

**CANADIAN BOARD OF EXAMINERS FOR PROFESSIONAL SURVEYORS**

**E-3 ENVIRONMENTAL MANAGEMENT**

October 2011

**Note: This examination consists of 7 questions on 2 pages.**

Marks

<u>Q. No</u>	<u>Time: 3 hours</u>	<u>Value</u>	<u>Earned</u>
1	<p>You are surveying lots in a newly-permitted commercial development when you discover a small stream that had not been identified earlier. The flow is ephemeral (which is perhaps why it was missed) but you know that there are streams containing fish in the general area. A parking lot and road access is proposed for the area now occupied by the stream</p> <p>a) What federal legislation is relevant in this case? Are there pertinent regulations in your province or area?</p> <p>b) What immediate action would you recommend to your client?</p> <p>c) What general measures should be implemented to protect the stream, assuming it warrants protection?</p>	15	
2	<p>A new development has been proposed in a watershed which the local government and the province deem to be 'sensitive'. The concern is that further development will accelerate runoff and increase peak flows downstream, resulting in damage to fish habitat (due for example to scouring of spawning gravels). There are also concerns about the effects of stormwater runoff on water quality.</p> <p>Assuming the development is a residential sub-division, what measures could the developer offer to minimize the effect on both water quantity (amount and speed of runoff) and water quality?</p>	15	
3	<p>A person has recently purchased a small parcel of land on a street corner in an area that has been mainly residential for a long time. In the course of tearing down the existing house he unexpectedly discovers a large underground storage tank suggesting that the property may once have been a gas station. There are gasoline odours coming from the area.</p> <p>a) What should he do?</p> <p>b) What are his liabilities if he does nothing?</p> <p>c) Is he entirely responsible for all costs associated with this issue? Why or why not?</p>	15	
4	<p>What is a riparian area?</p> <p>Why are such areas important? (Or are they?)</p> <p>Under what conditions should riparian areas be protected in land development?</p>	10	
5	<p>The owner of a 20 acre parcel – zoned for agricultural use - wants to improve the agricultural potential of his property by levelling a hill that consists mainly of gravel and sand (and make some money as well). She hopes to extract the aggregate and haul the aggregate to a gravel supply company located 5 km away. The surrounding area is semi-rural residential and contains mainly hobby farms with lots ranging from 5 to 20 acres.</p> <p>a) What environmental issues may arise from this proposed operation? (Consider all phases.)</p> <p>b) What concerns do you think the residents in the neighbourhood might have?</p> <p>c) The local government is prepared to authorize this project but wishes to ensure that the end-use of the land is agricultural. What measures should they require to make sure that the land is productive when the gravel is all gone and the hill is levelled?</p>	15	

6	<p>Your client is proposing a light industrial development in a densely treed area. Local residents oppose the development, saying that the area contains important wildlife habitat. They cite high use of the area by deer as well as by nesting birds. The local government has asked for a public meeting to hear the objections from the residents and to hear what the proponent can do to mitigate the effect on habitat.</p> <p>a) What kind of information would you suggest that the developer be armed with prior to the meeting? How should he obtain that information?</p> <p>b) What kind of measures can he take to mitigate the effect on wildlife habitat?</p>	15	
7	<p>Refer to question 6. The local advisory board contains several climate change activists who oppose the development on the grounds that cutting down trees will increase greenhouse gas.</p> <p>Discuss the basis for this claim.</p> <p>Would it make any difference if the timber was merchantable and could be sold to a local sawmill?</p> <p>Could the developer do anything to mitigate the release of greenhouse gasses associated with forest clearing?</p>	15	
<b>Total Marks:</b>		100	