

# CERTIFIED EROSION, SEDIMENT AND STORMWATER INSPECTOR™

## EXAMPLE EXAM QUESTIONS



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## **CESSWI EXAMPLE QUESTIONS - US and SI VERSION**

ECI has provided the following questions as examples as to what to expect on the Certification Exam for CESSWI. An answer sheet with a brief explanation is provided after the questions.

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Example Questions:

- 1. The primary role of an inspector is.**
  - a. To make judgement decisions for the design to prevent potential pollutant release(s)
  - b. To collect information necessary to determine compliance
  - c. To make management practice recommendations
  - d. To resolve conflicts with contractors or installers on sites
  
- 2. A good inspection report should include (select best answer):**
  - a. Name and qualifications of subcontractors
  - b. Contact information of the management practices installer
  - c. Information from the last regulatory inspection
  - d. List of all relevant management practices



- 3. When inspecting runoff control areas an inspector should ensure:**
- a. They are completely free of sediment, trash, and debris
  - b. They are designed to handle high volumes of water
  - c. Measures are designed to prevent scour given the runoff velocities
  - d. They are placed at strategic areas on the site
- 4. Which of these report writing practices is appropriate?**
- a. Making personal comments on reports
  - b. Just providing pictures
  - c. Copying previous reports to save time
  - d. Writing the report at the office
- 5. When assessing the site, the Inspector should report:**
- a. Discolored flow running onto the site from surrounding properties
  - b. Depth and velocity of flows in an adjacent channel
  - c. Turbidity measurements from water samples
  - d. a & c



- 6. During a heavy storm, the inspector arrives at the site to take pH and turbidity tests. Unfortunately, the turbidity meter does not work, and a new meter will not be available for a few days, and no other company can lend him/her their meter. What is the best solution for the inspector?**
- a. Describe the color of the flow to his/her supervisor
  - b. Use the values from the previous storm
  - c. Report the maximum allowable benchmark value stated in the permit that is allowed to discharge the site
  - d. Collect representative water samples at appropriate discharge locations and place the samples in a suitable container
- 7. Which is not an inspection item when inspecting mulched areas?**
- a. Holes or tears in containment devices
  - b. Mulched placed near tree trunks
  - c. Thickness
  - d. All of the above



8. In the picture below, you observe discharge in the curb and gutter of a City street, downstream from and draining from the construction of a new building. The consulting inspector states the contractor washed dry cement powder from broken bags. The flow has left the concrete washout area on the construction site and is being conveyed down the City street and into a CITY MS4 stormwater catch basin. The consulting inspector also states that the pH is ranging between 9 and 13 and per the permit pH is required to be less than 7.5. As a jurisdictional inspector you should:



- a. Issue a stop work order and require that the contractor immediately take action to prevent and further discharge leaving the construction site and flowing to the catch basin
- b. Ignore the violation, and allow the contractor to wash the materials to the catch basin because extra water will dilute the contaminate
- c. Ignore the violation because the water is clear and shows no sign of cement contamination
- d. Have additional water flushed down the system to dilute the contamination so the pH reported values will be within acceptable limits



9. While inspecting a construction site in an urban area you notice the inlet protection seen in the picture below. The contractor has explained to you that this inlet has been a problem throughout the construction process and has asked you how to resolve the issue. You should:



- a. Perform the necessary repairs yourself
- b. Have the contractor remove, clean up, and reinstall a new management practice that the contractor believes will work best using materials from the site
- c. Ask the contractor to contact the designer of record to assess and provide a management practice or remedial repair
- d. Require a 25 hp pump to next catch basin



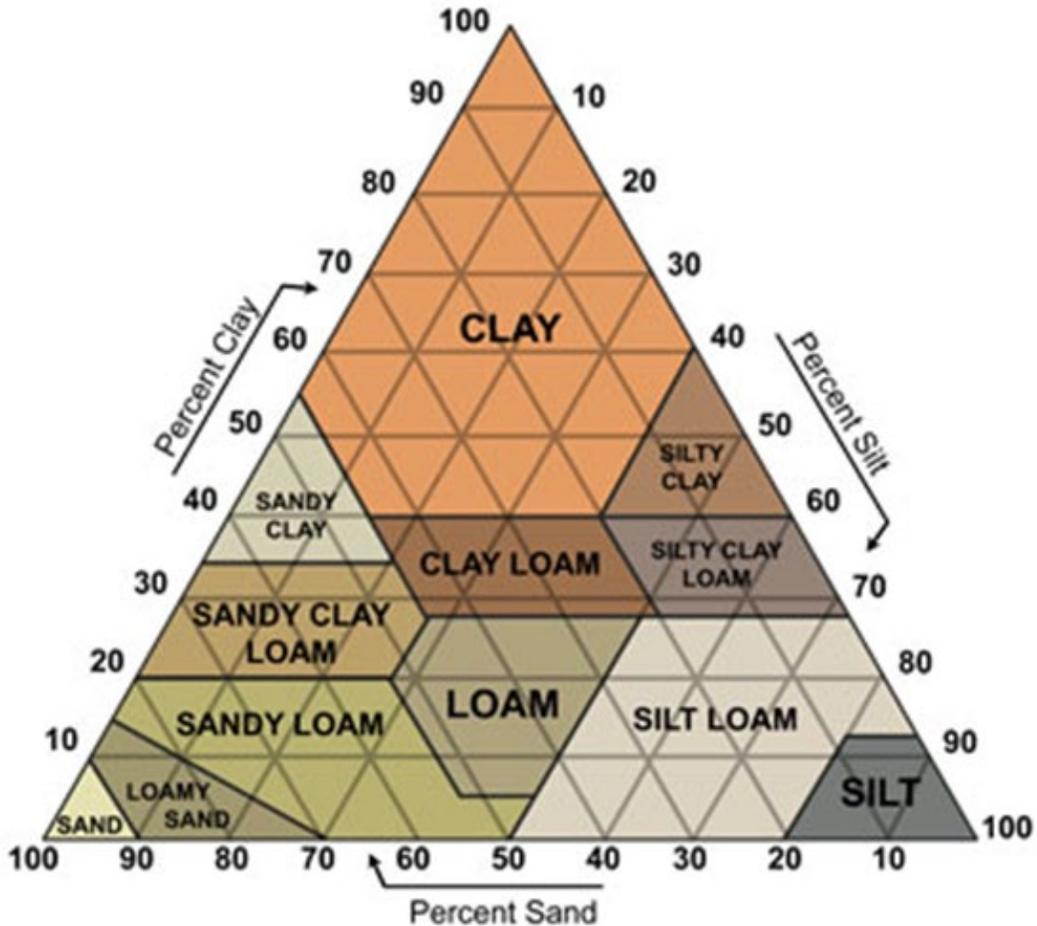
10. Existing vegetation on the site below had just been cleared and grubbed. Temporary straw mulching had been applied but not tackified or anchored. The permit requires the site SWPPP to mitigate a 25-year event. During the weekend following the clearing the area experienced a 10-year storm. A local newspaper had published the picture below with a scathing commentary on overdevelopment and lack of environmental protection. You are the inspector for the project. When you arrive at the site in the morning, what is your best course of action?



- a. Respond to the newspaper defending the design
- b. Have the contractor contact the municipality to clean the public roadway
- c. Observe the performance of the various management practices, assess damage, and contact the CPESC to assist with providing mitigation measures or new practices
- d. Require the contractor to reinstall the same management practices recommended but increase the height of the silt fence and number of gravel bags



10. As a CESSWI you have received a soils report with the summary page missing. Within the report you received the composition of the soil is 48% Sand, 30% Clay, and 22% Silt. Based on the USDA Soil Texture chart below, what is soil type?



- a. Clay Loam
- b. Loam
- c. Sandy Loam
- d. Sandy Clay Loam



12. The design engineer has recommended that stone check dams be placed in a temporary swale flowing to a sediment basin. In order to help in your education to become a designer they have asked you to determine the proper spacing given a weir height of nine (9) inches (*22.86 centimeters*). You have measured a rise of two (2) feet (*0.61 meters*) every hundred (100) feet (*30.48 meters*), and thus determined that the swale is at a 2% slope. What is the proper spacing for the stone check dams?
- a. 37.5 feet                                      *11.5 meters*
  - b. 2.7 feet                                        *0.8 meters*
  - c. 50 feet                                         *15.3 meters*
  - d. 15 feet                                         *4.6 meters*
13. Which of the following type of soil erosion is typically the hardest to observe?
- a. Rill
  - b. Sheet
  - c. Stream Channel
  - d. Wind
14. Which is not an erosion and sediment hazard associated with land development?
- a. Increased impervious surfaces
  - b. Groundwater alterations
  - c. Improved of plant growth
  - d. Surface runoff alterations



- 15. What are the three (3) most common reasons for failure of erosion and sediment control practices associated with runoff on a construction site?**
- a. Overtopping, undercutting, out-flanking
  - b. Poor design, poor installation, insufficient inspections
  - c. Increase in flows, improper sequencing, new development upstream
  - d. None of the above
- 16. As you arrive at the inspection site which of the following documents should be inspected prior to walking the site?**
- a. Stormwater management calculations
  - b. Inspection report form
  - c. Landscape plan
  - d. Stormwater Pollution Prevention Plan
- 17. Which of the following is not an advancement in inspection support tools?**
- a. Smart devices with appropriate apps
  - b. Digital databases
  - c. Satellite imagery
  - d. Drones
- 18. Which of the following general permits does not contain specific monitoring and sampling requirements?**
- a. Multisector
  - b. Construction
  - c. Phase 2 MS4
  - d. Phase 1 MS4



**19: Which of the following is a typical sampling constituent on a construction site?**

- a. Metals
- b. Salinity
- c. Transparency
- d. Hydrocarbons

**20: Which of the following does the use of photography and videos provide in relationship to improved project management?**

- a. Better decision making
- b. Evidence in disputes
- c. Enhanced collaboration
- d. Documentation of safety issues



## **CESSWI ANSWER SHEET WITH ANNOTATED ANSWERS**

**Question 1:** The correct answer is b. The role of the inspector is to collect the necessary information in regard to site compliance (and note associated short comings) relative to the design plans and reports.

- a. Is incorrect because as an inspector your responsibility is strictly that of observations and documentation of the project management practice(s) implementation, not design considerations.
- c. Is incorrect because if the inspector makes recommendations as to management practices, they assume the liability, this is the duty of the CPESC / CPSWQ / PE.
- d. Is incorrect because the inspector is not an arbitrator.

**Question 2:** The correct answer is d. The other three (3) answers are not required to determine compliance of the site.

**Question 3:** The correct answer is a. The inspector needs to ensure that all runoff areas are functioning properly per design.

b., c., and d. are incorrect because it is not the inspector's responsibility to design.



**Question 4:** The correct answer is d. While writing the inspection report onsite prior to leaving the site and submitting it to the appropriate parties is the preferred method, this is not always a viable option. The report should be written and filed as soon as possible after the inspection so long as appropriate documentation is obtained and referenced.

- a. Is incorrect as the inspector is required to note what the actual conditions are on the site, not make personal comments as to why the situation exists and what may have caused it.
- b. While photographs are an essential tool, written/typed observations of site conditions, management practices, etc., are generally required. Handwritten notes are allowed and must be retained. The notes must be clear and legible.
- c. Is incorrect as previous reports may be a good starting point for consistent formats and to address any past issues, each report should be a standalone reporting of the observations of the site conditions at the time of the inspection.

**Question 5:** The correct answer is d. The inspector should report observations and discoloration may be evidence of a stormwater or non-stormwater pollution event. Turbidity measurements are generally reported.

- b. Is incorrect because the inspector is generally reporting observations at the site but not analytical assessments.



**Question 6:** The correct answer is d.

- a. Is wrong as color may be dependent on the materials being transported but not a direct relationship to the actual NTU value.
- b. Is incorrect because upstream conditions and storm characteristics may vary results.
- c. Is incorrect as these values have no reflection of site values.

**Question 7:** The correct answer is d. All of the three (3) items listed, holes or tears in containment devices, mulch placed near tree trunks (proper installation should not be touching the tree trunk), and thickness of the mulch to match the design parameters, need to be inspected.

**Question 8:** The correct answer is a. It is the responsibility of a jurisdictional inspector to protect the health, welfare, and safety of persons and property. In issuing the stop work order the inspector stops the source of the discharge and directs the contractor responsible to cleanup any affected areas.

- b. and d. are incorrect because the pollutant left the site and is therefore a violation. Further diluting the pollutant does not mitigate the condition, as the volume of pollutant (in this case cement), is still present and will degrade the downstream receiving waters.
- c. Is incorrect because your eyes are not able to measure particulate or non-visible pollution and the reported pH provides positive evidence of a pollutant.



**Question 9:** The correct answer is c. It is not the inspector's responsibility to design the proper protection for the inlet. The responsibility falls on the designer of record.

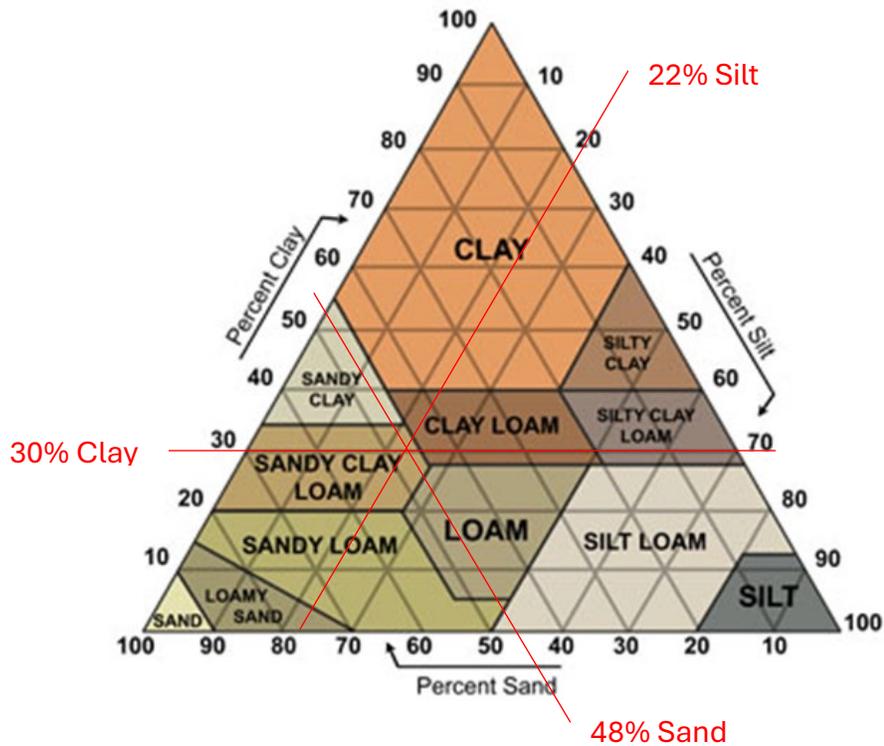
- a. Is incorrect as it is not in the inspector's purview to perform repairs.
- b. Is incorrect because while the contractor may have a correct solution, the management practices should come from the designer of record.
- c. Is incorrect because it is not within the inspector's purview to make design recommendations.

**Question 10:** The correct answer is c. The inspector's responsibility is to observe and report their observations. These observations may be critical for future assessments.

- a. Is incorrect because the inspector is not professionally qualified to assess the competency of the design measures, only that they were implemented properly and assess the measures performance
- b. Is incorrect. It may be necessary to contact the municipality, but the responsibility of the road cleanup will need to be coordinated between the contractor and the municipality. For instance, the municipality may have certain insurance requirements or limits that prevent the contractor from performing such work in a public right-of-way, etc.
- d. Is incorrect because the plan and associated management practices failed during a 10-year event and were supposed to be designed for a 25-year event. It is the duty of the designer to assess and make recommendations for proposed improvements.



**Question 11:** The correct answer is d. See the USDA Soil Texture chart below.



- a. is incorrect because the percentage of Clay would need to be 55% or more and the percentage of Sand would need to be 45% or less
- b. is incorrect because the percentage of Silt would need to be 28% or more and the percentage of Clay would need to be 28% or less
- c. is incorrect because the percentage of Clay would need to be 48% or less and the percentage of Sand would need to be 52% or more



**Question 12:** The following annotated answer shows the required calculation steps that need to be performed to achieve the answer. If you calculated a different answer, please verify that you used the proper data provided within the question.

The correct answer is a.

You will be using the slope equation to determine the answer,

$$\text{Slope} = (\text{Rise} / \text{Run}) \text{ then } \times 100.$$

**Step 1** – Collect the Data

$$\text{Slope} = 2\% (0.02)$$

Length (run) = to be determined

Weir height (rise) = 9 inches (*22.86 centimeters*)

**Step 2** – Convert the rise to feet or to meters

$$9 \text{ inches} / 12 \text{ inches} = 0.75 \text{ feet } (22.86 \text{ cm} / 100 \text{ cm} = 0.23 \text{ meters})$$

**Step 3** – Calculate the required run to determine the spacing of the check dams

$$2 = (0.75 / \text{Run}) \times 100$$

$$0.02 = 0.75 / \text{Run}$$

$$\text{Run} = 0.75 / 0.02$$

$$\text{Run} = 37.5 \text{ feet}$$

$$2 = (0.23 / \text{Run}) \times 100$$

$$0.02 = 0.23 / \text{Run}$$

$$\text{Run} = 0.23 / 0.02$$

$$\text{Run} = 11.5 \text{ meters}$$

**Question 13:** The correct answer is b. Sheet erosion is typically only recognized by deposition at the bottom of the slope

- a. Is incorrect as small channels become visible on the surface.
- c. Is incorrect as it is very visible as the stream banks sluff.
- d. Is incorrect as with most wind erosion there are soil particles in the air.



**Question 14:** The correct answer is c. Typically plant growth while it may be affected by soil disturbance and the mixing of soil layers, the landscape plans provide corrective measures to insure proper plant growth.

a., b., and d. are erosion and sediment hazards associated with land development.

**Question 15:** The correct answer is a.

While answers b. and c. may affect erosion and sediment management practice failure they are not directly caused by runoff.

**Question 16.** The correct answer is d. You will need to verify that the plan has been updated, all required signatures are present, etc.

- a. Is incorrect because stormwater management calculations are not the purview of the inspector.
- b. Is incorrect because while the inspection form should review the form to make sure it has not changed; it should be consistent throughout the inspection process and approved at the pre-construction meeting.
- c. Is incorrect because the landscape plane is not the purview of the inspector.

**Question 17.** The correct answer is c. While satellite imagery has improved, it does not provide enough detail of site conditions.

a., b., and d. are becoming more extensively used throughout the inspection industry.



**Question 18.** The correct answer is b. The US EPA Construction General Permit (CGP) does not contain specific sampling and monitoring requirements, even though some states, provinces, and local permits may add them.

The Multisector General Permit, Phase 1 MS4, and Phase 2 MS4 permits all contain specific sampling and monitoring requirements.

**Question 19.** The correct answer is c. Turbidity / Transparency and pH are the two (2) typical sampling constituents on a construction site.

a., b., and d are typical sampling constituents on industrial and municipal sites.

**Question 20.** The correct answer is a. Visual information helps project managers make informed decisions based on the actual site conditions, rather than relying solely on verbal descriptions or plans.

- b. Is incorrect because evidence in disputes is a component of enhanced documentation and record keeping. In case of non-compliance disputes or claims, visual documentation can provide irrefutable evidence of the site's condition at a specific time.
- c. Is incorrect because enhanced collaboration is a component of improved communication and collaboration. Sharing visual documentation with team members and clients often facilitates better communication and collaboration, typically leading to more efficient problem-solving and decision-making.
- d. Is incorrect because documentation of safety issues is a component of risk assessment and safety. Photos and videos can document safety violations or unsafe conditions, ensuring that necessary corrective actions are taken.