

Lesson 4 – Mapping and Analyzing Soil Data Layers

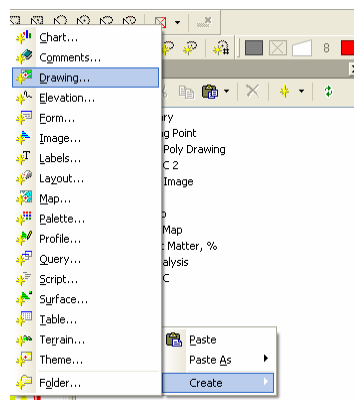
Exercise 4-4

Objective: Prescribing soil sampling locations.

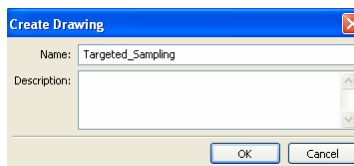
1. **File-Open** *Project_4-3.map*.
2. Double-click the **Soil EC Map** component in the **Project** pane. Expand the map by clicking the **Maximize** button at the top right corner and click the **Zoom To Fit** icon.



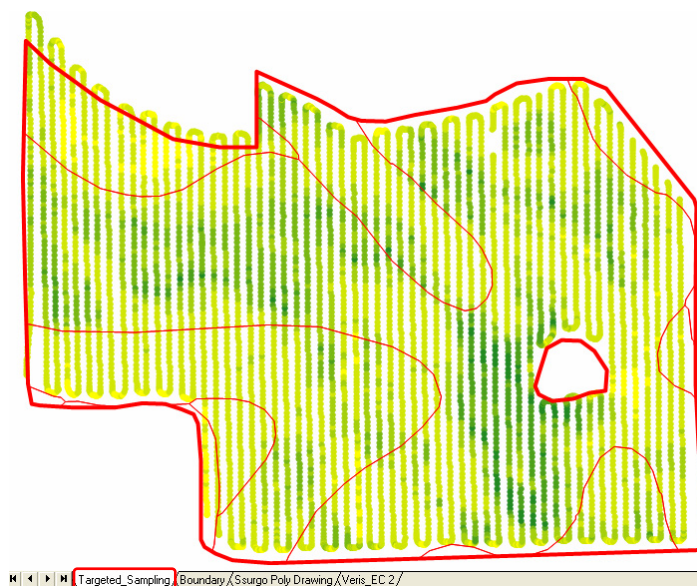
3. Right click any empty location in the **Project** pane and select **Create-Drawing**.



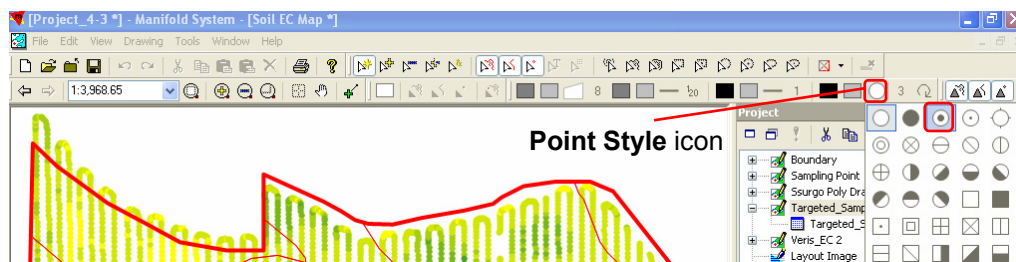
4. In the popup **Create Drawing** dialog box type **Targeted_Sampling** in the **Name** box. Click **OK**.



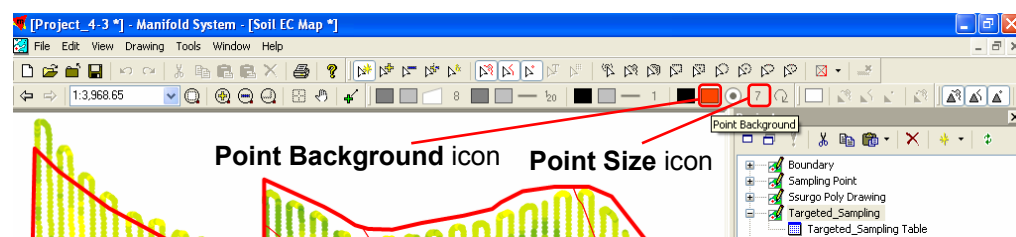
- Click and drag the **Targeted_Sampling** drawing component from the Project pane to the map. A new and activated tab named **Targeted_Sampling** will appear in the lower left side of the viewing window.



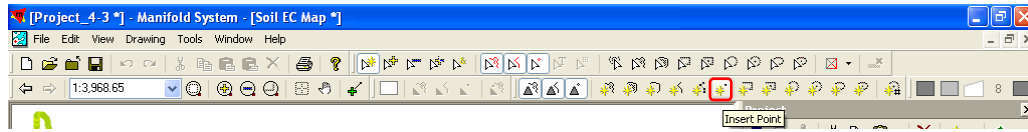
- Click the **Point Style** icon and change the point style to a **Circle with large dot**.



- Click the **Point Background** icon and change the background color to **Orange**. Click the **Point Size** icon on the same toolbar and change it to 7.



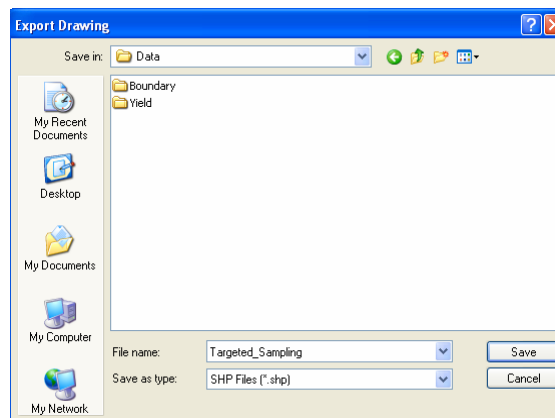
8. Click the **Insert Point** icon in the tools toolbar.



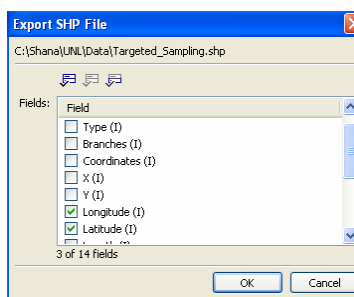
9. Click the map in 10 different locations that could be considered for guided soil sampling. An example of such a scheme is shown below. *The points should be spread across the field and represent different soil type polygons and apparent clusters of EC measurements.*



10. Right click the **Targeted_Sampling** drawing component in the **Project** pane and select **Export**. In the **Export Drawing** dialog box, select **SHP Files (*.shp)** in the **Save as type** box and type **Targeted_Sampling** in the **File name** box. Click **Save**.



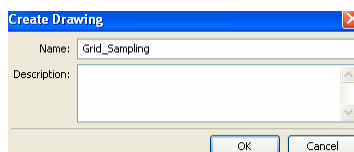
11. In the popup **Export SHP File** dialog box check the ***Id***, ***Longitude*** and ***Latitude*** items in the **Field** box. Click **OK**.



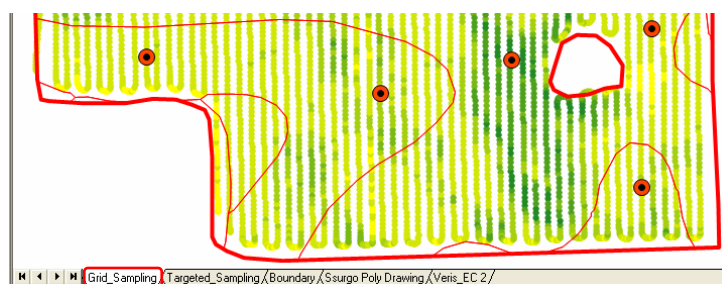
12. Open the created ***Targeted_Sampling.dbf*** file using EXCEL to see the geographic coordinates for each point. *These coordinates can be transferred to a GPS receiver to navigate to sampling location.*

	A	B	C
1	ID	Longitudel	Latitudel
2	87422	-96.492707	41.165139
3	87423	-96.490958	41.165394
4	87430	-96.497521	41.167239
5	87431	-96.497699	41.165165
6	87432	-96.497233	41.165266
7	87433	-96.495647	41.166480
8	87434	-96.494345	41.164863
9	87435	-96.493279	41.166239
10	87436	-96.491140	41.163913
11	87437	-96.491361	41.166632

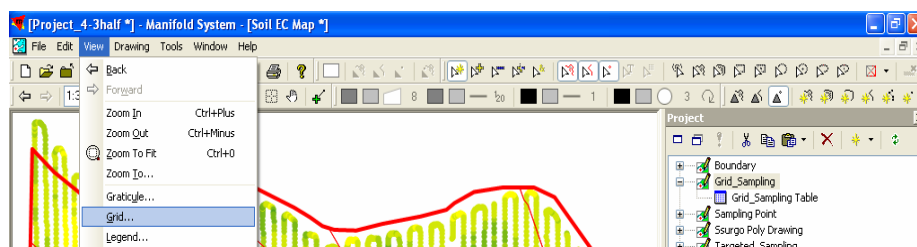
13. Right click an empty location in the **Project** pane and select **Create-Drawing**. In the popup **Create Drawing** dialog box, type ***Grid_Sampling*** in the **Name** box. Click **OK**.



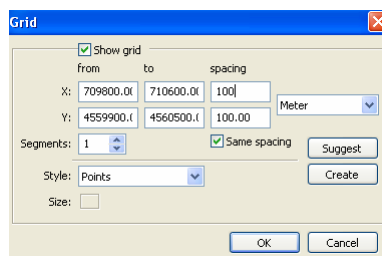
14. Click and drag the ***Grid_Sampling*** drawing component from the **Project** pane to the map. A new and activated tab named ***Grid_Sampling*** will appear in the lower left side of the viewing window.



15. From the **View** menu, select the **Grid** option.



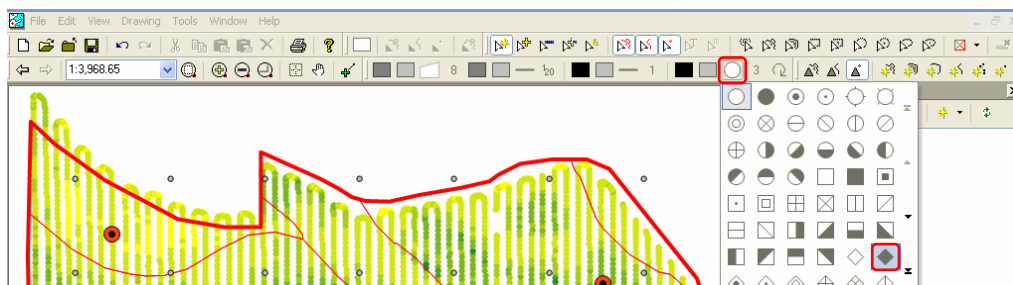
16. In the popup **Grid** dialog box check the **Show grid** box and select the **Points** in **Style** box. Enter **100 x 100** in both **spacing** boxes. Click **Create**, uncheck the **Show grid** box and click **OK**.



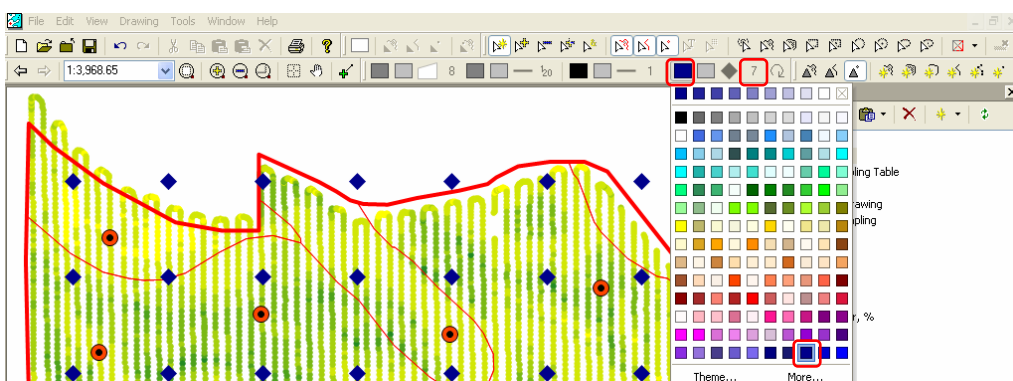
The resulting grid sampling locations are displayed below. 100 x 100 m grid corresponds to a 2.5 –acre grid scheme. The grid can be moved vertically or horizontally using Transform/Move tools.



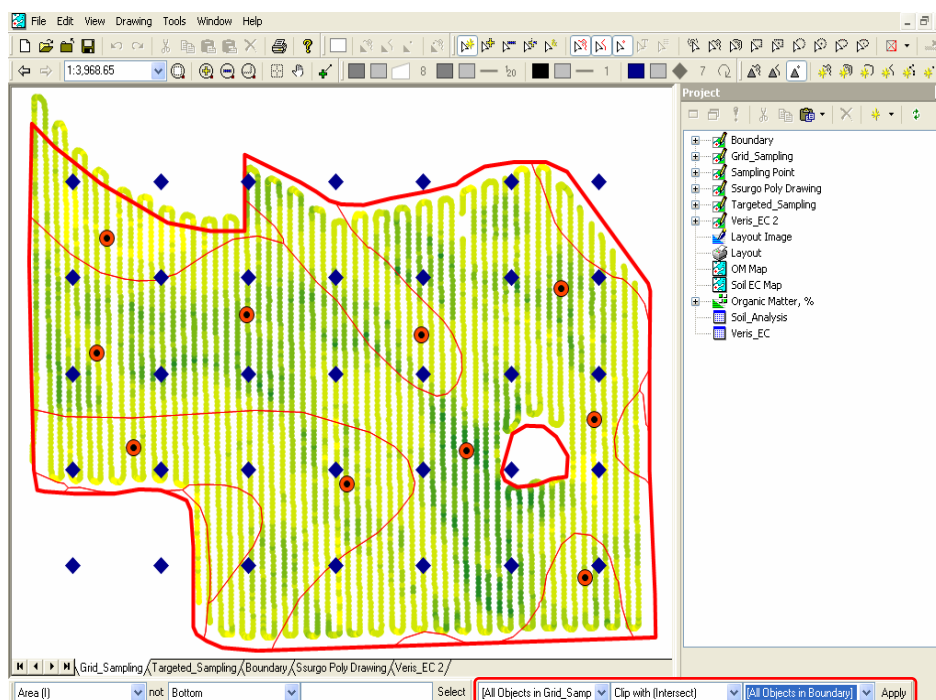
17. Click **Point Style** on the point formatting toolbar and change the point style to a **Diamond** shape.



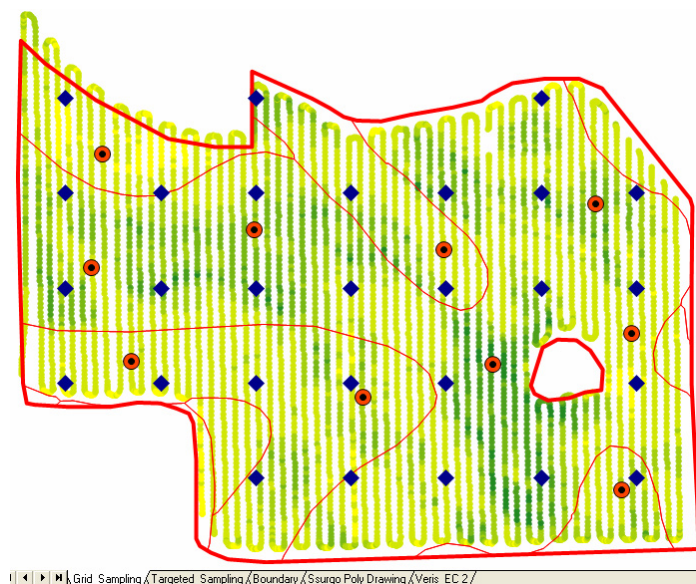
18. Click the **Point Foreground** icon and change the foreground color to **Blue**. Click the **Point Size** icon and change the point size to 7.



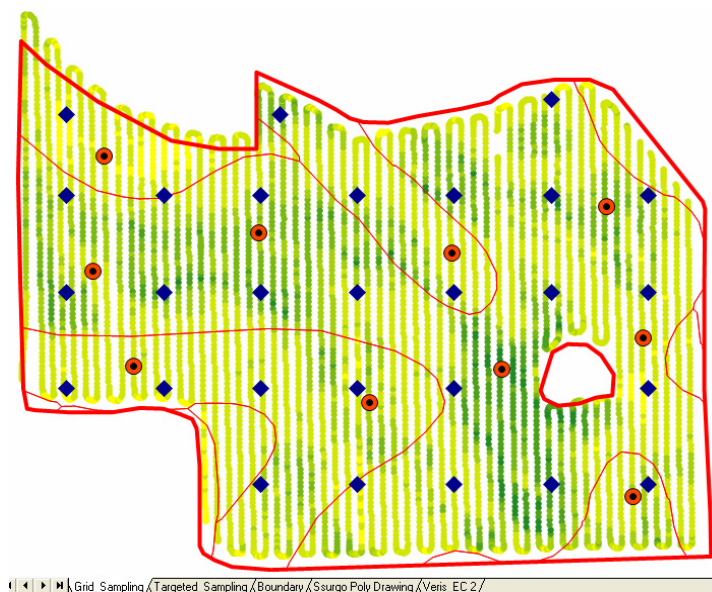
19. In the **Transform** toolbar, select *[All objects in Grid Sampling]* in the **Target box**, *Clip with (Intersect)* in the **Operation box** and *[All objects in Boundary]* in the **Source box**. Click **Apply**.



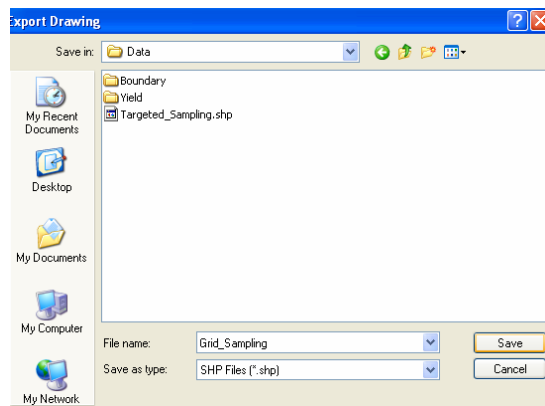
This action will remove the grid sampling points located outside the field's boundary.



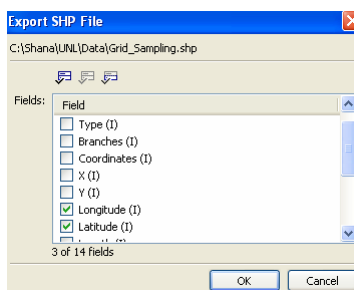
20. Press and hold the **Ctrl** and **Alt** keys and click a point located close to the boundary. Once the point turns grey, move it to a desired spot. Repeat this for every point whose location should be modified. Click a point once and press the **Delete** key if you want it to be removed.



21. Right click the **Grid_Sampling** drawing component in the **Project** pane and select **Export**. In the **Export Drawing** dialog box select **SHP Files (*.shp)** in the **Save as type** box and type **Grid_Sampling** in the **File name** box. Click **Save**.



22. In the popup **Export SHP File** dialog box select the ***Id***, ***Longitude*** and ***Latitude*** items in the **Field** box. Click **OK**. Now the saved coordinates for the grid points can be viewed and imported to a GPS receiver as well.



23. File-Save As ***Project_4-4.map***.