Key Research Findings

This analysis was based on the pre-determined criteria and measures listed below:

Section	Description	Measures
Student Demand	Includes an assessment of OCAS (2007 - 2011) enrolment data at other colleges in terms of mean growth rate with a specific focus on Fleming's direct competitors where appropriate (Georgian, Sheridan, Seneca and Durham) Trends in certificate, diploma, degree, apprenticeship and continuing education (where available). **Click Below to Access Full Source Document:** Fall Enrollment Trend	• Strong = Fleming enrolment growth is outpacing system and is equal to or greater than 3% • Moderate = Fleming enrolment growth is equivalent to system demand and is between 1.0 to 2.9% • Weak = Fleming enrolment growth is less than the system demand and is less than 1%
Labour Market	Includes projected employment rate growth based on a consolidation of various Ontario, Canadian, and US sources including HRSDC, Sector Council Reports US Bureau of Labour Statistics, and the MTCU Employment Profile.	• Strong = Between 5-6 positive labour market indicators • Moderate = Between 3-5 positive labour market indicators • Weak = Between 1-2 or no positive labour market indicators
Competitive Analysis	Includes the number of actual colleges offering the program as well as the ratio of applications to acceptances at Fleming compared to other colleges and specific comment about Fleming's direct competitors where appropriate (Georgian, Sheridan, Seneca and Durham) **Click Below to Access Full Source Document:** Fall Conversion Report	• Strong = Fleming conversion ratio is greater than 2 below the system • Moderate = Fleming conversion ratio is 1 above, below or equal to the system • Weak = Fleming conversion ratio is greater than 2 above than the system
Financial Analysis	Includes a review of Contribution to Overhead (CTO) for existing programs (2010-11) **Click Below to Access Full Source Document:** Costing Analysis	• Strong = CTO is greater than 35% • Moderate = CTO is between 30 - 34% • Weak = CTO is between 20 – 30% **No Contribution = 19% or less**

Key Research Findings

Key Performance Indicators	Includes KPI trends from the Key Performance Indicator Summary 5 Year Historical Overview KPI Data from Reporting Years 2008-2012. **Click Below to Access Full Source Document:** Key Performance Indicators	• Strong = Above system average in 6-7 indicators • Moderate = Above system average in 3-5 indicators • Weak = Above system average in 0-2 indicators.
Resource Analysis	Requires school level assessment regarding space, technology, capital equipment and human resources. Recommendations from recent Program Review Reports included here	

Key Research Findings

Ecosystem Management – Technician /Technology (54204/64204)

Student Demand[1]	• STRONG

The following information consists of OCAS yearly student fall registration data as well as a mean growth rate and average student registration for each program under these categories:

Diploma

- Fleming was experiencing steady growth until 2012 when enrollment changed by **-35%** from 2010-2011

Advanced Diploma

- Fleming is the only college to offer this program as Sault's program has been discounted since 2008

- Fleming has experienced a steady increase in enrolment with 47 students registered in 2011

Diploma

Program: 54204 - RENEWABLE RESOURCE TECHNICIAN

	2007	2008	% Change (07-08)	2008	2009	% Change (08-09)	2009	2010	% Change (09-10)	2010	2011	% Change (10-11)	% Mean Growth Rate (07-11)	5 Year Average Reg. Students
→ FLEMING	33	31	-6	31	32	3	32	49	53	49	32	-35	4	35
Total	*33*	*31*	*-6*	*31*	*32*	*3*	*32*	*49*	*53*	*49*	*32*	*-35*	*4*	*35*

Advanced Diploma

Program: 64204 - FOREST MANAGEMENT TECHNOLOGY

	2007	2008	% Change (07-08)	2008	2009	% Change (08-09)	2009	2010	% Change (09-10)	2010	2011	% Change (10-11)	% Mean Growth Rate (07-11)	5 Year Average Reg. Students
→ FLEMING	16	21	31	21	33	57	33	44	33	44	47	7	32	32
SAULT	2	2	0	2									0	2
Total	*18*	*23*	*28*	*23*	*33*	*43*	*33*	*44*	*33*	*44*	*47*	*7*	*28*	*33*

[1] Registration data obtained from the Program Counts by Applicant Type Report (RPT0050P) in the OCAS Reporting and Analytics Cube December 7, 2011.
Some programs/colleges may not be included because they were missing MCU codes in the OCAS dataset
Prepared by Fleming Data Research (07-2012)

Key Research Findings

Labour Market	• STRONG

Employment Ontario[2]

Biological Technologists and Technicians (NOC- 2221)

- Employment Ontario Rating (2009-2013):
  - **Average**
- Education and Training
  - "Completion of a three-year or equivalent program for biological technologists or a two-year or an equivalent program for biological technicians is usually required. Several different educational backgrounds can provide entrance to an occupation within this classification. Certification in biological technology or in a related field is available through provincial associations of engineering and applied science. In Ontario, the Ontario Association of Certified Engineering Technicians and Technologists (OACETT) certifies biological technologists and technicians. The certification process includes a period of supervised work experience, usually up to two years, and a professional practice examination."
- Demand
  - "Ontario has a vibrant biotechnology sector with strengths in the bio-medical, pharmaceutical, medical devices, agricultural-biotechnology and biomaterials field. The number of new graduates should meet industry needs. Businesses in Canada have turned to foreign workers in times of economic boom, to fill labour shortages. During an economic downturn however, large job losses can occur since biotech companies are highly dependent on well-functioning capital markets and are vulnerable to market slowdowns."

  - "Computer-based competencies such as bioinformatics and molecular modelling are becoming more important as companies and researchers deal with the integration of traditional and information sciences. Co-op programs are the preferred approach for many companies. In Ontario, the focus is on biosciences/life sciences, pharmaceutical medical devices, human health and the environment. People who work in these occupations require ongoing retraining and professional development to keep abreast of new information and changing technology. Increasingly, individuals in this field will require certification at a Masters or PhD level. Candidates with strong business and project management skills will have the best job prospects in a tight labour market."

[2] "2221 Biological Technologists and Technicians." *Employment Ontario*. N.p., 2009. Web. 18 June 2012. <http://www.tcu.gov.on.ca/eng/labourmarket/ojf/pdf/2221_e.pdf>.

Key Research Findings

HRSDC[3]

Biological Technologists and Technicians (NOC- 2221)

- Job Openings (2011/2020): **18,000**
- Job Seekers(2011/2020): **15,255**
- Post-Secondary Education Graduates: **14,998**

- "Biological technologists and technicians provide technical support and services to scientists, engineers and other professionals working in fields such as agriculture, resource management, environmental protection, plant and animal biology, microbiology, cell and molecular biology and health sciences, or may work independently in these fields. They are employed in both laboratory and field settings by governments, manufacturers of food products, chemicals and pharmaceuticals, biotechnology companies, health, research and educational institutions, environmental consulting companies and resource and utilities companies."

US Bureau of Labour[4]

Environmental Science and Protection Technicians (SOC – 19-4091)

- Employment Growth (2010/2020): **Increase 24%**
    - **29,600 (2010) to 36,600 (2020)**

- "Heightened public interest in the hazards facing the environment, as well as the increasing demands placed on the environment by population growth, are expected to spur demand for environmental science and protection technicians. Further demand is expected as a result of new and increasingly complex environmental laws and regulations."

- "Environmental science and protection technicians should have good opportunities for employment. In addition to openings due to growth, many job openings are expected to be created by those who retire or leave the occupation for other reasons. Job candidates with an associate's degree or experience should have the best opportunities."

- "Job opportunities available in state and local governments will vary from year to year with the budgets of state and local environmental protection agencies."

[3] "Technical Occupations In Life Sciences (222)." *Human Resources and Skills Development Canada*.N.p., 13 June 2012. Web. 13 June 2012. <http://www23.hrsdc.gc.ca/occupationsummarydetail.jsp?&tid=39>.

[4]Bureau of Labor Statistics, U.S. Department of Labor, Occupational Outlook Handbook, 2012-13 Edition, Environmental Science and Protection Technicians, Web. http://www.bls.gov/ooh/life-physical-and-social-science/environmental-science-and-protection-technicians.htm, June 13, 2012

Key Research Findings

HRSDC[5]

Landscape and Horticulture Technicians and Specialists (NOC – 2225)

- Job Openings (2011/2020): **17,703**
- Job Seekers(2011/2020): **15,255**
- Post Secondary Education Graduates: **14,998**

- "Based on projections and considering that labour supply and demand for this occupation were balanced over the 2008-2010 period, it is expected that the number of job seekers in this occupation will continue to be sufficient to fill the job openings over the 2011-2020 period. The majority of job openings will result from retirements, the retirement rate being higher than employment growth. Nevertheless, employment growth will be higher than average, benefiting from the continuing increase in landscaping and horticulture spending. With regard to labour supply, the majority of job seekers will come from the school system."

Sector Council Report

- "By2011, environmental employment is expected to reach over 570,000, an increase of **8.1%** since 2006. Employment in the environment sector is expected to grow **23% faster** than the national average, estimated at **6.6%** over the same time period."[6]

- "Certification with provincial associations is available, but **voluntary**"[7]

- "as of 2006, there were over 127,000 enrollments in environment-related programs at post secondary institutions in Canada, which represents approximately **7.6%** of all enrollments nationally (ECO Canada, 2011)"[8]

[5] "Technical Occupations In Life Sciences (222)." *Human Resources and Skills Development Canada*. N.p., 13 June 2012. Web. 13 June 2012. <http://www23.hrsdc.gc.ca/occupationsummarydetail.jsp?&tid=39>.

[6] "College Graduation Trends for Environment-related Programs." *Environmental Labour Market Research*.ECO Canada, 2005.Web. 13 June 2012.

[7]"2221 Biological technologists and technicians."*Human Resources and Skills Development Canada*.N.p., 13 June 2012. Web. 13 June 2012. <http://www5.hrsdc.gc.ca/NOC/English/NOC/2011/QuickSearch.aspx?val65=2221>.

[8] Schmidt, Dana. "Shaping a Resilient Future."*Earth Common*.N.p., n.d. Web. 13 June 2012. <http://www.earthcommon.com/index.php/shaping-a-resilient-future>.

Key Research Findings

Employment Profile[9]

In 2010-2011, **76.6%** of graduates in the Ecosystem Management - Technician program and **31%** of the Ecosystem Management - Technology program were employed in a full time position which related to this program of study provincially

Resources

Total Graduates:	948	Total Graduates in Survey:	684	Response Rate:	72.7%

596 graduates were reported after the survey window had closed. While program information for these graduates has been included wherever possible, these graduates are not included in survey results, such as response rates.

Programs in Resources

Programs	Duration	Total Grads	Total in Survey	Total in Labour Force	Colleges
Blasting Techniques	1 Year	18	15	12	Sir Sandford Fleming
Ecosystem Surveys-Field Skills	1 Year	2	2	2	Sault
Environmental Control	Post Diploma	103	81	72	Conestoga, Niagara, Seneca, Sheridan
Environmental Studies	Post Diploma	38	29	26	Niagara
Environmental Technician	2 Years	217	138	94	Canadore, Centennial, Loyalist, Mohawk, Niagara, Northern, Sault, Seneca, Sheridan, Sir Sandford Fleming, St. Lawrence
Environmental Techniques	1 Year	25	18	13	Georgian
Environmental Technology	3 Years	134	94	84	Centennial, Durham, Fanshawe, Georgian, Humber, Loyalist, Seneca, Sir Sandford Fleming
Fish And Wildlife Technician	2 Years	105	76	32	Bontal, Northern, Sault, Sir Sandford Fleming
Fish And Wildlife Technology	3 Years	22	18	9	Bontal, Sir Sandford Fleming
Forest Management Technology	3 Years	34	29	22	Sault, Sir Sandford Fleming
Forest Recreation Technician	2 Years	6	5	3	Sault
Forestry Technician	2 Years	94	66	51	Algonquin, Confederation, Sault, Sir Sandford Fleming
Forestry Technology	3 Years	4	2	2	Bontal
Integrated Environmental Site Remediation – Bachelor Of Applied Technology	4 Years	1	1	1	Seneca
Renewable Resource Technician	2 Years	59	46	25	Sir Sandford Fleming
Resources Technician – Drilling	2 Years	37	26	26	Sir Sandford Fleming
Water And Waste Water Technician	2 Years	49	38	31	Algonquin, Durham

[9] "Employment Profile." *Ontario*. N.p., 2011. Web. 19 July 2012. <http://www.tcu.gov.on.ca/pepg/audiences/colleges/serials/eprofile09-10/profile10.pdf>.

Key Research Findings

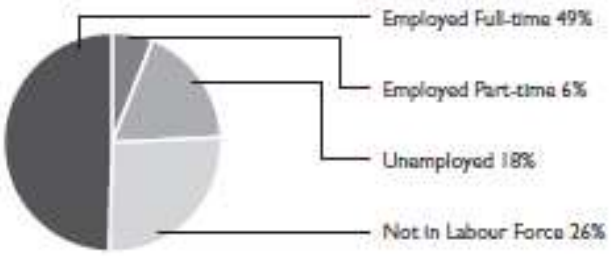
Resources

Summary of Survey Data

	Program Cluster	All Programs
Survey Population	684	50,622
Labour Force Participation	74%	74%
Employment Rate[a]	**75%**	**83%**
Employed Part-time[a]	9%	18%
Employed Full-time[a]	67%	65%
Average Annual Earnings – Total	**$36,549**	**$33,199**
Average Annual Earnings – Female	$33,231	$31,897
Average Annual Earnings – Male	$38,403	$34,607
Graduate Satisfaction	71%	79%
Employer Satisfaction	95%	93%

a. As a percentage of graduates in the labour force.

Graduate Outcomes for Program Cluster (as a percentage of all respondents)



Top Five Industries of Employment

	#	%
Professional, Scientific and Technical Services	76	20.7%
Utilities	28	7.6%
Administrative and Support Services	25	6.8%
Federal Government Public Administration	18	4.9%
Local, Municipal and Regional Public Administration	18	4.9%

Top Five Occupational Categories

	#	%
Civil Engineering Technologists and Technicians	29	7.8%
Water and Waste Plant Operators	19	5.1%
Inspectors in Public and Environmental Health and Occupational Health and Safety	15	4.1%
Forestry Technologists and Technicians	14	3.8%
Natural and Applied Science Policy Researchers, Consultants and Program Officers	13	3.5%

Key Research Findings

Resources

Summary of Graduate Outcomes by Program

	Full-time Employed, Program Related		Full-time Employed, Program Unrelated		Part-time Employed, Program Related		Part-time Employed, Program Unrelated		Unemployed		Not in Labour Force	
	#	%	#	%	#	%	#	%	#	%	#	%
Blasting Techniques	2	13.3	6	40.0	1	6.7	1	6.7	2	13.3	3	20.0
Environmental Control	29	35.8	22	27.2	2	2.5	4	4.9	15	18.5	9	11.1
Environmental Studies	18	62.1	5	17.2	1	3.4	–	–	2	6.9	3	10.3
Environmental Technician	31	22.5	30	21.7	1	0.7	9	6.5	23	16.7	44	31.9
Environmental Techniques	4	22.2	3	16.7	–	–	1	5.6	5	27.8	5	27.8
Environmental Technology	43	45.7	15	16.0	2	2.1	6	6.4	18	19.1	10	10.6
Fish And Wildlife Technician	10	13.2	11	14.5	1	1.3	1	1.3	9	11.8	44	57.9
Fish And Wildlife Technology	4	22.2	2	11.1	–	–	–	–	3	16.7	9	50.0
Forest Management Technology	9	31.0	3	10.3	2	6.9	–	–	8	27.6	7	24.1
Forestry Technician	16	24.2	18	27.3	–	–	1	1.5	16	24.2	15	22.7
Renewable Resource Technician	8	17.4	3	6.5	2	4.3	2	4.3	10	21.7	21	45.7
Resources Technician – Drilling	20	76.9	2	7.7	1	3.8	1	3.8	2	7.7	–	–
Water And Waste Water Technician	11	28.9	7	18.4	1	2.6	2	5.3	10	26.3	7	18.4
All Programs in Cluster*	**205**	**30.4**	**127**	**18.8**	**14**	**2.1**	**28**	**4.2**	**123**	**18.2**	**177**	**26.3**

* Does not include 4 programs with fewer than 5 graduates in the labour force.

Earnings of Full-time Employed Participants

Program	Average – Females	Average – Males	Median – Females	Median – Males	Average for Program	Median for Program
Blasting Techniques	–	$41,683	–	$38,064	$41,683	$38,064
Environmental Control	$41,980	$38,268	$38,554	$37,000	$39,994	$38,000
Environmental Studies	$32,889	$36,705	$27,375	$37,543	$34,103	$31,384
Environmental Technician	$31,121	$36,900	$28,288	$35,457	$34,467	$30,034
Environmental Techniques	–	$42,222	–	$41,537	$42,222	$41,537
Environmental Technology	$33,478	$38,248	$29,200	$34,800	$36,054	$31,494
Fish And Wildlife Technician	$25,249	$29,979	$19,374	$27,114	$28,665	$26,854
Fish And Wildlife Technology	–	–	–	–	–	–
Forest Management Technology	$29,296	$33,126	$26,072	$35,457	$30,892	$31,000
Forestry Technician	$24,480	$34,193	$22,291	$34,545	$32,479	$33,632
Renewable Resource Technician	$28,392	$42,875	$20,759	$43,018	$34,975	$30,243
Resources Technician – Drilling	–	$54,525	–	$50,839	$54,525	$50,839
Water And Waste Water Technician	–	$36,000	–	$36,500	$38,996	$39,107
All Programs in Cluster*	**$33,526**	**$38,475**	**$31,286**	**$37,413**	**$36,671**	**$35,197**

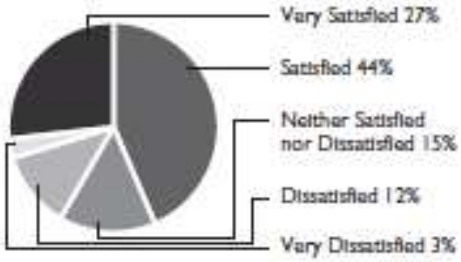
* Does not include 4 programs with fewer than 5 graduates in the labour force.

Key Research Findings

Resources

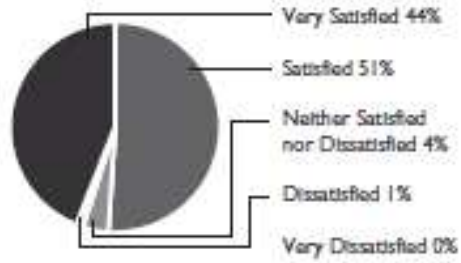
Program Cluster Satisfaction

Graduate Satisfaction with the usefulness of his/her college education in achieving his/her goals after graduation:*



* 650 graduates participated in this question.

Employer Satisfaction with employee overall college preparation for the type of work he/she was doing:*



* 73 employers participated in this survey.

Program Cluster Historical Data

	00-01 Grads	01-02 Grads	02-03 Grads	03-04 Grads	04-05 Grads	05-06 Grads	06-07 Grads	07-08 Grads	08-09 Grads	09-10 Grads
Percentage Employed	81.4%	81.9%	80.2%	80.6%	80.3%	83.5%	86.1%	81.2%	74.2%	75.2%
Percentage Employed Full-time	75.3%	73.5%	73.7%	74.1%	75.1%	75.5%	78.5%	75.8%	63.5%	66.7%
Percentage Employed Full-time Related Jobs	49.9%	49.2%	50.9%	47.2%	49.1%	48.7%	56.5%	52.3%	38.1%	41.2%
Average Annual Salary Full-time Related Jobs	$31,073	$31,781	$31,524	$33,431	$34,855	$34,372	$37,034	$38,831	$38,526	$40,526

Key Research Findings

Working in Canada[10]

Biological Technologists and Technicians (NOC- 2221)

- Ontario Rating: **Not Available (except for Limited in the Northeast region)**

- **Wage Range by Region:**

Location	Wage ($/hr)		
	Low	Median	High
Ontario	14.95	23.00	32.82
Hamilton--Niagara Peninsula Region	N/A	N/A	N/A
Kingston - Pembroke Region	N/A	N/A	N/A
Kitchener--Waterloo--Barrie Region	15.65	20.00	27.75
London Region	N/A	N/A	N/A
Muskoka-Kawarthas Region	14.95	23.00	32.82
Northeast Region	14.95	23.00	32.82
Northwest Region	14.95	23.00	32.82
Ottawa Region	N/A	N/A	N/A
Stratford--Bruce Peninsula Region	14.95	23.00	32.82
Toronto Region	14.95	23.00	32.82
Windsor-Sarnia Region	14.95	23.00	32.82

Competitive Analysis[11]	• MODERATE

The following information consists of OCAS yearly fall application and registration data as well as a conversion ratio for each program under this category:

Diploma

- Fleming is the only course that offers this program and over the past 5 years has had an average of **4:1** conversion ratios

Advanced Diploma

- Fleming has had consistent growth in registration data and has also increased the number of applications each year

[10]"Biological Technologists and Technicians."Working in Canada.N.p., 25 May 2012. Web. 13 June 2012. <http://www.workingincanada.gc.ca/report-eng.do?area=8792&lang=eng&noc=2221&action=final&source=allnoc&titleKeyword>.

[11] Application data obtained from OCAS College Count Cube October 19, 2011
Registration data obtained from the Program Counts by Applicant Type Report (RPT0050P) in the OCAS Reporting and Analytics Cube December 7, 2011.
Some programs/colleges may not be included because they were missing MCU codes in the OCAS dataset
Prepared by Fleming Data Research (07-2012)

Key Research Findings

Diploma

Program: 54204 - RENEWABLE RESOURCE TECHNICIAN														
	App. 2007	Reg. 2007	Conversion Ratio	App. 2008	Reg. 2008	Conversion Ratio	App. 2009	Reg. 2009	Conversion Ratio	App. 2010	Reg. 2010	Conversion Ratio	App. 2011	Reg. 2011	Conversion Ratio
→ FLEMING	138	33	4:1	126	31	4:1	150	32	5:1	158	49	3:1	156	32	5:1
Total	*138*	*33*	*4:1*	*126*	*31*	*4:1*	*150*	*32*	*5:1*	*158*	*49*	*3:1*	*156*	*32*	*5:1*

Advanced Diploma

Program: 64204 - FOREST MANAGEMENT TECHNOLOGY														
	App. 2007	Reg. 2007	Conversion Ratio	App. 2008	Reg. 2008	Conversion Ratio	App. 2009	Reg. 2009	Conversion Ratio	App. 2010	Reg. 2010	Conversion Ratio	App. 2011	Reg. 2011	Conversion Ratio
→ FLEMING	56	16	4:1	102	21	5:1	133	33	4:1	143	44	3:1	181	47	4:1
SAULT	9	2	5:1	9	2	5:1	2			1			0		
Total	*65*	*18*	*4:1*	*111*	*23*	*5:1*	*135*	*33*	*4:1*	*144*	*44*	*3:1*	*181*	*47*	*4:1*

Financial Analysis	• **STRONG**

Source: Program Costing Analysis 2010/2011

Ecosystem Management Technician	• Contribution to Overhead: 48% • Program Weight: 1.30 • Funding Unit: 2.40
Ecosystem Management Technology	• Contribution to Overhead: 48% • Program Weight: 1.30 • Funding Unit: 3.60

Key Research Findings

Key Performance Indicators	• MODERATE

Source: Key Performance Indicator Summary 5 Year Historical Overview KPI Data from Reporting Years 2008-2012

Ecosystem Management Technician	KPI1-Graduation Rate	+13% above system
	KPI2-Working	-28% below system
	KPI3-Working Related	-31% below system
	KPI4-Grad. Satisfaction	-12% below system
	KPI8-Student Satisfaction-Learning	+5% above system
	KPI9-Student Satisfaction- Teachers	+8% above system
	KPI11-Grad. Satisfaction-Program	-2% below system
Ecosystem Management Technology	KPI1-Graduation Rate	+15% above system
	KPI2-Working	-7% below system
	KPI3-Working Related	+2% above system
	KPI4-Grad. Satisfaction	+1% above system
	KPI8-Student Satisfaction-Learning	+7% above system
	KPI9-Student Satisfaction- Teachers	+6% above system
	KPI11-Grad. Satisfaction-Program	-1% below system

Additional Observations and Opportunities

Continuing Education

Various specializations for Ecosystem Management include:[12]

- Environmental Professionals
- Environmental Auditors
  - Compliance Environmental Auditing
  - Environmental Management Systems Lead Auditor
- Greenhouse Gas Professionals
  - Quantification – Inventory Quantification
  - Quantification – Project Quantification
  - Verification – Quantification Expert
  - Verification – Auditing Expert
  - Verification – Team Lead
- Environmental Professionals in Training
- Professional Meteorologists
  - Operational Meteorology
  - Research Meteorology
  - Applied Meteorology

[12] "EP Specializations." *ECO Canada*. Government of Canada's Sector Council Program, n.d. Web. 14 June 2012. <http://www.eco.ca/certification/specializations/about/759/>.

Key Research Findings

Resource Analysis

Equipment

The following information was extracted from the 2010 program review:

- Establish long term forest monitoring sample plots within the Haliburton Scout Reserve (to be used by third year EM students during fall camp). Additional plots should also be established to support the learning which occurs in the Terrestrial Ecosystems course offered in third semester.

Staffing

The following information was extracted from 2010 recent program review:

- Seek approval to hire two full-time faculty positions within the program.

Space

Key Research Findings

Appendix

The following is the original environmental scan conducted by the Library Researchers to form the basis of the previous summary of Key Research Findings Report.

Overview of the Profession:
This occupation falls under 2 NOC codes

- **2221 Biological technician & technologist**
- **2225 Landscape and Horticulture Technicians and Specialists**

2221 Biological Technician & Technologist
http://www.workingincanada.gc.ca/report-eng.do?area=8792&lang=eng&noc=2221&action=final&source=allnoc&titleKeyword=
Description
This unit group includes those who survey and assess landscapes; draw sketches and build models of landscape designs; construct and maintain gardens, parks, golf courses and other landscaped environments; advise clients on issues related to horticulture; breed, cultivate and study plants; and treat injured and diseased trees and plants. They are employed by landscape designers and contractors, lawn service and tree care establishments, golf courses, nurseries and greenhouses, and municipal, provincial and national parks, or they may be self-employed.
Included Job Titles
arborist, golf course superintendent, greenskeeper, horticultural technician, horticulture specialist, horticulturist, hydroponics technician, landscape architectural technician, landscape designer, landscape gardener, landscape technician, landscaper, lawn care specialist, tree service technician.
+ View more
Job Duties
Biological technologists perform some or all of the following duties:

- Set up and conduct biological, microbiological and biochemical tests and laboratory analyses in support of research and quality control in food production, sanitation, pharmaceutical production, biotechnology and other fields
- Apply methods and techniques such as microscopy, histochemistry, chromatography, electrophoresis and spectroscopy
- Perform experimental procedures in agriculture, plant breeding, animal husbandry, biology and biomedical research
- Conduct field research and surveys to collect data and samples of water, soil, and plant and animal populations
- Conduct environmental monitoring and compliance activities for the protection of fisheries stock, wildlife and other natural resources
- Analyze data and prepare reports
- Conduct or supervise operational programs such as fish hatchery, greenhouse and livestock production programs.

Biological technicians perform some or all of the following duties:

- Assist in conducting biological, microbiological and biochemical tests and laboratory analyses
- Perform limited range of technical functions in support of agriculture, plant breeding, animal husbandry, biology, biomedical research and environmental protection

Key Research Findings

- Assist in conducting field research and surveys to collect data and samples of water, soil, and plant and animal populations
- Assist in analysis of data and preparation of reports

Common Job Titles
agricultural technician
agricultural technologist
agrology technician
aquaculture technician
bacteriological technician
biological laboratory technologist
botanical technician
fish hatchery technician
fisheries technician
food bacteriological technician
microbiology quality control technologist
microbiology technologist (except medical)
plant breeding technician
seed technologist
wildlife biology technician

Landscape and Horticulture Technicians and Specialists *(NOC 2225)*
http://www.workingincanada.gc.ca/report-eng.do?area=8792&lang=eng&noc=2225&action=final&source=allnoc&titleKeyword=
Description
Biological technologists and technicians provide technical support and services to scientists, engineers and other professionals working in fields such as agriculture, resource management, environmental protection, plant and animal biology, microbiology, cell and molecular biology and health sciences, or may work independently in these fields. They are employed in both laboratory and field settings by governments, manufacturers of food products, chemicals and pharmaceuticals, biotechnology companies, health, research and educational institutions, environmental consulting companies and resource and utilities companies.
Included Job Titles
agricultural technician
agricultural technologist
agrology technician
aquaculture technician
bacteriological technician
biological laboratory technologist
botanical technician
fish hatchery technician
fisheries technician
food bacteriological technician
microbiology quality control technologist
microbiology technologist (except medical)
plant breeding technician
seed technologist
wildlife biology technician
Job Duties

Key Research Findings

The following is a summary of the main duties for some occupations in this unit group:

- Arborists and tree service technicians examine trees and shrubs to diagnose problems and disease, and apply various treatments such as pruning, spraying, repairing damaged areas and injecting with treatment solutions.
- Golf course superintendents direct crews who maintain the health and appearance of golf courses and their surrounding landscapes, plant and move trees, and apply fertilizers, fungicides, herbicides and pesticides.
- Horticulturists plan and co-ordinate the growth and use of plants for landscaping, ornamental uses and other purposes.
- Landscape designers and landscape architectural technicians and technologists survey and assess sites, prepare drawings, sketches and reports and perform other duties to assist landscape architects in designing landscaped environments.
- Landscape gardeners plant and maintain private and public lawns and gardens.
- Landscapers plan and construct landscaped environments which may include trees, shrubberies, lawns, fences, decks, patios and other landscape structures.
- Lawn care specialists visit clients, assess the health of lawns, and apply fertilizer, pesticides and other lawn care products.

Labour Market
Working in Canada
Employment potential for much of the province in below:
Provincial Employment Potential Information

The following table identifies employment conditions within **Ontario**.

Location	Employment Potential	Release Date
N/A = This information is not available		
Hamilton--Niagara Peninsula Region	N/A	N/A
Kingston - Pembroke Region	N/A	N/A
Kitchener--Waterloo--Barrie Region	N/A	N/A
London Region	Limited	2009-09-25
Muskoka-Kawarthas Region	N/A	N/A
Northeast Region	Limited	2008-04-29
Northwest Region	N/A	N/A
Ottawa Region	N/A	N/A
Stratford--Bruce Peninsula Region	N/A	N/A
Toronto Region	Fair	2010-02-24
Windsor-Sarnia Region	N/A	N/A

http://www.workingincanada.gc.ca/report-eng.do?area=8792&lang=eng&noc=2221&action=final&source=allnoc&titleKeyword=

HRDSC

Key Research Findings

http://www23.hrsdc.gc.ca/occupationsummarydetail.jsp?&tid=39

Search Result : Technical Occupations In Life Sciences (222)

Skill Level:	Occupations Usually Requiring College or Apprenticeship Training
Occupations in this Group:	Biological Technologists and Technicians (2221) Agricultural and Fish Products Inspectors (2222) Forestry Technologists and Technicians (2223) Conservation and Fishery Officers (2224) Landscape and Horticultural Technicians and Specialists (2225)
Employment (non-student) in 2010:	39,195
Median Age of workers in 2010:	39.5 years old
Average Retirement Age in 2010:	59 years old

Over the 2008-2010 period, employment in this occupation declined. Although the unemployment rate also decreased, it remained higher than the average. The average hourly wage increased more quickly than the average for all occupations. According to key labour market indicators, the number of job seekers was sufficient to fill the job openings in this occupation.
Over the 2011-2020 period, an occupation will be in excess demand (a shortage of workers) if the projected number of job openings is significantly greater than the projected number of job seekers. An occupation will be in excess supply (a surplus of workers) if the projected number of job openings is smaller than the projected number of job seekers. For **Technical Occupations In Life Sciences**, over the 2011-2020 period, job openings (arising from expansion demand and replacement demand) are expected to total **18,000** and **15,255** job seekers (arising from school leavers, immigration and mobility) are expected to be available to fill the job openings.
Based on projections and considering that labour supply and demand for this occupation were balanced over the 2008-2010 period, it is expected that the number of job seekers in this occupation will continue to be sufficient to fill the job openings over the 2011-2020 period. The majority of job openings will result from retirements, the retirement rate being higher than employment growth. Nevertheless, employment growth will be higher than average, benefiting from the continuing increase in landscaping and horticulture spending. With regard to labour supply, the majority of job seekers will come from the school system.

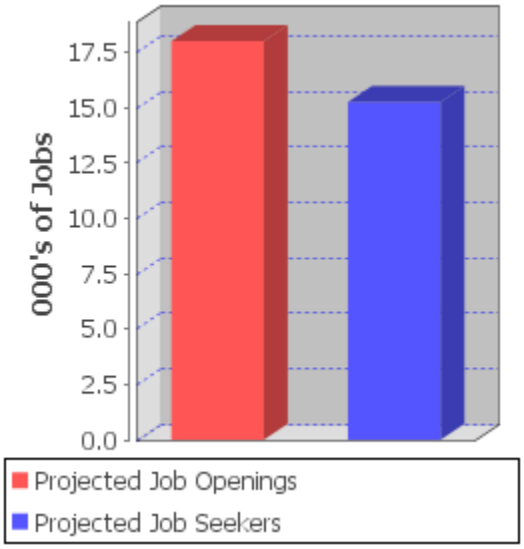
Projection of Cumulative Job Openings and Job Seekers over the Period of 2011-2020

	Level	Share
Expansion Demand:	6,100	34%
Retirements:	9,904	55%
Other Replacement Demand:	1,139	6%
Emigration:	893	5%
Projected Job Openings:	18,000	100%

Level	Share

Key Research Findings

School Leavers:	14,998	98%
Immigration:	1,489	10%
Net Mobility	-2,990	-20%
Projected Job Seekers:	15,255	100%



Median wage for this occupational group in the Muskokas-Kawartha region is $23.00 per hour
National wages rates are below:

Wage Estimates

Location	Wage ($/hr)			Note
	Low	Median	High	
Canada	13.50	21.50	33.33	Note
Alberta	23.72	30.67	39.84	Note
British Columbia	14.00	18.75	25.12	Note
Manitoba	13.50	22.20	37.50	Note
New Brunswick	13.15	16.00	23.37	Note
Newfoundland and Labrador	14.73	27.47	38.00	Note
Northwest Territories	N/A	N/A	N/A	Note
Nova Scotia	14.21	19.46	27.76	Note

Key Research Findings

Location	Wage ($/hr)			Note
	Low	Median	High	
Nunavut	N/A	N/A	N/A	Note
Ontario	14.95	23.00	32.82	Note
Prince Edward Island	N/A	N/A	N/A	Note
Québec	13.08	18.75	26.37	Note
Saskatchewan	12.80	23.01	33.33	Note
Yukon	N/A	N/A	N/A	Note

US Bureau of Labour

This occupational grouping could fall under the category of:

- Environmental Science & Protection Technicians

Environmental Science & Protection Technicians

http://www.bls.gov/ooh/life-physical-and-social-science/environmental-science-and-protection-technicians.htm

Job Outlook

Employment of environmental science and protection technicians is expected to grow by 24 percent from 2010 to 2020, faster than the average for all occupations. Heightened public interest in the hazards facing the environment, as well as the increasing demands placed on the environment by population growth, are expected to spur demand for environmental science and protection technicians. Further demand is expected as a result of new and increasingly complex environmental laws and regulations. Most employment growth for environmental science and protection technicians is projected to be in private consulting firms. More businesses and governments are expected to use these firms in the future to help them monitor and manager the environment and comply with regulations.

Job Prospects

Environmental science and protection technicians should have good opportunities for employment. In addition to openings due to growth, many job openings are expected to be created by those who retire or leave the occupation for other reasons. Job candidates with an associate's degree or experience should have the best opportunities.

Job opportunities available in state and local governments will vary from year to year with the budgets of state and local environmental protection agencies.

Employment projections data for environmental science and protection technicians, 2010-20

Key Research Findings

Occupational Title	SOC Code	Employment, 2010	Projected Employment, 2020	Change, 2010-20		Employment by Industry
				Percent	Numeric	
SOURCE: U.S. Bureau of Labor Statistics, Employment Projections program						
Environmental Science and Protection Technicians, Including Health	19-4091	29,600	36,600	24	7,000	[XLS

Professional Associations:

EcoCanada
http://www.eco.ca/

Canadian Land Reclamation Association
http://www.clra.ca/

Society for Ecological Restoration
http://www.ser.org/

Canadian Council on Ecological Areas
http://www.ccea.org/en_leaf.html

Association for the Advancement of Sustainability in Higher Education
http://www.aashe.org/

Employment Requirements

NOC 2221 Biological Technologists & Technicians
http://www5.hrsdc.gc.ca/NOC/English/NOC/2011/QuickSearch.aspx?val65=2221

Employment requirements

- Completion of a two- to three-year college program in a field related to agriculture, biology, microbiology, wildlife or resource management is usually required for employment as a biological technologist.
- Completion of a one- to two-year college program in a related field is required for employment as a biological technician.
- Certification with provincial associations is available, but voluntary.

NOC – 2225 Landscape & Horticulture Technicians & Specialists
http://www5.hrsdc.gc.ca/NOC/English/NOC/2011/QuickSearch.aspx?val65=2225

Employment requirements

- Completion of a university or college program in agronomy, arboriculture, horticulture, landscaping, landscape design or landscape technology is usually required.

Key Research Findings

- Experience as a landscape and grounds maintenance labourer may be required for golf course superintendents, landscape gardeners and landscapers.
- An apprenticeship program is available for horticulturists, arboriculturists and landscape gardeners.
- A provincial licence to apply chemical fertilizers, fungicides, herbicides and pesticides may be required.
- In Quebec, membership in the regulatory body is required to use the title of Professional Technologist.

Educational Programs Leading to this Occupation
Education/Training

Completion of a three-year or equivalent program for biological technologists or a two-year or an equivalent program for biological technicians is usually required. Several different educational backgrounds can provide entrance to an occupation within this classification. Certification in biological technology or in a related field is available through provincial associations of engineering and applied science. In Ontario, the Ontario Association of Certified Engineering Technicians and Technologists (OACETT) certifies biological technologists and technicians. The certification process includes a period ofsupervised work experience, usually up to two years, and a professional practice examination. (http://www.tcu.gov.on.ca/eng/labourmarket/ojf/pdf/2221_e.pdf)

Educational Competitors

Fleming College

Ecosystem Management Technician
http://flemingcollege.ca/programs/ecosystem-management-technician

Ecosystem Management Technology
http://flemingcollege.ca/programs/ecosystem-management-technology

Ecosystem Management Advanced Standing
http://flemingcollege.ca/programs/ecosystem-management-technology-advanced-standing

Cambrian College

Environmental Monitoring & Impact Assessment Graduate Certificate (3 semesters)
http://www.cambriancollege.ca/Programs/Programs/201209EMPD.HTM

Confederation College

Forest Ecosystem Management Technician (Co-Op)
http://www.confederationc.on.ca/node/551

Niagara College

Ecosystem Restoration (Certificate – Post-diploma)
http://www.niagaracollege.ca/content/Programs/EnvironmentalStudies/EcosystemRestoration.aspx

Sault College

Natural Environment Technician – Conservation & Management (Diploma)

Key Research Findings

http://www.saultcollege.ca/Programs/Programs.asp?progcode=5220&cat=overview&groupcode=NRS#bd-header

Natural Environment Techniques – Conservation & Management (3 yr. diploma)
http://www.saultcollege.ca/Programs/Programs.asp?progcode=5221&cat=overview&groupcode=NRS#bd-header

Seneca College

Environmental Landscape Management
http://www.senecacollege.ca/fulltime/EVLC.html

Urban Land Regeneration
http://www.senecacollege.ca/fulltime/ULR.html

British Columbia Institute of Technology

Sustainable Resource Management
http://www.bcit.ca/study/programs/7270diplt

College	APS	APS Title	MTCU Code	MTCU Title	WT	FU	TF
CAMB	1279	Environmental Monitoring & Impact Assessment	72700	Environmental Control	1.20	1.40	1.00
NIAG	1138	Ecosystem Restoration	72703	Environmental Studies	1.20	1.00	1.00
SAUL	1175	Ecosystem Surveys-field Skills	42703	Ecosystem Surveys-field Skills	1.20	1.10	1.00
SAUL	1111	Renewable Resource Technician	54204	Renewable Resource Technician	1.30	2.40	2.00
SAUL	1181	Natural Environment Technician - Conservation and Management	52700	Environmental Technician	1.30	2.40	2.00
SAUL	1182	Natural Environment Technologist - Conservation Management	62700	Environmental Technology	1.30	3.30	3.00
SENE	1067	Environmental Landscape Management	52221	Recreation - Parks Operation And Services	1.10	2.00	2.00
SENE	1290	Urban Land Regeneration	72700	Environmental Control	1.20	1.40	1.00
SSFL	1143	Ecosystem Management Technician	54204	Renewable Resource Technician	1.30	2.40	2.00
SSFL	1144	Ecosystem Management Technology	64204	Forest Management Technology	1.30	3.60	3.00

Key Research Findings

Technician/Technologist Profiles
http://www.cecab.org/public/documents/NOS_Profiles_TT.pdf

Technician/Technologist Profile - Land Quality (A3) Type 1

Environmental Assessments, Remediation, Restoration and Reclamation

A.2 Conducting environmental site assessment (ESA - Phase 1 and Phase 2)
A.2.10 Review historical records for the site (e.g. site plans, fire insurance maps, legal title searches, business
directories, air photos, satellite images, etc.) to determine previous land use.
A.2.11 Carry out visual inspection of site and neighbouring properties to inventory/identify current operations,
evidence of discharges, visible contamination, buried tanks, dumping, etc.
A.2.12 Collect related information from key stakeholders (e.g. owners and staff, municipalities, regulators)
regarding land use, facility operations, permits, relevant legislation, etc.
A.2.13 Conduct investigation, sampling, screening, and analysis (including geophysical mapping) activities of
landforms, soil, ground water, sediments, airborne contaminants, etc.
A.2.14 Characterize environmental aspects of site (such as landforms, drainage, plant communities, and soil
properties) based on interpretation of data collected during site investigation, sampling and analysis (for example, contaminants, their concentration and general extent).
A.3 Developing/implementing site remediation (Phase 3) plans
A.3.20 Carry out full-scale remediation activities (e.g. thermal, biological, chemical or physical treatment,
containment, vapour extraction, excavation, etc.).

B Policy, Legislation and Regulations

B.6 Interpreting/enforcing/complying with environmental regulations and standards
B.6.37 Interpret environmental legislation, e.g. Workplace Hazardous Materials Information System (WHMIS),
Transportation of Dangerous Goods (TDG), and Workplace Health and Public Safety Programme (WHPSP) regulations, standards, and municipal by-laws, and their implications to specific applications.
B.6.42 Implement programs, including monitoring activities, to ensure regulatory compliance.

E Sampling and Analytical Work Related to Environmental Activities

E.14 Developing environmental sampling, testing and monitoring programs
E.14.100 Maintain analytical test instruments and monitoring or sampling equipment as per manufacturers' usermaintenance
specifications and standard operating procedures, including calibration of instruments/equipment.
E.15 Collecting samples and data for environmental purposes

Key Research Findings

E.15.101 Determine the appropriate sampling containers, protocols, preservation methods, and collection
apparatus, etc.
E.15.102 Deploy analytical test instruments or sampling equipment (such as data capture systems, continuous
monitoring devices, drilling cores, water bailers, etc.), including assembly and documentation of any deviation to standard procedures.
E.15.103 Collect samples and specimens from air, water, flora, fauna, soil, fish, tree, human, etc., using more
routine sampling procedures and apparatus.
E.15.104 Collect samples and specimens from air, water, flora, fauna, soil, fish, tree, human, etc., using more
complex sampling procedures and apparatus.
E.15.105 Use appropriate techniques to prepare (code, preserve, pretreat and transport) samples for analysis
while maintaining chain of custody requirements and sample integrity.
E.15.108 Perform direct measurement of physical parameters for air/water/soil, including for example, temperature, flow rates, pressure, gaseous/particulate emissions, etc.
E.15.111 Maintain appropriate records and ongoing documentation pertaining to analytical work, including
regulatory documentation.
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Technician/Technologist Profile - Land Quality (A3) Type 2

Environmental A Assessments, Remediation, Restoration and Reclamation

A.2 Conducting environmental site assessment (ESA - Phase 1 and Phase 2)
A.2.9 Identify the scope of site assessment (phase 1 and 2) project.
A.2.15 Prepare site assessment report(s) to meet regulatory requirements, identifying potential risk and scope
of further action by appropriate stakeholders, if necessary.
A.2.16 Evaluate possible remediation/restoration/reclamation alternatives, taking into account costs, technological constraints, and stakeholders' concerns.
A.2.17 Develop site remediation/restoration/reclamation plans and programs, including objectives, targets,
contamination description, issue resolution process, pilot requirements, time schedule, and cost estimate.
A.3 Developing/implementing site remediation (Phase 3) plans
A.3.18 Determine remediation clean-up targets to make the site fit for its intended use or return it to its original
condition (applies to all sites including watershed restoration, forestry site reclamation, mine closures, etc.).
A.3.21 Monitor post-remediation conditions and results to assess if targets and regulatory requirements have
been met.
A.3.22 Prepare remediation completion report, including documentation of remediation and post-remediation

Key Research Findings

monitoring data, and review of environmental outcomes relative to standards, for submission to regulators and stakeholders.

B Policy, Legislation and Regulations

B.6 Interpreting/enforcing/complying with environmental regulations and standards
B.6.36 Provide expert advice to senior management, internal staff, regulatory bodies, interest groups and the
public on matters related to disputes, compliance and other environmental issues, including processes for acquiring regulatory approval.
B.6.39 Prepare regulatory applications, permits, and operational permit reports (including air permits, waste
disposal permits, resource harvesting permits, etc.).
B.6.41 Develop plans and programs to meet regulatory requirements, including monitoring programs and
employee information and communication plans.
B.6.43 Evaluate compliance with environmental regulations, including the documentation of violations and noncompliance episodes.

E Sampling and Analytical Work Related to Environmental Activities

E.14 Developing environmental sampling, testing and monitoring programs
E.14.96 Determine the need and scope for sampling program, including environmental indicators, and sampling
constraints (such as access to sites, fiscal or other limitations).
E.14.97 Develop environmental sampling protocols, including the frequency and timing of sampling, optimum
locations for continuous or discreet sampling, data capture systems, sampling procedures, sampling methodology, personnel, parameter list for analysis, data quality objectives, etc.
E.14.98 Develop site-specific work plans, including Quality Assurance/Quality Control (QA/QC) methods, measuring/monitoring procedures and analytical equipment to be used for the specific application (e.g. air, water, soil, sediments, rock, fauna, flora, human, workplace, etc.).
E.14.99 Modify existing sampling programs to reflect evolving environmental circumstances (for example, change
in parameter tests, sampling locations, sampling frequency, etc.).
E.16 Analyzing and interpreting environmental samples and data
E.16.117 Interpret analytical data to identify trends, significant changes from historical patterns, deviations, or
evidence of environmental stresses, etc.

Technician/Technologist Profile - Land Quality (A3) Type 2

E.16.120 Prepare summary reports of analysis results using technical formats such as tables, charts, and diagrams for integration into technical reports and/or presentation to expert and/or non-expert audience
through scientific journals, oral presentations, etc.

Type 3

Key Research Findings

Environmental A Assessments, Remediation, Restoration and Reclamation

A.3 Developing/implementing site remediation (Phase 3) plans
A.3.19 Conduct pilot tests, including treatability studies, to assess the effectiveness of the intended remediation
method.

B Policy, Legislation and Regulations

B.6 Interpreting/enforcing/complying with environmental regulations and standards
B.6.44 Prepare compliance and regulatory reports for internal use and for filing with regulatory agencies.

E Sampling and Analytical Work Related to Environmental Activities

E.15 Collecting samples and data for environmental purposes
E.15.110 Collect data for environmental assessment from imageries obtained from sources such as remote
sensing devices, satellite, and aerial/terrestrial/under-water cameras/sensors.

F Strategic Partnering, Planning, Monitoring and Reporting for Sustainability

F.17 Liaising and partnering with stakeholders
F.17.121 Liaise with stakeholders (e.g. governments, private sector, environmental experts, farmers, producers,
NGOs, culturally diverse groups, communities, etc.) to collaborate on stewardship and sustainability issues and concerns (e.g. broad-based habitat preservation and management practices and ecological fiscal reform).

G Environmental Management Systems/Risk Assessment/Health and Safety

G.20 Developing corporate environmental plans, policies and procedures
G.20.141 Advise senior management and other stakeholders on environmental matters related to personal and
corporate liability.
G.22 Conducting environmental risk assessments
G.22.155 Identify hazards, opportunities or potential risks to human health, the environment, facility operation/financial loss, legal liability, social impact, public perception through such activities as collecting source data, reviewing literature, investigating illness/injuries, and obtaining feedback from workers or the public.

Key Research Findings

Technician/Technologist Profile - Restoration & Reclamation (A5) Type 1

Environmental A Assessments, Remediation, Restoration and Reclamation

A.2 Conducting environmental site assessment (ESA - Phase 1 and Phase 2)
A.2.10 Review historical records for the site (e.g. site plans, fire insurance maps, legal title searches, business
directories, air photos, satellite images, etc.) to determine previous land use.
A.2.11 Carry out visual inspection of site and neighbouring properties to inventory/identify current operations,
evidence of discharges, visible contamination, buried tanks, dumping, etc.
A.2.12 Collect related information from key stakeholders (e.g. owners and staff, municipalities, regulators)
regarding land use, facility operations, permits, relevant legislation, etc.
A.2.13 Conduct investigation, sampling, screening, and analysis (including geophysical mapping) activities of
landforms, soil, ground water, sediments, airborne contaminants, etc.
A.2.14 Characterize environmental aspects of site (such as landforms, drainage, plant communities, and soil
properties) based on interpretation of data collected during site investigation, sampling and analysis (for example, contaminants, their concentration and general extent).
A.4 Developing/implementing site restoration/reclamation (Phase 3) plans
A.4.23 Investigate attributes of materials, such as physical, chemical, and geotechnical involved in the restoration/reclamation.
A.4.26 Provide environmental inspection assessment during construction and reclamation to ensure that regulatory requirements are met and that procedures and plans are being followed.
A.4.28 Monitor post-restoration/reclamation conditions and results to assess if targets and regulatory requirements have been met.

B Policy, Legislation and Regulations

B.6 Interpreting/enforcing/complying with environmental regulations and standards
B.6.37 Interpret environmental legislation, e.g. Workplace Hazardous Materials Information System (WHMIS),
Transportation of Dangerous Goods (TDG), and Workplace Health and Public Safety Programme (WHPSP) regulations, standards, and municipal by-laws, and their implications to specific applications.
B.6.42 Implement programs, including monitoring activities, to ensure regulatory compliance.

E Sampling and Analytical Work Related to Environmental Activities

E.14 Developing environmental sampling, testing and monitoring programs
E.14.100 Maintain analytical test instruments and monitoring or sampling equipment as per manufacturers' usermaintenance
specifications and standard operating procedures, including calibration of instruments/equipment.
E.15 Collecting samples and data for environmental purposes
E.15.101 Determine the appropriate sampling containers, protocols, preservation methods, and collection

Key Research Findings

apparatus, etc.
E.15.102 Deploy analytical test instruments or sampling equipment (such as data capture systems, continuous
monitoring devices, drilling cores, water bailers, etc.), including assembly and documentation of any deviation to standard procedures.
E.15.103 Collect samples and specimens from air, water, flora, fauna, soil, fish, tree, human, etc., using more
routine sampling procedures and apparatus.
E.15.104 Collect samples and specimens from air, water, flora, fauna, soil, fish, tree, human, etc., using more
complex sampling procedures and apparatus.
E.15.105 Use appropriate techniques to prepare (code, preserve, pretreat and transport) samples for analysis
while maintaining chain of custody requirements and sample integrity.

Technician/Technologist Profile - Restoration & Reclamation (A5) Type 1

E.15.108 Perform direct measurement of physical parameters for air/water/soil, including for example, temperature, flow rates, pressure, gaseous/particulate emissions, etc.
E.15.111 Maintain appropriate records and ongoing documentation pertaining to analytical work, including
regulatory documentation.

Type 2

Environmental A Assessments, Remediation, Restoration and Reclamation

A.2 Conducting environmental site assessment (ESA - Phase 1 and Phase 2)
A.2.9 Identify the scope of site assessment (phase 1 and 2) project.
A.2.15 Prepare site assessment report(s) to meet regulatory requirements, identifying potential risk and scope
of further action by appropriate stakeholders, if necessary.
A.2.16 Evaluate possible remediation/restoration/reclamation alternatives, taking into account costs, technological constraints, and stakeholders' concerns.
A.2.17 Develop site remediation/restoration/reclamation plans and programs, including objectives, targets,
contamination description, issue resolution process, pilot requirements, time schedule, and cost estimate.
A.4 Developing/implementing site restoration/reclamation (Phase 3) plans
A.4.24 Develop appropriate construction and reclamation procedures and contingency plans based on best
management practices and a minimum "footprint".
A.4.25 Conduct on-site reclamation activities (including landscaping, tree-planting, and habitat development),
using appropriate species and procedures for revegetation.
A.4.27 Conduct on-site restoration activities, e.g. restore riparian, coastal zone, and wetland habitats.
B Policy, Legislation and Regulations
B.6 Interpreting/enforcing/complying with environmental regulations and standards

Key Research Findings

B.6.36 Provide expert advice to senior management, internal staff, regulatory bodies, interest groups and the
public on matters related to disputes, compliance and other environmental issues, including processes for acquiring regulatory approval.
B.6.39 Prepare regulatory applications, permits, and operational permit reports (including air permits, waste
disposal permits, resource harvesting permits, etc.).
B.6.41 Develop plans and programs to meet regulatory requirements, including monitoring programs and
employee information and communication plans.
B.6.43 Evaluate compliance with environmental regulations, including the documentation of violations and noncompliance episodes.

E Sampling and Analytical Work Related to Environmental Activities

E.14 Developing environmental sampling, testing and monitoring programs
E.14.96 Determine the need and scope for sampling program, including environmental indicators, and sampling
constraints (such as access to sites, fiscal or other limitations).
E.14.97 Develop environmental sampling protocols, including the frequency and timing of sampling, optimum
locations for continuous or discreet sampling, data capture systems, sampling procedures, sampling methodology, personnel, parameter list for analysis, data quality objectives, etc.
E.14.98 Develop site-specific work plans, including Quality Assurance/Quality Control (QA/QC) methods, measuring/monitoring procedures and analytical equipment to be used for the specific application (e.g. air, water, soil, sediments, rock, fauna, flora, human, workplace, etc.).
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Technician/Technologist Profile - Restoration & Reclamation (A5) Type 2

E.14.99 Modify existing sampling programs to reflect evolving environmental circumstances (for example, change
in parameter tests, sampling locations, sampling frequency, etc.).
E.16 Analyzing and interpreting environmental samples and data
E.16.117 Interpret analytical data to identify trends, significant changes from historical patterns, deviations, or
evidence of environmental stresses, etc.
E.16.120 Prepare summary reports of analysis results using technical formats such as tables, charts, and diagrams for integration into technical reports and/or presentation to expert and/or non-expert audience
through scientific journals, oral presentations, etc.

Type 3

Environmental A Assessments, Remediation, Restoration and Reclamation

A.4 Developing/implementing site restoration/reclamation (Phase 3) plans

Key Research Findings

A.4.29 Prepare site restoration and site reclamation report(s) for submission to the appropriate regulators and
stakeholders.

B Policy, Legislation and Regulations

B.6 Interpreting/enforcing/complying with environmental regulations and standards
B.6.44 Prepare compliance and regulatory reports for internal use and for filing with regulatory agencies.

E Sampling and Analytical Work Related to Environmental Activities

E.15 Collecting samples and data for environmental purposes
E.15.110 Collect data for environmental assessment from imageries obtained from sources such as remote
sensing devices, satellite, and aerial/terrestrial/under-water cameras/sensors.

F Strategic Partnering, Planning, Monitoring and Reporting for Sustainability

F.17 Liaising and partnering with stakeholders
F.17.121 Liaise with stakeholders (e.g. governments, private sector, environmental experts, farmers, producers,
NGOs, culturally diverse groups, communities, etc.) to collaborate on stewardship and sustainability issues and concerns (e.g. broad-based habitat preservation and management practices and ecological fiscal reform).

G Environmental Management Systems/Risk Assessment/Health and Safety

G.20 Developing corporate environmental plans, policies and procedures
G.20.141 Advise senior management and other stakeholders on environmental matters related to personal and
corporate liability.
G.22 Conducting environmental risk assessments
G.22.155 Identify hazards, opportunities or potential risks to human health, the environment, facility operation/financial loss, legal liability, social impact, public perception through such activities as collecting source data, reviewing literature, investigating illness/injuries, and obtaining feedback from workers or the public.

Key Research Findings

Technician/Technologist Profile - Environmental Protection Management (A7) Type 1

Environmental A Assessments, Remediation, Restoration and Reclamation

A.1 Conducting environmental impact assessments
A.1.1 Identify the geographic, social, economic, and environmental scope and parameters to be used for the
impact assessment study.
A.1.3 Review earth and life science inventories and existing studies to determine if sufficient baseline data is
available for the impact assessment study.
A.1.5 Consult with stakeholders (including regulators, municipalities, public, interest groups, Aboriginals, NGOs, etc.) to gather information regarding the perceived impacts of development activities on the communities, the environment and the natural resources.
A.2 Conducting environmental site assessment (ESA - Phase 1 and Phase 2)
A.2.9 Identify the scope of site assessment (phase 1 and 2) project.
A.2.10 Review historical records for the site (e.g. site plans, fire insurance maps, legal title searches, business
directories, air photos, satellite images, etc.) to determine previous land use.
A.2.11 Carry out visual inspection of site and neighbouring properties to inventory/identify current operations,
evidence of discharges, visible contamination, buried tanks, dumping, etc.
A.2.12 Collect related information from key stakeholders (e.g. owners and staff, municipalities, regulators)
regarding land use, facility operations, permits, relevant legislation, etc.
A.2.13 Conduct investigation, sampling, screening, and analysis (including geophysical mapping) activities of
landforms, soil, ground water, sediments, airborne contaminants, etc.
A.2.14 Characterize environmental aspects of site (such as landforms, drainage, plant communities, and soil
properties) based on interpretation of data collected during site investigation, sampling and analysis (for example, contaminants, their concentration and general extent).
A.2.15 Prepare site assessment report(s) to meet regulatory requirements, identifying potential risk and scope
of further action by appropriate stakeholders, if necessary.

B Policy, Legislation and Regulations

B.6 Interpreting/enforcing/complying with environmental regulations and standards
B.6.37 Interpret environmental legislation, e.g. Workplace Hazardous Materials Information System (WHMIS),
Transportation of Dangerous Goods (TDG), and Workplace Health and Public Safety Programme (WHPSP) regulations, standards, and municipal by-laws, and their implications to specific applications.
B.6.38 Define environmental performance requirements for specific jurisdictions.
B.6.39 Prepare regulatory applications, permits, and operational permit reports (including air permits, waste
disposal permits, resource harvesting permits, etc.).

Key Research Findings

B.6.41 Develop plans and programs to meet regulatory requirements, including monitoring programs and
employee information and communication plans.
B.6.42 Implement programs, including monitoring activities, to ensure regulatory compliance.
B.6.43 Evaluate compliance with environmental regulations, including the documentation of violations and noncompliance
episodes.
B.6.44 Prepare compliance and regulatory reports for internal use and for filing with regulatory agencies.
B.6.45 Enforce regulations pertaining to the environment and natural resources, including inspecting sites,
patrolling, issuing warnings, making arrests.
B.6.46 Conduct audits of the environmental performance of organizations and jurisdictions to determine the
adequacy of their policies and procedures, and non-compliance issues.

Technician/Technologist Profile - Environmental Protection Management (A7) Type 1

Sampling and E Analytical Work Related to Environmental Activities

E.14 Developing environmental sampling, testing and monitoring programs
E.14.96 Determine the need and scope for sampling program, including environmental indicators, and sampling
constraints (such as access to sites, fiscal or other limitations).
E.14.97 Develop environmental sampling protocols, including the frequency and timing of sampling, optimum
locations for continuous or discreet sampling, data capture systems, sampling procedures, sampling methodology, personnel, parameter list for analysis, data quality objectives, etc.
E.14.98 Develop site-specific work plans, including Quality Assurance/Quality Control (QA/QC) methods, measuring/monitoring procedures and analytical equipment to be used for the specific application (e.g. air, water, soil, sediments, rock, fauna, flora, human, workplace, etc.).
E.14.99 Modify existing sampling programs to reflect evolving environmental circumstances (for example, change
in parameter tests, sampling locations, sampling frequency, etc.).
E.14.100 Maintain analytical test instruments and monitoring or sampling equipment as per manufacturers' usermaintenance
specifications and standard operating procedures, including calibration of instruments/equipment.
E.15 Collecting samples and data for environmental purposes
E.15.101 Determine the appropriate sampling containers, protocols, preservation methods, and collection
apparatus, etc.
E.15.102 Deploy analytical test instruments or sampling equipment (such as data capture systems, continuous
monitoring devices, drilling cores, water bailers, etc.), including assembly and documentation of any deviation to standard procedures.
E.15.103 Collect samples and specimens from air, water, flora, fauna, soil, fish, tree, human, etc., using more

Key Research Findings

routine sampling procedures and apparatus.
E.15.104 Collect samples and specimens from air, water, flora, fauna, soil, fish, tree, human, etc., using more
complex sampling procedures and apparatus.
E.15.105 Use appropriate techniques to prepare (code, preserve, pretreat and transport) samples for analysis
while maintaining chain of custody requirements and sample integrity.
E.15.106 Prepare samples (other than biological) for lab analysis using techniques such as grinding, dilution or
concentration, chemical extraction, digestion and fractionation.
E.15.108 Perform direct measurement of physical parameters for air/water/soil, including for example, temperature, flow rates, pressure, gaseous/particulate emissions, etc.
E.15.111 Maintain appropriate records and ongoing documentation pertaining to analytical work, including
regulatory documentation.
E.16 Analyzing and interpreting environmental samples and data
E.16.120 Prepare summary reports of analysis results using technical formats such as tables, charts, and diagrams for integration into technical reports and/or presentation to expert and/or non-expert audience
through scientific journals, oral presentations, etc.

K Environmental Communications and Public Awareness

K.35 Developing/implementing environmental communications and awareness programs
K.35.269 Collect information on the topic at hand (e.g. literature review, interviews, investigation, surveys, expert
input, public opinion polls).
K.35.270 Identify constraints, sensitivities, or opposing views and means to address them so that the message
reaches the designated target audience(s) (using a variety of formats such as printed materials, videos, internet, CD ROMs), and addresses the environmental concern(s).

Technician/Technologist Profile - Environmental Protection Management (A7) Type 1

K.35.271 Provide technical input into the development of marketing and communication plans, materials and/or
presentations.
K.35.273 Make presentations to a variety of audiences (including schools, and community and non-governmental
organizations) to build awareness of environmental issues, concerns and/or programs (e.g. the healthrelated
effects of chemical enhancements to agricultural food production).
K.35.275 Assess the effectiveness of environmental communications/awareness programs in attaining the goals.
K.36 Presenting expert information on environmental matters
K.36.276 Provide technical advice to the development of appropriate communications/public relations strategies to
address employee and public concerns about environmental issues and risks.

Key Research Findings

Type 2

Environmental A Assessments, Remediation, Restoration and Reclamation

A.1 Conducting environmental impact assessments
A.1.2 Develop a project management plan for the impact assessment study for proposed developments, change in facility operations, change in land use, amended or proposed new policies, etc.
A.1.4 Review facility/development design, production/manufacturing processes.
A.1.6 Assess areas of potential impact such as biophysical, social, economic, and heritage resources.
A.1.7 Assess qualitative and quantitative environmental issues, risks or problems, including their cumulative
effect and corresponding socio-economic impacts, to develop mitigative plans and measures.
A.1.8 Prepare environmental impact assessment report(s), including mitigation, environmental protection, and
recovery plans.
A.2 Conducting environmental site assessment (ESA - Phase 1 and Phase 2)
A.2.16 Evaluate possible remediation/restoration/reclamation alternatives, taking into account costs, technological constraints, and stakeholders' concerns.
A.2.17 Develop site remediation/restoration/reclamation plans and programs, including objectives, targets,
contamination description, issue resolution process, pilot requirements, time schedule, and cost estimate.
A.3 Developing/implementing site remediation (Phase 3) plans
A.3.18 Determine remediation clean-up targets to make the site fit for its intended use or return it to its original
condition (applies to all sites including watershed restoration, forestry site reclamation, mine closures, etc.).
A.3.22 Prepare remediation completion report, including documentation of remediation and post-remediation
monitoring data, and review of environmental outcomes relative to standards, for submission to regulators and stakeholders.
A.4 Developing/implementing site restoration/reclamation (Phase 3) plans
A.4.28 Monitor post-restoration/reclamation conditions and results to assess if targets and regulatory requirements have been met.

B Policy, Legislation and Regulations

B.6 Interpreting/enforcing/complying with environmental regulations and standards
B.6.36 Provide expert advice to senior management, internal staff, regulatory bodies, interest groups and the
public on matters related to disputes, compliance and other environmental issues, including processes for acquiring regulatory approval.
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Technician/Technologist Profile - Environmental Protection Management (A7) Type 2

B.6.40 Negotiate the terms and approval of compliance procedures and permits, including approval of

Key Research Findings

development plans and use of technology such as Pollution Prevention, Abatement, and Control (PAC) equipment and systems.

C Pollution Prevention, Abatement and Control

C.8 Implementing pollution prevention, abatement and control (PAC) methods
C.8.53 Assess operations and processes for potential pollution problems (involves identifying contaminant
sources, determining their characteristics and the severity of the problems).

E Sampling and Analytical Work Related to Environmental Activities

E.16 Analyzing and interpreting environmental samples and data
E.16.112 Analyze samples using more routine analytical procedures and instruments to identify and/or quantify
physical, chemical or biological properties, including pathogens, contaminants, pollutants, residues, etc.

G Environmental Management Systems/Risk Assessment/Health and Safety

G.21 Implementing environmental management systems
G.21.147 Develop an Environmental Management System which is consistent with the organization's strategic
plan and regulatory requirements, including goals, objectives, and targets.
G.21.148 Implement the Environmental Management System strategies and practices.

K Environmental Communications and Public Awareness

K.35 Developing/implementing environmental communications and awareness programs
K.35.267 Establish goals for the communication/awareness program and ways to measure effectiveness of
outcomes in attaining the goals.
K.35.272 Develop content of environmental awareness programs designed, for example, to encourage and reward
environmentally responsible behaviour.

Type 3

A Environmental Assessments, Remediation, Restoration and Reclamation

A.4 Developing/implementing site restoration/reclamation (Phase 3) plans
A.4.25 Conduct on-site reclamation activities (including landscaping, tree-planting, and habitat development),
using appropriate species and procedures for revegetation.
A.4.26 Provide environmental inspection assessment during construction and reclamation to ensure that regulatory requirements are met and that procedures and plans are being followed.

C Pollution Prevention, Abatement and Control

Key Research Findings

C.7 Coordinating environmental aspects of facility design and operation
C.7.47 Determine the environmental aspects of the needs and requirements associated with the design and
operation of the proposed facility, plant, landfill, etc.

E Sampling and Analytical Work Related to Environmental Activities

E.15 Collecting samples and data for environmental purposes
E.15.107 Prepare biological samples for lab analysis using techniques such as dissection, emulsification, and
tissue or bacterial culturing.
E.16 Analyzing and interpreting environmental samples and data
E.16.116 Conduct statistical analysis of data using appropriate computer software, databases, etc.

Technician/Technologist Profile - Environmental Protection Management (A7) Type 3

E.16.119 Conduct quality control reviews of data collection, processing, and analysis to ensure data is 'fit for
purpose' using accepted scientific practices and proper Quality Assurance/Quality Control (QA/QC) protocols.

G Environmental Management Systems/Risk Assessment/Health and Safety

G.20 Developing corporate environmental plans, policies and procedures
G.20.140 Advocate with senior management and other key stakeholders to ensure due consideration of and
commitment to environmental management and sustainable development principles and strategies.
G.22 Conducting environmental risk assessments
G.22.155 Identify hazards, opportunities or potential risks to human health, the environment, facility operation/financial loss, legal liability, social impact, public perception through such activities as collecting source data, reviewing literature, investigating illness/injuries, and obtaining feedback from workers or the public.
G.22.162 Assess the effectiveness of risk management activities to minimize impact on the environment and
human health.

K Environmental Communications and Public Awareness

K.35 Developing/implementing environmental communications and awareness programs
K.35.268 Develop proposals for approval and/or funding of environmental communication/awareness programs.
K.35.274 Champion the program and its implementation with media, outside audiences, organizations, etc.
K.36 Presenting expert information on environmental matters
K.36.277 Manage media relations concerning environmental matters.
K.36.278 Act as the organization's spokesperson concerning environment-related issues and inquiries (e.g. health
& safety, contamination of air, water, soil/water, etc.).

Key Research Findings

K.36.279 Provide technical advice to selection of content and speakers for conferences, seminars, meetings, focus
groups, and public consultations and forums to address environment-related topics and issues.
K.36.280 Participate as a speaker, panelist, witness, or expert in conferences, public forums to address environment-related topics and issues, or hearings (such as defending the Environmental Impact Assessment report).

Technician/Technologist Profile - Natural Resources Management (B7)
Type 1

Environmental A Assessments, Remediation, Restoration and Reclamation

A.1 Conducting environmental impact assessments
A.1.1 Identify the geographic, social, economic, and environmental scope and parameters to be used for the
impact assessment study.
A.1.2 Develop a project management plan for the impact assessment study for proposed developments, change in facility operations, change in land use, amended or proposed new policies, etc.
A.1.3 Review earth and life science inventories and existing studies to determine if sufficient baseline data is
available for the impact assessment study.
A.1.4 Review facility/development design, production/manufacturing processes.
A.1.5 Consult with stakeholders (including regulators, municipalities, public, interest groups, Aboriginals, NGOs, etc.) to gather information regarding the perceived impacts of development activities on the communities, the environment and the natural resources.
A.1.6 Assess areas of potential impact such as biophysical, social, economic, and heritage resources.
A.1.7 Assess qualitative and quantitative environmental issues, risks or problems, including their cumulative
effect and corresponding socio-economic impacts, to develop mitigative plans and measures.
A.1.8 Prepare environmental impact assessment report(s), including mitigation, environmental protection, and
recovery plans.

B Policy, Legislation and Regulations

B.5 Developing environmental policies, measures and standards
B.5.31 Review existing and/or proposed environmental policies/legislation/standards (and the rationale supporting them) to assess implications to stakeholders, including customers and suppliers.
B.6 Interpreting/enforcing/complying with environmental regulations and standards
B.6.36 Provide expert advice to senior management, internal staff, regulatory bodies, interest groups and the
public on matters related to disputes, compliance and other environmental issues, including processes for acquiring regulatory approval.
B.6.37 Interpret environmental legislation, e.g. Workplace Hazardous Materials Information System (WHMIS),
Transportation of Dangerous Goods (TDG), and Workplace Health and Public Safety Programme (WHPSP) regulations, standards, and municipal by-laws, and their implications to specific applications.
B.6.42 Implement programs, including monitoring activities, to ensure regulatory compliance.

Key Research Findings

B.6.43 Evaluate compliance with environmental regulations, including the documentation of violations and noncompliance
episodes.
B.6.44 Prepare compliance and regulatory reports for internal use and for filing with regulatory agencies.
B.6.46 Conduct audits of the environmental performance of organizations and jurisdictions to determine the
adequacy of their policies and procedures, and non-compliance issues.

E Sampling and Analytical Work Related to Environmental Activities

E.15 Collecting samples and data for environmental purposes
E.15.103 Collect samples and specimens from air, water, flora, fauna, soil, fish, tree, human, etc., using more
routine sampling procedures and apparatus.

Employment Postings
Community Services Assistant 5 - Environmental Stewardship Programmer
Organization: City of Surrey
Job Type: Part-time
Location: Surrey, BC
Posting Date: May 10, 2012
Deadline: Jun 11, 2012
Website: http://www.surreycareers.ca
Organization Description:
Job Description:
The City of Surrey's Environmental Programs team is located at the Surrey Nature Centre at Green Timbers, and operates a wide range of environmental stewardship and education programs throughout the City of Surrey.
The Environmental Stewardship Programmer will plan and implement hands-on environmental stewardship programs (tree planting, invasive plant removal, park clean-ups and more) with schools, individual volunteers and community groups. He or she will also coordinate volunteers for environmental events and programs, and assist with promotion and marketing.
Essential qualities for success in this position include enthusiasm and creativity, along with strong interpersonal, communication and leadership skills. The abilities to build relationships with a variety of individuals and groups, and to create inclusive and welcoming environments, are also vital.
Qualifications:
The successful applicant must have completed Grade 12, supplemented by a diploma or degree in recreation, education, environmental studies or a related field from a recognized post-secondary institution, plus 2 years progressively responsible related experience, or an equivalent acceptable combination of training and experience.
Other requirements include a valid BC Driver's License with a safe driving history, Occupational First Aid Level One Certificate or acceptable equivalent, use of a personal vehicle, and completion of a criminal record check.
The hours and days of work will vary, but will generally be 32 hours per week, increasing at varying times throughout the year, and will be scheduled to address the priorities and operational needs of events and programs. Regular weekend work and some evenings will be expected.
Please apply online at www.surreycareers.ca

Key Research Findings

EMPLOYMENT OPPORTUNITY

Position: Recycling Hotline Information Officer
Organization: Recycling Council of BC http://www.rcbc.bc.ca
Location: Vancouver, British Columbia

Job Description and Purpose:

The Recycling Council of British Columbia is seeking a Recycling Hotline Information Officer to work with the Hotline team to provide waste reduction information for British Columbia and Alberta. The role of the Information Officer is to empower and support callers in making informed 3Rs decisions by providing information on waste avoidance, recycling services, regulations, programs and initiatives.

Skills and Abilities Required:

The Information Officer should be an energetic, team-oriented person interested in MAKING A DIFFERENCE. This position requires an understanding of waste reduction, recycling, and composting issues and programs in BC and/or AB. The ideal candidate will possess the following skills and attributes:

• An interest in working with environmental and/or waste management programs
• Proven knowledge of waste reduction, recycling and composting issues in BC
• Education in environmental science, resource management, geography or related field
• Volunteer experience in the waste management or environmental field
• Excellent customer service skills; call centre experience an asset
• Excellent verbal and written communication skills
• Computer literacy and proficiency with MS Office applications and database software
• Self-motivated, with the ability to work independently as well as part of a team

Duties:

• Responding to enquiries to the RCBC Recycling Hotline by phone and email. The Hotline team responds to over 200 enquiries per day.
• Maintaining the currency and accuracy of information contained in the Recycling Hotline database, fact sheets, research reports and other reference materials.
• Performing miscellaneous office duties as assigned.
• Researching new issues and unusual enquiries.
• Keeping current on developments in the waste reduction field.

Position Details:

This is a permanent, full-time position. The position will start June 27, 2012. The successful applicant will work five days a week, 7 hours a day, for a total of 35 hours per week. The Recycling Hotline operates Monday to Friday 9am to 4pm. The starting wage is $14.00 per hour. RCBC offers a benefits package after three months.

Key Research Findings

Application Procedure:

Please submit cover letter and resume, attn: Jessie Christophersen, Information Services Assistant. No phone calls please.

Recycling Council of British Columbia
Unit 10-119 West Pender Street
Vancouver, BC V6B 1S5

Fax: 604-683-7255

Email: employment @ rcbc.bc.ca*

Application Deadline: June 17, 2012.

For information on RCBC, visit us at http://www.rcbc.bc.ca.

RESOURCE PLANNING INTERN

Organization:	Ministry of Natural Resources
Division:	Regional Operations Division (ROD)
City:	Sault Ste Marie
Job Term:	1 Temporary (up to 40 weeks with possible extension)
Job Code:	14009 - Resources Manager 1
Salary:	$861.03 - $1,006.16 per week*
Posting Status:	Open
Job ID:	44505

What can I expect to do in this role?

To assist in providing advice and information relative to land use planning, resource management planning and the integration of resource management activities. To be an active member of a team that supports the implementation of various land use planning initiatives.
NOTE: Relocation and temporary living expenses will not be available

How do I qualify?

Mandatory

• Proof of full-time enrolment in a recognized post secondary college or university or graduation within the last 5 years.
• Proof of eligibility to work in Canada.

Knowledge & Skills

• General knowledge of legislation, policy governing land use and management planning.
• Knowledge of theory, principles and practices of resource and ecosystem management.
• Good judgement and interpersonal skills.
• Good oral and written communication skills to maintain linkages with stakeholders.
• Ability to use computer software applications including Word, Excel, Power Point, Outlook and internet.

Key Research Findings

• Ability to prepare reports, presentations and conduct research in the development of resource management plans.
• Candidates are only eligible to participate in a maximum of two placements.
Note: Please indicate in a separate covering letter how your skills, knowledge, and expertise relate to the qualifications listed above.
Additional information:

Address:
- 1 Temporary, duration up to 40 weeks, 64 Church St, Sault Ste Marie, North Region

Compensation Group: Ontario Public Service Employees Union
Schedule: A
Category: Lands and Resources
Posted on: Thursday, May 24, 2012

How to apply:

1. You must submit your application using only one of the methods identified below.
2. Your cover letter and resume combined should not exceed five (5) pages. For tips and tools on how to write a concise cover letter and resume, review the Writing a Cover Letter and Resume: Tips, Tools and Resources.
3. Customize your cover letter and resume to the qualifications listed on the job ad. Using concrete examples, you must show how you demonstrated the requirements for this job. We rely on the information you provide to us.
4. Be sure to quote the Job ID number for this position.
5. OPS employees are required to quote their WIN EMPLOYEE ID number when applying.

Job Number: 6445879
Title: Wildlife technician (Fish and Wildlife Technician Student) (NOC: 2221)
Terms of Employment: Seasonal, Part Time, Weekend, Day, Evening
Salary: $10.25 Hourly for 30 hours per week
Anticipated Start Date: 2012/07/03
Location: Clinton, Ontario (1 vacancy)
Skill Requirements:
Education: Some college/CEGEP/vocational or technical training

Credentials (certificates, licences, memberships, courses, etc.): Not applicable

Experience: Experience an asset

Languages: Speak English, Read English, Write English

Area of Specialization: Biology, Botany, Zoology, Aquaculture

Type of Work Experience: Basic research, Applied research, Field research and surveying, Data analysis and interpretation, Equipment safety assessment, Environmental monitoring

Type of Technical Experience: Animal care and field studies work, Fresh water ecosystems

Key Research Findings

Specific Skills: Conduct field research and surveys, Assist in conducting field research and surveys, Analyze data and prepare reports, Assist in analysis of data and preparation of reports, Conduct or supervise operational programs

Additional Skills: Know and use computer hardware and software

Transportation/Travel Information: Own transportation, Parking paid by employer, Own vehicle, Public transportation is not available

Work Site Environment: Outdoors

Work Conditions and Physical Capabilities: Work under pressure, Attention to detail, Ability to distinguish between colours, Sitting, Combination of sitting, standing, walking, Standing for extended periods

Work Location Information: Rural area, Remote location

Essential Skills: Reading text, Document use, Numeracy, Writing, Oral communication, Working with others, Problem solving, Decision making, Critical thinking, Job task planning and organizing, Significant use of memory, Finding information, Computer use, Continuous learning

Other Information:8 week contract ending by Sept 2012. www.hullettmarsh.com
Employer: Friends of Hullett
How to Apply:
Please apply for this job only in the manner specified by the employer. Failure to do so may result in your application not being properly considered for the position.

By Mail:
PO Box 1520
Clinton, Ontario
N0M 1L0
In Person between 8:30 and 16:30:
41378 Hydro Line Rd
Clinton, Ontario
N0M ,1L0
By E-mail: fohoffice@tcc.on.ca
REGULATION OFFICER
Permanent Position
Immediate Opening
Competitive salary package
This position is responsible for the delivery of the regulatory compliance program related to Kawartha Region Conservation Authority's Development, Interference with Wetlands, Alteration to Shorelines and Watercourses Regulation (Ontario Regulation 182/06) including compliance monitoring and enforcement activities. This position will also be responsible for maintaining public and stakeholder support for the regulation through ongoing outreach/education initiatives. The Regulation Officer position reports to the Manager, Planning and Regulation.
General Duties (including but not limited to)

Key Research Findings

- Respond to public complaints and inquiries regarding regulatory requirements and permitting processes
- Provide liaison between the Authority and federal, provincial and municipal agencies, developers, consultants, special interest groups, and the general public to help ensure regulatory compliance
- Conduct enforcement activities and regulatory compliance monitoring including coordinating activities with municipalities and agencies, conducting permit inspections and site investigations, issuing offence notices, preparing compliance agreements and coordinating prosecutions
- Communication initiatives and reporting with municipalities, board members, committees, and public
- Maintain accurate compliance records and prepare summary reports as required
- Assist with the development of a compliance monitoring program with its related data bases; keep accurate digital and paper compliance records, evaluate trends and prepare summary reports, and make program recommendations
- Issue Violation Notices, develop Compliance Agreements, issue Certificates of Offences, Swear to Informations, issue Summons and execute Search Warrants, depending on the nature of the offence
- Develop and maintain compliance policies, procedures and technical standards
- Assist in preparation and review of guiding documents, such as planning and regulation policies and operational procedures

Qualifications

- A minimum of 3 years of regulatory compliance experience or similar enforcement
- Experience with Conservation Authorities Act, Section 28 Regulations and Provincial Offences Officer designation an asset
- Post Secondary Degree or Diploma in Natural Resources Law, Police Foundations, Geography, Integrated Resource Management, Planning, Environmental Engineering and/or related fields
- Demonstrated experience with court proceedings and processes, legal procedures and supporting documents; and enforcement practices and protocols related to investigations
- Knowledge of provincial land use planning policies and Conservation Regulations
- Excellent knowledge of water and environmental management principles and practices and related municipal planning and federal and provincial legislation
- Ability to maintain a high degree of confidentiality; excellent organizational, time management and administration skills
- Excellent verbal and written communication skills and a demonstrated ability to manage conflict situations with tact and fairness
- Proficient in the use of computer office software including MS Word and MS Excel
- Use of GPS and survey equipment an asset
- Must posses a valid M.T.O. driver's licence and a clean driving record

All submissions must include a cover letter, resume and a separate document that specifically demonstrates how you meet the qualifications for the position (if e-mailed, one MS WORD or ADOBE PDF file), no later than **June 8th, 2012** to:
KAWARTHA CONSERVATION
277 Kenrei Road, Lindsay ON K9V 4R1
Re: Regulation Officer
Tel: 705.328.2271 Fax: 705.328.2286
Email: resumes@kawarthaconservation.com
Website: http://www.kawarthaconservation.com

Key Research Findings

Thank you for your interest in Kawartha Conservation. Only those applicants selected for an interview will be contacted.
Posted on 2012-05-16
Province: ON
Retrieved from http://www.municipalworld.com/index.php/JobBoard/RegulationOfficer-KawarthaConservationON
Page last modified on May 16, 2012, at 12:30 PM

Stantec - Operational Reclamation Technologist

Job ID:	2012-12738	# of Openings Remaining:	1
Location:	CA-BC-Victoria (Sidney)	Experience (Years):	3
Posted Date:	3/1/2012	Category:	Environmental Services

More information about this job:

Overview:

Our **Environmental Management** group is dedicated to managing environmental issues professionally and proactively. Our staff of professionals includes specialists in marine biology, wetland science, wildlife biology, soil science, fisheries biology, botany, hydrogeology, hydrology, forestry, habitat and ecosystem restoration, permitting, GIS, and Information Management. We help our clients to identify and respond to opportunities and threats within constantly changing regulatory and corporate environments, through active engagement with the public, stakeholder groups, and governmental regulators.

We are currently recruiting for a new member to our Reclamation team, headquartered out of our Victoria (Sidney), BC office. Our reclamation team has over 30 years of history working in the area of the environmental assessment and reclamation of mining and other industrial developments. Stantec's team is actively preparing reclamation plans and final closure documentation and conducting reclamation planning, research and operational programs on various mining and industrial projects throughout Canada. We provide solutions to the mining industry, government and First Nations in all areas of land rehabilitation; including baseline studies to reclamation planning and implementation of large-scale land rehabilitation programs.

Responsibilities:

Key Research Findings

The **Operational Reclamation Technologist** will join a team that interacts directly with Vegetation and Reclamation team members as well as providing hands-on service to our clientele, working with engineers and planners on environmental assessments in British Columbia and Yukon.

Key responsibilities include:

- Assisting with the implementation/supervision of reclamation research and operational reclamation programs
- Interacting and communicating effectively within multi-disciplinary highly-skilled teams
- Carrying out data entry
- Assisting with various aspects of reclamation planning for mine permit applications- e.g. reclamation costing, soil handling planning, re-vegetation planning, and reclamation research

Qualifications:

The successful candidate should possess the following qualifications:

- Diploma or B.Sc. in specialty of vegetation, soils or reclamation with 3 to 5 years of related operational reclamation (re-vegetation) experience.
- Mining or oils sands mining experience preferred
- Good understanding of the mining industry or other resource extraction industries
- Carrying out field work such as vegetation inventories, soil surveys, etc.
- Supervising/implementing re-vegetation programs such as tree-planting, seeding/fertilizing, etc.
- Supervision of heavy equipment doing site preparation work
- Calculating costs of various aspects of reclamation work- for budget preparation and for reclamation costing

(Job ID: 992) Environmental Technician Toronto and Region Conservation Authority

Date Posted: **June 04, 2012 12:00AM**

Application Deadline: **Jun 24, 2012 11:59PM**

Application Method:

Position Type: Fulltime
Job Title: Environmental Technician
Job Location: Toronto, ON
Number of Positions: 1
Duties/Responsibilities:
Summary of Function:
To assist with the overall management of various habitat creation, restoration, and monitoring projects. Occupational health and safety is a major responsibility of this position.
Example of Tasks:
Perform the following tasks under general supervision:
1. Assist with the overall management of various environmental projects, including planning, monitoring, reporting, scheduling, cost control and close out.
2. Establish working committees and teams, conduct stakeholder needs analysis, and report project milestones, cost and schedule.
3. Prepare and format correspondence, project briefs, Authority communications and reports of a general and technical nature.

Key Research Findings

4. Prepare and coordinate proposals for partnership agreements and non-traditional sources of funding to assist in achieving mutual objectives.
5. Assist with the procurement of materials and services.
6. Oversee compilation, organization, and maintenance of data from various sources and ensure that it is readily available to TRCA Project Managers.
7. Perform additional assignments and responsibilities as assumed or requested by Project Managers.

Qualifications & Experience:

Knowledge:

• Post-secondary education in environmental science program;
• Minimum 3 years of experience related to major tasks
• Demonstrated ability to plan, organize and implement projects, budget management and cost control;
• Knowledge of municipal and provincial legislation relevant to environmental projects;
• Knowledge of terrestrial and aquatic ecology and habitat restoration; knowledge of wildlife management an asset;
• Strong analytical skills
• Excellent written and verbal communication skills;
• Demonstrated ability to work with computers and software; office administration experience an asset;
• Demonstrated ability to work with community and advisory groups;
• Ability to work evenings and weekends;
• Valid Ontario Driver's Licence

Salary:
$54,501 to $60,935 per annum
Working Hours: TBD
Application Procedure: Mail, email, fax
If by email, send to: humanresources@trca.on.ca
If by Website, go to: www.trca.on.ca
If by Fax, send to: 416-661-6898

Application Material Required: Cover Letter, Resume

Additional Application Information: We thank all applicants for their interest. However, only those selected for an interview will be contacted.
Organization: Toronto and Region Conservation Authority
Division / Department: Human Resources
Phone: (416)661-6600
Fax: (416)661-6898
Website: www.trca.on.ca
Email: humanresources@trca.on.ca
Address Line One: 5 Shoreham Drive
City: Downsview
Province / State: Ontario
Postal Code / Zip Code: M3N 1S4
Country: Canada