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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.

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