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Project No. NSD18995

October 3, 2005

F. Helen MacPhail
Environmental Assessment Officer
Department of Environment and Labour
Environmental Assessment Branch
5151 Terminal Road, 5th Floor
PO Box 697
Halifax, NS B3J 2T8

Dear Ms. MacPhail:

Re: Addendum Report

On behalf of Ward Aggregates Ltd., the following information is provided in response to the Minister's request for additional information to support the EA Registration for the proposed Nictaux Pit and Quarry Development. In the Minister's Decision, additional information related to the distribution and abundance of rare plant species as well as information related to access to the southern end of the site was requested. The following is a description of the additional field studies conducted at the proposed development site including results and recommendations for development and mitigation as well as a description of how the southern end of the site will be accessed. In addition to the Minister's request, an additional field survey to identify early flowering vegetation and spring ephemerals was conducted, as recommended in the original EA Registration. The results of this survey are also provided below.

Slim-leaf Witchgrass Distribution and Abundance Survey

Slim-leaf witchgrass (*Panicum linearifolium*) is a perennial grass species that is associated with dry sandy soils. This species is listed as S2? by the Atlantic Canada Conservation Data Centre (ACDC) indicating that it is believed to be rare but the population status is uncertain. Slim-leaf witchgrass is listed as a Yellow species by the Nova Scotia Department of Natural Resources (NSDNR) indicating that it is sensitive to human activities or natural events. Slim-leaf witchgrass was found in the northern portion of the proposed development area during field surveys in 2004. This species is difficult to identify in the field and is almost identical to a common grass species, starved witchgrass (*Panicum depauperatum*), which shares the same habitat. Slim-leaf witchgrass was detected in 2004 but its abundance and overall distribution were unknown. It was located in an area where the proponent intended to develop a gravel pit and as such, distribution and abundance data for this species were necessary. A follow-up survey to determine the distribution and abundance of this species was requested by the Minister and was recommended in the original EA Registration. The survey was conducted on August 24, 2005.

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The survey consisted of several phases which included:

- Determination of the presence and distribution of slim-leaf witchgrass in the project area;
- Assessment of the habitat requirements of the species; and
- Assessment of the presence of this species in other nearby locations.

The survey area was defined as the northern portion of the property extending as far south as Wetland 1. It also included the abandoned gravel pit to the east of the proposed development. This area included adjacent and similar habitats to that which the plant was first located in September 2004. In the initial phase of the survey, the area where the proposed gravel pit was to be located was searched to determine the abundance and distribution of slim-leaf witch grass. It was discovered that both slim-leaf witchgrass and starved witchgrass were present in the survey area. The two species were easy to field identify; however it was more difficult to distinguish between the two species. The only effective way to differentiate the two species is to examine the size and shape of the spikelets. For the slim-leaf witchgrass, the spikelets are 2 to 3 mm long and have a blunt tip whereas for the starved witchgrass, the spikelets are 3 to 4 mm long and are pointed. Given the number of individuals present, it was not practical to measure the spikelet lengths of all witchgrasses encountered in the study area. As such, it was not possible to provide an accurate estimate of the number of plants present. An estimate of the relative abundance of the two species was taken by randomly selecting 60 samples of witchgrass and identifying each sample in the laboratory.

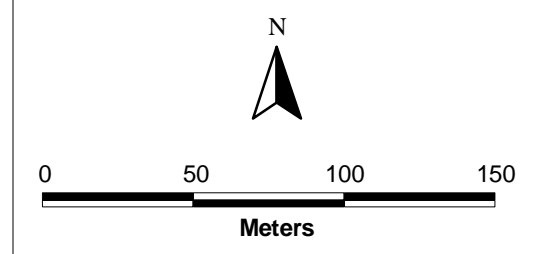
The two witchgrass species were abundant in the survey area. At the southern end of the survey area these two species were the dominant species. Witchgrass abundance decreased towards the north and was uncommon in the northern half of the proposed pit area. Three distinct zones of witchgrass abundance were identified. An area of high abundance (1.8 ha in size) was found at the southern end of the survey area (Figure 1). An area of moderate abundance (1.2 ha in size) was found in the middle of the survey area and an area of low abundance (4.2 ha in size) was found at the northern end of the study area.

The plant species compositions of these three zones were quite different. Also, there were differences in the level of ground disturbance in each zone. All of the zones had been clear-cut within the past three to five years. The high abundance and medium abundance zones had been grubbed, while the forest floor in the low density zone had been left essentially intact. In the high abundance zone witchgrass was the dominant species with a cover of approximately 50%. Witchgrass samples taken in the high abundance zone indicated that 85% of the witchgrass in this zone were slim-leaf witchgrass, suggesting that slim-leaf witchgrass cover in this zone is about 42%. Other dominant species in this zone include flattened oatgrass (*Danthonia compressa*) and bracken fern (*Pteridium aquilinum*). The cover of woody plants in this zone is very low, consisting of a few scattered hawthorn (*Crataegus* sp.) and sweet fern (*Comptonia peregrina*).



Figure 1
Distribution of
Panicum linearifolium
at Proposed Ward
Aggregates Gravel Pit

- Map Features**
- Building/Structure
 - Minor Road
 - - - Trail/Track
 - ≡ Rail
- Plant Observation/Collection Locations**
- ★ *Panicum linearifolium*
 - ★ *Panicum depauperatum*
 - ★ Both *Panicum linearifolium* and *depauperatum* species
- Observed Abundance of *Panicum linearifolium***
- /// Low Abundance
 - /// Medium Abundance
 - /// High Abundance
- Waterbody



Map Parameters
 Projection: UTM-NAD83-Z20
 Scale 1:2,500
 Date: August 30, 2005
 Project No.: NSD18995



The moderate abundance zone is characterized by a dense cover of bracken fern. Witchgrass is common but not as abundant as in the high abundance zone, with an estimated cover of 20%. Witchgrass samples taken in this zone indicated that 37% of the witchgrass plants sampled were slim-leaf witchgrass, suggesting that the cover of slim-leaf witchgrass in this zone is approximately 7%. Witchgrass occurred under the dense bracken fern canopy but was most abundant in gaps in the bracken fern cover. Other dominant ground vegetation species associated with this zone include partridge-berry (*Mitchella repens*) and gypsy-weed (*Veronica officinalis*). The cover of shrubs and trees is higher in this zone with a total cover of 25%. The most abundant species are blackberry (*Rubus* sp.), possum haw viburnum (*Viburnum nudum*), wild black cherry (*Prunus serotina*), fire cherry (*Prunus pensylvanica*), and red pine (*Pinus resinosa*).

The low abundance zone is characterized by <1% witchgrass cover. In this zone witchgrass is restricted to areas where mineral soil has been exposed by the forest harvesting operation. The ground vegetation layer in this zone is dominated by a mixture of white-grained mountain-ricegrass (*Oryzopsis asperifolia*), bracken fern, flattened oatgrass, and white goldenrod (*Solidago bicolor*). Tree and shrub cover is relatively high (30%) and composed mainly of blackberry, wild black cherry, white spruce (*Picea glauca*), northern red oak (*Quercus rubra*), and ground juniper (*Juniperus communis*).

Areas adjacent to the proposed gravel pit were also surveyed to determine if slim-leaf witchgrass was present. Coniferous forest bordering the western side of the proposed pit was surveyed. No witchgrass was found in this habitat. The abandoned gravel pit located east of the proposed pit was also surveyed. Both slim-leaf witchgrass and starved witchgrass were found. Witchgrass samples taken in this zone indicated that 80% of the witchgrass plants sampled were slim-leaf witchgrass. In the abandoned pit, witchgrass was found mainly on the eastern edge of the pit where reclamation activity had not occurred. Most of the abandoned pit had a layer of top soil spread over it and had been planted with a commercial seed mix. This planted area contained few witchgrass plants, most of which were small, presumably young, clumps. Witchgrass was much more abundant in the unplanted area although it was not nearly as abundant here as in the high and medium abundance zones. Overall cover in the abandoned pit is approximately 2%. In this area, witchgrass was most frequently found on well drained sand and gravel. Areas that are subject to temporary flooding in the spring did not support witchgrass.

Other areas of abandoned gravel pit were also visited during the survey including the area south and southwest of the defined survey area. Both slim-leaf witchgrass and starved witchgrass were found at these locations. The cover of witchgrass at these sites was comparable to that found in the abandoned gravel pit within the survey area. At both of these sites witchgrass was found on sandy or gravelly soils that remained dry throughout the growing season.

The data collected during the survey suggests that the slim-leaf witchgrass found in the proposed gravel pit probably originated from the adjacent abandoned gravel pit rather than the forest habitat that originally occupied the site. When the site was logged and grubbed it provided good habitat for slim-leaf witchgrass. The soil in the grubbed area is a sandy loam which appears to be ideal for witchgrass.

Areas that were not grubbed support little witchgrass. The low abundance of witchgrass in this area is probably attributable to a combination of heavy competition and unsuitable soil conditions. The forest floor in this area was left largely intact. The duff layer on the forest floor may impede the germination or establishment of witchgrass seedlings and would support a large population of buried seeds and vegetative propagules such as rhizomes that would quickly establish a heavy cover of understory plants that would compete with the witchgrass seedlings.

Given the difficulty in distinguishing the two witchgrass species, only a very rough estimate of the abundance of slim-leaf witchgrass can be provided. There appear to be tens of thousands of plants in the area, the vast majority of which are located within the high and medium abundance zones. Slim-leaf witchgrass forms small tussocks, each of which is assumed to be one genet (genetic individual).

Witchgrass appears to be a poor competitor with other plant species but is tolerant of stressful conditions such as drought conditions and infertile soils. The populations present in the proposed gravel pit can be expected to persist for 10 to 30 years depending on how long it takes for a heavy cover of trees and shrubs to establish on the site. The small witchgrass population located in the low abundance zone would be expected to be eliminated first since competition with other plants, particularly woody plants is most intense in this area. The population in the high abundance zone would be expected to persist the longest since the abundance of competing species is low.

The results of the survey were provided to NSDNR Species at Risk Biologist on September 12, 2005. In subsequent discussions, NSDNR indicated that, based on the findings of the detailed survey (*i.e.*, slim-leaf witchgrass colonizes and persists in abandoned gravel pits and it flourishes in the soil present on the proposed gravel pit site provided there is little competing vegetation) and given that the plant is a perennial species, the development of the gravel pit in this portion of the property could proceed with appropriate design/development mitigation. If appropriately developed, it is believed that the species will return to the area in subsequent years.

In the absence of disturbance in the low abundance zone, the population of slim-leaf witchgrass would probably be lost within 10 years as a result of competition with other species as the forest cover regenerates. Development of the gravel pit in this area could provide an opportunity to increase the abundance of slim-leaf witchgrass.

To enable slim-leaf witchgrass to return/regenerate, the proposed gravel pit will be developed and reclaimed in progressive manner. That is, on an annual basis, the topsoil/duff layer will be stripped and windrowed during spring start-up. The active portion of the pit will be maintained at as small an area as possible. As areas of the pit become inactive (*i.e.*, once the gravel has been removed), the topsoil/duff layer will be replaced. Prior to winter shutdown, all disturbed areas will be graded and the topsoil/duff layer will be replaced. In order to encourage production of slim-leaf witchgrass, the bottom of the pit would have to be above the water table and contoured such that most of the surface is not flooded in the

spring. Slim-leaf witchgrass appears to readily colonize dry sandy areas and is particularly adept at colonizing the sandy loam soil that overlays the proposed gravel pit so it is unlikely that seeding or transplanting slim-leaf witchgrass into the reclaimed area would be required.

Within a year or two of commencement of development and prior to development in the high abundance area, the reclaimed area should be inspected to determine if colonization by slim-leaf witchgrass is successful. No other vegetation, particularly commercial seed mixes should be sown in the reclaimed area. Survey findings indicated that for the abandoned gravel pit east of the proposed gravel pit, unplanted portions of the pit had much higher abundance of slim-leaf witchgrass and contained fewer non-native ruderal plant species than the seeded areas. Overall vegetation cover was similar in the planted and unplanted areas (Figure 2).

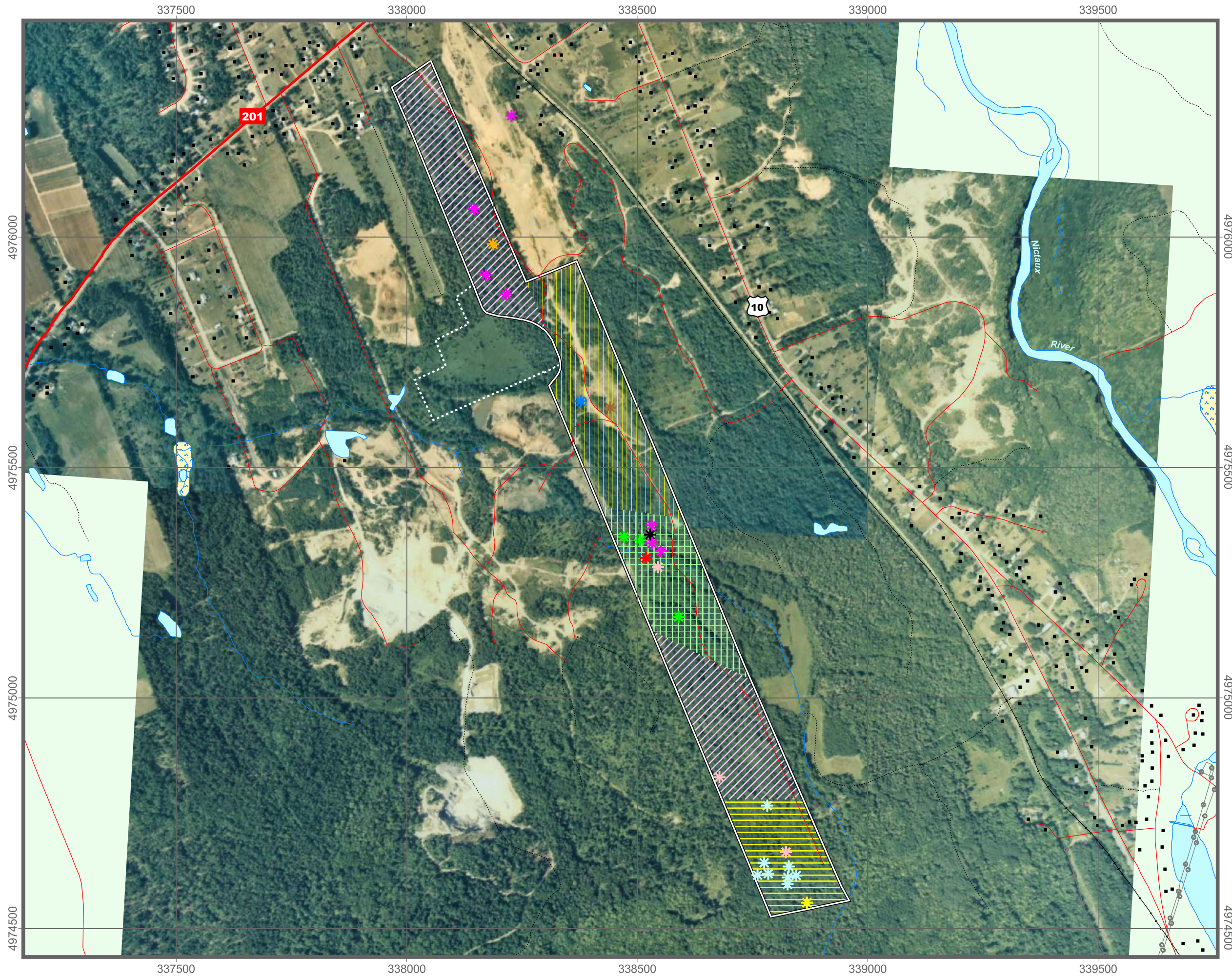


Figure 2 Vegetation in Planted and Unplanted Areas of Adjacent Pit

Spring Vegetation Survey

A spring vegetation survey was conducted on June 1, 2005, to detect any early flowering species and spring ephemerals that might have escaped detection during the survey conducted in September, 2004. The entire property was searched and all habitats present were investigated. Table 1 (attached) presents an updated vascular plant species list that incorporates the results of both the June and September surveys. A total of 255 species were recorded on the property including ten uncommon or rare species. The locations of these uncommon or rare species is presented in Figure 3. The distribution and status of seven of the species, tall hairy groovebur (*Agrimonia gryposepala*), hop sedge (*Carex lupulina*), paniced hawkweed (*Hieracium paniculatum*), slim-leaf-witchgrass, Appalachian polypody (*Polypodium appalachianum*), swamp rose (*Rosa palustris*), and hooded ladies'-tresses (*Spiranthes romanzoffiana*) were discussed in the original EA Registration or earlier in this report and not discussed in the following text. Three new uncommon or rare species were encountered during the spring survey including ill-scent trillium (*Trillium erectum*), arrow-leaved violet (*Viola sagittata*), and plantain-leaved pussytoes (*Antennaria plantaginifolia*).

Figure 3 Habitat Survey Results



Rare & Uncommon Plant Locations

- Slim-leaf Witchgrass
- Hop Sedge
- Appalachian Polypody
- Hooded Ladies'-tresses
- Panicked Hawkweed
- Swamp Rose
- Tall Hairy Groovebur
- Ill-Scent Trillium
- Plantain-leaved Pussytoes
- Arrow-leaved Violet

Project Components

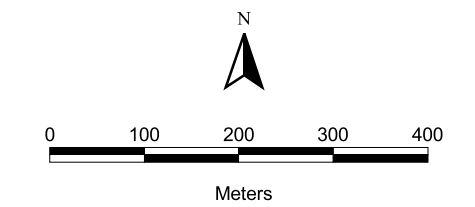
- Ward Aggregates Owned
- Proposed Permitted Area

Topography

- Building/Structure
- Roads
 - Minor Road
 - Major Road
 - Trail/Track
 - Rail
- Wetlands
- Pits

Project Components

- Proposed Gravel Pit
- Proposed Quarry Area
- Proposed Buffer Area
- Proposed Stockpile and Laydown Area



Map Parameters
 Projection: UTM-NAD83-Z20
 Scale 1:8,000
 Date: September 23, 2005
 Project No.: NSD18995



Ill scent trillium is listed as uncommon by ACCDC (S3) and the Nova Scotia population is considered to be secure by NSDNR (Green listed). Eleven ill scent trilliums were encountered on the property at nine locations (Figure 3). All of the locations were in mature hardwood forest located at the southern end of the property. The plants were typically found at the edges of seeps on the base of a slope. The area where the ill scent trillium was found is within the footprint of the proposed quarry. Given that status of this species, loss of these individuals is not expected to have any substantial effect on regional or local populations of this species and is therefore not considered to be significant.

Arrow-leaved violet is listed as uncommon to fairly common by ACCDC (S3S4) and is listed as sensitive to human activities or natural events (Yellow listed) by NSDNR. Arrow-leaved violet was found just north of Wetland 2 in an old gravel pit (Figure 3). Three plants were found at this location. They were found on a poorly vegetated slope at the edge of an old excavation. The plants were associated with open gravelly soils. This area is not located within the footprint of the proposed gravel pit or quarry and will not be disturbed. During the slim-leaf witchgrass survey arrow-leaved violet was also found at a number of locations within the high abundance zone delineated for slim-leaf witchgrass. This area is located within the footprint of the proposed gravel pit. NSDNR indicated that loss of these individuals was not considered significant provided the individuals located near Wetland 2 were not disturbed.

Plantain-leaved pussytoes is considered to be extremely rare by ACCDC (S1) and is listed as status undetermined by NSDNR indicating that its population status in Nova Scotia is poorly understood. One plantain-leaved pussytoes plant consisting of three shoots was found at the same location where arrow-leaved violet was found during the spring vegetation survey, just north of Wetland 2 (Figure 3). It was found in abandoned pit in a transition zone between a young hardwood stand and the poorly vegetated area where the arrow-leaved violet was found. Plantain-leaved pussytoes was associated with grey birch (*Betula populifolia*), bear berry (*Arctostaphylos uva-ursi*) and white goldenrod. The area where plantain-leaved pussytoes was found will not be affected by the proposed development.

Access to the Southern Portion of the Property

The southern portion of the property will be accessed via an existing access road. Maps provided in the original EA Registration showed major and minor roads included in the provincial data set. This data set is not always current (*i.e.*, 1997 or earlier) or accurate. The access road through the property indicated on Figure 3 was developed through interpretation of recent air photos and was confirmed through site visits by Jacques Whitford representatives and the proponent. The existing road allows for access to the entire site. No additional access roads are proposed.

Ms. MacPhail
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October 3, 2005

Closing

We trust the information provided above satisfies your request for additional information. Enclosed is a cheque, payable to the Minister of Finance, in the amount of \$4,473.00, the required fee for submission of additional information.

Please do not hesitate to contact the undersigned at 468-7777, ext. 251 if you have any questions about this submission. Please also copy Mr. Robert Ward at Ward Aggregates Ltd. on any correspondence related to this file.

Yours very truly,

JACQUES WHITFORD LIMITED

Janice Ray

Janice Ray, B.Sc.E.
Project Manager

cc: Robert Ward, Ward Aggregates Ltd.

JR/hm
Enclosure

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Table 1 Vascular Plant Species found during the Spring and Fall Vegetation Surveys		
Common Name	Binomial	Population Status (ACCDC)
Balsam Fir	<i>Abies balsamea</i>	S5
Red Maple	<i>Acer rubrum</i>	S5
Sugar Maple	<i>Acer saccharum</i>	S5
Nova Scotia False-Foxglove	<i>Agalinus pururea var. neosctica</i>	S4
Tall Hairy Groovebur	<i>Agrimonia gryposepala</i>	S3?
Woodland Agrimony	<i>Agrimonia striata</i>	S5
Colonial Bentgrass	<i>Agrostis capillaris</i>	SE
Rough Bentgrass	<i>Agrostis hyemalis</i>	S5
Perennial Bentgrass	<i>Agrostis perennans</i>	S4S5
Spreading Bentgrass	<i>Agrostis stolonifera</i>	S5SE
Broad-Leaved Water-Plantain	<i>Alisma triviale</i>	S5
Speckled Alder	<i>Alnus incana</i>	S5
Green Alder	<i>Alnus viridis</i>	S5
Shadbush	<i>Amelanchier sp.</i>	N/A
Pearly Everlasting	<i>Anaphalis margaritacea</i>	S5
a Pussytoes	<i>Antennaria plantaginifolia var. parlinii</i>	S1
Sweet Vernal Grass	<i>Anthoxanthum odoratum</i>	SE
Spreading Dogbane	<i>Apocynum androsaemifolium</i>	S5
Spreading Dogbane	<i>Apocynum androsaemifolium</i>	S5
Bristly Sarsaparilla	<i>Aralia hispida</i>	S5
Wild Sarsaparilla	<i>Aralia nudicaulis</i>	S5
Lesser Burdock	<i>Arctium minus</i>	SE
Bearberry	<i>Arctostaphylos uva-ursi</i>	S4
Grove Sandwort	<i>Arenaria lateriflora</i>	S5
Swamp Jack-In-The-Pulpit	<i>Arisaema triphyllum</i>	S4S5
Purple Chokeberry	<i>Aronia melanocarpa</i>	S4S5
Common Wormwood	<i>Artemisia vulgaris</i>	SE
Whorled Aster	<i>Aster acuminatus</i>	S5
Farewell-Summer	<i>Aster lateriflorus</i>	S5
Swamp Aster	<i>Aster puniceus</i>	S5
Parasol White-Top	<i>Aster umbellatus</i>	S5
Gray Birch	<i>Betula populifolia</i>	S5
Tall Bur-Marigold	<i>Bidens vulgata</i>	SE?
Bearded Short-Husk	<i>Brachyelytrum erectum</i>	S4S5
Blue-Joint Reedgrass	<i>Calamagrostis canadensis</i>	S5
Pennsylvania Bitter-Cress	<i>Cardamine pensylvanica</i>	S5
Cuckooflower	<i>Cardamine pratensis</i>	S4S5
Sedge	<i>Carex sp.</i>	N/A
Black Sedge	<i>Carex arctata</i>	S5
Yellow Sedge	<i>Carex flava</i>	S5
Graceful Sedge	<i>Carex gracillima</i>	S4S5
A Sedge	<i>Carex gynandra</i>	S5
Bladder Sedge	<i>Carex intumescens</i>	S5
Hop Sedge	<i>Carex lupulina</i>	S3
Shallow Sedge	<i>Carex lurida</i>	S5
Necklace Sedge	<i>Carex projecta</i>	S4S5
Cyperus-Like Sedge	<i>Carex pseudocyperus</i>	S4S5
Rough Sedge	<i>Carex scabrata</i>	S5
Pointed Broom Sedge	<i>Carex scoparia</i>	S5
Stalk-Grain Sedge	<i>Carex stipata</i>	S5
Three-Seed Sedge	<i>Carex trisperma</i>	S5
Inflated Sedge	<i>Carex vesicaria</i>	S4S5
Black Starthistle	<i>Centaurea nigra</i>	SE

Table 1 Vascular Plant Species found during the Spring and Fall Vegetation Surveys		
Common Name	Binomial	Population Status (ACDC)
Leatherleaf	<i>Chamaedaphne calyculata</i>	S5
White Turtlehead	<i>Chelone glabra</i>	S5
White Goosefoot	<i>Chenopodium album</i>	SE
Common Wintergreen	<i>Chimaphila umbellata</i>	S4
Oxeye Daisy	<i>Chrysanthemum leucanthemum</i>	SE
American Golden-Saxifrage	<i>Chrysosplenium americanum</i>	S5
Swamp Thistle	<i>Cirsium muticum</i>	S5
Bull Thistle	<i>Cirsium vulgare</i>	SE
Virginia Virgin-Bower	<i>Clematis virginiana</i>	S5
Clinton Lily	<i>Clintonia borealis</i>	S5
Sweet Fern	<i>Comptonia peregrina</i>	S5
Canada Horseweed	<i>Conyza canadensis</i>	S5
Goldthread	<i>Coptis trifolia</i>	S5
Broom Crowberry	<i>Corema conradii</i>	S4
Alternate-Leaf Dogwood	<i>Cornus alternifolia</i>	S5
Dwarf Dogwood	<i>Cornus canadensis</i>	S5
Pale Corydalis	<i>Corydalis sempervirens</i>	S4S5
Beaked Hazelnut	<i>Corylus cornuta</i>	S5
Hawthorn	<i>Crataegus sp.</i>	N/A
Smooth Hawksbeard	<i>Crepis capillaris</i>	SE
Pink Lady's-Slipper	<i>Cypripedium acaule</i>	S5
Poverty Oat-Grass	<i>Danthonia spicata</i>	S5
Flattened Oat-Grass	<i>Danthonia compressa</i>	S4S5
Wild Carrot	<i>Daucus carota</i>	SE
Northern Bush-Honeysuckle	<i>Diervilla lonicera</i>	S5
Smooth Crabgrass	<i>Digitaria ischaemum</i>	SE
Spoon-Leaved Sundew	<i>Drosera intermedia</i>	S5
Mountain Wood-Fern	<i>Dryopteris campyloptera</i>	S5
Spinulose Shield Fern	<i>Dryopteris carthusiana</i>	S5
Crested Shield-Fern	<i>Dryopteris cristata</i>	S5
Evergreen Woodfern	<i>Dryopteris intermedia</i>	S5
Marginal Wood-Fern	<i>Dryopteris marginalis</i>	S5
Barnyard Grass	<i>Echinochloa crus-galli</i>	SE
Least Spike-Rush	<i>Eleocharis acicularis</i>	S5
Slender Spike-Rush	<i>Eleocharis tenuis</i>	S5
Trailing Arbutus	<i>Epigaea repens</i>	S5
Hairy Willow-Herb	<i>Epilobium ciliatum</i>	S5
Eastern Helleborine	<i>Epipactis helleborine</i>	SE
Field Horsetail	<i>Equisetum arvense</i>	S5
Fireweed	<i>Erechtites hieraciifolia</i>	S5
Daisy Fleabane	<i>Erigeron strigosus</i>	S5
Spotted Joe-Pye Weed	<i>Eupatorium maculatum</i>	S5
Common Boneset	<i>Eupatorium perfoliatum</i>	S5
Flat-Top Fragrant-Golden-Rod	<i>Euthamia graminifolia</i>	S5
American Beech	<i>Fagus grandifolia</i>	S5
Hair Fescue	<i>Festuca filiformis</i>	SE
Red Fescue	<i>Festuca rubra</i>	S5
Virginia Strawberry	<i>Fragaria virginiana</i>	S5
White Ash	<i>Fraxinus americana</i>	S5
Small Bedstraw	<i>Galium trifidum</i>	S5
Herb-Robert	<i>Geranium robertianum</i>	S4S5
Purple Avens	<i>Geum rivale</i>	S5
Canada Manna-Grass	<i>Glyceria canadensis</i>	S5

Table 1 Vascular Plant Species found during the Spring and Fall Vegetation Surveys		
Common Name	Binomial	Population Status (ACDC)
American Mannagrass	<i>Glyceria grandis</i>	S4S5
Fowl Manna-Grass	<i>Glyceria striata</i>	S5
Low Cudweed	<i>Gnaphalium uliginosum</i>	SE
Northern Oak Fern	<i>Gymnocarpium dryopteris</i>	S5
Meadow Hawkweed	<i>Hieracium caespitosum</i>	SE
Panicled Hawkweed	<i>Hieracium paniculatum</i>	S3
Mouseear	<i>Hieracium pilosella</i>	SE
Rough Hawkweed	<i>Hieracium scabrum</i>	S5
Common Velvet Grass	<i>Holcus lanatus</i>	SE
Canadian St. John's-Wort	<i>Hypericum canadense</i>	S5
Orange-Grass St. John's-Wort	<i>Hypericum gentianoides</i>	SE
A St. John's-Wort	<i>Hypericum perforatum</i>	SE
Black Holly	<i>Ilex verticillata</i>	S5
Spotted Jewel-Weed	<i>Impatiens capensis</i>	S5
Blueflag	<i>Iris versicolor</i>	S5
Narrow-Panicled Rush	<i>Juncus brevicaudatus</i>	S5
Canada Rush	<i>Juncus canadensis</i>	S5
Soft Rush	<i>Juncus effusus</i>	S5
Slender Rush	<i>Juncus tenuis</i>	S5
Ground Juniper	<i>Juniperus communis</i>	S5
Sheep-Laurel	<i>Kalmia angustifolia</i>	S5
Wild Lettuce	<i>Lactuca sp.</i>	N/A
Common Labrador Tea	<i>Ledum groenlandicum</i>	S5
Autumn Hawkbit	<i>Leontodon autumnalis</i>	SE
Old-Field Toadflax	<i>Linaria canadensis</i>	SE
Indian-Tobacco	<i>Lobelia inflata</i>	S5
American Fly-Honeysuckle	<i>Lonicera canadensis</i>	S5
Tartarian Honeysuckle	<i>Lonicera tatarica</i>	SE
Marsh Seedbox	<i>Ludwigia palustris</i>	S5
Large-Leaved Lupine	<i>Lupinus polyphyllus</i>	SE
Hairy Woodrush	<i>Luzula acuminata</i>	S5
Common Woodrush	<i>Luzula multiflora</i>	S5
Running Pine	<i>Lycopodium clavatum</i>	S5
Tree Clubmoss	<i>Lycopodium obscurum</i>	S5
Northern Bugleweed	<i>Lycopus uniflorus</i>	S5
Fringed Loosestrife	<i>Lysimachia ciliata</i>	S4
Swamp Loosestrife	<i>Lysimachia terrestris</i>	S5
Wild Lily-of-The-Valley	<i>Maianthemum canadense</i>	S5
Corn Mint	<i>Mentha arvensis</i>	S5
Partridge-Berry	<i>Mitchella repens</i>	S5
Indian-Pipe	<i>Monotropa uniflora</i>	S5
Fall Dropseed Muhly	<i>Muhlenbergia uniflora</i>	S5
Small Forget-Me-Not	<i>Myosotis laxa</i>	S5
Mountain Holly	<i>Nemopanthus mucronata</i>	S5
Common Evening-Primrose	<i>Oenothera biennis</i>	S5
Small Sundrops	<i>Oenothera perennis</i>	S5
Sensitive Fern	<i>Onoclea sensibilis</i>	S5
White-Grained Mountain-Ricegrass	<i>Oryzopsis asperifolia</i>	S5
Interrupted Fern	<i>Osmunda claytoniana</i>	S5
Royal Fern	<i>Osmunda regalis</i>	S5
Upright Yellow Wood-Sorrel	<i>Oxalis stricta</i>	S5
Northern Witchgrass	<i>Panicum boreale</i>	S5
Old Witch Panic-Grass	<i>Panicum capillare</i>	SE

Table 1 Vascular Plant Species found during the Spring and Fall Vegetation Surveys		
Common Name	Binomial	Population Status (ACDC)
Starved Witchgrass	<i>Panicum depauperatum</i>	S4S5
Slim-Leaf Witchgrass	<i>Panicum linearifolium</i>	S2?
Panic-Grass	<i>Panicum villosissimum</i>	
Reed Canary Grass	<i>Phalaris arundinacea</i>	S5
Northern Beech Fern	<i>Phegopteris connectilis</i>	S5
White Spruce	<i>Picea glauca</i>	S5
Black Spruce	<i>Picea mariana</i>	S5
Red Spruce	<i>Picea rubens</i>	S5
Red Pine	<i>Pinus resinosa</i>	S4S5
Eastern White Pine	<i>Pinus strobus</i>	S5
Scotch Pine	<i>Pinus sylvestris</i>	SE
Nipple-Seed Plantain	<i>Plantago major</i>	SE
White-Fringe Orchis	<i>Platanthera blephariglottis</i>	S4
Canada Bluegrass	<i>Poa compressa</i>	SE
Fowl Bluegrass	<i>Poa palustris</i>	S5
Kentucky Bluegrass	<i>Poa pratensis</i>	S5
Downy Solomon's-Seal	<i>Polygonatum pubescens</i>	S4S5
Marshpepper Smartweed	<i>Polygonum hydropiper</i>	SE
Lady's Thumb	<i>Polygonum persicaria</i>	SE
Arrow-Leaved Tearthumb	<i>Polygonum sagittatum</i>	S5
Appalachian Polypody	<i>Polypodium appalachianum</i>	S3?
Rock Polypody	<i>Polypodium virginianum</i>	S5
Christmas Fern	<i>Polystichum acrostichoides</i>	S5
Quaking Aspen	<i>Populus tremuloides</i>	S5
Norwegian Cinquefoil	<i>Potentilla norvegica</i>	S5
Tall Rattlesnake-root	<i>Prenanthes altissima</i>	S4S5
Three-Leaved Rattlesnake-root	<i>Prenanthes trifoliolata</i>	S5
Self-Heal	<i>Prunella vulgaris</i>	S5
Fire Cherry	<i>Prunus pensylvanica</i>	S5
Wild Black Cherry	<i>Prunus serotina</i>	S5
Bracken Fern	<i>Pteridium aquilinum</i>	S5
Shinleaf	<i>Pyrola elliptica</i>	S5
American Wintergreen	<i>Pyrola rotundifolia var. americana</i>	S5
Common Apple	<i>Pyrus malus</i>	SE
Northern Red Oak	<i>Quercus rubra</i>	S5
Tiny All Seed	<i>Radiola linoides</i>	SE
Tall Butter-Cup	<i>Ranunculus acris</i>	SE
Creeping Butter-Cup	<i>Ranunculus repens</i>	SE
Rhodora	<i>Rhododendron canadense</i>	S5
Staghorn Sumac	<i>Rhus typhina</i>	S4S5
Smooth Gooseberry	<i>Ribes hirtellum</i>	S5
Bristly Black Currant	<i>Ribes lacustre</i>	S5
Swamp Rose	<i>Rosa palustris</i>	S3
Rose	<i>Rosa sp.</i>	N/A
Allegheny Blackberry	<i>Rubus allegheniensis</i>	S5
Smooth Blackberry	<i>Rubus canadensis</i>	S5
Red Raspberry	<i>Rubus idaeus</i>	S5
Dwarf Red Raspberry	<i>Rubus pubescens</i>	S5
Small Bristleberry	<i>Rubus setosus</i>	S4?
Garden Sorrel	<i>Rumex acetosa</i>	SE
Bebb's Willow	<i>Salix bebbiana</i>	S5
Pussy Willow	<i>Salix discolor</i>	S5
Prairie Willow	<i>Salix humilis</i>	S5

Table 1 Vascular Plant Species found during the Spring and Fall Vegetation Surveys		
Common Name	Binomial	Population Status (ACDC)
Shining Willow	<i>Salix lucida</i>	S5
A Willow	<i>Salix x smithiana</i>	SE
Red Elderberry	<i>Sambucus racemosa</i>	S5
Cottongrass Bulrush	<i>Scirpus cyperinus</i>	S5
Mad Dog Skullcap	<i>Scutellaria lateriflora</i>	S5
Robbins Squaw-Weed	<i>Senecio robbinsii</i>	S4S5
Pearl-Millet/ Yellow Foxtail	<i>Setaria glaucum</i>	SE
Hemlock Water-Parsnip	<i>Sium suave</i>	S5
Climbing Nightshade	<i>Solanum dulcamara</i>	SE
White Goldenrod	<i>Solidago bicolor</i>	S5
Canada Goldenrod	<i>Solidago canadensis</i>	S5
Broad-Leaved Goldenrod	<i>Solidago flexicaulis</i>	S5
Downy Goldenrod	<i>Solidago puberula</i>	S5
Rough-Leaf Goldenrod	<i>Solidago rugosa</i>	S5
Field Sowthistle	<i>Sonchus arvensis</i>	SE
European Mountain-Ash	<i>Sorbus aucuparia</i>	SE
Fresh Water Cordgrass	<i>Spartina pectinata</i>	S5
Narrow-Leaved Meadow-Sweet	<i>Spiraea alba</i>	S5
Hardhack Spiraea	<i>Spiraea tomentosa</i>	S5
Ladies'-Tresses	<i>Spiranthes lacera</i>	S5
Hooded Ladies'-Tresses	<i>Spiranthes romanzoffiana</i>	S3S4
Common Tansy	<i>Tanacetum vulgare</i>	SE
Tall Meadow-Rue	<i>Thalictrum pubescens</i>	S5
New York Fern	<i>Thelypteris noveboracensis</i>	S5
Marsh St. John's-Wort	<i>Triadenum fraseri</i>	S5
Northern Starflower	<i>Trientalis borealis</i>	S5
Low Hop Clover	<i>Trifolium campestre</i>	SE
Nodding Trillium	<i>Trillium cernuum</i>	S4
Ill-Scent Trillium	<i>Trillium erectum</i>	S3
Eastern Hemlock	<i>Tsuga canadensis</i>	S4S5
Broad-Leaf Cattail	<i>Typha latifolia</i>	S5
American Elm	<i>Ulmus americana</i>	S4
Late Lowbush Blueberry	<i>Vaccinium angustifolium</i>	S5
Velvetleaf Blueberry	<i>Vaccinium myrtilloides</i>	S5
Mountain Cranberry	<i>Vaccinium vitis-idaea</i>	S5
Great Mullein	<i>Verbascum thapsus</i>	SE
American Speedwell	<i>Veronica americana</i>	S5
Gypsy-Weed	<i>Veronica officinalis</i>	S5SE
Possum-Haw Viburnum	<i>Viburnum nudum</i>	S5
Marsh Blue Violet	<i>Viola cucullata</i>	S5
Lance-Leaf Violet	<i>Viola lanceolata</i>	S5
Woolly Blue Violet	<i>Viola sororia</i>	S5
Arrow-Leaved Violet	<i>Viola sagittata</i>	S3S4