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## 8.0 IMPACT ASSESSMENT METHODOLOGY

The Whites Point Quarry and Marine Terminal environmental assessment/impact statement was compiled by a team of professionals. The environmental assessment process for the project began in the spring of 2002. The team represented disciplines in marine geology, geology, hydrogeology, mining engineering and operation, economics, marine geophysics, acoustical physics, terrestrial biology, freshwater and marine biology, planning, environmental design and assessment, archaeology, history, psychology, and sociology.

The impact assessment methodology involved the following process for the various physical, biological, and human environmental components.

Research studies included general literature searches, including statistical data research and community/site specific research from secondary sources. Original social research was conducted through community surveys and traditional knowledge interviews. Scientific site specific investigations were conducted in the physical, terrestrial, and aquatic environments. The intent of this research was to establish baseline conditions for the physical, biological, and human resource components.

Analysis of the research data was then performed in relation to the proposed project construction development and operational activities. Data analysis was performed using both quantitative and qualitative methods. These methods included modeling, trend analysis, and professional judgement. The intent of the analysis was to document potential positive and/or negative effects that may occur on the various environmental components as a result of project development and operational activities.

Mitigation measures were then developed to ameliorate any identified adverse effects. These measures include structural alterations and modifications to project components and alterations to operational and maintenance activities. The intent of the mitigation measures is to reduce any adverse effects to within acceptable limits and within technical and economic feasibility.

Monitoring programs were also developed on a case by case basis to determine the effectiveness of the proposed mitigation measures in relation to baseline data and regulatory requirements. The intent of the monitoring programs is to assess the actual effects of project development and operations to determine if adaptive management procedures may be warranted.

Impact statements for each valued environmental component are then prepared based on the following framework. The impact statement identifies the temporal phase of project development, magnitude of residual effect, positive, neutral, or negative, type of effect and the relative scale of effect. The intent is to summarize the temporal phase of project

development (pre-project, construction, operation, or decommissioning), the magnitude (insignificant or significant), the type (positive, neutral, or negative), and the relative scale (local, regional, provincial, or national/international) of the effect.

The impact assessment terminology is further interpreted and defined as follows.

**Temporal** means the project time period of development and is defined as either *short term* or *long term* in relation to the expected life of the project. More detailed definition and rationale for time periods is contained in **paragraph 8.4.2**. These terms are defined as follows.

*Short term* effects would occur in the pre-project phase, the construction phase and the decommissioning phase.

*Long term* effects would occur during the operation and maintenance over the 50 year life of the project.

**Magnitude** means the significance of the effect and is defined as either *insignificant* or *significant*.

**Type** means the effect is predicted to be *positive* (incremental to the viability of the environmental component), *neutral* (having no effect), or *negative* (detrimental to the viability of the environmental component).

**Scale** means the spatial influence of the predicted effect. The proposed hierarchy of scale includes *local*, *regional*, *provincial*, and *national/international*. These spatial definitions are to provide a relative context for the effect assessment. More detailed definition and rationale for the particular geographic area in relation to environmental components is contained in **paragraph 8.4.1**. These terms are defined as follows.

*Local* would include project effects on valued environmental components on the quarry and marine terminal site and adjacent surrounding land and water area.

*Regional* would vary depending upon the particular valued environmental component and include a regional terrestrial zone, a regional marine zone, and regional human component zones.

*Provincial* would include effects on valued environmental components of the province of Nova Scotia's land and waters.

*National/International* would include effects on valued environmental components of other Maritime provinces and New England land and waters.

## 8.1 Methods

### *Criteria*

The application of environmental evaluation criteria is used throughout the EIS to predict potential project effects on valued environmental components. Establishment of baseline conditions as part of the research effort provides a sound basis for predictions. Analysis of the interaction of the project development or operational activity on the valued environmental components uses one or a combination of quantitative and qualitative criteria to assess the type of effect (positive, neutral, negative). Quantitative criteria would include standards or thresholds published in regulatory policy or guideline. Qualitative criteria would include diversity, productivity, stability and rarity/uniqueness in evaluating natural or man-made systems. Application of these criteria in an EIS usually involves professional experience and judgement. The following criteria are used to determine the type of effect.

- If the project development or activities is incremental to the viability of the environmental component, a positive effect would result (e.g., the preservation of a habitat for a species at risk, increased employment opportunities, or habitat diversification).
- If the project development or activities are within environmental regulatory regulations or guidelines established for a particular environmental component, a neutral effect would result (e.g., effluent discharges within regulatory water quality requirements of guidelines, compensation of habitat loss).
- If the project development or activities exceed regulatory regulations or guidelines established for a particular environmental component, after mitigation, a negative effect would result (e.g., effluent discharges exceeding regulatory water quality requirements of guidelines, loss of habitat without compensation, or loss of employment opportunities).

Considering the amount and quality of on-site investigations, baseline data collected, modeling and trend analysis within the region, the reliability of effect prediction is high.

All studies including scientific, engineering, and traditional knowledge are referenced in relevant sections of the EIS. These studies are included as reference documents as prepared by the team member. Any models used are identified and referenced in these documents.

### *Significance*

The determination of whether an effect is considered *insignificant or significant* is based primarily on the level of spatial scale (local, regional, provincial, national/international) and after mitigation measures are considered. Generally, to be considered *significant* the influence of effect would have to be greater than a regional scale – e.g., provincial or national/international in spatial scale. For example, a direct effect on a nationally

or provincially listed species at risk that would destroy core habitat would constitute a potential *significant negative effect* if this effect could not be appropriately mitigated, - whereas a direct effect on a nationally or provincially listed species at risk to preserve its habitat would constitute a potential *significant positive effect*.

### **Environmental Impact Statement**

A concluding impact statement including the three elements (*temporal, type, and scale*) is then made for the valued environmental component/components. An Environmental Impact Summary Table - **Table 2** - is presented for the environmental components identified as critical to the proposed project’s implementation. The Impact Summary Table is found in Chapter 9.4.

### **Probability**

Since many of the environmental components under consideration do not have quantitative threshold criteria, guidelines, standards, or regulations, the probability of an occurrence or event happening is usually a qualitative judgment. Professional judgment using qualitative analysis is commonly used to predict a level of probability (the ratio of the chances favouring an event to the total number of chances for and against it). The following hierarchy of terminology is used in this Environmental Impact Statement to provide a relative scale for statements concerning qualitative probability.

<b>Qualitative Terminology</b>	<b>Probability</b>
Extremely unlikely (occurrence not documented)	< 1%
Highly unlikely	< 5%
Unlikely	< 25%
Possible	50%
Likely	> 75%
Very likely	> 95%
Extremely likely (occurrence documented)	> 99%

In summary, a significant positive or significant negative effect for physical and biological components must be judged to have a provincial or national/international scale of effect and a likely probability of occurrence resulting in a *likely, significant positive or negative environmental effect*. In the case of human components, a significant positive or significant negative effect must be judged to have a regional, provincial or national/international scale of effect and a likely probability of occurrence resulting in a *likely, significant positive or negative environmental effect*.

## 8.2 Public Consultation

### 8.2.1 Requirements, Approach and Methodology

#### *Legislative Requirements*

Public awareness and participation are key principles of the Canadian Environmental Assessment Agency. “The Canadian Environmental Assessment Agency encourages public participation because protecting Canada’s environment is everyone’s business.”(See Ref. 229) This is evident in Section 4, subsection 1(d), under the purposes of this act, where it states “to ensure that there be opportunities for timely and meaningful public participation throughout the environmental assessment process.”

Public awareness and participation are also one of the 17 key requirements of the Equator Principles, October 2002.(see Ref. 230) The Equator Principles, adopted by thirty-six financial institutions in sixteen countries, are “An industry approach for financial institutions in determining, assessing and managing environmental & social risk in project financing”(See Ref. 231)

The following is a synopsis of the fundamental principles of Bilcon’s public consultation program:

- Public consultation on the Project is an indispensable element of the project and the EIS process.
- Bilcon will ensure public participation (e.g. informing the public about the project and inviting the public to take part in project consultation) at all stages of the project and EIS process.
- Bilcon will give the public the opportunity to receive project and EIS information in a timely manner.
- Public comments submitted about the project will be organized, recorded and responded to and will be taken into consideration by the company during the pre-project planning process

#### *Philosophy, Rationale, Goals and Objectives*

A basic premise of all information disclosure and public consultation associated with large-scale projects is that success of a project is predicated on encouraging meaningful and effective public consultation. A key component of any successful public consultation is early planning and implementation in order to allow the public and stakeholder groups sufficient time to influence key stages of a project and its design. Bilcon entered into project discussions early on in the planning stages of the Whites Point project in order to try to reach mutually beneficial goals and objectives.

This has helped and will continue helping to:

- Improve understanding of the potential impacts of the proposed project;
- Identify solutions and mitigation measures;
- Improve environmental and social soundness;
- Clarify values and “trade-offs” associated with different alternatives;
- Identify contentious issues;
- Create accountability and a sense of local ownership during project implementation; and
- Effectively manage risks.

Results of such a project specific consultation process include:

- Fewer conflicts and delays for both Bilcon and the public in achieving their long range goals and in conducting their daily business; and
- Reduced direct, indirect and reputation risk for both Bilcon and the public.

Goals of this project’s specific consultation process include:

- Identification of environmental and social opportunities and risks of all project components under consideration;
- Enhanced understanding by public agencies and NGOs regarding their interest in the proposed project;
- Greater understanding of the potential impacts of the project on the people that it may affect;
- Improved mechanisms for ensuring that appropriate mitigative measures are in place, maximum benefits are realized and appropriate compensation programs are applied when necessary;
- Assurance that efficient and effective communication practices are applied in order to minimize recycling of issues;
- Identification of additional opportunities for local employment and the supply of goods and services, by individuals and businesses to the project who might otherwise be marginalized; and
- Enhanced project implementation planning and management, particularly with respect to issues of concern to key stakeholders.

Two primary objectives of Bilcon's public consultation program are:

- To link the input of the major public constituents of this project to the EIS process by identifying project related issues of those constituents and ensuring that Bilcon effectively incorporates and responds to those issues in the EIS (See Chapter 5 Cross Reference of Issues and Where they are Found in the EIS); and
- To ensure that CEAA and Bilcon's public consultation philosophies, requirements and practices are consistently adhered to.

To achieve the first goal, public consultation (i.e. issues scoping) was initiated early on in the project's development. The EIS was then based on those identified issues as well as on other information and data requirements necessary to satisfy regulatory as well as Bilcon's own internal requirements. The EIS document clearly and satisfactorily addresses those issues. The public consultation process will continue to ensure that the public is informed of how their issues have been addressed. Thus, public consultation is the issues management "driver" that links the various components of the EIS.

To achieve the second goal, Bilcon outlines in this section of the EIS how it has met the requirements in a manner that is:

- Transparent;
- Interactive and participatory; and
- Systematic (i.e. information exchange occurs on a regular scheduled basis).

### *Approach*

Bilcon adheres to the following basic set of public consultation principles:

- Bilcon provides consistent key messages and information to all stakeholders;
- All queries, questions and issues are responded to in an appropriate and timely manner;
- Bilcon works with all stakeholders to ensure that all viewpoints are heard in order to balance inputs from particular individuals or organizations that could be viewed as "key experts" with those of potentially affected community members; and
- A systematic public consultation process is rigorously followed based on a work plan that includes specific milestones, locations, dates, times, responsibilities, audiences, intended outcomes, and communication tools.

Key to achieving the goals of the program has been an issues-based assessment and planning process based on identifying and categorizing stakeholders and their issues. To do this Bilcon has tried to understand the stakeholders' 'interest' in the project which leads, in turn, to the identification of key issues that form the focus of on-going consultation activities with each interested party. This approach has been accomplished by prioritizing stakeholders so that effort can be managed to achieve best effect for the project.

Prioritization of stakeholders including the three levels of 'interest' is found in Table 1

**Table 1 Prioritization of Stakeholders**

<b>Level</b>	<b>Stakeholder</b>	<b>Rationale</b>
1	Decision makers	Can affect outcome of the process/project
2	Affected parties	Are directly affected by the project and need to be involved in the process to understand the nature, breadth, scope and timing of the project and possible impacts (both positive and negative) on them.
3	Third-party interests	Indirectly affected but could affect the project without sufficient knowledge of the project's nature, breadth, scope and timing and/or sufficient opportunities to provide input.

All categories include either individuals and/or agencies/organizations. Level 3 includes organizations/agencies, which in themselves are 'unaffected parties', but which may include individual members and/or subgroups.

### *Geographical Scope*

As a general principle, the scale and effort of public consultation decreases with increasing distance from the project. Notwithstanding this principle, public consultation has been and will continue to be conducted in distinct geographic areas, each with an interest in the proposed project. These areas are:

- Digby Neck; and Islands and;
- Digby and Annapolis County communities within a 50 km radius of the project site

In addition, other pockets of interest may develop as the EIS proceeds. A communications plan will be developed for these stakeholders based on the nature, scope and level of concern regarding the issues raised.

## *Methodology*

The basis for conducting full public consultation and disclosure is to ensure that a rigorous focus is maintained on identifying and resolving key impact issues through meaningful involvement of stakeholders. This means early and substantive involvement by Bilcon with the public and systematic methods of maintaining that involvement throughout the life of the project.

Bilcon first began this systematic identification of key stakeholders and issues in 2002. In addition, a concerted methodological effort has been placed on resolving key impact issues through early and focused discussions. The primary method used is “Public Information Sessions” in which key project personnel are available for extended time periods on a specified publicly advertised day to discuss with stakeholders issues of mutual concern and begin arriving at mutually satisfactory resolutions.

Since project planning initiation, Bilcon has made substantive communications efforts to obtain public opinion about project, input into project plans and to convey project information. In addition, the company constantly monitors its communications efforts in order that they can be improved.

### **8.2.2 Information Disclosure and Public Consultation Process**

The following section outlines the process and philosophy for information disclosure and public consultation.

#### *Information Disclosure*

##### **Issues Scoping**

As a result of previous public consultation initiatives, special efforts have been made to include issues scoping input from, and discussions with, representatives of Indigenous peoples and the fishing industry, particularly in those regions directly affected by project activities.

During the issues scoping phase, Bilcon provided information regarding the project as it became available.

The issues scoping process was designed not only to provide project information, but also to gather input on how communications could be improved throughout the life of the project. This two way dialogue has already resulted and will continue to result in a regularly updated communications plan to address and integrate feedback.

Methods for providing this information included the Community Liaison Committee, public information session, individual interviews, media notices, workshops, website, panel displays and handouts.

### **EIS Participation**

Information about the project will continue to be disseminated in as broad a spectrum as possible during the review process. Based on the initial issues scoping, several initiatives will be undertaken to ensure that the information reaches the appropriate target audiences. This includes a regularly updated website, open houses and appropriate newsletter articles.

### **Construction and Operations**

Bilcon recognizes the importance of on-going community involvement and encourages employees to participate in community events and will continue to work with community organizations throughout the area. The company has provided and will continue to provide information to environmental groups, local governments, business groups and the general public throughout the life of the project.

Bilcon recognizes the need to keep its own employees aware of project developments throughout the life of the project and will institute various appropriate internal communications once the project proceeds.

## **8.2.3 Public Consultation**

### *Issues Scoping*

Prior to undertaking a planned public consultation process, Bilcon conducted an issues scoping exercise in order to:

- Identify issues to be addressed in the public consultation process;
- Determine their importance to the overall EIS process and, therefore, the level of effort and detail required;
- Facilitate communication regarding the EIS process itself, and
- Provide an efficient process that saves time and other resources.

More than 107 different stakeholders' consultation records have been documented and reviewed (See Appendix 34). The consultation records were produced between 2002 and 2005 as part of Bilcon's efforts to identify and address community concerns and to gather Traditional Community Ecological Knowledge (TCEK) information. Activities initiated by Bilcon include stakeholders' interviews conducted by Elgin Consulting and meeting notes from the CLC meetings (See Appendix 2).

**Table 2: Past Public Consultation**

<b>Responsible for Consultation</b>	<b>Period of Consultation</b>	<b>Consultation Records</b>
<i>Whites Point Project Personnel through the CLC</i>	July /02 to October /02	Meeting minutes (13 meetings organized)
<i>Elgin Consulting and Research</i>	September/03 to May/05	Notes from meetings with Digby and Area Board of Trade -February 13/03; Whites Cove Lobster fishermen-(November 4/03 February 11/04, March 10/04; Bear River First Nations-(January 4/05; Tourism Sector-(February 15/05 and Weymouth Falls CDS Black Community-May 12/2005
<i>Elgin Consulting and Research</i>	September/03 to May/05	More than 47 interviews with business and community stakeholders
<i>Elgin Consulting and Research</i>	September/03 to May/05	57 traditional knowledge interviews with older citizens who had knowledge of the site and local area
<i>Elgin Consulting and Research</i>	September/03 2003 to May/05	Open Houses-(December 15/03 and December 7 and 8/04

### *EIS Participation*

A number of other initiatives that allow for the open and frank exchange between Bilcon and interested parties have and will continue to take place. These include an open house, an attitude survey, and a store front operation.

Stakeholders interviewed or that participated in CLC's or joint-review panel meetings were local and regional residents, owner and employees of tourism and fishing businesses as well as other businesses (retail, galleries, accommodations and restaurants), community organizations, governmental and non-governmental organizations.

In 2005, AMEC Earth & Environmental, a subcontractor of Bilcon's, conducted an Attitude Survey through an independent consulting group.

Other consultation records reviewed include the joint-panel review scoping meeting minutes, public submissions and the exit survey from the open house as part of the environmental assessment process (See Table 3).

**Table 3: EIS Public Consultation**

<b>Responsible for Consultation</b>	<b>Period of Consultation</b>	<b>Consultation Records</b>
<i>Joint Review Panel</i>	January/05	Scoping session minutes and presentations to Panel- Review Members (four sessions held)
<i>AMEC Earth &amp; Environmental</i>	August to September/05	Interviews with stakeholders
<i>AMEC Earth &amp; Environmental</i>	November/05	Public Information Session

### *Construction and Operations*

Public consultation during construction and operations of a project is key to maintaining the already established relationship between Bilcon and the affected stakeholders. During construction and operations, many individuals and groups will experience the actual effects of the project that were discussed during the EIS. Ongoing consultation is important to:

- Keep those affected by the project informed of ongoing changes in project activities;
- Provide a forum of on-going discussion about the actual as opposed to predicted or perceived impacts;
- Manage issues and concerns as they arise; and
- Monitor the effectiveness of environmental and social mitigation and compensation.

### *Issues Management*

The most critical element of public consultation is an effective issues management system. To support the public consultation effort, a computer based data management system has been established. This system identifies:

- Location of the meeting;
- Date, time and length of meeting;
- Type of meeting and its purpose;
- Participants;
- Meeting context;
- Category of issues discussed (e.g. environmental, socio-economic); and
- Comment made, the response by Bilcon, and follow-up required including by when and by whom.

### *Communications Tools*

In order to conduct an effective and focused public consultation process, a variety of communication tools are required. These tools are being used throughout the entire project and EIS process and include: public information session, open houses, focus groups, information programs, meetings, printed and audio-visual materials and other. Since visual aids can be an effective means of communications, efforts have been made to convey project related information through large-scale maps and diagrams, which are available on the website at <http://www.Bilconof.ns.ca/>.

The following information disclosure communication tools (Table 4) have been and will be used throughout the project and EIS process.

**Table 4: Information Disclosure Communication Tools**

Type	Where	Audience	When	Purpose
Press Releases	Daily News Digby Courier Halifax Herald	Interested public	On going	Notification of public information session, meetings, obtain public input
Displays	Public information session, Proponent's office	Interested public	On going	Provide information
Project description meeting minutes posters, reports	Upon request and/or dissemination	Interested public	Ongoing	Provide information
Photos, maps, diagrams	Website <a href="http://www.bilconof.ns.ca">www.bilconof.ns.ca</a> Meetings, open houses, public information sessions	Interested public	Ongoing	Provide information
Factsheets	Digby, Digby Neck and Islands	Interested public	January/03 April/03 October/03	Provide information
Newsletters 6 issues	Digby, Digby Neck and Islands, Brighton, Barton Marshalltown, Bear River, Smiths Cove	Interested public, first 4 reached 2500 households and the last 2 reached 4000	January/03 February/03 April/03 October/03 November/04 April/05, ongoing	Provide information

The following public consultation communication methods are being used (Table 5).

**Table 5: Public Consultation Communication Methods**

Type	Where	Audience	When	Purpose
Interviews	Various Locations	Approx 107 Key Stakeholders	July 02 - present	Issues Scoping
Open Houses	Bilcon Office	Digby Municipal Council, Tourism Operators, Interest Groups and Communities 23 attended the 1st open house & 15 attended the 2nd	Dec 15 03 Dec 7&8 04	Exchange information obtain input
Public Information	Sandy Cove Firehall	42 Attendees - 26 signed in, 16 chose not to	Nov 1 05	Exchange information obtain input
Attitude Survey	Digby County and Annapolis County	598 Surveyed	Oct-Nov 05	Identify main concerns and measure understanding
Quality of Life Survey	Digby Neck and Islands	150 Surveyed	Oct 05	Identify main concerns and measure understanding
Exit Surveys	Public Information Session	Session Attendees - 11 completed	Nov 05	Obtain additional information

### *Schedule*

Public consultation will occur throughout the life of the project, but many activities took place during July 2002 to December 2005. During the initial stages, the public was informed about the project and asked for their input as to issues and concerns. During the EIS process scheduled for 2006, the public will be informed about the EIS document. All public comments received up to the submission of the EIS have been incorporated into the EIS document (See Appendix 11).

## **8.2.4 Specific Activities**

### *Bilcon of Nova Scotia's Office*

Bilcon's office is located in Digby, Nova Scotia. This office serves as a centre for project management as well as public consultation, information dissemination, and communications. Bilcon's office staff provides a focal point for consultation and communications with local municipalities, schools, businesses, NGO's, other community groups and the media.

### *Attitude Survey*

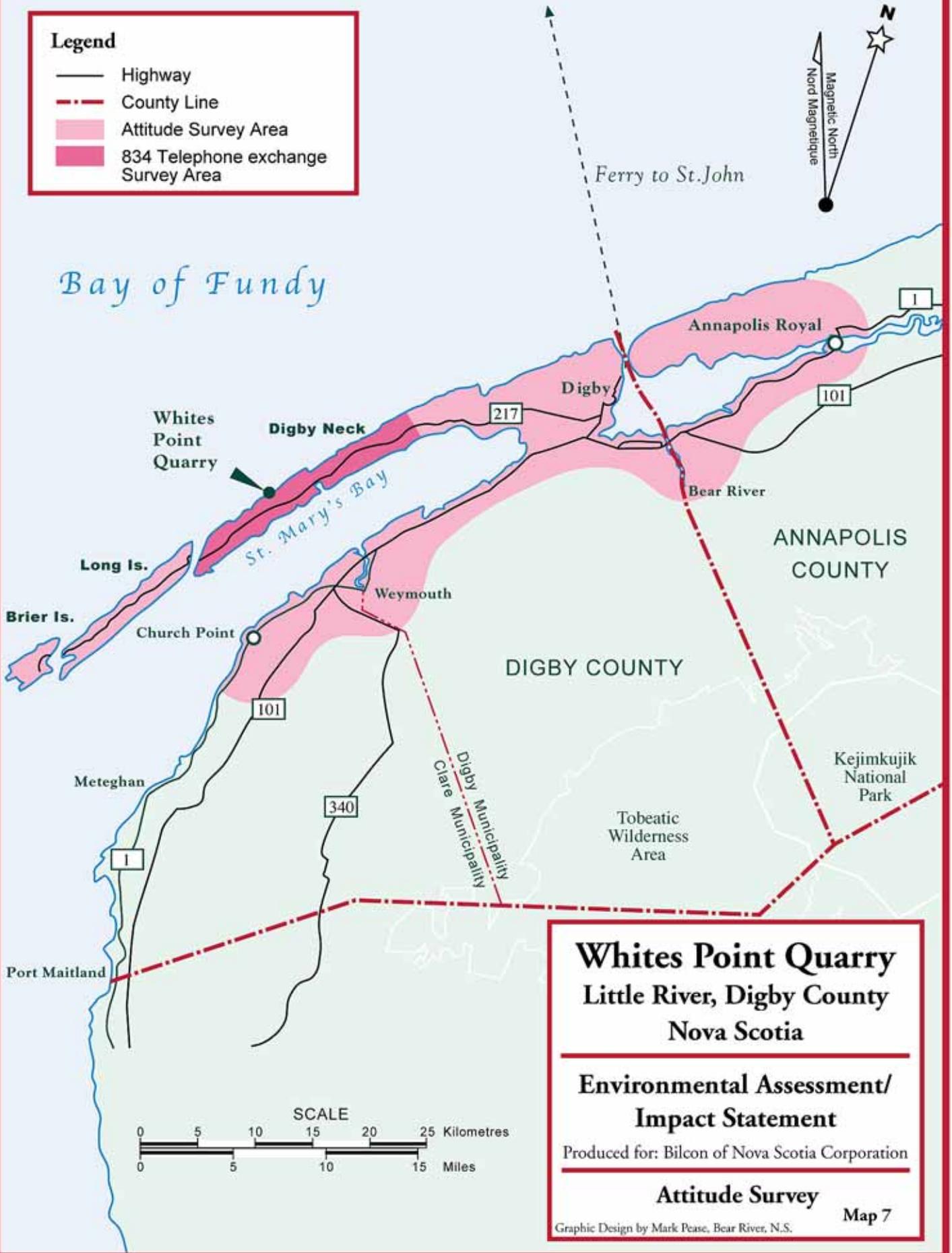
An attitude survey was conducted to identify the main concerns of residents regarding the project and also to determine the premise for their attitudes – in other words – why they hold certain opinions about the project.

Part of this survey was conducted October 12 – October 21, 2005 with a total sample size of 546 people from Digby Neck, Town of Digby, and adjacent Annapolis County communities - see **Map 7** . The first question asked of respondents was if they were familiar with the project and, if they were not, they were dropped from continuing the survey. The remainder of the survey was completed by 405 respondents. From November 21-21 an additional 52 surveys were collected that focused on the communities of Centreville, Sandy Cove and Little River for a total sample of 457 respondents. This provides a high level of reliability: plus or minus 5.0% at 96% confidence level.

Based on the total sample of 457 respondents, the majority (77.3%) reside in the Digby area. Of the remaining 22.7% respondents, 77.1% are from Annapolis County which is adjacent to Digby County. 6.9% of respondents who do not reside in Digby County have summer homes or residences in the area. The majority of non residents (58.6%) visit the area more than four times per year and the duration of their visit varies.

**Legend**

- Highway
- - - County Line
- Attitude Survey Area
- 834 Telephone exchange Survey Area



**Whites Point Quarry  
Little River, Digby County  
Nova Scotia**

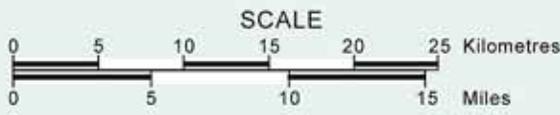
**Environmental Assessment/  
Impact Statement**

Produced for: Bilcon of Nova Scotia Corporation

**Attitude Survey**

Map 7

Graphic Design by Mark Pease, Bear River, N.S.



The asked questions related to:

- Knowledge about the project and its timing;
- Type of benefits (personal, community, island) individuals expect from such a project;
- Issues/concerns regarding the development and its impact on the economy;
- Where information is obtained; and
- Knowledge about Bilcon.

*In summary:*

- General awareness of the White's Point Quarry project is exceptionally high at 96.0% and consistent across all age categories;
- Overall awareness of specific project impacts is highest in the "834" telephone exchange which includes the communities of Centreville, Sandy Cove and Little River. The incidence of "don't know" to virtually all questions in the 834 exchange is generally much lower than the total sample;
- A high percentage of people (55.4%) have received their information by "word of mouth" and from the local newspaper (55.4%), and 59.8% indicated that local newspapers were the best way to inform the local community about development projects in the Digby area;
- 64.6% of respondents know that the project developer is from the United States but 91.2% cannot identify the name of the company;
- 28.9% of respondents think the project will be good for the area generally; 40.3% think the project would not be good while a relatively high percentage, are undecided (30.9%);
- 54.7% of respondents think the jobs created by the project will be important to the area, although concerns exist that local jobs will be unskilled and that workers will be brought in from the outside;
- 43% of respondents feel that current concerns about the project can be addressed so that the project can proceed; only 26.1% of respondents do not believe that issues can be addressed and 30.9% do not know;
- 30.5% of respondents at the time of the study support the project; 48.2% do not; the remaining 21.3% are undecided;

- Belief that the project would be good for the area is highest among respondents aged 31-40 and 41-50; overall support is highest among those aged 41-50; respondents under the age of 40 are most optimistic that issues can be addressed so that the project can proceed;
- There are a broad range of expectations regarding the economic impacts of the project – number of new jobs, how long the quarry will be viable, local economic impacts– indicating that people do not have consistent and reliable information on the potential or such impacts. Overall 27.4% of total respondents and 50% of the “834” respondents indicated that there would no financial benefits for the region. The incidence of “don’t know’ declines from 44.2% of the total sample to 23.5% for the 834 exchange
- Concern for environmental impacts – the fishery, traditional activities, the environment, quality of life – increases with age and increases significantly among age categories 51-60, 61-70 and over 70; These respondents are also the people most likely to not support the project; and
- 39.32% of respondents feel that they have not had sufficient opportunity to participate in discussions regarding the project indicating the need to provide the community with information. The preferred way of accessing that information is through newspaper and public information sessions.

More detailed analysis of the survey can be found in Appendix 3.

### *Issues Scoping*

For informational disclosure purposes, Bilcon consulted initially with government agencies, followed by representatives of the Indigenous peoples, stakeholder groups and the general public. Consultation mechanisms varied depending on their suitability for specific groups.

The first issues scoping initiative was conducted during 2002. Meetings were held with individuals representing various organizations, agencies or departments.

During the second issues scoping phase, Bilcon sought advice from potentially affected communities as to their preferred methods of receiving project information. At the same time, the company conveyed project information through a brief project description and by informal presentations to local groups. The initial information disclosed included, but was not limited to, the following:

- Project planning
- Project description, scheduling and location
- Public Consultation Process
- Benefits from the project

## *Meetings*

### **Government Meetings**

Bilcon has promoted ongoing discussions with a broad range of parties interested in the project. Meetings with CEAA, EC, HC, DFO, NSDEL, NSDNR, NRC, TC, Municipality of Digby, Government Caucus Liaison, MLA Digby Annapolis and local administrations have been an important component in addressing regulatory issues. They participated in issues scoping, open houses and workshops. More than 10 meetings have been held with the three levels of government specifically related to issues scoping and/or the EIS process.

### **Meetings with Indigenous Peoples**

Bilcon has made a concerted effort to establish working relations with the Indigenous peoples of the area since October 2002. During this time, exchanges of information occurred among the Bear River First Nations, the Confederacy of Mainland Mi'kmaq and Bilcon, including meetings, letters, telephone calls and two information sessions. The information sessions focused on jobs and training; other meetings and correspondence centered on conducting a Mi'kmaq Knowledge Study (MKS).

In March 2005, Bilcon was informed by Mr. Michael Cox, the Director of Lands, Environment and Natural Resources, that the Confederacy was carrying out a MKS on behalf of the Bear River First Nations and that Bilcon would be provided with a copy once the study was completed. As of November 2005, Bilcon had not received a copy of this study.

As a result of the MKS study, Bilcon has not conducted any public consultation with Aboriginal First Nations on the Bear River First Nations Reserve. Please refer to Chapter 9.3.5 for additional information.

### **Meetings with Individuals who have an Interest in the Project**

Bilcon has made an effort to invite any and all interested parties or individuals to become involved in the project. A number of individuals have done so and their concerns have been addressed in the EIS document.

### **Meetings with School**

Bilcon has made an effort to involve participation of the local schools in the project and EIS process. On November 1<sup>st</sup>, 2005, approximately 40 students and their teachers (4) from Islands Consolidated School attended the public information session at the Sandy Cove Fire Hall.

## **Business Meetings**

Various meetings have been held with fish processing operators (6), retail businesses (11), craft, gift or galleries (6), accommodations and restaurants (13), campground operators (2), adventure tour operators (8), Aquaculture Industry (1) and the Harbour Authorities (a number of people consulted) to describe the project and obtain local and regional business and individual input. These meetings were held from November 2003 to February 2005. See Reference Document Volume IV, Tab 21. Elgin Consulting and Research, Community and Business Consultation Report for the Whites Point Quarry and Marine Terminal).

## ***Focus Groups***

Focus groups are a good method of eliciting a variety of opinions on a particular topic in a short time frame. Focus groups with interested individuals or groups were conducted April 2004 to May 2005. The groups included the Weymouth Falls Development Association, the Bay of Fundy Discovery Centre Society, Bear River First Nations Reserve, the Digby Neck and Islands Tourism Association and the Full Bay Scallop Association. These were often informal discussions centered around various issues of interest to the group in question. Other groups were contacted but declined to participate, including the Digby Neck Community Development Association.

## ***Open House Sessions***

### **Publication of Notification and Open House Sessions**

The dates, times and locations of the public information sessions were publicized in local newspapers and on the local radio station. A household leaflet was also delivered to each household and business in the area. (See Appendix 34) 150 households and businesses were sent invitations to attend the open houses, ads were placed in the Digby Courier and a news release notifying the public of the open house was distributed by Bilcon. In addition, posters advertising the dates, times and locations of each Community Liaison Meeting and open house were placed in Digby Neck communities at least five days prior to each open house. Finally, Bilcon staff contacted individuals personally, particularly representatives of the indigenous community, about open house sessions.

### **Open House Sessions/Public Information Session**

Bilcon conducted open house sessions on December 15, 2003 and December 7 and 8, 2004. Bilcon also held a Public Information Session on November 1, 2005.

In total 80 people attended the open houses and public information session.

Information disclosed through the panel displays at these sessions included:

- Project background, schedule and location;
- The environmental impact process;
- Shipping routes;
- Employment;
- Fisheries; and
- Geology.

Issues of concern to the general public and specific groups varied depending on the individual/group, residence, level of interest and ability to be affected by the project. Based on the two open houses, key issues included:

- Project details;
- Fishing concerns;
- Environmental and socio-economic concerns;
- Employment and supply and service benefits;
- Unfair business competition; and
- Insufficient information about the project.

Based on the public information session, key issues included:

- Economic benefits;
- Employment;
- Environment;
- Specific concerns regarding:
- Geology, loss of wells;
- Marine environment impact;
- Fishing impacts; and
- Oil spills.

### ***Exit Surveys***

At the November 1<sup>st</sup>, 2005, public information session, a detailed exit survey was offered to each person. Of the 42 people who attended the sessions, 11 filled out exit surveys. Of those who filled out the surveys, two were from East Ferry, and one each from of Church Point, Whale Cove, Bear River, Little River, St. Joseph, Freeport, Mink Cove, Sandy Cove and Deep Brook. Below is a summary of the responses to the exit surveys. (The complete results and analysis of these surveys can be found in Appendix 3.

- Overall, of the 11 people who were surveyed, 36.36% felt neutral about the effects of construction on their family, 0% said the effects would be somewhat positive, 27.27% thought the effect would be very positive, 9.09% felt they would be somewhat negative, 27.27% wrote that they would be very negative, and 0% gave no response.

- In terms of effects on the community, 0% felt that effects would be somewhat positive, 18.18% said they would be very positive, 36.36% felt neutral, 0% wrote the effects would be somewhat negative, 27.27% felt that they would be very negative, and 18.18% gave no response.
- With respect to the area, 18.18% felt that effects would be very positive, 18.18% thought they would be somewhat positive, 9.09% felt neutral, 0% wrote the effects would be somewhat negative, 36.36% said that they would be very negative, and 18.18% gave no response.
- Additionally, 20% felt that effects of construction on the environment would be somewhat negative, 30% said very negative, 10% were neutral, 10% thought the effects would be somewhat positive, 10% said they would be very positive, and 20% gave no response.
- Finally, 18.18% felt that impacts of the construction phase on the economy would be very positive, 27.27% felt somewhat positive, 0% were neutral, 27.27% felt that impacts would be very negative, 0% felt somewhat negative, and 27.27% gave no response.
- Overall, from the 11 people who were surveyed, 36.36% felt neutral about the impacts that operations would have on their family, 18.18% said operations would affect their family very positively, 18.18% felt it would be somewhat positive, 0% said it would be somewhat negative, 27.27% wrote they would be very negative, and 0% gave no response.
- In terms of effects on the community, 0% felt that impacts would be somewhat positive, 18.18% thought they would be very positive, 36.36% felt neutral, 9.09% said impacts would be somewhat negative, 27.27% wrote very negative, and 9.09% gave no response.
- Additionally, 18.18% felt that impacts would be very positive for their area, 9.09% said somewhat positive, 9.09% were neutral, 18.18% felt that impacts would be somewhat negative, 27.27% thought they would be very negative, and 18.18% gave no response.
- With respect to the environment, 18.18% felt that affects of operations would be somewhat negative, 27.27% said very negative, 18.18% were neutral, 18.18% thought the affects would be somewhat positive, 9.09% said they would be very positive, and 9.09% gave no response.
- Finally, 27.27% felt that impacts of operations on the economy would be very positive, 36.36% felt somewhat positive, 0% were neutral, 27.27% felt that impacts would be very negative, 0% felt somewhat negative, and 9.09% gave no response.

- In terms of benefits from the project, of the 11 people who were surveyed, 45.45% ranked jobs and employment as most important, 18.18% said increased foreign investment and business opportunities were most important, 18.18% ranked increased revenue as most important, and 18.18% ranked other things as most important.
- Regarding issues associated with the project, of the 11 people who were surveyed, 40% said that environmental issues were most important, 8.33% ranked negative impact on quality of life as their most important concern, 30% said that issues concerning negative impacts on the fisheries was most important, 14.28% ranked issues concerning negative impacts on the fisheries as most important and 16.67% said that other issues were most important for them.

### *Community Involvement*

Bilcon recognizes the importance of community involvement. Its staff has participated in numerous community events and will continue to work with community organizations throughout the area in the future.

Bilcon has provided information and presentations to schools, environmental groups, local administrations, business groups and the general public. The company has supported a number of health, culture, education, social and recreation initiatives throughout the area including funding contributions to the Calvary Church, Christmas Daddies, Digby and Area Hospice Society, Digby Area Learning Association, Digby County Exhibition, Learning Grove Centre, Digby Minor Hockey, Digby Regional High School/Islands Consolidated School, Digby Scouts, Royal Canadian Legion - Clementsport, Royal Canadian Legion - Digby, Weymouth and Digby Cancer Society, to name a few.

### **8.2.5 Results**

The following is a summary of results to date.

#### *Stakeholders Identified, Relationships Established, Issues Management System Established*

An intensive and systematic identification of stakeholders has taken place and been documented. Using the issues management system, at any time, a stakeholder, issue, response and follow-up can be identified. This system will be continued throughout the life of the project. Every effort will be made to identify stakeholders and respond to their information requests and concerns in a timely and effective manner.

#### *Key Issues Identified and Included in the Project Planning Process*

As a result of an extensive, broad and systematic issues identification process, Bilcon has identified the key issues associated with this project, understands the relative

importance of each issue and has incorporated mitigation measures, where required. Examples of this include, but are not limited to, damage to wells, marine wildlife protection guidelines, shipping routes, impact on tourism, and the employment process. All are examples of major issues raised through public consultation process, addressed in the EIS and now incorporated into Bilcon's planning process.

#### *Interactive and Participatory Information Disclosure and Public Consultation Process*

Bilcon has established a precedent and procedures for regular meetings with groups and individuals to provide requested project information, where known, and to solicit input into the project at the design stage. Information disclosure will continue through out the life of the project and public consultation will occur for those activities that directly affect the public (e.g. fishing/tourism related activities; etc.).

#### *The Result is an EIS that is Better Informed and Facilitated*

The result of this process is a better-informed public, an effective EIS and a project that meets the needs and expectations of both the public and Bilcon.

### **8.2.6 Future Plans**

Bilcon will continue to follow its information disclosure and public consultation plan and will adhere to the philosophies and principles established in **paragraph 8.2.1**. In the long-term, tools to facilitate on-going discussion between those affected by the project and Bilcon will be established and will include:

- Continuation of the issues management system;
- Community forums for the provision of on going information exchange; and
- A stewardship process for community grants.

### 8.3 Selection of the Valued Environmental Components

A valued environmental component (VEC) is a resource or environmental feature that is important (not only economically) to a local human population, or has a national or international profile, or if altered from its existing status will be important for the evaluation of environmental impacts of industrial developments.

Furthermore, within the Nova Scotia Environmental Assessment Regulations, Valued Environmental Components are interpreted as being environmental, socio-economic, human health, reasonable enjoyment of life and property, cultural, historical, archaeological, paleontological and architectural features that may be impacted, whether positive or negative, inside or outside the Province, by the proposed undertaking. (Ref.77 Guide to Preparing an EA Registration Document for Pit and Quarry Developments in Nova Scotia. December 2002).

Furthermore, within the Environmental Impact Statement Guidelines for the Review of the Whites Point Quarry and Marine Terminal Project, March 2005. Valued Environmental Components are defined as “selected components of the physical, biological, and human environments which will be the focus of the environmental assessments”.

Valued environmental components were identified by Bilcon of Nova Scotia Corporation through public consultation, coordination with Federal and Provincial government agencies, and those identified within the Draft Review Panel Guidelines and Public Registry comments, Review Panel Scoping sessions, Final Review Panel Guidelines, the Public Registry, and Traditional Knowledge.

Also, as indicated in the Environmental Impact Statement Guidelines paragraph 9.2.1 “Species at Risk”, species designated by SARA and COSEWIC as endangered, threatened, rare, extirpated, or of special concern are considered as VECs. In this regard, these designated species including mammals, birds, reptiles, amphibians, fish, mollusks, butterflies, plants, lichens, and mosses that may possibly occur on or adjacent to the Whites Point Quarry and Marine Terminal site are treated as VECs.

These Valued Environmental Components have been scientifically investigated by a team of qualified professionals – see Appendix 1 . Most components have undergone specific on-site scientific investigations while others have relied on comprehensive literature research and comparable scientific studies to determine and predict the probability of likely significant adverse effects. Considering the level of scientific effort involved, especially on-site and regional investigations, the confidence limits of the data presented in the Whites Point Quarry and Marine Terminal Environmental Assessment/Environmental Impact Statement, are considered high. Conclusions are accurate in relation to the level of scientific investigation in time and space.

## 8.4 Boundaries

The spatial and temporal boundaries vary according to the environmental component systems being investigated. Time frames for effect assessment of project development and operation activities on valued environmental components have been previously established in paragraph 8.0. Time frames to adequately address historic trends will be set forth in **paragraph 8.4.2**. Realistic time frames are proposed and are based on availability of reliable data for meaningful applications. The gathering of traditional community knowledge through interviews provided insight for the past 75 years. Other component time frames have been researched back to early settlement of the quarry property. Geologic time frames are also applicable to certain physical components.

Spatial boundaries for different valued environmental components will be set forth in **paragraph 8.4.1**. Rationale for selection of the spatial boundaries are based on potential effects of project development and operational activities in relation to component systems. Realistic spatial boundaries are proposed based on reliable data and meaningful applications. Some socio-economic data is reliable at the community level through the national level. Other data such as geological or hydrogeological data may be only relevant at the project site or at a local level. In this regard, Bilcon of Nova Scotia Corporation intends to adhere to the statement in the Guidelines “Bilcon is not required to provide a comprehensive physical and socio-economic baseline description of the environment at every scale, but must provide sufficient detail to address the relevant environmental effects of the Project”.

### 8.4.1 Spatial Boundaries

As mentioned previously, spatial boundaries will vary according to the environmental component systems being investigated. Three general component categories (terrestrial, marine, and socio-economic) are proposed. The terrestrial and aquatic system boundaries are ecosystem based, while the socio-economic boundaries are generally defined by political boundaries. There is no clear “line” defining these systems and interactions between systems are common. The intent is to place the various component systems (terrestrial, aquatic, and socio-economic) into a hierarchy of local, regional, provincial and national/international context to facilitate environmental decision making. This hierarchy and spatial boundaries are described below.

#### *Local*

Local spatial boundaries are defined as the project site and adjacent land and water area. This definition is based on the area of most direct effect from proposed development and operational activities of the quarry and marine terminal. More specifically, this “local area” would include the 380 acre quarry site and the 10 acre water lot proposed for the marine terminal. This local area would include properties adjacent to the property line, the adjacent marine intertidal zone, and nearshore waters adjacent to the marine terminal.

### *Regional*

Regional spatial boundaries are defined differently for the three major environmental component systems. These areas are defined using ecological boundaries for the terrestrial and marine system components and political boundaries for the socio-economic system components. The regional area would be subject to potential indirect effects from the proposed development and operational activities of the quarry and marine terminal.

Terrestrial – regional boundaries are generally defined as Theme Region 810 – Basalt Peninsula (Natural History of Nova Scotia, Volume II). The Basalt Peninsula is a westerly extension of the North Mountain Basalt Ridge and includes the land area of Digby Neck and Islands from Gullivers Cove on Digby Neck to Brier Island.

Marine – regional boundaries are generally defined as a section of the outer Bay of Fundy. The outer Bay of Fundy is defined as Theme Region 912 – Outer Bay of Fundy (Natural History of Nova Scotia, Volume II). This would include the nearshore waters within a line running roughly from Digby, Nova Scotia to Saint John, New Brunswick which arbitrarily separates the outer Bay of Fundy from the inner Bay of Fundy; to the inbound shipping lane; and within a line running roughly from Grand Manan Island, New Brunswick to Brier Island, Nova Scotia. This line arbitrarily separates the Bay of Fundy from the Gulf of Maine.

Socio-economic – regional boundaries are more variable and based on both social/human ecological boundaries (community definition) and political statistical boundaries. Some regional socio-economic spatial boundaries vary according to individual components and include the community (Digby Neck, and Digby Neck and Islands), the county (Digby County), and other regionally based entities such as Health Regions, Health Authorities, and School Boards.

### *Provincial*

Provincial spatial boundaries are defined for component systems as being within Nova Scotia's designated land and water areas for terrestrial, marine and socio-economic components.

### *National/International*

National/International spatial boundaries are defined for component systems as being within the Maritime provinces and New England's designated land and water areas.

### 8.4.2 Temporal Boundaries

Two different sets of time frames are applicable to the Whites Point quarry and Marine Terminal – historic time frames/boundaries applicable to establishing trends for environmental components and project time frames to assess potential effects of project development and operational activities on valued environmental components.

Historic time frames/boundaries are developed for environmental components as a basis for trend analysis and point in time baseline conditions. These time frames vary by component and according to available data, reliability of the data, and meaningful application of the data during effect analyses. Statistical socio-economic data usually provides comparable data in time and scale for reliable trend analysis. Natural resource data often contains gaps, in many cases is not gathered using standard methodologies, and for some components, the data currently available is very limited.

Project time frames/boundaries or phases are generally considered as pre-project planning, assessment of existing environments, and project design; project construction; project operation and maintenance; and decommissioning and final reclamation. Pre-project planning, environmental assessment and design is normally a three year time period, construction a one year time period, operation and maintenance a fifty year time period and decommissioning and final reclamation a one year time period.

Any cumulative environmental effects resulting from the development of the quarry and marine terminal and operational activities will be presented in **Chapter 10**.

## 8.5 Application of the Precautionary Principle

As previously discussed in paragraph 3.5 “The Precautionary Approach”, application of the precautionary principle has been incorporated into various project development phases. Bilcon of Nova Scotia Corporation recognizes that any activity affecting physical, biological, or human elements is not without some level of uncertainty or has some level of environmental risk. An important initial measure is to define a starting point on which environmental risk assessment can be based. Throughout this assessment, site or community specific baseline data has been gathered to document existing environmental conditions. Many environmental components have involved extensive scientific research to establish a reliable baseline for environmental decision making, prediction of possible adverse or irreversible environmental effects, and as a basis for monitoring long term effects.

The precautionary principle has been applied throughout the project phases. Some examples follow, others are contained in specific environmental component sections of the EIS. In many cases, reduction of environmental risk by application of the precautionary principle increases the overall cost of project development. In other cases, integrating environmental planning and design concepts as part of project development can reduce risks without increased costs.

### 8.5.1 Planning and Design

- Location of the quarry so that it is not visible from Highway #217
- Location of the marine terminal in deep water so that dredging or underwater blasting is not required
- Design of the marine terminal on pipe pilings, rather than dredging or filling, to reduce marine habitat impact
- Design of enclosed crushers to reduce noise and dust emissions
- Establishment of a Community Liaison Committee to ensure public input during project planning
- Project baseline data acquisition for physical, chemical, and biological elements
- Design of sediment retention ponds to control sediment runoff from disturbed land areas and provide storage for surface water for aggregate washing

### 8.5.2 Construction

- Establishment of an environmental preservation zone around the perimeter of the quarry property and expanded buffer areas around sensitive areas
- Placement of environmental control structures before construction begins
- Continuing input from the community liaison committee during the construction phase
- Environmental monitoring during construction activities to provide an early warning of potential adverse effects and to take appropriate adaptive management actions, for example, monitoring under water noise during periods that marine mammals may be present and monitoring of quality of water entering the marine environment
- Establishment of expanded buffer zones during times species at risk may be present, for example, a blasting separation zone three times that required by existing guidelines during times the inner Bay of Fundy salmon may migrate past the Whites Point site

### 8.5.3 Operation and Maintenance

- Using surface water for aggregate washing rather than ground water supplies.
- Incremental reclamation for erosion control and re-establishment of terrestrial habitat.
- Environmental monitoring on land and in the marine environment during quarry operation to provide an early warning of potential adverse effects and to take appropriate adaptive management actions; for example, monitoring in the marine nearshore to detect the presence or absence of invasive species.
- Continuing input from the Community Liaison Committee during the operation and maintenance phase.
- Reduction of noise by absorption using rubberized screens and truck body liners.

#### 8.5.4 Reclamation and Decommissioning

- Leaving in place constructed wetlands and sediment retention ponds after quarry decommissioning for sediment control and wetland habitat.
- Leaving in place the marine construction on pipe pilings so demolition by underwater blasting does not take place.
- Leaving in place infrastructure such as roads, electrical services, domestic water wells, and navigational lighting for future generations.

Preproject baseline data acquisition and monitoring is an important aspect of the application of the precautionary principle over space and time. Baseline data provides the basis, and monitoring over time provides an early detection of possible irreversible consequences thus providing opportunity to enact adaptive management actions. Bilcon of Nova Scotia Corporation is currently, and will continue to be committed to working with regulatory agencies to develop adaptive management procedures, on a case by case basis, as new scientific data becomes available. It should be recognized that many environmental components presently do not have performance standards or defined acceptable ranges of environmental tolerance or resiliency. Bilcon intends to work cooperatively, by sharing monitoring data with regulatory agencies in the development of environmental threshold criteria, especially in regard to blasting activities in relation to species at risk.