Appendix B - Navigation Waypoints with Associated Time/Distance Estimates for LNG Vessel (See Maps 5-8)

Leg No., Name	Start WP	Starting Waypoint Lat/Lon	End WP	Ending Waypoint Lat/Lon	Dist.	Dist. Sum	Bearing	Speed	Time	Time Sum
1, Point 1	Start	N/A	1	44° 59.454´ N 066° 45.827´ W				6	0:00:00	0:00:00
2, Point 2	1	44° 59.454´ N 066° 45.827´ W	2	44° 57.896´ N 066° 54.378´ W	6.25	6.25	273.78	6	1:02:30	1:02:29
3, Point 3	2	44° 57.896´ N 066° 54.378´ W	3	44° 56.496´ N 066° 56.373´ W	1.99	8.24	243.4	6	0:19:54	1:22:23
4, Point 4	3	44° 56.496´ N 066° 56.373´ W	4	44° 55.170´ N 066° 57.405´ W	1.51	9.75	227	6	0:15:05	1:37:30
5, Point 5	4	44° 55.170´ N 066° 57.405´ W	5	44° 54.896´ N 066° 57.811´ W	0.4	10.15	244.5	6	0:04:00	1:41:30
6, Point 6	5	44° 54.896´ N 066° 57.811´ W	6	44° 54.949´ N 066° 58.361´ W	0.39	10.54	295.92	6	0:03:53	1:45:24
7, Point 7	6	44° 54.949´ N 066° 58.361´ W	7	44° 55.030´ N 066° 58.869´ W	0.37	10.91	300.79	6	0:03:42	1:49:05
8, Point 8	7	44° 55.030´ N 066° 58.869´ W	8	44° 55.456´ N 066° 59.499´ W	0.62	11.53	331.82	6	0:06:12	1:55:18
9, Point 9	8	44° 55.456´ N 066° 59.499´ W	9	44° 56.922´ N 067° 00.880´ W	1.76	13.29	344.44	6	0:17:35	2:12:54
10, Point 10	9	44° 56.922´ N 067° 00.880´ W	10	44° 57.541´ N 067° 01.464´ W	0.74	14.03	344.42	6	0:07:24	2:20:18
11, Point 11	10	44° 57.541´ N 067° 01.464´ W	11	44° 59.384´ N 067° 02.625´ W	2.02	16.05	354.11	6	0:20:11	2:40:30
12, Point 12	11	44° 59.384´ N 067° 02.625´ W	12	45° 01.128´ N 067° 03.778´ W	1.93	17.98	353.08	6	0:19:17	2:59:48
13, Point 13	12	45° 01.128´ N 067° 03.778´ W	13	45° 03.238´ N 067° 04.879´ W	2.25	20.23	357.9	6	0:22:30	3:22:18
14, Point 14	13	45° 03.238´ N 067° 04.879´ W	14	45° 06.396´ N 067° 06.541´ W	3.37	23.6	357.77	6	0:33:41	3:56:00
15, Point 15	14	45° 06.396´ N 067° 06.541´ W	15	45° 07.977´ N 067° 07.699´ W	1.78	25.38	350.82	6	0:17:47	4:13:48

Appendix C:
Construction-Related Traffic: Passenger Vehicles

Scenario Two: Most workers arrive by car (some carpooling), others take bus (Moderate Impact)

TRAFFIC COUNT LOCATION	YEAR	AADT	NUMBER OF PASSENGER VEHICLES (CLASS 1-3)	% PASSENGER VEHICLES OF AADT	# OF LNG-RELATED PASSENGER VEHICLES	# OF PASSENGER VEHICLEES W/ LNG	% INCREASE IN PASSENGER TRAFFIC
SouthBound							
Calais (West)	2004	9140	7970	87.20%	102	8072	1.28%
Robbinston	2004	2730	2510	91.94%	102	2612	4.06%
Perry	2004	2490	2272	91.24%	102	2374	4.48%
NorthBound							
Perry (West)	2004	2460	2219	90.20%	102	2321	4.59%

The cumulative impacts of all three LNG sites for this scenario are summarized in the following table.

TRAFFIC COUNT LOCATION	YEAR	AADT	NUMBER OF PASSENGER VEHICLES (CLASS 1-3)	% PASSENGER VEHICLES OF AADT	# OF LNG-RELATED PASSENGER VEHICLES	# OF PASSENGER VEHICLEES W/ LNG	% INCREASE IN PASSENGER TRAFFIC
SouthBound							
Calais (West)	2004	9140	7970	87.20%	306	8276	3.84%
Robbinston	2004	2730	2510	91.94%	204	2714	8.13%
Perry	2004	2490	2272	91.24%	102	2374	4.48%
NorthBound							
Perry (West)	2004	2460	2219	90.20%	306	2525	13.79%

Scenario Three: All workers drive their own car to and from work (High Impact)

TRAFFIC COUNT LOCATION	YEAR	AADT	NUMBER OF PASSENGER VEHICLES (CLASS 1-3)	% PASSENGER VEHICLES OF AADT	# OF LNG-RELATED PASSENGER VEHICLES	# OF PASSENGER VEHICLEES W/ LNG	% INCREASE IN PASSENGER TRAFFIC
SouthBound							
Calais (West)	2004	9140	7970	87.20%	234	8204	2.93%
Robbinston	2004	2730	2510	91.94%	234	2744	9.31%
Perry	2004	2490	2272	91.24%	234	2506	10.29%
NorthBound							
Perry (West)	2004	2460	2219	90.20%	234	2453	10.53%

The cumulative impacts of all three LNG sites for this scenario are summarized in the following table.

TRAFFIC COUNT LOCATION	YEAR	AADT	NUMBER OF PASSENGER VEHICLES (CLASS 1-3)	% PASSENGER VEHICLES OF AADT	# OF LNG-RELATED PASSENGER VEHICLES	# OF PASSENGER VEHICLEES W/ LNG	% INCREASE IN PASSENGER TRAFFIC
SouthBound							
Calais (West)	2004	9140	7970	87.20%	702	8672	8.81%
Robbinston	2004	2730	2510	91.94%	468	2978	18.65%
Perry	2004	2490	2272	91.24%	234	2506	10.29%
NorthBound							
Perry (West)	2004	2460	2219	90.20%	702	2921	31.64%

Appendix D:
Estimated Property Value and Taxes Paid for Property with 50 ft Construction ROW for Lateral Pipeline from LNG Terminal to Northeast Maritimes Pipeline

Table 1: Description of Segments (see Map #3)

Segment	Description
A	Split Rock --> Mill Cove
B	Mill Cove --> NMP (Route 1)
C	Mill Cove --> NMP (Route 2)
D	Mill Cove --> NMP (Route 3)
E	Devil's Head --> NMP

These segments refer to the potential routes of LNG laterals from the LNG sites to the Northeast Maritime Pipeline. Please note that there are 3 potential routes from Mill Cove to the NMP (Routes 1-3).

Table 2: Total Area of 50 ft ROW by Town (see Table 7 for description of Segments)

Sum of 50 ft ROW (acres)	Town							
Seg	Baileyville	Baring Plt	Calais	Charlotte	Perry	Pleasant Point	Robbinston	Grand Total
A					44.8	2.7	7.1	54.6
B	31.2	47.4		34.8			29.5	142.9
C	31.3	15.0	37.7				28.4	112.4
D	31.3	14.7	59.6				27.3	132.9
E	32.3	14.8	55.6					102.7
Grand Total	126.1	92.0	152.9	34.8	44.8	2.7	92.2	545.4

This table show the total area of the construction right of way surrounding each pipeline segment by town. For example, the total area of the ROW for segment A (Split Rock to Mill Cove) includes 44.8 acres in Perry, 2.7 acres in Pleasant Point, and 7.1 acres in Robbinston for a total of 54.6 acres for the segment.

Table 3: Total Area of 50 ft ROW for Pipeline from Each LNG Site

Pipeline Route	Pipeline Segments	Area of ROW (acres)
Split Rock - NMP	A + Average of B,C,D	184.0
Mill Cove - NMP	Average of B,C,D	129.4
Red Beach - NMP	E	102.6818928

This table shows the total acreage occupied by the combined construction ROW for pipeline segments running from each LNG site to the NMP.

Appendix D:
Estimated Property Value and Taxes Paid for Property with 50 ft Construction ROW for Lateral Pipeline from LNG Terminal to Northeast Maritimes Pipeline

Table 4: Total Estimated Property Value of 50 ft ROW by Town

Sum of property value	Town							
Seg	Baileyville	Baring Plt	Calais	Charlotte	Perry	Pleasant Point	Robbinston	Grand Total
A					$31,095.59	$0.00	$3,658.74	$34,754.33
B	$26,252.86	$10,687.07		$9,444.90			$15,285.09	$61,669.92
C	$26,401.93	$3,377.41	$54,709.71				$14,734.52	$99,223.58
D	$26,325.81	$3,317.18	$86,604.57				$14,139.05	$130,386.60
E	$27,198.05	$3,333.30	$80,740.86					$111,272.20
Grand Total	$106,178.64	$20,714.96	$222,055.14	$9,444.90	$31,095.59	$0.00	$47,817.40	$437,306.64

This table show the total property value of the land within the construction right of way surrounding each pipeline segment by town. Data in this table was based on the table 2 above and the average value of one acre of property for each town.[1]

Table 5: Total Estimated Cost of property within the 50 ft ROW for Potential Pipeline Route from Each LNG Site

Pipeline Route	Pipeline Segments	Property Value of ROW
Split Rock - NMP	A + Average of B,C,D	$131,847.70
Mill Cove - NMP	Average of B,C,D	$97,093.37
Red Beach - NMP	E	$111,272.20

This table shows the total estimated cost of the combined construction ROW for pipeline segments running from each LNG site to the NMP.

Table 6: Total Estimated Tax Paid for 50 ft ROW by Town[2]

Sum of tax revenue	Town							
Seg	Baileyville	Baring Plt	Calais	Charlotte	Perry	Pleasant Point	Robbinston	Grand Total
A					$392.12	$0.00	$35.78	$427.90
B	$421.10	$155.28		$142.43			$149.49	$868.30
C	$423.49	$49.07	$1,452.54				$144.10	$2,069.21
D	$422.27	$48.20	$2,299.35				$138.28	$2,908.10
E	$436.26	$48.43	$2,143.67					$2,628.36
Grand Total	$1,703.11	$300.99	$5,895.56	$142.43	$392.12	$0.00	$467.65	$8,901.86

These table show the total estimated taxes paid for the land within the construction right of way surrounding each pipeline segment by town. Data in this table was based on the table 4 above and the mill rates for each town.[2]

Appendix D:
Estimated Property Value and Taxes Paid for Property with 50 ft Construction ROW for Lateral Pipeline from LNG Terminal to Northeast Maritimes Pipeline

Table 7: Total Estimated Tax Paid for 50 ft ROW for Potential Pipeline Route from Each LNG Site

Pipeline Route	Pipeline Segments	Property Value of ROW
Split Rock - NMP	A + Average of B,C,D	$2,376.43
Mill Cove - NMP	Average of B,C,D	$1,948.53
Red Beach - NMP	E	$2,628.36

This table shows the estimated taxes paid for the combined construction ROW for pipeline segments running from each LNG site to the NMP.

[1] An average property values per acre for each town were calculated using the total value and total acreage of all properties for each town. Source: Maine State Planning Office, 2006

[2] Source: Maine Municipal Association. Full Value Tax Rates, 2003.

Appendix E:
Estimated Property Value and Taxes Paid for Property with 300 foot Setback for Lateral Pipeline from LNG Terminal to Northeast Maritimes Pipeline

Table 1: Description of Segments (see Map #3)

Segment	Description
A	Split Rock --> Mill Cove
B	Mill Cove --> NMP (Route 1)
C	Mill Cove --> NMP (Route 2)
D	Mill Cove --> NMP (Route 3)
E	Devil's Head --> NMP

These segments refer to the potential routes of LNG laterals from the LNG sites to the Northeast Maritime Pipeline. Please note that there are 3 potential routes from Mill Cove to the NMP (Routes 1-3).

Table 2: Total Area of 250 ft Setback by Town (see Table 7 for description of Segments)

Sum of 300 ft. Setbac	Town							
Seg	Baileyville	Baring Plt	Calais	Charlotte	Perry	Pleasant Point	Robbinston	Grand Total
A					224.0	13.5	35.3	272.8
B	155.9	237.2		173.8			147.4	714.3
C	156.7	75.0	188.3				142.1	562.2
D	156.3	73.6	298.1				136.4	664.4
E	161.5	74.0	278.0					513.4
Grand Total	630.4	459.8	764.4	173.8	224.0	13.5	461.2	2,727.1

This table show the total area of the setback surrounding each pipeline segment by town. For example, the total area of the setback for segment A (Split Rock to Mill Cove) includes 197.2 acres in Perry, 10.8 acres in Pleasant Point, and 28.2 acres in Robbinston for a total of 218.3 acres for the segment.

Table 3: Total Area of 250 ft Setback for Pipeline from Each LNG Site

Pipeline Route	Pipeline Segments	Area of Setback (acres)
Split Rock - NMP	A + Average of B,C,D	919.8
Mill Cove - NMP	Average of B,C,D	646.9
Red Beach - NMP	E	513.4

This table shows the total acreage occupied by the setback for pipeline segments running from each LNG site to the NMP.

Appendix E:
Estimated Property Value and Taxes Paid for Property with 300 foot Setback for Lateral Pipeline from LNG Terminal to Northeast Maritimes Pipeline

Table 4: Total Estimated Property Value of 250 ft Setback by Town

Sum of property value	Town							
Seg	Baileyville	Baring Plt	Calais	Charlotte	Perry	Pleasant Point	Robbinston	Grand Total
A					$155,477.97	$0.00	$18,293.69	$173,771.66
B	$131,264.28	$53,435.37		$47,224.51			$76,425.45	$308,349.62
C	$132,009.65	$16,887.05	$273,548.57				$73,672.62	$496,117.89
D	$131,629.04	$16,585.88	$433,022.85				$70,695.25	$651,933.01
E	$135,990.24	$16,666.48	$403,704.30					$556,361.02
Grand Total	$530,893.20	$103,574.78	$1,110,275.72	$47,224.51	$155,477.97	$0.00	$239,087.01	##########

This table show the total property value of the land within the setback surrounding each pipeline segment by town. Data in this table was based on the table 2 above and the average value of one acre of property for each town.[1]

Table 5: Total Estimated Cost of property within the 250 ft Setback for Potential Pipeline Route from Each LNG Site

Pipeline Route	Pipeline Segments	Property Value of Setback
Split Rock - NMP	A + Average of B,C,D	$659,238.50
Mill Cove - NMP	Average of B,C,D	$485,466.84
Red Beach - NMP	E	$556,361.02

This table shows the total estimated cost of the setback for pipeline segments running from each LNG site to the NMP.

Table 6: Total Estimated Tax Paid for 250 ft Setback by Town2

Sum of tax revenue2	Town							
Seg	Baileyville	Baring Plt	Calais	Charlotte	Perry	Pleasant Point	Robbinston	Grand Total
A					$1,960.58	$0.00	$178.91	$2,139.49
B	$2,105.48	$776.42		$712.15			$747.44	$4,341.48
C	$2,117.43	$245.37	$7,262.71				$720.52	$10,346.04
D	$2,111.33	$240.99	$11,496.76				$691.40	$14,540.48
E	$2,181.28	$242.16	$10,718.35					$13,141.80
Grand Total	$8,515.53	$1,504.94	$29,477.82	$712.15	$1,960.58	$0.00	$2,338.27	$44,509.28

These table show the total estimated taxes paid for the land within the construction right of way surrounding each pipeline segment by town. Data in

Appendix E:
Estimated Property Value and Taxes Paid for Property with 300 foot Setback for Lateral Pipeline from LNG Terminal to Northeast Maritimes Pipeline

Table 7: Total Estimated Tax Paid for 250 ft Setback for Potential Pipeline Route from Each LNG Site

Pipeline Route	Pipeline Segments	Property Value of Setback
Split Rock - NMP	A + Average of B,C,D	$11,882.16
Mill Cove - NMP	Average of B,C,D	$9,742.67
Red Beach - NMP	E	$13,141.80

This table shows the estimated taxes paid for the setback for pipeline segments running from each LNG site to the NMP.

[1] An average property values per acre for each town were calculated using the total value and total acreage of all properties for each town. Source:

[2] Source: Maine Municipal Association. Full Value Tax Rates, 2003.

Appendix F

Responses to Navigation and Safety Questions Sent to Quoddy International Pilots Advisory Group

QUODDY INTERNATIONAL PILOTS ADVISORY GROUP

58 Gleason Cove Road
Perry, Maine 04667
(207)853 6020

Mr. John Hoover, Associate
Yellow Wood Associates, Inc.

We had our meeting on 28 Dec 2005 and I presented your questions to the Group. The following is in response to each of the questions.

Questions for Quoddy International Pilots Advisory Group

1. Given the amount of time needed to safely navigate a LNG vessel to the proposed terminal at Devil's Head, how will changing tidal currents during this time affect the safety of the transit with respect to steering the ship in strong currents?

We don't expect to be navigating in strong currents. Our Normal transiting and docking is timed around minimum current. Pilots always use currents to their advantage.

2. Given the amount of time needed to safely navigate a LNG vessel to the proposed terminal at Devil's Head, how will changing tidal currents during this time affect the safety of the transit with respect to the depth of the navigation channel?

At this time we have vessels transiting this area with a draft of 11.6 meters bound for Bayside Food Terminals which would be across the river from proposed terminal at Devil's Head.

3. Assuming most of the transits will occur around slack tide, do you think that any dredging will be required along any part of the transit route1[1] (including the St. Croix River)? If so, where?

Along the vessel transit route, the minimum depth at low water in Head Harbor Passage is 108 ft and in Western Passage it is 102 ft. For St. Croix River we feel that dredging is not needed at this time but we would like to have an updated Depth Survey of this area and need to know the exact location of the proposed pier to confirm this.

4. What is the level of coordination for emergency communications between Canada and the United States? Given the potential security issues for LNG, are there improvements to the communications systems that are needed in preparation for LNG-related traffic?

The first part of this question would best be answered by the United States Coast Guard and the Canadian Coast Guard. Our Internal communication network is excellent. Fundy Traffic VTS also helps us with our long range Communications when needed.

1[1] Transit route = Head Harbor Passage, Western Passage, St. Croix River

5. Where do LNG vessels take on/discharge ballast during the transit route?

During the piloting transit this type of vessel generally does not take in or discharge Ballast.

6. Given average weather/tidal conditions, to what degree will the tugs actually be used to assist the LNG tankers in steering along the transit passage? At what point/during what conditions will the assistance of the tugs be required?

During the transit, Tugs will be used only when needed, and the tugs will be used for all docking maneuvers.

7. In general, what are the navigational problems/safety concerns associated with larger vessels (>700 feet) traveling along the potential transit route? Is there an upper limit for ship size that, in your opinion, would be unsafe for passage along the transit route?

Having piloted many transits of vessels over 700 ft into and out of Eastport and Bayside, and based on our current knowledge of the area we feel their is no additional Safety concerns associated with this size of vessel.

8. Given that tugs and other escort vessels will be accompanying the LNG vessel, does the narrow width of the channel in some places along the transit route pose specific problems related to security/safety?

No.

Responses can be emailed to johnhoover@yellowwood.org or mailed to Yellow Wood Associates, 228 North Main Street, St. Albans, VT 05478

We hope that we have answered your questions and if you need to ask more please feel free to contact us.
Our group usually meets once a month depending ship traffic. You can e-mail me additional questions and I will present them to the group at our next meeting.

Best Regards,

Capt. Gerald S. Morrison
QIPAG