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Landscape Architect Quarterly

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Fall 2010
Issue 11
The methods of achieving transformation of ecological and cultural systems are experimental in quality and exciting at ground level. Such experimentation sets landscape architects in the role of knowledge brokers working in innovative ways. Landscape architects have a remarkable opportunity to take on leadership roles in these projects at the forefront of the design process alongside allied professionals such as engineers, architects, and planners.

Ground 11 is the first issue that includes input from our new Advisory Panel members and we are grateful for the generosity of their ideas and sheer enthusiasm.

We hope the issues explored in Ground 11 inspire your sense of the transformative potential of landscape architecture.

NANCY CHATER, OALA, AND FUNG LEE, OALA, CO-CHAIRS, EDITORIAL BOARD
About Ground

Ground: Landscape Architect Quarterly is published by the Ontario Association of Landscape Architects and provides an open forum for the exchange of ideas and information related to the profession of landscape architecture.

Letters to the editor, article proposals, and feedback are encouraged. For submission guidelines, contact Ground at magazine@oala.ca. Ground reserves the right to edit all submissions. The views expressed in the magazine are those of the writers and not necessarily the views of the OALA and its Governing Council.

Upcoming Issues of Ground

Ground 12 (Winter):
Landscapes of Learning/Learning from Landscapes

Ground 13 (Spring):
Parks
Deadline for editorial proposals: November 30, 2010
Deadline for advertising space reservations: January 14, 2011

Ground 14 (Summer):
Productive Landscapes
Deadline for editorial proposals: January 14, 2011
Deadline for advertising space reservations: April 14, 2011

Ground 15 (Fall):
Infrastructure and Planning
Deadline for editorial proposals: April 21, 2011
Deadline for advertising space reservations: July 21, 2011

About the OALA

The Ontario Association of Landscape Architects works to promote and advance the profession of landscape architecture and maintain standards of professional practice consistent with the public interest. The OALA promotes public understanding of the profession and the advancement of the practice of landscape architecture. In support of the improvement and/or conservation of the natural, cultural, social and built environments, the OALA undertakes activities including promotion to governments, professionals and developers of the standards and benefits of landscape architecture.

Ground Advisory Panel

Andrew Anderson, BLA, academic leave of absence from the OALA
Victoria Lister Carley, OALA, Victoria Lister Carley Landscape Architect, Toronto
John Danahy, OALA, Associate Professor, University of Toronto
George Dark, OALA, FCSLA, ASLA, Principal, Urban Strategies Inc., Toronto
Katherine Dugmore, MCIP, RPP, Waterfront Project Manager, City of Thunder Bay
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Ryan James, OALA, Landscape Architect, Peterborough
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Jim Vallades, OALA, Senior Landscape Architect, Stantec, London
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**Letter to the Editor**

When *Ground* arrives at our office in Montreal, it certainly gets noticed. The generous format and wide range of topics, from conceptually imaginative to downright practical, is refreshing and relevant. The magazine keeps members in tune with each other, and bridges the distance between the wide range of specializations that make our profession so complex.

I appreciate the effort in presenting articles that are to-the-point and stick to the facts. *Ground* allows me to quickly connect with useful resources and new techniques.

Most importantly, I would say that *Ground*’s universal appeal stems from its playfulness. There is a lightheartedness in the reporting that at the same time does not trivialize its content. I hope that as this publication continues to take off, it will not lose the playfulness that makes reading it such a pleasure.

**Erratum**

Due to an editorial error, the project mentioned on page 26 of the Round Table discussion in *Ground* 10 was misidentified. The correct title of the project is Smout Allen’s Receding Village.

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**President’s Message**

It is my pleasure to introduce myself as the President of the Ontario Association of Landscape Architects.

As many of you know, I acted on your behalf as Treasurer for the past three years. It seems I have a habit of trying to fill big shoes left before me, first by Arnis Budrevics, more recently by Past President Lawrence Stasiuk.

The OALA is stronger than ever. We have a dynamic Council, representing a broad cross-section of the membership. Our office team is also strong, with three team members who are helping us to conduct our business. As President, I am interested in advancing our profession: making landscape architecture a strong, green voice in Ontario and maintaining very high standards and practice. Recently, I had a meeting with the President of Professional Engineers Ontario, which represents 75,000 engineers in the province. It is my intention to meet with the presidents of Ontario Association of Architects, Ontario Professional Planners Institute, and others very soon. Together, we need to build stronger links with other allied professionals. We also need to build stronger links with students, who are the professionals of tomorrow. Council intends to build on the success of Queen’s Park Day and reach out to the MPPs, media, and public to advance the profession.

Recently, I had a meeting with delegates from China, which is an example of sharing our knowledge across the globe. These delegates reached out to us, they are keen to learn from us, and we helped them by sharing our knowledge.

OALA Council recently reached out to you through two member surveys. The AGM survey and the strategic planning survey will help guide Council into the future. Our strategic plan has had its “best before date” and Council is moving quickly to set the framework for a new vision. The vision and goals will be based on your input. Council needs and is asking for your assistance; it is important to tell us what you think. We will be approaching many of you to ask you to volunteer on a task-specific basis to help us achieve our goals. We are on a mission to promote landscape architects and build a better organization that reaches out to and leads other professionals in Ontario.

This will be an exciting period in the history of the OALA. You will see us and hear from us more often than you have ever before. Your input is valued as we continue to build a stronger voice for landscape architects in Ontario.

GLENN A. O’CONNOR, OALA
PRESIDENT@OALA.CA
TRAILS repurposing

Running alongside a very active rail line in one of Toronto's slower-to-gentrify neighbourhoods, with factories butting up against houses and fenced-in brownfields awaiting development, the West Toronto Railpath cuts a two-kilometre swath of declaratively urban possibility through rough circumstance.

While comparisons to New York’s High Line project (in which an abandoned rail line was transformed into a much-touted, loved, and, yes, expensive promenade) are inevitable, the West Toronto Railpath has little of the High Line’s glitz. “We tried to match the robust toughness of the area,” says landscape architect Scott Torrance, OALA, who, with architect James Brown, submitted the winning proposal in response to the City of Toronto’s RFP. “We worked with the distinct character of the neighbourhood,” says Torrance. James Brown adds, “Our design accepts the context, accepts its roughness.”

As if to emphasize the point, the ringing tones of an ice cream truck pierce the air as we rest on our bicycles at the north entrance of the trail. We spend a moment speculating about whether or not the workers in the nearby auto body shop and sheet metal facility will come out for a treat. The neighbourhood may be somewhat rough and tumble, but there are plenty of soft edges peeking through the grit.

Traversing the trail involves a pleasant inversion: it’s a bit like a back door asserting its rightful place as a front door, demanding to be seen and heard rather than ignored and forgotten. Graffiti-covered factory walls may rub up against one side of the trail, with chain link on the other, but somehow this narrow path asserts a safe and human-scale presence, and invites engagement.

In the middle of a warm autumn afternoon, there are speed cyclists ringing their bells as they cruise by and dog walkers taking a slower pace. In winter, there could be skiers.

“Landscapes shouldn’t be creating boundaries, they should be creating thresholds,” says Brown, as the smell of clover and creosote compete for primacy in the fall air. “I like to think that we did a little healing,” says Torrance. The clover wins.

TEXT BY LORRAINE JOHNSON, EDITOR OF GROUND.
WATERFRONT
community planning

Although discussion about the Toronto waterfront has focused almost entirely on sites close to the downtown core, there are in fact many waterfronts in the city, and more than just the downtown waterfront is undergoing transformation.

The Lakeview community straddles the boundary between Long Branch and Port Credit. “There’s a perception that it’s a kind of hinterland,” says resident John Danahy, OALA, a landscape architect who has volunteered his skills to the Lakeview waterfront redevelopment process. While this particular waterfront may be somewhat forgotten by many Toronto residents, it is by no means neglected by the community that lives nearby. Instead, the Lakeview waterfront is the subject of a many-years-long and many years to go plan to turn it into a place that celebrates and connects the lake with the surrounding area.

“These are transition lands,” says Danahy. “The whole area is changing and advancing.” Many brownfield sites remain, legacies of the industries that sprang up along the lake. Once home to the largest polluter in the GTA (a coal-fired power plant that ceased operation in 2005 and was demolished), one of the largest arsenals in the country (traces of which remain in a standing water tower), and the first airport in Canada, the area still includes a large sewage treatment plant (which services a million people), a Hydro corridor, a foundry, and many empty industrial sites. The broad boulevard of Lakeshore Road cuts through this industrial scene, bisecting it into two distinct identities: industry to the south, bordering the lake, and houses and low-rise buildings to the north. “There’s been no access to the water for more than one hundred years,” says Danahy. It’s a psychological as much as physical breach that he, along with the Lakeshore Ratepayer’s Association (LRA) and others, are trying to knit together again. “This is the last prime piece of waterfront in the core of the GTA,” he points out. “We want to put the ‘lake’ back in Lakeview.”

Danahy speaks with admiration for the proactive nature of the Lakeview community. “They weren’t just saying, ‘I don’t want this or that.’ They weren’t just being reactive. They were instead interested in creating a vision and thinking beyond self-interest. It was a chance to do things differently.” The community’s planning process, led by LRA president Jim Tovey, started out slowly and casually, ranging from a couple of people sitting around a kitchen table, to residents making presentations at community meetings. “It was the opposite of the professionalized approach,” explains Danahy, “which usually operates with strict terms of reference and timelines. For this project, we thought ‘outside the box.’ We talked with people to see what ideas they had.” And, as it turned out, there was no shortage of good ideas.

Along with specific suggestions for street furniture, lighting, thematic streetcar stops, “natural” playgrounds, signage, etc., the community’s loud and clear message related to two features. According to Danahy, “the community wants skyviews and they want trees. What came out of the public process is that people are there for the trees and the sky. The core public realm should have the sky view.”

As a landscape architect, Danahy sees his role as helping people create and articulate their vision for the community, and then assisting by guiding the community through the planning process, including its political dimensions. In essence, with his professional skills he is helping the community develop a language that ensures residents will be taken seriously and included in the planning process. Danahy’s own ease with the more inspirational opportunities of that language is clear when he sums up the community’s aspirations: “Architecture that rises above the tree zone should earn the sky.” Then he adds: “I haven’t seen many buildings that are as good as a bad tree!”

TEXT BY LORRAINE JOHNSON, EDITOR OF GROUND.

IMAGES/ Courtesy of John Danahy

The Lakeview community’s planning process envisions an enhanced and expanded public realm, including a reconnection with Lake Ontario.
When the City of Hamilton decided to build a waterfront trail as a 2000 Millennium Project, the goal was to create a continuous trail from Bayfront Park to Desjardins Canal, over the Desjardins Canal to Cootes Paradise, and along Cootes Paradise to Princes Point.

According to Lawrence Stasiuk, OALA, of the City of Hamilton Landscape Architectural Services, “Desjardins Canal became the biggest technical challenge. We wanted to create a paved trail that was fully accessible to anyone on wheels (bikes, inline skates, skateboards, strollers, wheelchairs, scooters, etc.) that did not alter the canal shoreline or affect the flow of water. Sounds easy. It wasn’t.”

The problem was that the canal is the only waterway that drains the Dundas Valley from Cootes Paradise to Hamilton Harbour. Hence, during major storm events, the water rushes through and has tremendous velocity, with the potential to create a hydraulic jump of several metres. The canal also experiences a 1.3m range of recorded high and low water levels, and has five bridges that cross over it. The trail could not compromise or undermine the bridges, or adversely affect the water flow.

The solution was a concrete floating structure, 6.6 metres wide and 134 metres long, with railings and lights installed along the length of the canal. “The structure does not greatly interfere with water flow as it floats over the canal,” says Stasiuk, “and is designed to conform with changing water levels.” The secret to success was the design of its buoyancy and flexible anchoring systems. Each of the eight trail segments contains a solid core of polystyrene blocks that are protected by a shell of reinforced concrete.

The eight segments are linked to each other and are fixed at the upstream end. The structure can bend vertically to allow for the hydraulic jump. Steel ramps at each end provide a smooth transition from the asphalt paved trail on shore to the floating structure. Extremely stable, it is designed to hold a police cruiser, parks maintenance truck, and ambulance. Notes Stasiuk, “Few people actually realize they are over water when they use the trail.”

TEXT BY LORRAINE JOHNSON, EDITOR OF GROUND.
The use of former brownfields for food-growing may sound unpalatable, but an increasing number of projects are doing just that. Contaminated soil removal and replacement with clean soil is an obvious technique for bringing land up to food-growing standards. Phytoremediation—the use of plants to accumulate contaminants and “clean” the soil—is another.

However, because lead does not break down into harmless components, as some other contaminants do through phytoremediation, the plants that have been used to accumulate the lead become, themselves, a disposal issue. In other words, the lead problem may have been removed from the soil, but the lead-contaminated plants still need to be dealt with.

A community garden in Portland, on land owned by Oregon Sustainable Agriculture Land Trust (OSALT), is attempting to solve the lead problem entirely on-site, without just moving the lead somewhere else. OSALT is in the early stages of experimenting with a low-tech, low-cost method of remediation. Although the group is using plants to take up lead from the soil, the similarities with traditional phytoremediation methods stop there. Instead of removing the plants from the site, OSALT plans to compost them and spread the compost throughout the site. “The traditional way to deal with lead contamination is to dig it up and put it somewhere else. That’s not sustainable—it just makes it someone else’s problem,” explains Will Newman II, Research and Education Director of OSALT. “We’re experimenting with spreading it evenly into a larger area, to see if we can reduce the total lead burden on site to a low enough level (below 50 ppm) to grow food.”

In the summer of 2010, OSALT finished sequestering the contaminated soil at the back end of the community garden, surrounded by fencing. They have recently begun planting in the contaminated soil and expect that it will take three to five years to determine whether or not their experiment will achieve their goal—to get the entire site’s soil to below 50 ppm of lead. If the experiment works, it will indeed be a project that bears fruit.

For more information on OSALT’s work, visit www.osalt.org.

TEXT BY LORRAINE JOHNSON, EDITOR OF GROUND AND AUTHOR OF THE RECENTLY PUBLISHED BOOK CITY FARMER: ADVENTURES IN URBAN FOOD GROWING.
healing toxic land

Rehabilitating and repurposing industrial brownfields

Moderated by Victoria Lister Carley, OALA

Victoria Lister Carley (VLC): Brownfield development has social effects on neighbourhoods and effects on the structures of communities. John, you’re dealing with this very directly with the Lakeview project. What are the key points or major themes that you’ve seen emerge from the process?

John Danahy (JD): I have had the opportunity to be an educator with the community, to take them through a process of dialogue and discussion to develop a vocabulary—to take a landscape architect’s way of looking at their community and then have that bubble up through conversation. It’s unique. It’s not the usual position in which citizens are asked to comment on or react to something. It’s not the usual position in which citizens are asked to comment on or react to something. It’s not the usual position in which citizens are asked to comment on or react to something.

Serge Chukseev (SC): It’s a myth that the community is “at a distance.” There are approximately five or six highly active and very vocal community groups, all of which have an umbrella organization called West Don Lands Committee. They are on the perimeter, on the edge of the site we have redeveloped. We’ve engaged the community right from the get-go. As much as they’re supportive, they’re also concerned. They want to know what the redevelopment really means to them. They want to know what’s going on. So a big focus for us has been to keep them informed, keep them in the know.

VLC: Serge, that is quite different from the situation you’ve been dealing with at the West Don Lands site in Toronto, where the community is at a distance.

John Danahy (JD): I have had the opportunity to be an educator with the community, to take them through a process of dialogue and discussion to develop a vocabulary—to take a landscape architect’s way of looking at their community and then have that bubble up through conversation. It’s unique. It’s not the usual position in which citizens are asked to comment on or react to something. It’s not the usual position in which citizens are asked to comment on or react to something.
essence, they have become stakeholders and partners in this whole process for us.

**VLC:** When you’re inserting a new social use on a site, the more people are discussing it ahead of time the better. There is no doubt. Peter, is this something you discuss with your students?

**Peter North (PN):** Yes. In a course this past spring, we looked at the Junction neighbourhood in Toronto, an area that has changed quite dramatically in the past ten years. People in the neighbourhood weren’t really well informed at the beginning of this process of redeveloping brownfields within the community, but they wanted to know where things are moving and how things are being remediated and redeveloped. We work with them to develop and propose uses for these sites that maybe haven’t been thought of before. We’ve tried to find out what their interests are and what they’re lacking and what their families need. The Junction neighbourhood has one of the highest densities of brownfields in Ontario, so there are a lot of vacant sites—smaller one-acre to three-acre sites that were paint factories, dry cleaners, gas stations, and historic industry. I think it’s a great example of a neighbourhood that’s actually playing a very significant role in the redevelopment of their own future.

**VLC:** Do you get involved, Jeanette, with smaller sites or are your projects of a larger scale?

**Jeanette Southwood (JS):** We work in all different scales. The work I do extends over grounds that are contaminated, to grounds that are uncontaminated but are currently underutilized sites. Some of the most interesting sites poised for redevelopment right now are the smaller gas service-station centres. In Ontario there has been a multi-disciplinary group that’s been pulled together by the Ontario Centre for Environmental Technology and Advancement. Basically, people sat around the table and talked about what endpoints they would want to see.

Municipalities said, well, we’ve got these abandoned gas stations that are unsightly and we would like to reuse them, but we’re told by the petroleum companies that the companies want to hold onto them because they are concerned about liability. The conversation then becomes: how can the liabilities be worked out between the provincial government and whomever else might be at play? We have a process that allows us to prioritize which gas stations are going to be redeveloped first. Stakeholders such as the Ontario Ministry of the Environment and the Ontario Ministry of Municipal Affairs and Housing are also at the table, and we have found that to be a very valuable opportunity to learn from people on all sides of the issue—about how to take these small properties and really make a difference in the neighbourhood.

Another aspect that we have found quite interesting is: what use has the neighbourhood made of the site over those fifteen to twenty years that the site was abandoned? Are they willing to let go of that use? In some cases, neighbourhoods have turned that abandoned gas station into a local church parking lot, for example.

This brings us back to the point that was raised earlier by Serge and by John about involving the neighbourhood as early as possible. That’s particularly important in cases like this because sometimes the assumption is, well, of course the neighbourhood is going to be welcoming. But the neighbourhood might already feel that they have what’s best for them on that site.

**VLC:** Hamilton is an interesting case. It has always had a reputation as an industrial town, but that is changing…

**Lawrence Stasiuk (LS):** The City of Hamilton is actually a model city in terms of restoration, rehabilitation, and repurposing. We’ve got a tremendous number of case studies of actual built works. Hamilton is approaching two hundred years of development. What that means is multiple changes in use over that period of time. While new communities are just growing into greenfields, Hamilton has actually repurposed land four or five times, where the land has gone from initial pioneer settlers to an agrarian society, to the first level of industrial development to a secondary level of industrial development to transportation nodal networks, and now residential and recreational uses. So there has been a natural evolution in the development of urban areas that maybe other cities will never experience.

Hamilton is on the leading edge in terms of restoration, rehabilitation, and repurposing, and we have used a number of different techniques. We have progressive planning and legislation in place; we’ve aligned ourselves with the provincial policy statements and the principles of the Places To Grow legislation. We have recognized for many years through our official plans that it makes good economic sense, it makes good community building, to build on lands that were once built on and where the transportation networks are in place, infrastructures are in place, etc.

When we say that Hamilton has an image as an industrial community, well, it’s actually only one snapshot within a period of time. We still have a viable industrial base, but we’re seeing a lot of lands now being converted to other uses. The reclamation of our waterfront for recreational purposes has been very successful over the past twenty years. We’re now considering one spot as a candidate site for our PanAmerican Games sports facilities. We’ve seen a lot of conversion of abandoned railway lines to an extensive network of trails, which is making us one of the leaders in the province if not in Canada. We’ve got a lot of success stories. It’s exciting to see a lot of changes happening and a lot more planned.

**Technical Issues**

**VLC:** When there’s really toxic soils, capping is seemingly one solution that can lead to recreational use for the site. But are there opportunities to use these lands residentially, or is the technology...
not there yet to address the toxic qualities of the soils?

LS: I’ll speak specifically to one case study. In the late 1990s, the former Plastimet [a plastics recycling company] industrial site in Hamilton caught on fire. This made national headlines and caused considerable concern, as the fire raged for days. We had scientists come in and test areas. They started digging and there wasn’t a big problem with the fallout from the fire but, low and behold, once you start moving the soil, you discover greater problems that are buried. In this case it was from a previous metals recycling company that used the site for some sixty years. The site contained some of their waste. The Ministry of the Environment took the lead under a ministerial order and we worked with them and with their consultants Golder Associates on the remediation plan. There was a lot of extraction of material and hauling away because it was so, so bad, and then filling with clean soils. But there were areas on the site that were identified as not being problematic in terms of contaminants. In those areas, it was a process of just scraping the surface and bringing in 60cm of clean fill material as a capping layer. That site has been converted into a public park.

VLC: If you were to use that land for a new residential neighbourhood rather than park, would that have led to different techniques being required and also different levels of public participation in the environmental aspects of the project?

LS: Possibly, but not necessarily.

We are governed by the Ministry of the Environment’s legislation and we adhered to the guidelines for use of a contaminated site. We rely on the expertise of our scientists and environmental engineers to help guide us through the process and develop site-specific risk assessments. Generally, when we go to parkland standards there’s a higher level of clean up or containment required than if it was repurposed for an industrial site.

JS: In places where people rely on groundwater as a source of potable water, there’s a big difference in terms of the type of standards that soil and groundwater quality have to meet to be able to be considered appropriate for leaving behind. In the case of Hamilton, where groundwater is not used as potable water, there’s more flexibility to leave materials behind in the soil, or higher concentrations, even in a park. It depends on how well the impacted materials can be removed from exposure. In a park, if there’s a way to keep the materials away from the people who use the park—children digging into the soil or adults walking barefoot—then fewer materials will need to be taken away. You need to be able to incarcerate that material in a way that takes it out of exposure pathways for humans or for animals.

SC: There are essentially two ways to address any brownfield site. One is through a remediation process, and another is through a generic clean-up process. The risk assessment/risk management process basically looks at what’s on the site and, based on the pathways we were just talking about a moment ago, asks how we separate people from these pathways. And then, how bad are the concentrations of the contaminants on the site? If they are at low enough levels, they can be managed. But if they are in very high concentrations and therefore they pose a risk, they have to be removed or extracted. The decisions about which way to go on this are basically left up to qualified professional experts. You’ve got to be careful that you don’t just paint it all with one brush and say you have to clean it all up.

But any brownfield redevelopment project is not just about physical planning; it’s not just about master planning; it’s not just about the engineering and the science. It’s about the legal side of it, the financial side of it, the communication side of it. When you’re talking in terms of community involvement, it’s a complex process. One of the key things for me as a project manager is to bring all that together and get everybody working from the same page. You need to have everybody understanding right from the get-go that here’s the final product we’re targeting. But to get there, we’ve got to do a whole series of approvals and agreements and licenses and so on. If you’ve got everybody understanding that, then you can achieve it.

Policy Frameworks

SC: Let’s not forget one thing: contaminants don’t care about property lines, and they don’t care about ownership. They go where they will go. Groundwater is probably one of the single largest unpredictable aspects to this.

JD: Groundwater will do what it wants to do and you’ve got to be able to analyze and study it extensively before you even understand how it works. What you’re doing in one site is clearly going to affect the next site over. There may be cross-site issues in subterranean worlds.

PN: In terms of contaminants migrating from site to site, oftentimes you’ll see an intensive remediation process happening on one site and residential right next to it. You’ll often wonder what’s moving through, what’s happening around that particular house. But it can also be that, in fact, that house is fine or the adjacent land is also fine.

VLC: How do our standards and our regulations stack up against other countries? Are they strong enough? And, furthermore, appropriate?

JS: What I’ve been told is that with the recent changes in regulations in Ontario, Ontario stacks up fairly well with infrastructure liability protection against some of the other provinces. I think that, generally, most of the provinces, the federal government, and governments around the world follow very similar risk assessment processes.
SC: The experts I work with give me the impression that overall in Canada we’ve got some very good standards. However, we look across the border into the U.S. and it’s quite a different situation. From what I understand, the standards in the U.S. are more stringent than they are in Canada. On the flip side, they are also more open to newer remediation methods, which can cause a greater risk of exposure. So it’s a balancing act.

JS: I think that in the U.S., they have a wider range of assessments that can be used. In Ontario, for example, in the past there has been a reliance on assessing just the soil or just the groundwater to determine if a site is impacted. In the United States, for a number of years now, they have been assessing volatile compounds, analyzing the actual vapour in the soil.

VLC: Are we seeing a lot of change and innovation in remediation techniques?

JS: We’re seeing changes in innovation across Canada. But specific remediation techniques are very location-specific. Just because a particular type of technique has been accepted in British Columbia doesn’t mean that we can use it here in Ontario and still have the province find that acceptable.

On-site Remediation

JD: One of the interesting technical challenges is whether or not you can find a way to deal with waste on site.

LS: Digging and hauling away is not the only option. In 1992, when we remediated Bayfront Park in Hamilton, we were able to map the site and, through careful analysis, determine what were the most contentious problem areas. There were just a few small isolated areas with PCBs and some lead that had to come out. There were areas of broken concrete left over from demolition and that leftover material could be taken out, crushed, and used as granular material somewhere else. It was repurposed so it was actually not taken to the dump. And we could make money by taking this material out and reusing it because we didn’t have to now go and find granular materials from a quarry. There was some material that was a by-product of industrial work that, as long as it was in a solid form, posed no problem at all to humans, animals, or fish. But the key thing was that this material had to remain in a solid form; if it got saturated and turned into a solution, then it could leach into the harbour. Working with our environmental consultants and with the Ministry of the Environment directly, we evolved what I believe was probably one of the first processes of identifying and removing what could be hauled away, what could be recycled, but then keeping in place material that was not a problem as long as it was kept dry. The entire top was capped with two feet or more of impervious clay. Rainwater hits the top and is shed to the perimeter and into the harbour. There’s still a lot of the material, but it doesn’t pose a problem because it’s properly managed.

PN: This is where the landscape architect has a strong role to play—with this idea of in situ improvement, and eliminating that dig and dump mentality, which just contaminates another site. This is a realm that has a lot of potential, in terms of grading and capping and inventive bioremediation. It really is a brand new territory…

There are sites that have been sitting vacant for thirty years that could have been going through some form of remediation and natural attenuation and bioremediation. I think the mentality needs to shift to longer-term strategies for these sites.

JS: A big stumbling block is that often there just isn’t the time that’s needed to get through a risk assessment. So immediately we have to jump to the easiest, quickest method and, unfortunately, it’s still the removal of the materials.

VLC: What is the role of the landscape architect in these processes?

JD: In our case, with the Lakeview project, it was teaching people the vocabulary, sharing the vocabulary and the techniques of landscape architecture at a basic level that allowed people to be proactive about what’s possible. It all boils down to building greater value in the landscape. If that value is there, then it can help pay for the costs of repurposing and rebuilding. Having exciting ideas can drive that process, and that’s where our training, our traditional way of thinking, is actually still quite contemporary.

LS: Landscape architects are uniquely positioned to participate in this process. With our training and our ability to do planning, detailed design, and facilitation we can bridge together all types of people—whether it’s business people who may need reassurance on how they can make money on their investments, or municipalities in writing policy or promoting and championing change. We have the unique ability to look at a piece of property and see not only what is there but what it can be.

SC: One of the key things is that we have to gain a better understanding of the procedures, the processes, the technicalities, so that we can then absorb all that, understand its benefits, and articulate that to whomever we deal with—whether it’s City Council, a developer, an engineer, an architect, whomever.

PN: Well, I would certainly agree with all of those comments, but one critical piece is: how do you bring contemporary design to that and how do you make these spaces places?
City Building, Brick by Brick

Transforming a heritage industrial site

01 The flow of engineered and natural systems at the Brick Works. IMAGE/ Claude Cormier Architectes Paysagistes Inc.

02 The site was an active brick manufacturing facility for decades. IMAGE/ City of Toronto Archives

03 The Brick Works is now an award-winning environmental education and activity centre. IMAGE/ Casey Morris

04 Evergreen, an environmental organization whose mandate is to bring nature to cities, is headquartered at the site. IMAGE/ Diamond + Schmitt Architects

05 The heritage industrial buildings have been repurposed and integrated into the natural features of the site. IMAGE/ DTAH

CITY BUILDING, BRICK BY BRICK
How do you reuse a post-industrial brick manufacturing site in the heart of Toronto? That was the question raised in the early 1990s by the Toronto and Region Conservation Authority (TRCA), owner of the Don Valley Brick Works, and the City of Toronto, which manages the land. Fortunately for the TRCA and the City of Toronto, Evergreen, a non-profit organization whose mandate is to bring nature into cities, came along with the proposal to house their national headquarters on the site.

With a master plan originally prepared in 2006 by planningAlliance in partnership with gh3, Evergreen chose a team led by architect Joe Lobko of du Toit Allsopp Hillier to revisit the master plan and turn Evergreen’s ideas—a community environmental centre with programs that celebrate the site’s unique geological, industrial, and natural heritage—into reality. From the beginning, the team—consisting of two landscape architecture firms, three architecture firms, three engineering firms, an ecological consultant, and an artist, with other consultants joining along the way—envisioned a sustainable site-driven response for the 4.9-hectare industrial pad within the Don Valley.

The original quarry north of the factory was filled and its native habitats restored in the early 1990s with a community of Carolinian trees and plants on the west side and a large wildflower meadow in the central area. The industrial pad remained a paved, impermeable barrier between the larger ravine network and the Don River, interrupting the natural and man-made network of flows that define the personality of the site.
Key to removing these physical and ecological barriers was the core idea of transforming an amalgam of existing large old buildings into sixteen smaller buildings on site as a “village,” and the introduction of water, planting, and outdoor open spaces flowing within this cluster of buildings to improve the site’s relationship to its surroundings. Becoming porous in urban form, the integration of landscape and architecture re-established the natural flows through the site and created a circulation network connecting the Weston Quarry Garden to the Brick Works industrial pad.

Working closely with the TRCA and the City of Toronto, ecologist Jim Dougan gave direction to the rehabilitation and restoration of the natural and cultural vegetation communities to the east, west, and north woodlands neighbouring the industrial pad. Dougan & Associates’ 2008 Natural Heritage Impact Study, Tree Preservation Plan and Ravine Stewardship Plan saw the addition of thousands of native trees, shrubs, and groundcovers combined with the removal of invasive and exotic species in an effort to reconnect the industrial pad to the surrounding meadow, thicket, deciduous forest, and wetland habitats.

The most dramatic of the flows that impact the site are the frequently occurring floods, as witnessed with Hurricane Hazel in 1954. Geographically located in one of the lowest elevations in the city of Toronto, it is not uncommon (sometimes up to three times a year) that the site is blanketed with a foot or more of water. Referred to as “nuisance floods,” these natural occurrences are managed through a series of greenways that carry storm water between the buildings and connect the industrial pad to the watercourses of the Quarry Garden to the north and the Don River to the south. These greenways collect storm and flood waters, directing them into the 2000m² storm-water management pond at the southern edge of the site where the water is filtered before entering the Don River system through Mud Creek.

Not all of the storm water collected on site makes its way to the storm-water management pond. Roof water from many of the buildings is captured in fifteen 20,000L cisterns positioned across the site. Massive in size, these cisterns will not only be used to irrigate the vegetation but will also demonstrate how rain water can be stored and used to maintain landscapes of any scale.

Demonstration is a common theme throughout the landscape of the Brick Works. This is most evident within Evergreen Gardens, a previously enclosed metal shed that has been repurposed. With its roof removed, the shed has been transformed into a demonstration garden with three large vegetated mounds positioned within a concrete pad, which converts into an artificial skating rink in the winter months. Repurposing was a strong idea from the very beginning of the design process, as Claude Cormier, AAPQ, contributing landscape architect on the project, expresses: “It’s about taking something and giving it a new use or new meaning with a slight reconfiguration.” At the Brick Works, repurposing took the form of creative adaptive reuse of buildings and the innovative distribution of programme among them.

A strategy was established for protecting and recording the evolving footprint of the Brick Works since 1889. The vast system of masonry flues, chimney foundations, and kiln floors are still present beneath the paved surface of the industrial pad. During construction, below-grade monitoring was executed by a licensed archaeologist. After below-grade construction was complete, archaeological resources were recorded, then backfilled and capped with concrete to protect them from future disturbance. Revealing the layers of history, footprints of the historical kilns and chimneys will be etched in concrete where possible.

Transforming the former Don Valley Brick Works from a collection of deteriorating heritage buildings into an international showcase for urban sustainability and green design, Evergreen will have a flexible home base to accommodate their changing programming, business, and educational ambitions. Opened on September 25, 2010, the Brick Works site will foster the relationship between nature, culture, and community through experiential learning, collaboration, and fun.

**BIO/ BRYCE MIRANDA, OALA, WORKS FOR DU TOIT ALLSOPP HILLIER, AND WAS PROJECT MANAGER FOR DTAH’S DESIGN FOR THE BRICK WORKS INDUSTRIAL PAD.**
List of Landscape Consultants
Don Valley Brick Works

1989—Present
Coordination and implementation of various park improvements:
City of Toronto Parks, Forestry and Recreation Division Department
[Garth Armour—Coordinator, Natural Environment and Community Programs]

1990
Original Master Plan Concept:
Hough Woodland Naylor Dance Leinster
[Managing principal: Michael Hough]

1995
Quarry and Garden Park Redevelopment and First Phase Master Plan:
The Landplan Collaborative Ltd.
[Managing principal: Rod MacDonald]

1997
Detailed Planting Plans for First Phase of Development:
Garden Club of Toronto
[Lead: Mary Anne Miller]

1998
Mud Creek Reconnection Project:
Schollen and Company Inc.
[Managing principal: Mark Schollen]

2001
Don Valley Brick Works Stewardship Guide Book
Lorraine Johnson

2004
Phase Two Park Development:
Hough Woodland Naylor Dance Leinster
[Managing principal: Michael Hough; Project manager: David Leinster]

2006
Woodbridge Foundation Donation and Improvements:
The Hough Group
[Michael Hough, David Leinster and Peter Heyblom]

2006
Evergreen at the Brick Works Master Plan:
planningAlliance in partnership with gh3
[planningAlliance—Managing principal: John Van Nastrand]
[gh3—Managing principal: Diana Gerrard]

2006—present
Lead Landscape Architects—Industrial Pad:
du Toit Allsopp Hillier in partnership with Claude Cormier Architectes Paysagistes
[DTAH—Managing principal: John Hillier; Project manager: Bryce Miranda]
[Claude Cormier Architectes Paysagistes—Managing principal: Claude Cormier; Project manager: Marc Hallé]

2007
Don Valley Brick Works Park: Natural Heritage Impact Study and Enhancement Strategy:
The Planning Partnership—Michael Hough—AMEC Earth & Environmental
[Managing principal: David Leinster]

2008
Evergreen Brick Works: Natural Heritage Impact Study, Tree Preservation Plan and Ravine Stewardship Plan:
Dougan & Associates
[Managing principal: Jim Dougan; Project manager: Julia Murnaghan]

2009
Mud Creek Regeneration Concept:
Schollen and Company Inc.
[Managing principal: Mark Schollen]

2009
Don Valley Brick Works Circulation and Linkages Analysis:
The Planning Partnership
[Managing principal: David Leinster; Project manager: Peter Heyblom]

2010
Chimney Court Play Area:
Forrec Ltd.
[Managing director: Linda Hung; Project manager: Richard Bondi]

2010
Weston Quarry Garden Entrance Feature:
The Planning Partnership
[Managing principal: David Leinster; Project manager: Peter Heyblom]

2010
Recreational Access Between Brick Works and Beltline Trail:
Scott Torrance Landscape Architect Inc.
[Managing principal: Scott Torrance; Project manager: Caroline Tomlin]
For this issue on restoration, rehabilitation, and repurposing, *Ground* invited academics and students to submit student thesis work related to our 3R theme. The engagement with restoration, rehabilitation, and repurposing is one of the driving forces in landscape architecture today because of a widespread acknowledgement of environmental degradation. The range of projects we received is a testament to this engagement by the next generation of practitioners. We are pleased to present a selection of excellent projects* from seven landscape architecture students from the University of Guelph and University of Toronto.

*THREE OF THESE PROJECTS (MATTHEW A.J. BROWN’S, ALESSANDRO COLAVECCHIO’S, AND KYLE XUEKUN YANG’S) RECEIVED HONOUR AWARDS IN THE AMERICAN SOCIETY OF LANDSCAPE ARCHITECTS’ 2010 STUDENT AWARDS.
MATTHEW AUSTIN JOHN BROWN
Newfoundland Landscape: Landscape as Outport Regenerator
University of Toronto, MLA 2010
Thesis advisor: Alissa North

This thesis uses landscape to re-envision the future of rural Newfoundland by capitalizing on its unique geographic location and existing infrastructure. Newfoundland is a province that has been plagued by outmigration and population loss due to the collapse of the traditional cod fishery. With a passionate attachment to their coast, rural Newfoundlanders struggle to hold on to their communities, their history, and their culture. New renewable industries, driven by landscape, can and must be implemented to maximize productivity for both the people and the local ecology, regenerating these rural outport settlements: saving a people and their place.

Six potential renewable industry opportunities were researched and applied as they hold the unique ability to sustain outports. The six renewable industries included are wind energy, tidal energy, aquaculture, globalization, tourism, and graceful decline (re-integrating ecologies). Each of these creates jobs and revenue, sustains current populations, and provides youth the opportunity to return home. In addition, the physical design of these industries plays a crucial part in being context-sensitive, an important role of the landscape architect.

ALESSANDRO COLAVECCHIO
Northern Capital: A potential future for the Mackenzie River Delta
University of Toronto, MLA 2010
Thesis advisor: Peter North

This thesis tests the use of landscape architecture as an agent to combine resource-extraction infrastructure with a community’s social and economic development. The project imagines Inuvik’s growth through this century as stimulus-spending ends, gas extraction decreases, and a population influx attempts to settle. Arguing that node-based mobility will overtake route-based mobility in the Arctic’s warmer future, a fundamental change must occur in the arrangement of infrastructure relative to landscape processes. Inuvik’s function as a hub city is translated into a coast-based fabric of barge ports, clustered development, and a connective infrastructural tissue.

This project breaks apart the landscape into key systems of topography, water and snow, wind exposure, and sun exposure. Program options are derived by the combination of these systems and they are activated by the placement of infrastructure. The overarching goal is to remove the burden of inefficiency and intensive maintenance that is adopted along with Southern Canadian forms. To this end, the project investigates possible adaptations to natural gas mining infrastructure, namely a pipeline and processing facility.

A design calls for a massive change up front, moving the locations of the pipeline and facility from their proposed locations twenty kilometres away to sites in the city. Industrial operations continue in the present but buildings and pipelines are then at strategic locations for reuse, minimizing land disturbance.

DANIEL JACKSON
Design Guidelines for Integrating Amphibian Habitat into Golf Course Landscapes
University of Guelph, MLA 2009
Thesis advisor: Sean Kelly

A study was undertaken to investigate whether golf course design could be adapted to provide high-quality habitat for amphibians. Research identified critical habitat requirements as well as opportunities and constraints, and then combined the information to develop a set of design guidelines for creating golf environments suitable for amphibian life cycles. To demonstrate the integration of habitat into a golf course, the Golden Beach Resort property on Rice Lake, Ontario, was chosen due to the presence of large wetland complexes, extensive forested patches, lakeshore, and existing resort use. The routing of the course strived for a balance between design and ecology as elements essential to the physiological needs of amphibians as well as those critical to the strategic nature of the game were spatially arranged within the property to meet the needs of both users. The layout of the course responded to the needs of amphibians, which are dependent on a close relationship between aquatic and terrestrial habitats. The routing also took advantage of the natural features of the site to enhance the strategic and aesthetic aspects of the course. By adopting an integrative approach, a traditional design of a golf course can be repurposed to meet the needs of multiple users and help mitigate habitat loss and declining amphibian populations.
Wildfires are the second most commonly reported disaster in Canada. The province of British Columbia has a history of significant wildfires and the 2009 fire season was the worst in recorded history, with 3,040 fires across the province. Three wildfires in the Central Okanagan of British Columbia in 2009 suggested that there was inadequate disaster communication, preparedness education, and recovery consultation. This thesis contributes to the reformulation of strategies in wildfire disaster prevention/mitigation, preparedness, response, and recovery in relation to wildfires in interior British Columbia. A literature review determined wildfire disaster planning and management strategies. These strategies were developed into a Wildfire Disaster Planning Strategy Framework. A case study was conducted of the 2009 Terrace Mountain Fire that affected a rural area of the Regional District of Central Okanagan. This case study described the context of this wildfire event and its impact. The local and provincial wildfire emergency plans were described and analyzed using the Wildfire Disaster Planning Strategy Framework. It was found that these emergency plans incorporated few essential disaster planning and management strategies. The Wildfire Disaster Planning Strategy Framework and existing regional and provincial wildfire emergency plan strategies were compiled into a framework for a Wildfire Management Plan for the Regional District of Central Okanagan.

Site isolation is achieved with earthwork construction; tonnes of excess waste rock remain unused and contain only trace pollutants. One metre of material is spread over toxic areas, and waste rock berms are developed in a phased approach (with configuration dependent on long-term management goals). Massive berms act as a dike system to deflect surface water movement. They increase the distance animals must move to avoid the contaminants; steep slopes make them almost impassable. Secondary berms prevent wind erosion, impound radioactive zones, and collect seeds to establish new, resilient plant communities.

Localized site ecology presents further remediation opportunities: first, cold-climate algae use metabolic processes to dissolve heavy metals; second, indicator species delineate pollution zones; third, hyperaccumulating vegetation aid in environmental regeneration by absorption of radionuclides and contaminants. Air hydroseeding delivers the biological arsenal while avoiding ground-level radiation.
Cerrado Habitat Establishment Through Open-pit Mine Reclamation in Paracatu, Brazil

University of Guelph, MLA 2010

Thesis advisors: Sean Kelly, Karen Landman

The tropical savanna (or Cerrado) biome in Central Brazil originally consumed more than 20 percent of the country, including the study site for this research: The Paracatu Gold Mine. Cerrado is one of the richest ecosystems in the world. Nevertheless, its widespread destruction for agriculture or pasture continues at rates higher than that of the neighboring Amazon rainforest.

The study site extends from the northern edge of the city of Paracatu, where the extraction area directly borders residential dwellings. The study site is surrounded to the north, east, and west by agricultural land used primarily for cattle grazing. Mining has taken place here since 1722, and is deeply ingrained in the roughly 75,000-person community.

In this thesis, professionally evaluated guidelines resulting from research on Cerrado habitat, landscape ecology, and mine reclamation practices were applied to the Paracatu Gold Mine. This was done in the form of a demonstration plan, allowing for proper mine reclamation, restoration of the native Cerrado habitat, as well as improved ecosystem services and ecotourism opportunities.

This demonstration plan is just one of many possible solutions, integrating public amenities such as a research/information centre and public viewing trails for visitors. Additionally, the road into Paracatu has been intermittently graced with framed views of strategically and whimsically designed phytoremediation islands within the remediation ponds.

This project is intended to demonstrate how native Cerrado ecosystems can be successfully integrated into landscapes of temporary degradation, while showing sensitivity towards surrounding land uses and communities.
On occasion there are extraordinary stories documenting the rebirth of a city or region that inspire and set the tone as exceptional. The environmental and ecological rebirth of Sudbury, Ontario, is one such story. Embedded in a complex history of intensive logging, mining, and resource extraction, Sudbury—a city that once resembled a blackened lunar landscape—now leads the way in terms of green and sustainable planning and ecological restoration practices. This brief account endeavours to summarize Sudbury’s mining history and celebrate the massive changes that have occurred during the past twenty-five years.

Located 400 kilometres north of Toronto, Sudbury, a city of 160,000, is situated on the shores of Ramsey Lake and is firmly rooted in the Canadian Shield. Prior to early settlement, Sudbury was a territory of towering red and white pine forests with abundant wildlife and healthy streams, rivers, and lakes teeming with fish. The early settlers set forth logging the seemingly never-ending forest and carving out an existence in a place where traditional agricultural practices were near impossible because of the relentless expanse of the Canadian Shield. It was the Canadian Shield that caused the explosion of mining activity and unprecedented transformation of the regional landscape. In the 1880s, mining prospectors discovered the world’s largest concentration of nickel in the Sudbury rock. From that point forward the landscape witnessed a transformation unlike anywhere else in the country.

The initial processes of extracting the nickel created extremely corrosive fumes and acidic smoke that, almost immediately, killed off all vegetation that wasn’t already logged. The acid also found its way, in large concentrations, into the lakes and streams, killing off all aquatic life. By the end of the 1960s the barren, blackened rock landscape in and around Sudbury supported little or no vegetation, terrestrial, or aquatic life. Sulphur dioxide fumigators, metal deposition, intensive logging, more frequent forest fires, and accelerated soil erosion had taken their toll on more than 84,000 hectares of land, resulting in blackened barren rock reaching as far as one could see in every direction.

From an environmental and ecological perspective Sudbury reached its all-time low in the late 1960s and the region was officially on the map as one of the world’s most polluted places. Impacts from drifting toxins in the air and water were being witnessed on a global level. It was at this point that the rebirth of Sudbury began.

In addition to new, more efficient mining technologies, a re-greening effort on a vast scale began in the early 1970s as a means of addressing the environmental devastation and rebuilding the reputation of the city. A committee, named the Vegetation Enhancement Technical Advisory Committee (VETAC), comprised
of professors, scientists, and volunteers from Laurentian University, Inco, Falconbridge, the provincial Ministry of Natural Resources, the Nickel District Conservation Authority, area municipalities, and the Region, was established and started to lead the charge. Test plots were created on the difficult rocky terrain and scientific experimentation soon led to the development of a unique growing medium and a selection of native plant species suitable for the task ahead. A mixture of crushed limestone, to neutralize the highly acidic soil, along with fertilizer and an appropriate seed mix was used as the catalyst for new vegetation to take root. The soil mixture was carried by hand and spread, one bag at a time, on thousands of hectares of barren rock inaccessible to most vehicles. Remarkably, by the late 70s, the handmade forests were starting to thrive. By the mid-80s, nearly half a million trees had been planted on more than 2,500 hectares. The pioneering efforts of VETAC, along with coordinated planting programs and hundreds of volunteers, were transforming the landscape on a regional scale.

To date, a generation later, millions of trees have been planted as part of the massive re-greening effort and more than half of the barren lands targeted for reforestation and remediation have been successfully reclaimed. In an interesting shift of roles, the deep mine shafts, with their constant 25-degree temperatures, now double as greenhouses and are used to propagate and grow the trees used to remediate the land.

It is estimated that it could take another fifteen years of planting and remediation efforts to restore all of the barren landscape, and further estimates have been made that it could take close to 200 years for the regional landscape to make a full recovery. This may seem like a long time; however, had nothing been done and the landscape left to its own devices of natural succession and attenuation, the process may have easily taken over 2,000 years. These predictions and comparisons are not only a testament to the degree of devastation witnessed by the region, but also to the dedication and perseverance of a generation of people.

I recently had the opportunity to visit and tour the city with two of Sudbury’s senior planners, Jason Ferrigan and Mark Simeoni. As we explored the verdant hilltops and biked along the newly established network of trails winding along the rivers and streams, it was difficult to imagine what the landscape had looked like just a few short decades previously. The radical transformations of the landscape at a regional scale had also translated into changes in city building and the development of planning policies with a strong green agenda. Inner-city brownfield redevelopment was occurring and new park system master-planning efforts were reconnecting to landscape systems. While mining operations and nickel extraction are still a large part of Sudbury’s identity and economic backbone, new technologies permit less destructive mining and refining, while the lessons learned from the recovery of the landscape have elevated the importance of the role of landscape in resource extraction.

BIO/ PETER NORTH, OALA, IS AN ASSISTANT PROFESSOR IN THE DANIELS FACULTY OF ARCHITECTURE, LANDSCAPE, AND DESIGN AT THE UNIVERSITY OF TORONTO, AND PRINCIPAL OF NORTH DESIGN OFFICE.
Aggregate Site Rehabilitation

A report on recent research

TEXT BY WENDY MCWILLIAM, PH.D.

Aggregate rehabilitation represents a highly lucrative design niche for landscape architects. There are approximately 5,300 active aggregate sites in Ontario today (Corry et al. 2008), and many more will be entering the approvals process in the years to come. Sites are large, averaging 12 to 15 hectares in size (The Ontario Aggregate Resource Corporation, 2004). Furthermore, aggregate site owners are forced to rehabilitate sites according to the Aggregate Resources Act (1990), and landscape architects are one of only three professions authorized to prepare rehabilitation plans (in addition to engineers and surveyors).

Currently, aggregate rehabilitation site planners tend to prepare economically driven post-extraction plans that focus on the extraction site. These plans are driven by the land use characteristics of the immediately surrounding land (Milgrom 2008), site characteristics, and potential economic return of the post-excavation land use (Corry et al. 2008).

Conventional rehabilitation approaches uniformly grade sites, use imported agricultural topsoils, and rely on aggressive, sometimes exotic, plant species (Benes et al. 2003; Corry et al. 2008). This is done to avoid soil erosion and improve aesthetics in order to placate surrounding communities, which often oppose aggregate sites within their communities (Benes et al. 2003). Little attention is given in plans to the ecological consequences of rehabilitation in the context of the surrounding landscape (Corry et al. 2008, Brown et al. in press). While some rehabilitation plans have been prepared that seek to restore and even enhance ecological functions within the site and the landscape (for example, see Zimmerman and Lowe 2001), they appear to be the exception rather than the rule.

Research indicates that the conventional rehabilitation approach is not maximizing the ecological potential of extraction sites and may in fact lead to a lower native species diversity than would have developed had sites not received rehabilitation (Burley 2001). Studies of sites that have not been rehabilitated indicate that many aggregate sites have the potential to support high native species diversity, and in some cases relatively rare ecosystems, such as alvars and prairies (Browning and Tan 2001). The high ecological value of these sites is primarily due to their heterogeneity. Many are characterised by a complexity of soils, slopes, and microclimatic conditions that create niche diversity. Furthermore, the impoverished conditions of some of these sites help to support less common species unable to compete with the common fast-growing species that rely on fertile, well-structured soils. Researchers have found that soils that are non-fertile, drought-prone, or otherwise stressful to many plants, support less competitive and more specialized plant species (Bradshaw 1984). Researchers have found that creating a variety of slope conditions and microhabitats also enhances species diversity (Gustavsson 1983; Weiss and Murphy 1990). In some cases, impoverished site conditions were also found to significantly reduce the need for intensive management activities following rehabilitation (Greenwood 1983).
More recent research at the University of Guelph demonstrates the ecological and social benefits of considering the landscape context, rather than just the immediately adjacent context, in rehabilitation plans. Landscape ecology studies have demonstrated the influence of the landscape context (the mosaic of repeated local ecosystems over a kilometres-wide area [Forman, 1995]) in determining the ecological function of a particular local ecosystem. For example, populations of plants and animals can become isolated into sub-populations by human land uses such as roads. Interconnected sub-populations (known as a meta-population) ensure the continued survival of a native species. However, further fragmentation can eradicate these sub-populations leading to species extirpation or extinction.

Because of the large number, size, and clustered distribution of aggregate sites within the landscape, their rehabilitation provides an opportunity to restore species lost through fragmentation. The resiliency of sub-populations can be increased and meta-populations restored (Corry et al. 2008). For example, adjacent aggregate sites can be rehabilitated to support larger populations by combining small habitats into larger habitats. Furthermore, new habitat patches can be created, and sub-populations re-established, in support of healthy meta-populations (Corry et al. 2008). Studies have demonstrated how landscape context variables, such as patterns of habitats, inter-patch movements, dispersal, and micro-climates, can be altered within clustered aggregate rehabilitation plans in support of Ontario species at risk such as the Karner blue butterfly (Corry et al. 2008; 2010; Brown et al. in press) and the five-lined skink (Cameron 2007).

Further research needs to focus on identifying the barriers to preparing rehabilitation plans that restore and enhance ecological features and functions within aggregate sites and landscapes. Key barriers may include a lack of specific rehabilitation goals within the Aggregate Resources Act (1990). The lack of site- and landscape-level study requirements within the Act (1990) may also discourage more ecologically responsive rehabilitation plans. For example, according to the Act, rehabilitation plans can aim to restore the land to its former state, or change it to another state, as long as it fits with that of the surrounding land.

Rehabilitation plans designed in support of not only restoring, but enhancing, ecological features and functions can be expected to gain more support from both regulators and communities than those that merely seek to “fit in” with the immediately adjacent land uses and maximize economic returns to pit and quarry owners. These efforts may result in faster permit approvals from regulating agencies and fewer conflicts with surrounding residents. Furthermore, landscape architects who have the skills and knowledge to prepare these plans can be expected to outcompete other professionals who lack this knowledge.

References


Hands On

A recent landscape architect grad takes the design/build route
This is the second in a three-part series that explores the variety of options available to students upon graduating with a degree in landscape architecture. This series looks at the choices made by three successful young professionals as they reflect on their first five years of post-graduate work experience. After graduating from the same class at the University of Guelph with their Bachelor of Landscape Architecture degrees in 2005, each graduate has taken a different route towards their current positions, which are in themselves diverse. They have each chosen different geographical and cultural environments in which to work, representing isolated, rural, and urban contexts, as well as public sector, design-build/entrepreneur, and private sector placements, respectively. In this issue, we profile Kevin Forestell, owner and operator of Forestell Designed Landscapes, a design/build landscape company located in Guelph, Ontario.

Kevin Forestell completed a three-year diploma in Landscape Design at Fanshawe College in London, Ontario, before pursuing a BLA degree at the University of Guelph. During his studies, he designed and built several small residential landscape design projects in the Guelph area. Upon graduation, Forestell continued his residential work with the creation of his own business: Forestell Designed Landscapes (FDL).

Forestell explains that this move towards running his own design/build company right out of school seemed to him a natural next step. He knew by then that he enjoyed the hands-on process of building landscapes, in particular the feeling of being able to see tangible results at the end of a day’s work.

For a variety of reasons beyond his clear passion for the trade, Forestell was well prepared for his entrepreneurial foray. He had received excellent training at school, with sound technical and hands-on education from Fanshawe, followed by a broader design and conceptual foundation from his BLA at Guelph. Forestell also found what he felt to be a good environment in which to begin his career. As he points out, “I was raised in Guelph, and had a great support system of family and friends in the area. I also recognized that Guelph had a large landscape market with less competition than in the bigger cities.” All of these factors gave him the confidence to move forward and take a risk many don’t even consider until much further along in their careers — starting one’s own business.
Forestell’s risk paid off, and he has guided FDL through five years of steady growth, resulting in a robust and successful company with offices in Guelph and Ottawa, an expanding residential and commercial clientele, and approximately fifty employees.

In recent years, FDL has been increasing its commercial and public-sector portfolio, including the design and construction of the Ancaster Old Mill site, which involved the coordination of several consultants, from archaeologists to engineers. The project involved the diversion of a stream around an existing structure, culminating with the construction of a new waterfall. The project was a great success, earning the company a reputation for such interventions, and resulted in related contracts such as the Cambridge Old Mill revitalization, which is currently underway.

Recently, FDL was selected to construct the landscape for the new Guelph Civic Square—a Janet Rosenberg + Associates design. This contract is their largest so far, and marks the company’s arrival in the public-sector market.

Two years ago, Forestell teamed up with old friend and classmate Keith Ardron to open an Ottawa office. Ardron had built a reputation for expertise in roof garden design and installation, enabling the office to expand into a new market and offer new services.

Despite this expansion into Ottawa, Forestell spends the majority of his time and effort in the Guelph area and surrounding communities. The fact that the company operates in a rural context on the periphery of a mid-sized city was one of calculated convenience. As Forestell says, “When I first started the business, the rural setting made a lot of sense. I had access to the family farm, so setting up our operation out of town gave us access to a large property for less money. As a result, we were able to hold on to more materials and save time and money on shipping. The property also allowed for storage, a burn pile, a compost pile, etc.—all things that we would have otherwise had to outsource.”
Forestell also notes that, “operating in Guelph has the distinct advantage of being close to the University of Guelph, which has one of the most celebrated landscape architecture programs in the country. As a result, most of our staff have some level of university or college education. We find that this translates into a staff that is genuinely interested in the industry, which increases everything from productivity to customer relations.”

In fact, Forestell has noticed that the rural context has proven beneficial in terms of quality clientele, stating that it is a “very environmentally concerned area,” and that “having a beautiful, well-maintained outdoor living environment is important to our community and we enjoy being the ones to help provide it.”

However, Forestell concedes that there are some drawbacks to working in a rural context. These include the somewhat limited resources and services such as high-speed Internet. Also, he acknowledges that employee access is complicated by their location: “Being located outside of Guelph means that employees can’t use public transportation to get to work.” Their location also means that they are typically a fair distance from their job sites. This forces Forestell to organize operations very carefully to ensure that the crews have everything they need before they leave for a job. “If a crew forgets materials or tools, it means more time and money are needed to retrieve them.”

These issues appear to be minor for Forestell when weighed against his obvious success in the region and his love for his job. When asked if he would recommend working in a rural context to new graduates, he says, “Absolutely. There are equal if not more opportunities for a young [landscape] business in a rural setting.” Certainly Forestell is a prime example of a skilled and enthusiastic young graduate who has taken advantage of the opportunities afforded by his rural context to build a well-regarded and successful company.

BIO / ERIC GORDON, AN URBAN DESIGNER, IS A MEMBER OF THE GROUND EDITORIAL BOARD.
The Sustainable Sites Initiative (SITES) Landscape is the focus of a new evaluation system.
How can we quantify sustainability in landscape design and management? This is the challenge taken up by the American Society of Landscape Architects (in partnership with the Lady Bird Johnson Wildflower Center at the University of Texas and the U.S. Botanical Garden) in its new Sustainable Sites Initiative, known as SITES. Modeled after the LEED rating systems, SITES has a landscape focus and its set of benchmarks applies to sites, with and without buildings, at a range of scales. The limits of existing LEED programs as architecturally based green building evaluation tools have often been noted by landscape architects, and the ASLA has stepped up to address this significant gap. A range of experts has developed a comprehensive set of quantifiable sustainability measures including site selection, pre-design assessment and planning, use of water, soil and vegetation in site design, materials selection, construction, operations and maintenance, human health and well being, with bonus points for monitoring and innovation.

First started in 2005, SITES is now in the pilot program stage, with 150 projects participating in a two-year study that wraps up in 2012. Significantly, 80 percent of the pilot projects involve brownfield sites, clearly illustrating the link between repurposing and sustainability.

Three of the pilot projects are Canadian, two of these are Ontario sites. (A selection of the case studies is profiled on the very user-friendly SITES website; one of the Ontario pilot projects will be the subject of the Technical Corner column in Ground 12.) The pilot study is intended to aid in fine-tuning the benchmarks and ratings system, which is fully detailed in the publication *The Sustainable Sites Initiative: Guidelines and Performance Benchmarks 2009* (available online). The initiative is taking a two-pronged approach. Its guidelines aim to both supplement existing green building and landscape guidelines as well as to provide a stand-alone tool for site sustainability. The U.S. Green Building Council is a stakeholder in the initiative and anticipates incorporating the guidelines into future versions of LEED programs. The Canadian Society of Landscape Architects and the Canadian Nursery Landscape Association are participating organizations and will provide comments on the initiative’s draft performance benchmarks and guidelines.

Nine guiding principles shape the performance benchmarks: do no harm; exercise the precautionary principle; design with nature and culture, use a decision-making hierarchy of preservation, conservation, regeneration; provide regenerative systems as intergenerational equity; support a living process; use a systems-thinking approach; use a collaborative and ethical approach; maintain integrity in leadership and research; foster environmental stewardship. The principles provide a broad framework for specific practices within the rating system.

Adapting a UN definition of sustainable development, SITES defines land practices as sustainable if they enable natural and built systems to work together “to meet the needs of the present without compromising the ability of future generations to meet their own needs.” SITES also borrows from a 2005 UN study which views the intersection of social, environmental, and economic aspects of sustainability to be inseparable for true sustainability. So, as in the LEED ND program (LEED for Neighbourhood Design, described in this column in *Ground 07*), we find notions of social equity, measured through practices such as job creation to benefit local communities in relation to...
site development, interwoven with more familiar criteria about conserving water and protecting natural systems.

The conceptual framework of SITES is backed up by another published report titled *The Case for Sustainability*, which makes an effort to quantify and concretize in economic terms the benefits of sustainability, presumably for a bottom-line focused audience, beyond the "already converted." In this vein, the SITES report introduces the term "ecosystem services" to describe "the goods and service provided by healthy ecosystems, such as the pollination of crops by bees, bats or birds, or flood protection provided by wetlands or filtration of air and water by vegetation and soils." Twelve "ecosystem services" that perform essential services for human health and survival are outlined: global climate regulation, local climate regulation, air and water cleansing, water supply and regulation, erosion and sediment control, hazard mitigation, pollination, habitat functions, waste decomposition and treatment, human health and well-being benefits, food and renewable non-food products, and cultural benefits. The report cites a figure of $33 trillion annually (in 1997 U.S. dollars) for the estimated global average of such vital "ecosystem services."

The stated intention of SITES is to create tools for a wide range of professionals who influence land development and management practices, including landscape architects, planners, engineers, developers, builders, maintenance crews, horticulturalists, government, land stewards, and organizations offering building standards. Given that SITES is a voluntary program that may involve upfront costs for longer term gain, it makes sense to articulate the "case" for sustainability in order to create buy-in.

One of the striking aspects of the evaluative criteria is how multiple stages of a project are addressed, from pre-planning through to operations and maintenance, bringing a holistic view of landscape into practice. Just one of the specific categories of note is the attention paid to soil in the Site Design—Soil and Vegetation section. This mandatory credit calls for a soils management plan. A detailed map of soils to be protected, disturbed, and restored, or revegetated, is required indicating "how areas of restored soils will be protected from compaction (e.g., vehicle traffic or storage), erosion, and contamination until project completion." Even more precise, the soils map must "indicate locations for all laydown and storage areas, haul roads and construction vehicle access, temporary utilities and construction trailers, and parking (all of which must be located outside the vegetation and soil protection zones)." Taking the health of soil seriously in this way is a huge logistical challenge for construction operations. It is commendable that the SITES program is tackling the logistics while articulating the science behind the required soils management plan.

The impact of the benchmarks is wide-reaching, as they address levels of production for landscape materials including plants. In the Site Design—Materials Selection section, for example, credits are given for reuse of salvaged materials and salvaged plants. "Supporting sustainable production" includes purchasing "plants from providers who reduce resource consumption and waste," with consideration given to use of water, treatment of soil and organic waste, nonchemical pest control, and renewable soil amendments (i.e., no peat moss) by plant producers. The focus on the sustainability of architectural and interior design materials that has become commonplace is now being brought to bear on landscape materials.

It will be very interesting to watch how the SITES program is taken up by landscape architects and other professionals and whether its persuasive "case for landscape sustainability" will gain widespread credibility and voluntary participants for projects of all kinds.

For more information, visit www.sustainablesites.org/.
Notes: A Miscellany of News and Events

new members

The Ontario Association of Landscape Architects is proud to recognize and welcome the following new full members to the association.

Emily Andreae *
Lei Chang
Vive Mai Kittask
Kathy Kozlowicz *
Kendra Kryszak *
Hoda Matar *
Antonio Medeiros
Darlene Myrie
Matt Rukholm
Eric Stadnyk
Mark Steele *
Mark Taylor
Leah Ward *

Asterisk (*) denotes a Full Member not having custody and use of the Association seal.

students

The American Society of Landscape Architects (ASLA) recently announced the winners of the 2010 Student Awards. ASLA presented awards to 32 projects in seven categories. In total, more than 275 entries were received and considered. A resounding total of seven Canadian entries won awards: five Honour Awards and two Awards of Excellence, the highest honour.

Graham Slater of the University of Guelph won in the Research category for “The Cooling Ability of Urban Parks.” You-Been Kim and Matthew A.J. Brown of the University of Toronto won in the Student Collaboration category for “Catalytic Integration: Redefining Desert Tourism.” For a full list of student winners, see www.asla.org.

Macklin Hancock 1925-2010

By Cecelia Paine, OALA, FCSLA, FASLA

Canadian landscape architects and planners have lost one of our most well-recognized and prolific mid-twentieth-century practitioners, Macklin Hancock. Mack’s local imprints include planning and design for Canada’s first new town, Don Mills, in the 1950s, later followed by planning and design of Erin Mills New Town. Other significant projects included conceptual design of the Don Valley Parkway, master planning and detailed planning for the St. Lawrence Parks, and planning and design for Toronto Island Parks. Mack was known to many of us as the principal of Project Planning Limited, a Toronto-based firm whose work included new towns and capital cities, business parks, retail and mixed-use centres, major parks, university campuses, and tourist resorts in Kuwait, Pakistan, the Bahamas, Tanzania, Saudi Arabia, Spain, China, Russia, and Germany. As master planner for Montreal’s Expo 67, Mack helped to create the opportunity for numerous landscape architects in eastern Canada to move beyond small local projects to ones that demonstrated their contribution to larger scale planning and design. In addition to maintaining a private practice for some fifty years, Mack served as president of both the Canadian Institute of Planners and the Canadian Society of Landscape Architects. Honours included the Centennial Medal for Distinguished Service to Canada in 1967, an honorary doctorate from the University of Guelph in 2002, and induction to the Order of Ontario in 2003. Mack and the Hancock family have bequeathed many of his professional documents to the University of Guelph Archives where they are available for research and study purposes. Macklin Hancock’s legacy provides evidence of the most significant planning and design developments of the Modernist era. We are very fortunate to have had a person of his vision and intellect providing professional leadership during this significant period.

Jerry Wayne Belan, OALA 1951-2010

By Linda Irvine, OALA, with others

Jerry Belan was a graduate of the landscape architecture program at the University of Toronto in 1979 and a full member of the OALA since 1985. He spent his childhood in a rural Ontario community on the northern shores of Lake Erie, with waves, ice floes, beaches, cliffs, ravines, forests, and fields as...
his playground. These experiences shaped his sense of adventure, love of exploration, inquisitive personality, and sensibilities as a landscape architect and parks planner. For most of his career, he worked in the public sector for agencies such as the Ministry of Natural Resources, various conservation authorities, and the City of Toronto. Over his thirty-year career, Jerry worked on seven provincial park master plans, fourteen provincial park resource management plans, the High Park Master Planning Study, and numerous harmonization program initiatives, strategies, and partnerships.

With the City of Toronto, Jerry was the inspiration for, and major force behind, the successful Discovery Walks Program and often spoke at international conferences on trail planning and on Toronto’s acclaimed series of self-guided interpretive walks. He was also the creator of several other innovative pedestrian/walking initiatives such as Toronto’s first “Walking Information Fair and the new “Exploring Toronto’s Parks and Trails Map.” In particular, he excelled at forging strong relationships and partnerships with many residents, community groups, and agencies because he believed that it was essential to incorporate meaningful community engagement and to build consensus on all of these projects.

Jerry was also a volunteer walk/hike leader for the Bruce Trail Association, the Toronto Historical Board, the Toronto Field Naturalists, and the organizer of annual “soft walking adventures” in both the Czech Republic and Slovakia. Among his many volunteer activities, he was a volunteer lightkeeper at the Flowerpot Island Lightstation for eleven years and the past president of the organization’s Dovercourt Shade Sail Canopy Pilot Project. He was instrumental in the implementation of the organization’s Dovercourt Shade Sail Canopy Pilot Project.

As an avid hiker who loved to explore the local parks of Ontario, his favorites included Flowerpot Island, Point Pelee National Park, and Sandbanks Provincial Park, he was a long-time member of the Bruce Trail Association and the Friends of Fathom Five National Marine Park. Greg was also a travel enthusiast who explored the world, including Central America and Cuba, where he worked on a number of community development projects. Closer to home, Greg was also a volunteer with GreenHere, a Toronto non-profit dedicated to increasing the urban forest in lower income communities, and was instrumental in the implementation of the organization’s Dovercourt Shade Sail Canopy Pilot Project.

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As a young boy growing up in a small town, Joseph Baldwin used to watch and wait for the trains to go by. As a recent graduate from the MFA program at the University of Illinois, Baldwin is now giving Chicago transit riders an extra reason—beyond simple travel necessity—to watch and wait for the trains: a Mobile Garden planted on a flatbed car, a prairie pulling into the station.

“Apart from graffiti,” says Baldwin, “nothing cultural is put in transit.” But in the spring of 2011, if enough money is raised, Baldwin’s cultural gesture will bring nature to Chicago’s transit lines. Prairie plants, including shooting star, sand coreopsis, and little bluestem, will bend to an urban wind, waving along the rails.

And seed dispersal is key: volunteers will be handing out seed packets in adjacent trains, as Baldwin puts it, “so people can create habitats in their own spaces.”
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