CEE 4020 - Computer Applications in CEE

Graded Classwork
Maximum Points = 30

October 29, 2012

Introduction

Download the file from the class folder (or website) and import the points in. The drawing file contains the following:

- A surface
- A polyline geometry to develop a parking lot for a scenic lookout
- A polyline geometry to establish an alignment for an access road leading away from the parking lot
- A subassembly for a basic pavement design

Please rename the drawing as your_last_name.dwg. Please read all instructions very clearly and follow them as closely as possible - it will make the exam significantly easier.

Surface Analysis

Perform the following surface analysis:

- Contour Analysis *1 points*
- Elevation and Slope Analysis *1 points*
- Watershed Analysis *1 points*

Study the surface - and note one natural feature present on the surface.

Parking Lot Development

Create a parcel using the parking lot boundary provided. Please ensure that you use *Open Space-1* style for the parcel object created. *1 points*

Please label the parcel inside with its area in square feet and acres.

Horizontal and Vertical Curve Design for Access Road

10 points

Design a horizontal and vertical curve using the following design specifications table:

Point Name	Station Description	Design Parameter
P1	BP	
P2	PI	Curve radius: 85’
P3	EP	
Station	**Station Description**	**Design Parameter**
0+00	BP	Elevation: 115’, grade out = 2.22%
1+50	BVC	Elevation: 118.33’, grade in = 2.22%
2+25	PVI	Elevation: 120’, Curve length: 150’
2+75	EVC	Elevation: 123.81’, grade out = 5.08%
3+25	EP	Elevation: 126.485’, grade in = 5.08%

Please ensure that the profile view developed uses *Profile View* as the object style. *5 points*

Set design speed of 25mph for the station 1+00 and report the inside and outside lane super elevations.

Corridor Development

1 points

Using the provided sub-assembly develop a corridor for the designed curve. *2 points*

Visualize the section at station 1+00. *4 points*

Develop and edit the surface for the corridor and report the net earthwork required for the given design and the given sub-assembly design.

Final Deliverables

The drawing that you will submit should have the following layouts:

1 points

- Layout of the surface displaying contours and changes in elevation

1 points

- Layout of the existing and designed vertical profiles

1 points

- Layout of the section at station 1+00
- Please ensure that the parcel is appropriately labeled
- Please report the inside and outside superelevations for the horizontal curve
- Please report the net earthwork required

All the very best.