

Canadian Board of Examiners for Professional Surveyors
Core Syllabus Item
E 3: ENVIRONMENTAL MANAGEMENT

Syllabus Topics:

General concepts of environmental management and the role of geospatial information. Environmental management in Canada at the federal, provincial or territorial, and municipal levels [constitutional issues; policy, regulation monitoring and enforcement; cultural and social issues, shared responsibilities]. Issues specific to Canada: climate change, energy, protection of wildlife habitat, coastal zone management, watercourse management, environmentally sustainable development and construction. Implications of Aboriginal rights on environmental issues. Court cases illustrating the importance of environmental management.

Recommended Prior Knowledge and Skills:

C 8: Cadastral Studies

C 9: Survey Law

C 10: Land Use Planning and the Economics of Land Development

Learning Outcomes:

In order to fulfill the requirements of this syllabus item, candidates should be able to:

1. Describe the jurisdiction and role of federal/provincial/territorial/municipal agencies for major land use activities.
2. Describe the role, including critical triggers, for key federal legislation [Canadian Environmental Assessment Act (CEAA), Canadian Environmental Protection Act (CEPA), Fisheries Act and Migratory Birds Convention Act] and provincial/territorial legislation.
3. Demonstrate a general knowledge of mitigative techniques employed to address critical wildlife habitat, archaeological sensitivities, slope stability and protection for embankments and excavations, groundwater protection, protection of water bodies from contamination, air quality and noise levels, and watercourse management.
4. Demonstrate an understanding of protective techniques for bulk fuel storage and handling, stream and bank protection, site reclamation and stabilization, erosion control and revegetation.
5. Explain techniques for land use operation and construction in permafrost conditions including installation of buried utilities, road construction and foundation construction.
6. Explain the terms [their meaning and relevance to land development]: ecosystems, ecology, biosphere, biodiversity, food chain, thermal inversion, sustainable development, watershed, wetland, and environmental site assessment (ESA).

Essential Reference Material:

anon. [1994]. *Environmental Site Assessment Interpretation Guidelines*. Central Mortgage and Housing Corporation. Research & Development Highlights technical series 95-204, 3 pp
<www.cmhc-schl.gc.ca/publications/en/rh-pr/tech/95-204.pdf>

anon. [1995]. *An Introduction to Environmental Site Assessments*. Central Mortgage and Housing Corporation. 26 pp, via <www.cmhc-schl.gc.ca> under Library

Boyd, D.R. [2003]. *Unnatural Law: Rethinking Canadian Environmental Law and Policy*. UBC Press, Vancouver. ISBN 978-0774810494 [ch. 1, 2, 4.3, 5.1, 6, 7, 8, 11, 12, References]

Hodge, G. and D.L.A. Gordon [2008]. *Planning Canadian Communities, An Introduction to the Principles, Practice, and Participants*. 5th, Thomson Nelson, ISBN-13: 978-0-17-625242-7

Municipal Program Development Branch [1999]. *Stormwater Management Guidelines for the Province of Alberta*, Alberta Environmental Protection. 196 pp [ch. 1 - 3].
<http://environment.gov.ab.ca/info/library/6786.pdf>

Statutes and regulations and government [federal, provincial, territorial, municipal] websites as given in the References to Boyd [2003].

Court case reports as cited in sections 4.3 Environmental assessment and 5.1 Parks and protected areas in Boyd [2004].
http://www.blakesfiles.com/Guides/2012_Blakes_Environmental_Law_in_Canada_EN.pdf

with a particular focus on Fisheries Act, Species at Risk Act, and Migratory Birds Convention Act.

Supplementary Reference Material:

Websites of government agencies by searching "environmental management", "subdivision design", etc.

In addition to books by Randall Arendt, <www.greenerprospects.com> has downloadable publications concerning conservation subdivision design.

Water Sensitive Urban Design in the Sydney Area (WSUD) [2003]. *Water Sensitive Practice Notes*, esp. No. 2 Site Planning. all 13 as .pdf via <www.wsud.org>

Similar to the HCCREMS water smart practice notes

Low impact urban design and development web site: <http://www.urbanwater.info/>

Articles in the latest Stormwater Journal - topics such as stormwater retrofits, BMP selection and working at the neighbourhood level to manage stormwater. See <http://www.stormh2o.com>

A low impact design [LID] manual, well organized and explains the concepts very clearly.
<http://www.cityofreno.com/Index.aspx?page=996>

An EPA report that looks at the benefits of higher density development to protect water resources - check out the link below. .pdf version, 46 pp
http://www.epa.gov/smartgrowth/water_density.htm

Sydney (Australia) examples at <http://www.wsud.org/> Water by design – fact sheet
http://www.healthywaterways.org/wsud_technical_design_guidelines.html

South East Queensland Healthy Waterways Partnership [2009]. *Concept Design Guidelines for Water Sensitive Areas*, version 1, 2009 03, is available as a .pdf, 120 pp, via
www.waterbydesign.com.au