Directive E2

ENVIRONMENTAL AND ARCHAEOLOGICAL MANAGEMENT OF LAND ALTERATION ACTIVITIES

REFERENCES

A. Species at Risk Act (SARA)
B. Canadian Council of Ministers of the Environment (CCME) Environmental Quality Guidelines (EQG), 1999
C. British Columbia Environmental Management Act (EMA)
D. Canadian Environmental Assessment Act (CEAA)
E. FSEMS Directive E11 – Effluent Management
F. Standard Operating Procedures for Environmental Sampling (Morrow, 2005)
G. British Columbia Ministry of Environment Technical Guidance on Contaminated Sites – Site Characterization and Confirmation Testing 2009
H. British Columbia EMA Contaminated Sites Regulation (CSR)
I. Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health (CCME)
J. FSEMS Directive E5 – Natural Resources Management
K. Land Development Guidelines for the Protection of Aquatic Habitat (Department of Fisheries and Oceans and the Integrated Management Branch of the Ministry of Environment, Lands and Parks, 1993)
L. Capital Regional District (CRD) Regional Source Control Bylaw 2922
M. Canadian Water Quality Guidelines for the Protection of Aquatic Life (CCME)
N. British Columbia Heritage Conservation Act

PURPOSE

1. Land alteration activities conducted on CFB Esquimalt administered lands have the potential to uncover historical contamination or archaeologically significant materials. Imported soils also have the potential to include contaminants that exceed applicable guidelines for land use requirements. In addition, land alteration activities can impact storm water runoff through altering drainage patterns and affecting runoff water quality and can have negative impacts on sensitive areas and Species at Risk (SAR).

2. This directive provides direction for the environmental and archaeological management of land alteration activities which may uncover historical contamination, disturb a known contaminated site or disturb archaeologically significant materials. This directive also provides guidance for the relocation and import of soil and the protection of sensitive areas and Species at Risk (SAR).

3. CFB Esquimalt's priority for action with respect to contaminated or archaeological sites is as follows:

a. protection of human health;

b. compliance with legislation;

c. compliance with policies;

d. protection of the environment and cultural resources; and

e. restoration or enhancement of the environment.

SCOPE

4. This directive applies to any land alteration activity occurring on lands owned and/or administered by CFB Esquimalt as well as activities on non-federal contaminated or archaeological sites for which CFB Esquimalt has accepted some, or all, financial responsibility for site alteration, remediation, or management.

DEFINITIONS

5. Land Alteration Activity. Any activity causing a change to the solid part of the earth's surface, including the foreshore and land covered by water, e.g., digging, drilling, addition of soil for backfill, removal of trees and shrubs, tilling, grading, ditch maintenance, soil compaction.

6. Digging. Any activity that involves the excavation of soil, including drilling activities.

7. Contaminated Materials. Any materials containing a concentration of specified chemicals in soil or groundwater that exceeds levels considered acceptable under the Canadian Council of Ministers of the Environment (CCME) Environmental Quality Guidelines (EQG) (Reference B), the British Columbia Environmental Management Act (Reference C) and/or site specific criteria where applicable.

8. Archaeologically Significant Materials. Any material remains, including architecture, artifacts, biofacts, human remains, and landscapes that may be discovered above or below the ground, e.g., midden, bones, fire broken rock, arrow heads, burial cairns.

9. Species at Risk. A species designated as at risk under the Species at Risk Act.

10. Site. A defined area of land in which a project is being undertaken.

11. Contaminated Site. A site at which substances occur in the soil, water, or air at concentrations (1) above background levels and pose or are likely to pose an immediate or long-term hazard to human health or the environment, or (2) exceeding levels specified in policies and regulations.

12. Soil. Any unconsolidated mineral or organic material including fill, rock and/or sediment deposited on land.

13. Environmental Site Assessment (ESA). An ESA involves detailed scientific and/or engineering analysis to identify the nature and extent of the contamination.

14. Remediation. The management of a contaminated site for prevention, minimization, or mitigation of damage to human health or the environment. Remediation options may include, but are not limited to, direct physical actions, such as treatment, removal, or destruction of contaminants, or other on-site risk management solutions, such as capping or containment of contaminants.

15. Risk Assessment. The scientific examination of the nature and magnitude of risk to define the effects on both human and non-human organisms.

16. Risk Management. The selection and implementation of a risk-control strategy, followed by monitoring and evaluating the effectiveness of that strategy. It may include direct remedial actions or other strategies that reduce the probability, intensity, frequency or duration of the exposure to contamination.

RESPONSIBILITIES

17. Formation Safety and Environment Officer (FSEO). The FSEO is responsible to:

a. provide advice and direction to address legal and/or policy requirements related to planned land alteration activities if there is a potential to impact contaminated sites, archaeological significant material, known or suspected SAR, and/or other sensitive areas;

b. consult with BCEO and/or Project OPIs to determine appropriate mitigation measures associated with the proposed project site;

c. upon request provide pre-project archaeological briefing for any personnel that will be involved in land altering activities;

d. liaise with other government departments (OGDs) concerning environmental matters arising from land alteration activities;

e. assess the conclusions and recommendations within ESA reports and determine whether further action is required;

f. evaluate remediation/risk management options and establish objectives to guide the management strategy for a contaminated site;

g. ensure risk management measures are implemented and communicated and monitoring requirements are completed in accordance with risk management plans;

h. maintain environmental data and reports pertinent to known or suspected contaminated sites for which CFB Esquimalt is responsible using the Defence Resource Management Information System (DRMIS) and the Records Document Information Management System (RDIMS);

i. meet ADM(IE), Environment Canada, Federal Contaminated Sites Action Plan (FCSAP) Secretariat and Treasury Board Secretariat of Canada reporting requirements for the contaminated sites program;

j. monitor conformance to this directive through scheduled compliance verifications;

k. chair the Contaminated Sites Management Working Group.

18. Base Construction Engineering Office (BCEO) Real Estate Services. BCEO Real Estate Services are responsible to consult with FSEO of any property development decisions and proposed changes in property use that could impact the management of a contaminated site.

19. Project Officer of Primary Interest (OPI). The Project OPI includes project managers from base branches/units or ADM (IE) Directorate Construction Project Delivery (DCPD). Defence Construction Canada (DCC) and Public Works Government Services Canada (PWGSC) representatives act as contracting authorities for Project OPI's. The Project OPI and DCC or PWGSC representatives are responsible for ensuring all aspects of this directive are adhered to during project planning and implementation. The Project OPI must provide copies of all reports, documents, records, analytical results or other information that is relevant to contaminated sites, effluent or natural resources management to FSEO.

20. Contractors. Department of National Defence (DND) personnel (military and civilian) who are responsible for contractors working on MARPAC properties shall ensure that the requirements of this Directive that may apply to the contract are written into the contract and followed throughout its duration.

LAND ALTERATION ACTIVITIES

21. Prior to initiating any activities that involve land alteration on CFB Esquimalt lands, the Project OPI shall ensure the following has been completed:

a. review the proposed activity to assess whether a Section 67/68 Environmental Effects Determination (SEED) is required, and if necessary, submit the draft SEED to FSE for review. Projects coordinated / managed through BCE will submit a Determination of Environmental Assessment Requirement (DEAR) to BCE Risk Management to assess whether a SEED is required;

b. consult with FSE to identify if there is a potential to impact contaminated sites, archaeological significant material, known or suspected SAR, and/or other sensitive areas (refer to the Sensitive Area Map Series available on the FSE webpage for locations of known contaminated sites, archaeological features, SAR and sensitive areas);

c. consult with FSE to determine appropriate mitigation measures associated with the proposed project site (refer to Annex DE2A and DE2B);

d. if required, the Project OPI is responsible for coordinating the delivery of a pre-project archaeological briefing for any personnel that will be involved in land altering activities. Upon request, FSE may provide the briefing or briefing materials;

e. prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) during the project planning and design phase in accordance with Section 57 of Reference E; and

f. identify any groundwater monitoring wells which could be impacted and consult with FSE to determine if the wells can be decommissioned. Wells must be decommissioned in accordance with Section 9 of the Standard Operating Procedure for Environmental Sampling (Reference F) and a well decommission sheet completed and provided to FSE.

22. In addition to the requirements listed in para 21, prior to initiating any activities that involve digging on CFB Esquimalt lands, the Project OPI, through the contracting authority, shall ensure the contractor initiates a BC One Call and the review process is completed (various BC One Call Members, including BCE sign off) and a Dig Permit is issued.

23. In addition to the requirements listed in para 21 and 22, prior to initiating any activities that involve digging on CFB Esquimalt lands, contractors shall submit a Soil Management Plan (SMP) to the contracting authority during the design phase of the project. The Project OPI, in consultation with FSE will review the SMP for approval prior to project implementation. During project implementation, any changes to SMP must be communicated to the Project OPI and FSE for approval. The contracting authority is responsible for ensuring the contractor follows the SMP. The SMP shall include the following:

a. work title;

b. work number;

c. DCC or PWGSC representative contact information;

d. location of the excavation and soil storage areas;

e. list the contaminants or potential contaminants of concern (FSE can provide a list for the site based on previous ESAs conducted for the property);

f. approximate volume of soil;

g. plan for soil storage, reuse, relocation and/or disposal;

h. management plan of stockpiled soils (include mitigation measures to prevent contamination with the surrounding environment and to reduce cross-contamination between stockpiles (refer to Annex DE2A); and

i. signature of contractor.

RELOCATION OF SOIL

24. The reuse of excess soil on site, or at another CFB Esquimalt property, is a more environmentally sustainable and cost effective approach when compared to traditional dig and dump practices; however, due to a long history of industrial/military operations occurring on CFB Esquimalt properties and poor environmental management of fill material in the past, many projects will occur in areas of known contamination. For this reason, if excess soil will be relocated to another area within the same property or to a different DND property, the following must also be included in the SMP:

a. sampling plan. Sampling shall be conducted by a qualified professional environmental consultant in accordance with Reference G. The project may be required to sample both stockpiled soils and the walls and floor of the excavation;

b. analytical results of sampling. Sample analysis must be completed by a laboratory with an internationally recognized accreditation body (e.g. Standards Council of Canada (SCC) or Canadian Association for Laboratory Accreditation (CALA)) and in accordance with the International Standard ISO/IEC 17025; and

c. plan for the reuse of excess soil. Include drawings showing the planned location and a description of how the excess soil will be will be applied at the site (e.g. will the soil be capped, spread at surface, vegetated, buried at depth). FSE in consultation with other units must approve the placement of excess soil on CFB Esquimalt properties.

25. If the soil will be relocated from federal to provincial land, the Project OPI shall consult FSE and DCC or PWGSC to determine if a Contaminated Soils Relocation Agreement (CSRA) is required under the BC Contaminated Sites Regulations (CSR) or whether the soil should be managed according to the BC Hazardous Waste Regulations. Contaminated soil that is not relocated through a CSRA must be disposed of at a facility authorized under the BC EMA to accept contaminated soil or hazardous waste. The applicable documentation (manifests / CSRA / disposal certificates) for the relocation of soil to provincial land must be included within the soil management plan.

26. Should the project plan for all excavated soil to be returned to the original location, and there is no visible impacts of contamination or odors as identified in paragraph 26, sampling of stockpiled soils is not required.

DISCOVERY OF CONTAMINATED SOIL OR ARCHAEOLOGICAL MATERIAL

27. In the event that any activity results in the discovery of contaminated soils or site conditions that indicate contamination (stained soils, odors or stressed/dead vegetation) and/or archaeologically significant materials, on-site personnel must stop work and immediately contact BCE trouble desk (363-2009) or the DCC / PWGSC representative.

28. The BCE trouble desk is responsible to inform BCE Risk Management and FSE immediately of the discovery. Contaminated or archaeologically significant materials shall not be further disturbed until

the extent of contamination or significance of the archaeological discovery has been determined and a management plan has been developed and approved by the FSE.

29. Disturbance of any contaminated or archeologically significant materials on land administered by the Base Commander CFB Esquimalt is the responsibility of the Project OPI. This includes costs associated with the relocation or disposal of contaminated soils and may include costs for archaeological assessments/monitoring if necessary. If contaminated or archaeological materials are discovered, the management of these materials must be coordinated through FSE in order to ensure all environmental standards/policy and regulatory requirements relating to contaminated sites remediation or archaeological excavation are addressed.

IMPORT OF SOIL

30. Prior to the import of any material on to CFB Esquimalt property, the contractor shall submit to contracting authorities recent analytical results of sampling for the proposed imported soils. Contracting authorities will provide the results to the Project OPI and FSE to confirm the soils meet the applicable environmental quality guidelines and for approval of import onto federal land. Any soil/fill imported onto federal property must meet the CCME Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health (Reference I). Soil Quality Guidelines have been established for four defined land uses: Agricultural (AL), Residential/Parkland (RL/PL), Commercial (CL), and Industrial (IL). Any project wishing to source soils/fill which exceed the CCME Soil Quality Guidelines for RL/PL land use must consult with FSE for approval prior to importing.

31. Environmental characterization of imported soils must be conducted in accordance with the British Columbia Ministry of Environment Technical Guidance on Contaminated Sites 1 – Site Characterization and Confirmation Testing 2009 (Reference G).

32. FSE reserves the right to request additional testing of imported soils/fill at the source and at the deposit site to satisfy their requirements. All testing shall be done at the Project OPIs expense. All material brought on to CFB Esquimalt property that does not meet the applicable environmental guidelines shall be removed from the property immediately at the Project OPIs expense.

33. Import of soil amendments, such as compost, manures or topsoil for landscaping, in quantities less than five cubic meters, does not require sampling/analytical results prior to importing.

TREES

34. If it is anticipated that activities will impact any trees on DND properties, a tree inventory is required prior to implementation to determine whether or not the project triggers the DND Tree Replacement Policy. In accordance with Reference J, trees greater than 25 centimeters in diameter at breast height shall be replaced following a policy of for every tree removed two are planted. The results of this inventory must identify the number, species and location of any trees that will be impacted and whether or not these trees trigger the policy. Results shall be provided to the FSE. Recommendations may be made for planting to occur either as a part of the project activities/budget or to occur at a later date.

ANNEXES

Annex DE2A - Mitigation Measures Associated with Contaminated Sites
Annex DE2B - Mitigation Measures Associated with Archaeological Significant Material, Species at Risk and/or Sensitive Areas

Annex DE2A

MITIGATION MEASURES ASSOCIATED WITH CONTAMINATED SITES

REQUIREMENTS

35. For all excavation projects, the following is required:

a. a Health and Safety Plan (HASP) must be submitted prior to project implementation. For projects occurring within known or suspected contaminated sites, the HASP should identify appropriate Personal Protective Equipment (PPE) and other mitigative measures to ensure workers are protected in the event that soils, groundwater or sediment is contaminated (e.g. nitrile gloves, safety glasses, and coveralls should be worn at all times when there is the potential for contact with the skin or eyes, eating drinking, or smoking should be prohibited on the work site). Respiratory protection may be necessary in certain cases;

b. all excavated soils must be stockpiled in a protected area on the site, away from the shoreline, watercourses and storm water drains;

c. stockpiled soil must be placed on and covered with a minimum 6 mil PVC or plastic liner so they are completely contained in order to minimize interaction with wind and precipitation;

d. filter material must be placed over any drains near stockpiled soil to ensure that no deleterious materials enter the storm water system;

e. sediment control measures, such as silt fences or sand bags, must be placed in areas where there is potential surface runoff to aquatic receptors. All sediment control measures implemented shall be in accordance with Land Development Guidelines for the Protection of Aquatic Habitat (Reference K);

f. Project OPI shall be responsible for eliminating any residual soil on equipment and roadways;

g. precipitation and or groundwater/marine infiltration that is captured within an excavation zone must not be discharged without Project OPI confirmation that it meets discharge requirements (e.g. sanitary sewer must meet CRD Bylaw 2922 (Reference L), and discharge to harbour must meet CCME Canadian Water Quality Guidelines for the Protection of Aquatic Life (Reference M)). The contractor shall arrange and pay for sampling and testing of the water. FSE shall be notified of proposed discharge at least 48 hours prior. FSE shall be provided the following information:

(1) date and time of proposed discharge;

(2) estimate volume of discharge; and

(3) analytical confirming the discharge is acceptable for proposed receiving environment

h. Characterization and relocation of soil shall occur as soon possible to minimize the potential risk of contaminant migration from stockpiles.

Annex DE2B

MITIGATION MEASURES ASSOCIATED WITH ARCHAEOLOGICAL SIGNIFICANT MATERIAL, SPECIES AT RISK AND/OR SENSITIVE AREAS

PROJECT IS OCCURING IN/NEAR KNOWN ARCHAEOLOGICALLY SIGNIFICANT MATERIAL

36. FSE shall provide a summary of the archaeological info including the borden number and a description of the feature. It is MARPAC policy to seek out alternatives that avoid impacts. If disturbance to the site is unavoidable, an Archaeological Impact Assessment (AIA) and archaeological management strategy will be recommended. The results of the AIA and archaeological management strategy shall be provided to FSE for review/approval prior to project commencing further. In the event that archaeological features are identified during project activities, direction as per paras 26-28 shall be followed.

PROJECT SITE IS NOT OCCURRING IN/NEAR KNOWN ARCHAEOLOGICALLY SIGNIFICANT MATERIAL AND SITE FOOTPRINT WAS INCLUDED IN A PREVIOUSLY COMPLETED INVENTORY:

37. FSE may provide a summary of the inventory work that has occurred in/near the project site (e.g. shovel tests completed but no evidence of culturally significant material). Recommendation will be to have an archaeological briefing prior to excavation activities. In the event that archaeological features are identified during project activities, direction as per paras 26-28 shall be followed.

PROJECT SITE IS OCCURRING IN AN AREA WHERE NO INVENTORY WORK HAS PREVIOUSLY BEEN COMPLETED:

38. FSE may recommend that an Archaeological Inventory (AI) be completed, and pending the discovery of areas within the project site, an Archaeological Impact Assessment (AIA) and archaeological management strategy be carried out in advance. The results of the AIA and archaeological management strategy shall be provided to FSE for review/approval prior to project commencing further. In the event that archaeological features are identified during project activities, direction as per paras 26-28 shall be followed.

PROJECT SITE IS OCCURRING IN/NEAR A KNOWN SPECIES AT RISK FEATURE:

39. FSE shall provide a summary of the species information and direction based on the sensitivity/federal legislative requirements. Recommendation will be to avoid impacts. Note that if a proposed project potentially impacts a federally listed SAR, FSE will be required to initiate a permit with Environment Canada (EC), Department of Fisheries and Oceans (DFO), or OFGDs. The permitting process can take up to 18 months to coordinate.

PROJECT SITE IS OCCURRING IN AN AREA WHERE NO INVENTORY HAS OCCURRED:

40. FSE is currently in the process of completing multi-year property inventories of MARPAC lands. However, there are many properties where sufficient data has not been accumulated. If a project will be occurring in an area where FSE has insufficient data, the Project OPI may be responsible for coordinating a SAR baseline survey. FSE should be contacted prior to implementation of the survey to provide recommendations on specific species to survey for based on surrounding areas and habitat. FSE may also recommend that the survey occurs over numerous seasons as a means of ensuring temporal shifts in species distribution is captured appropriately. The results of the survey should be provided to FSE for review/approval.