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Continuing Education Course #188
Fundamentals of Site Grading Design

1. In standard English Units, what is generally the ideal proposed contour interval on small to medium acreage projects (less than 5 acres) to be shown on site plans?
 - a. 0.35'
 - b. 1'
 - c. 5'
 - d. 12'

2. In percentage, what is the slope between a point that is 750' away, located 20' higher in elevation?
 - a. 0.02666667
 - b. 36%
 - c. 2.67%
 - d. 0.036

3. What is the slope of a 2:1 grade?
 - a. 100%
 - b. 25%
 - c. 0.50
 - d. 0.25

4. True or False, the proposed contour line will connect to the existing contour line where the proposed grade begins to change in the design.
 - a. True
 - b. False

5. The engineer is hired by a retail store to be their oversight engineer, making sure that the developer's engineer has proposed the site plans in accordance with the client's design criteria. The maximum slope in a parking lot permitted by the criteria is 3%. The contour lines in the parking lot are separated by 25' and there are 3:1 slopes on the grassy berms around the property line. True or False, the grading design meets the client's criteria?
 - a. True
 - b. False

6. If the engineer wants to show a 5:1 slope on the side of a detention pond, how many feet separate the contour lines?
 - a. 0.5
 - b. 1
 - c. 5
 - d. 20%

7. Why is it a good practice to keep access drives less than 8%?
 - a. Because no vehicle can drive up a hill that steep.
 - b. Because pavement cannot be finished to those specifications.

- c. Because delivery vehicle cargo may shift at grades steeper than 8%.
- d. Because water will pond on many areas of a flatter slope.
8. When a landscaped area must be sloped between 33% and 50%, what is the best practice option landscaping material listed below, to use for stabilization if hardy for the region of the project?
- a. Oak trees 2" caliper or less
- b. Crown Vetch
- c. Bermuda Grass
- d. Mulch beds with dandelions
9. What is the recommended minimum slope on a curb at the "high side" of the parking lot?
- a. 2%
- b. 3:1
- c. 0.75%
- d. none of the above, it can be proposed level if needed.
10. In accordance with the Americans with Disabilities Act Standards for Accessible Design, what is the maximum rise that a 12:1 accessible ramp is permitted to have without a landing?
- a. 3'-6"
- b. 2'
- c. 36"
- d. 30"
11. When attempting to design a balanced site, what grading feature is sometimes a useful location to "lose" excess fill associated with proposed grading activities?
- a. Swale
- b. Drywell
- c. Berm
- d. Sidewalk aggregate
12. A 2' high retaining wall is needed on the side of a proposed parking lot right the face of which will be about 3' from the property line. The soils in the project location are very common, and many developments have been done in the area without any special geotechnical requirements needed on any projects. The engineer's company has a standard retaining wall detail in the detail library that identifies a 3' high wall. True or False, the engineer should advise the client that they hire a geotechnical engineer and structural consultant to assist in the site design due to the anticipated retaining wall.
- a. True
- b. False
13. True or False, if no spot grades are shown around a proposed landscaped island, the contractor will always be able to install the island properly based on assumed surrounding grades and standard dimensioning details?
- a. True
- b. False
14. The following risk most appropriately suggests that the engineer should take care in understanding the existing conditions at the property line:
- a. lawn maintenance vehicles may need to be able to travel across the property line.
- b. the adjacent terrain might flow water into low spots caused by the proposed grading.
- c. When snow accumulates, the neighbors may not want to see the piles of snow on the parking lot.
- d. If there is sandy soil on site, water may infiltrate, causing groundwater problems at the Municipal building.
15. True or False, the finished floor of the building can be set below the surrounding proposed grades?

- a. True
- b. False

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