



## Eglinton Crosstown LRT Western Tunnel

### FEATURE PROJECT

#### Project Requirements

The Eglinton-Scarborough Crosstown Light Rail Transit (LRT) Western Tunnel contract is part of an \$8.5 billion transit expansion program to install a 26 kilometre long LRT system from Black Creek Drive in the west end to the Sheppard East Terminus in the east end of Toronto. The Western Tunnel contract was awarded by Metrolinx to Crosstown Transit Constructors, a joint venture between Kenaidan Contracting Ltd., Obayashi Canada Ltd., Kenny Construction Company, and Technicore Underground Inc.

The project involves the construction of a 6.5 kilometre long (13 kilometres total tunnel length), twin-bored tunnel running beneath Eglinton Avenue from Black Creek Station to the Yonge Street Station. There are a total of nine

stations which will be constructed under separate contracts along the alignment with accompanying facilities, including associated crossover structures. This section comprises the Western Tunnel portion of the overall program; the Eastern Tunnel will be tendered under a separate contract.

The tunnels will be constructed using earth pressure balance tunnel boring machines (TBM) and pre-cast tunnel lining segments provided by Metrolinx. The internal diameter of the tunnels will be 5.75 metres.

"The Eglinton-Scarborough Crosstown Light Rail Transit Project is a pivotal infrastructure improvement project, and provides an integral east-west connection that will

help improve the efficiency of public transit in the region," said Jack Collins, Metrolinx's Executive Vice President, Rapid Transit Implementation. "Kenaidan's expertise in constructing major infrastructure projects will help Metrolinx deliver this important first stage in the realization of this priority public transit initiative."

The first components of the TBMs started arriving at the west launch area at the end of February. Once assembled, the tunnelling operations are expected to begin in May. Kenaidan constructed the launch shaft for the TBMs under a separate contract, beginning construction in June 2011, and completing the work earlier this year. The Western Tunnelling project is expected to be completed in December 2016.

#### Project Scope

**Contract Services:** Stipulated Lump Sum

**Excavation:** 525,000m<sup>3</sup>

**Concrete:** 41,000m<sup>3</sup> for tunnel finished invert and curb (this concrete is typically done with a screed, not conventional formwork)

**Design Features:**

- TBM drives 1 and 2 from Black Creek launch shaft to Allen Station: 3,500 metres
- TBM drives 3 and 4 from Allen Station to Yonge Station: 2,700 metres
- Emergency exit shaft and structure constructed between Caledonia and Dufferin stations
- Secant pile headwalls at Keele, Caledonia, and Dufferin stations including one launch shaft and two extraction shafts
- Jet grouting headwalls at Oakwood, Bathurst, Chaplin, and Avenue stations

- A total of 9 cross passages between tunnels
- Placement of final tunnel invert and safety walk concrete throughout tunnels
- Installation of an extensive instrumentation system to monitor for settlement

**Key Challenges:**

- Coordination between multiple utility companies and sub-contractors for surface work
- Confined work areas at many locations
- Numerous constraints, such as: restricted access to site; relocating utilities and services in time for construction of the exit shaft; limited time periods where work can take place; and specified milestone dates to move off sites
- Coordination of traffic control and public relations within an urban environment

#### Roles & Responsibilities

**Owner:** Metrolinx

**Prime Consultant:** Hatch Mott MacDonald, LEA Consulting Ltd., and Arup-Norr

**General Contractor:** Crosstown Transit Constructors (Kenaidan Contracting Ltd., Obayashi Canada Ltd., Kenny Construction Company, and Technicore Underground Inc.)

**TBM Supplier:** Caterpillar (Lovat)

**Pre-Cast Tunnel Liner Supplier:** Munro Ltd.

**Jet Grouting:** Pacchiosi North America Inc.

**SOE/Headwalls:** Deep Foundations Contractors Inc.

**Water/Sewer:** Metric Contracting Services Corporation

**Toronto Hydro Work:** Aecon Utilities, A Division of Aecon Construction Group Inc.

**Traffic Control:** Almon Equipment Ltd.

**Temporary Electrical:** Smith and Long Limited

**Street Lighting/Traffic Signals:** Black & McDonald Limited

**Guard Service:** Defender Security

**Fencing:** Linkun Fence Inc.

**Rogers, Cogeco & Telus Cabling:** Sentrex Communications Inc.

**Settlement Monitoring:** Urkkada Technology Ltd.

#### Crosstown Transit Constructors - Project Team

**Project Directors:** John Goffredo, Paul Zick (Obayashi)

**Project Manager:** Darrell Liebno (Obayashi)

**Utility Manager:** Bob Saunders

**Assistant Site Supervisor:** Jeff Cressman

**Tunnel Superintendent:** Paul Cott (Obayashi)

**Estimator (Kenaidan):** Pritesh Patel

**Estimators (Obayashi):** Jay Carlson, Darrell Liebno, Garrett Urban

**Project Administrator:** Tim Marshall

**Project Engineer:** Igor Osadchin (Obayashi)

**Surface Work Engineers:** Christopher Stewart, Jeff Mottashed

**Schedule Engineer:** Edic Baghdasarian

**Office/Cost Engineer:** Tomo Kudo (Obayashi)

**Mechanical Engineer:** Osamu Nishikokura (Obayashi)

**Equipment Superintendent:** Ravi Nadkumar (Obayashi)

**QC Manager:** Joe Dombroski (Obayashi)

**Electrical Superintendent:** Andrew Caruana (Obayashi)

**Safety Manager:** Christina Lindstrom (Obayashi)

**Heading Engineers (Obayashi):** Malcolm Sheehan, Khaled Elnabolsy, Garrett Urban

**Office Manager:** Dave Willard (Obayashi)

**Survey Support:** George Moraru, Claudiu Ban

**Project Transition Support from LS-1:** Herman Reinders

#### Inside This Issue



**RECENTLY COMPLETED**  
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**FEATURE PROJECT**  
Port Hope Water Treatment Plant



**POINT OF INTEREST**  
Tokyo Engineering Exchange Program



# Port Hope Water Treatment Plant

FEATURE PROJECT

## Project Requirements

The new Port Hope Water Treatment Plant is part of the larger Port Hope Area Initiative to clean up historic, low-level radioactive waste, including its safe, long-term management in Port Hope and Port Granby. This waste is a result of refining radium and uranium between the 1930s and 1980s by the former Eldorado Nuclear Limited.

In 2015, it is expected that excavation will begin to transfer the waste to an engineered, above-ground mound where it will be safely stored, capped, and monitored regularly for hundreds of years. An estimated \$1.2 billion has been committed to this initiative by the Government of Canada, and it is anticipated to be completed over the next 10 years.

Kenaidan's contract involves the construction of a new water treatment plant to treat contaminated water collected on the site of the future low-level radioactive waste management facility.

This project also includes:

- Site preparation and grading
- Permanent services and utilities
- A steel framed building
- Installation of a leachate system to treat runoff water
- Installation of owner supplied reverse osmosis (RO) system
- Residuals management - sludge handling and concentrate
- Final discharge and disposal
- Dewatering polymer
- Piping and valving
- Monitoring and controlling systems
- Mechanical and electrical systems
- Emergency power
- Parking lots and roadways
- Landscaping and restoration

The plant's advanced two-stage water treatment process will result in environmental benefits and enhanced protection of the Great Lakes Basin Ecosystem. It will have an annual treatment capacity of 250,000m<sup>3</sup>.

Kenaidan is self-performing all concrete works and process mechanical installations. Construction began in November 2012, and is scheduled to be completed in February 2014.

## Project Scope

**Contract Services:** Stipulated Lump Sum

**Concrete:** 791m<sup>3</sup>

**Formwork:** 2,023m<sup>2</sup>

**Design Features:**

- Structural steel framed building (1,950m<sup>2</sup>)
- Concrete foundations, slab on grade, and service level pre-cast floor
- New transformer substation

**Key Challenges:**

- Radiation monitoring – requires daily monitoring as work is carried out, including 4 levels of training for workers
- Dewatering
- Frost protection – 75mm mud mat to provide subgrade protection and assist with water control
- Coordination and scheduling of equipment deliveries
- Installation of heavy equipment through overhead doors

## Roles & Responsibilities

**Owner:** Public Works and Government Services Canada

**Prime Consultant:** MMM/CRA Joint Venture

**Excavation & Site Services:** Cart General Contracting Inc.

**Structural & Miscellaneous Steel:** Trade-Tech Industries

**Formwork & Concrete Placing:** Kenaidan Contracting Ltd.

**Formwork Equipment Rental:** MEVA Formwork Systems Inc.

**Concrete Supply:** Dufferin Concrete, A Division of Holcim (Canada) Inc.

**Mechanical:** Kenaidan Contracting Ltd.

**Electrical:** Metric Electric Inc.

**Masonry:** Via-Con Masonry Inc.

**Rebar:** Kimco Steel Sales Limited

**Metal Siding & Roofing:** RITZ Architectural Systems Inc.

**Pre-Engineered Buildings:** Hy-Grade Precast Concrete Ltd.



# Port Hope Water Treatment Plant

FEATURE CREW

**Back row:** Chris Cormier, Terry Canam, Mike Dukitsch, Lydia Ledzinsky, Garfield Young, Brandon Canam, Kirk Evans, Jonathan Peyton, Tyler Peyton, Brian Searle **Front row:** Carl Johnson, Manuel Gutierrez, Joel Walton, Michel Limoges

## Team Kenaidan

**Project Director:** Brian Jorge

**Project Manager:** Lydia Ledzinsky

**Site Supervisor:** Mike Limoges

**Mechanical Supervisor:** Donny Di Zio

**Foreman:** Chris Cormier

**Estimator:** James Smith

**Project Administrator:** Elisa Lui

# Our Message



By Glen MacNeil

I started working for Kenaidan in the late 1980s, and have been a part of the team now for over two decades. Over the years, the company has grown tremendously in many ways. When I first started, Ken Smith and Aidan Flatley were the leaders of the company. Ken was a very compassionate family man who always had a kind word for his employees. I know he is looking down on us all, and is very proud of what the company has become.

Without a doubt, health and safety has become a big part of Kenaidan's focus. Back when I started, we just had to know what we were doing and we did it! Now we attend site orientations where we're shown around the site for what to look out for, and we make sure everyone has the proper personal protective equipment. Training for WHMIS and fall arrest are mandatory before workers can even step onto the job site. It has become a safer environment, because everyone in the company has experienced

specific training. Kenaidan consistently promotes and ensures a safe work atmosphere. A lot of people here have friends and family working in the company and it's a great feeling knowing they are in good hands with well-trained supervisors, foremen, lead hands, and fellow workers. At the end of the day, Kenaidan's goal is that every employee goes home safely to their families.

The opportunities here are endless. I have seen kids start off just working summers, and with the proper training, continue their career paths to jobs, such as foremen, supervisors, and upper management. There are a lot of benefits working at Kenaidan, including company shares after 3 years of service, good benefits packages, and RRSP contributions. Kenaidan is made up of hard-working, determined, and enthusiastic men and women, and has grown to not only become a successful company, but a family referred to as "Team Kenaidan".

# Tokyo Engineering Exchange Program

## POINT OF INTEREST

Fall 2012 marked the start of our technical exchange program between Kenaidan and our parent company, Obayashi Corporation in Japan. The program gives Kenaidan staff the opportunity to learn more about Obayashi's technologies, and to evaluate their practical implementation here in Canada. Our plan is to send two individuals each year for a three-month period to participate and fully immerse themselves into the Obayashi and Japanese culture.

The goal of the exchange program is to further develop our working relationship; to exchange ideas, methodologies and best practices; and to ultimately utilize our combined capabilities to further strengthen our respective knowledge, and in turn our respective market share.

Our first participant was Site Supervisor, Scott Brazeau. From September to December 2012, Scott's focus was to spend time on the job sites, observing the day-to-day activities, and seeing how various technologies are applied to resolve site issues. He participated in rotations at the Shinagawa Head Office, Technical Research Facility, and many job sites. He became immersed in the Japanese construction industry, and he experienced the culture and diversity that makes Japan such a unique and exciting country.

"As a Site Supervisor with Kenaidan Contracting, I have had the privilege of being the first participant in an exchange program with Obayashi in Japan. The exchange program started as a work experience for me, but has turned into a life-altering experience, for which I am

forever indebted to the people of Obayashi. Japan is an incredible country, rich in history and traditions, diverse in its landscape and unique in its combination of old-world charm and modern day glamour."

Engineering Manager, Elia Rizkalla, is the second participant of the program. Elia was in Japan from February to May 2013. During his time, he was working with various sub-departments within the Obayashi Engineering Department to learn about engineering concepts and construction methodologies being used or developed by Obayashi. He also travelled around Japan to visit various job sites to see the technology that is being used.

"As Engineering Manager, I had the pleasure of being one of the participants of a program that has altered my views, both career wise and on a personal level. This opportunity was a result of the bridged connection between our parent company, Obayashi, and Kenaidan, where I currently hold my title. With the opportunity of being a part of the exchange program, I was able to gain hands-on knowledge about Japanese engineering, and was fully able to immerse myself in a culture that I have grown to admire."

Kenaidan would like to thank all of the employees at Obayashi for their warm hospitality and willingness to share their knowledge and experience – it is truly appreciated. Thank you also to Scott and Elia for being wonderful Kenaidan ambassadors, and for imparting their learned knowledge and experiences that will benefit the rest of Team Kenaidan.



Scott Brazeau and Takahiro Yamamoto in Kyoto.



Elia Rizkalla in the Obayashi Japan office.



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# Our Company, Our People

ROAMING PHOTOGRAPHER



## Kenaidan's 2013 Annual Triathlon

**Back row:** Marisa Nardini, Harrison Griffiths, Rupen Patel, Pritesh Patel, Markus Hahn, Brian Jorge, Oktay Selcuk, Bill McLeod, James Parco, Brice Samulenok, Saad Mahmood, Monika Susz, Robert McMurrich, Pedro Albornoz, and Javed Shad **Front row:** Roman Halawa, Kathleen Boyd, Jessica O'Laughlin, Tommaso Di Carlo, Oxana Kirichenko, Alexandr Melnik, Marilyn Smith, Barry Bince, Denise Angelakos, Harpreet Singh, Maria Liotta, Peter Sullivan, Susanne Munroe **Absent:** Greg Stack, Nicole Belgrove, Bob Saunders, Christopher Stewart, Jeff Mottashed, Hiroyoshi Kawasaki, Igor Melnik, Joe Frasca, Monika Fabian, Teruo Nakaoka, Andrea Howson, Josephine Lam, and Marja Ikonen



Patricia Pereira and Tracey Mooradian performing Health & Safety checks at the Weston Tunnel Phase 3 Grade Separation project.



Congratulations to the 2012 Leadership College Graduates: Steven Radencich, Derek Beharry, Oxana Kirichenko, Larry Dorman, and Mario Sarabando. The group completed their 3-year program of study at the end of 2012, and were recognized at events held January 12<sup>th</sup> and 13<sup>th</sup>, 2013. This is the fifth graduating class since the college started in 2005.

### Contributing Editors:

Darrell Liebno  
(Obayashi)  
Lydia Ledzinsky  
Scott Brazeau  
Elia Rizkalla  
Deb Fillippe  
Glen MacNeil  
Susanne Munroe  
Marisa Nardini  
Andrea Howson

### Kenaidan Welcomes

Madelaine Gallagher, Health & Safety Administrator  
Adam Meinert, Project Engineer  
Mohammad Kamyabnejad, Project Engineer  
Samuel Rodriguez, Health & Safety Coordinator  
Conor Curtin, Project Engineer  
Yolanda Banks, Preconstruction Administrator

### IMS – Continual Improvement Opportunities of the Month Award

Donnie Ferguson, February  
Saad Mahmood, March  
Brett Walkins, April

### Upcoming Events

Kenaidan Annual Golf Day, June 1<sup>st</sup>  
Kenaidan Annual Partnering BBQ, June 20<sup>th</sup>  
Kenaidan Annual Family Picnic, July 14<sup>th</sup>

### Tender Award Program (TAP) Award

Congratulations to Glen MacNeil and Mark Nanfara who each recently were awarded \$100 for a project lead that Kenaidan bid on

The TAP incentive program was established in 1994, and was designed to increase our number of bidding opportunities. The program is comprised of two basic steps; the Lead-to-Bid Opportunity and ultimately the Contract Award. Employees are rewarded for each eligible lead submitted that results in a bid opportunity. If the bid results in a Contract Award, there is a subsequent reward for the employee.

### Congratulations To

Nick Sule on his promotion to Senior Project Manager  
Oxana Kirichenko on her promotion to Senior Accountant  
Shaun London on his new role as Business Development Manager

### A Special Congratulations To

Lee Kelly-Chin on being awarded the 2012 Construction Institute of Canada Chancellor's Award of Excellence

### Foreman in Training Program (FIT) Update

Rob Pietka was promoted into the FIT Program as a MLH1  
Dan Peters was promoted into the FIT Program as a LLH2  
Walter Skorka was promoted into the FIT Program as a LLH2

### Community Corner

Kenaidan recently made donations to:

- Kids Up Front Foundation
- SickKids Foundation
- Princess Margaret Hospital – Ride to Conquer Cancer



### Kenaidan Integrated Management System Mission Statement:

- To provide responsible, quality construction services utilizing superior innovation and expertise.
- To develop and maintain long-term relationships with satisfied clients and suppliers.
- To create a safe, challenging and enjoyable work environment where employees share in corporate growth and success.
- To build on a sound financial base where future development is promoted over short-term gain.



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