

**Final Exam**  
Continuing Education Course #172 Design of  
Constructed Stormwater Wetlands

1. The pond within a constructed wetland generally provides the majority of particulate matter removal.  
☐ a. True.  
☐ b. False.
2. Why do marsh type wetlands generally require both a larger contributory drainage area and a larger area for the wetland, itself than other types of wetlands?  
☐ a. To allow the marsh vegetation to become established.  
☐ b. Because they have a larger forebay.  
☐ c. To ensure that the marsh zones do not dry out.  
☐ d. To increase the filtering properties of the wetland.
3. Which type of wetlands serves the dual function of providing both stormwater peak and stormwater quality control.  
☐ a. Pond wetlands.  
☐ b. Marsh wetlands.  
☐ c. Extended detention wetlands.  
☐ d. Swale wetlands.
4. A marsh wetland is being designed with a total volume of 40,000 CF. What is the ideal allocation of marsh volume (high marsh to low marsh) within the wetland?  
☐ a. 20,000 CF high marsh and 20,000 CF low marsh.  
☐ b. 18,000 CF high marsh and 10,000 CF low marsh.  
☐ c. 12,000 CF high marsh and 28,000 CF low marsh.  
☐ d. 4000 CF high marsh and 36,000 CF low marsh.
5. Which area stops the concentrated flow that enters a wetland and breaks up potentially erosive velocities in the flow.  
☐ a. The Forebay.  
☐ b. The micropond.  
☐ c. The pond.  
☐ d. The high marsh.
6. The semi-wet zone can support both wetland and upland plants.  
☐ a. True.  
☐ b. False.
7. The same hydrologic regime is present throughout a constructed wetland.  
☐ a. True.  
☐ b. False.
8. If plantings are provided within Zone 1 (deep water pools) of a wetland they should be able to:

- ☐ a. Be able to withstand constant inundation.
  - ☐ b. Be able to enhance pollutant uptake.
  - ☐ c. Provide food for aquatic insects and other wildlife.
  - ☐ d. All of the above.
9. Plantings in Zone 5 (floodplain terrace) of a constructed wetland will experience:
- ☐ a. Constant inundation.
  - ☐ b. Inundation several times a year.
  - ☐ c. Inundation once every several years for periods of less than 24 hours.
  - ☐ d. Dry conditions and will never be inundated.
10. If the contributory drainage area to a constructed wetland is greater than 25 acres there is no reason for the engineer to prepare a water budget analysis.
- ☐ a. True.
  - ☐ b. False.
11. A gas station is an example of a stormwater hotspot.
- ☐ a. True.
  - ☐ b. False.
12. In arid and semi-arid regions it may be difficult to keep a constructed wetland hydrated. Which analysis is critically important in these regions?
- ☐ a. A water budget analysis.
  - ☐ b. On-site soil testing.
  - ☐ c. An analysis of the outflow structure.
  - ☐ d. An analysis of the pollutant loading in the stormwater.
13. The constructed wetland should be equipped with an outlet structure that allows for complete draining of the wetland.
- ☐ a. True.
  - ☐ b. False.
14. Safety ledges should be provided if the permanent pool is greater than what depth?
- ☐ a. 6 inches.
  - ☐ b. 3 feet.
  - ☐ c. 5 feet.
  - ☐ d. 10 feet.
15. The TSS removal rate for a vegetated strip varies with what?
- ☐ a. Type of vegetation.
  - ☐ b. Width of the strip.
  - ☐ c. Slope.
  - ☐ d. All of the above.
16. A vegetated filter strip cannot be used for treating concentrated stormwater flow.
- ☐ a. True.
  - ☐ b. False.
17. What is the maximum slope that a vegetated filter strip planted with turf grasses can have on sandy loam soil?
- ☐ a. 5%.
  - ☐ b. 6%.

- ☐ c. 7%
- ☐ d. 8%.

18. Which of the following is not part of a water budget analysis?

- ☐ a. Surface flow into the system.
- ☐ b. The pollutant loading in the stormwater.
- ☐ c. Groundwater flow into and out of the system.
- ☐ d. Evapotranspiration.

19. In a water budget analysis, the inflow should include which of the following components?

- ☐ a. Direct precipitation.
- ☐ b. Surface flows.
- ☐ c. Subsurface flows.
- ☐ d. All of the above.

20. How does the potential evapotranspiration (PET) vary with monthly temperature?

- ☐ a. PET increases as temperature increases.
- ☐ b. PET increases as temperature decreases.
- ☐ c. PET does not vary with temperature.

21. What should be done with the pond area before the wetland is planted?

- ☐ a. It should be emptied.
- ☐ b. It should be filled.
- ☐ c. It should be cleaned of sediment.
- ☐ d. It should be treated with pesticide.

22. What are some precautions that should be taken when constructing a wetland in karst topography?

- ☐ a. The wetland should be planted with salt-tolerant plantings.
- ☐ b. The bottom of the wetland should be constructed at least 3 feet above the karst layer or an impermeable liner should be used.
- ☐ c. The pond should be made deeper than normal.
- ☐ d. No precautions are necessary.

23. What is the term for an open-channeled, sand seepage filtering system that utilizes a series of shallow aquatic pools, riffle weir grade controls, native vegetation, and an underlying sand channel?

- ☐ a. A constructed wetland.
- ☐ b. An extended detention wetland.
- ☐ c. A Regenerative Conveyance System.
- ☐ d. A sand filter.

24. The riser and principal spillway of a constructed wetland should be inspected on a regular basis.

- ☐ a. True.
- ☐ b. False.

25. Constructed stormwater wetlands can only be used in the Middle Atlantic states.

- ☐ a. True.
- ☐ b. False.