Tamerlane Ventures Inc.

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TAMERLANE PINE POINT PROJECT
2006 RARE PLANT SURVEY
PINE POINT, NT

1740149.001

October 2006

CREATING AND DELIVERING BETTER SOLUTIONS

eba

PAGE

TABLES

FIGURES

APPENDICES

1.0 INTRODUCTION

A rare plant survey (RPS) was completed, during the summer of 2006, as part of the ongoing environmental baseline investigations being conducted by EBA Engineering Consultants Ltd (EBA) for Tamerlane Ventures Inc. (Tamerlane). Initial environmental baseline surveys were completed in 2005, including vegetation resources, however due to timing constraints, the rare plant survey (RPS) was postponed to 2006. The intent of the 2005 vegetation/ELC field program was to map ecosites based on common vegetation characteristics (EBA 2005). Rare plants are often found in unique habitats that are not sampled within an ELC program so a RPS is conducted separately but also serves to supplement the ELC program.

Tamerlane is proposing a pilot project in the Pine Point area, located east of Hay River, Northwest Territories (Figure 1). The proposed pilot project footprint consists of five facility types (buildings, freeze line, power line and roads, shaft, and stockpile) and surface delineation of the underground ore zone. The project footprint covers approximately 7 ha. The study area is 98 ha and encompasses all the proposed facilities (Figure 2).

The study area is located on the cusp of the Boreal Plains and the Taiga Plains Ecozones and encompasses the Slave River and Hay River Lowland Ecoregions. The area is characterized by short, cool summers and long, cold winters. The ecoregion is classified as having a sub-humid mid-boreal ecoclimate. Surficial deposits were influenced by the flooding and recession of Glacial Lake McConnell. Sand and gravel deposits are common (Day 1972). Luvisols and Brunisols are the dominant upland soil, with Gleysolic and Organic soils dominant in the low-lying areas. Sporadic discontinuous permafrost is common in the organic deposits. Jack pine and trembling aspen are common seral species, while white spruce and black spruce dominate later successional stands. Poorly drained fens and bogs are covered with low, open stands of larch, black spruce and ericiaceous shrubs. (Environment Canada, 2000)

2.0 OBJECTIVES

The objectives of the RPS were:

- To map the ecosites of the study area.
- To determine if any rare plants are present within areas that will be directly affected by the development footprint.

3.0 METHODS

Prior to conducting the rare plant survey, a list of rare plants and plant communities of special concern potentially occurring in the study area, and in similar habitats in the region (Slave River and Hay River Lowland Ecoregions of the Boreal Plains and the Taiga Plains Ecozones, respectively), were obtained from Department of Resources, Wildlife and Economic Development (RWED) and McJannet et al. (1995). A rare plant list, appropriate for this landscape, was generated which includes 108 species (Appendix A). A variety of vascular plant references (e.g. Anderson 1974, Brodo et al. 2001, Douglas et al. 1981, Hulten 1968, Kershaw et al. 2001, McJannet et al. 1995, Porsild and Cody 1980, and Vitt et al. 1988) were consulted for taxonomic diagnostic information.

The RPS survey focused on those areas that would be directly impacted by the project footprint. Survey methods followed Alberta Native Plant Council (ANPC) guidelines for qualitative and quantitative rare plant surveys (Lancaster 2000). Other references were consulted in refining the field approach for the rare plant survey. This included identifying ecosites, landscape features and landscape anomalies for field examination.

Fieldwork for the RPS was conducted in two parts. The first survey was completed from July 10 and 11, 2006, and the second survey was completed from August 14 and 15, 2006. The survey occurred at two times during the growing season to respond to plants that flower in response to the photoperiod (long, short or neutral day-length). This also allowed for the inclusion of plants with a neutral response to photoperiod.

Along with the RPS, ecosites within the study area were also identified and mapped. This mapping is supplemental to the 2005 mapping. The 2005 mapping was completed at a 1:50,000 scale. The RPS is completed on a much smaller scale (1:5,000) allowing for a more detailed map product. The identification of the ecosites within the study area allowed for a focussed approach when conducting the RPS.

4.0 RESULTS

4.1 ECOSYSTEM UNITS

The 2005 ecological land classification identified the study area as Labrador tea-mesic (Beckingham and Archibald 1996). Current mapping has identified six ecosites within the study area: bearberry Pj, Canada buffalo berry-green alder, graminoid fen, Labrador tea-mesic, shrubby fen and disturbed (Figure 3). Site photos are provided in Appendix B.

Bearberry Pj

This ecosite occurs on xeric sites, with rapidly drained soils on coarse textured glaciofluvial parent material. It has a poor to very poor nutrient regime. Jack pine (*Pinus banksiana*) is the common tree species while bearberry (*Arctostaphylos uva ursi*) is the common shrub. Lichens are common.

Canada buffalo-berry – green alder

This is the most productive forest ecosite of the region, and is generally found on sites that have a moderate nutrient regime with a submesic to subhygric moisture regime. White spruce is the climatic climax species, but seral communities will contain varying amounts pine, aspen and paper birch. Canada buffalo berry (*Shepherdia canadensis*), common juniper (*Juniperus communis*), saskatoon (*Amelanchier alnifolia*), and rose are common shrubs. Bearberry, false toadflax (*Geocaulum lividum*), twinflower (*Linnaea borealis*) and northern bedstraw (*Galium boreale*) are common in the herb layer. There was no green alder (*Alnus crispa)* found in this ecosite phase.

Graminoid Fen

Graminoid fens are poorly drained with a hydric moist regime and a poor to medium nutrient regime. It may be more appropriate to consider these as graminoid bogs versus fens. Common cattail (*Typha latifolia*) and sedges (*Carex* spp) are common. The graminoid fen in the centre of the study area had shallow open water with approximately 20% willow shrub cover.

Labrador tea – mesic

This vegetation community is the most commonly occurring within the study area. It is found on upland sites that have shallow organic deposits. It has a very poor to medium nutrient regime with a mesic to submesic moisture regime. Black spruce (*Picea mariana*) is common in mature stands and jack pine dominates mature seral communities. Common juniper (*Juniperus communis*), rose (*Rosa acicularis*) and bog cranberry (*Vaccinium vitis idaea*) are common shrubs. The northwest portion of the study area has been burnt and this area is dominated by jack pine regeneration.

Shrubby Fen

The shrubby fen in the study area has black spruce and larch (*Larix laricina*) in the shrub layer and sedges, grass and cattails are common. There is approximately 20% shallow open water present. It has medium nutrient regime and a subhydric to hydric moisture regime.

Disturbed

The disturbed areas mainly consist of existing gravel pits. Very little vegetation cover is present in these areas. Common species include aspen (*Populus tremuloides*), strawberry (*Frageria vesca*), and American vetch (*Vicia americana*).

4.2 SURVEY RESULTS

A total of 13.1 km of transects were surveyed within the seven ecosites and 3.9 km of transects were surveyed for the development footprint. This represents a survey intensity of 128 m/ha and 560 m/ha, respectively. There are no guidelines for survey intensity, however we feel that this represents a high sampling intensity and easily meets the

requirements of due diligence. All species observed within the study area were recorded. A complete species list is provided in Appendix C.

Survey locations are shown in Figure 4. Table 1 provides the level of effort for each ecosite. All proposed facilities were surveyed, with the exception of the shaft which represents a very small portion of the disturbance area. The level of effort for each facility is provided in Table 2.

No rare plants were observed in either the July or August survey. It is important to note that a survey of this type can not confirm the absence of these species, it can only confirm their presence.

TABLE 1: LEVEL OF SURVEY EFFORT FOR EACH ECOSITE

Ecosite	Total Area (ha)	Transect Length (m)
Bearberry Pj	1.0	235
Canada buffalo-berry-green-alder	3.9	970
Disturbed	19.0	2713
Graminoid fen	3.2	1253
Labrador tea-mesic	51.3	6269
Labrador tea-mesic (burnt)	19	1262
Shrubby fen	4.8	360
Total[1]	**102.2**	**13062**

[1] The total area surveyed is slightly larger than the study area because a small portion of Canada buffalo-berry-green alder ecosite outside the study (to the north) area was surveyed.

TABLE 2: LEVEL OF SURVEY EFFORT FOR EACH DEVELOPMENT FOOTPRINT

Footprint	Total Area (ha)	Transect Length (m)
Buildings	0.57	675
Freeze Line	1.21	750
Ore Zone (minimal disturbance)	0.94	244
Roads and Powerline	3.73	1942
Shaft	0.006	0
Stockpile	0.69	363
Total	**7.1**	**3974**

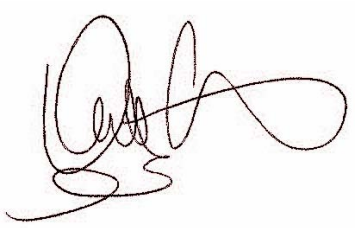
5.0 LIMITATIONS OF LIABILITY

Recommendations presented herein are based on an assessment as described in Section 3.0. This report has been prepared for the exclusive use of Tamerlane Ventures Inc. for the specific application described in Section 1.0 of this report. It has been prepared in accordance with generally accepted environmental practices. No other warranty is made, either expressed or implied. Professional judgment has been applied in developing the recommendations of this report. For further limitations, reference should be made to the attached General Conditions.

6.0 CLOSURE

We trust this report meets your present requirements. Should you have any questions or comments, please contact the undersigned at your convenience.

Respectfully submitted,
EBA Engineering Consultants Ltd.



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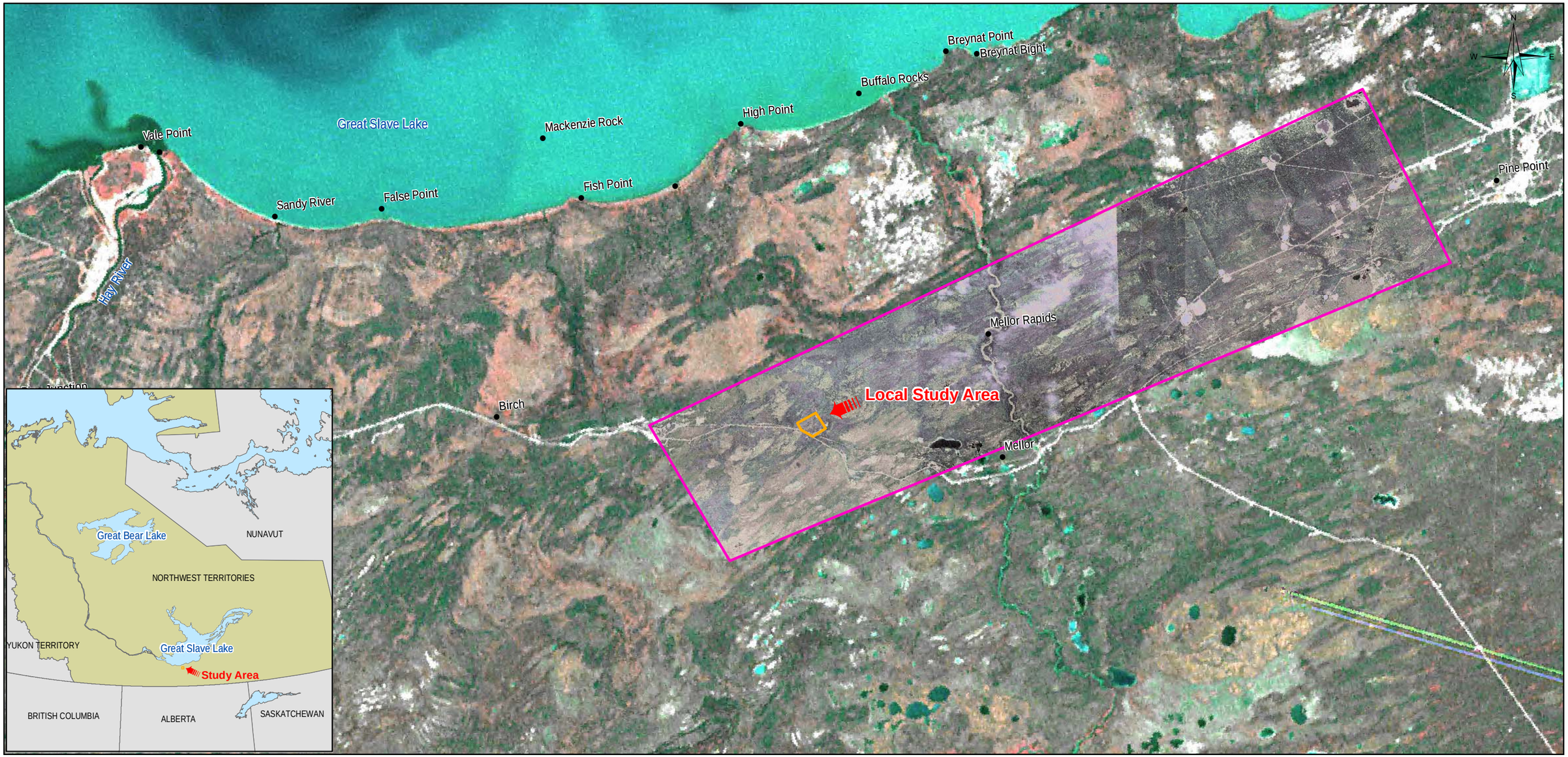
FIGURES



LEGEND

- Local Study Area (LSA)
- Regional Study Area (RSA)

NOTES

Base data source: Quickbird Imagery (Digital Globe)
acquired Aug. 31 and Sept. 02, 2005
Landsat 7
National Atlas of Canada

PINE POINT PROJECT

Overview of Study Area

PROJECTION	DATUM
UTM ZONE 11	NAD83

Scale: 1:200,000

1 0.5 0 1 2 3 4 5

Kilometres

FILE NO.
1740149_Veg_Map001.mxd

PROJECT NO.	DWN	CKD	REV
1740149	BGP	RH	4

OFFICE	DATE
EBA-VANC	October 25, 2006

EBA Engineering Consultants Ltd.

Figure 1

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LEGEND

- Local Study Area (LSA)
- Footprint

NOTES

Base data source: Quickbird Imagery (Digital Globe) acquired Aug. 31 and Sept. 02, 2005

PINE POINT PROJECT

Study Area and Proposed Development

PROJECTION	DATUM
UTM Zone 11	NAD83

Scale: 1:5,000

100 50 0 100

Meters

EBA Engineering Consultants Ltd.

FILE NO.: 1740149_Veg_Map002

PROJECT NO.	DWN	CKD	REV
1740149	KMW	SH	1

OFFICE	DATE
EBA-VANC	August 30, 2006

Figure 2

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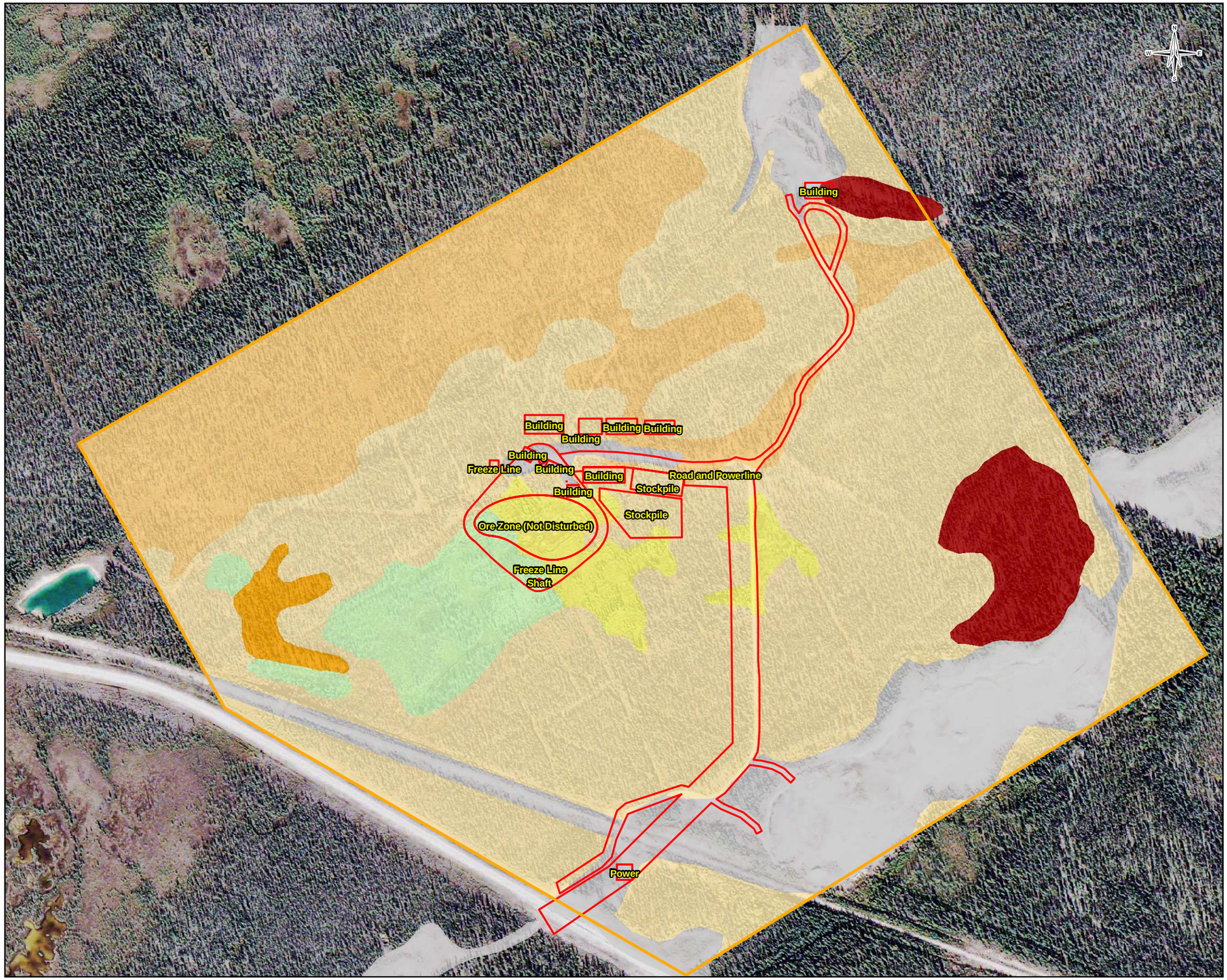

LEGEND

- Local Study Area (LSA)
- Footprint

Ecosites

- Bearberry Pj
- Canada Buffalo-Berry-Green Alder
- Labrador Tea-Mesic
- Labrador Tea-Mesic (burnt)
- Shrubby Fen
- Graminoid Fen
- Disturbed

NOTES

Base data source: Quickbird Imagery (Digital Globe) acquired Aug. 31 and Sept. 02, 2005

PINE POINT PROJECT

Ecosites within the Study Area

PROJECTION	DATUM
UTM Zone 11	NAD83

Scale: 1:5,000

100 50 0 100

Meters

EBA Engineering Consultants Ltd.

FILE NO.			
1740149_Veg_Map003			
PROJECT NO.	DWN	CKD	REV
1740149	KMW	SH	0
OFFICE	DATE		
EBA-VANC	August 28, 2006		

Figure 3

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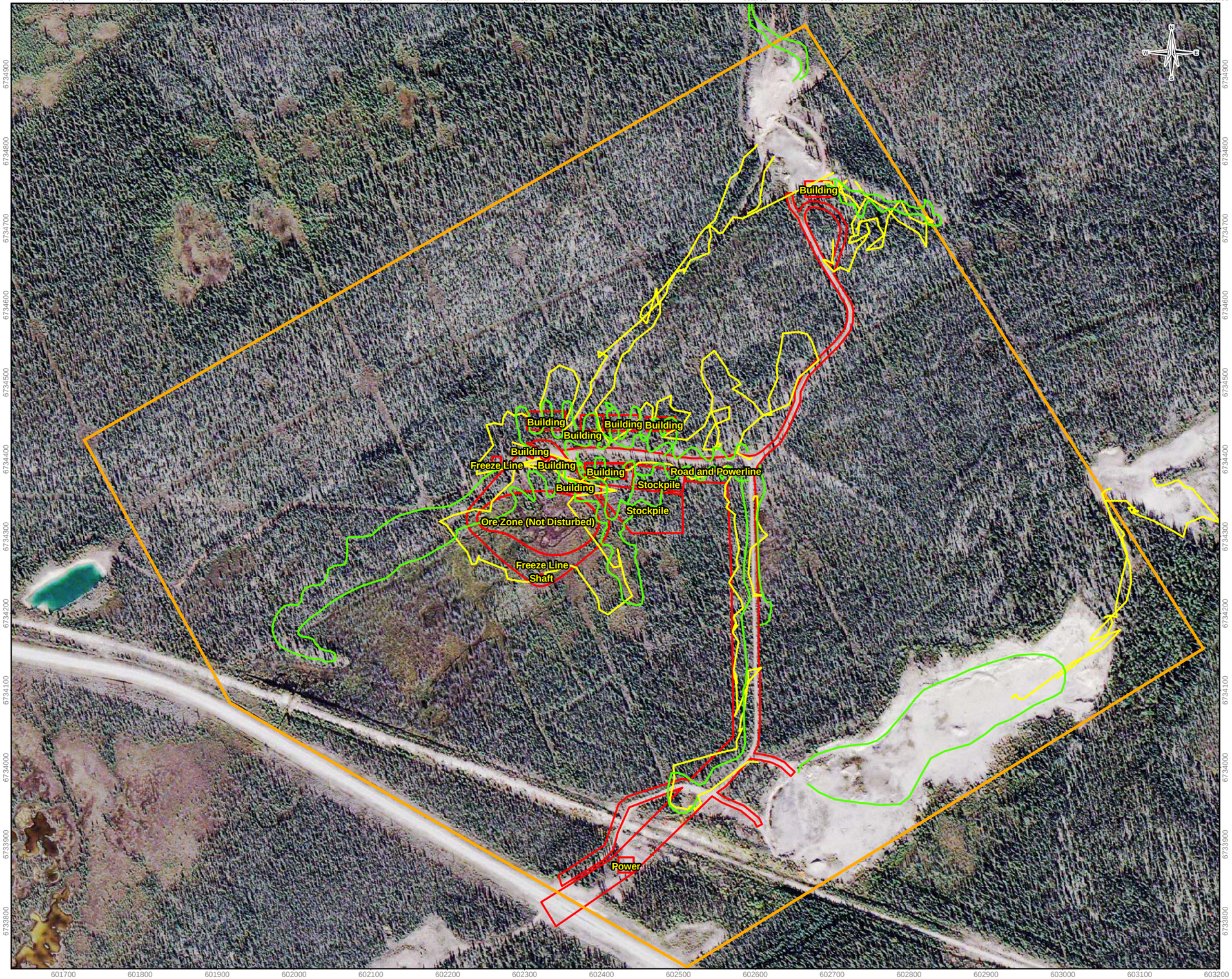

LEGEND

- Local Study Area (LSA)
- Footprint
- Survey Track - July
- Survey Track - August

NOTES

Base data source: Quickbird Imagery (Digital Globe) acquired Aug. 31 and Sept. 02, 2005

PINE POINT PROJECT

Rare Plant Survey Transects

PROJECTION: UTM Zone 11			DATUM: NAD83
Scale: 1:5,000 (100 50 0 100 Meters)			
FILE NO.: 1740149_Veg_Map004			
PROJECT NO.: 1740149	DWN: KMW	CKD: SH	REV: 1
OFFICE: EBA-VANC	DATE: August 30, 2006		

EBA Engineering Consultants Ltd.

Figure 4

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APPENDIX

APPENDIX A POTENTIAL RARE PLANT LIST FOR PINE POINT STUDY AREA

Potential Rare Plant List for Pine Point Study Area			
Scientific Name	Common Name	Habitat	Comments
Acorus americanus (Acorus calamus)	Several Vein Sweetflag	wetlands	Also known as A. calamus (H150)
Adoxa moschatellina	Musk-Root	moist, partly shaded woods and thickets	
Agastache foeniculum	Blue Giant Hyssop	thickets and grassy clearings	
Agoseris aurantiaca	Orange-Flowered False- Dandelion	meadows, hotsprings and disturbed areas	
Agrostis exarata	Spike Bent	sedge meadows	
Alisma triviale (Alisma plantago-aquatica var. americanum)	Northern Water Plantain	marshes and muddy areas	Also known as Alisma plantago-aquatica var. americanum (H150)
Apocynum cannabinum (Apocynum sibiricum)	Clasping-Leaf Dogbane spp	exposed river banks	
Arabis holboellii	Holboell Rock Cress	dry, open areas and on shallow soil	
Arabis kamchatica (Arabis lyrata var. kamchatica)	Lyre-Leaf Rock Cress spp	sandy open areas	Was known as Arabis lyrata (H152)
Artemisia ludoviciana	White Sagebrush	open woodlands and grassy areas	
Asplenium trichomanes-ramosum	Green Spleenwort spp	moist rocky slopes amd crevices	
Aster pauciflorus		slat plains and wet, marshy areas	
Astragalus canadensis	Canadian Milk Vetch spp	river banks and moist open woods	
Atriplex subspicata	Orache	slat plains	
Botrychium minganense	Mingan's Moonwort spp	grassy meadows	
Botrychium multifidum	Leathery Grape- Fern	grasslands	
Botrychium spathulatum	Spoon-Leaf Moonwort	dry, south-facing slopes	
Callitriche heterophylla (Callitriche anceps)	Water Starwort spp	shallow ponds	Also known as Callitriche anceps
Caltha palustris	Marsh marigold	shallow water and wet marshy areas	
Carex arcta	Northern Clustered Sedge	wet woodlands bogs, marshes and sandy beaches	
Carex capitata spp. Arctogena			
Carex crawfordii	Crawford sedge	damp meadows	
Carex deweyana	Short-Scale sedge	open woods and river bank thickets	
Carex duriuscula (Carex stenophylla)	Carex spp	dry grasslands and slough edges	Also known as Carex stenophylla (H151)
Carex heleonastes	Hudson Bay Sedge	bogs	
Carex peckii	Peck's Sedge	open woodlands	
Carex prairea	Prairie Sedge	bogs	
Carex retrorsa	Retorse Sedge	woodland marshes	
Carex sychnocephala	Many- headed Sedge	wet places and open woodland meadows	
Carex trisperma	Three-seed Sedge	bogs	
Chamaerhodos erecta (Chamaerhodos ssp. nuttallii)	Rose Chamaerhodos	dry calcareous slopes	
Chenopodium rubrum	Coast-Blite Goosefoot	salt plains and disturbed soils	
Chimaphila umbellata	Common Wintergreen	woodlands	
Cirsium drummondii	Drummond Thistle	dry meadows and disturbed areas	
Cirsium foliosum	Leafy Thistle	sedge and grass meadows	
Cornus suecica	Swedish Dwarf Dogwood	wet, mossy areas	
Crassula aquatica (Tillaea aquatica)	Water Pigmy-weed	shallow ponds	Also kmown as Tillaea aquatica (H152)
Danthonia spicata	Poverty Wild Oat Grass	rocky places	Formerly identified as D. intermedia (H151)
Descurainia pinnata	Pinate Tansy-Mustard	sandy beaches and disturbed areas	

Potential Rare Plant List for Pine Point Study Area			
Scientific Name	Common Name	Habitat	Comments
Distichlis spicata	Coastal Salt Grass	salt plains	
Dryopteris carthusiana (D. spinulosa)	Spinulose Shield Fern spp.	rich woods	
Dryopteris expansa (D. dilatata)	Spreading Woodfern	moist woods and slopes	
Elatine triandra	Long-stemmed Waterwort	muddy shores and shallow pond margins	Was named Elatine rubella (triandra)
Eleocharis compressa	Flat-Stemmed Spike Rush	calcareous muddy and sandy shores	
Elymus canadensis	Canada Wild-Rye	sandy and gravelly areas	
Epilobium leptophyllum	Linear-Leaved Willow Herb	marshes, sloughs, bogs and sedge meadows	
Euthamia graminifolia (Solidago graminifolia)	Flat-Top Fragrant-Golden- Rod	sandy, silty, and gravelly river banks and flats	
Festuca viviparoidea ssp. viviparoidea (Festuca vivipara)	Northern Fescue	sandy and rocky areas	Was known as Festuca vivipara (H151)
Gentiana affinis	Prairie Gentian	gravelly and silty river bars	
Gentianopsis macounii (Gentiana macounii)	Macoun's Gentian	gravelly beaches, marly shores and marshy areas	
Grindelia squarrosa	Broadleaf Gumweed	salt plains	
Helictotrichon hookeri (Avenula hookeri)	Hooker's Alpine Oat Grass	dry grassland	Also known as Avenula hookeri (H151)
Heuchera richardsonii	Richardson Alumroot	woodland meadows	
Hudsonia tomentosa	Sand Heather	jack pine woods and sand blow-outs	
Impatiens capensis	Spotted Jewel-Weed	wet woodlands	
Juncus dudley	Dudley's Rush	wet calcareous meadows and river banks	
Juncus stygius (Juncus stygius ssp. americanus)	Moor Rush	wet margins of bogs and marly seepages	Also known as Juncus stygius ssp. Americanus (H150)
Juncus trifidus	Highland Rush	dry, sandy or gravelly areas	
Juncus vaseyi	Vasey Rush	moist margins of lakes, rivers, sloughs	
Limosella aquatica	Northern Mudwort	wet, muddy or sandy pond margins	
Liparis loeselii	Loesel's Tway-blade	fens	
Lobelia dortmanna	Water Lobelia	shallow, sandy shores of lakes and ponds	
Lycopus uniflorus	Northern Bugleweed	sandy margins of lakes and streams	
Malaxis paludosa	Bog Adder's Mouth	treed bogs	
Mertensia paniculata (Incl var. alaskana)	Bluebell	open woods and river banks	
Mimulus guttatus	Common Large Monkey Flower	wet meadows and streams	
Monarda fistulosa var. menthifolia	Wild Bergamot Bee-Balm	river banks	
Myriophyllum alterniflorum	Alternate-Flower Water Milfoil	shallow lakes and ponds	
Najas flexilis	Slender Naiad	shallow lakes and ponds	
Nuphar polysepala (Nuphar lutea ssp polysepala)	Yellow Pond lily	lakes and slow moving streams	
Nymphaea leibergii (syn Nymphaea tetragona ssp. leibergii)	Dwarf White Water-lily	shallow lakes and slow moving streams	
Orthocarpus luteus	Yellow Owl's Clover	sandy river banks and lake shores	
Osmorhiza depauperata	Blunt Fruited Sweet-Cicely	rich woods	
Oxytropis sericea (O. sericea. ssp. spicata, Oxytropis spicata) (see Oxytropis campestris)	White Point-Vetch	grasslands and river terraces	See Oxytropis campestris(H153)
Pedicularis macrodonta (syn Pedicularis parviflora var. macrodonta (Richards.)	Muskeg Lousewort	bogs and marshes	syn Pedicularis parviflora var. macrodonta (Richards)
Pellaea glabella	Smooth Cliff Brake spp.	limestone cliffs	ssp occidentalis
Phragmites australis (Phragmites communis)	Common Reed	marshes and lake shores	Was known as Phragmites communis (H151)
Physostegia leidinghamii (Physostegia parviflora)	Ledingham's False Dragonhead	edges of rivers, lakes and ditches	

Potential Rare Plant List for Pine Point Study Area			
Scientific Name	Common Name	Habitat	Comments
Platanthera (Habenaria) orbiculata	Large Round-leaved Orchid	spruce and larch forests	
Poa secunda (incl. Poa scabrella; Poa buckleyana)	Curly Blue Grass	fens	
Polygonum amphibian var emersum		stream banks and wet meadows	
Potamogeton foliosus	Leafy Pondweed	shallow still waters	
Potamogeton illinoensis	Illinois Pondweed	still waters	
Potamogeton natans	Floating Pondweed	still waters	
Potamogeton obtusifolius	Blunt-Leaf Pondweed	shallow lakes and ponds	
Potamogeton robbinsii	Flatleaf Pondweed	still waters	
Prunus virginiana	Choke Cherry	thickets	
Pyrrocoma uniflora (Haplopappus uniflorus, H. lanceolatus subspp)	one-flowered ironplant	salt plains	
Ranunculus hispidus (Ranunculus septentrionalis)	Hispid Buttercup	willow thickets and slough margins	
Ranunculus pensylvanicus	Bristly Crowfoot	disturbed and marshy areas	
Ranunculus rhomboideus	Prairie Buttercup	salt plains	
Rhynchospora alba	White Beakrush	fens and bogs	
Rorippa barbareifolia	Hoary Yellow Cress	disturbed sites	
Rorippa crystallina	Asiatic Cress/ Mackenzie River Yellowcress	carex meadows and marshes	
Ruppia cirrhosa (Ruppia spiralis)	Wigeon-Grass	shallow lakes	Also known as Ruppia spiralis (H150)
Salicornia rubra	Western Glasswort	salt plains	
Salix raupii	Raup's Willow	gravel floodplains and treed bogs	
Sarracenia purpurea	Northern Pitcher Plant	bogs and fens	
Scirpus rollandii		marly lake shores and hot springs	
Scirpus rufus		wet river banks and saline meadows	
Scirpus maritimus		salt plains	
Senecio eremophilus	Desert Groundsel	woodland meadows and disturbed sites	
Sparganium eurycarpum	Giant Bur-reed	shallow ponds and sloughs	
Spartina gracilis	Alkali Cord Grass	salt plains	
Spartina pectinata	Freash Water Cord Grass	salt plains	
Spergularia salina (Spergularia marina)	Saltmarsh Sandspurry	salt plains	
Symphoricarpos albus	Snowberry	grasslands and open woods	
Valeriana dioica (Valeriana eptentrionalis)	Wood Valerian	fens and lake shores	
Viola canadensis (Viola rugulosa)	Canada Violet	woodlands along streams and hotsprings	

APPENDIX

APPENDIX B PHOTOS OF THE STUDY AREA

Photo 1
Graminoid fen ecosite co-dominated by cattails and sedges along east side of existing north-south assess road

Photo 2
Lobelia kalmii in gramionoid fen ecosite

Photo 3
Canada - buffalo berry-green alder ecosite at proposed explosives storage location, at north end of study area.

Photo 4
Labrador - tea mesic ecosite in background with shrubby fen in foreground.
Note *Potentilla fruticosa* shrubs with yellow flowers in foreground.

Photo 5
Old ditch with *Equisetum* within Labrador tea - mesic ecosite

Photo 6
Habenaria hyperborea along edge of ditch within Labrador tea - mesic ecosite

Photo 7
Shrubby fen in foreground; graninoid fen in center; shrub & tree fen behind and Labrador tea mesic in background

Photo 8
Regeneration on old gravel pit at south end of access road

APPENDIX

APPENDIX C SPECIES OBSERVED DURING THE 2006 RARE PLANT SURVEY

VEGETATION SPECIES LIST		
Vegetation Type	Latin Name	Common Name
Plant	*Achillea millefolium (Includes Achillea lanulosa & Achillea nigrescens)*	Common Yarrow
Plant	*Amelanchier alnifolia*	Saskatoon, Serviceberry
Plant	*Anemone multifida*	Hudson Bay Anemone
Plant	*Anemone parviflora*	Small- Flower Anemone
Plant	*Arctostaphylos uva-ursi*	Bear Berry
Plant	*Arnica alpina ssp. Angustifolia*	
Plant	*Arnica sp.*	Arnica sp.
Plant	*Aster borealis*	marsh aster
Plant	*Aster ciliolatus*	Lindley's aster
Plant	*Aster puniceus*	purple-stemmed aster
Plant	*Aster sibiricus*	Arctic Aster
Plant	*Aster sp.*	Aster sp.
Plant	*Astragalus eucosmus*	Pretty Milk Vetch
Plant	*Betula nana (Betula glandulosa)*	Arctic Dwarf Birch (Dwarf Birch)
Plant	*Betula papyrifera (Betula papyrifera var. commutata)*	Paper birch (white birch)
Plant	*Campanula rotundifolia*	American Harebell
Plant	*Carex lasiocarpa*	Slender Sedge
Plant	*Carex siccata*	Dry-Spike Sedge
Plant	*Carex spp.*	Sedge spp.
Plant	*Carex utriculata*	Northwest Territory Sedge
Plant	*Castilleja raupii*	Ruap Indian-Paintbrush
Plant	*Cirsium flodmanii*	Flodman's thistle
Plant	*Comarum palustre (Potentilla palustris)*	Marsh Cinqefoil
Plant	*Cornus canadensis*	Dwarf Dogwood
Plant	*Dasiphora fruticosa (Potentilla fruticosa)*	Shrubby Cinquefoil
Plant	*Drosera rotundifolia*	Round-leaved Sundew
Plant	*Empetrum nigrum*	Black Crowberry
Plant	*Epilobium angustifolium (Chamerion angustifolium)*	Fireweed
Plant	*Equisetum arvense*	Field Horsetail
Plant	*Equisetum hyemale var. affine*	Scouring Rush
Plant	*Equisetum pratense*	Meadow Horsetail
Plant	*Equisetum scirpoides*	Dwarf Scouring Rush
Plant	*Equisetum sp.*	Horsetail / Rush
Plant	*Equisetum variegatum*	Variegated Horsetail
Plant	*Eriophorum angustifolium (incl. Eriophorum triste)*	Cotton Grass spp
Plant	*Fragaria vesca*	Woodland Strawberry
Plant	*Fragaria virginiana*	Virginia Strawberry
Plant	*Galium boreale*	Northern Bedstraw
Plant	*Galium trifidum (includes Galium brandegei & Galium tinctorium)*	Small Bedstraw
Plant	*Galium triflorum*	Sweet-scented Bedstraw
Plant	*Geocaulon lividum*	Northern Comandra spp
Plant	*Hedysarum alpinum*	Alpine Sweet-Vetch
Plant	*Hieracium umbellatum (H. scabriusculum)*	Narrow-leaved Hawkweed
Plant	*Juncus balticus (Juncus balticus var. littoralis)*	Baltic Rush
Plant	*Juncus sp.*	Rush sp.
Plant	*Juniperus communis*	Common Juniper (ground juniper)

VEGETATION SPECIES LIST		
Vegetation Type	Latin Name	Common Name
Plant	*Juniperus horizontalis*	Creeping Juniper
Plant	*Larix laricina*	American Larch (Tamarack)
Plant	*Ledum groenlandicum*	Common Labrador Tea
Plant	*Linnaea borealis*	Twinflower
Plant	*Lobelia kalmii*	Kalm's Lobelia
Plant	*Lonicera dioica*	Mountain Honeysuckle
Plant	*Lycopodium annotinum*	Stiff Club Moss
Plant	*Lycopodium clavatum (see Lucopodium lagopus)*	Running Pine
Plant	*Maianthemum trifolium (Smilacina trifolia)*	Three-leaf False Solomon's Seal
Plant	*Myrica gale*	Sweet Bayberry
Plant	*Oxytropis deflexa (O. deflexa var. foliolosa, var. parviflora, var. sericea)*	Pendent-pod Point-Vetch
Plant	*Parnassia kotzebuei*	Kotzebue's Grass-Of - Parnassus
Plant	*Parnassia palustris (incl. P. palustris var. montanensis)*	Marsh Grass-of-Parnassus
Plant	*Petasites palmatus (= P. frigidus var. palmatus; See P. frigidus)*	Sweet Coltsfoot spp
Plant	*Petasites sagittatus (=P. frigidus var. sagittatus; See P. frigidus)*	Arrow-Leaved Sweet-Coltsfoot
Plant	*Picea glauca*	White Spruce
Plant	*Picea mariana*	Black Spruce
Plant	*Pinguicula vulgaris*	Common Butterwort
Plant	*Pinus banksiana (Pinus divaricata)*	Jack Pine
Plant	*Platanthera (Habenaria) hyperborea (aquilonis)*	Leafy Northern Green Orchid
Plant	*Platanthera (Habenaria) sp.*	Orchid sp.
Plant	*Populus balsamifera*	Balsam Poplar
Plant	*Populus tremuloides*	Quaking Aspen
Plant	*Pyrola asarifolia*	Pink-flowered Wintergreen
Plant	*Rhinanthus minor (ssp. borealis, Rhinanthus borealis)*	Yellow Rattle spp
Plant	*Ribes lacustre*	Bristly Black Current
Plant	*Ribes oxyacanthoides*	Canada Gooseberry
Plant	*Rosa acicularis*	Prickly Rose
Plant	*Rubus chamaemorus*	Cloudberry
Plant	*Rubus idaeus (Rubus idaeus ssp. strigosus)*	Wild Raspberry
Plant	*Rubus pubescens var. pubescens*	Dwarf Red Raspberry
Plant	*Rumex crispus*	Curled Dock
Plant	*Salix bebbiana (S. rostrata)*	Bebb Willow (long-beaked willow)
Plant	*Salix pedicellaris*	Bog Willow
Plant	*Salix reticlata*	Net-veined Willow
Plant	*Salix spp.*	Willow spp.
Plant	*Scirpus sp.*	Bulrush sp.
Plant	*Scutellaria galericulata*	Hooded Skullcap
Plant	*Shepherdia canadensis*	Canda Buffalo-Berry
Plant	*Smilacina stellata*	Star-flowered False Soloman's-seal
Plant	*Solidago canadensis (S. lepida subspp)*	Canada Goldenrod
Plant	*Solidago spathulata*	Coast Goldenrod
Plant	*Spiranthes romanzoffiana*	Hooded Ladies' -tresses
Plant	*Taraxacum officinale (including T. maurolepium; T. lapponicum; T. lacerum; T. pellianum; T. pseudonorvegicum; T. integratum; T. dumentorum; T. hyperboreum)*	Common Dandelion
Plant	*Tofieldia (Triantha) glutinosa (Tofieldia occidentalis)*	Sticky False Asphodel

VEGETATION SPECIES LIST		
Vegetation Type	Latin Name	Common Name
Plant	*Typha latifolia*	Broad -leaf Cat-tail
Plant	*Vaccinium caespitosum*	Dwarf Huckleberry
Plant	*Vaccinium myrtilloides*	Velvetleaf Blueberry
Plant	*Viburnum edule*	Squashberry
Plant	*Vicia americana*	American Purple Vetch
Plant	*Viola sp.*	Violet
Plant	*Zigadenus elegans*	Death-Camas
Moss	*Aulacomnium palustre*	Glow moss
Moss	*Catoscopium nigritum*	
Moss	*Ceratodon purpureus*	Purple horn-toothed moss
Moss	*Dicranum undulatum*	Wavy dicranum
Moss	*Ditrichum flexicaule*	Slender stemmed hair moss
Moss	*Drepanocladus fluitans*	Water hook moss
Moss	*Drepanocladus uncinatus*	Sickle moss
Moss	*Helodium blandowii*	Blandow's feather moss
Moss	*Leptobryum pyriforme*	Long-necked bryum
Moss	*Pleurozium schreberi*	Big Red Stem
Moss	*Ptilium crista-castrensis*	Knight's plume moss
Moss	*Rhytidium rugosum*	Pipe cleaner moss
Moss	*Sphagnum capillifoium*	Small red peat moss
Moss	*Sphagnum fuscum*	Common brown sphagnum
Moss	*Sphagnum riparium*	Shore growing peat moss
Moss	*Tomenthypnum nitens*	Golden moss
Moss	*Tortella fragilis*	Hairy screw moss
Lichen	*Cetraria cucullata*	
Lichen	*Cetraria islandica*	True icelandic lichen
Lichen	*Cladina mitis*	Green reindeer lichen
Lichen	*Cladina rangiferina*	Gray reindeer lichen
Lichen	*Cladina stellaris*	Star-tipped reindeer lichen
Lichen	*Cladonia borealis*	Boreal pixie cup
Lichen	*Cladonia botrytes*	Wooden soldiers
Lichen	*Cladonia coniocraea*	Common powderhorn
Lichen	*Cladonia cornuta ssp. Cornuta*	Bighorn cladonia
Lichen	*Cladonia gracilis*	Smooth cladonia
Lichen	*Cladonia pyxidata*	Pebbled pixie-cup
Lichen	*Cladonia sulphurina*	Greater sulphur-cup
Lichen	*Hypocenomyce scalaris*	Common clam lichen
Lichen	*Parmelia sulcata*	Hammered shield lichen
Lichen	*Peltigera aphthosa*	Common freckle pelt, felt lichen
Lichen	*Peltigera neopolydactyla*	Carpet pelt
Lichen	*Rhizocarpon geographicum*	Yellow map lichen
Lichen	*Stereocaulon tomentosum*	Woolly foam lichen, eyed foam lichen
Lichen	*Umbilicaria hyperborea*	Blistered rock tripe
Lichen	*Usnea lapponica*	Powdered beard lichen

APPENDIX

APPENDIX D EBA ENVIRONMENTAL REPORT – GENERAL CONDITIONS

ENVIRONMENTAL REPORT – GENERAL CONDITIONS

This report incorporates and is subject to these "General Conditions".

1.0 USE OF REPORT

This report pertains to a specific site, a specific development, and a specific scope of work. It is not applicable to any other sites, nor should it be relied upon for types of development other than those to which it refers. Any variation from the site or proposed development would necessitate a supplementary investigation and assessment.

This report and the assessments and recommendations contained in it are intended for the sole use of EBA's client. EBA does not accept any responsibility for the accuracy of any of the data, the analysis or the recommendations contained or referenced in the report when the report is used or relied upon by any party other than EBA's client unless otherwise authorized in writing by EBA. Any unauthorized use of the report is at the sole risk of the user.

This report is subject to copyright and shall not be reproduced either wholly or in part without the prior, written permission of EBA. Additional copies of the report, if required, may be obtained upon request.

2.0 LIMITATIONS OF REPORT

This report is based solely on the conditions which existed on site at the time of EBA's investigation. The client, and any other parties using this report with the express written consent of the client and EBA, acknowledge that conditions affecting the environmental assessment of the site can vary with time and that the conclusions and recommendations set out in this report are time sensitive.

The client, and any other party using this report with the express written consent of the client and EBA, also acknowledge that the conclusions and recommendations set out in this report are based on limited observations and testing on the subject site and that conditions may vary across the site which, in turn, could affect the conclusions and recommendations made.

The client acknowledges that EBA is neither qualified to, nor is it making, any recommendations with respect to the purchase, sale, investment or development of the property, the decisions on which are the sole responsibility of the client.

2.1 INFORMATION PROVIDED TO EBA BY OTHERS

During the performance of the work and the preparation of this report, EBA may have relied on information provided by persons other than the client. While EBA endeavours to verify the accuracy of such information when instructed to do so by the client, EBA accepts no responsibility for the accuracy or the reliability of such information which may affect the report.

3.0 LIMITATION OF LIABILITY

The client recognizes that property containing contaminants and hazardous wastes creates a high risk of claims brought by third parties arising out of the presence of those materials. In consideration of these risks, and in consideration of EBA providing the services requested, the client agrees that EBA's liability to the client, with respect to any issues relating to contaminants or other hazardous wastes located on the subject site shall be limited as follows:

1. With respect to any claims brought against EBA by the client arising out of the provision or failure to provide services hereunder shall be limited to the amount of fees paid by the client to EBA under this Agreement, whether the action is based on breach of contract or tort;
2. With respect to claims brought by third parties arising out of the presence of contaminants or hazardous wastes on the subject site, the client agrees to indemnify, defend and hold harmless EBA from and against any and all claim or claims, action or actions, demands, damages, penalties, fines, losses, costs and expenses of every nature and kind whatsoever, including solicitor-client costs, arising or alleged to arise either in whole or part out of services provided by EBA, whether the claim be brought against EBA for breach of contract or tort.

4.0 JOB SITE SAFETY

EBA is only responsible for the activities of its employees on the job site and is not responsible for the supervision of any other persons whatsoever. The presence of EBA personnel on site shall not be construed in any way to relieve the client or any other persons on site from their responsibility for job site safety.

5.0 DISCLOSURE OF INFORMATION BY CLIENT

The client agrees to fully cooperate with EBA with respect to the provision of all available information on the past, present, and proposed conditions on the site, including historical information respecting the use of the site. The client acknowledges that in order for EBA to properly provide the service, EBA is relying upon the full disclosure and accuracy of any such information.

6.0 STANDARD OF CARE

Services performed by EBA for this report have been conducted in a manner consistent with the level of skill ordinarily exercised by members of the profession currently practicing under similar conditions in the jurisdiction in which the services are provided. Engineering judgement has been applied in developing the conclusions and/or recommendations provided in this report. No warranty or guarantee, express or implied, is made concerning the test results, comments, recommendations, or any other portion of this report.

7.0 EMERGENCY PROCEDURES

The client undertakes to inform EBA of all hazardous conditions, or possible hazardous conditions which are known to it. The client recognizes that the activities of EBA may uncover previously unknown hazardous materials or conditions and that such discovery may result in the necessity to undertake emergency procedures to protect EBA employees, other persons and the environment. These procedures may involve additional costs outside of any budgets previously agreed upon. The client agrees to pay EBA for any expenses incurred as a result of such discoveries and to compensate EBA through payment of additional fees and expenses for time spent by EBA to deal with the consequences of such discoveries.

8.0 NOTIFICATION OF AUTHORITIES

The client acknowledges that in certain instances the discovery of hazardous substances or conditions and materials may require that regulatory agencies and other persons be informed and the client agrees that notification to such bodies or persons as required may be done by EBA in its reasonably exercised discretion.

9.0 OWNERSHIP OF INSTRUMENTS OF SERVICE

The client acknowledges that all reports, plans, and data generated by EBA during the performance of the work and other documents prepared by EBA are considered its professional work product and shall remain the copyright property of EBA.

10.0 ALTERNATE REPORT FORMAT

Where EBA submits both electronic file and hard copy versions of reports, drawings and other project-related documents and deliverables (collectively termed EBA's instruments of professional service), the Client agrees that only the signed and sealed hard copy versions shall be considered final and legally binding. The hard copy versions submitted by EBA shall be the original documents for record and working purposes, and, in the event of a dispute or discrepancies, the hard copy versions shall govern over the electronic versions. Furthermore, the Client agrees and waives all future right of dispute that the original hard copy signed version archived by EBA shall be deemed to be the overall original for the Project.

The Client agrees that both electronic file and hard copy versions of EBA's instruments of professional service shall not, under any circumstances, no matter who owns or uses them, be altered by any party except EBA. The Client warrants that EBA's instruments of professional service will be used only and exactly as submitted by EBA.

The Client recognizes and agrees that electronic files submitted by EBA have been prepared and submitted using specific software and hardware systems. EBA makes no representation about the compatibility of these files with the Client's current or future software and hardware systems.