

Clarington Transformer Station

FACT SHEET #7 - STUDY OF THE SITE

WHAT STUDIES DID HYDRO ONE CONDUCT FOR THE ENVIRONMENTAL ASSESSMENT?

As part of the Environmental Assessment process, a number of studies were undertaken that included on-site field studies by terrestrial ecologists, wildlife biologists, aquatic biologists and hydrogeologists. Hydro One also reviewed secondary source information as part of its site analysis.

The results from the field studies and a summary of the secondary source literature reviewed are documented in the Environmental Study Report for the Clarington TS and the *Hydrogeology and Hydrology Assessment Report* (HHAR).

WHAT IS THE HHAR*?

The HHAR is a compilation of all of the results of on-site field investigations undertaken during the Environmental Assessment period, as well as a summary of secondary source information gathered and presented in the draft ESR. Further, the Report includes a review of the more than 30 geotechnical boreholes / monitoring wells drilled on the Clarington TS property and documented in reports signed and stamped by professional engineers dated 2007 (Geo-Canada), 2012 (Exp) and 2013 (inspec-sol)*. The HHAR can be found on Hydro One's website at:

http://www.hydroone.com/Projects/Clarington/Documents/Resources/Clarington%20TS%20Hydrogeology%20and%20Hydrology%20Report_Final.pdf

HAS ANY STUDY BEEN DONE SINCE HYDRO ONE SUBMITTED ITS DRAFT ESR?

Hydro One released its draft Environmental Study Report (ESR) for a 30-day public and government agency review period beginning in November 2012. Following the release of the draft ESR, Hydro One's consultant, Stantec, compiled all of the hydrogeology and hydrology information gathered during the Environmental Assessment, including information from field studies and on-site geotechnical boreholes, into one document.

WILL THERE BE ADDITIONAL STUDIES OR MONITORING?

Further to the commitment made by Hydro One to conduct additional monitoring in the draft Environmental Study Report, the Minister imposed a condition that Hydro One submit a Groundwater Monitoring Plan to the MOECC for review and approval.

The HHAR formed the basis on which Hydro One's Groundwater and Surface Water Monitoring Program was developed. The Monitoring Program includes on-site groundwater monitoring from 8 wells and 3 surface water piezometers located at the site. These wells were installed at key locations on the Clarington TS property in late 2013. The Monitoring Program also includes monitoring water quality and quantity in private wells within 1,200 metres of the station.

Hydro One submitted the Groundwater and Surface Water Monitoring Program to the MOECC; it was reviewed and received approval on June 24, 2014.

An on-site monitoring Baseline Conditions Report with five seasons of data will be available for review by the public, MOECC and all project stakeholders in late October or early November. The Baseline Conditions Report will present all groundwater and surface water data collected to date, with analyses

and assessments of existing conditions, and recommendations for the Monitoring Program going forward.

*Studies included in the HHAR include:

Geology / Hydrogeology

- Chapman, L.J. and D.F. Putnam, 1984. The Physiography of Southern Ontario. Ontario Geological Survey, Special Volume 2, 270 pp.
- CLOCA, 2012. Approved Assessment Report, Central Lake Ontario Source Protection Area. Chapter 4 – Assessing Vulnerability of Drinking Water Sources. January 18, 2012.
- CLOCA
- exp Services Inc. 2012. Geotechnical Report – Clarington TS, Municipality of Clarington. Project No. BAR-00025036-A0, June 19, 2012.
- Hydro One Networks Inc., 2008. Enfield Transformer Station, Class Environmental Assessment, Final Environmental Study Report. August 2008.
- Hydro One Networks Inc., 2012. Clarington Transformer Station, Class Environmental Assessment, Draft Environmental Study Report. Project No. 590-CLEA-12-11, November 2012.
- Inspec-Sol Inc. 2013. Geotechnical Investigation – Clarington Transformer Station (TS). Report T040774a1, January 23, 2013.
- Geological Survey of Canada, 2001. Regional three-dimensional stratigraphic modeling of the Oak Ridges Moraine area, Southern Ontario.
- Ontario Geological Survey (OGS). 2003. Surficial Geology of Southern Ontario.
- Ontario Ministry of Municipal Affairs and Housing (MMAH). 2002. Oak Ridges Moraine Conservation Plan (ORMCP).
- Ontario Ministry of Municipal Affairs and Housing (MMAH). 2005. Greenbelt Plan. February 29, 2005. 57 pp.
- Singer, S.N., C.K. Cheng and M.G. Scafe. 2003. The Hydrogeology of Southern Ontario. 2nd edition. Ministry of the Environment, Hydrogeology of Ontario Series (Report 1). April 2003.
- Stantec Consulting Ltd., 2008. Hydro one Proposed Enfield Transformer Station – Environmental Baseline. Project No. 1609-60217. Prepared for Hydro One Networks Inc., March 2008.

Natural Environment

- Cadman, M.D., H.J. Dewar and D.A. Welsh. 1998. The Ontario Forest Bird Monitoring Program (1987 – 1997): Goals, methods and species trends observed. Technical Report Series No. 325, Canadian Wildlife Service.
- Cadman, M.D., D.A. Sutherland, G.G. Beck, D. Lepage and A.R. Couturier (eds). 2007. Atlas of the Breeding Birds of Ontario 2001- 2005. Bird Studies Canada, Environment Canada, Ontario Field Ornithologists, Ontario Ministry of Natural Resources, and Ontario Nature, Toronto. 706 pp.
- Chapman, L.J. and Putnam, D.F. 1984. The Physiography of Southern Ontario; Ontario Geological Survey, Special Volume 2, 270p. Accompanied by Map P.2715 (coloured), scale 1:600 000.
- Central Lake Ontario Conservation Authority (CLOCA). 2007. Draft Fisheries Management Plan.
- COSEWIC. 2003. COSEWIC assessment and status report on the butternut *Juglans cinerea* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vii + 32 pp. (www.sararegistry.gc.ca/status/status_e.cfm)
- COSEWIC. 2010. COSEWIC assessment and status report on the Bobolink *Dolichonyx oryzivorus* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 42pp.

- COSEWIC, 2011. COSEWIC assessment and status report on the barn swallow *Hirunda rustica* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. ix + 37 pp. (www.sararegistry.gc.ca/status/status_e.cfm)
- Department of Fisheries and Oceans (DFO). 2012. Distribution of Fish Species at Risk – Central Lake Ontario Conservation Authority (Map 1). Available Online: <http://www.conservation-ontario.on.ca/projects/DFO.html> .
- Dobbyn, J. 1994. Atlas of the Mammals of Ontario. Federation of Ontario Naturalists, Don Mills, ON. 118 pp.
- Farrar, J.L. 1995. Trees in Canada. Fitzhenry & Whiteside Limited and the Canadian Forest Service. Canada. 198 pp.
- Harrison, H.H. 1975. A Field Guide to Birds' Nests. Houghton Mifflin Company, New York, New York. 257 pp.
- Kaiser, J. 2001. The Vascular Plant Flora of the Region of Peel and the Credit River Watershed. 34 pp.
- Kuehl, A.K., and W.R.Clark. 2002. Predator activity related to landscape features in northern Iowa. Journal of Wildlife Management 66: 1224-1234.
- Land Information Ontario (LIO) digital mapping of natural heritage features. 2012. Ontario Ministry of Natural Resources.
- Lee, H.T., W.D. Bakowsky, J. Riley, J. Bowles, M. Puddister, P. Uhlig and S. McMurray. 1998. Ecological land classification for Southwestern Ontario: first approximation and its application. Ontario Ministry of Natural Resources, South Central Region, Science Development and Transfer Branch. Technical Manual ELC-005.
- Ministry of Transportation, Ontario (MTO). 2009. Environmental Guide for Fish and Fish Habitat. Planning and Environmental Office. The Queen's Printer for Ontario. June 2009.
- Municipality of Clarington. 2010. Municipality of Clarington Official Plan. Available at: http://www.clarington.net/htdocs/planning_official_plan.html
- Newmaster, S.G., A. Lehela, P.W.C Uhlig, S. McMurray and M.J. Oldham. 1998. Ontario plant list. Ontario Ministry of Natural Resources, Ontario Forest Research Institute, Sault Ste. Marie, ON, Forest Research Information Paper No. 123. 550 pp. + appendices.
- Oldham, M.J. and W.F. Weller. 2000. Ontario Herpetofaunal Atlas. Natural Heritage Information Centre, Ontario Ministry of Natural Resources. <http://nhic.mnr.gov.on.ca/MNR/nhic/herps/ohs.html> (updated 15-01-2010).
- Oldham, M.J., W.D. Bakowsky and D.A. Sutherland. 1995. Floristic quality assessment for southern Ontario. OMNR, Natural Heritage Information Centre, Peterborough. 68 pp.
- Ontario Ministry of Municipal Affairs and Housing (MMAH). 2005. Greenbelt Plan. February 29, 2005. 57 pp.
- Ontario Ministry of Municipal Affairs and Housing (MMAH). 2002. Oak Ridges Moraine Conservation Plan (ORMCP).
- Ontario Ministry of Natural Resources (MNR). 2000. Significant Wildlife Habitat Technical Guide and Appendices. 151 pp.
- Ontario Ministry of Natural Resources (MNR). 2002. Ontario Wetland Evaluation System (OWES). Southern Manual. 3rd Edition. Published 1993, revised December, 2002.
- Ontario Ministry of Natural Resources (MNR). 2010. Natural Heritage Reference Manual for Natural Heritage Policies of the Provincial Policy Statement, 2005. Second Edition. June, 2010.
- Ontario Ministry of Natural Resources (MNR). 2012. Natural Heritage Information Centre (NHIC) database. 2012. Natural Areas and Species records search. Biodiversity explorer, <http://nhic.mnr.gov.on.ca>. OMNR, Peterborough, Ontario.

- Partners in Flight (PIF). 2008. Ontario Landbird Conservation Plan: Lower Great Lakes/St. Lawrence Plain (North American Bird Conservation Region 13), Priorities, Objectives and Recommended Actions. Environment Canada (Ontario Region) and Ontario Ministry of Natural Resources. Draft, Version 2.0, December 2008.
- Peck, G. K. and R. D. James. 1983. Breeding Birds of Ontario: Nidology and Distribution. Volume 1: Nonpasserines. Royal Ontario Museum, Toronto, Ontario.
- Region of Durham. 2008. Durham Regional Official Plan Office Consolidation. June 5, 2008
- Rowe, J.S. 1972. Forest Regions of Canada. Ottawa, Canadian Forest Service. Pub. No. 1300. 172 pp.
- Varga, S., editor. 2000. Distribution and status of the vascular plants of the Greater Toronto Area. Ontario Ministry of Natural Resources, Aurora District. 103 pp.
- Winter, M., D.H. Johnson, J.A. Shaffer, and W.D. Svedarsky. 2004. Nesting biology of three grassland passerines in the northern tallgrass prairie. *Wilson Bulletin* 116:211-223.