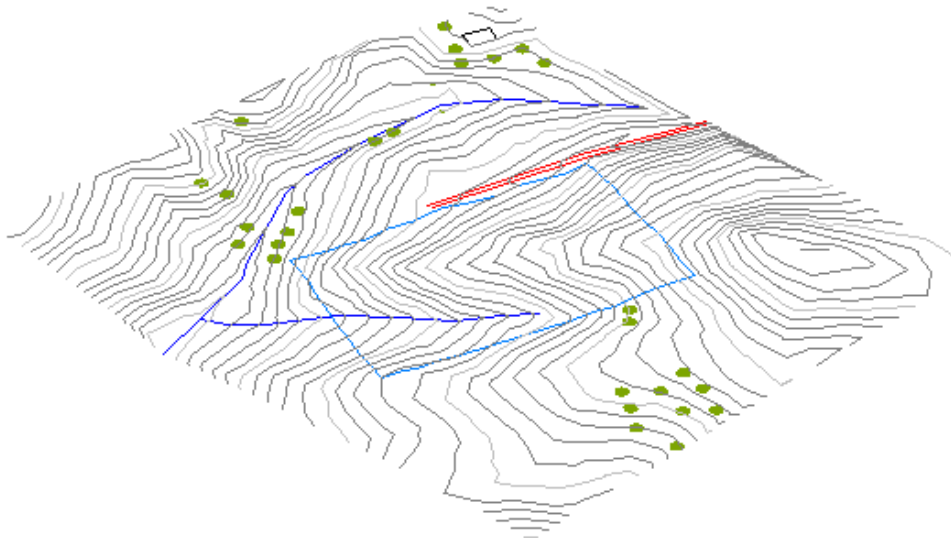


## Project - Develop a Surface

In this project, you create a three-dimensional TIN surface from a set of points contained in a TXT file. This project demonstrates how a group of points can be easily converted into a 3D surface.



### Design Constraints

- Linear features such as the ditch and creek, fence, path, and building outline should be connected with lines.
- Tree symbols should be used.
- After the surface is built, the display should be adjusted to show the contour lines.

### Design Statement

You have been asked to develop a surface for the existing terrain for a site using field survey data. The surface should show feature details such as the trees, creek, fence, path, and building outline.

### Resources

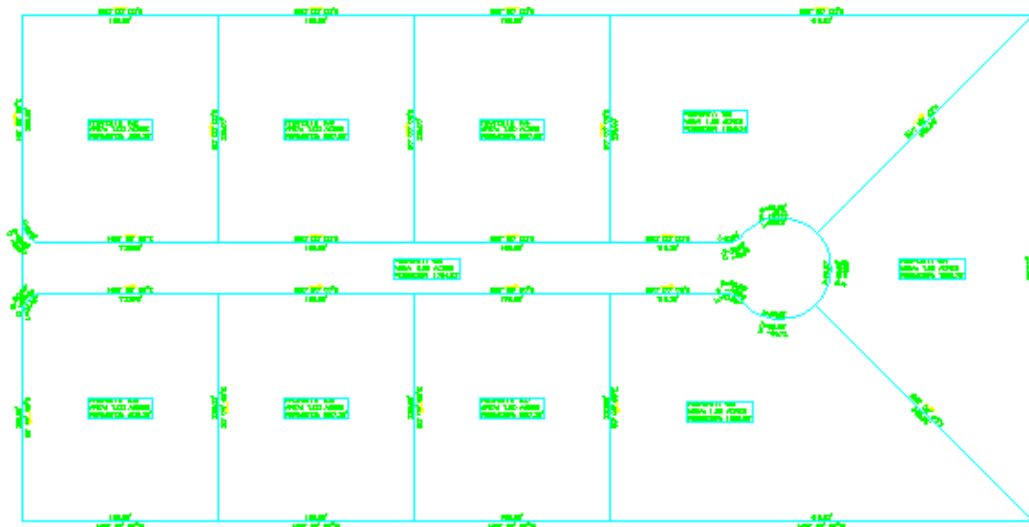
- Unit 4: Exercises 1, 2, and 3
- Unit 5: Exercises 1, 2, and 3
- *points-project-1.txt* file

## Procedure

1. Open and review the *points-project-1.txt* PNEZD file, especially focusing on the description fields.
2. Prepare description keys to handle the different types of points. Note that GS stands for Ground Shots, or points taken to get elevation only.
3. Import the *points-project-1.txt* file into AutoCAD® Civil 3D® software. You can delete all the points and re-import if you want to make changes to the description keys after your first try.
4. Connect the linear features with 3D polylines.
5. Create a TIN surface using points and breaklines.
6. Adjust the display and show the surface in 3D.

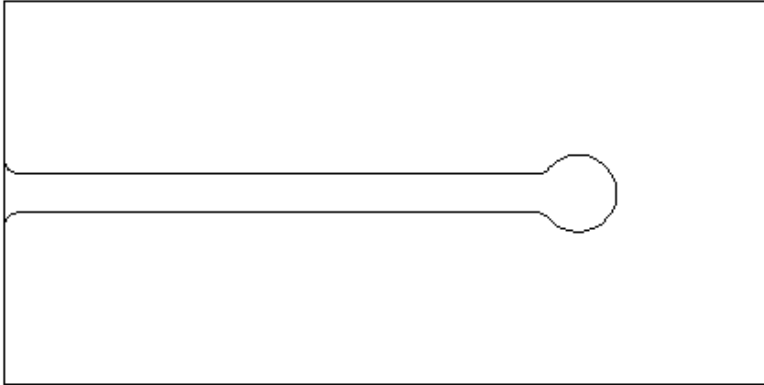
## Project - Design a Parcel Layout

In this project, you create a subdivision of parcels using AutoCAD® Civil 3D® software. This project demonstrates how to create parcels from objects and then annotate them.



## Design Statement

A large lot is to be subdivided. The site is a 1,000 ft. by 500 ft. rectangle that will be subdivided. The road entrance is centered on the west 500 ft. lot line, with a 50 ft. right-of-way that is 750 ft. from the west property line to the center of the cul-de-sac. The cul-de-sac has a 50 ft. radius and the four fillets each have a 20 ft. radius.



## Design Constraints

- Minimum area of each parcel is one acre.
- Minimum road frontage of each parcel is 100 ft.
- Do not use Automatic Layout mode.

## Resources

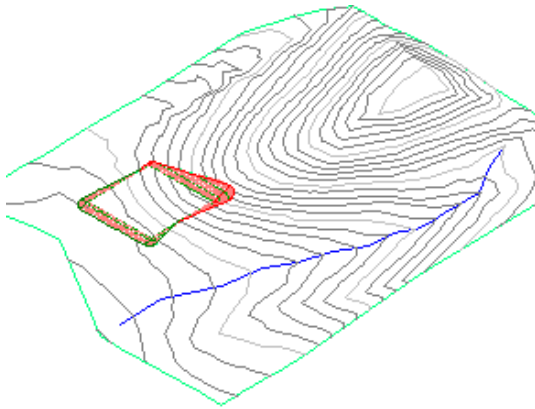
- Unit 6 - Exercise 1
- Unit 7 - Exercises 1 and 2
- *Project2Base.dwg* file

## Procedure

1. Open *Project 2 Base.dwg*.
2. Create a site (one large parcel) inside the rectangle.
3. Create a parcel inside the road right-of-way.
4. Create six one-acre lots perpendicular to the roadway nearest to the entrance, with three lots on either side of the road. Remember, the area is one acre.
5. Create three parcels around the cul-de-sac using the Free Form Create method.
6. Add labels to all the lot lines.

## Project - Create a Building Pad

In this project, you create a building pad using AutoCAD Civil 3D software. This project demonstrates how to use the grading capabilities to design new features.



### Design Statement

A flat building pad is to be constructed at the site of the red rectangle with 3:1 cut and fill slopes at an elevation that will balance the cut and fill volumes.

- The red outline forms the boundary of the flat area for the building pad.
- All cut and fill slopes are to be 3:1 (H:V) until they meet the existing terrain.

### Resources

- Unit 8: All Exercises
- *Project3Base.dwg* file

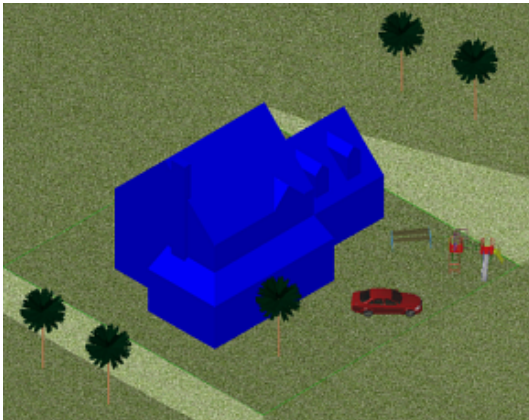
### Lesson Plan

1. Open *Project3Base.dwg*.
2. Convert the red rectangle into a feature line and raise the elevation to an estimated balance point.
3. Create a grading group.
4. Modify the Grading Criteria set.
5. Create the grading and infill with the Automatic Surface Creation and Volume Computation options.
6. Use the grading tools to balance the cut and fill volumes.

7. Alter the surface style properties to show contour lines in Model (3D) space. View the surface and building pad in isometric view.

## Project - Visualize a Building Pad

In this project, you use visualization tools to make the building pad created in Project 3 more appealing in 3D. This project demonstrates how to use the visualization capabilities of AutoCAD® Civil 3D® software.



### Design Statement

A flat building pad has been designed and integrated into the existing ground surface. Use rendering, visual styles, and multiview blocks to visualize the model.

### Design Constraints

- Use a grass rendering pattern and a realistic visual style.
- Place all multiview blocks on the terrain surface.
- Use trees and other multiview blocks to enhance the site.

### Resources

- Visual Styles, Render Materials, multiview blocks
- *Project4Base.dwg* file

### Procedure

1. Open *Project4Base.dwg*.
2. View the drawing from an SW Isometric perspective. Change Visual Style to Realistic.
3. Eliminate the isolines.

4. Insert multiview tree blocks and raise them to the surface elevation.



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