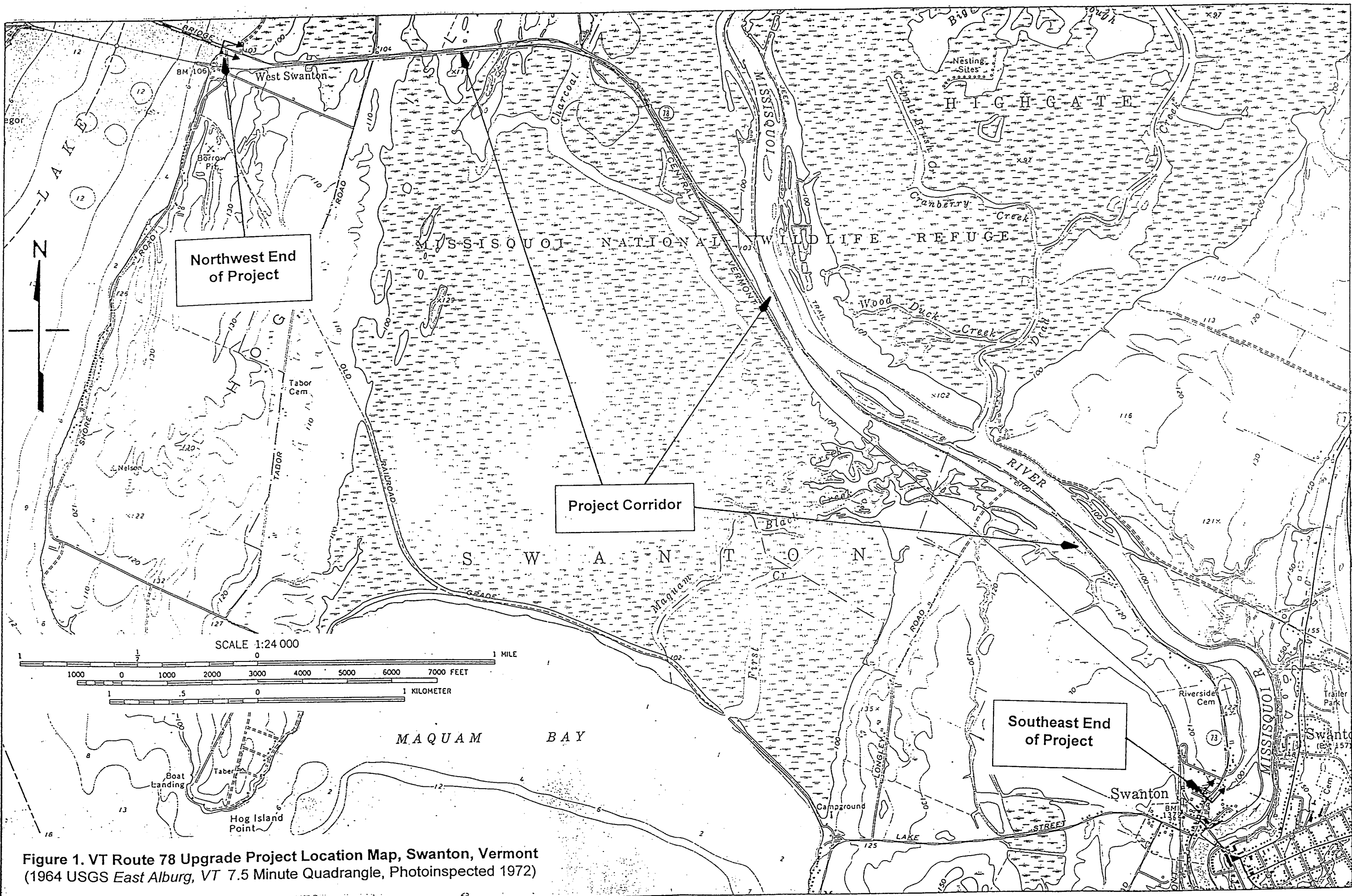


Figure 1. VT Route 78 Upgrade Project Location Map, Swanton, Vermont
 (1964 USGS East Alburg, VT 7.5 Minute Quadrangle, Photoinspected 1972)

Missisquoi River floodplain would have been within the Bottomland Hardwoods forest community, rich in medicinal plants, edible plants and tubers, and small game (Frink 1996).

As the land continued to rebound, the north end of the Champlain Valley was elevated higher, trapping more water in Lake Champlain and caused the level of the lake to rise (Bebrowski 1980). As a consequence, the Missisquoi River delta was slowly resubmerged, causing the forest communities to contract. The Northern Hardwood-White Pine (Oak, Ash, Hickory Dominant) forest community retreated to the top of the north-south ridge that forms Hog Island. The Perpetually Juvenile Forest and Bottomland Hardwood Forest communities transformed into a Freshwater Marsh (Figure 2). As the forest communities first expanded over the project area, due to falling water levels, and subsequently contracted back, due to rising water levels, the ecotones between the forest communities, the river, and the lake, would have shifted accordingly. The entire project area would have been located at an ecotone some time during the cultural history of the area.

Native American Site Sensitivity

A review of the *Vermont Archeological Inventory (VAI)* at the VDHP in Montpelier, Vermont, indicates that there are 18 Native American sites identified within 500 meters of the VT Route 78 project area, and 12 more are nearby (Appendix A). These sites, including four Native American burial grounds, date from 9000 ybp (Early Archaic) to historic times.

Native Americans have maintained a large and continuous presence in the Missisquoi River area for a long time, specifically in the Swanton Village and Missisquoi River delta area (Ledoux 1988; Calloway 1990; Haviland and Power 1994). Historical documentation records that Missisquoi (Swanton and environs) was the "center" of the Missisquoi Abenaki Nation from the time of first contact, and remained so until after 1783 (Calloway 1990). Also, several documents and maps indicate that Grey Lock established a settlement of refugees from Connecticut and Massachusetts at Missisquoi, building an "Indian Castle" at the site (Ledoux 1988; Calloway 1990; Graffagnino 1983). The precise location of this castle relative to the project corridor is unknown. The *History of Swanton Vermont* (Ledoux 1988) reports that Native Americans continued to visit the area and camp on Hog Island into the 1900's.

The Vermont Division for Historic Preservation currently recommends archaeological review for Native American archaeological sites on those projects that will have an impact on soils located within 400 feet of former or existing major waterways or lake shoreline, with gentle slopes and relatively good soil drainage characteristics. Review of the USGS topographic map for the project corridor shows that the entire corridor is within 400 feet of former or existing major waterways or lake shoreline and is therefore, according to the VDHP model, highly archaeologically sensitive for early Native American sites.

The dynamic nature of the ecosystem in this area has created a constantly expanding and contracting mosaic of forest communities. The ecotones that would have been exploited by humans have shifted over time in accordance with falling and rising water levels in the lake. Areas of archaeological sensitivity that were occupied or used in the past may now be flooded by the encroaching marsh and lake. The entire project corridor has been at the ecotone of two or more environments for some period in its cultural history, suggesting a high level of archaeological sensitivity for Native American sites throughout the project area. Additionally, the long term occupation of the area, combined with the relatively large number of known Native American burial grounds nearby, indicates that the project corridor may contain Native American burials.

European American Site Sensitivity

The Town of Swanton has a European American history dating back to a French land grant in 1734. The French built a sawmill at Swanton Falls, known at the time as the Taquahunga Falls, and harvested the local pines for use in Quebec.

After New France surrendered to Great Britain, the Abenakis, living in a "castle" (perhaps Grey Lock's Castle), leased part of their land and the sawmill at Missisquoi to James Robertson in 1763. By 1764, both New Hampshire and New York were claiming the land between Lake Champlain and the Connecticut River. New York granted the Missisquoi area to Simon Metcalfe in 1767-1771, who developed it until the start of the American Revolution in 1776.

In 1783, when the war ended, the New York grants were overruled, and Simon Metcalfe lost his claim on the land. The property was then granted to John Hilliker (or Heliker), the first permanent settler in Franklin County, in 1786. Swanton grew and developed, with the project area primarily maintained as farmland. Some industry was located within the southeast end of the project corridor near the bridge to Swanton Village (Ledoux 1988).

Archival research of the *Vermont Archeological Inventory (VAI)* at the VDHP in Montpelier, Vermont, indicates that there are three European American sites identified within 500 meters of the VT Route 78 project area, and one additional site in its vicinity (Appendix A). One past archaeological land study investigated an historic farmstead (identified as "W.C. Donaldson" on Beers' 1871 map) south of the project corridor on Tabor Road (Jensen 1987).

Examination of the Walling 1857 *Map of Franklin County* shows ten European American structures and an old mill trace that may fall within the project corridor (Table 1). The Beers 1871 *Atlas of Franklin County* adds three more European American structures that may fall within the project corridor (Figures 3 and 4).

The site was visually surveyed on February 3, 1997. Two presently standing structures along the project corridor may be two of those indicated on the Beers and Walling maps. Both are located near the Swanton Village end of the project corridor, between Route 78 and the Missisquoi River. The remaining 11 European American structures identified on the Beers and Walling maps were not located. Most of the

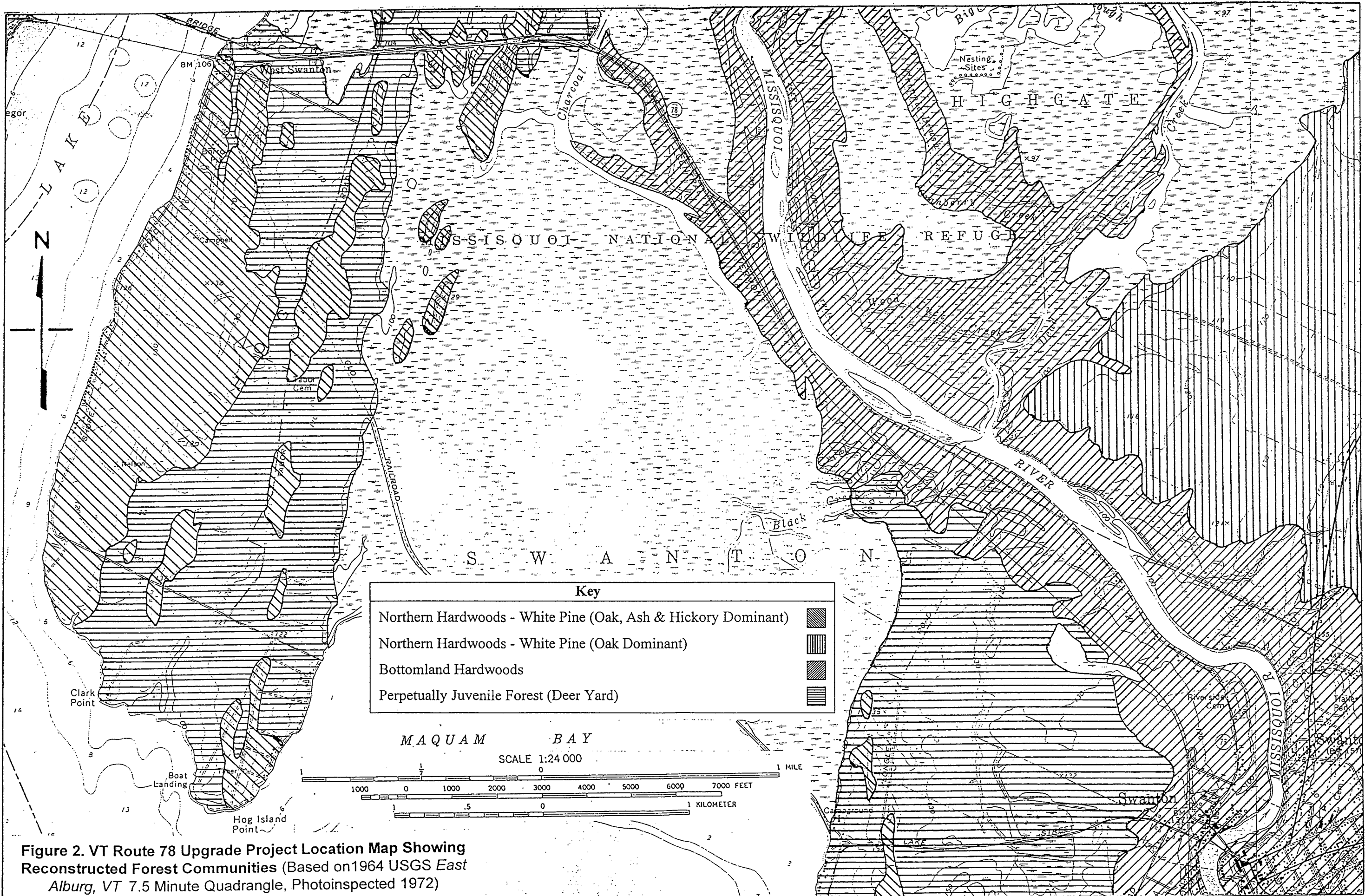


Figure 2. VT Route 78 Upgrade Project Location Map Showing Reconstructed Forest Communities (Based on 1964 USGS East Alburg, VT 7.5 Minute Quadrangle, Photoinspected 1972)

structures appear to have been supplanted by more recent construction. One exception is the structure identified as “D. Beagle” on the Walling map and “S. Scott” on the Beers map. The area where this structure was located now appears to be a farmer’s field between Route 78 and the railroad tracks. The exact locations of the potential archaeological remains related to the 11 structures are unknown. The mill trace that powered a variety of industries in Swanton was identified.

The *History of Swanton Vermont* (Ledoux 1988:49) indicates that the farmstead of John Hilliker (or Heliker), the first permanent settler in Franklin County, was located “on what was later known as the Vernal or Rood place two miles or so below the falls (northeast of the village) on the south side of the river.” The property is now the site of the Missisquoi National Wildlife Refuge Headquarters (Ledoux 1988) and the original structures are no longer in evidence.

Number	Walling 1857 <i>Map of Franklin County, Vermont</i>	Beers 1871 <i>Atlas of Franklin County, Vermont</i>
1.	<i>(Not on Walling)</i>	Canaan
2.	<i>(Not on Walling)</i>	P.H.Heliker
3.	D. Beagle	S. Scott
4.	N. Vernal	R.H. Rood
5.	Mrs. Rood	Mrs. Rood
6.	School	School No. 16
7.	R. Barney	Mrs. Barney
8.	R.L. Barney	R.L. Barney
9.	R.L. Barney	R.L. Barney
10.	<i>(Not on Walling)</i>	J. Mahan
11.	J. Barney	E. Aveline
12.	Office	B.L.B.
13.	Forge	Old Forge
14.	Mill Trace	Mill Trace

Table 1: List of Structures from Walling’s 1857 *Map of Franklin County, Vermont* from Actual Surveys with Corresponding Structure Identifications from Beers’ 1871 *Atlas of Franklin County, Vermont*

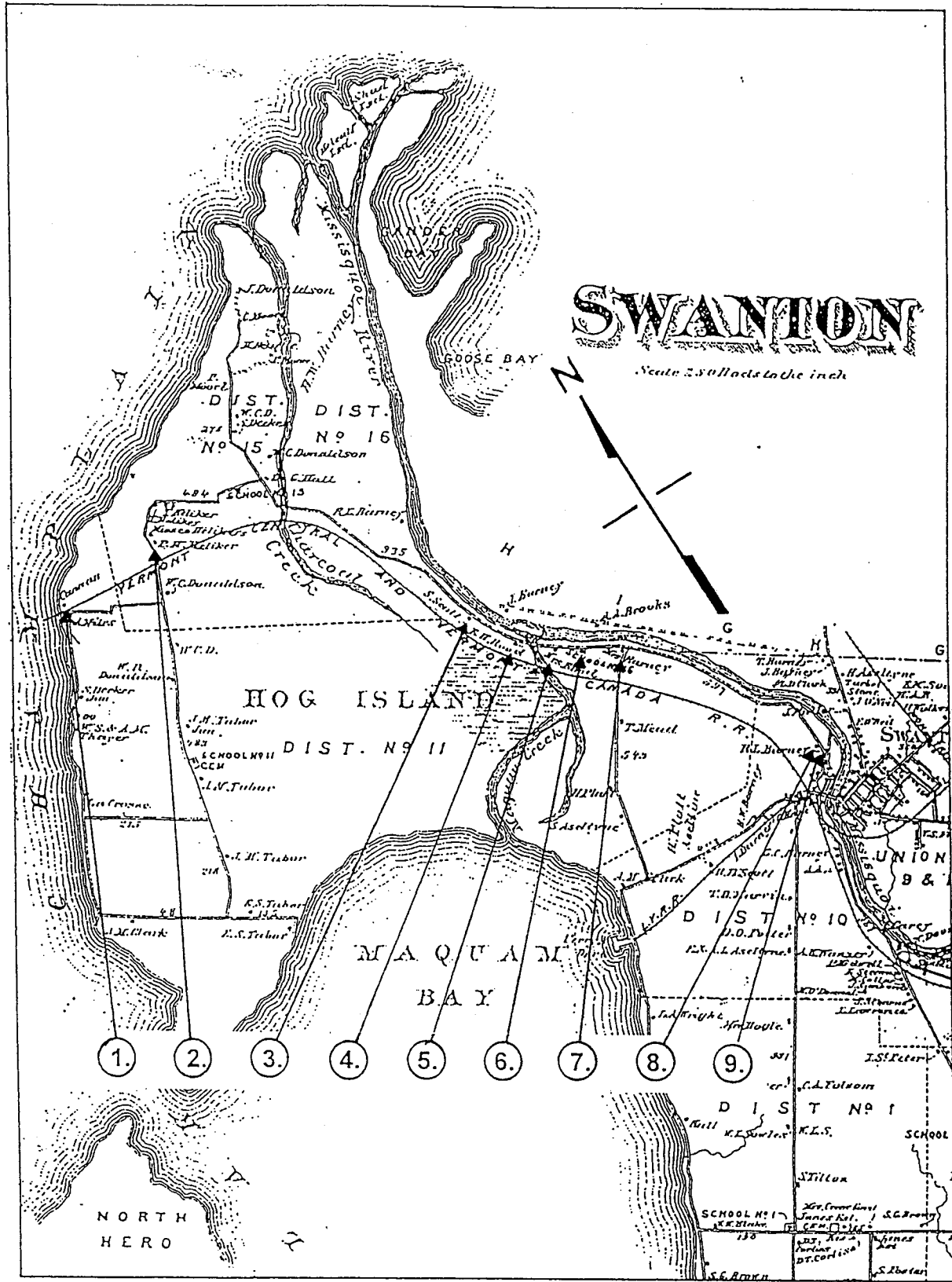


Figure 3. Beers 1871 Atlas of Franklin County, Vermont, VT Route 78 Upgrade Project Area, Potential European American Archaeologically Sensitive Areas Indicated

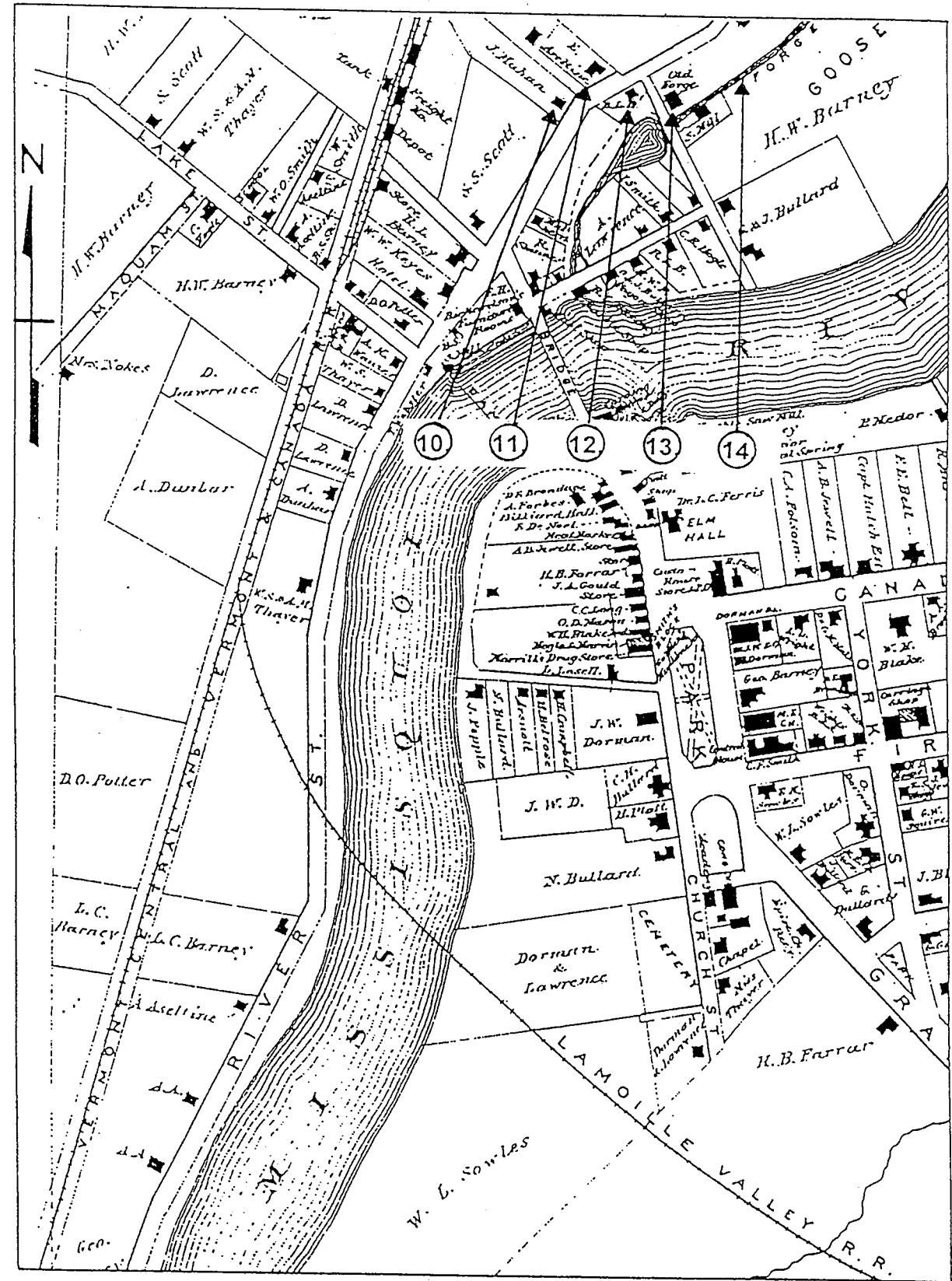


Figure 4. Beers 1871 Atlas of Franklin County, Vermont, Detail of Village, VT Route 78 Upgrade Project Area, Potential European American Archaeologically Sensitive Areas Indicated

Recommendations

Based on the analysis of archival records, the environmental setting, aerial photographs and the visual survey, the entire project corridor is determined to be potentially archaeologically sensitive for Native American sites, both domestic and burials. General areas have been identified as being potentially sensitive for European American sites. Specific areas of archaeological sensitivity will need to be identified through a Phase IA archaeological site sensitivity study. We recommend further archaeological testing prior to any development or construction in the project corridor.

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Appendix A: Known Archaeological Sites in the Area

USDA (United States Department of Agriculture)
 1979 *Soil Survey of Franklin County, Vermont*. Soil Conservation Service, United States Department of Agriculture.

USGS (United States Geological Survey)
 1972 East Alburg, Vermont. Topographic Map, 7.5 Minute, Photorevised. Originally published 1964. USGS, Reston, Virginia.

Vogelman, Tom
 1972 Post-glacial lake history and Paleolithic man in the Champlain Valley. Unpublished paper, Department of Anthropology, University of Vermont.

Walling, H.F.
 1857 *Map of Franklin County, Vermont from Actual Surveys*. Baker and Tilden, New York.

Native American Sites within 500 meters of VT Route 78

Site Number	Dates
FS #8 (FR)	no date
FS #7 (FR)	c. 2100 - 400 ybp
FS #6 (FR)	no date
VT-FR-8	c. 2900 - 400 ybp
VT-FR-15	c. 6000 - 2900 ybp c. 2100 - 400 ybp
VT-FR-19	no date
VT-FR-26	c. 2900 - 2100 ybp
VT-FR-30	c. 2900 - 400 ybp
VT-FR-35	c. 2100 - 400 ybp
VT-FR-37	c. 2100 - 400 ybp
VT-FR-38	no date
VT-FR-39	no date
VT-FR-40	no date
VT-FR-53	no date
VT-FR-63	no date
VT-FR-127	no date
VT-FR-253	no date
VT-FR-276	no date

Additional Native American Sites within the Hog Island-Missisquoi Delta Area

Site Number	Dates
CAP #10	no date
VT-FR-5	c. 2100 - 400 ybp
VT-FR-7	c. 2100 - 400 ybp
VT-FR-17	no date
VT-FR-32	no date
VT-FR-34	no date
VT-FR-36	no date
VT-FR-69	9000 - 7500 ybp
VT-FR-70	c. 2100 - 400 ybp
VT-FR-128	no date
VT-FR-129	no date
VT-FR-244	no date

European American Sites within 500 meters of VT Route 78

Site Number	Dates
VT-FR-150	c. 1800
VT-FR-163	c. 1800
VT-FR-171	c. 1820-1950

VISUAL RESOURCES ANALYSIS

ANALYSIS OF EXISTING VISUAL RESOURCES
 General Design Services
 Vermont State Route 78, Swanton, Vermont NH036-2(9)SC
 September 1, 1997

I. Inventory

Route 78 in the Town of Swanton carries traffic between the Village of Swanton and the bridge and causeway on the Swanton – Alburg line. This route is the only connection between these two towns, as well as the major northern land route (in the U.S.), between the east and west sides of Lake Champlain.

The project area is broadly encompassed by; the mostly agricultural, northern part of Hog Island; the wetlands and vegetation associated with the Missisquoi River delta; and a portion of developed higher ground along the river, near the Village of Swanton. More specifically, and by mile-marker convention established by Vt. Agency of Transportation, the project area's visual resources can be summarized as follows:

VAOT MM	Description of Visual Resources
a) 0.4 to 2.0	The Missisquoi Bay Causeway lands on the west shore of Hog Island. Established agricultural land uses are mixed among wetlands. There are some older farmhouses among the fields (sometimes partially obscured by crops), and there is one significant and exposed commercial use, but this area is otherwise devoid of structures. There is a parallel railroad line close by, which follows much of the rest of the route as well. Above ground utility lines follow along the roadside. There are few side roads.
b) 2.0 to 2.4	The railroad closes in on the road while the landscape opens up to the north in a vast continuous wetland, as the route enters the Missisquoi National Wildlife Refuge (MNWR). Glimpses of wetlands and Charcoal Creek are seen to the south through trees and scrub growth. On the northern horizon the Missisquoi bay can clearly be seen. This area has much open water when the lake is high. There is a brief but significant view of a ridgeline to the east, which is created by the railroad ROW.
c) 2.4 to 4.4	The landscape then briefly closes into a wooded wetland (while the railroad leaves the view) then opens up to a clear and close view of the Missisquoi River, beginning with a parking area and boat ramp. The road and view then turn and follow the river closely, with a very

exposed, thin line of high trees between the river and road. The view is along the river, road, and a narrow pasture on the opposite side of the road from the river, as a continuous woodline hides the view beyond. The railroad is barely visible across the pasture. The last part of this section is thickly wooded on the riverside, as the river has moved further away, and the pasture continues on the other. The trees here are high with exposed trunks and thin under brush, exposing more wetlands.

- d) 4.4 to 5.1 The road suddenly enters established, suburban, roadfront development here as it leaves the wildlife refuge. The land uses are mostly residential mixed with agricultural plots as well as some commercial uses, on both sides. The structures are setback and the setting is open due mainly to the large, well maintained lawns. The river is still visible and close, as this is still floodplain.
- e) 5.1 to 5.9 As the road rises above the river, the vegetation closes in, the river becomes tight to, but well below and visually undercutting the road. The development pattern continues on the south side but becomes partially industrial. The road turns away from the river then rises again a last time.
- f) 5.9 to 6.2 This short section is nonetheless distinct as the landscape is entirely filled by the Swanton Village cemetery, which is higher than the surrounding developed area. Vegetation surrounds the view, punctuated by a line of older, similarly spaced trees along the low iron fence between the road and cemetery.
- g) 6.2 to 6.4 This last section ends at the Swanton Village Line and winds down from the cemetery among dense development, including, residential and commercial uses, with views beyond of industrial grain elevators. There are many curb cuts and associated drives, as the road oriented development is abundant.

II. Conclusions

The visual resources throughout the project area are abundant and many are very significant. Two distinct areas are evident – the developed portion associated with Swanton Village, and the diverse undeveloped portion including the area along the Missisquoi River, the MNWR, and Hog Island. The first area (sections d-g) has a dominant characteristic of development and cultural land use, as little unused road frontage remains. Outstanding views in this area are few, one of the exception being along the cemetery (f) where a degree of order, layering, intactness and uniqueness occur. Another is the view of the river along section e) where the distinct height above it adds to the sense of the size of the river. A lesser but distinct view is towards the end of the project (g), looking south at the hierarchy of intensifying development which ends with grain elevators on the horizon.

The second area is clearly outstanding in its degree of intactness, uniqueness, and diversity. It's dominant features are wetlands (including open water), vegetation, open space, agricultural use, wildlife, and the linear development of the roadway, the railroad and the power lines. The contrast between the manmade and natural is strong. Taken as a series of views, from high, closed in wooded wetlands, to low winding riverscapes, to vast vegetated wetlands with distant views of ridgetops and open water, to productive agricultural land, the view(s) should be considered highly significant.

It should be pointed out that the assumption that the landscape along a roadway is viewed from the car is not always correct, even in this instance. There are many opportunities to view these landscapes as a pedestrian or roadside visitor, either from a sidestreet, one of the many land uses, or from the water access parking areas. As further improvements to the roadway are made these opportunities are only likely to increase.

MEETINGS

Local Concerns Meeting	Swanton	4 February, 1997
Corps of Engineer's Monthly Meeting	Montpelier	5 February, 1997
Resource Agency Meeting	Waterbury	14 August, 1997
Corps of Engineer's Monthly Meeting	Montpelier	17 September, 1997
Resource Agency Meeting	Waterbury	16 October, 1997
Alternatives Presentation Meeting	Swanton	21 October, 1997



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Attendees: See Attached List Date/Time: February 4, 1997 at 7:30 PM
Project No.: 50736
Place: Swanton Town Clerk's Office Re: Local Concerns Meeting
VT 78 in Swanton
Notes taken by: M. Hall

Joe Garso from the Vermont Agency of Transportation (VAOT) explained that the purpose of the Local Concerns Meeting is to obtain feedback from the local officials relative to the project needs. Joe explained that this project is currently in the scoping phase, and feedback is necessary to adequately address the project issues. Joe introduced Greg Bakos and Matthew Hall from Vanasse Hangen Brustlin (VHB), Inc. as the consultants hired by VAOT to complete the scoping phase of the project.

Greg Bakos defined the project limits, and noted that this project will be building upon some of the information contained in the Transportation Corridor Study of US Route 2 and VT Route 78 in Alburg and Swanton conducted by D.L. Hamlin Consulting Engineers, Inc. for the Northwest Regional Planning Commission in September, 1995.

Greg mentioned that there will be a meeting on February 5 between many of the concerned resource agencies to discuss their concerns since this project passes through such a valuable and sensitive resource area.

The attendees were asked to identify specific concerns regarding the existing conditions on this segment of VT 78 since local input can be extremely valuable in the eventual development of solution alternatives.

The following is a summary of the concerns and deficiencies that were identified at the Local Concerns Meeting:

Narrow Roadway Width

The existing roadway has 11 to 12 foot lanes and 1 to 2 foot paved shoulders. The attendees cited this as a significant safety concern, especially in light of some of the other factors such as traffic speed, volume and composition.

High Vehicle Speeds

Most of the project corridor is signed for 50 MPH, with 40 MPH segments near the village and the bay bridge. It was noted that vehicles often travel in excess of the posted speeds, especially since there are several straight and flat segments along the road.

High Accident Rate

The concern was voiced that there have been many serious accidents along this stretch of road, including two double fatalities last year. It was noted that 50 students from Alburg travel this route daily to attend school in Swanton, and that the residents fear for their safety.

High Percentage of Trucks

Truck traffic along the corridor was noted as a major concern by local residents. VAOT data indicates that there is a 14.4% truck component along this corridor. A typical road of this type would be expected to carry about 5% trucks. Locals are sensitive to the need for a truck route through the area, but feel that the roadway needs to be greatly improved to better accommodate the larger and heavier vehicles.

VT 78 is a major connection between I-89 and I-87, and it is a part of the National Highway System (NHS). There are not many alternative routes for the trucks that use VT 78 due to the physical barriers formed by the lakes and rivers.

There was a discussion about the truck traffic origin and destination. VAOT may have data already available because it may have been gathered as a part of a Point of Entry (P.O.E.) Study conducted by VAOT.

Roadside Hazards

Another resident noted that VT 78 is generally unsafe throughout the year due to the close proximity of the river to the roadway, with steep shoulders leading down to the water. Trees are also a problem due to their location relative to the roadway shoulder. The dangers of the river and the trees are greatly increased due to the general lack of guardrail.

Flooding

One resident who owns approximately 3000 feet of frontage along the river side of VT 78 noted that the road floods when there are ice jams in the winter and spring. This creates a flooding situation for the residents along both sides of the road (13 residences on east side of the road and 4 residences on the west side of the road). If the roadway profile were raised, the problem would greatly worsen for the people on the east side of the road, by increasing the depth of water on their property. It was noted that there have been floods where VT 78 became impassable.

Greg raised the question of drainage. Residents noted that the worst area was south of the Missisquoi River. This is especially exasperated by high water and ice jams in the winter and spring.

Bicycle Use

Bicycle use is relatively low along this corridor. This is presumably due to narrow shoulders, high speeds, and high truck volumes. According to the Regional Planning Office, VT 78 was purposely not selected as part of the regional bike route due to traffic and safety issues.

Proximity to Railroad Tracks

The issue of the rail line that parallels the corridor was discussed. There appears to be some driver confusion attributable to train traffic approaching automobile traffic on VT 78, particularly at night. The single train headlight traveling towards motorists may be disconcerting since it can be quite bright and may not be aligned over where the motorists expect the roadway to be. The railroad right of way may also be a constraint to widening the roadway on the south side in the areas where the separation distance between the railroad and VT 78 is minimal.

Recreational Access and Practices

Access to the Missisquoi National Wildlife Refuge was discussed. Al Zelley, manager of the refuge, indicated that the number of access points seems adequate, and that the State is planning to rebuild some of the parking this year. The only time that the parking and access does not seem to be adequate is during the Lake Champlain fishing tournament, and other peak fishing periods.

Vehicles parking along the sides of (and on) the roadway are a real problem in the spring and summer. People do not seem to realize, or care, about the dangers of the narrow shoulders and constrictions caused by vehicles parked along the roadway.

Charcoal Creek and the Causeway sections of the corridor are the most heavily used sections of the roadway for recreational purposes.

Minimization of Impacts from Roadway Improvements

Gina Campoli, from the Vermont Agency of Natural Resources (ANR) stated that all options need to be explored in developing improvements to VT 78, and that disruption of wetlands, etc. can only occur if it is shown that all efforts to avoid impacts have been exhausted. If avoidance is not possible, then minimization must be a priority, and mitigation may be required.

The VAOT design criteria relative to minimum road width may not be used exclusively throughout the entire corridor due to the significant environmental impacts that would otherwise result. The corridor study recommended a paved roadway width of 32 feet to reduce impacts. This would require a special exception since the standards require 40 feet.

Maintenance

The poor condition of the subbase materials of the roadway were mentioned, and the sloughing of the pavement in certain sections of the roadway next to wetland areas was noted.

Maintenance along the corridor, especially where the roadway closely follows the river, was identified as a past and present problem. The VAOT has been regularly visiting the corridor to minimize the effects of erosion along the roadbed.

Miscellaneous

It was suggested that a problematic intersection which is just outside the project limits and within the village be added to the project. VT 78 is a Class 1 Town Highway at that location. Joe Garso mentioned that the intersection would likely require some local (fiscal) participation in the funding for improvements. The question was further pursued in light of the NHS classification of the roadway. Specifically, how much local participation required, and wouldn't the government, either federal or state, still pick up the tab for the work? Joe stated that he would investigate the funding allocation further. *[Investigations into this topic reveal that since the intersection is on a Class One Town Highway, the town would have to pay approx. 10% of any improvements that are recommended if the project is attached to the current VT 78 scoping project. If the project is scoped as a stand alone intersection project the scoping would be 100% Federal funds, and if a traffic signal is the recommended solution the construction would be 100% Federally funded. If a non-signal solution is recommended the Town would have to pay 10% of the construction. For this reason, the most economical solution for the Town may be to have the Regional Planning Commission add this project to their list of projects to be scoped for improvements.]*

The question of project schedule was raised and Greg explained that the scoping phase of the project is a 23-27 week process. He noted that the timeline is fairly structured, but depends on cooperation from all of the resource agencies. The time that it takes to go from scoping to construction is largely dependent on such factors as land acquisition, environmental approvals, and funding. The range could be from five to ten years until construction begins. Joe Garso likened this process to balancing a three-

way scale. The ballasts are the public, environmental constraints, and engineering requirements. He explained that the scoping process is designed to expedite the highway design process by allowing all of the players a view of the constraints, needs, and desires of the alternatives as they are developed, rather than needing to recreate the wheel when one of the players does not agree with the design at some later date when there has been a lot more work done, and there is a lot more time and money already invested in the design.

LOCAL CONCERNS MEETING ATTENDANCE

TRANSPORTATION IMPROVEMENTS - VT 78

NH 036-1(9)SC

SWANTON, VERMONT

February 4, 1997

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Attendees: See Attached List Date/Time: February 5, 1997 at 1:30 PM
Project No.: 50736
Place: VAOT Planning Conf. Room Re: Environmental Concerns Meeting
VT 78 in Swanton
Notes taken by: G. Bakos

This meeting with representatives of the various resource agencies and departments was held to inform them about the project scope, and more importantly to hear their initial concerns. Joe Garso suggested that a goal of the project development for this corridor will be to balance the needs and the impacts. Greg Bakos briefly explained the scope of the project and summarized the concerns that were expressed at the previous night's Local Concerns Meeting in Swanton. The primary concern from that meeting was public safety, and the deficiencies of note included narrow paved width, high speeds, high truck volumes (14%), and steep embankments adjacent to the roadway. It was also explained that this project is in the initial stages of the scoping phase. The tasks at hand include data gathering and determination of the project needs and concerns. To date, VHB has obtained ground survey and traffic data from VAOT, and has field located the wetlands within the project area. The Northwest Regional Planning Commission has also provided copies of the VT 78 corridor study that was prepared in 1995 by Hamlin Consulting Engineers. It was also noted that VHB's subconsultants will be performing historic, archaeological, and visual analysis.

The question was raised about what type of environmental filing will be required for this project. The VAOT responded that they fully expect a Categorical Exclusion to meet the needs of this project. Gina Campoli indicated that it will go through Act 250. It was explained that viable alternatives to improving the existing corridor simply do not appear to exist. The scoping project will likely examine widening of VT 78 with only minor shifts in alignment to reduce impacts. Off-line alternatives would generally increase impacts to the resource areas and are not being considered. The VT 78 corridor provides an important link between I-89 and I-87, and it is on the National Highway System (NHS). Better alternative routes do not seem to exist. It appears necessary to widen the road to meet the needs of the project, so impact minimization and mitigation will become critical components of the design.

The likely improved roadway cross section widths were discussed. It was explained that the VAOT design standards call for a minimum of 12 ft. travel lanes with 8 ft. shoulders for this NHS principal arterial. The corridor study recommended 4 ft. paved shoulders to reduce slope impacts and to discourage parking along the river, which is currently a concern. The Northwestern RPC supports the 12 / 4 cross section. This reduced width would reportedly require a special exception.

There was distussion over the concept of wetland banking. This concept has reportedly been embraced by both the secretaries of transportation and environment. Selection of a mitigation site is not currently part of the scoping project's scope of work.

State Endangered Species were discussed by Everett Marshall. There are 5 species of concern that are known to occur in the project area. These include fish, turtle, muscle, and two others. It was suggested that a field study of endangered species may be required. There's a narrow window in the spring that would be best to do that work. The current scope does not include that type of intensive study. General guidelines to follow in the design would be to avoid filling below normal high water elevation. The whole area was described as having outstanding natural characteristics.

The Wildlife Refuge Manager, Al Zelly, indicated that the waterfowl habitat is outstanding. The wetlands there are "textbook" in that they are healthy, productive, and have high diversity. There's emergent marsh, wetland forest, lakeside floodplain forest, and one of the largest peatlands in the state.

Jon Anderson, from the ANR Dept. of Fish and Wildlife noted that there are pike spawning in areas of the Missisquoi River. There may also be existing drainage structures impeding access and flow to historical resource areas. It was suggested that any new drainage culverts that cross the road should be oversized to enhance animal passage (fur bearers, reptiles, amphibians).

The river, or riparian corridor, should obviously be protected as well. It was discussed that the river should be protected first, and wetlands second if impact to one is unavoidable in areas. Ms. Abair, from ACOE, agreed. The visual component of the "riverscape" should also be considered. the large black willows lining the river should be saved where possible. The type of guardrail employed should also be considered since it will affect the visual character of the corridor. (It was suggested that the Delew Cather guardrail study that was done for Smuggler's Notch be reviewed.) Marty Abair noted that there would probably need to be flood storage compensation is a likely requirement of this project.

The EPA representative was interested in whether there has been any origin/destination work done for this corridor. None is planned for this scoping project since the issue seems somewhat academic. There are no apparent solutions that would result from the origin destination study results since there are few, if any, alternate routes. The issue of segmentation of the roadway and the Missisquoi Bay Bridge projects was discussed. The VAOT is of the belief that the bridge is an independent project, and wants to be told now if there's a problem with segmentation.

The schedule for the VT 78 corridor improvements would have construction beginning in 7 years if all goes well. Interim improvements may need to be considered to address some of the most serious concerns.

Flooding of VT 78 was discussed. It seems that there have been floods due to spring ice dams, but that actual road closings have been infrequent. It was the general consensus that raising the road would not be justifiable, especially if it means increased impacts to resource areas.

It was suggested that increasing public access as part of this project may be frowned on because that could represent increased disturbance to the wildlife, particularly in nesting areas. The Wildlife Refuge may have a new master plan next year which would lay out what types of access and parking changes they plan to make.

To Joe Garso

Name	Affiliation
Vashy Abaut	Corps of Engs
aren Bates	VT Wetlands office
ohn Austin	VT Dept. of Fish & Wildlife
hn Perkins	Project Planning Group VAOT
ohn Lepore	VAOT: Biologist
s Magran	VAOT SCOPING UNIT
ett Marshall	VT Fish and Wildlife
erene Dimitruk	Northeast RFE
of Bates	Vernon Hamden Brundage
st Schauer	" "
d Fritzsche	Missisquoi Refuge
y Calvan	VT ANR
Alakat	EPA
v Zeller	U.S.F.W.S., Missisquoi NWR
ina Campoli	VT ANR
s Rich	VAOT

There is considerable farmland in the area. It may be desirable to use some of the converted farm land for the compensatory mitigation site. Some of the farmland is protected in a land trust, and some may be available for mitigation if it is not prime agricultural land.

It was suggested that VHB conduct an inventory of existing available information. Gina Campoli offered to assemble a contact list to make VHB's search more efficient and effective. VHB has done wetland delineation, and those boundaries have been added to the survey base plans provided by VAOT.

The next step in the process is for VHB to assemble existing information, define constraints, and develop alternatives. The areas of impact will become known once the alternatives have been developed, and a follow up to this meeting may be appropriate. The purpose of that meeting would be to review the alternatives and try to come to general consensus among the agencies on any issues that arise.

cc: Attendees

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People in Attendance: Chris Magnan VAOT
Gina Campoli VANR
Martha Abair U.S. Army Corps of Engineers
Beth Alafat EPA
Bill Neidermyer U.S. Fish & Wildlife
Catherine Dimitruk NWRPC
Karen Bates VANR
Jon Anderson Vermont Fish & Wildlife
Everett Marshall Vermont Fish & Wildlife
Rob Sikora FHWA
Date\Time: 14 August 1997

VHB Representatives: Greg Bakos
Matt Hall
Bill Barry
Ryan Noyes
Project No. 50736

Project Name: Transportation Improvements
Along VT 78 - Swanton, VT
VAOT Proj. # NH 036-1(9)SC
Location: VT ANR; Waterbury

The meeting opened with introductions and a brief project description, and Chris Magnan explained that the purpose for the meeting is to get feedback on whether the alternatives being considered are permissible. Greg Bakos explained that two alternatives have been developed for improvements within the corridor, and that these alternatives are preliminary in nature. The alternatives consist of an On-line Alternative, and a Modified Geometry Alternative which makes minor horizontal and vertical shifts in alignment to the On-line Alternative. These two alternatives satisfy the Purpose and Need Statement which was distributed at the beginning of the meeting. A presentation of the On-line Alternative commenced and when impacts to existing resources were discussed Ms. Campoli asked what kind of research had been done to evaluate these resources. It was explained that VHB wetlands scientists had conducted a field inspection and had separated the wetlands by class with a brief description. At this point Gina Campoli asked if VHB had done any kind of inventory of the threatened and endangered plant and animal species in the area as was discussed in the February meeting. Chris Magnan explained that the requested inventory is outside of the scope of the consultant's contract as well as the scoping process. Martha Abair echoed that it is impossible to give feedback on alternatives if the importance of the resource is not established. She also indicated that she pays little heed to the wetland's classification, in this case class 2 or class 3, as opposed to the functions and values of the wetlands. It was also explained that any impact that occurred below the 95.5 foot contour in areas contiguous with the lake would be considered a lake impact which would require a Lakes & Ponds permit. There are such areas along the corridor. The contact person for more information about the permit was given as Steve Hanna.

Instead of completing a presentation of the alternatives, the meeting shifted to discussions which were very broad dealing with the project as a whole. Gina Campoli and Marty Abair inquired as to what type of permit process would be required for this project. It was stated that VAOT is hoping for a

Categorical Exclusion (CE). Gina and Marty both said that they felt that a CE would be almost impossible to achieve on this project. They felt that this project would not only have significant impacts to what is considered an "incredibly sensitive area", but they also felt that this project was "controversial" enough to automatically require an EA/EIS. Marty said that this project would require a 404 permit and that meant that she would be writing an EA regardless of whether or not FHWA required one for the project.

The focus of the discussion shifted to the issue of Threatened and Endangered Plant and Animal Species Habitat. Gina and Marty said that in order for them to make any kind of recommendations a thorough inventory of existing resources needed to be completed. This should include a T&E inventory and a wetlands functions and values assessment. Chris Magnan indicated that those detailed issues would be handled further along in the design process. This project is currently in the scoping phase and the VAOT is not seeking a permit or sign off at this stage. What AOT would like is input from the resource agencies on the types of impacts that should be minimized in order to balance engineering needs and environmental concerns. Mr. Magnan pointed out that this road is on the National Highway System and must be maintained to some of the highest standards in the country. The point was made that any new roadway cross section less than 8'-12'-12'-8' would require a design exception. Rob Sikora said that it would be more difficult to justify using 4' shoulders than it would be to justify using 6' shoulders in a request for a design exception since 6' shoulders still allow stopped vehicles to get out of the travel lane. The question of Threatened and Endangered Species inventory came up several more times. The discussion all revolved around the same issue, should VHB provide an inventory at the scoping stage of a project. Bill Barry made everyone aware that the Environmental team has the capabilities to complete this type of study. He also recommended that a field meeting take place with the attendees of this meeting so everyone could observe the resource areas first hand as well as get a feel for the types of impacts that may be proposed under the project.

Gina inquired about the wetland impact areas. Matt Hall indicated that for the On-Line Alternative the impacts to wetlands were roughly 2.4 acres and the impacts for the Modified Geometry Alternative were about 3.8 acres. The wetland impacts in the vicinity of the Wildlife Refuge were found to be 0.94 acres in the On-Line Alt. and 2.5 acres in the Modified Geometry Alt. The areas of impact outside of the VT 78 right-of-way in the Wildlife Refuge have not been calculated. The types of impacts that are expected were also discussed. The design team tried to stay out of the Class 2 Wetlands as much as possible. There are many instances where there are Class 2 wetlands on the north side of the road, and Class 3 wetlands running in the swale between the road and the railroad. In these instances the Class 3 wetland was assumed to be more expendable than the Class 2 wetlands, which is consistent with the consensus at the February resource meeting. Marty indicated that impacting a Class 3 Wetland was not always the preferred choice. She said that the only way that she could determine which impact was less harmful she needed to know the functions and values of each wetland.

Another area of concern was the section of roadway that ran next to the river. This area raised several different issues. The first issue was that in this area the road routinely floods each spring. Under the Modified Geometry Alternative the profile has been raised as much as 18 inches in the flood prone area to deal with this issue. The next question was whether or not the stream bank was being impacted, which would also result in the taking of the trees that lined the roadway. Greg pointed out that in the Modified Geo. Alternative the roadway has been shifted away from the river to save most of the trees and to minimize disturbance of the bank. The scoping report will likely recommend placing guardrail along this section of the corridor since the river and the trees pose a hazard. This raised the issue of visual impacts along a scenic highway. Gina indicated that this could be a major concern during the Act 250 process. She asked what steps were being taken to analyze and minimize visual impacts and the response was that VHB's visual sub-consultant will be performing an analysis of the corridor for the scoping report. It was questioned whether fishing access points have been provided along the road since guardrail is being proposed. The response was no since this area is used frequently by the fishing community and right now there are several informal access points along the river where people pull off the road and either traverse the bank or fish from the shoulder of the road. Rob Sikora stated that he would recommend removing these areas that exit now since they are informal pull off points that are unsafe. Jon Armstrong then asked if VHB had looked at shifting the roadway away from the river to

follow the railroad tracks where they pull away as well. VHB had not considered such a bypass since at first glance it appeared that the impacts to wetlands, agriculture land, and private property would likely be substantial. Jon noted that the impacted agriculture land would be of less concern than the river bank and the taking of trees.

There was some discussion over considering other alternatives to upgrading this segment of VT 78. Greg's response was that there are no other feasible alternate routes that would serve to reduce traffic on VT 78, and Catherine Dimitruk supported this statement. Gina then stated that most of the vehicles that are traveling through Swanton are going to I-89 from the port of Montreal, and that the AOT should look at talking to Canada to see if Canada would improve its roads to draw some of the truck traffic off of VT 78. Catherine then asked why that would change the volume of this section. Gina's response was that the majority of truck traffic on the road was either going to or coming from Montreal. Catherine questioned this and several other attendees disagreed with Gina's assumption. Gina, Marty and Beth Alafat asked if VHB had done an origin and destination study. They felt that this information would be needed in order to see if there were alternate routes to VT 78. They felt it would be necessary to do a traffic study for this area. Greg questioned what pertinent conclusions would be drawn from such as study as well as exactly what kind of study they will require. It was noted that accident information should be provided to show exactly why widening is necessary. Greg explained that the AASHTO design standards relating to roadway width were based on research related to safety, and vary according to the traffic volumes and speeds.

Karen Bates wondered whether the planned improvements to this section would attract traffic which would increase levels of roadway pollutants. This is questionable since it would need to be shown that traffic is currently avoiding VT 78 because of this segment, and since there are no better routes to connect point A to point B. This is a safety improvement project which will not add capacity.

Gina and the other resource personnel said that with the information that was presented they would be unable to make any decision as to whether or not any of the alternatives would fall under a Categorical Exclusion. They felt that they needed a more thorough wetlands assessment completed along with a Threatened and Endangered Plant and Animal Species inventory. There were several other pieces of information that people thought would be useful for assessing impacts. Greg asked if it would be possible to get a list of what information people would need for their decisions. Gina said that she would provide VHB with that list. She also said that VHB should talk to a representative of the Abenaki Indian Tribe to find out if they had any concerns with this project. The next question was if VHB had researched to find the archeologically sensitive areas along the corridor. VHB's sub-consultant has provided a report which essentially shows that there are possible archaeological resources within the entire corridor.

cc: Attendees

RESOURCE AGENCY MEETING ATTENDANCE

TRANSPORTATION IMPROVEMENTS - VT 78

NH 036-1(9)SC

SWANTON, VERMONT

August 14, 1997

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<u>JFK Federal Bldg</u>	
<u>Boston, MA 02703</u>	
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Affiliation <u>Vanasse Hangen Brustlin, Inc</u>	Affiliation <u>VANASSE HANGEN BRUSTLIN, INC</u>
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Name Bob Sikora
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Name Everett J. Marshall
Affiliation nongame & Natural Heritage Pro
Fish & Wildlife

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Name _____
Affiliation _____

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E-Mail Address : _____

September 22, 1997

TO:

Bill Neidermyer
Beth Alafat
Peter Keibel
Sue Jamele/Giovanna Peebles
John Narowski
Gina Campoli
Rob Sikora
Fred Nicholson
Barry Cahoon

FROM: Marty Abair, Corps of Engineers

Here's a copy of the minutes from the September 17, 1997 VT AOT coordination meeting. Next meeting will be December 3, 1997 in the Planning conference room on the 4th floor of the National Life Building at 10:00 AM.

CENAE-CO-R-61 (1145-2-303b)
MEMORANDUM FOR The Files

22 September 1997

SUBJECT: VT Agency of Transportation
Highlights of 17 September 1997 Coordination Meeting

1. On 17 September 1997, the following individuals met at the VT AOT offices in Montpelier, Vermont:

- a. Marty Abair - COE
- b. Al Blake - VTAOT (ROW)
- c. John Lepore - VT AOT (Biologist)
- d. Peter Keibel - VT ANR (Wetlands)
- e. Rob Sikora - FHWA
- f. Stewart Menard - VT AOT (Design)
- g. John Narowski - VT AOT (Environmental)
- h. Bob Della Santa - VT AOT (Design)
- i. Alison Murray - (VT AOT - Permitting)
- j. Charlotte Brodie - DuBois & King
- k. Dennis Benjamin - VT AOT (Planning)
- l. Bill Neidermyer - USFWS
- m. Beth Alafat - EPA
- n. Gina Campoli - VT ANR
- o. Chris Danforth - VHB
- p. Bill Barry - VHB
- q. Chris Magnan - VT AOT
- r. Greg Bakos - VHB
- s. Ryan Noyes - VHB

2. This meeting was the twenty-second bimonthly coordination meeting to discuss pending AOT projects. Projects discussed and highlights of discussions are as follows:

SWANTON NH 036-1(19)SC
VT 78 thru Missisquoi National Wildlife Refuge

CENAE-CO-R-61 (1145-2-303b)
SUBJECT: VT Agency of Transportation
Highlights of 17 September 1997 Coordination Meeting

c. Swanton NH 0136-1(19)SC - AOT consultants (VHB) presented an update of their work. They have received reports from their archaeological/historical consultants and a visual analysis. More detailed wetland information (delineation, functions and values) have been gathered, and this additional information indicates a 0.5 acre increase in wetland impact. USFWS indicated that AOT should conduct sampling in Charcoal Creek for mussels. This does not need to be done immediately, but will be required during the permit process. VHB advised that they have obtained accident data for 1991-1995, which shows 37 accidents, 33 injuries, and 3 fatalities. AOT has designated this road segment as a high accident area. An origin-destination study was done recently at the entry points into Vermont. It was specific for Route 78, but VHB estimates that about 60% of the traffic entering Vermont would take Route 78, with the remainder taking Route 2. Campoli asked if this is the main access to Montreal, and if so is there an alternate route. She requested traffic projections. The major issue with this project appears to be that since it is designated an NHS highway, a certain level of improvement is required.

Campoli would like to see how much of the traffic that currently uses Route 78 goes to Montreal and what alternate routes may be available. She questioned whether the design could be changed if some of the truck traffic was removed. She suggested that VHB check at the border stations for truck traffic information. There are likely no other "build" alternatives. The potential for alternative routes (i.e., through Canada or Route 2 to Route 314 and the LCT ferry) should be looked into.

Barry and Danforth briefly described their recent work on wetlands and presented revised plans showing the functions of the various wetlands that would be impacted.

Next Action - VHB/AOT to obtain traffic projections and estimates of percentage of vehicles traveling to Montreal. VHB/AOT to investigate feasibility of alternative routes.

3. The next meeting is scheduled for 3 December 1997 at 10:00 AM at the AOT offices.

ABAIR
Senior Project Manager

Transportation
Land
Development
Environmental
Services

observed travel speeds. It was also noted that enforcement is difficult and non-existent today because of the lack of shoulders to pull offenders over. Mark asked whether there are other ways to control speed, and whether there are any studies that correlate speed to accident frequency? Greg indicated that traffic calming techniques are generally used in village or urban settings, and the availability of such options for a rural highway is doubtful. Greg also indicated that speed/accident rate data probably exists, and he will look into it. It is intuitive that there is a direct correlation.

Mark also focused on the cross section limitations. He indicated that ANR would probably be interested in doing whatever is possible to minimize the footprint, and that would probably include minimizing the travel lane and shoulder widths. Mark feels the 11'/4' cross section should be a starting point, vs. the 12'/6' that is currently being considered. The rationale behind the 12'/6' was explained. The 12' is generally a minimum that FHWA would accept on an NHS route with such a high truck percentage. The 6' shoulder, which is narrower than the NHS standard of 8', is the minimum width that would provide safe refuge from the travel lanes for stopped vehicles. Catherine indicated that the Region now supports this cross section in areas where there will be guardrail, and perhaps 4' paved shoulders, with gravel shoulders beyond, could be used where there is no guardrail. Greg advised that ANR focus on minimizing impacts by steepening slopes outside of the guardrail since this does not compromise motorist safety.

Chris Magnan indicated that the pavement width issues should be worked out at a later date. What has been proposed at this time gives a conservative footprint that could probably be reduced during final design by "tweaking" the alignment and getting creative with side slopes. He asked ANR to please give an opinion on whether they agree that this is the LEDPA corridor prior to the Alternatives Presentation Meeting on October 21. Mark indicated that this would probably be possible.



Kilton Road
Six Bedford Farms, Suite 607
Bedford, New Hampshire 03110-6532
603 644-0888
FAX 603 644-2385

Meeting notes

People in Attendance	Chris Magnan VAOT L.T.F. Catherine Dimitruk NWRPC John Narowski VAOT Env. Allison Murray VAOT Env. Mark Sinclair VANR Legal Counsel Karen Bates VANR; Wetlands Jon Anderson Vermont Fish & Wildlife Everett Marshall Vermont Fish & Wildlife Rob Sikora FHWA	Date\Time:	16 October 1997
VHB Representatives:	Greg Bakos	Project No.	50736
Project Name:	Transportation Improvements Along VT 78 - Swanton, VT VAOT Proj. # NH 036-1(9)SC	Location:	VT ANR; Waterbury

The meeting opened with introductions and a brief project update by Chris Magnan who went on to explain that one important goal of the meeting was to address the previous requests that alternative routes be investigated.

Greg Bakos presented the results of investigations on traffic diversion alternatives, as well as detailed accident data. Copies of the two studies, as well as the October draft of VHB's Environmental Inventory report, were distributed.

Diversion Alternatives:

The results of origin destination information proved useful in illustrating that VT 78 provides a vital regional link, and that improvements to alternate routes would be only partially effective in relieving traffic on VT 78. Three routes were identified as having potential for traffic diversion, and in each case it was shown that VT 78 would continue to be the route of choice for the majority of the traffic.

Accident Results:

The summary of accident data was assembled from the actual police reports for the five year study period. This provided useful information on accident types and causes. It was noted that speed was the number one accident cause, but was not responsible for the majority of accidents. Data from a US Dept. Of Transportation study was included which shows a direct relationship between accident reduction with increases in pavement and shoulder widths.

The data and conclusions from both studies were discussed at length. Mark Sinclair indicated that the evidence relative to the diversion alternatives appears convincing, but that he would discuss the issues further with Gina Campoli and others. He noted that since speed was a significant contributor to accidents, that perhaps speed control solutions should be explored. He questioned whether the speed limit could be reduced to say 35 mph from 50 mph? Rob Sikora noted that it is not a good practice to mix speeds like that, and Greg Bakos questioned the legality of signing a roadway for speeds far below

RESOURCE AGENCY MEETING ATTENDANCE

TRANSPORTATION IMPROVEMENTS - VT 78

NH 036-1(9)SC

SWANTON, VERMONT

October 16, 1997

Name MARK SINCLAIR
Affiliation _____

Name Rob Sikora
Affiliation FHWA

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Phone /FAX 828-4433 / _____
E-Mail Address : _____

Name Allison Murray
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Name Catherine Dimitruk
Affiliation _____

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E-Mail Address : _____

Name Everett Marshall
Affiliation ANR - FW

Name John Narowski
Affiliation VAOT Environmental Section

Phone /FAX _____ / _____
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Name John Austin
Affiliation ANR - FW

Name Chris Magowan
Affiliation VAOT

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Name Karen Bates
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Name Greg Bakos
Affiliation VHB

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Meeting Notes

People in Attendance	Chris Magnan VAOT Don Rich, VAOT Catherine Dimitruk, NWRPC Swanton Town Selectboard (also see attached sign-in sheet)	Date\Time:	October 21, 1997 8:00 PM
VHB Representative:	Greg Bakos	Project No.	50736.
Project Name:	Transportation Improvements Along VT 78 - Swanton, VT VAOT Proj. # NH 036-1(9)SC	Re:	Alternatives Presentation Meeting

This meeting opened with a project overview by Chris Magnan, the project manager from VAOT. Chris gave a bit of history on what has transpired on this project since the Local Concerns Meeting in February of 1997. He also explained that the purpose of this meeting was to determine whether the Town endorses one of the proposed alternatives. It was noted that VHB's contract for the scoping phase of this project expires at the end of 1997, and following this alternatives meeting the Initial Scoping Report (ISR) would be completed for review by the primary stakeholders. In December, a meeting of the Project Definition Team (PDT) will be held to review the project. A formal vote will be taken at the PDT meeting on whether the recommended improvements are worthy for eventual endorsement by the Secretary of Transportation. Representatives from the Town and the RPC would be among those invited to the PDT meeting.

Since the Local Concerns Meeting in February, VHB has been gathering information and developing conceptual design plans based on actual VAOT supplied ground survey. It was reiterated that this is a safety improvement project, and the primary factors that contribute to the unsafe conditions are narrow pavement width and roadside hazards. This segment of VT 78 is on the National Highway System (NHS) which means that Federal highway design standards must be followed, or design exceptions must be applied for. The Federal design standards dictate that VT 78 would be widened to include 12 foot lanes and 8 foot paved shoulders. The fact that the project passes through the Missisquoi National Wildlife refuge has prompted VAOT to consider 6 foot paved shoulders in the areas where there would likely be impacts to resource areas. The NWRPC would prefer to implement, where possible, a typical that is narrower than the recommended 6'-12'-12'-6' in an attempt to control speeds through the corridor. VHB's rationale for maintaining at least 6 foot paved shoulders in guardrail areas is that 6 feet provides enough space for most stopped vehicles to remain out of the travel lanes.

The following two alternatives were generated using the 6'-12'-12'-6' typical section:

1. On-line Alternative:

VHB first applied the 6'-12'-12'-6' typical section (also referred to as a "12/6 typical") to the existing centerline alignment and profile. It was evident that the impacts to the wildlife refuge, the river, and the railroad tracks were severe under this alternative.

2. Modified Geometry Alternative:

The approach under this alternative was to shift the roadway centerline to minimize impacts and improve safety. The proposed centerline shifts are relatively minor, and vary from 0 to 16 feet.

It was explained that an informal presentation of these alternatives was made to a group of representatives from the various environmental agencies during the summer. It became apparent at that time that they needed to be convinced that there is a project need, and that there are no alternatives to the proposed improvements. The Vermont Agency of Natural Resources (ANR), with support from other agencies, requested a study of whether improvements could be made on other corridors such that sufficient traffic would be diverted off of VT 78 so the proposed improvements could be reduced or eliminated. Though this was an expensive and time consuming exercise, it was recognized that the study was necessary since the environmental resources along the VT 78 corridor are of considerable value and certainly worth protecting.

Three potential traffic diversion routes were identified for study. These were:

1. Montreal to I-89 in Highgate through Canada,
2. US 2 to I-89 at Chimney Corners through Grand Isle,
3. I-87 in NY to the ferry crossing in Plattsburg, to I-89 at Chimney Corners.

Using information from a 1994 origin/destination study, plus information from customs brokers and the ferry service, it was possible to assess the maximum diversion potential of each alternate route. It was found that the maximum expected diversions would not be sufficient to eliminate the need for safety improvements on VT 78. In addition, it was felt that the maximum diversions would not be attainable, and would not be feasible due to such factors as cost, environmental and social impacts, and political uncertainty.

In addition to investigating improving alternate routes, VHB reviewed accident reports from a five year period to determine the severity of the safety concerns and to determine what types of accidents were occurring. It was found that the accident rate on VT 78 is high, and the number of accidents with injuries is very high. A US Dept. of Transportation study has shown that there is a direct relationship between pavement width and accident rates on two lane rural highways. It has been documented that adding 8 foot shoulders to a highway that has no shoulders, such as VT 78, will generally result in a fifty percent reduction in accidents.

Following a recent meeting to present the results of the traffic study, ANR has agreed that improving alternative routes to the VT 78 corridor would not be prudent or feasible. ANR, as well as other applicable resource agencies, will continue to be involved through project development to ensure that resources are correctly identified, and that impacts are minimized.

Following the presentation, the following questions and comments were noteworthy:

- There was strong sentiment among those residents that would be directly affected that VT 78 should not be raised in elevation since that would increase flooding to their property. VHB noted that there are a few low points in the road that would need to be raised to prevent overtopping during spring flooding. Raising the road to avoid flooding is normally a requirement on NHS highways since mobility can not be compromised.
- It was questioned whether the curves in the road are too sharp, especially for the frequent ice and snow conditions. VHB indicated that, based on AASHTO standards, the curves are not deficient.
- It was questioned whether the highway project was being coordinated with the bridge project, and why are there 8 foot shoulders planned for the bridge and 6 foot shoulders for VT 78. VHB responded that the bridge project is a totally separate project, however coordination between the

projects will continue. The transition between the shoulder widths of the bridge and the highway would take place over about one hundred feet, and is not a problem. The bridge width is set according to the federal standard due to the importance and permanence of the structure, plus the magnitude of the investment.

- Jon Groveman, land use attorney for ANR, indicated that VHB had accurately portrayed ANR's position on the exploration of alternative routes. He also noted that because of the significance of the resource areas within this project, all of the environmental reviewers will continue their scrutiny in an effort to ensure that impacts are understood and minimized.
- It was questioned how much property would be lost across abutters front yards. VHB indicated that in the vicinity of residences near the village the construction impacts would be lessened due to the flatter ground, and that the takings would likely be narrow strips of a few feet or less across their frontages.
- Much discussion centered around the effects of future traffic volumes within the Village. It was felt by some that the planned improvements to VT 78 would increase traffic through the village. VHB pointed out that VT 78 is already the preferred route, and improvements to the VT 78 corridor are not likely to generate significant increases in traffic. There was talk about a bypass as well as minor improvements within the village. Earl Fournier reminded the attendees that these types of discussions need to take place, but at a later date since this meeting was held to discuss the VT 78 improvements.
- It was asked how soon this project would be constructed. VAOT indicated that because of extensive permitting, right of way acquisition, and funding requirements, this project would likely go to construction in between 5 and 10 years. Earl Fournier summed up the attendee's feelings that this long schedule is clearly undesirable, and he urged everyone to be vocal in showing support for the project.

Earl Fournier asked for a show of hands on how many people endorse the modified geometry alternative as the alternative that should move forward through project development. The show of hands appeared to be all but unanimous. VAOT encouraged people to mail in additional comments with the provided comment sheet, and Earl encouraged people to also contact the NWRPC, especially for information about the VT 78 corridor study.

ALTERNATIVES PRESENTATION MEETING ATTENDANCE

TRANSPORTATION IMPROVEMENTS - VT 78

NH 036-1(9)SC

SWANTON, VERMONT

October 21, 1997

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Phone /FAX <u>524 4160</u>	Phone /FAX <u>/</u>
E-Mail Address : <u>808-2531</u>	E-Mail Address : _____
Name <u>Anne Casavant</u>	Name <u>HARRY COBURN</u>
Affiliation <u>homeowner</u>	Affiliation <u>HOME OWNER</u>
Phone /FAX <u>893 2772 /</u>	Phone /FAX <u>/</u>
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Affiliation <u>VAOT</u>	Affiliation <u>none</u>
Phone /FAX <u>/</u>	Phone /FAX <u>/</u>
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Name Constance Prouty
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 Affiliation _____

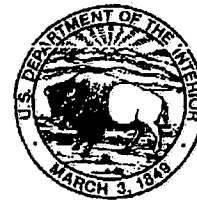
 Phone /FAX _____ / _____
 E-Mail Address : _____

Name _____
 Affiliation _____

 Phone /FAX _____ / _____
 E-Mail Address : _____

RELEVANT CORRESPONDENCE

Letter from Earl Fournier	-	30 October 1997
Letter from Robert Zelle	-	06 February 1997
Letter from Chris Danforth	-	29 April 1997
E-mail from Everett Marshall	-	16 September 1997
Letter from Michael Bartlett	-	26 September 1997
Letter from Martha Abair	-	21 August 1997
Letter from Gina Campoli	-	11 September 1997
Letter from Earl Fournier	-	23 September 1997
Letter from Stephen Saltonstall	-	29 September 1997
Letter from Barbara Ripley	-	02 October 1997
Letter from John Narowski	-	13 October 1997
Letter from Gina Campoli	-	04 November 1997
E-mail from Gina Campoli	-	05 November 1997
Letter from Bill Barry	-	27 August 1997
Meeting notes by Chris Danforth	-	29 April 1997
Phone notes by Bill Barry	-	25 August 1997
Phone notes by Chris Danforth	-	05 September 1997
E-mail from Gina Campoli	-	30 January 1997
E-mail from Karen Bates	-	03 September 1997
E-mail from John Lepore	-	02 September 1997
E-mail from Greg Bakos	-	20 October 1997
Phone notes from Greg Bakos	-	16 September 1997
E-mail from Chris Magnan	-	24 September 1997
E-mail from Chris Magnan	-	20 October 1997
Letter from Chris Magnan	-	14 October 1997
Facsimile from Chris Magnan	-	27 October 1997
Newspaper article	-	17 October 1997



United States Department of the Interior

FISH AND WILDLIFE SERVICE

MISSISQUOI NATIONAL WILDLIFE REFUGE
P.O. BOX 163
SWANTON, VT 05488-0163

RECEIVED

FEB 11 1997

VHB, INC.

February 6, 1997

Mr. Gregory L. Bakos, P.E.
Vanasse Hangen Brustlin, Inc.
Six Bedford Farms, Suite 607
Bedford, N.H. 03110-6532

Dear Mr. Bakos:

Enclosed is an operating map that is current with regard to the boundary of the Missisquoi National Wildlife Refuge. The heavy black line indicates the current boundary. A small tract was added this past year near the place where route 78 and the railroad track begin to run side by side. The U.S. Fish and Wildlife Service owns the property on either side of the road from Charcoal Creek east to its corner at the current location of the refuge headquarters.

The New England Railroad owns the land 75 feet either side from the centerline of their track.

I look forward to helping you whenever there is some information or input you would need from the refuge.

Sincerely,


Robert A. Zelle
Refuge Manager

Mailing address is: Vanasse Hangen Brustlin, Inc.
Kilton Road
6 Bedford Farms, Suite 607
Bedford, NH 03110-6532
(603) 644-0888

Email Address: Cdanforth@vhb.com
Gbakos@vhb.com

cc: Chris Magnon, VAOT
Greg Bakos, VHB



Kilton Road
Six Bedford Farms, Suite 607
Bedford, New Hampshire 03110-6532
603 644-0888
FAX 603 644-2385

Memorandum

To: Ms. Gina Campoli
Vermont Agency of Natural
Resources,
Planning Division

Date: April 29, 1997

Project No.: 50736

From: Christopher K. Danforth, VHB
CKD

Re: Route 78 Initial Scoping
Report, Swanton, VT

As you know, Vanasse Hangen Brustlin has been selected by the Vermont Agency of Transportation to develop an Initial Scoping Report for the Vermont Route 78 upgrade between the east abutment of the Missisquoi Bay Bridge and the Town of Swanton. VHB is in the process of assembling information for the determination of resource constraints and how they interact with the purpose and need of the project. This information will be compiled for development of project alternatives through the use of an evaluation matrix.

To make this search more efficient and thorough, please forward a copy of this memo to pertinent individuals at the federal, state, and local levels which will be a part of the scoping process. I would appreciate responses from individuals with specific resource issues that they feel should be considered such as:

- Wetlands and Water Quality
- Archaeological and Historic Sites
- Section 4(f) Properties
- Fish and Wildlife Habitats
- Endangered/Threatened Species/Unique Natural Areas
- Community Character/Aesthetics/Scenic Resources
- Floodplains
- Agricultural Lands
- Land and Water Conservation Fund Lands
- Public Recreational Land
- Hazardous Wastes Sites
- Rivers, Streams, Lakes and Ponds

Correspondence should be directed to myself or Greg Bakos at VHB.

GLB ✓
File 0736

anforth, Christopher

om: emarshall@FPR.ANR.STATE.VT.US
nt: Tuesday, September 16, 1997 2:28 PM
: Danforth, Christopher
: John Lepore
bject: Re: Resource Inventory- Route 78 Corridor, Swanton, VT.

ris,
m sending you four files (MS Word) contained in a self executing
file named Rte78.exe - our rare plant and animal lists, a 1989
e plant list with brief habitat information and a list of rare
pecies and significant natural communities found with 1.5 miles of
highway. I also sent you hard copies of our significant natural
mmunities and rare, threatened and endangered plant and animal
s. At the back of the plant and animal lists are the
planation of ranks.

cluded some brief notes on some of the species found within the
i mile corridor and will also discuss briefly below. The fish and
issel species are all riverine. The spiny softshell (turtle) while
arine may use sandy banks for laying eggs, possibly even road or
road. Most of the birds listed are associated with wetlands
h the possible exception of the red-headed woodpecker. You should
e the plant list as a starting point. There are other species that
likely to occur in this area. Use should use our 1996 list to
etermine other species that may occur in the study area. To assist
etermining which species to search for you may want to refer in
t to the 1989 list which gives brief habitat information. Wet
h, marsh, shoreline and riverbank habitats are the most likely
e found in the project area.

n also including below a message I sent to Gina Campoli regarding
s project. She incorporated our comments in a general agency
ponse. We are very interested in the exploration wildlife
ssages for amphibian and other species.

om: Self <FPR/EMARSHALL>
ject: "GINA CAMPOLI" <ginac@anrimsgis.anr.state.vt.us>
ust: Re: Rt. 78 Copies to: sparren, mferguson,
n austin Date sent: Fri, 22 Aug 1997 15:47:50 EST

ia,
you know the Missisquoi Delta has some of the most extensive,
hly significant wetlands in the state. There should be every
ort to avoid and minimize wetland impacts. This includes
rowing the shoulders to four feet where there are significant
land impacts. Because of the significance of the site I believe
t ANR should strongly advocate for a more detailed EA or EIS.

inventory needs we recommend that the corridor be evaluated for
e, threatened and endangered plant and animal species. I also am
luding comments by Mark on impacts, inventory needs, and potential
igation regarding amphibians.

e section of Rt. 78 in western Swanton crosses a large wetland area

used by several amphibian species. During migration periods, large
numbers of amphibians can be destroyed by traffic as these animals
attempt to reach their spring or summer habitats. Amphibian species
likely to be impacted by Rt. 78 include the leopard frog, green frog,
wood frog, spring peeper, and American toad. The western chorus frog,
an endangered species in Vermont, may also be present in this area.

We request that the AOT investigate the loss of amphibians to road
traffic during spring migrations. This would include repeated night
time surveys of this section of the road after warm spring rains to
estimate the number of animals being killed and to identify road
sections which are being most heavily used by amphibians during
migration. We also request that the AOT use this information to
explore the placement of amphibian tunnels in Rt. 78 to reduce the
number of animals killed by traffic.

I will also discuss the project with Steve Parren on Monday to see if
he has additional comments on inventory needs.

Everett Marshall
Biologist/Information Manager
Nongame & Natural Heritage Program
Vermont Dept. of Fish & Wildlife
103 So. Main St., Waterbury, VT 05671-0501
Tel. 802-241-3715



United States Department of the Interior

FISH AND WILDLIFE SERVICE
New England Field Office
22 Bridge Street, Unit #1
Concord, New Hampshire 03301-4986

William J. Barry
Vanasse Hangen Brustlin, Inc.
Kilton Road
Six Bedford Farms, Suite 607
Bedford, NH 03110-6532

RECEIVED
SEP 26 1997
VHB, INC.

September 25, 1997

Dear Mr. Barry:

This responds to your August 27, 1997 letter requesting information on the presence of federally-listed and proposed endangered or threatened species in relation to improvements to Route 78 in Swanton, Vermont.

Based on information currently available to us, no federally-listed or proposed threatened and endangered species under the jurisdiction of the U.S. Fish and Wildlife Service are known to occur in the project area, with the exception of occasional transient bald eagles (*Haliaeetus leucocephalus*) or peregrine falcons (*Falco peregrinus*). However, we suggest that you contact Everett Marshall of the Vermont Natural Heritage Program, Agency of Natural Resources, 10 South, 103 S. Main St., Waterbury, VT 05671-0501, telephone 802-241-3700, for information on state-listed species that may be present.

This response relates only to endangered species under our jurisdiction. It does not address other legislation or our responsibilities under the Fish and Wildlife Coordination Act or the Federal Power Act. As you may be aware, Route 78 in Swanton abuts the Missisquoi National Wildlife Refuge. We suggest that you contact Robert A. Zelle, the Refuge Manager, at Missisquoi National Wildlife Refuge, P.O. Box 163 RD 2, Route 78, Swanton, Vermont 05488-0163, telephone 802-868-4781, for a review of potential impacts to refuge lands.

File

-2-

A list of federally-designated endangered and threatened species in Vermont is included for your information. Thank you for your cooperation and please contact Susi von Oettingen of this office at (603) 225-1411 if we can be of further assistance.

Sincerely yours,

Michael J. Bartlett
Supervisor
New England Field Office

Enclosure

FEDERALLY LISTED ENDANGERED AND THREATENED SPECIES
IN VERMONT

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>	<u>Distribution</u>
FISHES:			
NONE			
REPTILES:			
NONE			
BIRDS:			
Eagle, bald	<u>Haliaeetus leucocephalus</u>	T	No current nesting, entire state-migratory
Falcon, American peregrine	<u>Falco peregrinus anatum</u>	E	Current nesting: Rutland, Addison, Lamoille, Orange, Orleans, Washington, Caledonia & Essex Counties
Falcon, Arctic peregrine	<u>Falco peregrinus tundrius</u>	T	Entire state-migratory
MAMMALS:			
Bat, Indiana	<u>Myotis sodalis</u>	E	Southwestern Counties
Cougar, eastern	<u>Felis concolor cougar</u>	E	Entire state-may be extinct
MOLLUSKS:			
Mussel, Dwarf Wedge	<u>Alasmidonta heterodon</u>	E	Windsor and Windham (Conn. River Valley)
PLANTS:			
Jesup's milk-vetch	<u>Astragalus robbinsii</u> var. <u>jesupi</u>	E	Connecticut River Valley
Small Whorled Pogonia	<u>Isotria medeoloides</u>	T	Chittenden County
Bulrush, Northeastern	<u>Scirpus ancistrochaetus</u>	E	Windham County



DEPARTMENT OF THE ARMY
NEW ENGLAND DIVISION, CORPS OF ENGINEERS
424 TRAPELO ROAD
WALTHAM, MASSACHUSETTS 02254-9149



- 2 -

REPLY TO
ATTENTION OF

Camp Johnson, Building 10-18
Colchester, Vermont 05445
August 21, 1997

Regulatory Branch
CENAE-CO-R-61-199700298

Mr. Chris Mangan
Vermont Agency of Transportation
133 State Street
Montpelier, Vermont 05633-5001

Dear Chris:

This is to followup our August 14, 1997 meeting regarding the proposed reconstruction of a portion of VT Route 78 between Swanton and Alburg, Vermont.

As I indicated during the meeting, I will be following the Highway Methodology for this project. You should have a copy of the Highway Methodology Workbook in your office. The first part of this process is for the Corps to determine the basic purpose of the project. This basic project purpose is defined broadly to insure a reasonable range of alternatives can be examined.

These alternatives are then evaluated as to their environmental impacts, practicability, and ability to meet the basic project purpose. The Corps, in coordination with the Federal resource agencies, then determines which alternatives will be dismissed as not practicable. This then concludes the end of Phase I of the highway methodology and is followed by a Corps sign-off on practicable alternatives. A small number of practicable alternatives are then carried forward to Phase II for more detailed study.

In order to evaluate the alternatives, a quantitative matrix comparing the environmental impacts, costs, and ability to meet the basic project purpose must be prepared. A brief discussion of the functions and values of the wetlands that would be impacted by each alternative must also be submitted. Constraint mapping should be prepared, which will graphically show the environmental, physical and socioeconomic constraints of the various alignments.

In addition, a traffic study is often necessary to assist in determining the practicability of the alternatives. We will need a traffic study for this project, which should include an accident history for the highway, as well as origin-destination information.

I must stress that this stretch of highway passes through very sensitive areas, with the Missisquoi National Wildlife Refuge, valuable wetlands, the Missisquoi River, and lands that are likely very sensitive from an archaeological standpoint. Every effort should be made to minimize the environmental impacts of the project.

If you have any further questions about the permit process or the Highway Methodology, feel free to call me at 802 655-0334.

Sincerely,

Martha Abair
Senior Project Manager
Regulatory Branch

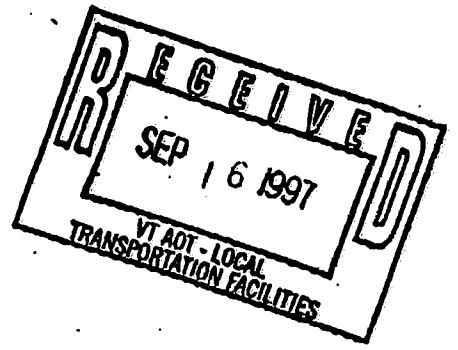
Copies furnished:
Bill Neidermyer - USFWS
Beth Alafat - USEPA
Gina Campoli - VTANR
Karen Bates - VTANR



State of Vermont

Department of Fish and Wildlife
Department of Forests, Parks and Recreation
Department of Environmental Conservation

AGENCY OF NATURAL RESOURCES
103 South Main Street
Center Building
Waterbury, Vermont 05671-0301



September 11, 1997

John Narowski
Vermont Agency of Transportation
Planning Division
133 State St.
Montpelier, VT 05633-5001

Re: Rt. 78 Upgrade, Swanton - Alburg

Dear John:

This letter is the Agency of Natural Resources' (ANR's) response to a recent meeting between our agencies regarding the Rt. 78 project.

As we understand it, based on the meeting and follow-up conversations that we have had with you and your staff, the Agency of Transportation (AOT) is requesting this agency's concurrence that a not-yet specified, on-alignment alternative for Rt. 78 is the "Least Environmentally Damaging Practical Alternative" or LEDPA, and merits a Categorical Exclusion (CE) under the National Environmental Policy Act (NEPA). The proposal has been reviewed by all components of the ANR, including the Planning Division and the Secretary's Office, and we conclude that we cannot agree to this request.

The only grounds for CE's are, simply stated, projects that will have no significant impacts on the natural and human environment. Typically, excluded activities are small, routine undertakings with no potential significant environmental effect. 40 C.F.R. § 1508.4. Furthermore, under FHWA NEPA regulations, highway upgrades are not on the FHWA list of projects that are presumed to qualify for CE consideration. At a minimum, formal FHWA Administrator approval, with documentation demonstrating that significant environmental impacts will not result from the Route 78 upgrade, is required before a CE can even be considered. 23 C.F.R. §771.117.

This project does not merit a Categorical Exclusion. The project raises a number of long-term growth concerns as well as posing direct and significant impacts on the state's natural resources. For example, the Route 78 upgrade, as currently proposed, will destroy 2 to 3 acres of wetlands in a national wildlife refuge. In addition, replacing the rural road through the refuge with an upgraded highway that will encourage additional truck traffic will significantly impair the Refuge's setting and public recreational values. This project certainly is not a small routine undertaking with no environmental impact.

If there is a "substantial possibility" that a transportation project could "significantly affect the quality of the human environment, AOT and FWHA must prepare an EIS. See Sierra Club v. Marsh, 769 F.2d 868, 870 (1st Cir. 1985). Based on the wetland and national refuge impacts alone, we urge AOT to undertake an environmental impact statement. At a minimum, AOT should prepare an environmental assessment to determine if a full EIS is necessary. NEPA makes it clear that if an agency has not complied with its procedural requirements, the project cannot go forward.

The issues that concern us are as follows:

- 1. There is not enough information on acceptable and reasonable alternatives.

NEPA regulations require AOT to evaluate a reasonable range of options that could accomplish the agency's objectives. NEPA specifically requires a rigorous exploration and objective evaluation of all reasonable alternatives. If alternatives are eliminated from detailed study, AOT must discuss the reasons for elimination. And an alternative must be considered even if it is outside the legal jurisdiction of the lead agency.

This project also requires an alternatives analysis in order to obtain a permit under §404 of the Clean Water Act because of the proposed filling of wetlands. 33 U.S.C. § 1344(a). EPA's binding §404 permitting requirements state that no permit may be granted "if there is a practicable alternative to the proposed alternative which would have less adverse impact on the aquatic ecosystem." The regulations further provide that "[a]n alternative is practicable if it is available and capable of being done, after taking into consideration cost, existing technology, and logistics in light of overall project purposes." 40 C.F.R. § 230.10(a) (1992). Where, as here, the project is not water dependent, practicable alternatives are presumed to be available unless clearly demonstrated otherwise. 40 C.F.R. § 230.10(a)(3).

Furthermore, under §4f of the Department of Transportation Act, the Secretary of the Department of Transportation may not approve a project, like this, that uses a national wildlife refuge unless "there is no prudent and feasible alternative" and "all possible planning to minimize harm" has been undertaken. 49 U.S.C. § 303(c)(1), (2). An alternative is "feasible" unless it is untenable as a matter of sound engineering. An alternative is "prudent" if it does not present unique problems or truly unusual factors or cause community disruption reaching extraordinary magnitudes. Citizens to Preserve Overton Park v. Volpe, 401 U.S. 402, 411 (1971)

Your agency has not demonstrated clearly under these federal laws the unavailability of practicable, less-damaging alternatives to that chosen. We agree that off-alignment alternatives that involve taking more wetlands and more of the Missisquoi National Wildlife Refuge are not acceptable. There are, however, other alternatives that are presumed practicable and should be explored. For example, it has been stated in several forums that one of the purposes of the project is to accommodate steadily increasing international truck travel between Montreal and

Post-It* Fax Note	7671	Date	16 Sept 97	# of pages	7
To	Gregg Bakos	From	Chris Maganan		
Co./Dept.	VHIB	Co.	VAOT		
Phone #		Phone #			
Fax #		Fax #			

Interstate 89. ANR requests that you consider coordination with the Province of Quebec in order to upgrade the connection between I-89 and I-35 and I-10 in Quebec -- as a feasible and prudent alternative to the reconstruction of Route 78.. The distance between Phillipsburg, Quebec, where I-89 ends, and Iberville, Quebec, where I-35 begins, is less than the circuitous Rt. 78 and Rt. 2 that connects to I- 87 in New York State. Routes 78 and 2 wind their way through the historic villages of Swanton and Alburg, through the National Wildlife Refuge and one of the most significant wetland complexes in New England, through the scenic Lake Champlain Islands, across two crossings of Lake Champlain and through the community of Rouses Point in New York. This route is on two lane roads with relatively narrow alignments.

Instead of reconstructing Route 78 to encourage more truck traffic through sensitive natural resource areas, it may be feasible as a matter of sound engineering , prudent, and less harmful to wetland and federal refuge properties to divert this commercial traffic along alternative routes better equipped to provide safe and efficient transportation. We realize that consultation and coordination with the Province will not be a simple matter and may require coordination through your Secretary's office. We believe, however, that transportation planning, like watershed planning, must cross state and international boundaries in order to be truly effective for regional travel. Furthermore, NEPA makes it clear that an alternative is still reasonable even if outside the legal jurisdiction of AOT to control.

AOT also should consider as a practicable alternative the rehabilitation of Route 78 within the road's current footprint in association with signing, striping, and speed regulation to accomplish the project's purpose and need.

2. The problems with the existing roadway and the project's purpose and need have not been documented.

We also need more specific information regarding the roadway's deficiencies including accident histories. This information is needed in order for us to agree with any alternatives and must be considered in this agency's permit processes.

3. There is not enough information regarding the environmental impacts of an on-alignment alternative.

As you know, the Missisquoi Delta has some of the most extensive, highly significant wetlands in the state and is of New England-wide, regional significance. You have described the on-alignment alternative as involving the addition of 6' ft shoulders to satisfy safety concerns. This would result in 2 to 3 acres of wetland impacts in the Refuge.

More information is needed before we can agree to an on-alignment alternative with direct impacts of this magnitude to wetlands and water quality, with additional direct impacts to endangered species and critical wildlife habitats, and with indirect and cumulative impacts to these and other resources. This information will be required for ANR permit processes such as the

Conditional Use Determination (CUD), §401 water quality certification, encroachment permit, state endangered species permit, and Act 250. Providing this information up-front through an EIS will help avoid delays later in the process when changes in the location or design as a result of delayed information provided during state regulatory reviews are far more costly.

Wetlands

The Wetlands Office has indicated that the on-alignment alternative presented last month raises major concerns about effects to wetlands. The following information is needed:

1. A wetland functional assessment evaluation;
2. A projection of changes in traffic patterns and traffic increase resulting from the project, and the effect this increase will have on storm water run-off and emission levels, and thus the potential for increased wetland water quality degradation. There is data from elsewhere in the country regarding the effects of increased traffic and the resulting run-off and emissions pollutants on wetlands.
3. The Vermont Wetland Rules require that when there are undue adverse impacts to wetland impacts, before the applicant may pursue mitigation for those impacts through the creation of new wetlands, all possible avoidance and minimization of impacts must be pursued first. Even though this project is intended for safety reasons, widening the roadway would encourage higher speeds and more dangerous accidents. AOT is encouraged to investigate alternatives -- such as rehabilitation within the road's footprint, signing, striping, and speed regulation -- with fewer wetland impacts that will slow traffic and improve safety.

Wildlife

The Refuge's wetlands are significant because of their habitat values. There may also be other non-wetland critical habitats affected by the project. The Department of Fish and Wildlife District Biologist has indicated that habitat and species specific information is necessary in order to better understand the existing conditions of the wetlands that would be affected and subsequently what measures of avoidance, minimization and mitigation might be necessary if the proposed alternative is deemed acceptable.

Specifically, AOT is requested to provide a vegetation inventory and detailed description of the potentially affected wetlands, how they are juxtaposed with respect to the rest of the wetland complex, and an evaluation of furbearer and waterfowl use of the affected area as well as adjacent wetland areas within approximately 250 feet.

Questions to consider include; (1) are furbearers utilizing wetland habitat adjacent to the existing road for purposes of migration that affects certain seasonal survival or reproductive requirements;

(2) are waterfowl utilizing wetland habitat adjacent to the existing road or near the existing road for breeding, brood-rearing, feeding, or resting habitat and, if so, how critical is that habitat to those waterfowl species based on the availability of similar habitat within the immediate vicinity (i.e., how will the loss of 3 acres of roadside wetlands affect the carrying capacity and reproductive potential of resident waterfowl species? This is not an exhaustive list of questions to be considered, but may be useful in getting started. Further consultation with district biologist John Austin in the Barre Regional Office is needed.

Non-game and Natural Heritage

The Fish and Wildlife Department's Non-game and Natural Heritage Program requests that the corridor be evaluated for rare, threatened and endangered plant and animal species. In addition, information needs to be collected on the location and mitigation of certain amphibians and their habitat. The Department is concerned that the affected section of Rt. 78 crosses a large wetland used by several amphibian species. During migration periods, large numbers of amphibians can be destroyed by traffic as the animals attempt to reach their spring or summer habitats. Species likely to be affected include the leopard frog, green frog, wood frog, spring peeper, and American toad. The western chorus frog, an endangered species in Vermont, may also be present in the area. AOT needs to investigate the current loss of amphibians to road traffic during spring migrations and this information should then be used to explore the placement of amphibian tunnels and other actions as part of project mitigation. Mark Ferguson, Zoologist in the Non-game Program, should be consulted regarding this work.

Recreation

There are other resources areas that will need to be investigated and impacts documented. Recreational use of the roadway and abutting public land, including bicycling, nature study, fishing, hunting and walking should be evaluated. Mitigation should then be proposed for the effects on these activities from increased traffic and noise, limited roadway parking, and restricted access.

Scenic Resources

The affected sections of Rt. 78 have great scenic value for transient drivers as well as the public visiting the Refuge. AOT should prepare a scenic resource inventory, document the visual effects of an on-alignment alternative and propose mitigation that may include special highway design treatments, materials and landscaping.

4. Relationship to Other Projects; Implications for the Corridor.

An agency violates NEPA when it prepares an environmental review for a small part of a larger project and does not address the environmental consequences of the action as a whole. Segmentation is impermissible because to permit consideration of a project divisible into smaller

parts, each of which taken alone does not have a significant impact, but which taken as a whole has cumulative significant impact would provide a clear loophole to NEPA. Susquehanna Valley Alliance v. Three-Mile Island Nuclear Reactor, 619 F.2d 231, 240 n.11 (3d Cir. 1980).

The Route 78 project appears to be a small but important part of a much larger plan to upgrade the entire Route 78 corridor from Interstate 89 to Interstate 87. For example, this project should be analyzed in conjunction with AOT plans to upgrade the Swanton-Alburg bridge. There is no doubt that the bridge project must be accomplished to replace the present deteriorated bridge. The question is whether that replacement, together with the presently proposed changes to Rt. 78, are the first step in a general upgrade of the entire Rt. 78 corridor. Our experience in Vermont, as well as a review of literature from other states, leads us to conclude that the proposed upgrades will lead to increases in truck and auto traffic which will in turn lead to further upgrades to the entire route.

If the object of this upgrade, as stated by AOT, is to make the corridor the principal truck route from Rt 87N to Quebec and Montreal, and southbound to 89, AOT is obligated to prepare a corridor study and EIS that considers all aspects of future improvements to this major state thoroughfare instead of segmenting environmental study and ignoring cumulative impacts of planned highway projects throughout the corridor. Certainly, AOT has taken this approach in improving the Route 7 corridor, another NHS roadway. It is unclear why AOT would take a less than comprehensive approach to the Route 78 corridor.

As required by NEPA, AOT's environmental review for this project should consider the cumulative effects of present and reasonably foreseeable future actions in the corridor when combined with this project's environmental impacts. See 40 C.F.R. § 1508.25(a). For example, what impacts will additional truck traffic have elsewhere along the corridor; what impacts will result to the downtowns of Rouses Point, Alburg and Swanton; what further upgrades, as well as possible bypasses of the above communities, are planned or likely?

AOT also must evaluate the potential impacts of the corridor upgrades on the human as well as the natural resources environment, including impacts to downtowns as well as the potential for inducing sprawl development along what may become a major truck and industrial route.

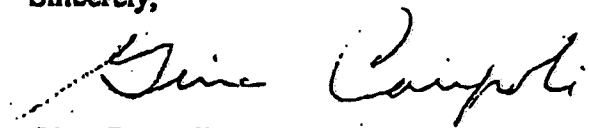
Conclusion:

The Agency of Natural Resources is concerned that the project does not qualify for a Categorical Exclusion under NEPA. We strongly urge AOT to perform a more detailed and extensive NEPA review including preparation of an environmental impact statement that addresses present and reasonably foreseeable future road upgrades in the Route 78 corridor, or at a minimum, an environmental assessment to determine if a corridor-level EIS is warranted. As we read NEPA regulations, specifically 40 C.F.R. 1508.4, a Categorical Exclusion is only appropriate for a category of proposed actions that do not individually or cumulatively have a significant effect on the environment. Typically excluded activities are small, routine undertakings with no significant

environmental effect. We have outlined a number of impacts and issues above. In our opinion, the project and its impacts are by no means small or routine. For these reasons, the Agency of Natural Resources believes that the project warrants a full NEPA environmental review

As always, we are available to discuss these issues with you, your consultants, and the federal agencies. If there are other groups interested in this project, we think they should be consulted as well. Please give me a call if you have immediate questions.

Sincerely,



Gina Campoli
Regulatory Review Coordinator

- cc: Barbara Ripley
- Glenn Gershaneck
- Al Elser
- Canute Dalmasse
- Stephen B. Sease
- N. Tasha Wallis
- Martha Abair
- William Neidermeyer
- Betsy Higgins-Congram
- Beth Alafat
- Rob Sikora
- Al Zolley

TOWN OF SWANTON

P.O. BOX 711
SWANTON, VERMONT 05488

Tel. (802) 868-4421

September 23, 1997

Barbara Ripley, Secretary
Vermont Agency of Natural Resources
103 South Main Street
Waterbury, VT 05671-0301

Dear Secretary Ripley,

As you know, members of your staff have been involved in an ongoing dialogue with the Agency of Transportation regarding a scoping project for Route 78 in Swanton. Recent comments from ANR and other resource agency staff have led us to believe that it is necessary to once again stress the importance of upgrading this segment of Route 78. This project was identified by the Northwest Regional Planning Commission as its number one priority in the 1994 *Transportation Improvement Priorities*. Transportation deficiencies identified in his document included: little or no paved shoulders, steep ditches, highest percentage of truck traffic in the region, and proximity to rail line.

Partially in response to this number one ranking, the Commission conducted a corridor study of Route 2/78 from Alburg through Swanton. The purpose and need for this study noted that this corridor is the only route in the United States around the northern end of Lake Champlain. In addition, Route 78 is a valuable corridor for trade between the United States and Canada. As a part of the National Highway System it is vital that Route 78 remain a functioning roadway capable of handling the 10-15% truck traffic it currently carries.

Members of your staff have recently suggested that Route 78 is perhaps not appropriate as a National Highway System Route, and have questioned the need for improvements to the roadway. This road is a primary link in the U.S. between I-87 in New York and I-89 in Vermont, clearly explaining its designation¹. The reality is that regardless of whether it is designated as part of the NHS, it will continue to function as though it is an NHS route. Alternatives, such as Route 2 through Grand Isle County are not feasible for the high amounts of automobile and truck traffic generally traveling Route 78 and do not serve the needs of many travelers.

¹NHS defined according to Public Law 102-240 includes urban and rural principal Arterials and highways which provide motor vehicle access between an arterial and a major port, airport, public transportation facility, and connectors which provide motor vehicle access between major military installations and highways.

Suggestions that this roadway does not need to be upgraded are shortsighted and careless. It is difficult to understand how resource agencies staff members in Montpelier have the expertise to question the need for this transportation project. The project was identified with a process of broad public participation, unanimously endorsed as a number one priority by the Northwest Regional Planning Commission's Transportation Advisory Committee and Board of Commissioners and listed as a statewide priority by VAOT.


This corridor is currently very unsafe both functionally and structurally. Ten foot travel lanes with barely existent shoulders do not serve the needs of heavy trucks, passenger automobiles, cyclists or pedestrians. Fatal accidents along this stretch in recent years point to the need for additional maneuvering room to accommodate driver error. Cyclists currently avoid this roadway because of its condition; if upgraded Route 78 could be a premier cycling route because of its terrain, beauty and connections to other routes, such as the Lake Champlain Bikeways. At several points along this stretch of roadway the side slopes are beginning to slump and supporting soil under the edges of the roadway is beginning to wash away. Part of the roadway travels very close to the river bank which is not a preferred location from an environmental or engineering standpoint.

We are acutely aware of the countless environmental concerns surrounding the upgrading of this segment of the roadway. These issues concern us as well-and not purely from a permitting perspective. The natural beauty, wildlife habitat, and other aspects of this unique area are of substantial importance to this region as a contributor to its identity, recreational opportunities and overall quality of life. We do feel, however, that with the cooperation of the various resource agencies, this roadway can be upgraded in an environmentally sensitive manner. For example, we will vigorously press for a roadway design which is narrower than the NHS typical '8, 12, 12, 8.'

We do not expect ANR or any other resource agency to ignore their responsibilities. However, we do request that ANR staff work cooperatively with the VAOT and this region to develop a project that will serve all of our needs.

Thank you for your attention to this matter.

Sincerely,


Earl Fournier, Chairman
Swanton Town Selectboard

cc: Glenn Gershaneck, VAOT
Don Rich, VAOT
Micque Glitman, VAOT
Chris Magnan, VAOT

September 29, 1997

Mr. John Narowski
Vermont Agency of Transportation, Planning Division
133 State Street
Montpelier, VT 05633-5001

PLANNING DIVISION

Re: Route 78 Upgrade

Dear Mr. Narowski:

The Conservation Law Foundation ("CLF") joins the Agency of Natural Resources in opposing the issuance by your agency of a categorical exclusion with respect to the proposed widening of Route 78 in the Swanton-Alburg area.

We agree with ANR's analysis of applicable federal regulations contained in Ms. Campoli's letter to you dated September 11, 1997. Those regulations absolutely prohibit the use of a categorical exclusion for this highway project. And frankly, we're very surprised that VAOT would consider even for a moment issuing a CE, given that the stretch of Route 78 in question (a) passes through a National Wildlife Refuge; (b) will require the destruction of several acres of wetlands; and (c) leads to a major bridge which your agency proposes to replace -- a project which is clearly a related action under the National Environmental Policy Act, and for which your agency should prepare an Environmental Impact Statement. (Please refer to my letter of May 13, 1997 to Mark Ljungvall of VAOT, a copy of which is enclosed, requesting an EIS for the bridge, and noting, at pg. 4, that the highway project is a related action under NEPA.)

The National Environmental Policy Act, or NEPA, was signed into law by President Nixon in 1970, and it is this nation's premiere environmental statute. NEPA directs agencies to comply with its provisions and policies "to the fullest extent possible," and VAOT should be applying it in expansive fashion rather than trying to get around it by issuing unwarranted and unlawful categorical exclusions.

In our view, NEPA requires that VAOT prepare a single Environmental Impact Statement for this highway project and the bridge replacement.

Sincerely,

Stephen L. Saltonstall
Staff Attorney

SS/sls
encl.

cc: Glenn Gershaneck, Mark Ljungvall, Gina Campoli, Mark Sinclair, Rob Sikora, Betsy Higgins-Congram, and Martha Abair (with encl.)

Hand Delivered

May 13, 1997

Mark W. Ljungvall
Special Projects Engineer
Vermont Agency of Transportation
133 State Street
Montpelier, Vermont 05633-5001

Re: Mississquoi Bridge Environmental Assessment

Dear Mr. Ljungvall:

The Conservation Law Foundation ("CLF") appreciates the opportunity to comment on the environmental assessment ("EA") for the Mississquoi Bridge project.

In a nutshell, CLF has concluded after careful review that the VAOT's proposed "preferred alternative," which would replace the existing draw bridge with a new, fixed bridge on a new alignment, is unjustified and unsupported by the EA and should not be adopted. The VAOT and FHWA should opt for reconstruction of the existing bridge instead of building a new one. Additionally, because of the significant environmental impacts of the "preferred alternative" if this option is pursued, federal law requires the preparation of a full Environmental Impact Statement ("EIS").

I. The Cost of the Project is Grossly Excessive:

The proposed new construction of a fixed bridge is far too costly. The fixed bridge alternative is the most costly alternative considered. The VAOT has conservatively estimated its cost at \$29 million dollars. In contrast, the cost of reconstruction is only \$10 million dollars. Because the reconstruction option creates fewer environmental impacts while still satisfying the other needs of the community, the fixed bridge proposal, at nearly three times the cost, is contrary to any sound policy.

The money saved by reconstructing the existing bridge could be used to refurbish the entire rail corridor between Rutland and Burlington, for example. This, we think, would be a far more worthy expenditure of transportation dollars.

Conservation Law Foundation

II. The Scope of the Project is Grandiose and Wasteful:

The scope of the new construction proposed is grandiose, beyond any rational community need, and shockingly wasteful in a time when resources are scarce.

The VDOT has attempted to justify scrapping the existing drawbridge for a new, fixed span on navigational grounds. But when draw span was last in operation in 1987, only about thirty vessels used it: (EA, pg. 9). We hope you will agree that construction of a large fixed bridge at a cost of \$29 million to allow passage of only 30 boats during the course of a summer is not rational.

Moreover, the proposed fixed bridge will offer no improvement for boat traffic. An existing railroad bridge crosses the bay to the south of the proposed bridge. The railroad bridge is a drawbridge of approximately the same height as the existing bridge used by cars and trucks. Since any boat must still pass under the railroad bridge, there is no increased benefit offered by building a fixed bridge for road traffic.

III. The Environmental Impacts of the Project Will Be Severe:

CLF is especially concerned that the environmental impacts associated with building a new bridge would be severe. The EA reveals that building a new fixed bridge will likely cause the following damage to the environment:

- increased noise pollution (EA, pg. 28);
- increased water pollution, caused by increasing the phosphorus concentrations in the entire Northeast Arm of Lake Champlain to levels in excess of those specified in Vermont's Water Quality Standards (EA, pgs. 30-32);
- the disturbance of toxins in 2.8 acres of lake bottom (EA, pg. 34);
- the filling of wetlands (EA, pg. 36);
- damage to populations of spiny soft-shelled turtles, mussels, and other rare, threatened, and endangered aquatic plants (EA, pgs. 36, 42);
- adverse impacts on fish and wildlife generally (EA, pg. 40);
- adverse impacts on historic resources (EA, pg. 43-46);
- relatively high expenditures of energy during the construction phase (EA, pg. 47); and

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-- adverse visual impact from a bridge twice as tall as the existing one in a rural area bordering a National Wildlife Refuge. (EA, pgs. 46-47).

In sum, the text of the EA makes it clear that the environmental impacts of building a new bridge are potentially very severe. Hence, the issuance of a Finding of No Significant Impact for the replacement alternative would violate the National Environmental Policy Act ("NEPA"). The project as proposed simply cannot legally go forward without a full EIS, which analyzes in detail the impacts mentioned in the EA -- many of which, it turns out, have not been studied adequately.

IV. Unlawful Postponement of Mitigation Proposals:

Indeed, the EA purports (in violation of NEPA) to postpone the crafting of measures to mitigate the damage to wetlands, endangered species, and prehistoric and historic resources until some unspecified time down the road. At the informational meeting on the project, held on April 29, 1997 in Swanton, Vermont, VDOT project manager Joseph Garso conceded that the field work needed to determine the full extent of environmental impacts and to develop mitigation proposals will not even begin until sometime this summer. Mr. Garso admitted that the EA had been issued anyway, because the VDOT's priority is simply to build the bridge as soon as possible. In Mr. Garso's words, the agency "decided to take the chance" of issuing the EA before the mitigation studies are complete. During the Swanton meeting, Mr. Garso also characterized the NEPA process as a paperwork obstacle to building the bridge.

We appreciate Mr. Garso's candor, which is a rare commodity in a time when obfuscation and buck-passing are all too often the norm. However, VDOT's result-oriented, cart-before-the-horse approach to this particular project is seriously flawed, and shows a troubling lack of understanding of the function of NEPA, our nation's premier environmental statute. Under NEPA, agencies cannot postpone the adoption of mitigation measures or the environmental studies necessary to craft them. Rather, the agency must set forth proposed mitigation within the four corners of the NEPA document (here, the EA). As the United States Supreme Court held in Robertson v. Methow Valley Citizens Council, 490 U.S. 332, 351 (1989), "omission of a reasonably complete discussion of possible mitigation measures would undermine the 'action forcing' function of NEPA. Without such a discussion, neither the agency nor the other interested groups and individuals can properly evaluate the severity of the adverse effects."

The EA as drafted simply does not comply with NEPA or the commands of the Methow Valley decision.

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V. Unlawful Failure to Examine the Impact of a Related Project:

CLF recently learned that for some years, VAOT has been considering a closely related construction project, the "improvement" of Route 78, the state highway that links routes I-89 and I-87 and winds through the Mississquoi National Wildlife Refuge and across the existing bridge.

When it comes time to discuss Route 78 in the Mississquoi Bridge EA, however, the VOAT states (in apparent contradiction to the VOAT plan) that "widening VT 78 to improve its capacity would be difficult since dense residential, commercial, and environmentally sensitive land bind the corridor." (EA, pg. 19).

Under NEPA, the agency in charge must analyze the cumulative impacts of related projects -- especially where as here the VOAT has described the affected land as "environmentally sensitive," and the land includes a National Wildlife Refuge.

It should be obvious that the bridge serves and is a component part of the highway. Nevertheless, the Mississquoi Bridge EA fails to analyze the VAOT's plan to upgrade Route 78, a plan which (according to Mr. Garso) ripened into a NEPA scoping process as early as 1995.

Considering the bridge without analyzing the highway project of which it is an integral part also violates NEPA's prohibition against the segmentation of environmental analysis. Despite this legal prohibition, Mr. Garso made it clear during his presentation that the VAOT's piecemealing of the NEPA review of the two projects was a *conscious decision* on the part of the agency, and he loyally attempted to defend that dubious approach during the public meeting.

VI. The Reconstruction Alternative Fulfills the Project's Purpose and Need:

By the EA's own analysis, reconstruction of the existing bridge satisfies all community needs, with less environmental impact, and with less cost. The EA states that reconstruction:

- would sufficiently improve access (EA, pg. 25);
- would be beneficial to the economies and business in the area (EA, pg. 26);
- is supported by The Vermont Department of Agriculture as it would have less impact on agriculture, compared to building a fixed bridge (EA, pg. 23);
- would satisfy all applicable USCG rules (EA, pg. 35);
- would avoid wetlands impacts (EA, pg. 38);

Conservation Law Foundation

- would have the least impact generally on fish and wildlife (EA, pg. 40);
- would have a reduced impact on endangered species in the area (EA, pg. 36);
- would have the least adverse effect on historic resources (EA, pg. 46); and
- would avoid increased pollution from phosphorus in the Northeast Arm. (EA, pg. 30-31).

VII. Conclusion:

In conclusion, this project has all the earmarks of an environmentally destructive boondoggle and public policy disaster. It is far larger than is needed to satisfy transportation needs in the area. The \$30 million "preferred alternative" of a fixed bridge is a gross waste of public money. Nearly twenty million dollars can be saved and spent on more worthy transportation projects, while still meeting the transportation needs of this area.

CLF respectfully requests that the responsible agencies reconsider the alternatives and opt for bridge reconstruction rather than replacement. Failing that, CLF requests the preparation of a full EIS in accordance with the letter, and the spirit, of the National Environmental Policy Act.

Thank you for your consideration.

Sincerely,



Stephen L. Saltonstall
Staff Attorney

cc: Mr. John DeVillars, Environmental Protection Agency
Mr. Frederick H. Downs, Federal Highway Administration
Ms. Gina Campoli, Vermont Agency of Natural Resources
Mr. Joseph Garso, Vermont Agency of Transportation



State of Vermont

Department of Fish and Wildlife
Department of Forests, Parks and Recreation
Department of Environmental Conservation

AGENCY OF NATURAL RESOURCES
103 South Main Street
Center Building
Waterbury, Vermont 05671-0301

OFFICE OF THE SECRETARY
Barbara G. Ripley, Secretary
Tel. 802-241-3600
FAX 802-244-1102

October 2, 1997

Earl Fournier, Chairman
Swanton Town Selectboard
P.O. Box 711
Swanton, VT 05488

Dear Mr. Fournier:

Thank you for your letter regarding the Agency of Transportation's (AOT) proposed upgrade to Route 78 between Swanton and Alburg.

Please be assured that the Agency of Natural Resources is not opposed to the rehabilitation of Route 78. We are also aware of the excellent work of the Northwest Planning Commission in planning and setting transportation priorities in Franklin and Grand Isle Counties. The opinions and conclusions of the Regional Transportation Advisory Committee and local interests are important in our decision-making. At the same time, the Agency of Natural Resources has a defined role that we are required to play in the environmental regulatory processes. In both the federal and state processes, the Agency must be assured that all reasonable alternatives have been considered, and that all possible steps have been taken to minimize impacts to important natural resources before we can approve the taking of those resources.

The Agency has asked AOT to provide comprehensive information regarding the project's purpose and need, all available alternatives, and the natural resources that will be affected. Only after this information has been provided will we be able to take a position regarding the size, scale, and allowable project impacts under applicable environmental regulations. This missing information is required for several regulatory processes including the federal Clean Water Act "Section 404 and 401" permits, the federal National Environmental Policy Act, and the state Act 250 processes. Getting the issues out on the table and gathering the necessary information will help avoid future delays as the project progresses through the planning, design, and permitting processes. We also believe that a rigorous regulatory process is likely to lead to a better project that meets transportation needs with less environmental and economic impact.

We both agree that the wetlands, wildlife, and scenic beauty along Route 78 are important to the region as well as the entire state, thus very careful consideration of any impacts is therefore justified.

2

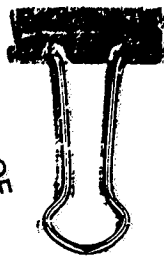
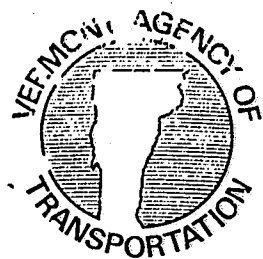
My staff are available to meet with you and other interested parties in the region to explain the Agency's concerns and the various regulatory processes required for the Route 78 project. Please give me a call if you have further comments or concerns regarding the Agency's review of this project.

Sincerely,

Barbara G. Ripley
Secretary

cpm

- cc: Glenn Gershaneck
- Catherine Dimitruk
- Senator Sara Kittell
- Senator Richard Mazza
- Senator George Costes
- Representative John Edwards
- Representative John Robb
- Raymond Larose
- Paul Hansen



STATE OF VERMONT
AGENCY OF TRANSPORTATION
133 State Street, Administration Building
Montpelier, Vermont 05633-5001



October 13, 1997

Gina Campoli
Vermont Agency of Natural Resources
103 South Main Street, Center Building
Waterbury, VT 05671

Dear Ms. Campoli: *Gina*

We understand your concerns as expressed in your 9/11/97 letter. The AOT acknowledges the significance of the Mississquoi Wildlife Refuge and is committed to minimizing and mitigating impacts that may result from the VT 78 upgrade in Swanton. I offer the following comments in response to your concerns:

The level of the National Environmental Policy Act (NEPA) documentation required for any project utilizing federal funds is determined by the lead federal agency, currently the Federal Highway Administration (FHWA). The FHWA has indicated that the work proposed to upgrade this section of the National Highway System (NHS) can probably be categorically excluded as defined by 23 CFR 771.117(d). If another federal agency, the Army Corps of Engineers (COE) in this case, disagrees with this determination made by FHWA, they can request to be the lead agency, and subsequently be responsible for development of the NEPA document.

Your statement that "highway upgrades are not on the FHWA list of projects that are presumed to qualify for CE consideration" is inaccurate. In general, actions that involve improvements to a transportation facility on alignment are classified as a Categorical Exclusion (CE). We will seek to classify this project as a CE pursuant to 23 CFR 771.117 d(1) "Modernization of a highway by resurfacing, restoration, rehabilitation, reconstruction, adding shoulders, or adding auxiliary lanes (e.g., parking, weaving, turning, climbing)". It is not anticipated that this project will have any significant impacts that would remove it from consideration as a CE.

The draft purpose of this project is to improve the public safety along this 10 km (6.2 mile) section of VT 78, and the need exists to correct the deficiencies along this section of the NHS. Briefly summarized, these deficiencies include: steep embankments that terminate in the Mississquoi River, narrow pavement width of approximately 7 meters (23 feet), and lack of shoulders. The absence of shoulders makes it extremely difficult to maneuver around errant oncoming traffic, safely park a disabled vehicle, and safely travel through the refuge by foot or bicycle. The safety of VT 78 has been studied and initial results indicate there have been numerous accidents within the project limits, some involving multiple fatalities. In fact, if this highway were not part of the NHS, the VT Design Standards would require a 5-12-12-5 typical.

You are correct in your statement that NEPA prohibits the segmentation of a larger project into smaller activities. With respect to the proposed safety improvement to VT 78, there is no environmental requirement to consider the entire corridor in one NEPA document as long as each project along the corridor satisfies certain criteria. It is FHWA's position that this project meets the criteria stated in 23 CFR 771.111(f).

In conclusion, the AOT's position parallels that of FHWA, in that the level of NEPA documentation required for this project is a CE. As part of project development, additional field studies will be conducted to comprehensively assess the project's impacts on both the man made and natural environment. Avoidance and minimization of project impacts, as well as any required mitigation and enhancement efforts will be developed during the design of conceptual and preliminary plans. We have scheduled a meeting on October 16th to update your agency on the scoping activities that have taken place since the September 17th COE meeting. We hope the meeting will be productive so we can develop a strategy amenable to all that will allow this important NHS project to move forward. The AOT is committed to working with your agency and others to develop an appropriate design for this portion of the NHS passing through the National Wildlife Refuge.

Sincerely,

John T. Narowski
John T. Narowski
Environmental Services Engineer
Technical Services Division, AOT

cc: Glenn Gershaneck, Secretary of AOT
Barbara Ripley, Secretary of ANR
Richard Smith, Governor's Office
Fred Downs, FHWA Division Administrator
Rob Sikora, FHWA Environmental Program Manager
Don Rich, AOT Regional Coordinator
Chris Magnan, AOT Project Supervisor
Stephen Sease, ANR
Catherine Dimitruk, Northwest Regional RPC
Martha Abair, COE
William Neidermeyer, US F&W
Betsy Higgins-Congram, EPA
Beth Alafat, EPA
Al Zelle, Mississquoi Refuge Manager
Stephen L. Saltonstall, CLF Staff Attorney



State of Vermont

Department of Fish and Wildlife
Department of Forests, Parks and Recreation
Department of Environmental Conservation

AGENCY OF NATURAL RESOURCES
103 South Main Street
Center Building
Waterbury, Vermont 05671-0301

Planning Division
802-241-3618

November 4, 1997

John Narowski
Agency of Transportation Planning Division
133 State St.
Montpelier, VT 05633-5001

Re: Improvements to Rt. 78

Dear John:

The Agency of Natural Resources (ANR) would like to respond to your October 13, 1997 letter regarding the Rt. 78 project, and provide follow-up to the Agency of Transportation's (AOT) meeting with the ANR on October 16 and the public meeting on October 21, 1997.

Based on the information presented by AOT's consultant's, the ANR agrees with the AOT's conclusion that an on-alignment solution appears to be the most feasible alternative to meet the project's stated purpose. Thank you for investigating the alternatives that we previously suggested.

We have not, however, concluded which on-alignment alternative will meet the purpose and need and have minimal environmental impacts. We believe that further investigation is needed of project impacts and whether or not widening will actually improve safety when speed and weather have been major factors in the Route's accident history.

We were disappointed that at the October 21 public meeting, the AOT asked for the community's support of a 6' shoulder alternative when that alternative has not been discussed or agreed to by the resource agencies. We feel this request was premature and had the potential to exacerbate local-state conflicts if the 6' alternative is not permissible. We believe that the AOT should present the community with an environmentally sound alternative.

Page 2

At our October 16 meeting, AOT committed to giving serious consideration to narrower roadway design alternatives (such as 11' travel lanes and 3'-4' shoulders), to speed control measures, and to use of guardrails, as means to minimize the roadway's footprint. As you know, AOT's new design standards endorse these tools to ensure that the project fits within its "Vermont context". Moreover, FHWA indicated that it did not oppose narrower road dimensions or use of lower design speeds on this National Highway System roadway. In order to minimize wetland losses and increase safety, ANR will insist that AOT utilize design alternatives such as these for this project.

In regard to your October 13 letter, the Agency, as stated above, agrees that the on-alignment alternative is the most feasible. We still disagree, however, on whether or not this project qualifies as a Categorical Exclusion. ANR believes that the project involves "significant environmental impacts". The rules are clear. 23 CFR 771.117(a) states:

Categorical exclusions (CEs) are actions which meet the definitions in 40 CFR 1508.4 and based on similar actions, *do not* (emphasis added) involve significant environmental impacts. They are actions which: do not induce significant impacts to planned growth or land use for the area; ...do not have significant impact on any natural, cultural, recreational, historic, or other resource; do not involve significant air, noise, or water quality impacts...or do not otherwise individually or cumulatively have any significant environmental impacts.

As we stated in our September 11, 1997 letter, ANR believes that the project has the potential to involve "significant" environmental impacts, including direct and secondary impacts to wetlands and associated natural resources along the Route and the National Wildlife Refuge. The significance of these impacts require a comprehensive review available for and strengthened by public comment, such as would be guaranteed in an Environmental Assessment (EA) or Environmental Impact Statement (EIS).

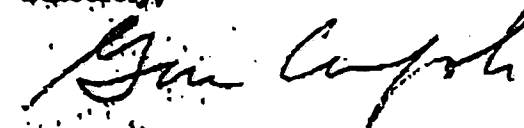
The rules go on to explain under Section 771.117 (b) that actions that normally may be treated as CEs (such as "modernization of a highway by resurfacing, restoration, rehabilitation reconstruction, adding shoulders or adding auxiliary lanes), but that involve "unusual circumstances" such as "(1) significant environmental impacts; (2) substantial controversy on environmental grounds; (3) significant impacts on properties protected under Section 4(f) ...or (4) inconsistencies with any federal, State, or local law....relating to the environmental aspects of the action," require that "appropriate environmental studies" be conducted to determine if the CE classification is appropriate. Again, it is ANR's position that the project, as currently designed, may cause significant impacts to wetlands and to the nation's refuges, justifying an EA or EIS.

Page 3

The Agency's September 13 letter outlines what issues need to be examined and studies that need to occur. The technical reports that were presented on October 16 are a first step. Your consultant, however, needs to work directly with Agency staff -- John Austin regarding wildlife, Karen Bates regarding wetlands, Everett Marshall regarding Non-game and Natural Heritage, and this office regarding scenic resources, recreation and secondary impacts -- in order to identify the adequacy or deficiencies of these reports and to supplement them as the project progresses.

The Agency staff and I look forward to further discussions regarding this important project.

Sincerely,



Gina Campoli
Regulatory Review Coordinator

cc: Barbara Ripley
Glenn Gerhanneck
Al Elser
Canute Dalmasse
Stephen Sease
David Rocchio
Martha Abair
Beth Alafat
William Neidermeyer
Rob Sikora
Betty Higgins Congram
Al Zolley
Catherine Dimitruk
Earl Fournier

Bakos, Greg

From: GINA CAMPOLI [ginac@anrimsgis.anr.state.vt.us]
Sent: Wednesday, November 05, 1997 2:45 PM
To: gbakos@VHB.com
Cc: jnarowski@aot.state.vt.us; cmagnan@aot.state.vt.us; Everett Marshall
Subject: (Fwd) Re: (Fwd) VT 78

Greg:

Please find below Everett Marshall's latest comments on the resource information for the Rt 78 project. He has also attached earlier comments which were included in the Agency's September 13 comment letter.

I hope this information is helpful.

Gina Campoli

----- Forwarded Message Follows -----

From: emarshall@FPR.ANR.STATE.VT.US
Organization: FPR DEPARTMENT NOVELL
To: "GINA CAMPOLI" <ginac@anrimsgis.anr.state.vt.us>
Date: Wed, 5 Nov 1997 10:12:04 EST
Subject: Re: (Fwd) VT 78
Cc: JOHN AUSTIN <JAUSTIN@ANRBARRE.anr.state.vt.us>, Karen Bates <karenb@dec.anr.state.vt.us>, SPARREN@FPR.ANR.STATE.VT.US, MFERGUSON@FPR.ANR.STATE.VT.US, RPOPP@FPR.ANR.STATE.VT.US
Priority: normal

Gina,

have the following comments on the VT 78 Initial Scoping Report:

1) regarding the October 14, 1997 memo by Chris Danforth (we discussed these points briefly at the meeting):

1) the dots on the Significant Habitat Map (SHM) often indicate polygons or stretches of river - not just point locations. The points shown on the SHM are summarized in a list of rare, threatened and endangered species and significant natural communities known from the Missisquoi Delta

2) the memo does not mention several rare riverine species which occur in the Missisquoi River. All of the fish, reptile and mussel species in appendix D occur near the project corridor.

3) Rare marsh nesting birds, sora and pied-billed grebe, are likely scattered in emergent marsh habitat throughout the refuge and they may occur near the project corridor.

4) All of the plants listed in Appendix D may occur in the project corridor.

5) Aside from the rare plants and animals known from Missisquoi Delta there is potential for other rare wetland and riverine species occurring in the project corridor (see our rare species lists in Appendix D).

6) regarding the September 5, 1997 memo by Chris Danforth (Wetland Function and Value Assessment):

1) this assessment gives us a good overview of the habitat occurring in the project corridor. As we expected there are several areas in the project corridor of high value wetland habitat.

2) regarding the associated Wetland Functional Assessment Forms. I was disappointed that a greater effort wasn't made to list individual plant species as this will help in the T&E review. However, I understand that the T&E review has not been conducted yet.

In closing, the study requests we have made previously were not formally summarized. Below are copies of the study requests I sent you.

From: Self <FPR/EMARSHALL>
To: "GINA CAMPOLI" <ginac@anrimsgis.anr.state.vt.us>
Subject: Re: Rt. 78
Date sent: Fri, 22 Aug 1997 15:47:50 EST

As you know the Missisquoi Delta has some of the most extensive, highly significant wetlands in the state. There should be every effort to avoid and minimize wetland impacts. This includes narrowing the shoulders to four feet where there are significant wetland impacts. Because of the significance of the site I believe that ANR should strongly advocate for a more detailed EA or EIS.

For inventory needs we recommend that the corridor be evaluated for rare, threatened and endangered plant and animal species. I also am including comments by Mark on impacts, inventory needs, and potential mitigation regarding amphibians.

The section of Rt. 78 in western Swanton crosses a large wetland area used by several amphibian species. During migration periods, large numbers of amphibians can be destroyed by traffic as these animals attempt to reach their spring or summer habitats. Amphibian species likely to be impacted by Rt. 78 include the leopard frog, green frog, wood frog, spring peeper, and American toad. The western chorus frog, an endangered species in Vermont, may also be present in this area.

We request that the AOT investigate the loss of amphibians to road traffic during spring migrations. This would include repeated night time surveys of this section of the road after warm spring rains to estimate the number of animals being killed and to identify road sections which are being most heavily used by amphibians during migration. We also request that the AOT use this information to explore the placement of amphibian tunnels in Rt. 78 to reduce the number of animals killed by traffic.

I will also discuss the project with Steve Parren on Monday to see if he has additional comments on inventory needs.

----- Forwarded Message Follows -----
From: "Steve Parren" <FPR/SPARREN>
Organization: FPR DEPARTMENT NOVELL
To: FPR/EMARSHALL
Date: Mon, 25 Aug 1997 08:02:42 EST
Subject: Re: Rt. 78

I agree with comments submitted. Road crossings might help more than amphibians. Assessment of impacts should be broad enough to include other taxa and we should request that AOT develop potential mitigation for impacts (has been done on at least some projects in Mass).



Kilton Road
Six Bedford Farms, Suite 607
Bedford
New Hampshire 03110-6532
603 644 0888
FAX 603 644 2385

August 27, 1997

Ref: 50736

Susanna L. von Oettingen
U.S. Fish and Wildlife Service
22 Bridge Street, 4th Floor
Concord, NH 03301-4901

Re: VAOTProj. # NH 036-1(9)SC

Dear Ms. von Oettingen:

VHB is currently assisting the Vermont Agency of Transportation with the preliminary environmental evaluation for proposed improvements to Route 78 in Swanton, Vermont. These improvements cover a section of approximately 6 miles of Route 78 from the Alburg-West Swanton Bridge to the Village of Swanton (see attached map).

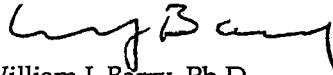
To assist us in our analysis would you please send us a listing of any federally endangered or threatened species that may exist in the project area. Any additional comments related to the project would also be appreciated.

If you have any comments or questions about the project, please don't hesitate to call.

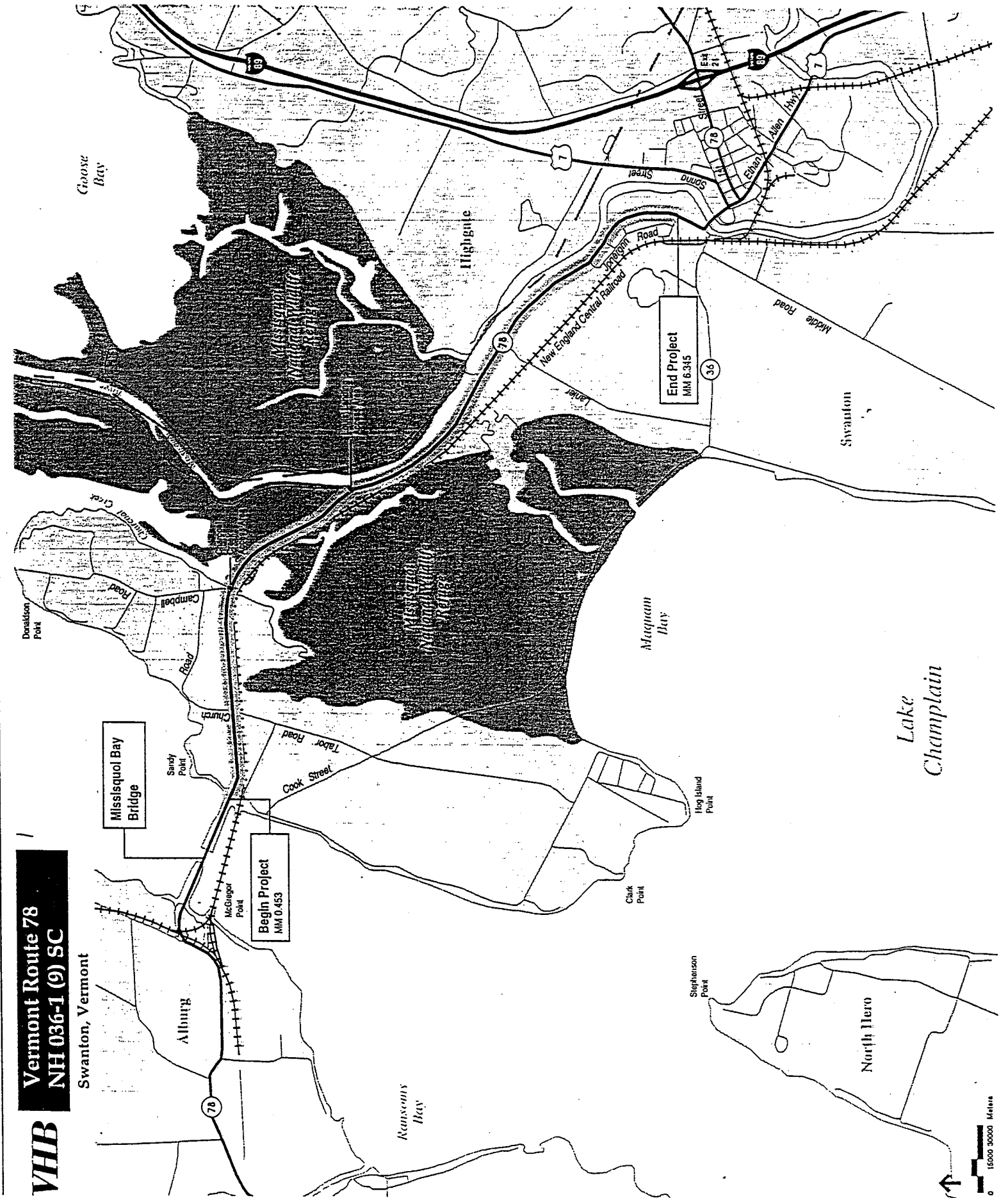
Thank you for your assistance.

Very truly yours,

VANASSE HANGEN BRUSTLIN, INC.


William J. Barry, Ph.D.
Director of Environmental Services

cc: G. Bakos





Kilton Road
Six Bedford Farms, Suite 607
Bedford
New Hampshire 03110-6532
603 644 0888
FAX 603 644 2385

BAT
GLB
FILE 50736

Date/Time: 4-29-97 - 10:00 AM Place: ANR - PLANNING

Attendees: GINA CAMPOLI Project No.: 50736

JOHN AUSTIN - WILDLIFE Biologist 1SR - ROUTE 78
JOHN ANDERSON FISHERIES SWANTON, VT.
MARK FURSTON - THE Zoologist
CHAS DANFORTH, VHS

Notes taken by: CKD

Page 1 of 2

CKD MET WITH THE RESOURCE AGENCY PEOPLE (VANR) AT THE TAIL END OF A MEETING HELD FOR REVIEW OF THE MISSISSQUI RIVER BRIDGE PROJECT. PURPOSE OF MEETING (PRE ARRANGED WITH GINA CAMPOLI) WAS TO MEET AGENCY PEOPLE WHO WILL BE INVOLVED WITH THE PROJECT AND REQUEST INFORMATION ON ISSUES OF CONCERN. A BRIEF MEMO WAS PASSED OUT WITH A DESCRIPTION OF PROJECT LIMITS, A REQUEST FOR INFORMATION ON ISSUES OF SPECIAL CONCERN FROM THOSE INVOLVED AND A LIST OF ISSUE TOPICS (FROM VDOT SCOPING MANUAL).

ISSUES DISCUSSED WITH THOSE PRESENT:

- JOHN AUSTIN / JOHN ANDERSON - ACCESS FOR FISHING
- PUSH ALIGNMENT TOWARD RAIL ROAD TO STAY AWAY FROM THE RIPARIAN ZONE OF THE MISSISSQUI RIVER.

- JOHN ANDERSON - QUESTIONED WHY PROJECT WAS BROKEN-UP INTO SEPARATE SEGMENTS - MISSISSQUI RIVER BRIDGE, RTE 78 ROAD SEGMENT. HIS FEELING IT SHOULD START AT I-89 (PROCEED) THROUGH TO ROUSE'S POINT...



Kilton Road
Six Bedford Farms, Suite 607
Bedford
New Hampshire 03110-6532
603 644 0888
FAX 603 644 2385

Meeting Notes

Date/Time: Place:

Attendees: Project No.:

Re:

Notes taken by:

Page 2 of 2

MARK FERGUSON - F&W THE Zoologist
MAIN ISSUE IS RESOURCE INVENTORY NEEDS TO BE PERFORMED FOR THE CONDON. THEY ARE CONCERNED WITH POSSIBLE THE HABITAT ON PLANT / ANIMAL SPECIES THAT MAY EXIST BUT NOT KNOWN ABOUT. THEREFORE THE ANR WILL LIKELY REQUEST A RESOURCE INVENTORY TO INCLUDE THE FLORA & FAUNA AESTHETICS ETC.

OTHER ANR PERSONNEL TO BE INVOLVED WITH THIS PROJECT, BUT NOT AT THE MEETING ARE

KAREN BATES - WETLANDS OFFICE
EVERETT MANSHALL - THE DATA MANAGER
BOB POPP THE BOTANIST
BARRY CANNON ANR STREAM ALTERATION ENGINEER.

- CKD ACTION ITEM -
- ① PRODUCE A CONTACT LIST FOR ALL FEDERAL, STATE, COUNTY & LOCAL AGENCIES AND INDIVIDUALS INVOLVED IN PROJECT.
 - ② SOLICIT ESTIMATE FOR RESOURCE INVENTORY (SEE COMMENTS FOR MORE INFO)



Kilton Road
Six Bedford Farms, Suite 607
Bedford
New Hampshire 03110
603 644 0888
FAX 603 644 2385

Phone
Notes

Date/Time: 8/25/87
Project No.: 50736
VHB Representative: Bill Barry
Telephone No.:
Incoming Call:
Person Contacted: Everett Marshall
Outgoing Call:
Title:
Project Name: Swanton, VT.
Representing:

- State list - updated list of Threatened Endangered species
Potential species - we think you should look for and
which ones should look for.

Carex lupulina

- make counts - explain of habitat and passage
width / depth / riparian

John Austin - foreman - Barre 802-779-3241

Barre Office Work - your species.

* all + about some

Mark Ferguson - 802-241-3667 - passage should be
explored

Steve Perin - also make and det passage.

① Chorus frog - occurs in habitat. may
Grand Este County

② during spring migration areas. Report right time
Swamps,



Kilton Road
Six Bedford Farms, Suite 607
Bedford
New Hampshire 03110
603 644 0888
FAX 603 644 2385

Phone
Notes

Date/Time:
Project No.: 50736
VHB Representative:
Telephone No.:
Incoming Call:
Person Contacted: Mave Ferguson
Outgoing Call:
Title:
Project Name: Swanton, VT 78
Representing: ANR

Collect design - for mammal species / amphibian flush with
banks. Funnelling - drift fence 1 foot high running for a
long distance.

Corrugated wheel under tunnels.

Fencing warning - light in through top. good.

Size - 12-18" wide -> 2 ft?

Book available on it, too. Amphibian + Reptiles
Edited Conference. Paper.

Amphibian + Rept

Proceeding Toad Tunnel Conference
Rendlesbury, Federal Republic of Germany
7-8 Jan '89

Thomas E. S. Langton

Aco Polymer Products, Ltd
Hitchin RE
Shefford, Bedfordshire, SG17 5JS England
.1989.

- 200 pp. Drift fence system.



Kilton Road
Six Bedford Farms, Suite 607
Bedford, New Hampshire 03110-6532
603 644-0888
FAX 603 644-2385

Phone
Notes

Person Contacted:	John LePore	VHB Rep:	Chris Danforth
Title:	Transportation Biologist	VHB Project No.:	50736
Company:	Vermont Agency of Transportation	Project Name:	Swanton, Route 78
Telephone No.:	9802)828-3963	Type Of Call:	Outgoing
FAX No.		Date and Time:	September 5, 1997

I spoke with John Lepore to discuss the Swanton Route 78 project. I told John that Bill Barry and I have completed the Wetland Functions and Values Assessment of the project corridor. I mentioned that we are planning to set up a meeting with Everett Marshall in the near future to obtain information pertaining to rare, threatened or endangered species or habitats in the area of the project. John would like us to get information within a 3.0 mile corridor (1.5 miles on either side of Route 78) overlay of Route 78. John feels that with this information and an idea of the species habitat requirements, we can project the occurrence of the species within the project envelope. John would like us to determine what species or habitats occur in the area, what the state or federal ranking is for each species and what the habitat requirements are for each species.

According to the 1997 Significant Habitat map, there are three known sites along the Route 78 corridor. If the project will directly impact a listed or endangered species, John would like us to develop some type of mitigation strategy to be proposed up-front at the resource meeting. In John's words..." this project will not go away because of an endangered species of plant being found near the project area." The no build alternative is not acceptable (He mentioned that the Wilmington bypass project had a similar situation and mitigation consisted of seed collection of the endangered plant(s) by a biologist (Lisa Standley?). After 5 years the seeds will be taken out of specialized storage and will be replanted once the project is completed).

I mentioned that we spoke to the Missisquoi National Wildlife Refuge Manager in Swanton. He seemed amenable to habitat enhancement in lieu of wetland creation. Bill explained that enhancement can be in the form of improved access to the refuge by the public, improved wildlife travel corridors, habitat enhancement, etc.) I told John that we observed a heavily used game trail (apparently by coyotes) leading under Route 78 via a 60-inch diameter culvert. John liked the idea of proposing additional "equalization culverts" which also allow safe movement of wildlife under the road.

John suggested contacting Marty Abair with information on our discussions with the Refuge Manager (Al Zelle) and his apparent interest with mitigation being other than creating more wetland. John would like to work on getting Marty on our side first, then worry about ANR. A site visit with the resource agencies should be scheduled for this fall to drive home the safety issues and need for the upgrade. I concurred! This should be proposed at the meeting as a next step.

We decided to meet with Everett Marshall together next week to discuss the Significant Habitat issues and review the files together. I scheduled a meeting with Everett and John in Waterbury at 1:00, Tuesday, September 9, 1997.

For the resource meeting on Wednesday, September 17th, John suggested that we plan on meeting at 11:00 in the conference room in Technical Services (formerly the Planning Division).

Action Items:

WJB/CKD Meet with Everett Marshall and John Lepore on Tuesday

WJB/CKD Prepare an assessment of impacts to rare or endangered species or habitats within the proposed project limits from the information obtained from Everett Marshall. Develop a mitigation strategy, if necessary, for the resource meeting.

From: GINA CAMPOLI [ginac@anrimsgis.anr.state.vt.us]
Sent: Thursday, January 30, 1997 9:40 AM
To: 'Jon Anderson'; 'Bill Crenshaw'; 'Everett Marshall'; 'Cathy O'Brien'; 'BARRY CAHOON'; 'jgarso@aot.state.vt.us'; 'nrpcvt@aol.com'; 'william_neidermyer@mail.fws.gov'; 'alafat.beth@epa.gov'
Cc: Bakos, Greg
Subject: Rt. 78 Study: State and Federal Agency Discussion

The ANR was recently informed that the AOT and the Northwest RPC have begun a transportation improvement study of Rt. 78 from Swanton to the Missisquoi Bay Bridge. This is the follow-up to a study completed a year and a half ago that defines transportation issues and problems along the route. As you probably know, Rt. 78 is adjacent to the Missisquoi River, state and federal wildlife refuge lands, and extensive wetlands. Wetland impacts and possible off-site mitigation, nongame issues, and impacts to public wildlife and recreation lands are some of the key permit issues that need to be addressed as possible improvements are considered in the study.

The ANR recommends that the project consultants meet with the state and federal regulatory agencies in the very near future. A public information/concerns meeting is scheduled for February 4 in Swanton.

WE WOULD LIKE TO HAVE A STATE AND FEDERAL AGENCY MEETING WITH THE CONSULTANT, the RPC, AND AOT ON WEDNESDAY FEBRUARY 5 IN MONTPELIER AT 1:30 FOLLOWING THE REGULAR CORPS COORDINATION MEETING.

Please let me know as soon as possible if this date and time will work for you. Copies of the initial Rt. 78 study are available from Joe Garso at AOT Planning or from the Northwest RPC.

I need to hear from you soon to confirm the meeting on the 5th.

Gina Campoli

From: Karen Bates [KAREN@dec.anr.state.vt.us]
Sent: Wednesday, September 03, 1997 2:58 PM
To: Gbakos@vhb.com
Cc: Gina Campoli
Subject: re: rt 78 alternative

Greg,

Gina asked that I let you know what sort of information we will be requesting from the agency. I am assuming that your firm has had to fill out the application for our Conditional Use Determination. We will need to know the functions of the areas directly impacted. If the improved road is projected to attract more traffic, we will need to know how this could affect the functions of a much larger area of the wetland.

Let me know if you need anymore information.

Karen Bates
Assistant Wetland Coordinator
Water Quality Division
Vermont DEC

From: John Lepore [johnl@planning.aot.state.vt.us]
Sent: Tuesday, September 02, 1997 4:06 PM
To: CMAGNAN@aot.state.vt.us
Cc: AMurray@planning.aot.state.vt.us; johnn@planning.aot.state.vt.us
Subject: Species of Special Concern - VT 78 (Swanton) -Reply -Reply

When you get this, the two maps will just show "dots" which depict the last know location of the plants and critters. It will not however, indicate what each "dot" represents.

Thus, I recommend that your consultant go directly to the ANR, Non-Game and Natural Heritage Program to find out what they know is out there, as well as what they suspect could be out there. Their office is located in the Center Building of the Waterbury Complex, next to Gina Campoli's office.

Once the consultant knows what vegies and critters are out there...a Scope of Work can be developed to address their identification. The Scope of Work should include the development of a mitigation plan for those which we cannot totally avoid.

NOTICE ---> For many species, the spring of the year is the only time to see these things. This is particularly for many herbaceous plants, but may also include reptiles, amphibians and mammals which use a particular habitat on a seasonal basis...

>>> Chris Magnan 09/02/97 02:45pm >>>
Thanks John,

I appreciate any assistance you can offer. I haven't seen it yet, but will be sure to let you know if there is anything else that may be of use. Once again, thanks.

Chris

>>> John Lepore 09/02/97 09:03am >>>
Good Morning Chris,

I have just dropped a photocopy of two Significant Habitat Maps for the VT 78 corridor into the "pink mail". One map is the 1991 version and the other is the 1997 version. Even at a quick glance you will see that there are more critters and vegetables indicated on the 1997 mapping than was in 1991...

When you get it, look it over and then let me know if I can do anything else - to keep the ball rolling...

Bakos, Greg

From: Bakos, Greg
Sent: Monday, October 20, 1997 1:45 PM
To: 'GINA CAMPOLI'
Cc: 'Chris Magnan'; 'Catherine Dimitruk'
Subject: RE: Rt 78 Swanton

Hello Gina;

At the meeting in Waterbury last week Mark Sinclair requested an estimate of the reduction in wetlands impact if an 11'4' typical section were to be used instead of the 12'6' section that we are proposing. It was agreed that rather than performing a new design at the reduced width, we would consider the area reduction to be directly proportional to the width reduction. This is true in most areas where each foot of pavement widening results in a foot more of wetland impact.

The existing pavement is 22' wide, and the 12/6 typical results in 36' of width. That's 14' wider than the existing pavement. The 11/4 typical results in a 30' wide pavement, so the reduction in total width from the 12/6 to the 11/4 typical is 6'. This represents about a 43% reduction in widening, so it is assumed that the maximum wetland impact reduction would also be 43%. Looking at our plans, the wetland impacts are very linear, and the assumptions made here are probably not far from what would be attainable. $43\% \times 4 \text{ acres} = 1.7 \text{ acre reduction}$.

The 12/6 section requires a design exception vs. the 12/8 section specified for this NHS roadway. I have no information to base an opinion on the likelihood of a 11/4 section getting approved. I do believe the 11' travel lanes have less of a chance of being approved than the 4' shoulders due to the heavy truck traffic, and in areas with guardrail the 4' shoulders compromise the safety of broken down motorists. Feel free to pass this info along to Mark, and if you have any questions don't hesitate to give me a call.



Kilton Road
Six Bedford Farms, Suite 607
Bedford, New Hampshire 03110-6532
603 644-0888
FAX 603 644-2385

Phone Notes

Person Contacted:	Amy Jestes Llewellyn	Incoming Call:	<input type="checkbox"/>
		Outgoing Call:	<input checked="" type="checkbox"/>
Phone Number:	(802) 828-5434	Date\Time:	09/16/97 3:50 PM
VHB Representative:	Greg Bakos	Project No.	50736
		Project Name:	VT 78 Improvements NH036-1(9)SC

I called Amy in response to her September 5, 1997 letter in which she stated that, based on her site review, there are some cultivated fields along the project corridor. She will not be available to meet on the 17th in Montpelier, but offered the following information:

The adjacent fields may or may not be considered prime Ag. Land. That will depend on the NRCS soil classifications. She noted that the importance of the land is as much a matter of the current use as it is the soils types. She inferred that land that is actively cultivated is now considered more important than say abandoned agriculture land that is becoming wooded. She indicated that the expected linear impacts along the existing roadway would probably not be cause for mitigation if we show we have made legitimate efforts to minimize. If we were going off line through the agricultural land with a new roadway it might be a different story.

If we send Amy a plan of the project area she would add her notes.

From: Chris Magnan [CMAGNAN@aot.state.vt.us]
Sent: Wednesday, September 24, 1997 6:29 PM
To: gbakos@vhb.com
Cc: donr@planning.aot.state.vt.us; johnn@planning.aot.state.vt.us
Subject: Swanton

Greg -

Some interesting information from a gentleman named Wayne Burl of A.N. Deringer Inc. - Customs Brokers out of St. Albans. Apparently the border crossing in Champlain, NY is a full service crossing meaning they can inspect, permit any item that comes across. For instance, quite a bit of meat and cattle come across the border. Highgate does not have the capacity to inspect this type of freight. The crossing in Highgate is not a full service crossing. He said truckers tend to not gamble when it comes to getting across the border cleanly. History shows that freight which is not inspectable or permittable at Highgate has to go all the way back to Champlain; this obviously eats valuable time out of a truckers schedule. Wayne also mentioned that Champlain is really the path of least resistance for truckers coming out of Western Montreal. Truckers come over the Mercier Bridge which dumps them on to Route 15 (a 4 lane divided highway which has controlled access). At that point, they have no choice really but to continue south to the Champlain crossing over to Route 78 to I-89 and then south. According to Wayne, a very high percentage of trucks coming from the north are coming from Western Montreal. This is where the bulk of factories, plants, and manufacturers are located.

Wayne mentioned that Route 133 in Canada is a 3 lane highway (middle suicide lane) which truckers absolutely do not like. They feel this road is very unsafe, especially during winter due to wind and snow drifting. The ROW was purchased for future upgrades to 133 during the '67 Expo. However, the Province of Quebec has no moneys available to upgrade this roadway to anything more than what it is.

Wayne also mentioned that trucks travelling East/West have a problem if they do not use Route 78 because there are no other routes within reasonable distance to maneuver to New York and/or Canada. By the way, I found out Route 11 in New York has been upgraded in the recent past. Route 11 is a 2 lane roadway with full (?) shoulders all the way to Watertown, NY where the interstate connects.

As a final note for now, I have also put a call in to John Manahan of the US Customs Service out of St. Albans. John is looking into datasets he might have on percentages of trucks going through various crossing points (where they're coming from, where they're going type of thing). He wasn't sure what he had available, but he will get back to me.

From: Chris Magnan [CMAGNAN@aot.state.vt.us]
Sent: Monday, October 20, 1997 4:23 PM
To: gbakos@vhb.com
Subject: Swanton

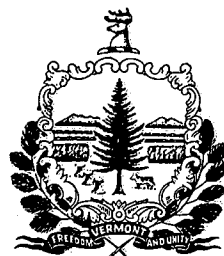
Greg -

I spoke with a David Palmer who is a Senior Inspector at the Highgate point of entry. He says that the latest multi-million dollar upgrades were to better accommodate existing type traffic flows with an eye to the future. They are limited on the types of inspections they can do and that will not change, at least not in the foreseeable future. The new upgrades include a new warehouse, commercial space for trucks, and extra lanes. Surprisingly, the traffic has increased about 6% in recent years. Mr. Palmer was not able to account for the increase other than to say that it may be possible that NAFTA may have something to do with that, or just that trucking products has become more popular.

Chris



STATE OF VERMONT
 AGENCY OF TRANSPORTATION
 133 State Street, Administration Building
 Montpelier, Vermont 05633-5001



RECEIVED
 OCT 14 1997
 VHB, INC.

October 8, 1997

Mr. Greg Bakos
 Vanasse, Hangen, Brustlin
 Six Bedford Farms, Suite 607
 Bedford, NH 03110-6532

Grey
 Dear Mr. Bakos:

Subject: Swanton NH 039-1(9)SC

Please find attached a pamphlet from the Northwest Regional Planning Commission on their first Lake Champlain Byways meeting. This pamphlet speaks to how and why the US Route 2 Corridor through the Islands is being considered as a scenic byway. Obviously, any major additions to traffic patterns, especially heavy vehicles, would be disastrous to this corridor becoming a scenic byway.

This effort is in its very initial stages, but it is progressing. The contact for this effort is Bonnie Warringer of the Northwest Regional Planning Commission. If you have any questions, please contact me.

Sincerely,

Christopher J. Magnan
 Scoping Consultant Manager

c: Central Files
 Scoping Files

Lake Champlain Byways

Recognizing Resource Connections in Grand Isle County, VT - October, 1997



Spectacular Destinations, Favorite Local Roads
 Recognizing Connections through Lake Champlain Byways

Byways - routes and roads with distinctive character - provide access to special sights or experiences. They link outstanding scenery, natural wonders, recreational areas, cultural and historic landmarks, and local communities. Byways may be spectacular destinations sought after by travelers or favorite local routes long admired by neighbors. They are antidotes to the monotony of linear, high-speed travel and underscore the belief that the journey is as important as the destination.

Through a Federal Highway Administration grant, Vermont and New York communities in the Lake Champlain Region won the opportunity to explore connections among tourism resources, local communities, and transportation linkages. Locally driven, Lake Champlain Byways will build an individual planning program for each county and develop products identified by local communities. The flexibility of the byways program gives each community a choice to promote new tourism and/or coordinate existing tourism. Ultimately, the local byways efforts will be united into a Lake Champlain Byways Corridor Management Plan. The Plan will include tools and strategies for addressing economic development, community services, and visitor, resource, and roadway management within the byways framework.



Building the Grand Isle County Byways Program
 Linking Existing Planning Efforts to Steps Along the Way

Grand Isle County Byways planning began by recognizing several other efforts underway within the county and throughout Vermont and the Lake Champlain Region. Each program uses information from the others to build a more comprehensive picture of the county.

◆ The State of Vermont is considering a State Byways Program to help local communities designate byways and access federal funding for implementing byways activities. A draft program manual outlining proposed program is available from the Agency of Transportation.

◆ A Route 2 Corridor Study through Grand Isle County is under development by the Northwest Regional Planning Commission (NRPC). The Study describes known deficiencies and recommends short and long-term options for improvements.

◆ NRPC is also working on a Grand Isle County Bicycle and Pedestrian Plan. The Plan will help communities define and coordinate bicycle and pedestrian goals to reduce conflicts

among bicyclists, pedestrians, and motorized vehicles.

◆ Lake Champlain Bikeways identified a principle bicycling loop around Lake Champlain. Future work for Bikeways includes working with local communities to enhance or improve the main loop and to develop other theme loops, where appropriate.

◆ Senator Jeffords recently announced success in authorizing a Lake Champlain Heritage Corridor Feasibility Assessment. The Assessment will determine whether the Region meets the basic criteria for a federally designated Heritage Corridor, but does not nominate the region for federal designation.

Northwest Regional
 Planning Commission
 140 South Main Street
 St. Albans, VT 05478

Phone
 802-524-5958
 800-564-5958

Fax
 802-527-2948



STATE OF VERMONT
 AGENCY OF TRANSPORTATION
 133 State Street, Administration Building
 Montpelier, Vermont 05633-5001



LOCAL TRANSPORTATION FACILITIES
 FACSIMILE TRANSMITTAL FORM

DATE: 10/27/97

PAGES: 4 (including cover sheet)

TO: Craig Bakos
VHB

FAX #: 603-644-2385

FROM: Chris Maynard

FAX# (802) 828-⁵⁷¹²~~2457~~

Local Transportation Facilities(LTF) PHONE #: 802-828-3975
 133 State Street
 Montpelier, Vermont 05633

SUBJECT: Greg - The attached sheets are the latest rating numbers on bridge # 3 over the charcoal Creek. The inspection date was '92. The other attached sheets explain what the rating numbers mean. Overall, the structure is in good condition, the only information the inspection data does not cover is how well the structure handles the hydraulics (eg. undersized or oversized).

If you have any difficulties receiving this transmittal, please contact Eileen at (802) 828-3966.

N DATE 10/11/93		VERMONT AGENCY OF TRANSPORTATION		CL/RTE VT 78	
V. BY		BIS, PRINT ITEMS FOR REVISION		BRIDGE NO. 3	
C. NO. <u>804</u>		STATE STRUCTURES UNDER 20 FEET		TOWN SWANTON	
IDE NO. <u>0036 0003 06152</u>		<u>14' CULVERT</u>		DISTRICT 8	
1. BRIDGE CODE NUMBER	00360003				
2. COUNTY	06				
3. TOWN	15				
4. SPECIAL SITUATIONS	210002				
5. INVENTORY ROUTE NUMBER	31000780				
6. ROUTE LOG STATION NUMBER	0010577				
7. DISTRICT NUMBER	08				
8. FEDERAL CITY CODE					
11. CODE FOR FEATURE CROSSED	5				
12. NAME OF FEATURE CROSSED	CHARCOAL_CREEK				
13. MAINTENANCE CONTROL SECTION NUMBER	7809				
20. LOCATION	5.3_MI_E_JCT_US_2				
22. FUNCTIONAL CLASSIFICATION CODE	02				
36. LAST PROJECT NUMBER	ST219M				
37. YEAR STRUCTURE WAS BUILT	1975				
38. YEAR LAST RECONSTRUCTED					
39. TYPE OF STRUCTURE, MAIN SPANS	3236				
41. TYPE OF BRIDGE SURFACE	17				
42. TYPE OF BRIDGE RAIL	51				
43. LANES ON STRUCTURE	2				
45. NUMBER OF MAIN SPANS	01				
47. OVERALL LENGTH OF STRUCTURE, FEET	14.				
48. MAXIMUM SPAN LENGTH, FEET	14.				
49. SKEW ANGLE, DEGREES	00.				
50. DESIGN LIVE LOAD	2				
55. LEFT SIDEWALK WIDTH, FEET	0.				
56. RIGHT SIDEWALK WIDTH, FEET	0.				
60. MEDIAN: NONE 0, OPEN 1, CLOSED 2	0				
61. MEDIAN WIDTH, FEET					
62. APPROACH WIDTH (INCL. SHOULDER), FEET	27.				
63. ROADWAY WIDTH (CURB TO CURB), FEET	000.0				
64. TOTAL HORIZONTAL CLEARANCE, FEET	31.0				
65. DECK WIDTH (OUT TO OUT), FEET					
66. VERTICAL CLEARANCE OVER, FEET	999.9				
67. VERTICAL CLEARANCE UNDER, FEET	8.5				
69. UNDER CLEARANCE (LAT. RT.), FEET					
70. UTILITIES (NUMBER OF TYPES)	00				
71. NUMBER OF RELIEF STRUCTURES	00				
73. CULVERT OR BARREL LENGTH, FEET	66.0				
74. COVER (AVERAGE), FEET	2.0				
75. WATERWAY AREA, SQUARE FEET	97.				
89. DATE INSPECTED, MONTH/DAY/YEAR	12/07/92				
91. RATING OF SUPERSTRUCTURE					
92. RATING OF SUBSTRUCTURE					
93. RATING OF CHANNEL					
95. RATING OF APPROACH ROADWAY ALIGNMENT	8				
98. ESTIMATED REMAINING LIFE OF STRUCTURE	40				
99. CULVERTS: RATING OF BARREL	6				
100. CULVERTS: RATING WINGS, WALLS, APRON	8				
101. RATING OF CHANNEL: SCOUR OR EROSION	8				
102. RATING OF CHANNEL: BANK PROTECTION	8				

the waterway slightly.

- 5 Bank is beginning to slump. River control devices and/or embankment have major damage. Trees and brush restrict the channel.
- 4 Bank and embankment protection is severely undermined. River control devices have severe damage. Large deposits of debris are in the channel.
- 3 Bank protection has failed. River control devices have been destroyed. Streambed aggradation, degradation or lateral movement has changed the channel to now threaten the bridge and/or approach roadway.
- 2 The channel has changed to the extent the bridge is near a state of collapse.
- 1 Bridge closed because of channel failure. Corrective action may put it back in light service.
- 0 Bridge closed because of channel failure. Replacement necessary.

Item 62 - Culverts

1 digit

This item evaluates the alignment, settlement, joints, structural condition, scour, and other items associated with culverts. The rating code is intended to be an overall condition evaluation of the culvert. Integral wingwalls to the first construction or expansion joint shall be included in the evaluation. For a detailed discussion regarding the inspection and rating of culverts, consult Report No. FHWA-1P-86-2, Culvert Inspection Manual, July 1986.

Item 58- Deck, Item 59 - Superstructure, and Item 60 - Substructure shall be coded N for all culverts.

Rate and code the condition in accordance with the previously described general condition ratings and the following descriptive codes:

Code Description

- N Not applicable. Use if structure is not a culvert.
- 9 No deficiencies.
- 8 No noticeable or noteworthy deficiencies which affect the condition of the culvert. Insignificant scrape marks caused by drift.
- 7 Shrinkage cracks, light scaling, and insignificant spalling which does not expose reinforcing steel. Insignificant damage caused by drift with no misalignment and not requiring corrective action. Some minor scouring has occurred near curtain walls, wingwalls, or pipes. Metal

culverts have a smooth symmetrical curvature with superficial corrosion and no pitting.

- 6 Deterioration or initial disintegration, minor chloride contamination, cracking with some leaching, or spalls on concrete or masonry walls and slabs. Local minor scouring at curtain walls, wingwalls, or pipes. Metal culverts have a smooth curvature, non-symmetrical shape, significant corrosion or moderate pitting.
- 5 Moderate to major deterioration or disintegration, extensive cracking and leaching, or spalls on concrete or masonry walls and slabs. Minor settlement or misalignment. Noticeable scouring or erosion at curtain walls, wingwalls, or pipes. Metal culverts have significant distortion and deflection in one section, significant corrosion or deep pitting.
- 4 Large spalls, heavy scaling, wide cracks, considerable efflorescence, or opened construction joint permitting loss of backfill. Considerable settlement or misalignment. Considerable scouring or erosion at curtain walls, wingwalls, or pipes. Metal culverts have significant distortion and deflection throughout, extensive corrosion or deep pitting.
- 3 Any condition described in Code 4 but which is excessive in scope. Severe movement or differential settlement of the segments, or loss of fill. Holes may exist in walls or slabs. Integral wingwalls nearly severed from culvert. Severe scour or erosion at curtain walls, wingwalls or pipes. Metal culverts have extreme distortion and deflection in one section, extensive corrosion, or deep pitting with scattered perforations.
- 2 Integral wingwalls collapsed, severe settlement of roadway due to loss of fill. Section of culvert may have failed and can no longer support embankment. Complete undermining at curtain walls and pipes. Corrective action required to maintain traffic. Metal culverts have extreme distortion and deflection throughout with extensive perforations due to corrosion.
- 1 Bridge closed. Corrective action may put it back in light service.
- 0 Bridge closed. Replacement necessary.

Item 63 - Method Used to Determine Operating Rating

1 digit

Use one of the codes below to indicate which load rating method was used to determine the Operating Rating coded in Item 64 for this structure.

Code	Description
1	Load Factor (LF)
2	Allowable Stress (AS)
3	Load and Resistance Factor (LRFR)

Vermont's Oldest Evening Newspaper • 1861

Mes

10/17/97

Vol. 137 No. 242 (USPS) (5133-8000)

Route 78 corridor subject of meeting

► Public hearing to look at alternatives

By LEON THOMPSON
Messenger Staff Writer

SWANTON—Should improvements be made to the Rte. 78 bypass between Swanton Village and the Missisquoi Bay Bridge, or should alternate routes to western parts of Franklin County and eastern New York be considered?

That issue will be the focus of a public hearing 8 p.m. Tuesday, October 21 at the Swanton Central School.

Chris Magnum, project supervisor with the Agency of Transportation (AOT), said the hearing was called to see if Swanton residents would

endorse improvements to Route 78.

Magnum supports the improvement project, but alternate routes were suggested by environmental groups concerned with the wildlife refuge that would straddle the 6-mile project area — from the village line to the Missisquoi Bay Bridge.

Clearly the condition of the roadway shows what needs to be done

Swanton Selectboard chair Earl Fournier

The AOT has researched possible routes into Canada, along Route 2 and into the Lake Champlain islands, and the feasibility of utilizing a ferry service in Plattsburgh.

The pros and cons of all those routes will be reviewed at the hearing Tuesday.

Magnum said the roadway is

► see ROUTE 78 on the back page

...aid two
...gic planning for
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...they said electric
...has to happen."
...said he disagreed
...of some that the
...care about elec-
...ring. "I think peo-
...hey care what hap-
...utility bills." He
...lawmakers to
...step," and pass
...ed at reducing

...Service Board
...hard Cowart and
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...ment of Public
...unavailable for
...Thursday.
...ldstein, a utilities
...he board who has
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...I would maintain
...port for electric

NORTHWEST RPC
Rich Funeral Home, Fairfax.
STANLEY T. "JOE"
WILLIAMSON, SR.
JEFFERSONVILLE — Largely

memory may be made to the
charity of ones choice. Spears
Funeral Home is in charge of
arrangements.

BIRTHS

JERUSALEM, ISRAEL—On September 24, A son, Eli Karol, weighing 8lbs., 8oz., to Yael Szendro and Lewis Brown. Paternal grandparents are Abraham and Jean Brown of Enosburg Falls.
MEUNIER—On October 14, at the Northwestern Medical Center, a daughter, Lillian Grace, weighing 7lbs., 1oz., to Stacey (Colby) Meunier and David Meunier of St. Albans.
LONG—On October 14, at the Northwestern Medical Center, a son, Robert Louis, weighing 11lbs., 7oz., to Barbara (Demar) Long and Robert Long of St. Albans.
SWEET—On October 15, at the Northwestern Medical Center, a daughter, weighing 5lbs., 14oz., to Connie (Ladieu) Sweet and Eric Sweet of Enosburg.
SMITH/LADUE—On October 15, at the Northwestern Medical Center, a son, Kaleb Scott, weighing 6lb., 14oz., to Kristina Ladue and Scott Smith of Fairfax.

Route 78: continued from the front page

classified as a high-accident location in comparison to other roads. That assessment plus the fact that 14 percent of traffic on Route 78 is made up of commercial trucks justifies the need for improvements, he said.

Swanton Selectboard Chair Earl Fournier said he, too, would like to see immediate improvements made on Route 78.

"Clearly the condition of the roadway shows what needs to be done," said Fournier. "Accident rates there are high, and we'd like to see this done in a timely fashion."

Fournier said any alternate routes would hurt Swanton's economy, and that fixing Route 78 is the only option at this point.

"There isn't really a more viable alternative, because it's the only east/west connector we have in Swanton," said Fournier. "Any other routes would damage the economy in Swanton. Swanton is trying to build its economy base as it is."

Route 78 is the only connector between Interstate 89 in Vermont and Interstate 87 in New York.



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Record Breaking SWEET CORN still picked daily

Impkins
inter squash
all decorations:
birds, ornamental
n, cornstalks,
berwee, dried herb
iguets.
APPLES: 5 varieties
matatoes—fresh from
greenhouse
arrots
sets
matatoes—dig your
n \$5.00/50lbs.—
cellent flavor
plors, garlic
esh pressed CIDER
m our hand-picked
ashed apples.

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Consumer group blames

By JONATHAN D. SALTANO

Administrative memo form with fields for To, From, Co., Dept., Phone #, Fax #, and a handwritten signature 'Chris Magnus'.

CONCEPTUAL COST ESTIMATES

Preliminary Cost Estimate

Vermont Route 78
Swanton, VT

Alternative **A :No Build**
By : Ryan Noyes

Date : 11/6/97
VHB Project : 50736

Item Description	Quantity	Unit	Unit Price	Amount
Roadway Items				
Earthwork				
Earth Borrow	0	CM	\$7.00	\$0.00 (1)
Rock Excavation	0	CM	\$25.00	\$0.00 (2)
Common Excavation	0	CM	\$6.00	\$0.00 (3)
Pavement				
Pavement	0	Ton	\$30.00	\$0.00 (4)
Subbase	0	CM	\$17.00	\$0.00 (5)
Sand Borrow	0	CM	\$10.00	\$0.00 (6)
Subtotal Cost of Roadway Items (1+2+3+4+5+6)				\$0.00 (7)
Cost Factor				1.72 (8)
Factored Roadway Cost (7x8)				\$0.00 (9)
Special Roadway Items :				
Guardrail	0	LM	\$30.00	\$0.00
Landscaping	0	LS	\$0.00	\$0.00
Drainage Improvements	1	LS	\$0.00	\$0.00
Special Roadway Items Total :				\$0.00 (10)
Total Cost of Roadway Items (9+10):				\$0.00 (11)

Structure Items				
Bridge construction	0	SM	\$0.00	\$0.00 (12)
Temporary Bridge	0	Each	\$0.00	\$0.00 (13)
Total Cost of Bridge Items (12+13)				\$0.00 (14)

Traffic and Safety				
Traffic and Safety Items	0	LM	\$10.00	\$0.00 (15)
Special T & S Items	0	LS	\$0.00	\$0.00 (16)
Total Cost of T & S Items (15+16):				\$0.00 (17)

Construction Subtotal (11+14+17)	\$0.00
-----------------------------------------	---------------

Preliminary Engineering (12%)	\$0.00
--------------------------------------	---------------

Right of Way Acquisition	\$0.00
---------------------------------	---------------

Construction Engineering & Contingencies (15%)	\$0.00 (20)
-----------------------------------------------------------	--------------------

Rounded Preliminary Cost Estimate Total (18+19+20) = **\$0.00**

Preliminary Cost Estimate

Vermont Route 78
Swanton, VT

Alternative **B :Widen VT 78 - On Line**
By : Ryan Noyes

Date : 11/6/97
VHB Project : 50736

Item Description	Quantity	Unit	Unit Price	Amount
Roadway Items				
Earthwork				
Earth Borrow	32,800	CM	\$6.00	\$196,800.00 (1)
Rock Excavation	0	CM	\$25.00	\$0.00 (2)
Common Excavation	11,300	CM	\$4.00	\$45,200.00 (3)
Pavement				
Pavement	37,700	Ton	\$25.00	\$942,500.00 (4)
Subbase	18,800	CM	\$17.00	\$319,600.00 (5)
Sand Borrow	25,000	CM	\$9.00	\$225,000.00 (6)
Subtotal Cost of Roadway Items (1+2+3+4+5+6)				\$1,729,100.00 (7)
Cost Factor				1.72 (8)
Factored Roadway Cost (7x8)				\$2,974,052.00 (9)
Special Roadway Items :				
Guardrail	7,000	LM	\$31.00	\$217,000.00
Reclaimed Stabilized Base	68,260	LS	\$1.50	\$102,390.00
Drainage Improvements	1	LS	\$180,000.00	\$180,000.00
Special Roadway Items Total :				\$499,390.00 (10)
Total Cost of Roadway Items (9+10):				\$3,473,442.00 (11)

Structure Items				
Bridge construction	0	SM	\$0.00	\$0.00 (12)
Temporary Bridge	0	Each	\$0.00	\$0.00 (13)
Total Cost of Bridge Items (12+13)				\$0.00 (14)

Traffic and Safety				
Traffic and Safety Items	10,000	LM	\$10.00	\$100,000.00 (15)
Special T & S Items	0	LS	\$0.00	\$0.00 (16)
Total Cost of T & S Items (15+16):				\$100,000.00 (17)

Construction Subtotal (11+14+17)	\$3,573,442.00
-----------------------------------------	-----------------------

Preliminary Engineering (12%)	\$428,813.04
--------------------------------------	---------------------

Right of Way Acquisition	\$0.00
---------------------------------	---------------

Construction Engineering & Contingencies (15%)	\$536,016.30
-----------------------------------------------------------	---------------------

Rounded Preliminary Cost Estimate Total (18+19+20) = **\$4,538,000.00**

Notes :

(8) Cost Factor : Based on Rural Roadway Reconstruction

(15) Signing and striping based on an estimated cost per linear meter of roadway.

The above estimate does not include engineering or land acquisition costs.

Preliminary Cost Estimate

Vermont Route 78

Swanton, VT

Alternative **C :Widen VT 78 - Modified Geometry**

Date : 11/6/97

By : Ryan Noyes

VHB Project : 50736

Item Description	Quantity	Unit	Unit Price	Amount
Roadway Items				
Earthwork				
Earth Borrow	60,200	CM	\$6.00	\$361,200.00 (1)
Rock Excavation	0	CM	\$25.00	\$0.00 (2)
Common Excavation	17,700	CM	\$3.00	\$53,100.00 (3)
Pavement				
Pavement	37,700	Ton	\$25.00	\$942,500.00 (4)
Subbase	18,800	CM	\$17.00	\$319,600.00 (5)
Sand Borrow	25,000	CM	\$10.00	\$250,000.00 (6)
Subtotal Cost of Roadway Items (1+2+3+4+5+6)				\$1,926,400.00 (7)
Cost Factor				1.72 (8)
Factored Roadway Cost (7x8)				\$3,313,408.00 (9)
Special Roadway Items :				
Guardrail	7,300	LM	\$31.00	\$226,300.00
Reclaimed Stabilized Base	68,260	SM	\$1.50	\$102,390.00
Drainage Improvements	1	LS	\$180,000.00	\$180,000.00
Special Roadway Items Total :				\$508,690.00 (10)
Toatal Cost of Roadway Items (9+10):				\$3,822,098.00 (11)
Structure Items				
Bridge construction	0	SM	\$0.00	\$0.00 (12)
Temporary Bridge	0	Each	\$0.00	\$0.00 (13)
Total Cost of Bridge Items (12+13)				\$0.00 (14)
Traffic and Safety				
Traffic and Safety Items	10,000	LM	\$10.00	\$100,000.00 (15)
Special T & S Items	0	LS	\$0.00	\$0.00 (16)
Total Cost of T & S Items (15+16):				\$100,000.00 (17)
Construction Subtotal (11+14+17)				\$3,922,098.00 (18)
Preliminary Engineering (12%)				\$470,651.76
Right of Way Acquisition				\$0.00 (19)
Construction Engineering & Contingencies (15%)				\$588,314.70 (20)

Rounded Preliminary Cost Estimate Total (18+19+20) = **\$4,981,000.00**

Notes :

(8) Cost Factor : Based on Rural Roadway Reconstruction

(15) Signing and striping based on an estimated cost per linear meter of roadway.

The above estimate does not include final engineering or land acquisition costs.

VAOT ROUTE LOG

ROUTE LOG AND PROGRESS CHART
STATE HIGHWAYS (AND CLASS 1 TOWN HIGHWAYS)

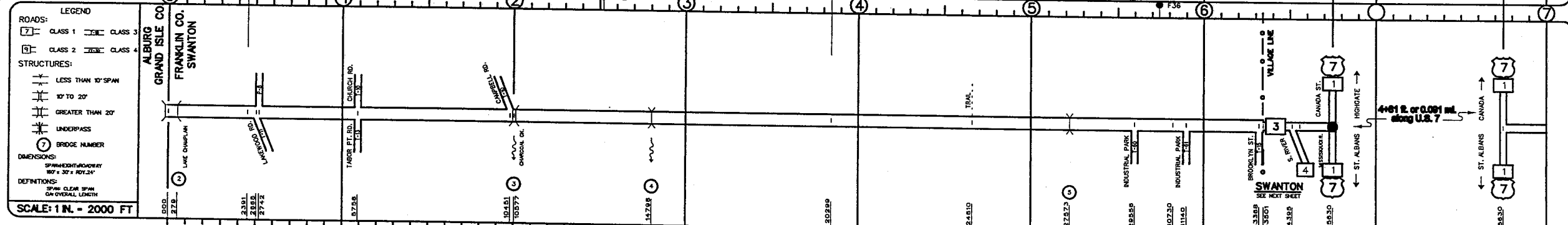
DISTRICT	TOWN	ROUTE
8	SWANTON	P.A. M.J.C. 78

BRIDGE DESCRIPTIONS

- ② 7 SPAN BASCULE S.S.B. 1936-37
55'x20' RDY. 20' O.A. 558'
6" SPW 84" 1" SPW 54"
SW 2.25' L&R P.W.A. 1013-R PROJ. 1956-57
H-15 WTWY 7500 SQ.FT. WID'55. NEW RAIL
REHAB. 1993 PROJ. N.H. 036-1171
- ③ 120" C.G. MULTIPLATE W 1937
RB 25'
H-15 WTWY. 78 SQ.FT.
- ④ 60" C.G.M.P.A.C. W 1937
RB 25.5'
H-15 WTWY. 19 SQ.FT.
- ⑤ CONC. BOX W 1937
4'x4' RB 25'
H-15 WTWY. 16 SQ.FT.

CONSTRUCTION AND MAINTENANCE RECORD Note: retreatment on a year to year basis prior to 1970 on micro film

EXISTING SURFACE	[Diagrammatic representation of existing surface conditions]						
1981,87,88	[Construction record for years 1981, 87, 88]						
1979,80	[Construction record for years 1979, 80]						
1977	[Construction record for year 1977]						
1976	[Construction record for year 1976]						
1973,75	[Construction record for years 1973, 75]						
1970,71	[Construction record for years 1970, 71]						
UNKNOWN,37,38	[Construction record for unknown years 37, 38]						
WIDTHS	[Width specifications for surface, roadbed, base, subbase]						
DEPTH & TYPE	[Depth and type specifications for various layers]						



ACCIDENTS	[Accident data points]						
CURVES (DEGREES)	[Curve data]						
GRADES (PERCENT)	[Grade data]						
HPMS	[HPMS data]						
TRAFFIC (ADT)	1988	3790					
	1986	3870					
	1984	3610		4390		4850	7090
	1982	2600		4680		5170	6880
				4040			7630
				3170			8200

MJC	PA/NHS	RETREATMENT			SURFACE TYPE	MILES						COUNTY	TOWN	ROUTE	SHEET	
		BLADE MIX	PLANT MIX	BIT. SEAL		BIT. CONC.	CONCRETE	BIT. MAC.	BIT. MX.	S. T. G.	GRAVEL					TOTAL
0296	036-1												FRANKLIN	SWANTON	78	2/6

SEE SHEET 478
DATE: DEC. 1994

ADDENDUM TO INITIAL SCOPING REPORT

Response: We concur and a statement to that effect will be added.

Comment 3: "Today we also discussed FHWA's willingness to post reduced speeds along this section of the NHS as a traffic calming technique, but I don't feel this deserves mention in the FSR."

Response: This is an important policy decision that VAOT and FHWA would need to make jointly. VHB has reservations about significant reductions in posted speeds, especially when the roadway geometry will support higher speeds. One concern is that a certain percentage of drivers will always drive at the speed that the roadway geometry supports, and other drivers will drive closer to the posted speed. There is danger when the disparity between these two groups becomes large. On a roadway like VT 78 which has stretches with good sight distance, the incidence of legal and illegal passing is likely to increase significantly due to the lower posted speeds.

COMMENTS BY: Chris Magnan, Scoping Project Manager/LTF Trans. Tech.

Comment 1: "I noticed that some of the wetlands on the plan sheets do not have a number designation to tie them together with the resource report and the cross sections. I also notice that the shading of the wetlands is not consistent with the legend (e.g. existing wetlands such as at station 21+600 are not shaded at all)."

Response: These inconsistencies will be remedied for the Final Scoping Report (FSR).

Comment 2: "In the matrix, it is noted that the Hydraulic Performance would not change. I think by improving the culvert and ditch situation, water will flow through to the Lake and not contaminate the subbase of the roadway."

Response: Your observation would appear to be correct and the matrix will be updated. In fact, we would encourage the installation of additional cross culverts during final design, especially if the flood prone sections VT 78 are raised as suggested. It is also likely that the introduction of amphibian or fur barer crossings beneath the road will serve the dual purpose of flood equalization during high water conditions. The improved drainage ditches that you make note of would improve the protection of the subbase from contamination (by silts and organics).

Comment 3: "In order to get our point across that other sideslope treatments are feasible and prudent to minimize any impact to the resources, a separate section should be dedicated to just that. Perhaps mention in there that the use of various types of retaining systems could further reduce impacts and that possible retaining options are: concrete retaining walls, gabion walls, permanent sheet piling, etc. This section should also point out that there may be areas along the corridor which may have the need for a typical other than the 6-12-12-6 we recommend. This will enable the designer to have flexibility in accommodating the needs of area property owners and perhaps the National Wildlife Refuge manager. This section should appear just after the Alternatives discussion and just before the recommendation. Perhaps this section could be called "Resource Impact Reduction Options." "Great report. Easy reading and covers a lot material."

Response: We support the idea of formalizing such a section on impact reduction options. (Also see our response to John Narowski's first comment above). Your comment, and John's first comment, demonstrate the level of appreciation that VAOT has for the sensitivity of the area. The fact that VAOT has endorsed a reduction in paved width below the Vermont and AASHTO standards for this NHS roadway, and that you desire to document your



Kilton Road
Six Bedford Farms, Suite 607
Bedford, New Hampshire 03110-6532
603 644-0888
FAX 603 644-2385

Memorandum To: (See Distribution List) Date: December 5, 1996
Project No.: 50736
From: Gregory L. Bakos Re: VT 78
Swanton, VT
NH 036-1 (9)SC

**ADDENDUM TO INITIAL SCOPING REPORT
VT 78
SWANTON, VERMONT**

The following are responses to the comments received from various members of the Project Definition Team (PDT) and others who have reviewed the Initial Scoping Report (ISR). These comments are listed in the order that they were received.

COMMENTS BY : John Narowski, VAOT Environmental Services Engineer

Comment 1: "The Missiquoi Wildlife Refuge is a significant resource that warrants avoidance and minimization of project impacts to the maximum extent possible. Innovative design concepts will be considered during conceptual plans developments that are over and above VOAT's standard roadway designs. Possibilities include vertical retaining structures, strategically placed amphibian crossings and steel backed/wood faced guard rails. We have agreed to pursue these options and I believe that commitment needs to be stated in the FSR, perhaps in the mitigation section, as you(Chris Magnan) suggested."

Response: We concur. A mitigation section will be added to the report in order to reiterate the VAOT's commitment to study minimization techniques during future stages of design. We have consistently maintained that slope impact minimization techniques should be pursued aggressively as opposed to reductions in pavement width since those reductions compromise the safety benefits that are central to the purpose of this project.

Comment 2: "Page 24 of the ISR mentions the development of a Master Plan for the Refuge. I would like VAOT to pursue a collaborative process with the US F&W Service to ensure our project will incorporate elements of the Refuge's master plan. I realize that VAOT can't force the US F&W to develop a plan but I hope Al Zelli will want to take advantage of this opportunity to accomplish his goals in conjunction with VAOT's project. This would be an opportunity for us to enhance the public's access to this area. A statement in the mitigation section mentioned above to the effect that VAOT would strongly support working with US F&W to this end would be appropriate."

pursuit of very costly minimization measures, demonstrates a commitment to achieve the project goals in an environmentally compatible manner.

COMMENTS BY: Jason Owen, RAPT Project Civil Engineer

Comment 1: *"The only comment I have is that the work between stations 23+500 and 24+600 will probably need a railroad agreement as the work will be very close to the property line. I think alternative C is better because that would enable the roadway centerline to be shifted away from the RR to provide more room to add the shoulder and ditching."*

Response: It is agreed that coordination with the railroad will be important as the project moves forward. The roadway was shifted away from the railroad under Alternative C in an attempt to improve drainage between the two and to improve the clearance between the road and the track.

COMMENTS BY: Douglas C. Gilman, VAOT

Comment 1: *"Page 19 in Evaluation Matrix under Alternatives B and C for Impacts to Wetlands there are 2.35 and 4.02 acres, respectively. This is inconsistent with comment on page 21 under Recommended Alternative 2, where it states that the reasons the preferred Alternative C was selected is its reduced impacts to environmental resources. Also noted in Appendix E of 8/14/97 Resource Agency Meeting the second paragraph on page 2 there is an indication of this wetland impact question between Alternatives B and C."*

Response: Though the area of wetland impact increased, the significance of the slope impacts decreased. The primary example is along the river where we shifted the road so the river bank would not be impacted and the mature trees could remain. The result of the shift was that wetland impacts on the other side of the road increased significantly. Another area where wetland impacts increased because of shifts in alignment under Alternative C is along the railroad where Alternative B would not be feasible due to the close proximity of the track and required drainage ditch. We will attempt to revise the report to clarify this distinction.

Comment 2: *"Similar to the wetland impacts in the Evaluation Matrix on page 19, the amount of Land Acquisition appears to increase from Alternative B to C (5.36 to 8.92 acres). It would make sense that a tradeoff of more ROW would make the wetland impact decrease, but to have both increase it sounds as though we would be acquiring more impact."*

Response: Again, shifting the road off its existing alignment resulted in greater right-of-way impacts.

Comment 3: *"Is the railroad line actively used?"*

Response: We believe the railroad is an active New England Central rail line.

Comment 4: *"I would be interested in having FHWA perspective on NHS design exception request, there was an indication in one of the agency resource meetings but nothing from them stating their demeanor."*

Response: FHWA has appeared receptive to the design exception, but it may be premature for them to come out with a formal statement about a given typical section. FHWA was copied on this ISR.

Comment 5: *"First sentence on right side of Page 22, slopes flatter than 1:2 may be used without guardrail... I believe the current agency standard/policy is 1:4."*

Response: Agreed.

Comment 6: *"Is the Categorical Exclusion possible? I am unclear as to what ANR's perspective is?"*

Response: This has been a point of contention between VAOT and ANR. VAOT is of the opinion that the Categorical Exclusion is appropriate and applicable for this project.

Comment 7: *"Is there any roadway structure/bridge perspective? In other words, are the existing drainage structures hydraulically adequate?"*

Response: The majority of the drainage structures are small diameter cross culverts which would likely be replaced as part of this project. There has been no indication that hydraulics are a problem on VT 78. The flooding problems that have occurred in the past are largely the result of high water due to spring thaws and ice jams on the river.

Comment 8: *"What about traffic divergence during construction? Your analysis of alternative routes seems to support that this is the only access corridor."*

Response: Accommodation of traffic during construction will be a challenge. There are no feasible detours. It is likely that there would be one lane closures to allow the construction to progress in short stretches, one side at a time. Temporary filling and paving will not be an option in most areas because of the tight environmental resource constraints.

COMMENTS BY: Catherine Dimitruk, Executive Director, Northwest Regional Planning Commission

Comment 1: *"Background Information, page 4: It is true that this project is the region's number one transportation priority, among current unmet needs. When ranking transportation needs, regional problems, which were part of an existing project, such as the Missisquoi Bay Bridge were not ranked."*

Response: Thank you for the clarification. The report will be updated to reflect the difference.

Comment 2: *"Signing page 5: thank you for not using the word "signage."*

Response: We think alike on this one.

Comment 3: *"Alternative A, page 14: Some local residents might disagree that there are no social or environmental impacts for the do-nothing alternative."*

Response: Very true. The report should perhaps be revised to say no "new" social or environmental impacts. It is impossible not to feel for the local residents who live with the conditions on VT 78 every day. This was perhaps no better exemplified than by one gentleman's comment at the local concerns meeting that he says a prayer every time the students from Alburg arrive safely at school in Swanton. There would certainly be social impacts if this project is delayed, diluted, or denied. It was also noted at previous meetings that the narrow paved width and the steep unprotected embankments contribute to vehicles involuntarily leaving the roadway. It is perhaps a matter of time before this condition results in a spill of hazardous materials in a resource area.

Comment 4: *"Alternative C, page 15: This Commission would be more comfortable with this alternative if a small footnote was added to the first sentence. "The typical width will be examined in greater detail during the preliminary and final design phases. Narrower shoulders (4 feet) in some areas without guard rails, and/or limiting the paved areas of the shoulders will be considered during the design process."*

Response: This seems a reasonable request. VAOT has been careful to indicate at project meetings that the final typical section widths will be set as the project moves through later design phases. Reductions below the 6 foot paved shoulder widths outside of areas with guard rail may be more palatable to VAOT and FHWA if the overall shoulder width is maintained by extending the narrowed paved shoulder with a granular shoulder. This would still provide a stable and level surface for stopped vehicles to occupy while keeping them out of the travel lanes. It would also help protect the edge of pavement from breaking off.

Comment 5: *"Recommended Alternative, page 21: There appears to be a discrepancy between the description on this page and on page 15. Page 21 suggests that some areas will have 8' shoulders. The Commission cannot support a proposal of 8' shoulders at this time. If this is left in, we request that the matrix on page 19 be modified to note that Alternative C only partly conforms with the Regional Transportation Plan. In addition, it would be helpful at some point in the report to include a discussion of the recommendations of our 1995 corridor study, and the decision not to use that study's recommended width."*

Response: There are two instances where it was felt that 8 foot paved shoulders should be provided. The first is in advance of the (future) Missisquoi bay bridge since it will reportedly have eight foot shoulders. The other locations where 8 foot shoulders may apply were in the few areas where there were no impacts to resource areas, or private or public lands. In these few areas it may be difficult to obtain a design exception. In these areas it may be possible to reduce the paved shoulder widths, but extend to the full 8 feet with a granular shoulder, similar to the approach discussed in response to comment 4 above.

Comment 6: *"Guardrail, page 23: The Commission strongly supports the use of aesthetically pleasing guardrail alternatives."*

Response: Though more expensive to install and maintain, the use of special guardrail serves at least two purposes. The first is that it helps diminish the aesthetic impact that would occur when introducing new steel guardrail along stretches where today the only visible features beyond the edge of road are natural. Secondly, the specialty guardrail will at least subconsciously make motorists aware that there's something special about this stretch of roadway compared to all of the other miles of roadway that they may have just traveled. Who knows, it may even make some of them slow down.

Comment 7: *"Funding, page 24: The Commission suggests that VAOT investigate Public Lands Highway Grants as a possible funding source. The Commission would be glad to assist with the application process."*

Response: VAOT is somewhat reluctant to attend to funding issues at this early stage. The fact that the Commission is thinking ahead on such issues is perhaps indicative of their level of attention and support for this project. It is hoped that the funding issue is revisited jointly by both parties at a more opportune time.

Comment 8: *"Appendix F, 8/21/97 letter from Martha Abair: The process outlined in Ms. Abair's letter appears to be very duplicative of the scoping process and the VAOT requirements under NEPA. How will these be coordinated, and what public involvement is included in the COE's process?"*

Response: We believe the COE's efforts will not be entirely duplicative, and in some cases will instead be expansive. An example of this would be the studies of wetland functions and values, traffic diversion alternatives, and accident studies which VHB has already taken to a level that may require little if any additional effort. VAOT has no control over the COE's process, and there are areas of resource identification and impact evaluation that the COE may have studied regardless of which information VAOT has gathered. The COE's work should be coordinated closely with VAOT and ANR, but the COE process is largely independent of the VAOT project development process. The normal COE process does require one joint public hearing between COE and VAOT. Public participation is not otherwise a requirement, but is an option.

COMMENTS BY: Robert F. Shattuck, Roadway and Traffic Design Engineer

Comment 1: *"My copy was missing pages 1-3, so I missed the Purpose and Need Statement as well as the Executive Summary (which if there isn't one, there should be)."*

Response: This is unfortunate that your copy had pages missing. An executive summary is always added to the final scoping report after the PDT meeting and Transportation Secretary sign off.

Comment 2: *"Page four, paragraph four - it states Vermont 78 is the only uninterrupted east-west crossing of the lake...not completely true. The crossing is actually US 2/VT 78. This statement appears twice in the paragraph."*

Response: Your comment is correct. US 2 crosses another part of the lake along the New York border in Alburg.

Comment 3: *"Page six, Alternate Routes. The first sentence should read (I believe) "At the request of ANR and representatives of other agencies..."*

Response: We concur. There is a difference in the meaning and we will revise the report.

Comment 4: *"Page seven, this is an excellent description on the benefits of shoulders. I plan to use it as a guide in any presentations I have to give where shoulders may be an issue."*

Response: Your comment is appreciated. This topic is likely to come up time and again where traffic conditions have grown to become incompatible with the existing infrastructure.

Comment 5: *"Page eight, last paragraph, column two, what are the state averages? These might be helpful to prove these conditions are high."*

Response: We have discussed this issue with VAOT and they are looking into whether it is possible to compile these rates for similar roadways.

Comment 6: *"Page nineteen, I believe the fact that ROW costs are not included should be noted on the ROW cost line. Without these costs, the comparison is not too valuable as ROW could add considerably to the total."*

Response: The matrix will be updated to reflect the fact that these costs are yet to be determined instead of \$0.

Comment 7: *"Page twenty-two, design exception, perhaps an explanation of the design exception process should be included as a note. Many readers will not be familiar with the process."*

Response: A brief description will be added, or as a minimum the VAOT standards will be referenced.

Comment 8: *"Page twenty-three, profile modifications, flooding of the road is mentioned several times, not only in the report but in the meetings and other letters. It must be realized that some flood events are caused by the lake and not by river flow. Raising the roadway a sufficient amount to prevent these events may not be possible. Other events are caused by ice jams and these too, may not be able to be alleviated. All must realize the highway is in a floodplain area (much of Lake Champlain floodplain) and solutions to the flooding are few, expensive and potentially environmentally damaging. In some areas we have to live with periodic flooding. This is one of those areas!"*

Response: This is an interesting perspective. We have also been given guidance that the known flood prone sections should be improved if possible since this is an NHS roadway. One fear with doing this is that it may worsen the flooding elsewhere if the water is not able to pass over the road. This is an issue that should be studied further in later stages of design, and a policy decision may need to be made.

Comment 9: *"Page twenty-five, an excellent description of the permitting process. My only concern is that the Agency Project Development Process Flow Chart is not easily read, due in part to the size and due to shading. A pure black and white chart would probably print and read better for non colored presentations."*

Response: Good comment. The final version will either be in color, or will be modified to make it more legible.

Comment 10: *"I believe the recommended alternative has been fully justified by this report. This is an NHS highway with demonstrated safety problems, many of which can be related to the narrow roadway and shoulder widths. An alternative which meets the Vermont Standards (which is what everyone is interested in doing today) yet avoids serious riverine impacts has been presented. I hope this continues to be the alternative developed as the project progresses to the design stage."*

Response: Your comment and support of the recommended alternative is appreciated.

COMMENTS BY: Jay Kilton/Ann Kreis, VAOT

Comment 1: *"I support the ISR's recommendation to bring this section of VT78 as close to minimum design standards as possible. I would prefer to at least meet the minimum width as suggested in the Vermont Design Standards (8-12-12-8), but understand the reasoning behind 6-12-12-6. I support staying on the existing alignment as this does not seem to negatively impact safety. Providing additional shoulder width as a countermeasure to accidents is the best solution I can think of here."*

Response: Your comments are appreciated.

Comment 2: *Providing additional shoulder width as a countermeasure to accidents is the best solution I can think of here."*

Response: We agree.

Distribution List:

VAOT:

Chris Magnan, LTF
 John Perkins, Dir. Of Technical Services
 Dave Scott, Dir. Of Project Development
 Micque Glitman, Dir. Of Planning
 Gordon MacArthur, Const. & Maintenance
 Bob Shattuck, Roadway Design
 John Narowski, Env. Services
 Warren Tripp, Structures
 Tom Pierce, Construction Engineer
 Al Wright, Right-of-Way
 Mike Hedges, Pavement Management
 Don Rich, Planning Coordinator
 John Bushey, District 8 DTA
 Ann Kries, Traffic Design
 Amy Bell, Bikeway Coordinator
 Jason Owen, RAPT
 Debbie Walker, VAOT
 Al Blake, VAOT R.O.W.
 Sam Lewis, VAOT LTF

Marty Abair, USCOE
 Gina Campoli, VT ANR
 Bill Neidermyer, USFWS
 Beth Alafat, EPA
 Peter Keibel VT ANR
 Karen Bates, VT Water Quality Division
 Jon Austin, VT ANR
 Amy Jestes-Llewellyn, Dept. of Agriculture
 Everett Marshall, VT ANR
 Sue Jamele, DHP
 Rob Sikora, FHWA
 Earl Fournier, Town of Swanton
 Al Zelly, Missisquoi Bay National Wildlife
 Refuge
 Jon Anderson, VT ANR
 Catherine Dimitruk, NWRPC
 cc: Central Files, VAOT

PROJECT DEFINITION TEAM MEETING NOTES

<<<<<<<<Attach PDT meeting. notes here>>>>>>>

VT SECRETARY OF TRANSPORTATION APPROVAL

<<Attach project approval here>>

CATEGORICAL EXCLUSION ENVIRONMENTAL ANALYSIS SHEET

This worksheet has been completed where appropriate for the current phase of project development. It should be recognized that additional study and impact assessment are required on this project, and it is premature to respond to some of the items below. Where responses are not possible at this time they have been noted as TBD (To Be Determined).

Categorical Exclusion Environmental Analysis Sheet

Town Swanton Project No. NH 036-1 (9)SC Route VT 78

Project Setting: Urban _____ Village _____ Rural X
Traffic 4170 Year 1997 Typical .3m-3.1m-3.1m-.3m(existing)

Project Purpose & Need:

The purpose of the project is: to improve public safety along a 10 km segment of VT 78 in Swanton between the Missisquoi Bay Bridge and the Swanton Village line.

The need for the project is due to the following deficiencies: Narrow pavement width, lack of paved or unpaved shoulders, hazards within the clear zone, and fair to poor roadway sufficiency rating. The need is further amplified by high truck volumes, and the regional importance of the roadway. VT 78 is part of the National Highway System.

Alternatives Considered:

- A. No Build,
- B. Widen about existing centerline,
- C. Widen about a new centerline which includes minor shifts away from obstacles and resource areas.

Project Description:

The project will involve: the reconstruction of 10 km of VT 78 from the Missisquoi Bay Bridge to the Swanton Village line. The existing roadway will be widened to include 3.6m travel lanes and 1.8m shoulders. Minor alignment shifts will be included to reduce or avoid impacts to resource areas.

(Projects that meet the criteria of 23 CFR771.117 (C) need only address those issues marked with an asterisk (*).

This does not preclude the need to obtain applicable State and Federal concurrences and permits.)

1. **Air Quality**

Ten year increase in ADT 700 (10,000 allowed maximum per MOA)
Urban intersection improvement Yes _____ No X

2. **Noise**

Alignment moved closer to developed property Yes _____ No X
If yes, apply nomograph. Results _____

3. **Water Quality**

Lakes or Ponds

VANR Lakes & Ponds permit Yes X No _____ Acquired _____

Rivers or Streams

VANR Stream Alteration permit Yes X No _____ Acquired _____

Wetlands

* Involved Yes X No _____ Vermont Classification II & III

* Wetland Impact area: Temporary TBD Permanent 4.0 +/- Acres

* Buffer Impact area: Temporary TBD Permanent TBD

* VANR Conditional Use Determ. Yes X No _____ Acquired No

401 Water Quality Certification Yes X No _____ Acquired No

Stormwater Discharge Permit Yes X No _____ Acquired No

Flood plains Encroachment Yes X No _____ Area TBD

Significance (Describe) _____

Ground Water/Surface Water/Well Impacts Yes _____ No _____

(Describe) _____

ANR Comments (See correspondence in Scoping Report Appendix F)

COE Comments (See correspondence in Scoping Report Appendix F)

4. **U.S. Army Corps of Engineers**

Section 404 Permit Required Yes X No _____

Permit Type Nationwide

5. **U.S. Coast Guard**

Navigable Waters Yes _____ No X

Section 124a Permit Required Yes _____ No X

6. **Threatened and Endangered Species and Habitat**

Present in Project Area Yes X No _____

ANR Non-Game and Natural Heritage Program comments (see Appendix E & F)

USF&WS comments (see Appendix E & F)

7. **Agricultural Land**

Prime/secondary/locally important soils affected Yes X No _____

Current Land Use Inactive cultivated fields

Form 1006 Parts 1, III, VI, VII, completed Yes _____ No X

Form 1006 Parts II, IV, V completed Yes _____ No X

Vermont Department of Agriculture comments (see Appendix F for phone notes)

8. **Hazardous/Residual Waste Liabilities**

Present in project area Yes _____ No _____

Determination from VANR list Yes _____ No _____

Determination from field visit Yes _____ No _____

Borings completed Yes _____ No _____

Petroleum related wastes Yes _____ No _____

CERCLA involvement Yes _____ No _____

Remediation required Yes _____ No _____

Describe No sites observed or reported to date.

* 9. **Historical or Archaeological Resources (Section 106)**

Historic Resources: Present in project area Yes _____ No X

Archeological Resources: Present in project area Yes X No _____

Section 106 findings TBD

Memorandum of Agreement needed Yes TBD No _____ Executed _____

SHPO coordination completed _____

Advisory Council coordination completed _____

* 10. **Section 4(f) Resources**

Present in project area Yes X No _____

Nature of Section 4(f) involvement:

Public Land : National Wildlife Refuge X Historic Property

Temporary use Yes _____ No TBD (Coordinate with FHWA on determination)

Section 6(f) involvement (LWCF Funding) Yes _____ No X

Dept. of Interior coordination completed _____ (Not required for Programmatic 4(f)s)

* 11. **Right of Way**

New ROW Acquisition fee simple Yes TBD No _____

easement Yes TBD No _____

Description of taking Long, narrow parcels to accommodate new slopes and shifted Rd.

Improved properties acquired Yes _____ No X

Displacements Rental Units _____ Private Homes _____ Businesses _____

Relocation services to be provided _____

Properties available for relocation _____

12. **Public Participation Opportunity**

Pre-Design Site meeting Yes No Date Feb 4, '97 : Local Concerns Mtg.
Public Information meeting Yes No Date Oct. 21, '97 : Alternatives Presentation
Public Hearing required Yes No Date _____
Comments by Local Officials/RPC's Town and RPC support recommended alternative

13. **Social & Economic Concerns**

Project consistent with local and Regional Land Use Plans Yes No
Describe Consistent w/ Regional Transp. Plan (Attach correspondence from officials)
Neighborhood and Community Concerns Yes No
Churches Elderly
Schools Minorities
Low Income Housing Handicapped
Emergency Services Environmental Justice Exec. Order 12898

Describe Existing unsafe conditions affect the entire community.

Pedestrian facilities Sidewalks \geq 5 ft. Yes No

Bicycle facilities Paved Shoulders \geq 4 ft. Yes No

Describe The addition of 4' to 8' paved shoulders is proposed.

Effect on local business Yes No (Describe) _____

Temp. effect on business Yes No (Describe) Minor avoidance during construction

Loss of Parking Yes No (Describe) _____

14. **Temporary Effects or Aesthetic Concerns**

Detour required Yes No Length _____ (Attach Plans)

Temporary bridge required Yes No (Attach Plans)

Adverse effects The narrow corridor will make temporary lane closures necessary.


Public and public official notification or involvement Town has been & will be involved.

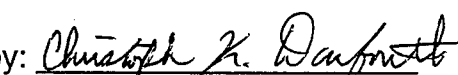
Scenic Byway/VT Scenic Highway Yes No

National/State Forest Highway Yes No

Describe Though not a designated scenic route, the area is one with valuable visual resources. The project will have minimal impacts on the visual character, with the exception of the planned addition of substantial amounts of guardrail. The VAOT has agreed to try to implement more aesthetically pleasing Guardrail as a result.

Field Inspection Comments: A series of field inspections have taken place to date. A wetlands inventory was conducted and the findings from that effort were compiled in an Environmental Resources Inventory Report by VHB dated November, 1997. The most prominent features along this corridor are the Missisquoi National Wildlife Refuge and the Missisquoi River, both of which abut VT 78.

 12-31-97
Signature Date

Reviewed by:  12-31-97
Signature Date

(Note: Full documentation of the information summarized herein is preserved in the project files of the VAOT Technical Services Division. When appropriate, more detailed descriptions of resources and/or impact analyses should be attached to this form.)

Impact Mitigation Requirements

Describe: TBD

