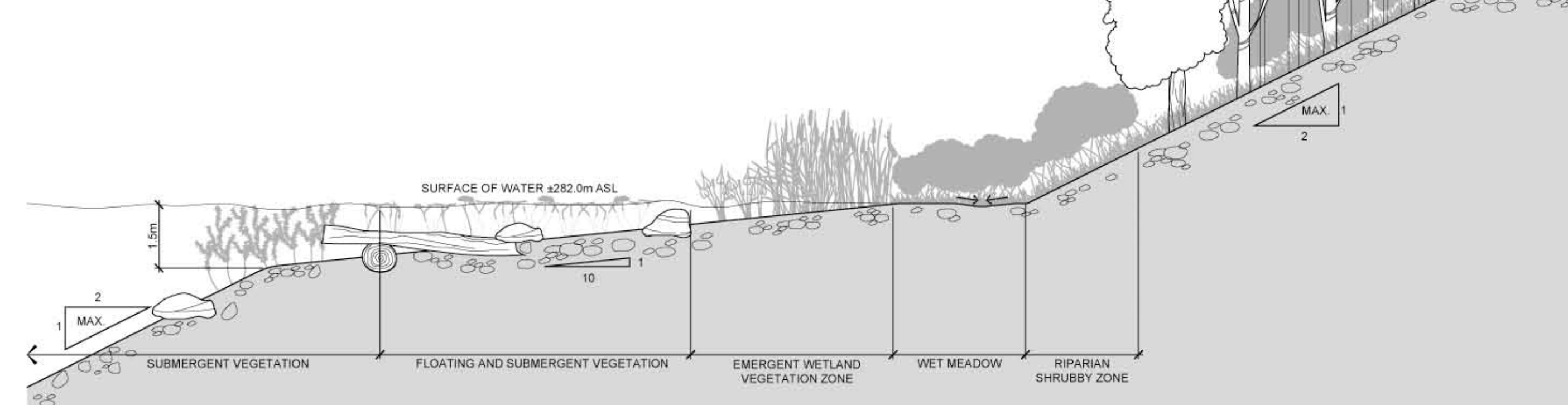
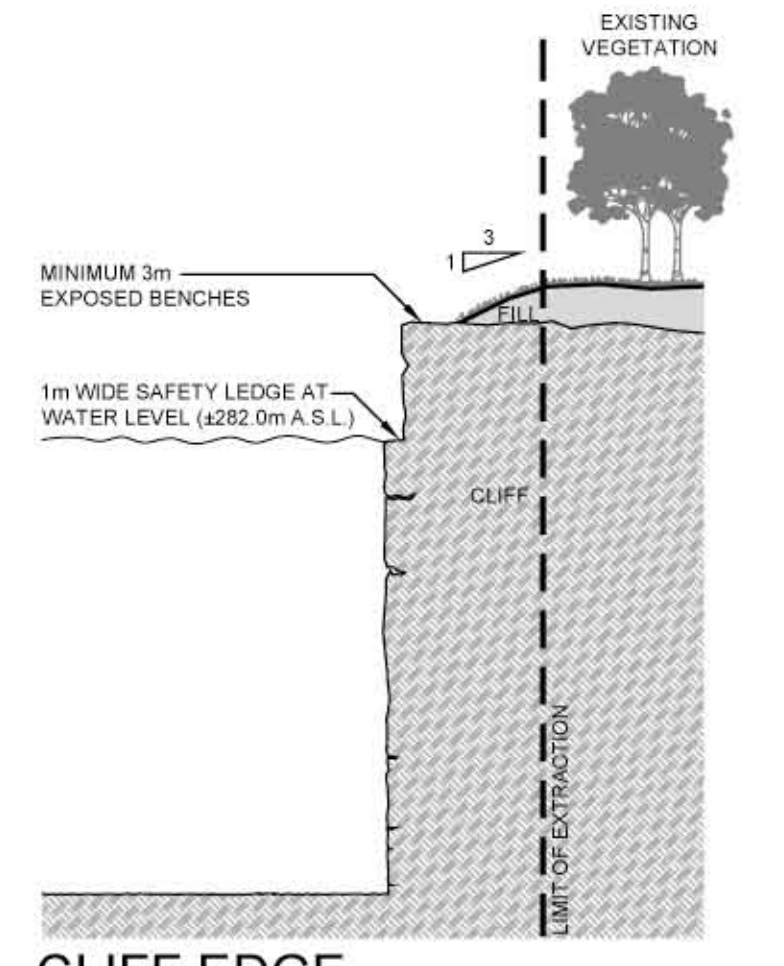


PLANT LIST FOR CREATED COMMUNITIES

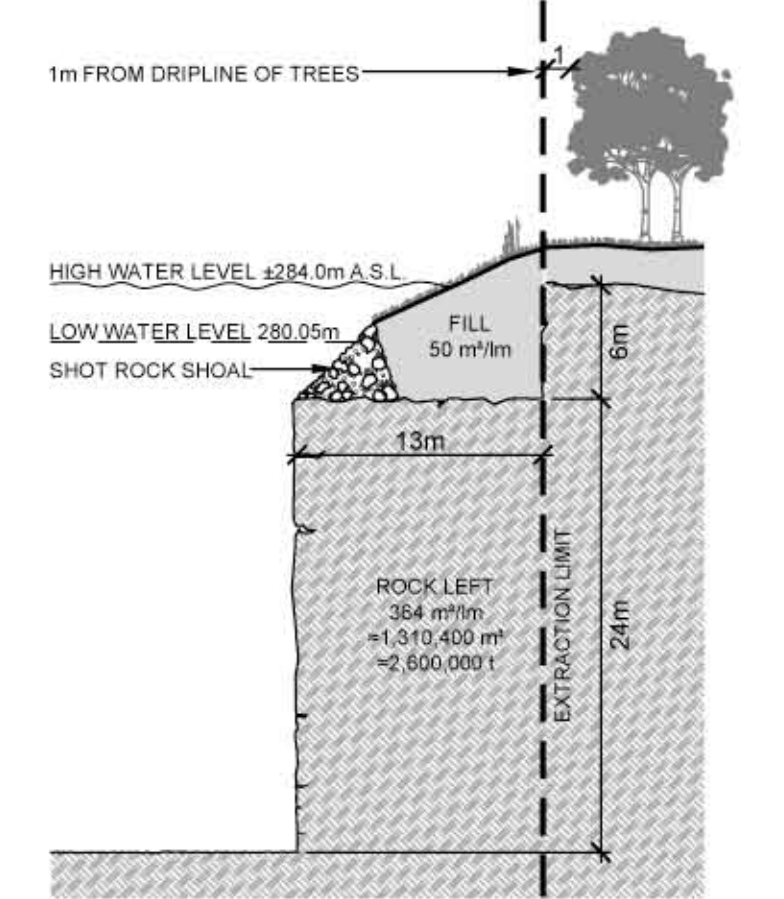
- UPLAND AFFORESTATION:**
 TREMBLING ASPEN (*Populus tremuloides*)
 WHITE PINE (*Pinus strobus*)
 EASTERN WHITE CEDAR (*Taxus occidentalis*)
 ALTERNATE-LEAVED DOGWOOD (*Cornus alternifolia*)
 BLUE BEECH (*Carpinus caroliniana* var. *virginiana*)
- RIPARIAN SHRUBBLY ZONE:**
 DWARF RASPBERRY (*Rubus pubescens*)
 RED-CORNER DOGWOOD (*Cornus stolonifera*)
 ROUND-LEAVED DOGWOOD (*C. rugosa*)
 BERRY YELLOW (*Saxifraga hypnoides*)
 ROUGH GOLDENROD (*Solidago rugosa*)
 MARSH SPEN (*Thalictrum palustre* var. *pubescens*)
- WET MEADOW:**
 SWAMP LOGSPOON (*Lysimachia terrestris*)
 SWAMP MILKWEED (*Asclepias incarnata* ssp. *incarnata*)
 SPOTTED TOUCH-ME-NOT (*Epipactis atrorubra*)
 SPOTTED JOE-PYE WEEED (*Eupatorium maculatum* ssp. *maculatum*)
 TALL WHITE ASTER (*Aster lanceolatus* ssp. *lancheolatus*)
 SENSITIVE FERN (*Cheilanthes lanuginosa*)
 THREE-SEEDED REDGE (*Carex tripartita* var. *tripartita*)
 SPOT-LEAVED REDGE (*Carex dippeana*)
- EMERGENT WETLAND VEGETATION ZONE:**
 SMALLER FOREST WET-NOT (*Sparganium angustifolium*)
 SMALL'S SPIKE-RUSH (*Eleocharis acicularis*)
 MARSH FERN (*Thelypteris palustris* var. *pubescens*)
 BLUE-JOINT GRASS (*Calamagrostis canadensis*)
- FLOATING AND SUBMERGENT VEGETATION:**
 COMMON FLOATING PONDWEED (*Phragmites communis*)
- SUBMERGENT VEGETATION:**
 CANADA WATERWEED (*Elodea canadensis*)



TYPICAL SECTION THROUGH SHORELINE



CLIFF EDGE REHABILITATION DETAIL



PROPOSED SHORELINE SECTION

NOTES (CONTINUED)

- ENHANCEMENT AREA INFORMATION**
18. ENHANCEMENT AREA #1 - TWO-LINED TOOTHWORT (0.88 ha) PLANTINGS FROM INDIGENOUS AND LOCAL SOURCES. PLANTED TO CREATE A LARGER POPULATION OVER TIME.
- ENHANCEMENT AREA #2 - FREELY ASH THICKET REGENERATION (1.14 ha) COMPRISED OF TRANSPLANTS FROM EXISTING PATCHES ON THE WESTERN MARGINS OF THE SUBJECT LANDS. TRANSPLANTS TO BE SUPPLEMENTED WITH STEMS PROPAGATED FROM ROOT CUTTINGS FROM INDIGENOUS STOCK.
- ENHANCEMENT AREA #3 - WETLAND AREA 1 (0.22 ha)
- WETLAND CREATION INCLUDING TYPICAL SSP - SHALLOW WETLAND FEATURE WITH DIFFUSE SURFACE DRAINAGE TO EXISTING SALAMANDER POND TO THE EAST.
- ENHANCEMENT AREA #4 - CULTURAL MEADOW (1.12 ha) REHABILITATION TO OPTIMIZE AMPHIBIAN FORAGING AND WATERFOWL NESTING HABITAT ADJACENT TO EXISTING POND.
- ENHANCEMENT AREA #5 - PLANT NURSERY AND PROPAGATION FACILITY (0.24 ha) LOCATED IN AN AREA EASILY CONVERTED TO NURSERY USE. WILL FACILITATE TEMPORARY STORAGE OF TRANSPARENT AND CUTTING MATERIALS, OUTPLANTING AND WADING AREAS FOR RESEARCH AND SPREADING SMALL GREENHOUSE FACILITY SPACE FOR ON-SITE PROPAGATION AND RESEARCH FACILITY.
- ENHANCEMENT AREA #6 - TRANSPLANT AREA 1 (1.06 ha) AREAS FOR SCATTERED TRANSPLANT ESTABLISHMENT AND PLANTINGS OF DISEASE RESISTANT BUTTERNUT (AS AVAILABLE).
- ENHANCEMENT AREA #7 - WETLAND 2 (1.15 ha) PROPOSED TO BE COMPLETED TO ACCOMMODATE THE DISCHARGE OUTLET FOR THE RESERVOIR DISCHARGE INTO THE DOWNSTREAM COMPONENT OF THE FIRM ALONG THE NORTH SIDE OF ELEVENTH CONCESSION ROAD EAST. INCLUDES A WETLAND TYPICAL DOMINATED AND A GENERALLY SHALLOW FEATURE WITH SOME DEEPER HOLES.
- ENHANCEMENT AREA #8 - WETLAND AREA 3 (0.28 ha) THIS FEATURE WILL BE ESTABLISHED TO DISCHARGE SURFACE WATER DIRECTLY INTO THE ADJACENT WETLAND LIKELY INTO THE EXISTING POND AFTER MOVING THROUGH THE CREATED SLOPE/SLOPE SEEPAGE FEATURE. THE RESULT WILL BE THE ESTABLISHMENT OF A MEADOW/MARSH AS SLOPE/SLOPE SEEPAGE ZONE, DOMINATED BY EQUISETUM, JUNCUS AND CAREX SSP.

LEGEND

- BOUNDARY OF AREA TO BE LICENCED
- LIMIT OF EXTRACTION
- REGULATORY SETBACK LINE
- 200% INFORMATION BOUNDARY
- PROPERTY / LOT/ CONCESSION LINE
- ZONING / LANDUSE BOUNDARY
- PROVINCIAL SIGNIFICANT WETLAND LOWER MOUNTAIN CREEK SWAMP COMPLEX
- EXISTING VEGETATION
- EXISTING SPOT ELEVATION
- EXISTING FENCE
- EXISTING TRIBUTARY / RIVER
- EXISTING TRAIL
- EXISTING LANDWAY
- EXISTING BUILDING AND BUILDING NUMBER
- DIRECTION OF SURFACE WATER DRAINAGE
- SECTION LINE
- EXISTING VEGETATION
- PROPOSED PLANTING
- PROPOSED POND
- ENHANCEMENT AREA (REFER TO NOTE #1 AND 2)

NOTES GENERAL INFORMATION

- REFER TO SHEET 4 OF 5 FOR SECTIONS AND NOTES, SHEET 2 AND 3 OF 5 FOR OPERATIONS AND PHASING DIAGRAMS AND NOTES AND SHEET 5 OF 5 FOR FINAL REHABILITATION AND NOTES.
- PROPERTY SHALL BE REHABILITATED TO:

OPEN WATER	57.27 HA
NATURALIZED AREA	2.00 HA
REFORESTED AREA (INSIDE EXTRACTION AREA)	2.73 HA
TOTAL OF REHABILITATION INSIDE EXTRACTION AREA	62.00 HECTARES
REFORESTED AREA (OUTSIDE EXTRACTION AREA)	0.36 HA
WETLAND (OUTSIDE OF EXTRACTION AREA)	0.32 HA
TOTAL REHABILITATION OUTSIDE EXTRACTION AREA	0.68 HECTARES
TOTAL REHABILITATION	62.68 HECTARES

HYDROGEOLOGICAL INFORMATION

- IT IS ANTICIPATED THAT THE GROUNDWATER ELEVATION ACROSS THE SITE WILL REMAIN RELATIVELY UNCHANGED. THE LAKE WATER LEVEL SHALL BE 482.0m A.S.L.

SIDESLOPE/OPEN SPACE REHABILITATION INFORMATION

- GRADING INFORMATION**
- REHABILITATED SLOPES WITHIN THE LICENCED AREA WILL BE CONSTRUCTED AS SHOWN ON THE CROSS SECTIONS. ALL MATERIALS USED FOR PROPOSED OPEN SPACE REHABILITATION WORK WILL BE FROM ON-SITE OR AN APPROVED OFF-SITE SOURCE OF CLEAN INERT FILL. BASED ON CALCULATIONS THERE IS SUFFICIENT OVERBURDEN ON-SITE TO COMPLETE REHABILITATION THEREFORE CLEAN INERT FILL MAY BE IMPORTED TO FACILITATE THE ESTABLISHMENT OF 2:1 SLOPES ON THE QUARRY FACES. THE IMPORTATION OF MATERIAL TO THE SITE SHALL BE LIMITED TO THE QUANTITY OF MATERIAL REQUIRED TO ENSURE THAT THE MATERIAL MEETS THE MINISTRY OF THE ENVIRONMENT PARAMETERS FOR USE UNDER PART XV.1 OF THE ENVIRONMENTAL PROTECTION ACT. SAMPLING RESULTS WILL BE PROVIDED TO THE APPLICANT.
 - NOTWITHSTANDING THE ABOVE, WHERE THE IMPORTED MATERIAL IS NOT BEING PLACED WITHIN 1.5 METRES OF THE SURFACE, THE CRITERIA UNDER TABLE 1 FOR SOCIUM ADSORPTION RATIO AND ELECTRICAL CONDUCTIVITY DO NOT HAVE TO BE MET.

TOPSOIL INFORMATION

- APPROXIMATELY 430,000m³ OF TOPSOIL IS REQUIRED FOR THE REHABILITATION OF THIS SITE. APPROXIMATELY 415,700m³ OF TOPSOIL EXISTS WITHIN THE EXTRACTION AREA. APPROXIMATELY 140,000m³ OF EXCESS TOPSOIL MAY BE REMOVED FROM THE SITE. REFER TO SITE PLAN OVERBURDEN ON OPERATIONS PLAN (SHEET 2).
- TOPSOIL SHALL BE SEISED WITH A MIXTURE OF GRASSES AND LEGUMES THAT MAY INCLUDE THE FOLLOWING AT A RATE OF APPROXIMATELY 1200g/ha:

BUCKWHEAT	RED CLOVER	WHITE CLOVER
TALL FESCUE	ANNUAL RYE	

OPEN WATER POND REHABILITATION INFORMATION

- THE AVERAGE WATER LEVEL IN THE POST-EXTRACTION LAKE IS ESTIMATED TO BE 482.0m A.S.L. BASED ON THE HYDROGEOLOGICAL ASSESSMENT.
 - THE SHAPE AND GRADING OF THE PROPOSED POND IS APPROXIMATE, BASED ON THE BEST AVAILABLE INFORMATION AT THE TIME OF LICENSING. ACTUAL EXTRACTION WILL FOLLOW THE BELOW WATER DEPOSIT AND REHABILITATION SHALL FOLLOW THE CONCEPT ILLUSTRATED.
- SHORELINE REHABILITATION INFORMATION**
- AREAS SHALL BE REHABILITATED TO PONDS AS FOLLOWS:
 - UNDERWATER SLOPES WILL BE FORMED WITH ON-SITE FILL AND/OR IMPORTED INERT FILL. UNDERWATER SLOPES SHALL BE A MAXIMUM OF 2:1.
 - RESTORATION OF THE POND, AS SHOWN ON THE PROPOSED SHORELINE SECTION, SHEET 5 OF 5 WILL GENERALLY BE ACCOMPLISHED AS FOLLOWS:
 - EXTRACTION AND IN-SITU GRADING WILL CREATE A NEARSHORE SHORELINE AREA AT A SLOPE OF 10:1.
 - THE QUARRY FLOOR SHALL BE LEFT IRREGULAR AND THE EDGES OF THE POND SHALL BE SCULPTED TO AND STRUCTURES WILL BE ADDED TO LENGTHEN THE SHORELINE FOR THE PURPOSE OF ENHANCING BIOLOGICAL DIVERSITY AND PRODUCTIVITY.
 - WOODY DEBRIS BRANCHES, TREE TRUNKS, STUMPS, ETC. CLEARED IN THE EXTRACTION PROCESS WILL BE SALVAGED WHERE POSSIBLE. FOR USE IN SHORELINE RESTORATION.
 - STUMPS, LOGS, BRUSH BRANCHES, ETC. SHALL BE INSTALLED 430m O.C. ALONG THE SHORELINE IN THE SHALLOW ZONE TO CREATE PHYSICAL DIVERSITY.
 - OVERSIZE ROCKS NOT UTILIZED IN THE AGGREGATE OPERATIONS WILL ALSO BE PLACED IN THE SHALLOW ZONE TO CREATE PHYSICAL DIVERSITY.

REFORESTATION REHABILITATION INFORMATION

- ALL VEGETATION PLANTED DURING THIS LICENSE WILL BE MAINTAINED IN A HEALTHY, VIGOROUS GROWING CONDITION.
- UPLAND AREAS INCLUDING SIDESLOPES SHALL BE REFORESTED, WHERE SHOWN, AS FOLLOWS:

WHITE PINE	TREMBLING ASPEN	SUGAR MAPLE	CHICKSBERRY	GREY DOGWOOD
RED PINE	RED BIRCH	SILVER MAPLE	CHOKCHERRY	SNOWBERRY
WHITE CEDAR	BUR OAK	RED MAPLE	HAWBERRY	STAGHORN BILMAG
WHITE SPRUCE	RED OAK		ELDERBERRY	

SETBACK REHABILITATION INFORMATION

- AFTER SIDESLOPES ARE CREATED AND REQUIRED BERMS ARE REMOVED FROM SETBACKS THESE AREAS WILL BE IMMEDIATELY STABILIZED WITH A SUITABLE GROUND COVER AND THEN REFORESTED.

NOTES CONTINUED BELOW

Pre Licence Review

NO.	DATE	ISSUES	COMMENTS	NO. DATE	ISSUES	COMMENTS
1	FEB11	AS PER MNR 2009				

Site Plan Amendments

Project Name

ST. MARYS FLAMBOROUGH QUARRY

PART OF LOT 1, LOTS 2 AND 3 - CONCESSION 11
 GEOGRAPHIC TOWNSHIP OF EAST FLAMBOROUGH
 CITY OF HAMILTON

Scale 1:2500

North

Stamp

Drawing Status

SUBMIT FOR PERMISSION TO BEGIN CONSULTATION PROCESS

Drawn S.J.P. **Checked** G.D.H./B.J. **Issue Date** FEB 2009

Drawing Title

REHABILITATION PLAN

Project Number 06-25

Drawing Number 5 OF 5