

# Land Reclamation Advances in Ecological Restoration

May 3-4, 2011  
CFB Gagetown  
Oromocto, NB

The Atlantic Chapter of the Canadian Land Reclamation Association in partnership with CFB Gagetown presents:

## Land Reclamation – Advances in Ecological Restoration

### **When:**

May 3<sup>rd</sup>, 2011– Technical Talks  
May 4<sup>th</sup>, 2011– Field Trip, CFB  
Gagetown Range and Training  
Area

### **Where:**

Main Theatre  
Building J7,  
CFB Base Gagetown,  
Oromocto, NB

### **Topics to include:**

Biosolids, wetlands, regulations, sedimentation, vegetation, species at risk, stream restoration, sustainability, partnerships, subsequent land use, reclamation challenges, erosion & sedimentation, vegetation management...*and more.*

### **CLRA Contacts**

Fred J. Bonner, P.Geo.  
902 233 4261  
[fred.bonner@tblresourcesolutions.ca](mailto:fred.bonner@tblresourcesolutions.ca)

Michele Coleman, P. Eng., P.  
Geo.  
506 458-4929 (office)  
506 327-0229 (cell)  
[mcoleman@nbpower.com](mailto:mcoleman@nbpower.com)

### **DND Contacts**

Tom McLaughlan, 3 ASG Env O  
506 422-2000 Ext 3640  
[Tom.McLaughlan@forces.gc.ca](mailto:Tom.McLaughlan@forces.gc.ca)

Sheldon Downe, LFAA Env O  
506 422-2000 Ext 2878  
[Sheldon.Downe@forces.gc.ca](mailto:Sheldon.Downe@forces.gc.ca)

### **ESANS - Environmental Services Association Nova Scotia**

Adam Cooney, P.Eng.  
1 Research Drive, Dartmouth, Nova Scotia, B2Y 4M9  
Tel: 902-463-3538, Fax: 902-466-6889  
Email: [contact@esans.ca](mailto:contact@esans.ca)  
Web: [www.esans.ca](http://www.esans.ca)

Event information & registration: <http://www.atlanticclra.ca>



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## “Advances in Ecological Restoration” Presenters –May 3, 2011

Time	Topic / Presenter / Organization
9:00-9:20	Wetlands Conservation Policy - Short and Long Term Strategy Bernie Doucet - NB Environment
9:20-9:40	Developing a framework for a wetland inventory in Saint John, NB Tim Vickers - ACAP
9:40-10:00	Wetlands Development - Adam Campbell - Ducks Unlimited
10:00-10:20	Dutch Point Wetland Restoration Initiative - Tim Ryan - Fundy Engineering
10:20-10:40	Wetland & Species at Risk Habitat Restoration – Strategies for Recovering Lost Habitat Capacity - Virgil D. Grecian - Pinchin LeBlanc Environmental Ltd.
10:40-11:00	<b>Refreshment Break</b>
11:00-11:20	Use of Compost Amendments for Reclamation, Sustainable Low-Impact Development & Wetland Compensation - Rodney J. Fry - Envirem Organics Inc.
11:20-11:40	Biosolids and Partnerships -Hans Arisz - RV Anderson
11:40-12:00	Erosion Prevention - Bill Dashwood - Maritime Hydroseed
12:00-12:20	Sedimentation &Erosion Control Plan –CFB Gagetown - Sheldon Downe - DND
12:20 – 1:35	<b>Lunch - Cafeteria in adjacent building – price not included in registration</b>
1:40-2:00	Sustainability issues in environmental restoration - Chris Milley - AMEC
2:00-2:20	Geomorphic Approach to Stream Restoration -Ron Jenkins - Parish Geomorph
2:20-2:40	Improving Road Infrastructure and Stream Quality - Case Studies at CFB Gagetown - Kyle Leblanc - Conestoga Rovers and Associates; INSPEC-SOL Inc.
2:40-3:00	Integrated Natural Channel Design, Sharpes Brook, CFB Gagetown Shawn Taylor - Dillon Consulting
3:00-3:20	<b>Refreshment Break</b>
3:20 – 3:40	Port of Belledune Expansion: Combining Environmental Reclamation Work with Existing Capital Projects - Kendra Cahill - Gemtec Limited
3:40-4:00	Rehabilitation of an Acid Generating Gold Tailings Area in Northern Ontario Travis Bowser - AMEC
4:00-4:20	A New Approach to Transmission Line Construction in New Brunswick Chantal St.Pierre - NB Power
4:30-7:30	<b>Reception</b>



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## Land Reclamation – Advances in Ecological Restoration CLRA Field Trip Sites Abstract (May 4, 2011)

The sites identified for a visit are subject to change depending on weather, road conditions as well as military operations.

### Site 1 – Wellington Anti-Tank Range

Since its' development this range has been used extensively for missiles and mortar fire training. There has always been the one firing point and a target range containing up to 5 hard targets or old Russian T72 and Sherman Tanks, etc.

Over the history of this range, there have been thousands of rounds fired of different types. Missiles contain both a propellant and explosive. As a result, when the missile fires from the firing pt, its blast results in some unburnt residue (propellant or nitro glycerine) falling out to the back of the firing pt. Initial analytical results have shown this firing point to have the highest concentration of nitro glycerine in soil across Canada or 4% of the soil matrix. The target areas are as well contaminated with both explosive residue as a result of high explosive rounds and unexploded missiles that break open spilling its contents.

The major contents of these missiles are HMX and TNT. Also noted at the target locations are numerous chunks and pieces of propellant (unburnt).

The targets at most times of the year are sitting in a very wet area and the water that flows through this area is somewhat contaminated with explosive by products and migrating down gradient.



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## Site 2 – Land Restoration

CFB Gagetown over the last number of years have been undertaking land restoration efforts to prevent erosion of lands that were cleared in the 90's to prevent continual loss of organic soil and siltation of our streams. These efforts will continue this coming year and over the next five years.

## Site 3 – Constructed Wetland

CFB Gagetown has been partnering with DUC since 2006 on the constructed wetland project. This project involves the reshaping the previously disturbed land to create wetlands - these wetlands are relatively small in comparison to the DUC impoundment projects along the SJ River. These wetlands serve a function of sediment capture and retention during the ongoing land restoration project in addition to returning wetlands to the landscape that were lost due to past disturbances.

Issues of consideration include site selection, existing watercourses and wetlands, current topography and soils, current and future land use, current and past habitat types and representation of wetland types and area on the landscape.

Since 2006 we have put approximately 70 ha of wetland on the ground and overall CFB Gagetown has approximately 8500 ha of wetland area or 8.5% of the base.

## Site 4 – Ford Hardening

As part of military operations it is require that activities that take place in the Manoeuvre areas transect streams that are abundant throughout the area. Over the last number of years it has been identified that Fords contribute a significant volume of sediment to streams thus impacting fish habitat which is in non compliance with the Fisheries Act. Starting in the early 2000 the Env Section in association with DFO identified fords in each of the watersheds that contributed significant volumes of sediment and produced a plan to reduce the number of these Fords. Over the last number of years the staffs at Gagetown has been diligent in hardening these areas or decommissioning them. Up to 500 crossings are present in the RTA of which 75% of them will be decommissioned and restored with riparian areas re-vegetated. We will be visiting a ford constructed on Kerr Brook and discussing the techniques employed to reduce erosion and surface runoff.



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## Site 5 - Sharpes Brook Stream Restoration

Sharpes Brook was chosen for stream restoration as a damaged culvert, a failing fording site, and a constriction at a former bridge had created barriers to fish passage, bank erosion and sedimentation. The channel and floodplain was re-constructed in 2009 and 2010. Features included in the channel were pools, riffles, a root wad revetment and a living crib-wall. At this site we will examine these features and others, observe the impacts of the December 2010 flood event and discuss the merits of stream reconstruction.

## Site 6 - Braydon Brook (Jones Creek) Embedded Culvert

Culverts are designed to pass water however; in reality they must also pass sediment, coarse woody debris, detritus, fish and other aquatic animals. Fish passage through culverts is a legal requirement under the Fisheries Act. Where stream gradients are steep, standard round culverts are often a barrier to fish passage, thus baffled culverts, open bottom arches or bridges are typically installed. At this site, we will look at an embedded round culvert. This design employs stream simulation to allow fish passage and may be cheaper and require less maintenance than the previously described water-crossings.

## Site 7 - Combat Team Commander's Course

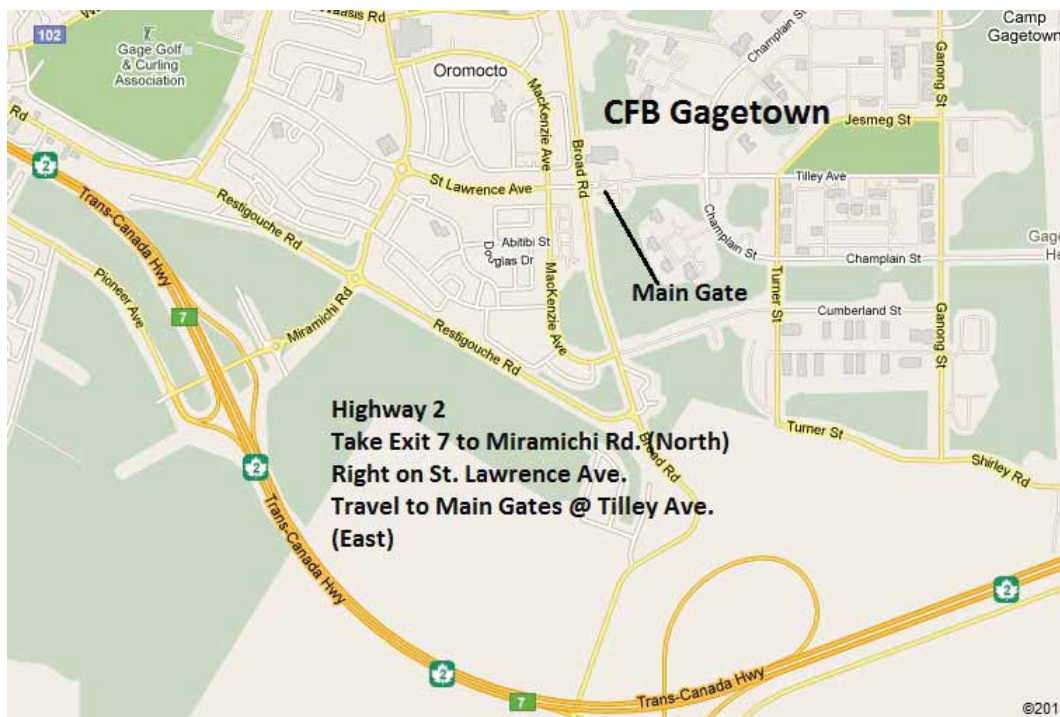
The CTCC is an annual undertaking at CFB Gagetown. Newly trained Officer's are required to implement operational tactics they have been trained on in a realistic/operational setting. CLRA attendees will view a Hasty Attack on a defensive position in the General Man. Area.



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## Directions & Locations



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