TERRITORIAL COMPUTING

Hydrology Analysis-Valldaura

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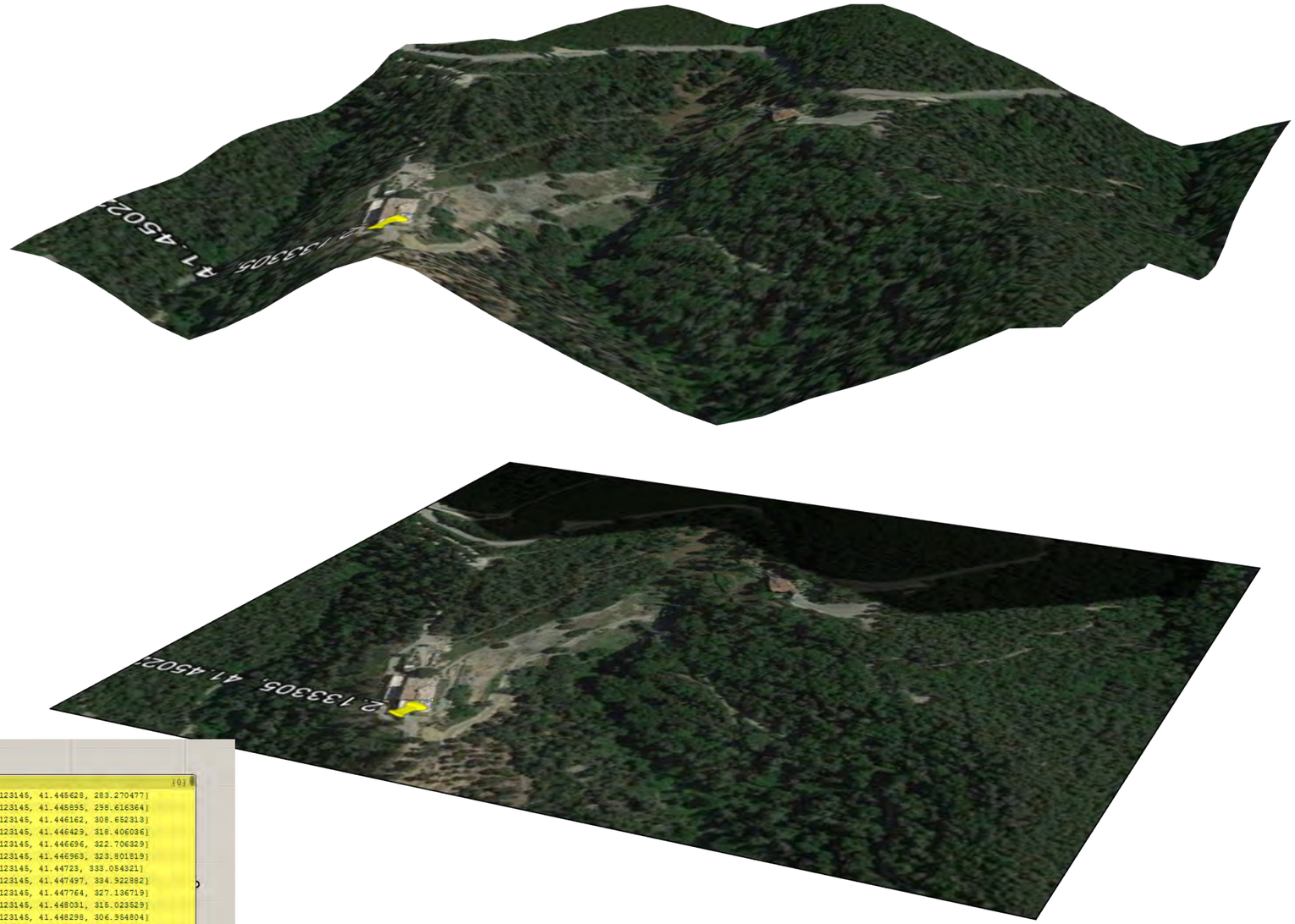
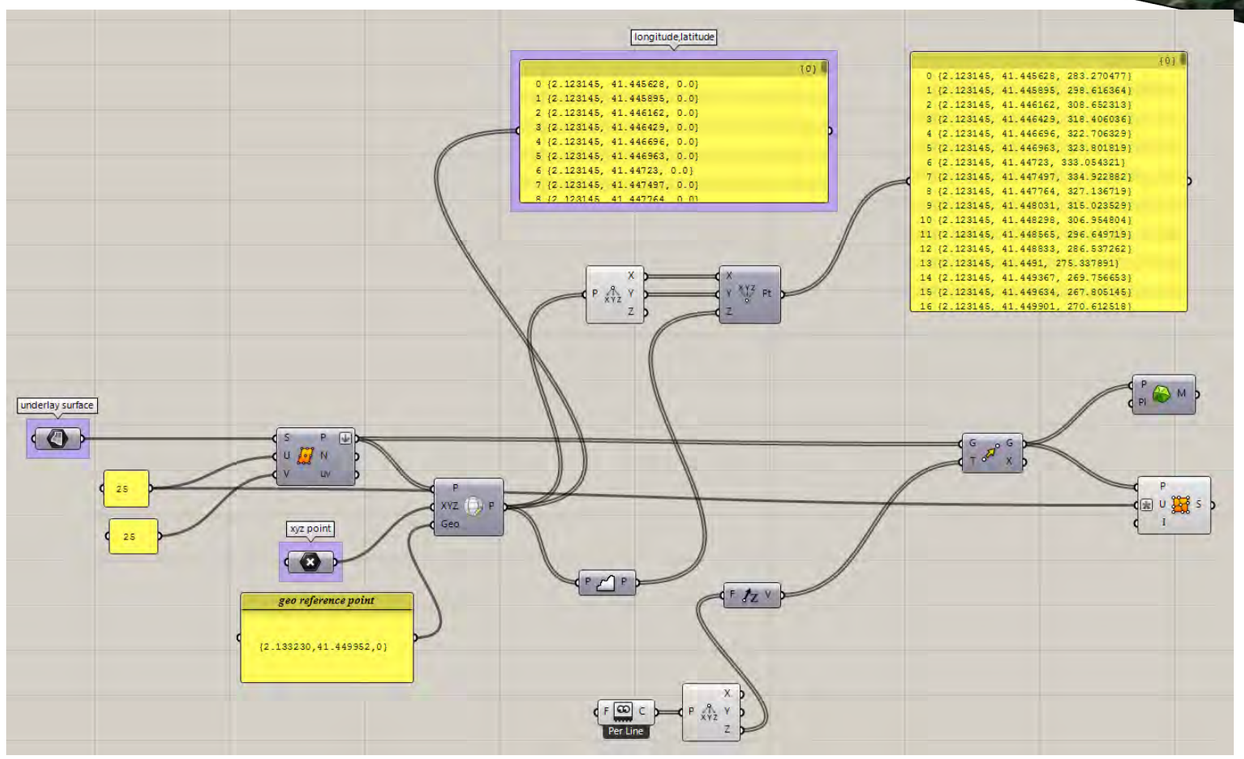
1 Step

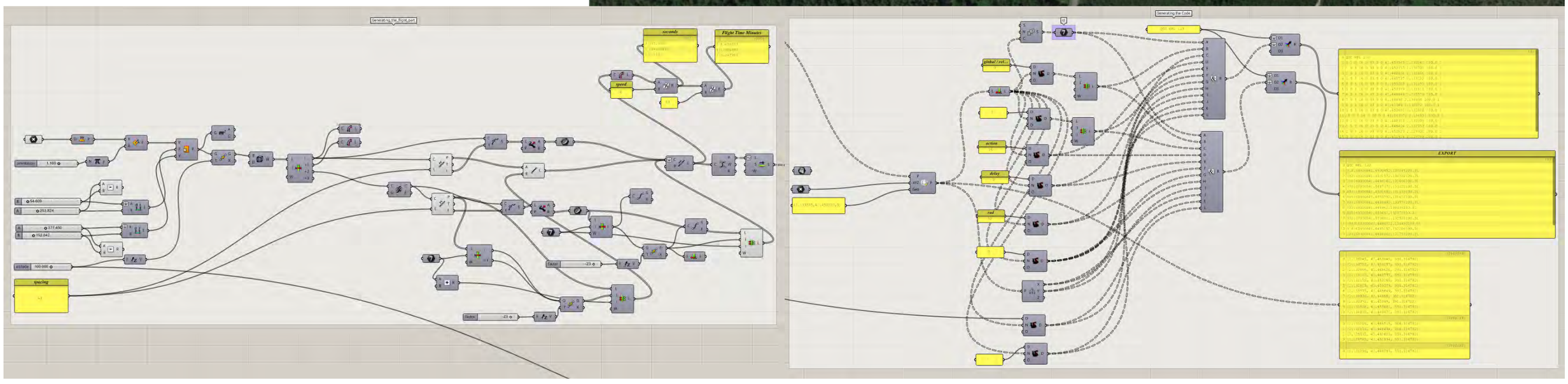
The first step we did was to extract an image from google earth so we can create a low resolution terrain of the site with Ghowl .So with this initial data we can start analysing the waterflow and slopes of the site.





2 Step

After that we also generate a grass-hopper definition for creating a flight path for the drone so we can gather more precise data for ana-lysing the terrain

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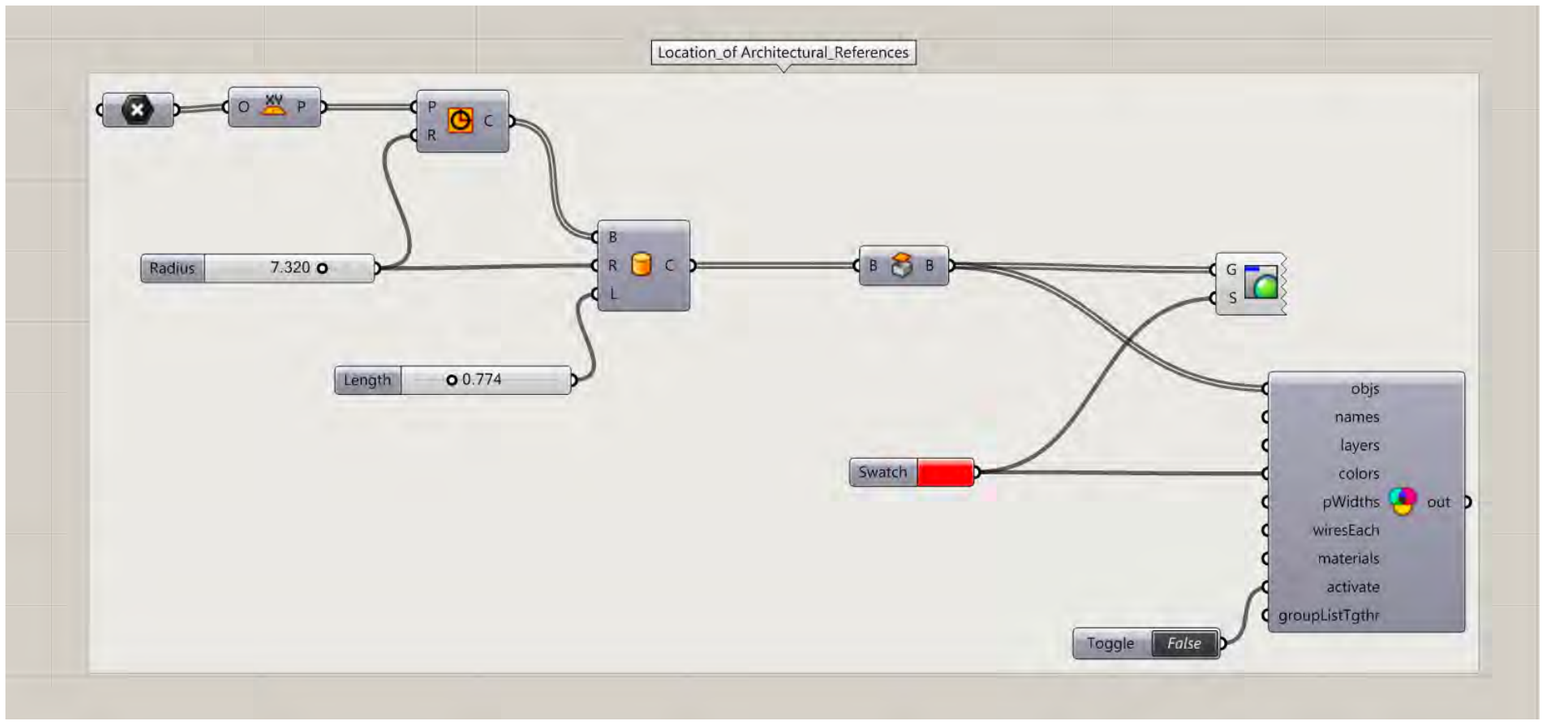
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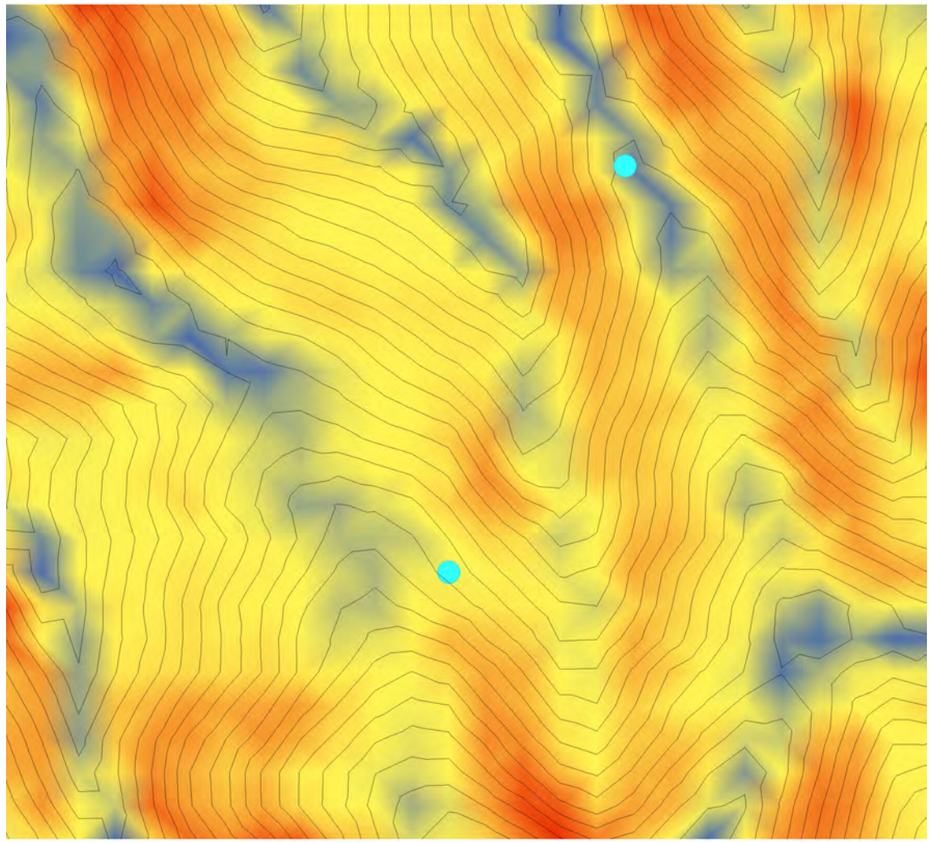
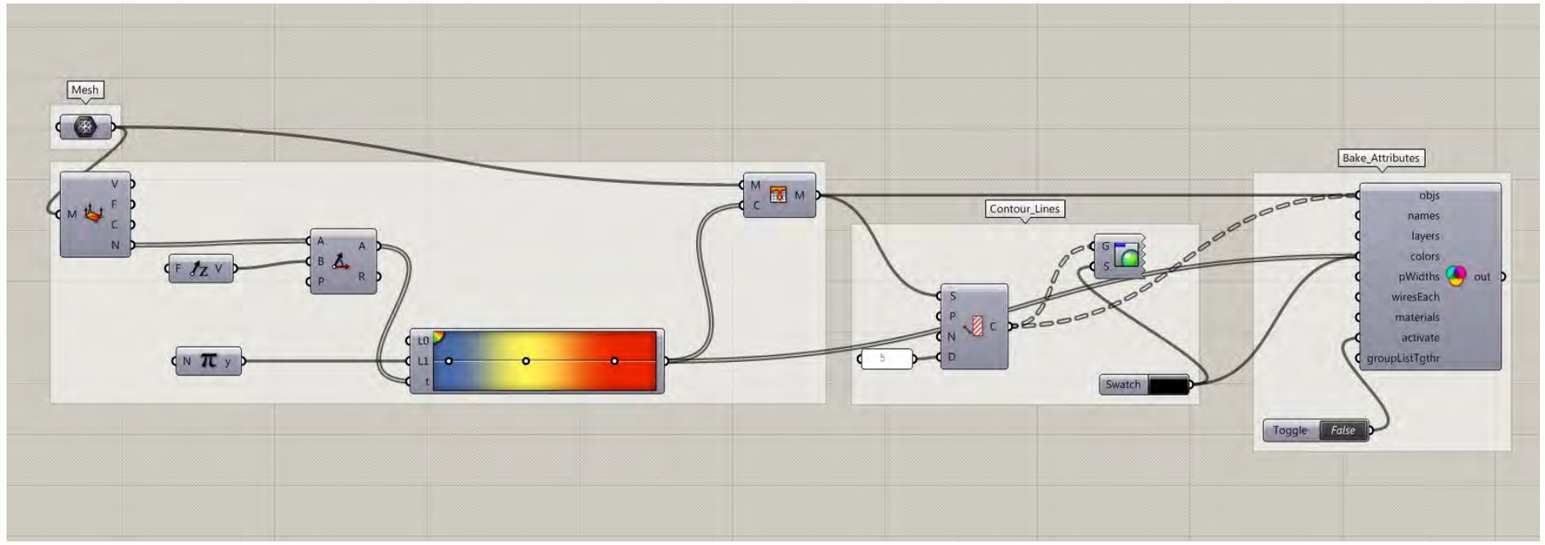
Slope Analysis-Valldaura



HIGHEST ANGLE

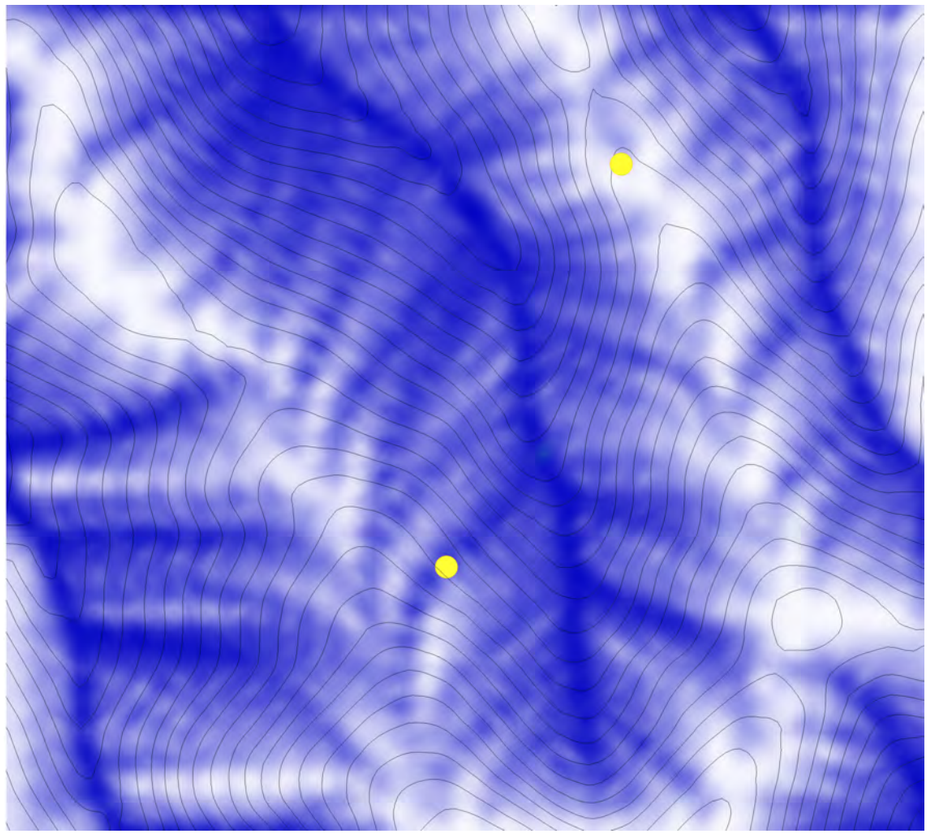
MID ANGLE

LOWEST ANGLE

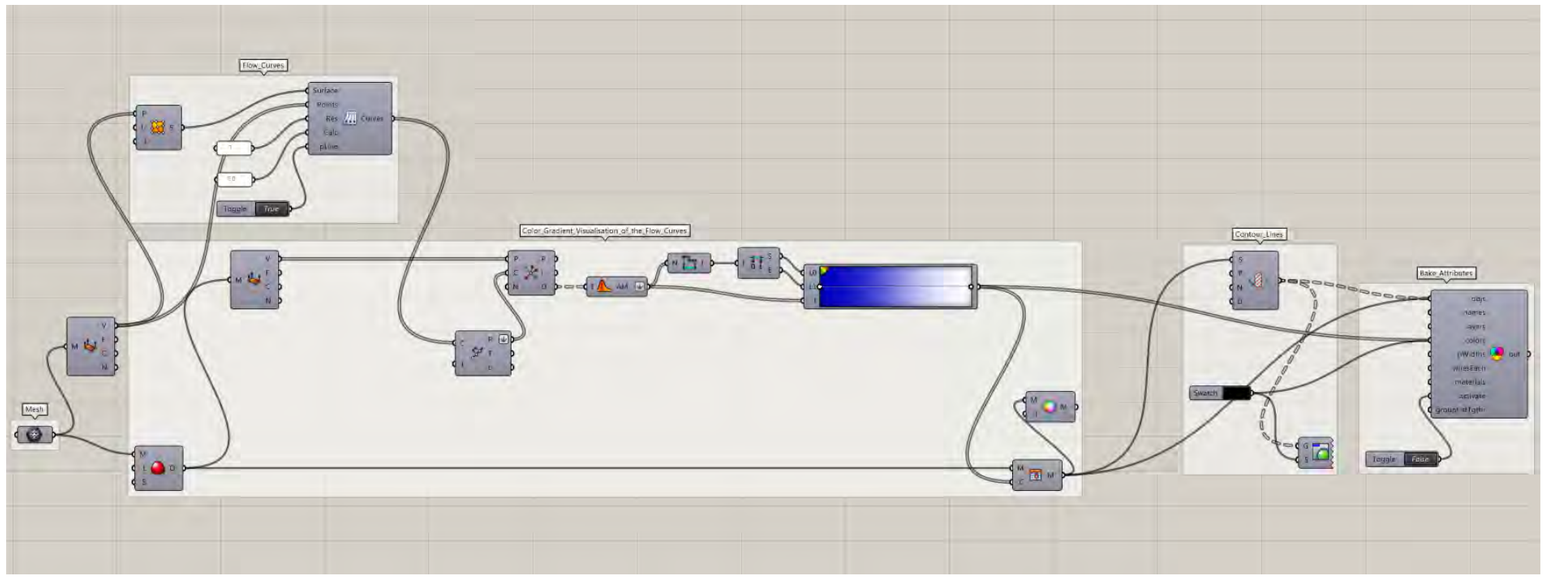


We created a grasshopper definition for the slope analysis ,where the gradient displays the angle of the slope of each vertice of the mesh we are analysing . The blue color is representing the lowest angle and the red the steepest angle

Waterflow Analysis-Valldaura



WATERFLOW

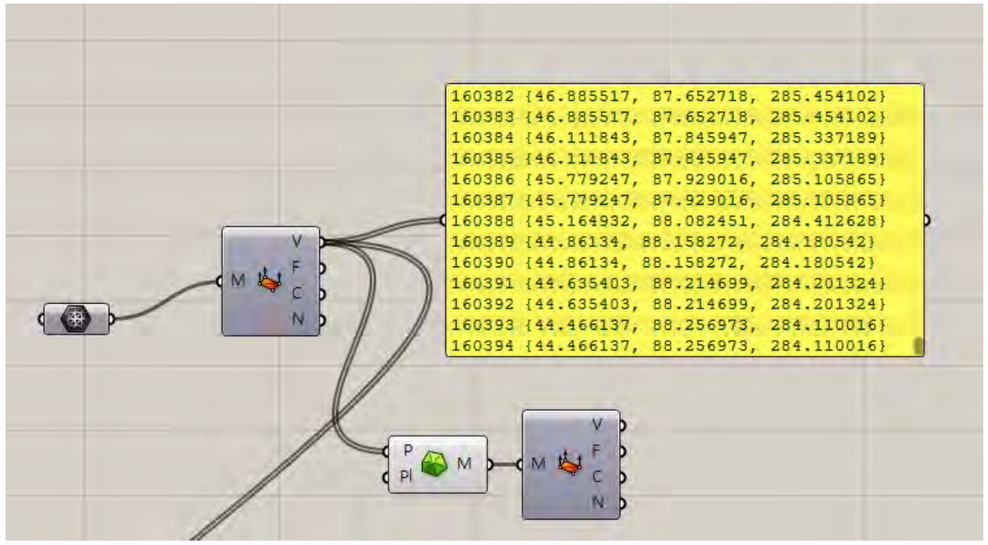


We generated a waterflow analysis definition that let us visualize the way that water flows through the terrain

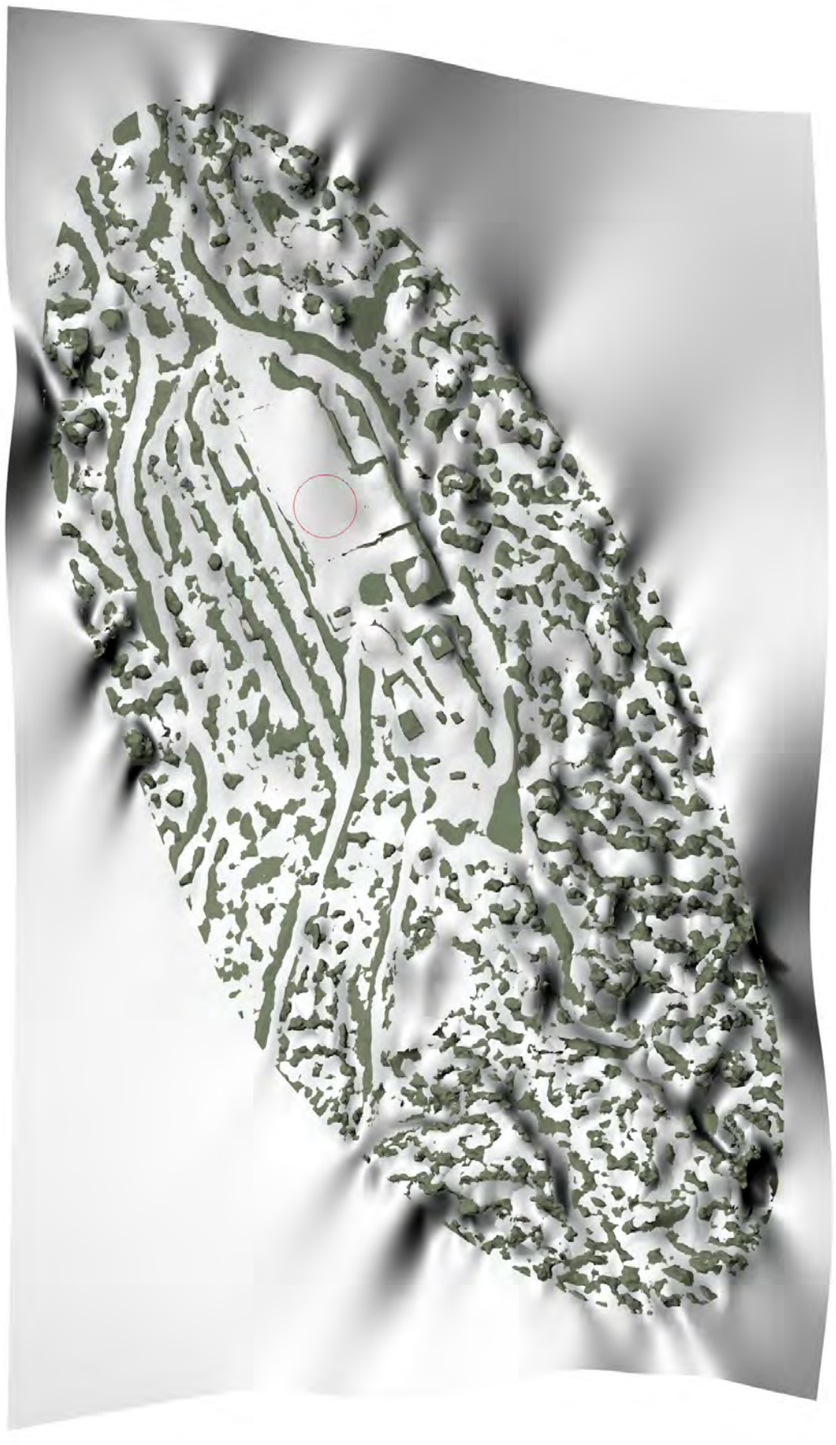
After several flights with the drones and analysing all the data with mission planner we were able to generate a high resolution image and also a 3d model of the site so we can run again all the grasshopper definition with a higher pressicion

We had to reduce the area of analysis because of the complexity of the mesh that we obtain so we decided to select the area close to the house to do our analysis.

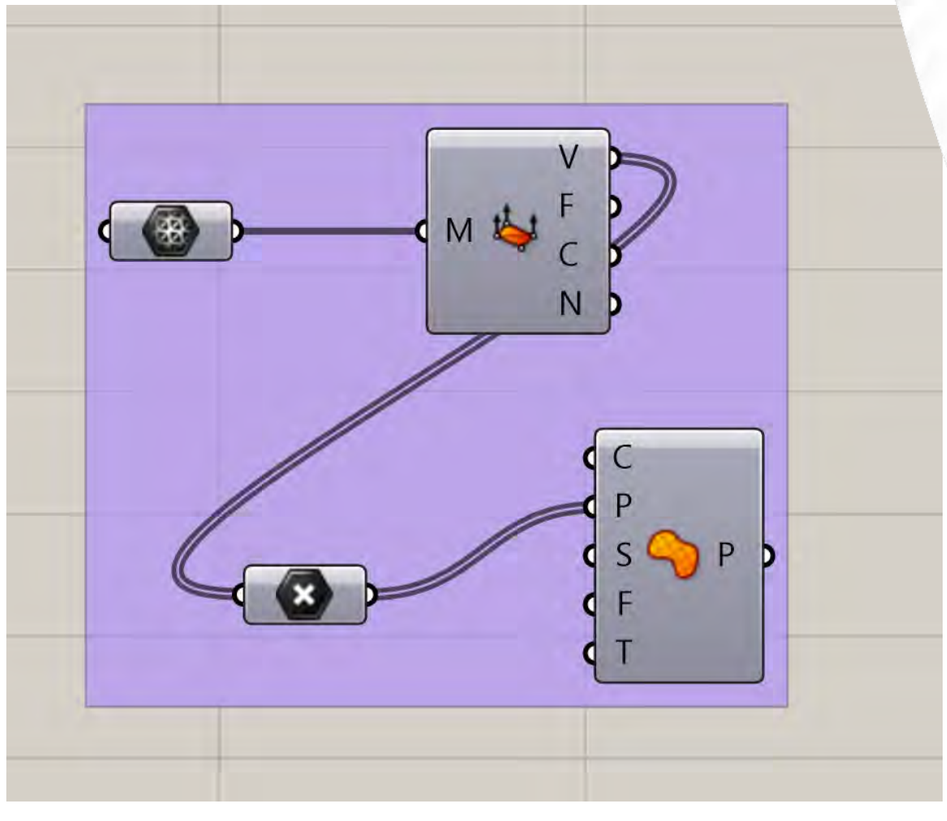
SELECTED AREA

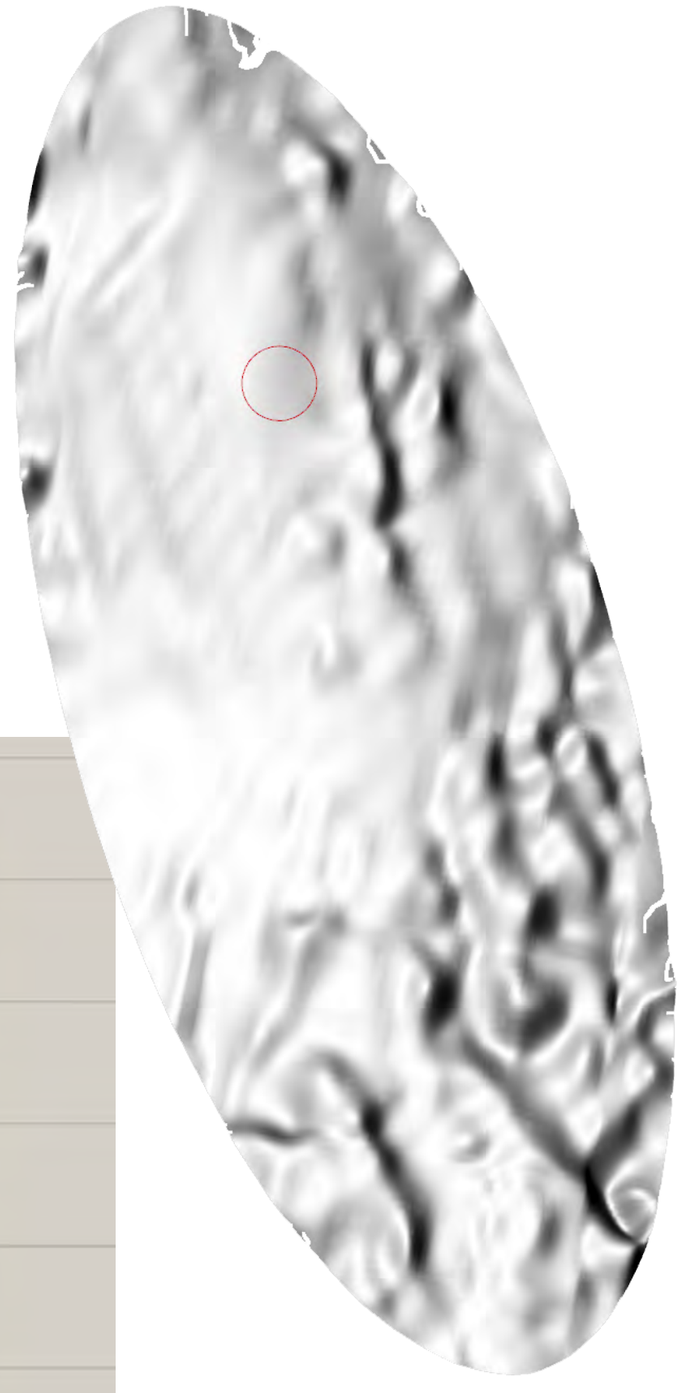


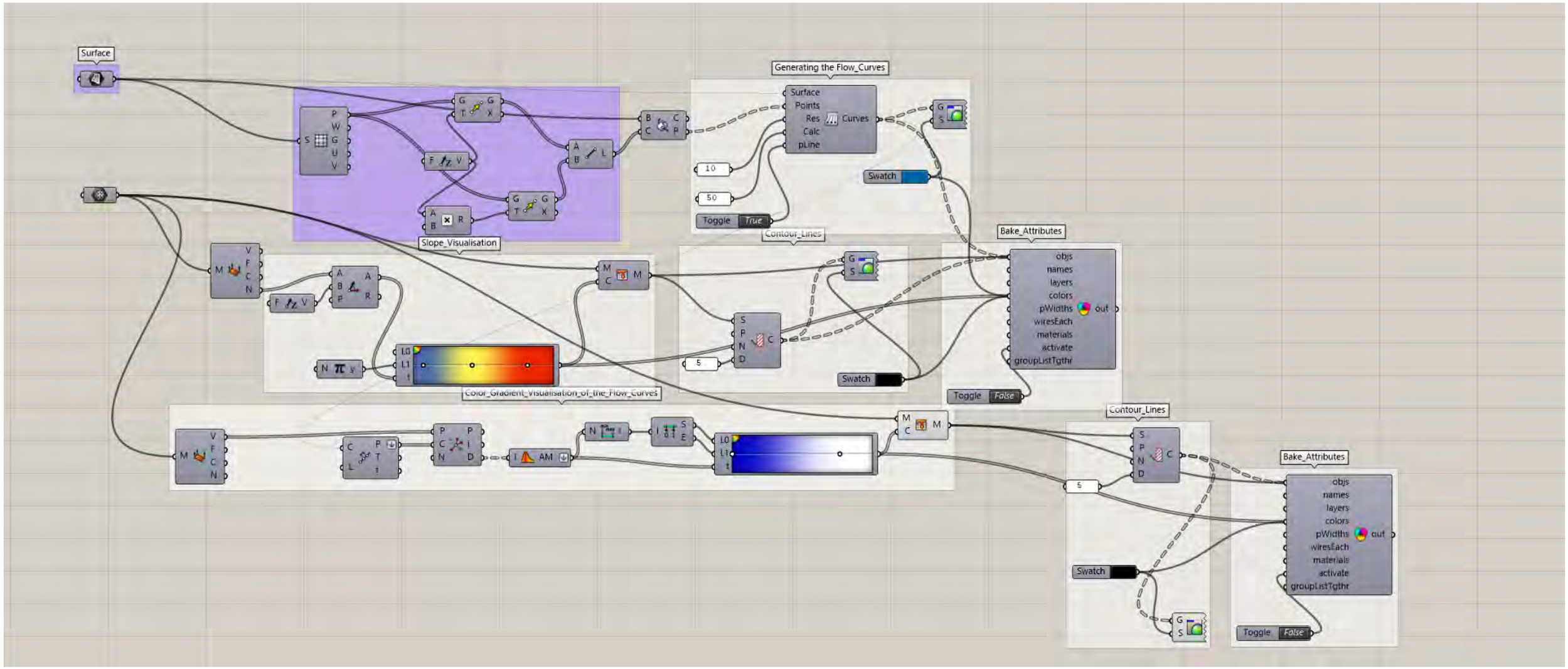
There were several gaps in between the mesh which din't form a singular surface so we tried to fill the holes with a delauny mesh. But since this had over 16000 individual components we had to look for other options to analyse the terrain.



So to get a terrain we broke the mesh into its components to make a surface with the mesh points



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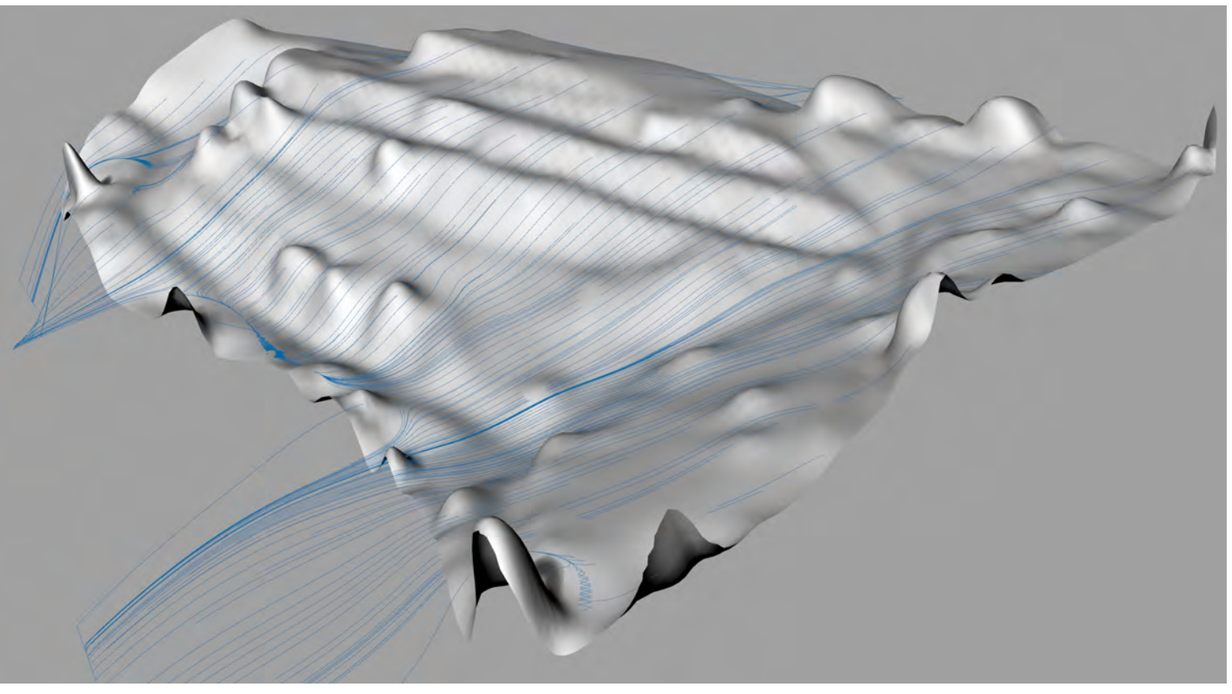
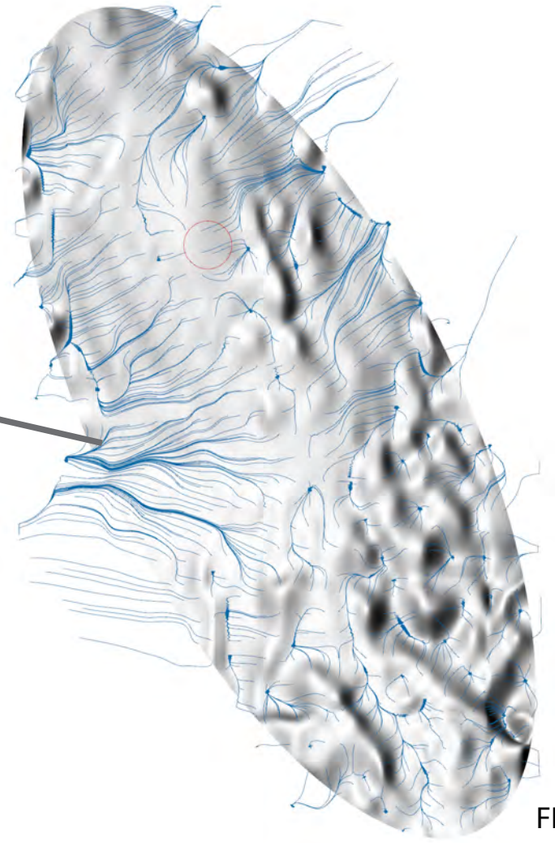
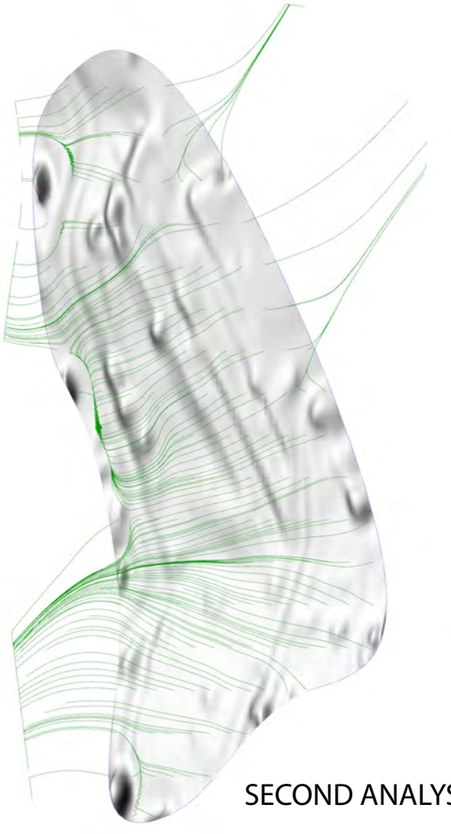
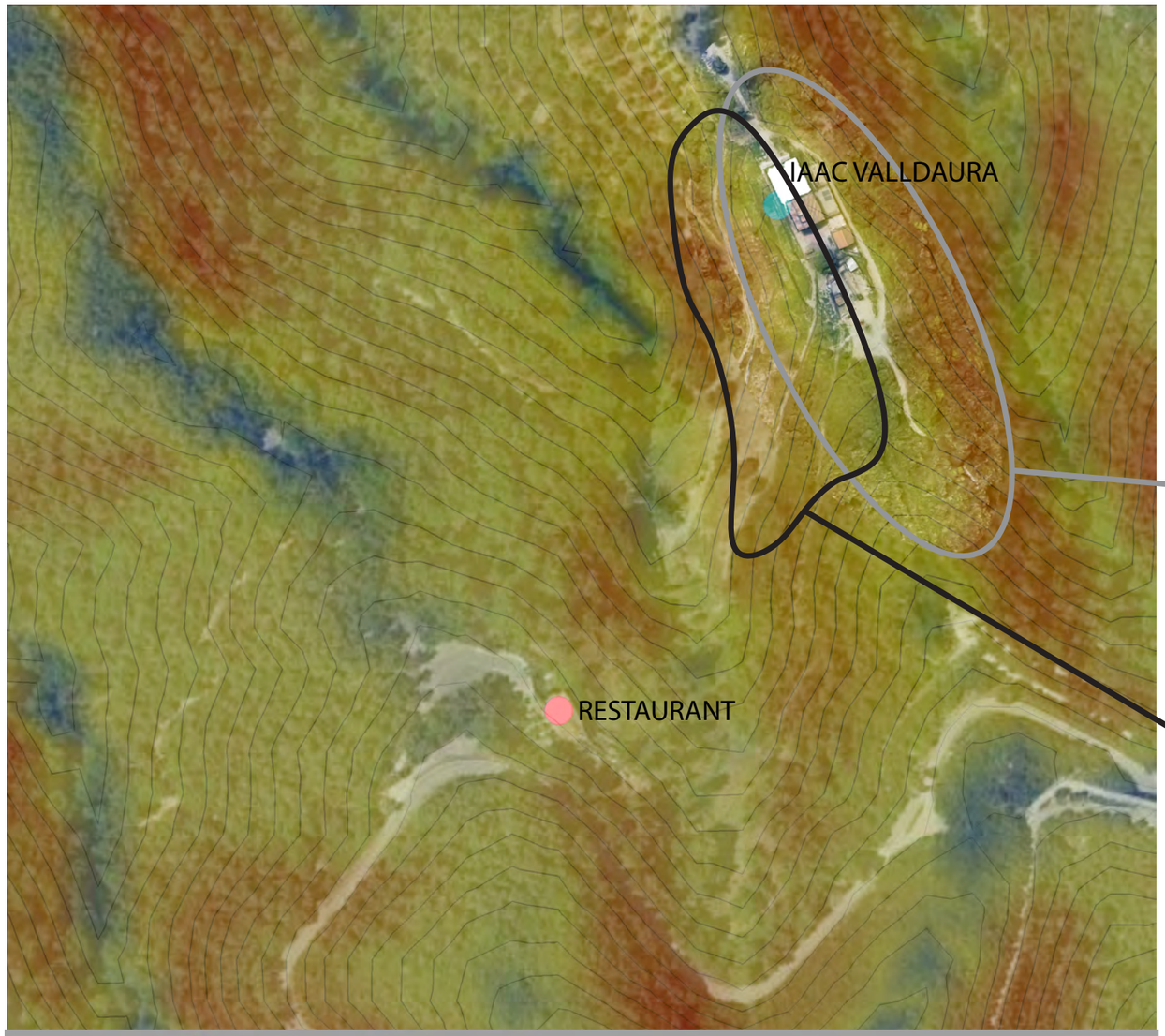


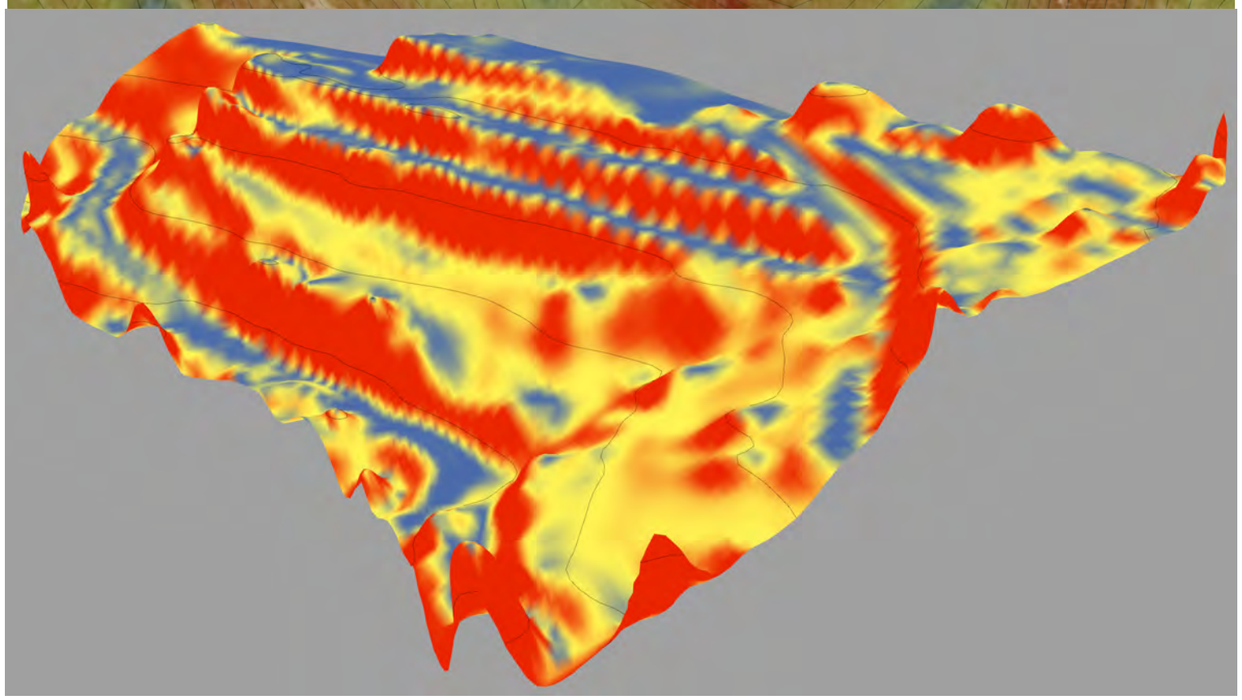


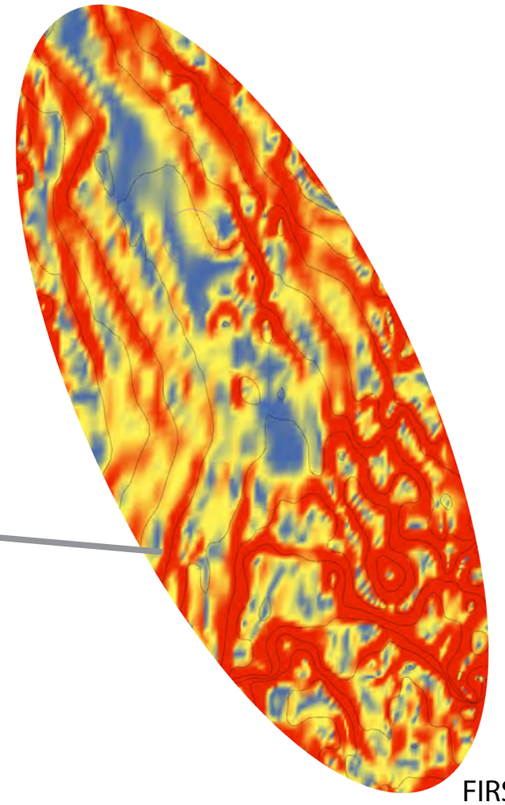
FIRST ANALYSED AREA



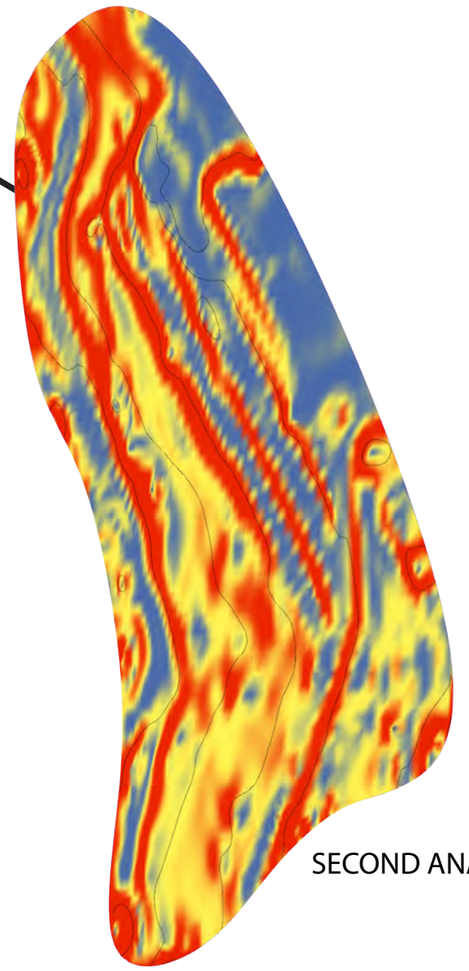
SECOND ANALYSED AREA







FIRST ANALYSED AREA



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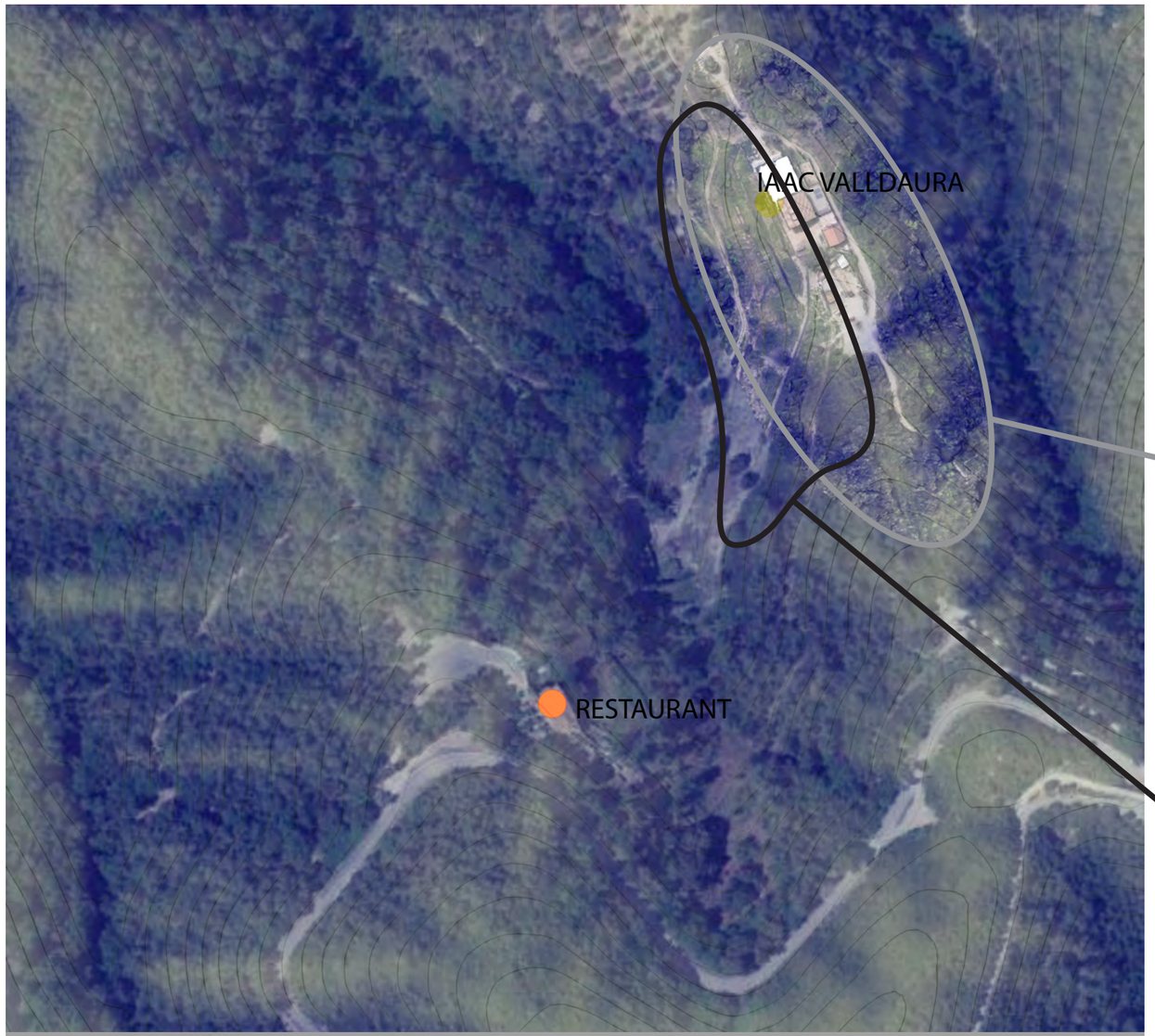

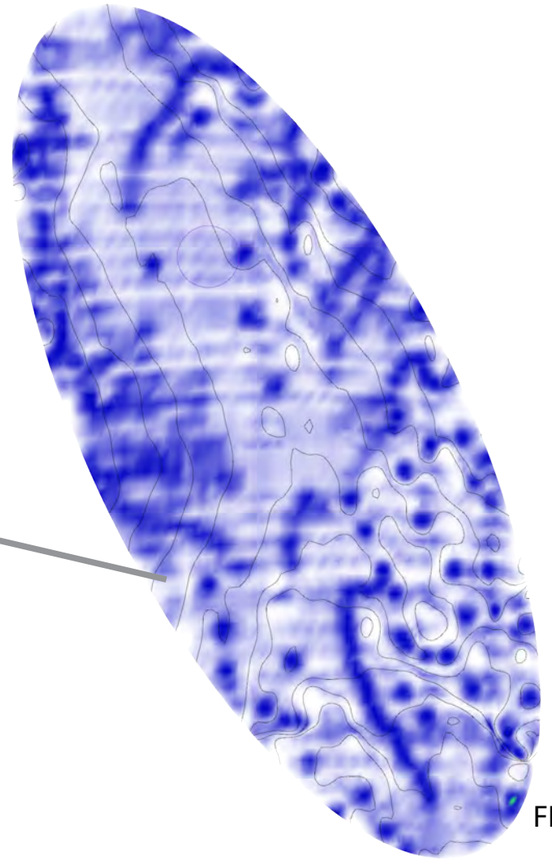

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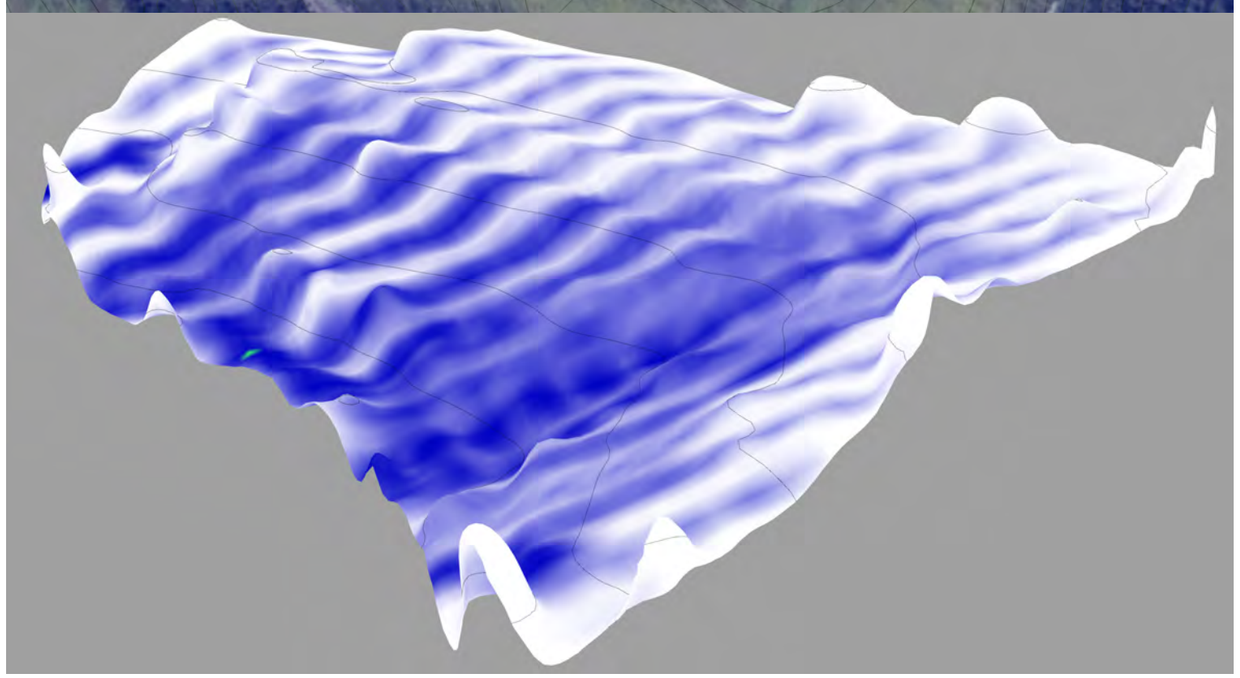
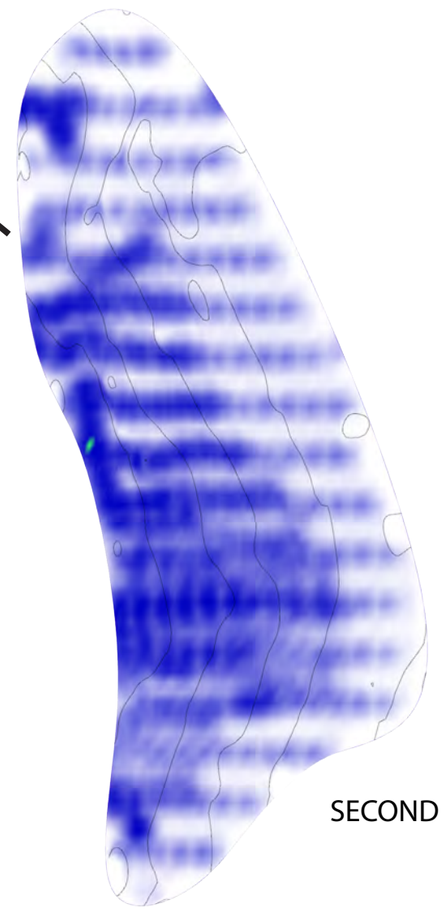
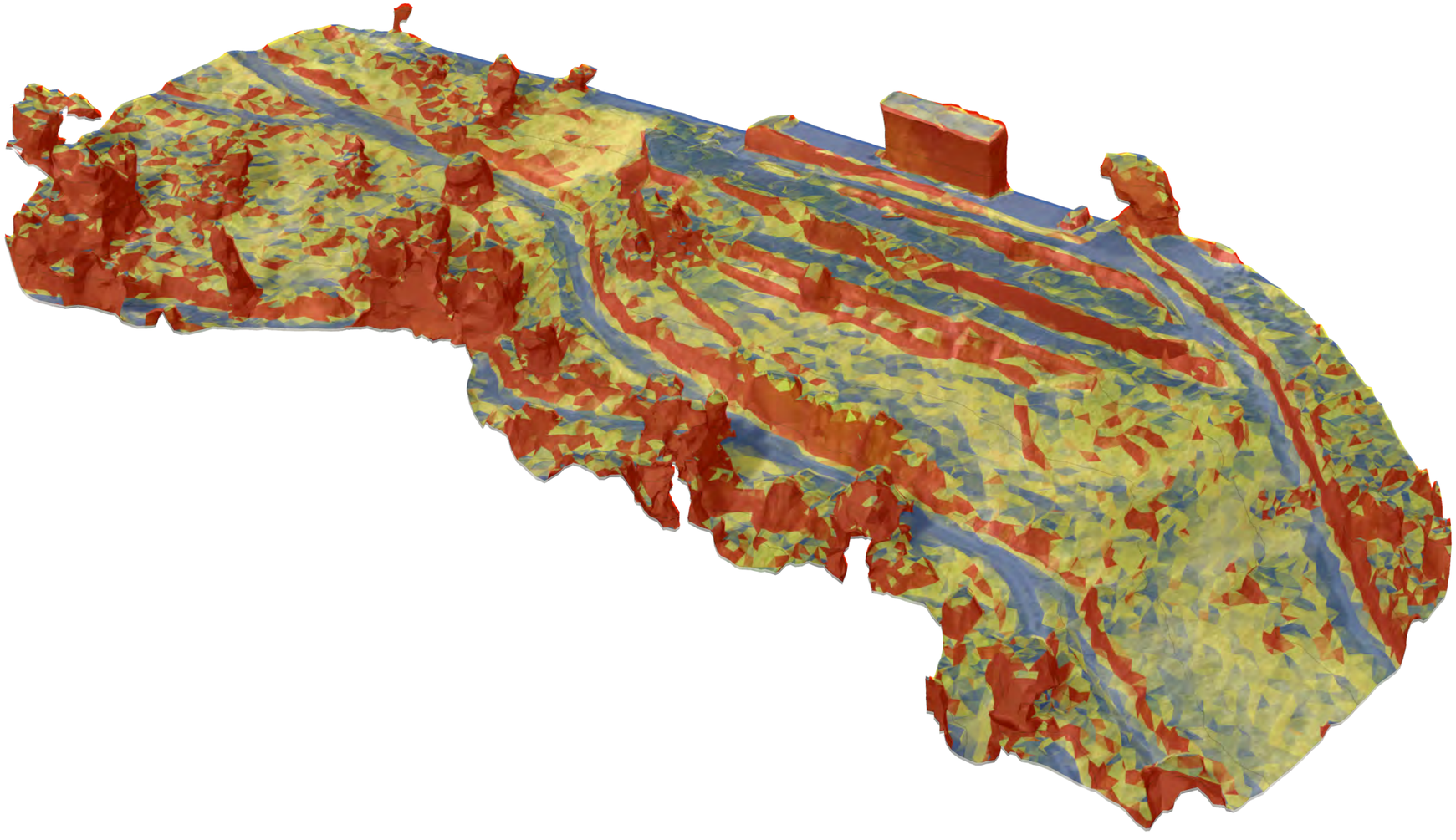


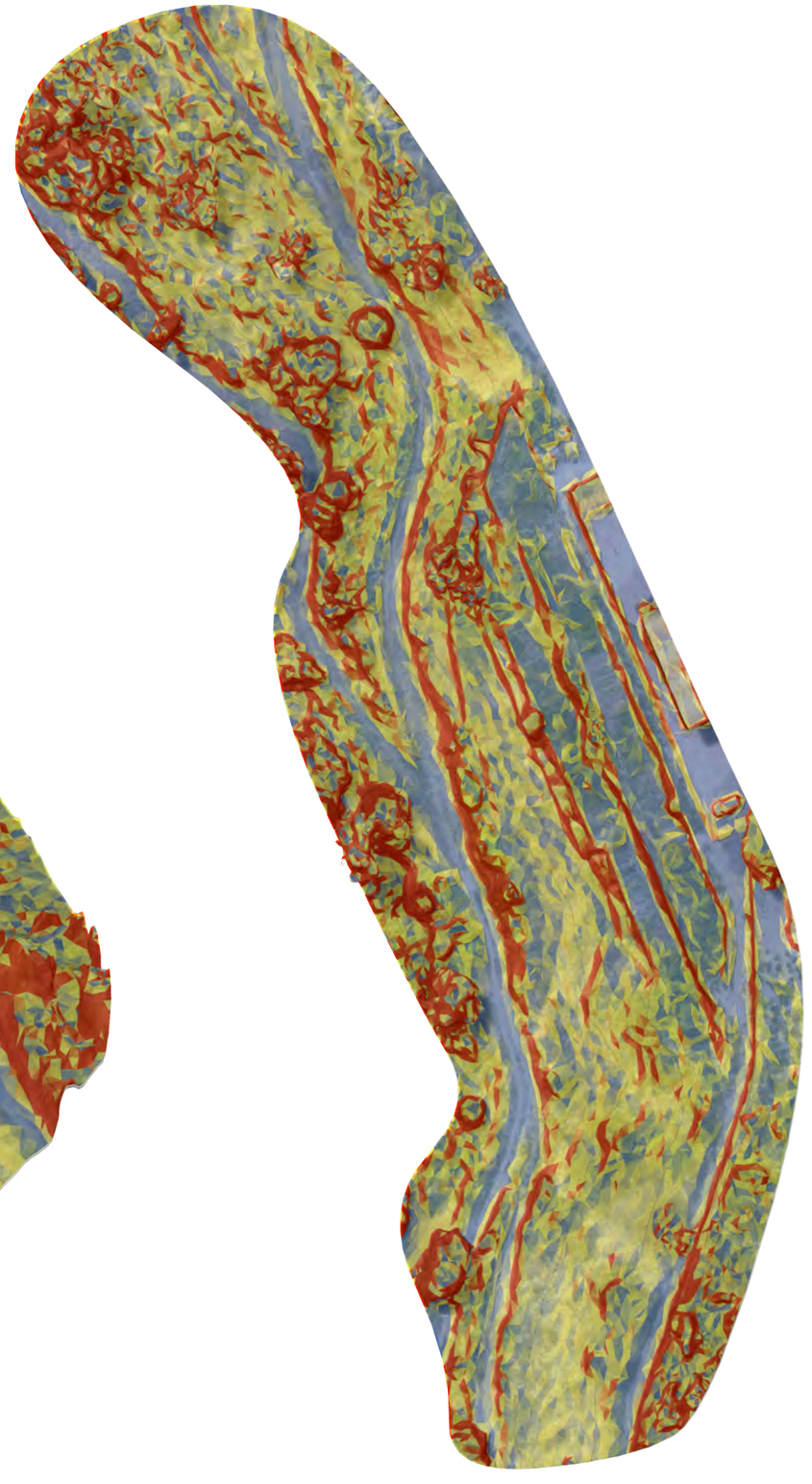


SECOND ANALYSED AREA

DETAILED SLOPE ANALYSIS OF THE TERRAIN

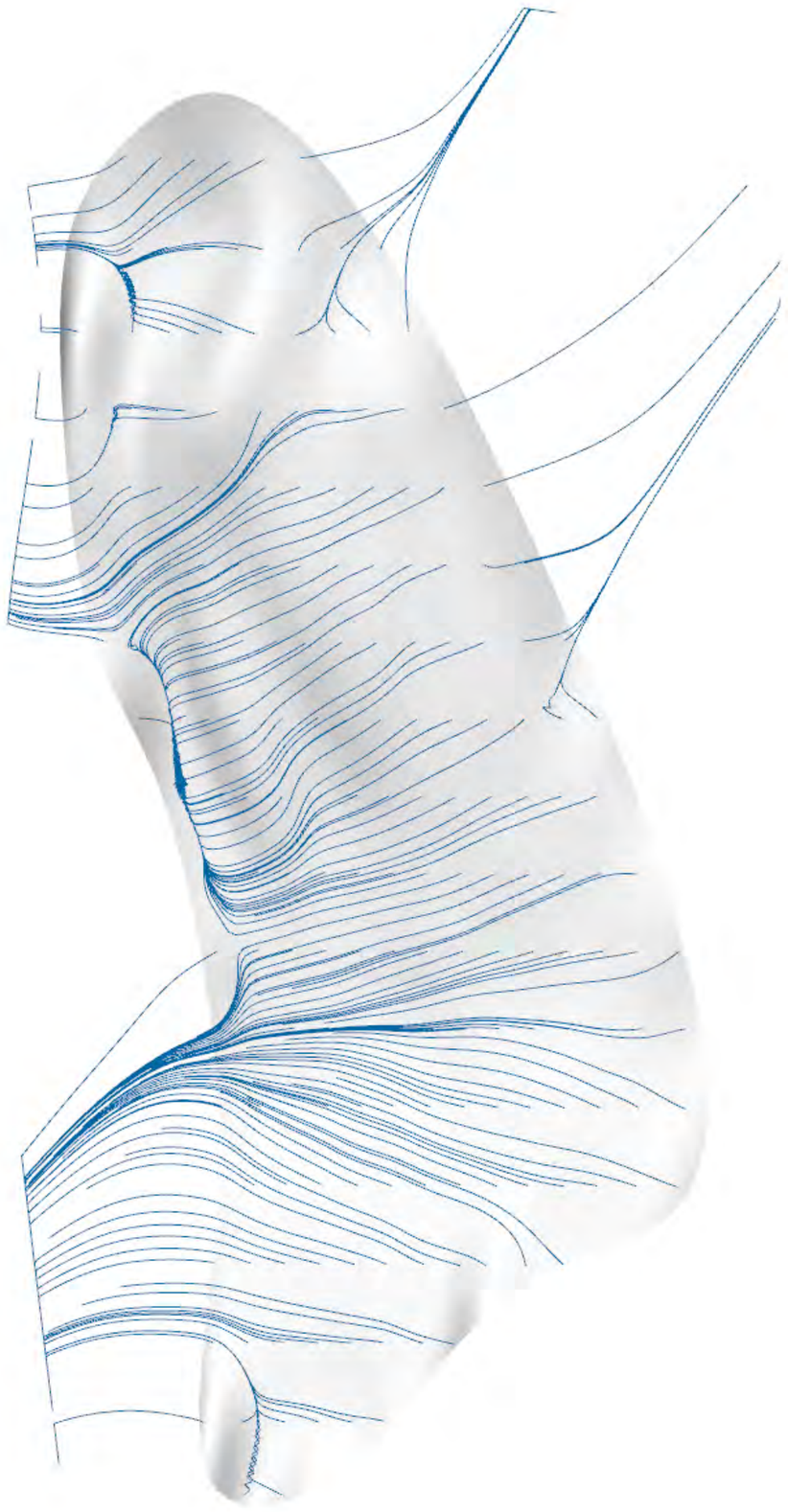


PERSPECTIVE



TOP VIEW

CONTROLLED WATERFLOW DUE TO
TERRAIN MANIPULATION



MODIFIED TERRAIN