Plan My Land Operation

Exercise and Quiz

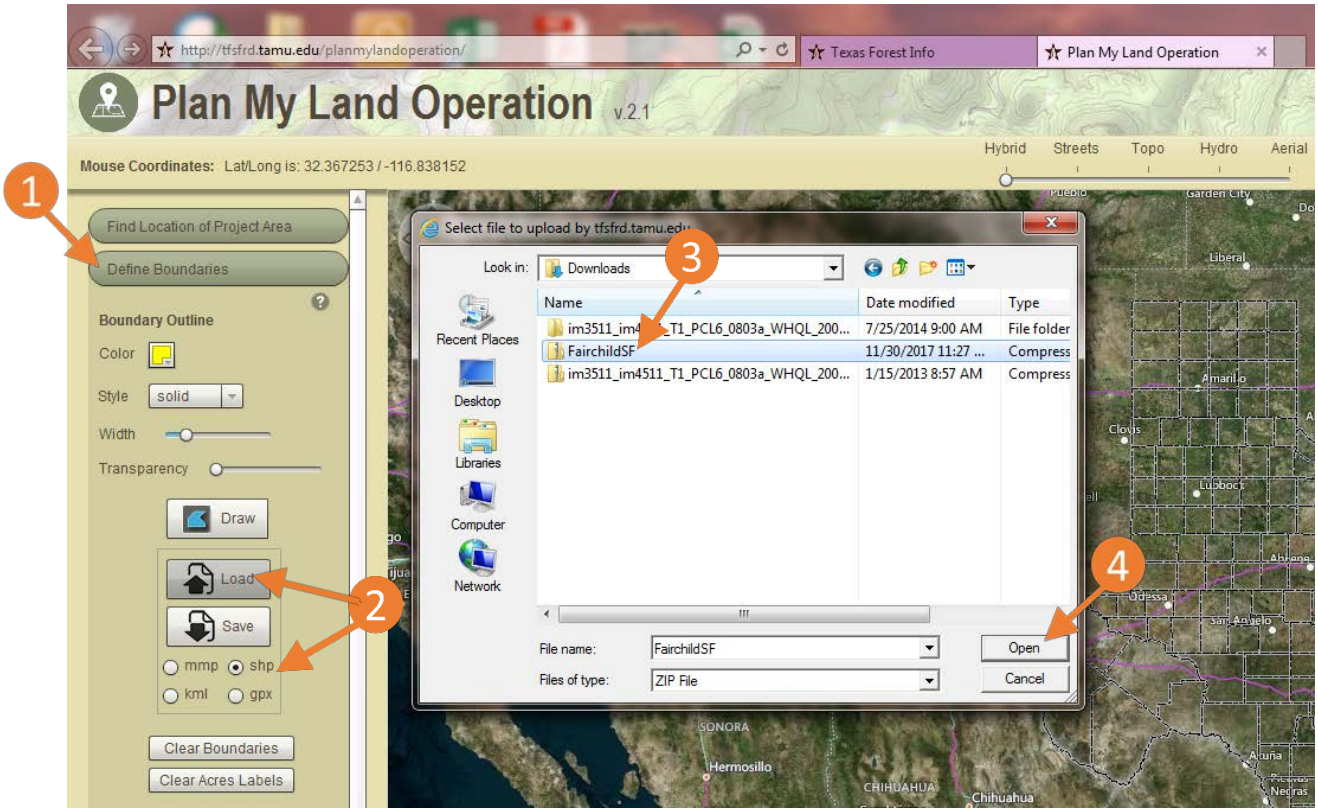
The Plan My Land Operation application allows users to quickly map a project site, identify sensitive areas, determine operational characteristics of mapped soils, calculate area and distances, and receive BMP recommendations based on the hydrology, soils, and topography of the mapped area.

This exercise was designed to help users become familiar with the Plan My Land Operation application. To begin, follow the steps below:

1. Download the project file **FairchildSF.zip** from TFS website (http://tfsweb.tamu.edu/water) and save the file to your computer in the **Downloads** folder.

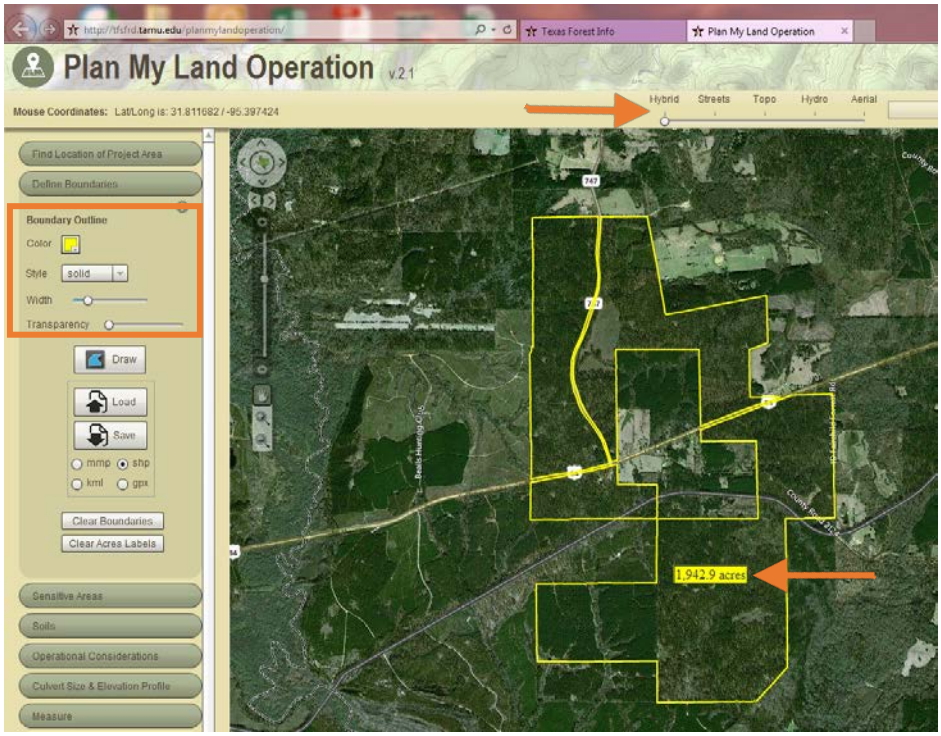
2. Open the application by browsing to the website http://texasforestinfo.com. Close the **Disclaimer** window and click on **Plan My Land Operation**.

3. Load the project file by first clicking **Define Boundaries** in the left column. Then select the **shp** radio button and select the **Load** button. Select the **FairchildSF.zip** file from the **Downloads** folder and click **Open**.



Note: Shape files must be loaded as compressed zip (.zip) files. The application also enables users to draw their own project boundaries and save their project in order to work on it later.

The application automatically zooms to the location, outlines the boundary, and calculates the area. Various base maps can be viewed using the toggle button at the top (Hybrid, Street, Topo, Hydro, Aerial). Older aerials can be selected from the drop down box.

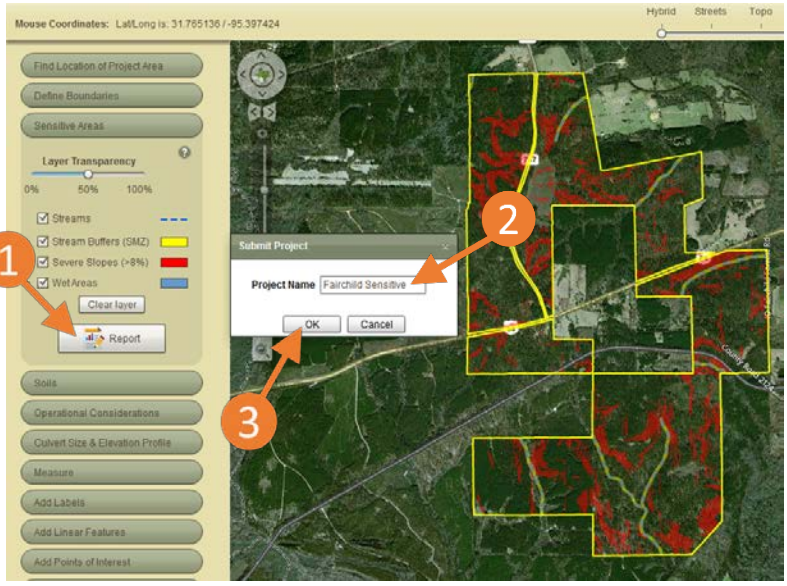


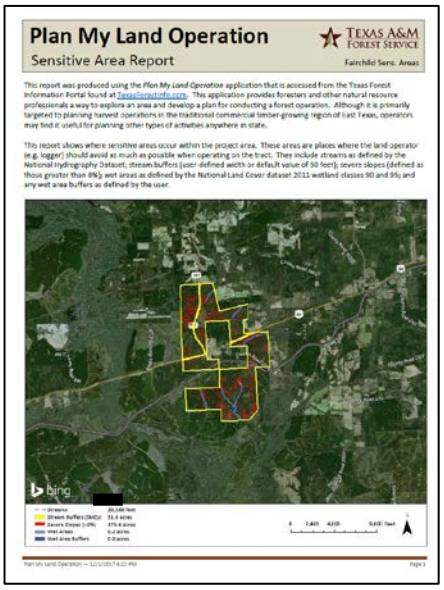
Now that the project area (boundary) has been defined, work through the following exercises and answer the questions.

Exercise 1: Identifying sensitive areas (streams, SMZs, severe slopes, wet areas) on a project area using the application.

1. Click the **Sensitive Areas** tab in the left Column. The application automatically maps streams, stream buffers, severe slopes, and wet areas within the project area using different colors.

2. Click on **Report** in the Sensitive Areas tab, type a **Project Name** in the Submit Project window, and click **OK**. The application opens the "Sensitive Area Report" as a pdf file in a new window. First time users may need to turn off the Pop-Up Blocker.





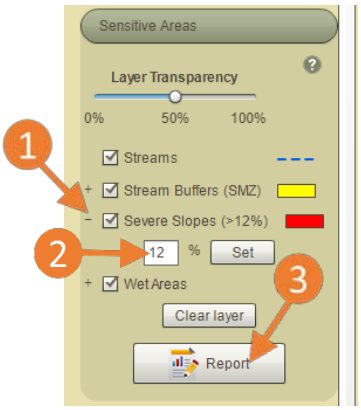
Note: First time users may need to "Allow Pop-Ups" or turn off the "Pop-Up Blocker."

A one page report is produced showing a sensitive area map and summary statistics (length, area) of critical areas. Use the information in the Sensitive Area Report to answer the following question.

Question 1: What is the area (acres) in Stream Buffers (SMZs)? 154.9 Acres

Custom values can be entered for stream buffers, severe slopes, and wet areas by clicking the **+** sign in the left column.

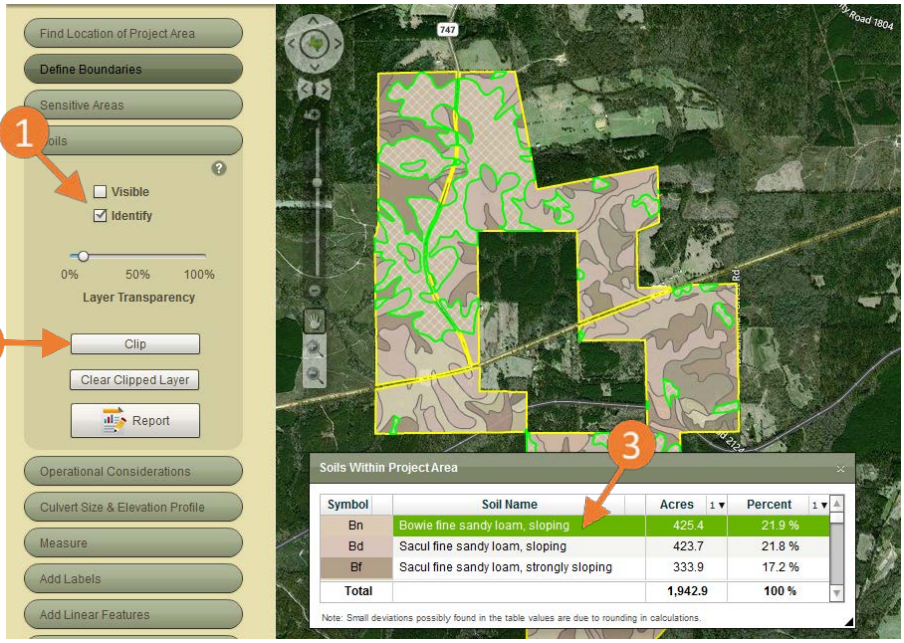
3. Click the **+** sign next to **Severe Slopes (> 8%)**, type in **12%** in the text box, and click **Set**. The map automatically re-calculates sensitive areas. Click **Report**, type a new **Project Name** in the Submit Project window, and click **OK**.



Question 2: What is the area (acres) represented by Severe Slopes (>12%)? 74.1 Acres

Exercise 2: Viewing soil types and associated properties on a project area.

1. Clear the sensitive areas layer by clicking **Clear Layer** in the **Sensitive Areas** tab, and then click on the **Soils** tab.
2. Check the **Visible** and **Identify** boxes, and then click the **Clip** button. This will display a color coded map of the soils within the project area boundary.



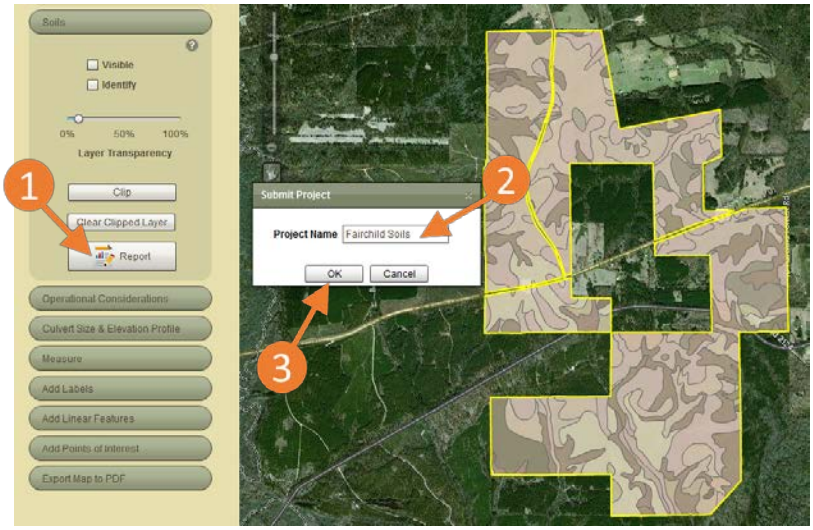
An interactive summary table of the project area soils displays the soil series name, area and percent of the tract covered by that soil type. The **Layer Transparency** slide bar allows you to make the soils layer transparent.

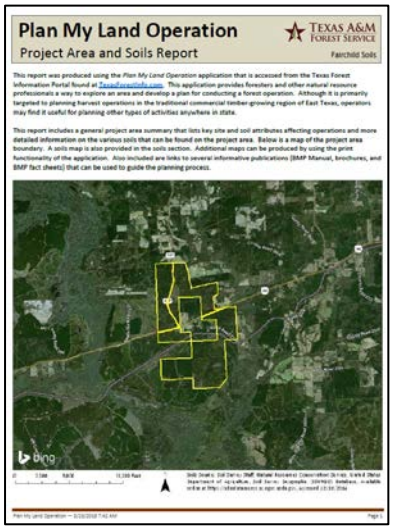
3. Click directly on the **Soil Name** to bring up a text box with more detailed soil properties.

Question 3: How many acres are in Lilbert loamy fine sand, sloping soil series? 217.1 Acres

Question 4: What percent of the tract is Betis loamy fine sand, sloping? 3.5 %

4. Click on **Report** in the **Soils** tab in the left column, type a **Project Name** in the Submit Project window, and click **OK**.





The application opens the Project Area and Soils Report as a pdf file in a new window. A multi-page report is produced of soils maps, summary information, and BMP recommendations for each soil type.

Use the Project Area and Soils Report to answer the following questions:

Question 5: What is the total length (in feet) of perennial streams on this tract? 7,764 ft.

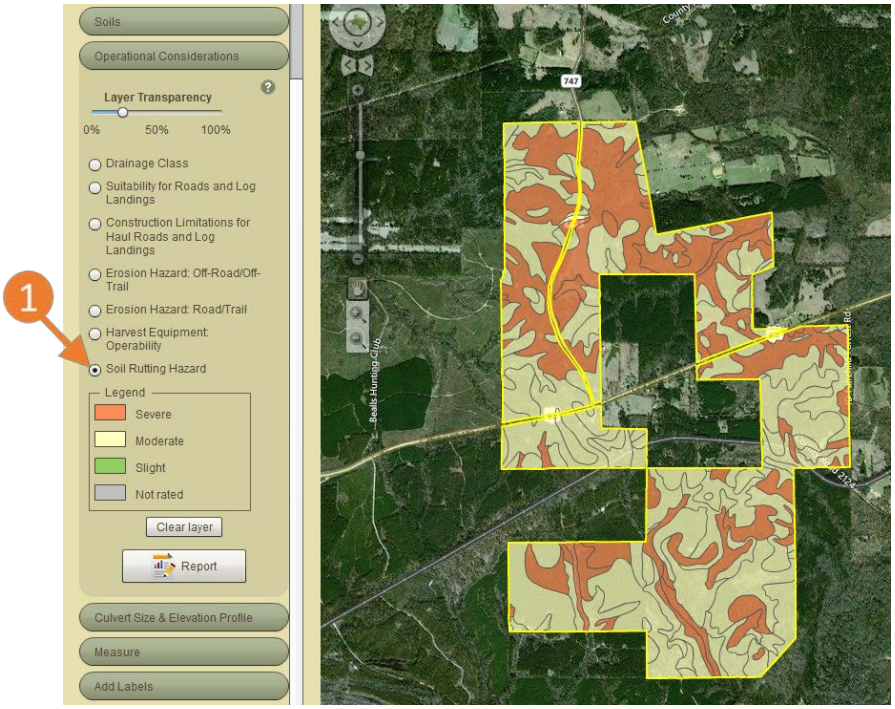
Question 6: What drainage class is the Elrose fine sandy loam, 3 to 8 percent (Mb)? Well Drained

Question 7: What is the Rating for Harvest Equipment Operability on the Tenaha loamy fine sand, strongly sloping (Rf) soil? Well Suited

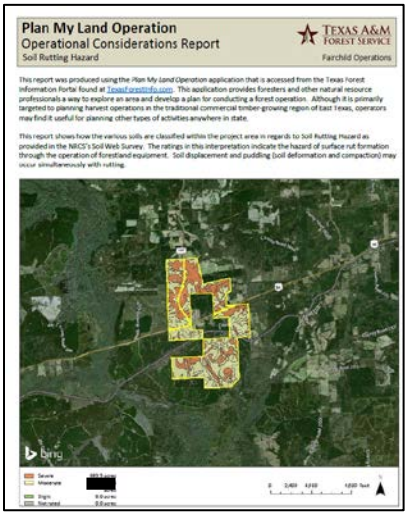
Question 8: What is the BMP Awareness for Soil Rutting Hazard on the Darco loamy fine sand, sloping (Lb) soil? Moderate

Exercise 3: Viewing general soil properties (erosion and rutting hazard) to support operation planning and layout on a project area.

1. Click on the **Operational Considerations** tab. The project area is automatically color coded based on the assigned ratings of key soil characteristics (i.e. *Drainage Class, Suitability for Roads and Landings, Erosion Hazard,* etc.).
2. Select different radio buttons to see how the map colors change.



3. Click on **Report** in the Operational Considerations tab, type a **Project Name** in the Submit Project window and click **OK.** The application opens the Operational Considerations Report for the property selected (i.e. Soil Rutting Hazard) as a pdf file in a new window.



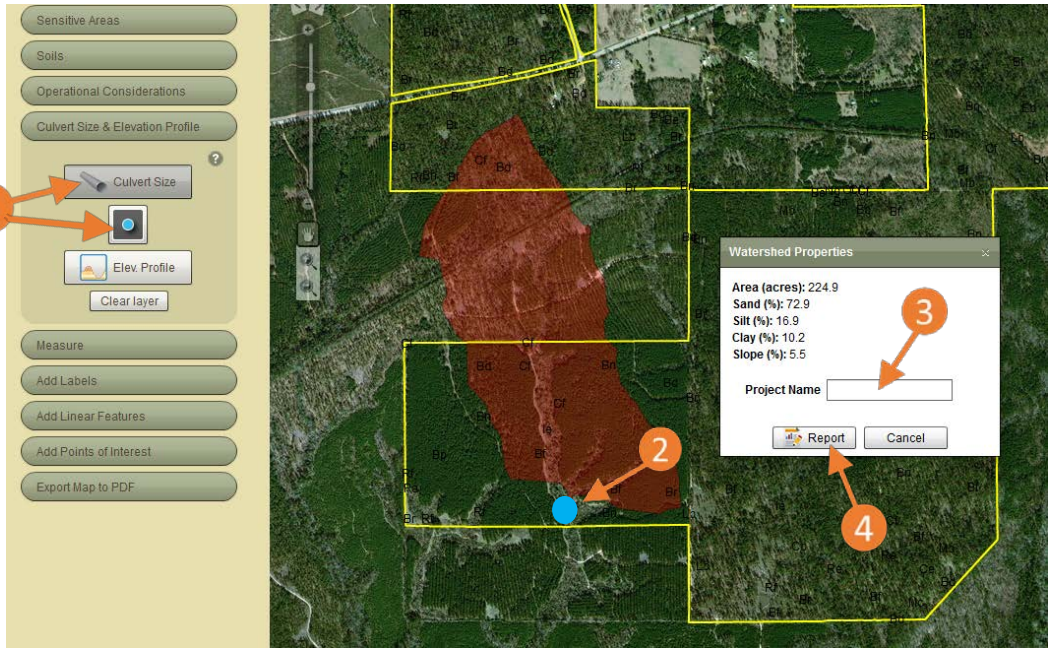
The Operational Considerations Report is produced showing a color coded map and area statistics of the operational consideration selected.

Use the Operational Considerations Report to answer the following question:

Question 9: How many acres have a "Moderate" rating for Soil Rutting Hazard? 1,249.4 acres

Exercise 4: Determining the appropriate size of a culvert for a stream crossing.

1. Clear the Operational Considerations layer, by selecting the **Clear layer** button, and zoom in to the southwestern corner of the tract.
2. Click on the **Culvert Size & Elevation Profile** tab.
3. Click the **Culvert Size** button, and then the **Blue Dot** button. This will allow you to place a point on the map to calculate the culvert size for a stream crossing. Place the point at the bottom of the stream in that section. Type a **Project Name** in the Watershed Properties window and click **Report**.



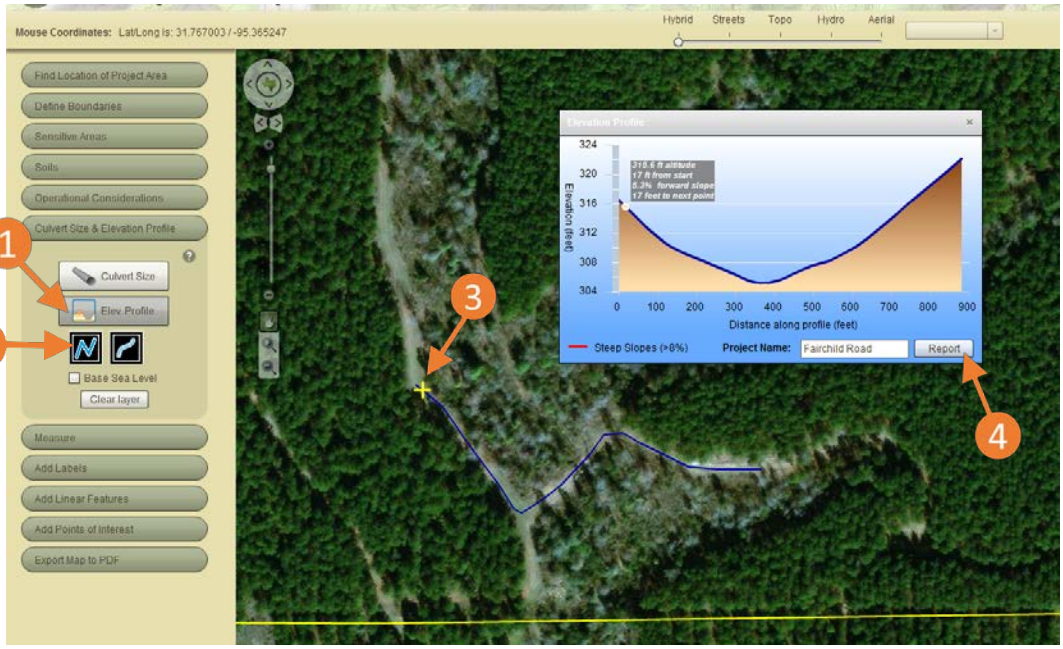
The watershed is automatically delineated for the placed point. The Watershed Size/Culvert Size Report is generated and shows the recommended culvert size.

Use the Watershed Size/Culvert Size Report to answer the following question:

Question 10: What size culvert is recommended for this stream crossing? 30 inches

Exercise 5: Determining topographical properties of a road segment to adequately plan erosion control measures (BMPs).

1. Zoom in closer to the Blue Dot.
2. Click on the **Elev. Profile** button, and then the **Draw Polyline** button. This will allow you to visualize the elevation profile of a potential road segment so you can adequately plan for BMPs and erosion control.
3. Click on the road segment NW of the blue dot to add a vertex and proceed by dragging the line along the road, adding vertices when you need to change directions. **Double click** to end the road segment. Type a **Project Name** in the Elevation Profile window and click **Report**.



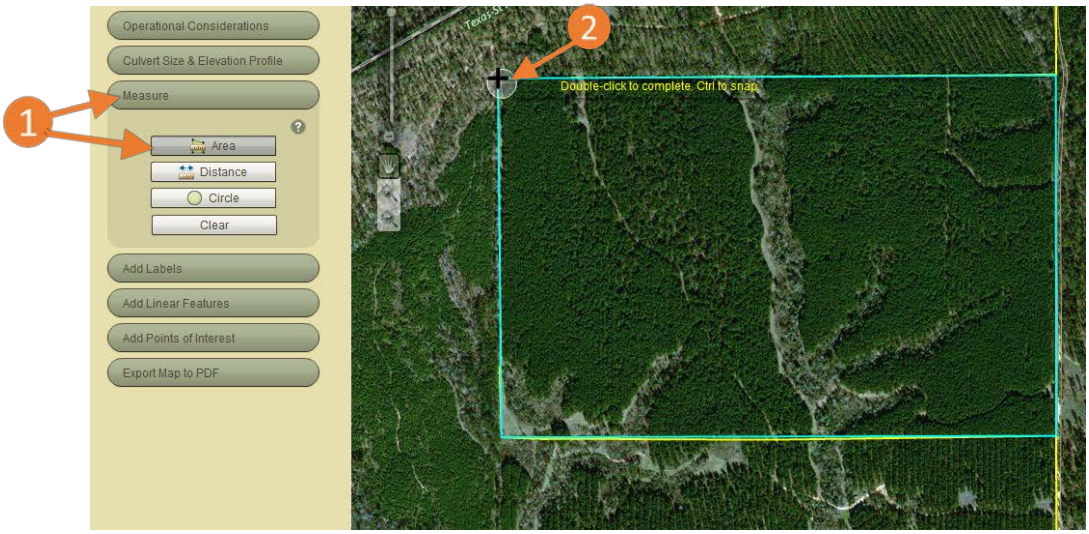
The elevation profile is automatically calculated for the delineated road segment. The interactive graph shows the altitude, distance from start, and percent slope along points in the profile. The Elevation Profile Report is generated and summarizes results of the analysis. This information can be used as inputs for the waterbar and wing ditch spacing charts in the Texas Forestry BMP Handbook.

Use the Elevation Profile Report to answer the following question:

Question 11: What is the maximum percent slope for this road segment? __5.6%__

Exercise 6: Measuring area and distances in the application.

1. Click "**Clear layer**" to remove the elevation profile.
2. Zoom out so you can see the rectangular box below.
3. Click the **Measure** tab and then click the **Area** button. Hold down **Ctrl** on the keyboard and click near the corner of the yellow boundary, then release **Ctrl**.
4. Drag the line around the rectangular box, clicking at each corner. Double click at the end to close the polygon.



Note: A circle with a + sign inside indicates you are "snapping" to an existing boundary.

The measure tool quickly calculates area (acres) of delineated polygons or circles and distance (feet) of line segments.

Use the measure tool to answer the following questions:

Question 12: How many acres are in the rectangular box? __218.2__ acres

Question 13: What is the distance of the eastern border of the rectangular box? __2,491__ feet

Hint: You may need to select a different option in the measure tool to answer Question 13.

Exercise 7: Saving the map to a pdf file.

1. Click **Clear** to remove the area calculation.
2. Click **Export Map to PDF**, enter a name in the **Title** box, and click the **Preview** button. The map features shown on the screen will be displayed in layout view. You can pan and zoom to make the map fit the page.
3. Click **Export** to save the map as a PDF file.
4. Type in the **File name**, navigate to the directory where you want to save the file, and click **Save** in the Save as box. The file is automatically saved as a pdf.