

Assignment 9

Group Name- MinTech
Enthusiasts

Group Members:-

Abhishek Sawargave 20JE0035

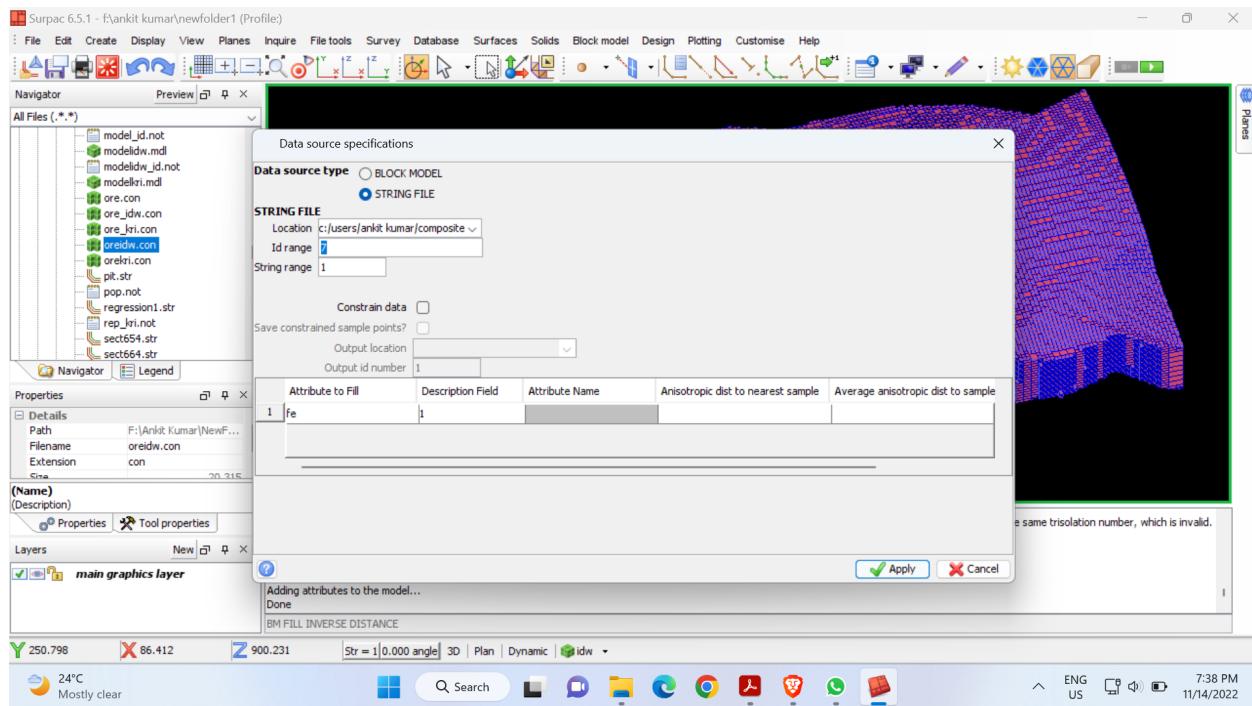
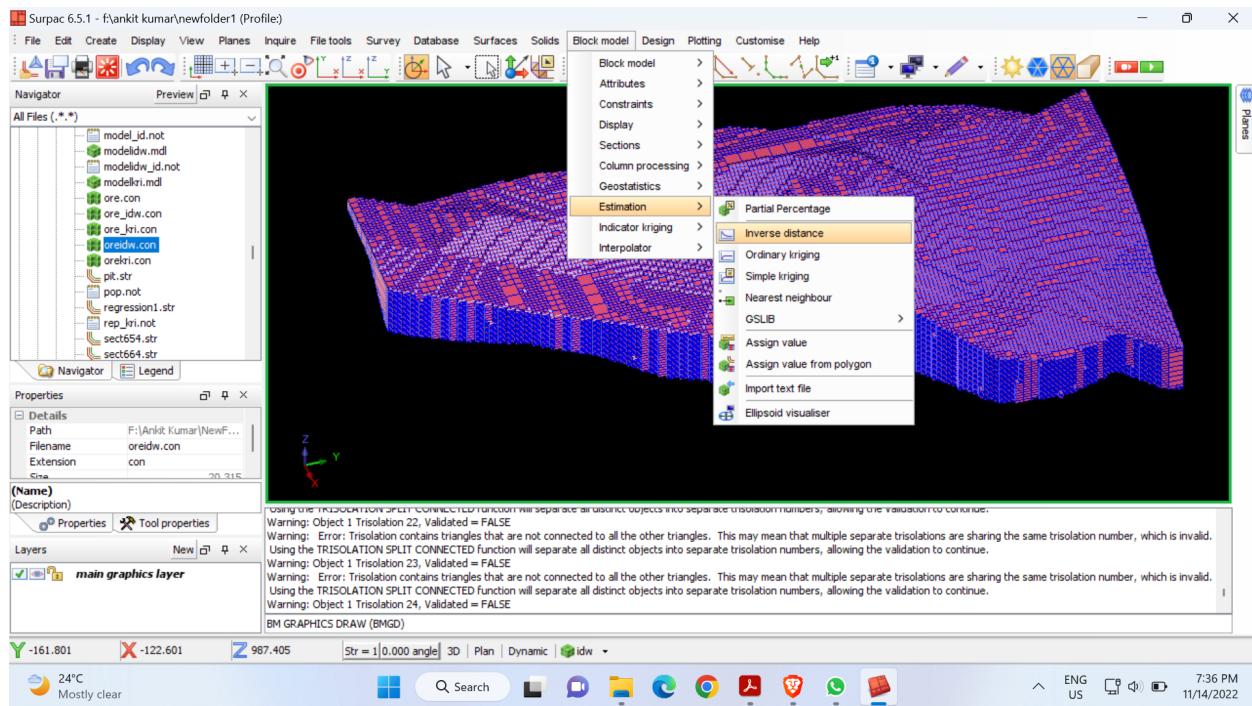
Ankit Kumar Mondal 20JE0146

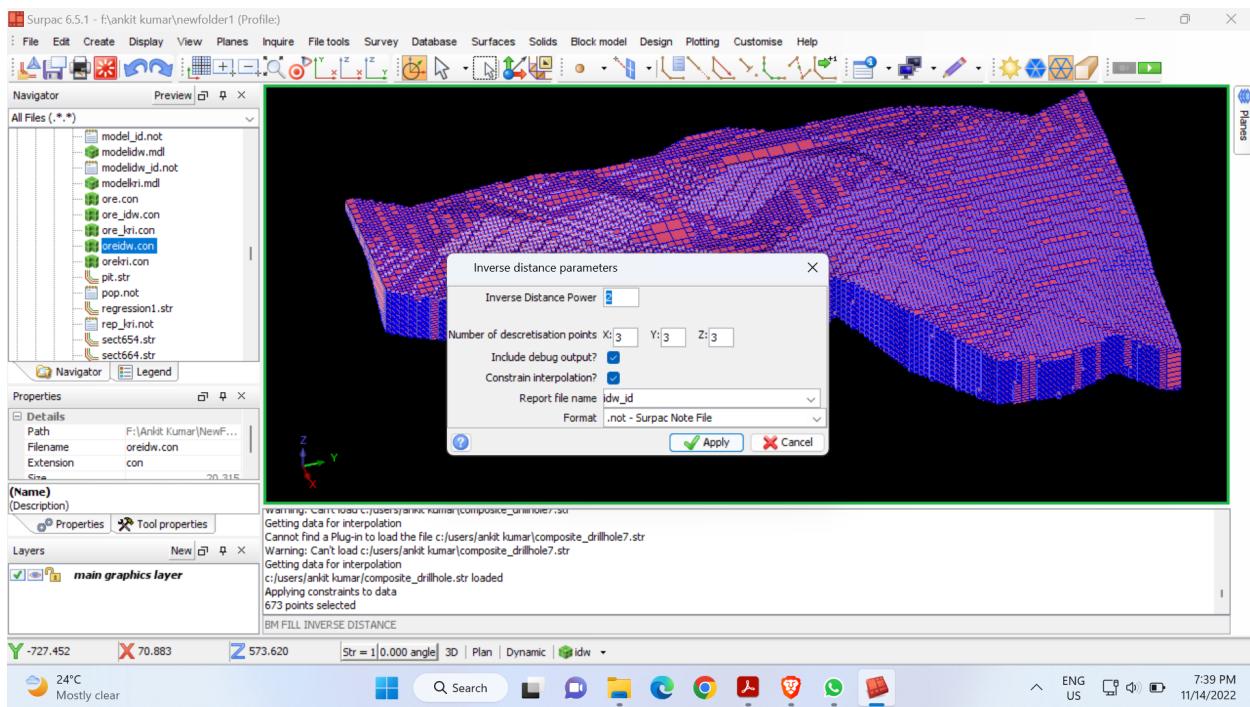
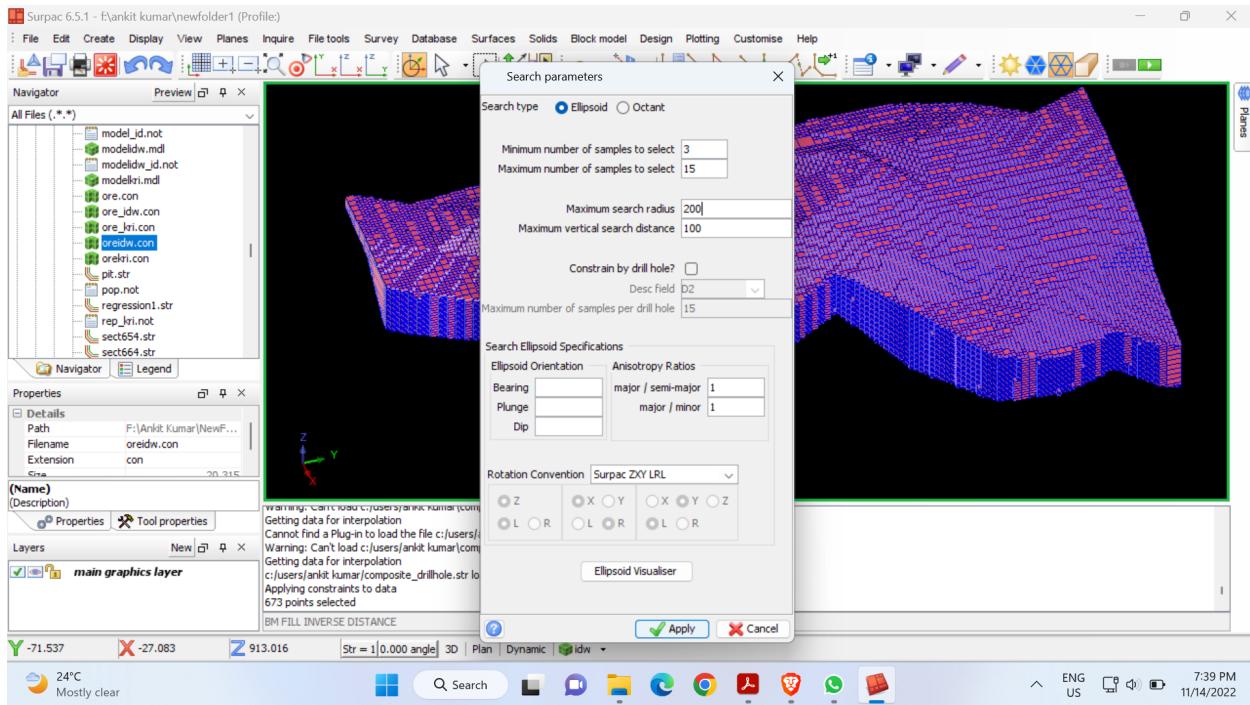
Ankit Kumar 20JE0145

Akash Chand 20JE0078

COMPARISON OF KRIGING AND IDW

1. Perform IDW by clicking on Block Model -> Estimation -> Inverse Distance
2. Choose the compositing string file
3. Fill the search parameters
4. Choose Inverse distance Parameters



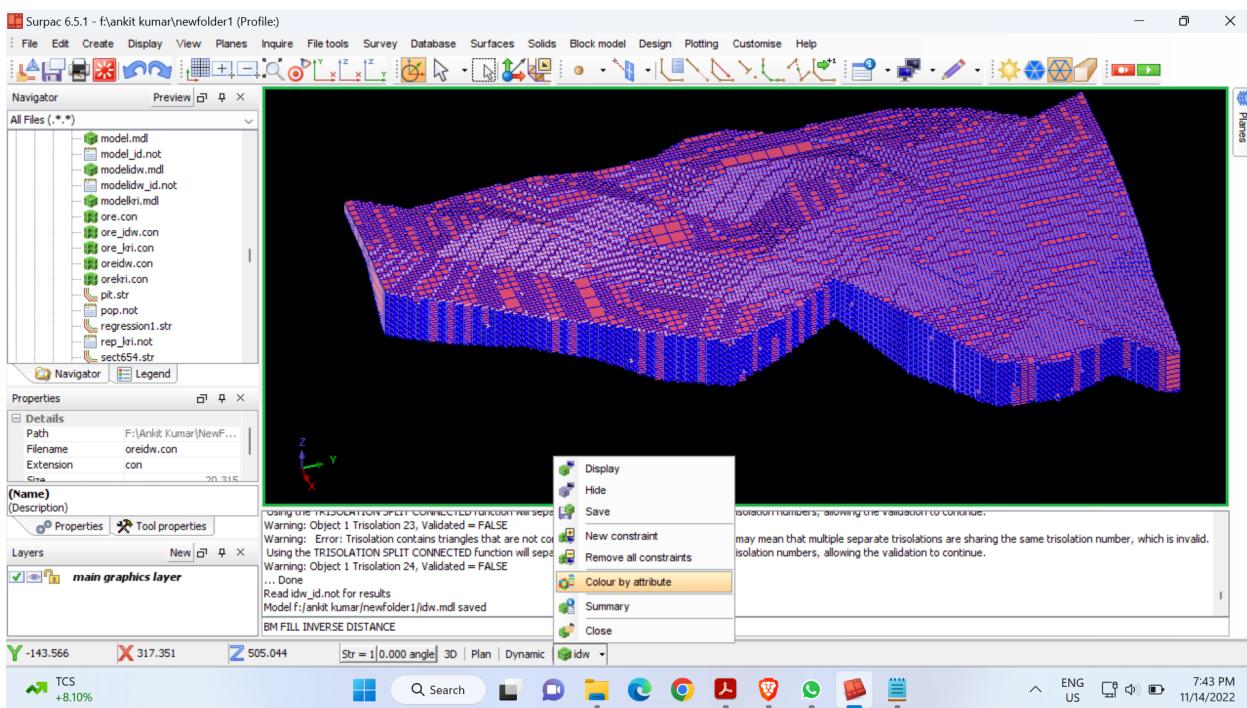


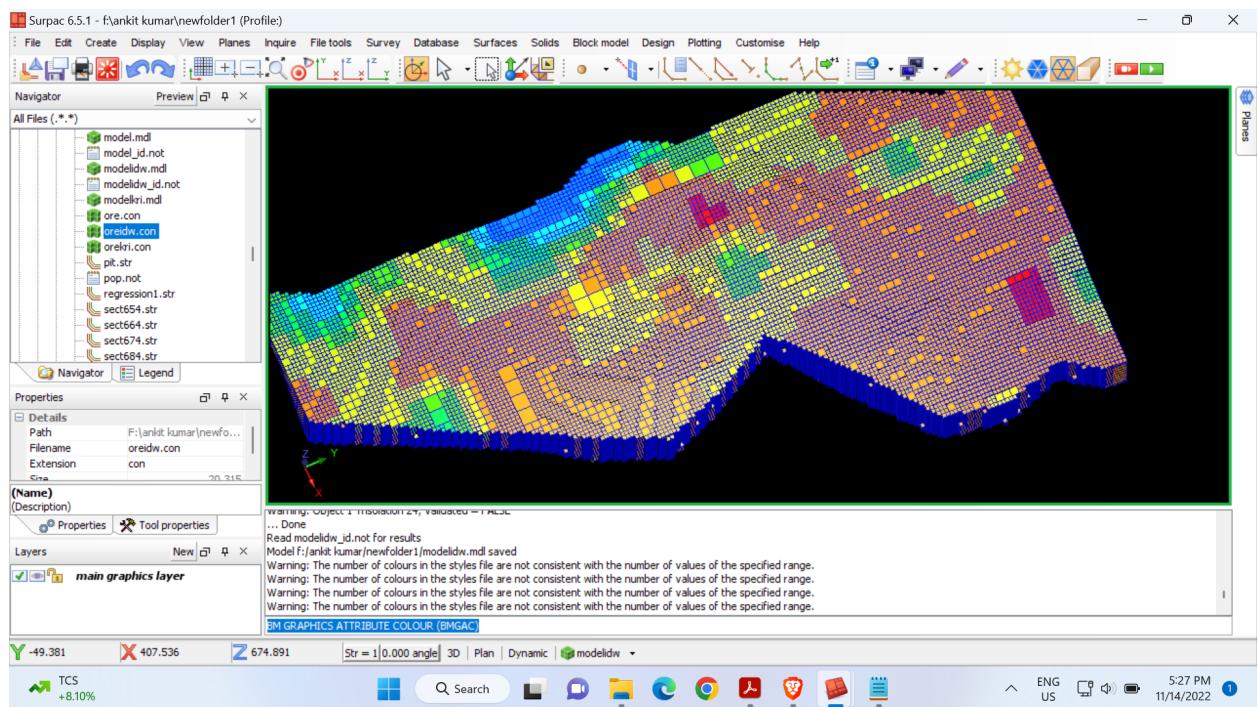
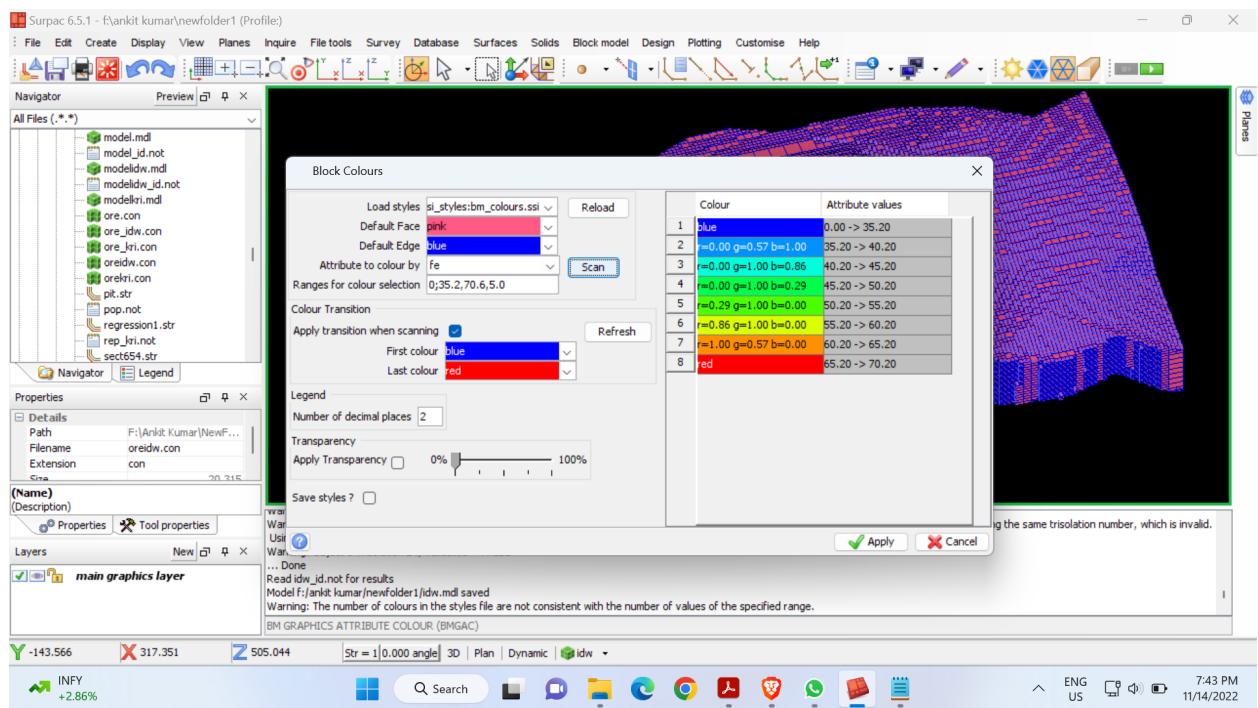
IDW report

```
idw_id.not - Notepad
File Edit View
MODEL NAME : idw.mdl
CONSTRAINT VALUES USED
Data Constraints
    Unconstrained
Model Constraints
    Constraint File : idw_ore.con
SEARCH PARAMETERS
ROTATION CONVENTION
    Surpac ZXY LRL
ANGLES OF ROTATION
    First Axis      0.00
    Second Axis     0.00
    Third Axis      0.00
ANISOTROPY FACTORS
    Semi-major axis 1.00
    Minor axis       1.00
OTHER INTERPOLATION PARAMETERS
Max search distance of major axis      200.000
Max vertical search distance          100.000
Maximum number of informing samples    15
Minimum number of informing samples     3

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DEBUGGING OUTPUT
Ln 33, Col 52
TCS +8.10%  Search  File  Survey  Database  Surfaces  Solids  Block model  Design  Plotting  Customise  Help  100%  Windows (CRLF)  UTF-8
ENG US  7:42 PM  11/14/2022
```

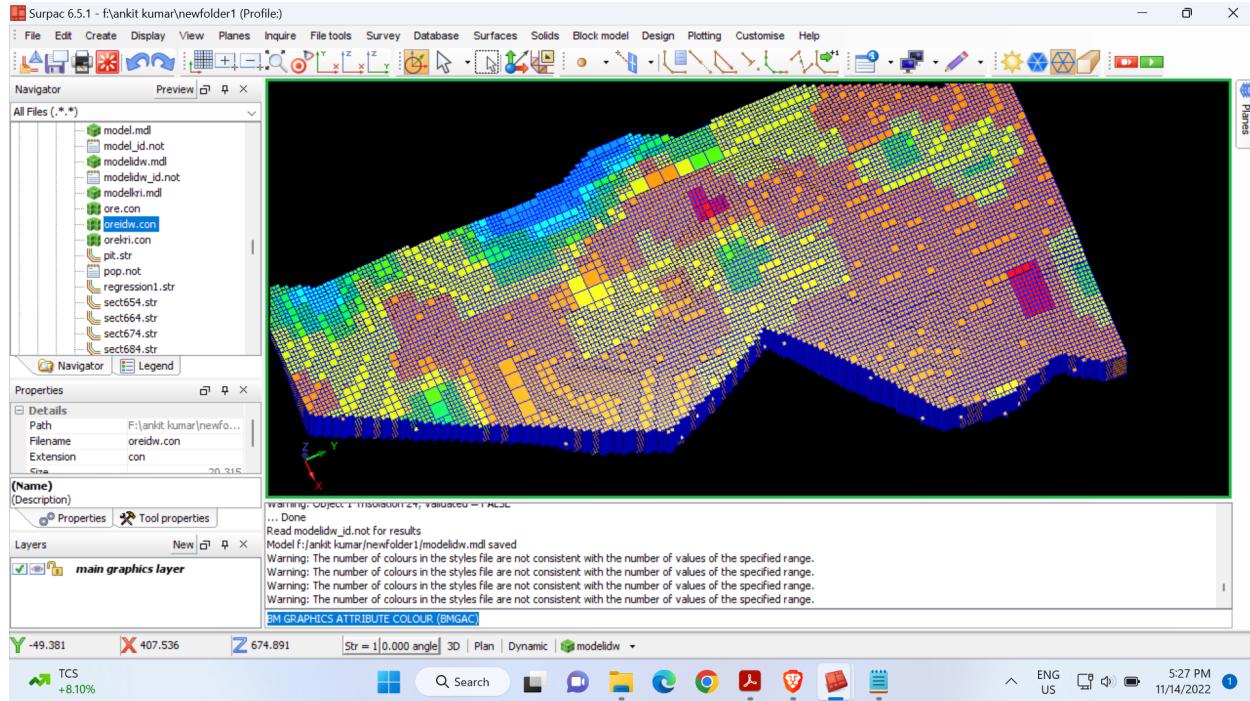
Choose colour by attribute



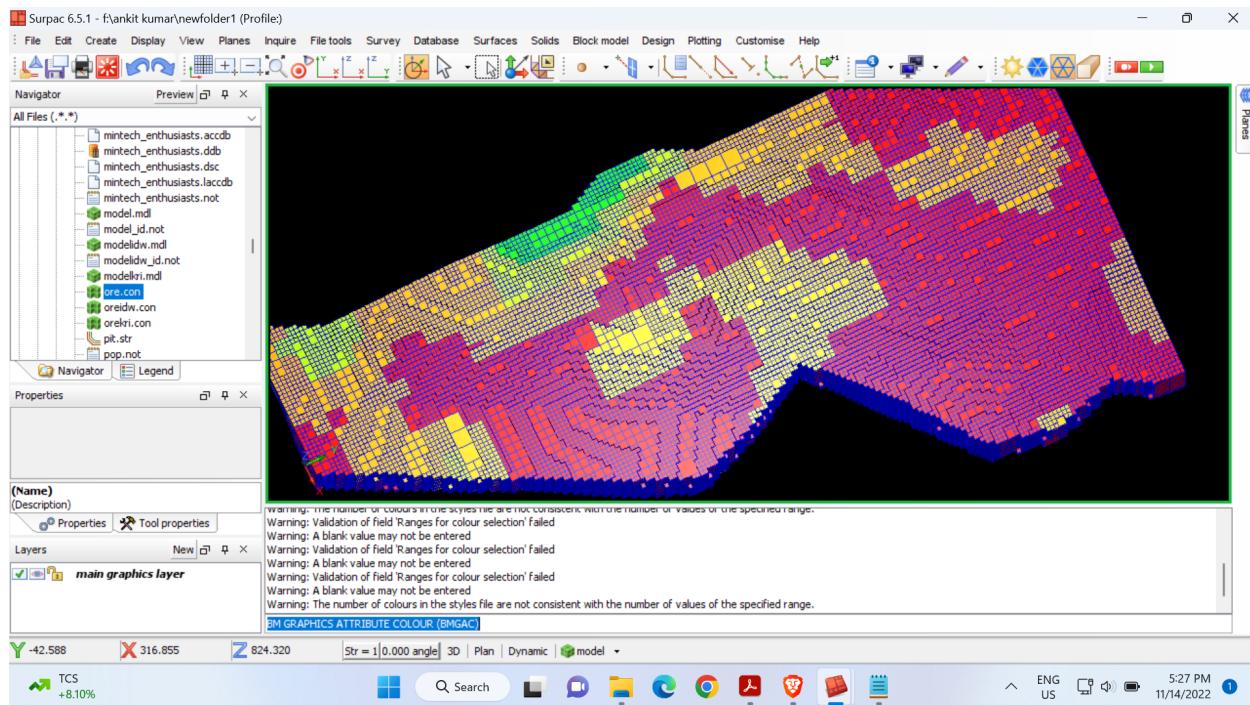


1. The Total Ore Body is coloured according to the grades of respective blocks

a) By Inverse Distance Weighted (IDW) method.

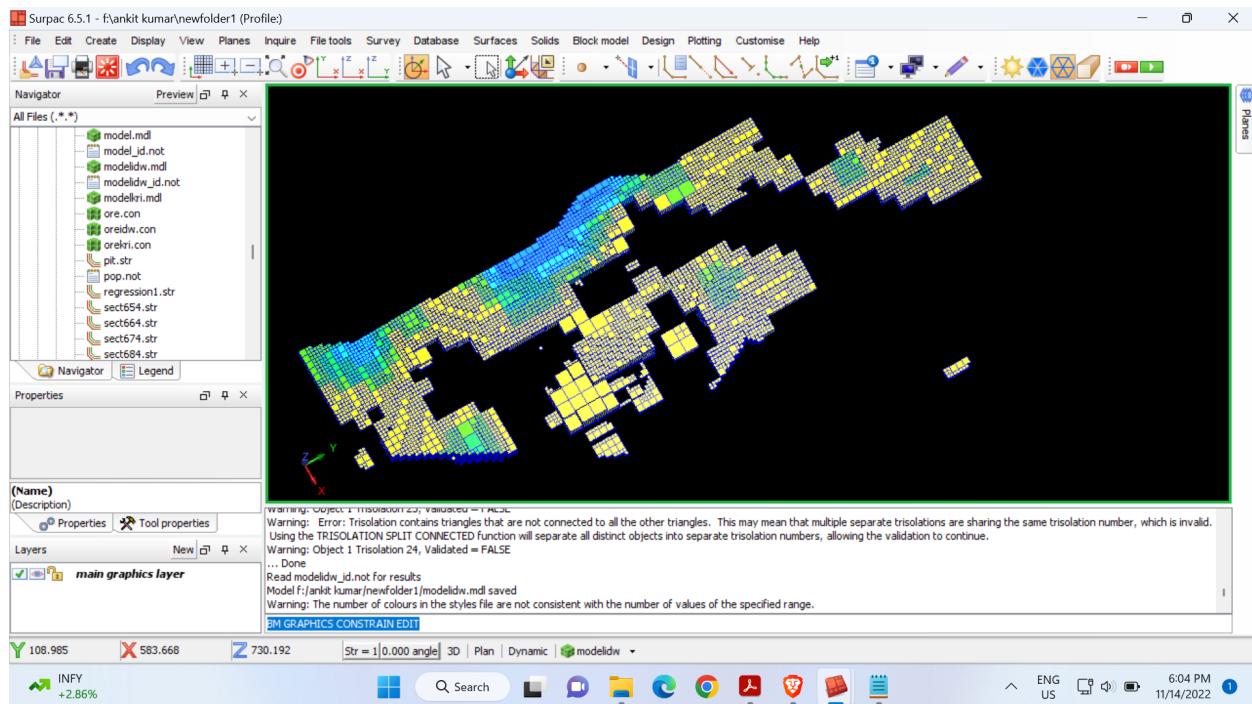


b) By Kriging

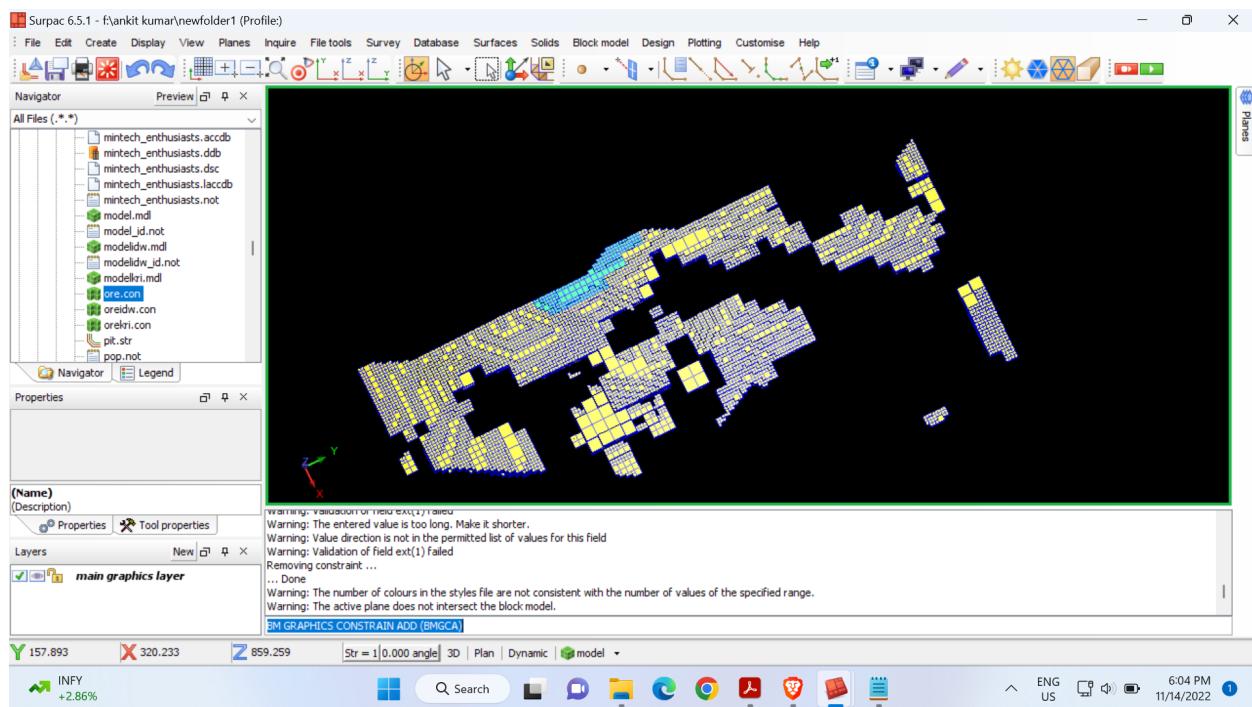


2. The Medium and Low-grade (< 60) ore is represented by the below images.

a) By Inverse Distance Weighted (IDW) method.

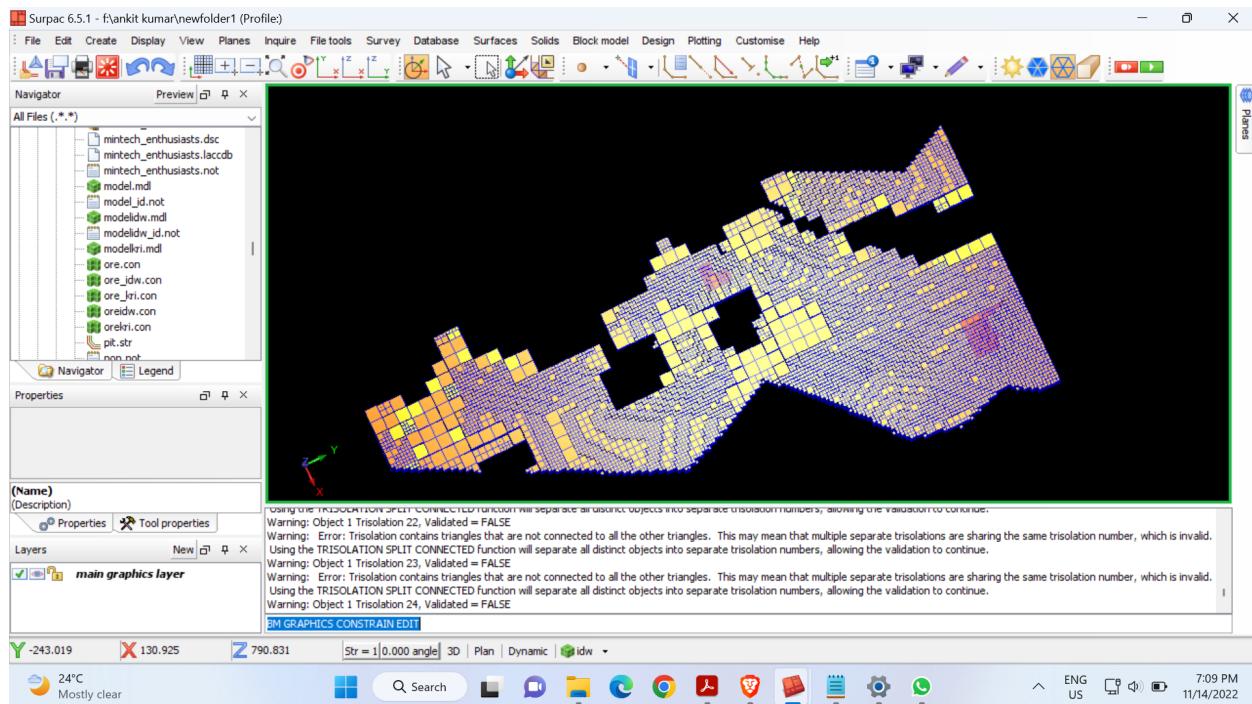


b) By Kriging

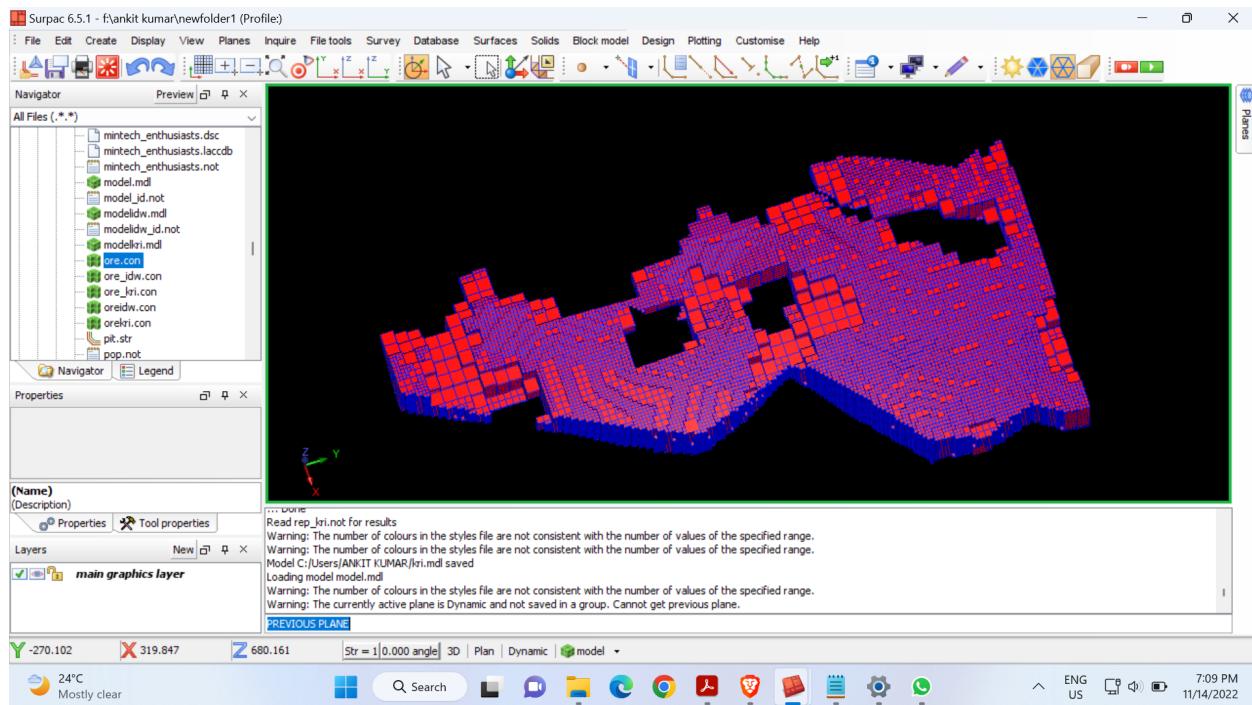


3. The High Grade (> 60) of the total ore body is represented by the below images

a) By Inverse Distance Weighted (IDW) method.



b) By Kriging



The Following data represents volume and average grade of the ore body based on two methods :

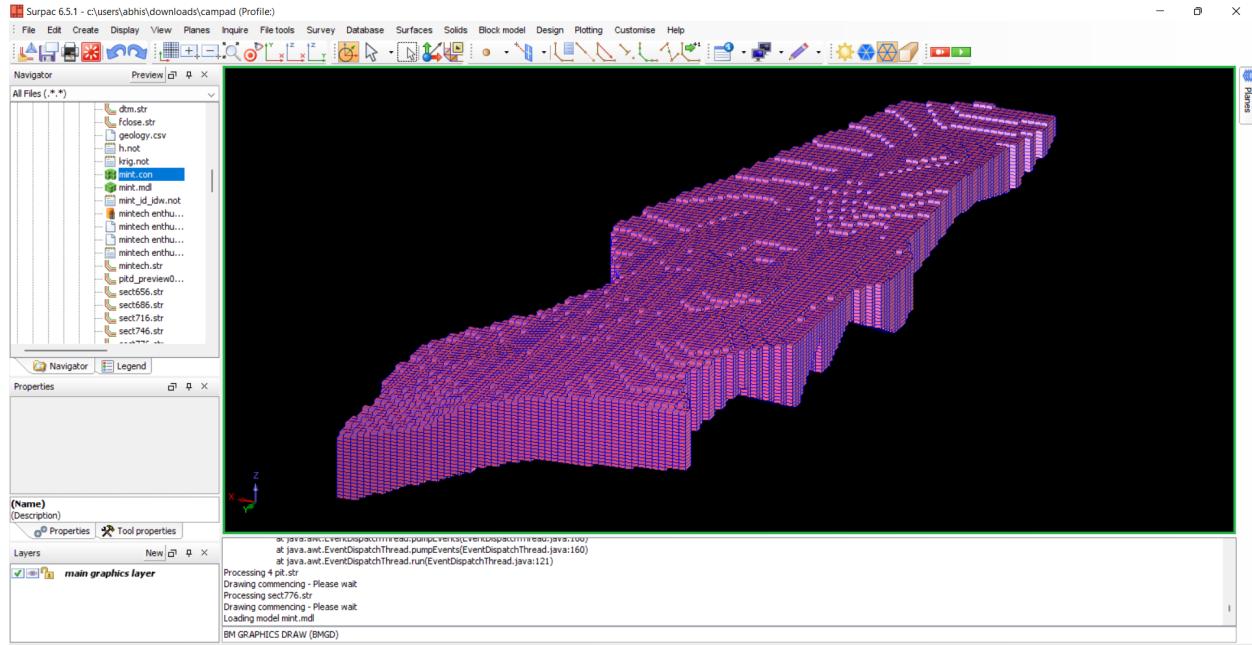
Method used	Volume of ore body for grade > 60	Volume of ore body for grade < 60	Volume of whole ore body
IDW	20971533	7631556	28603089
Kriging	20033123	8569966	28603089

Method used	Average grade of ore body for grade > 60	Average grade of ore body for grade < 60	Average grade of whole ore body
IDW	62.86	55.12	56.78
Kriging	62.45	56.23	57.41

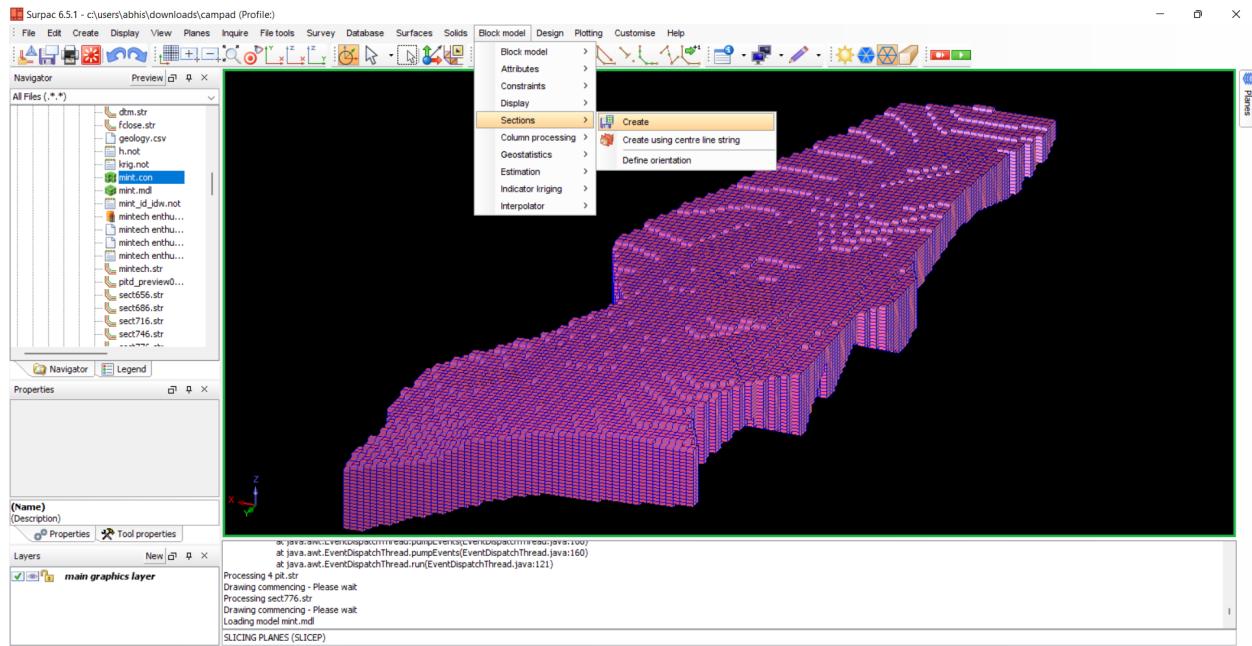
As we can see there is a slight variation in the grade as well as volume values calculated using both the methods, with kriging providing a better and more precise result as compared to IDW.

Ultimate Pit Design

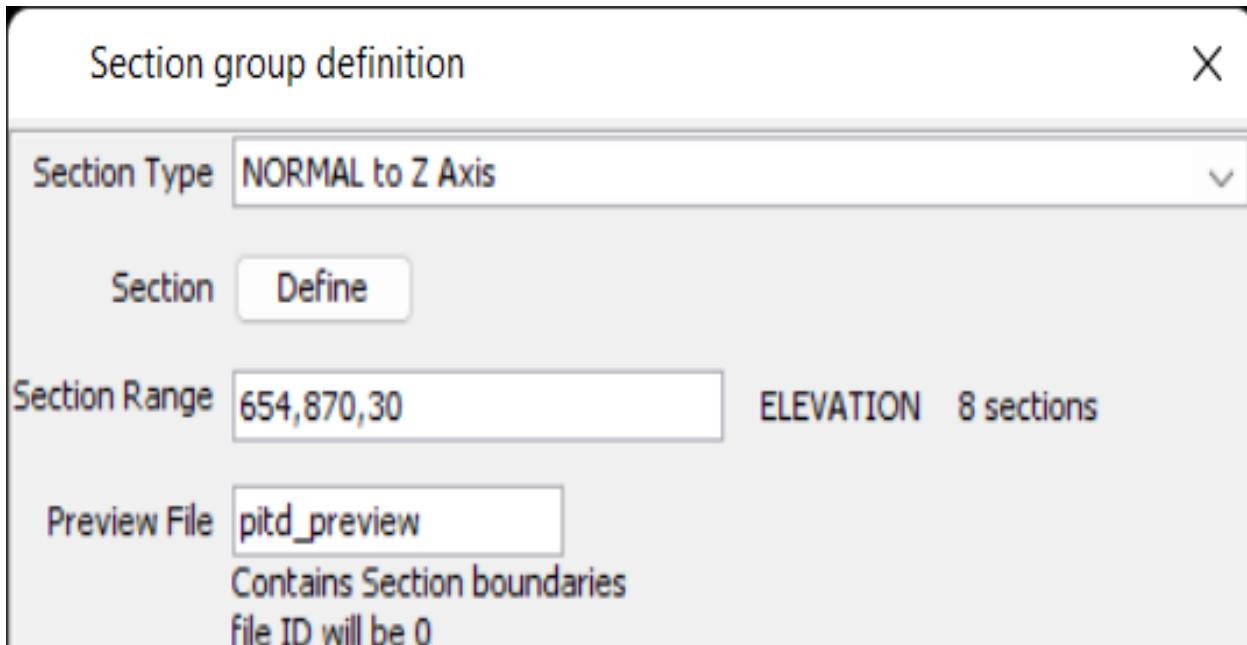
1. Block Model With Constraints



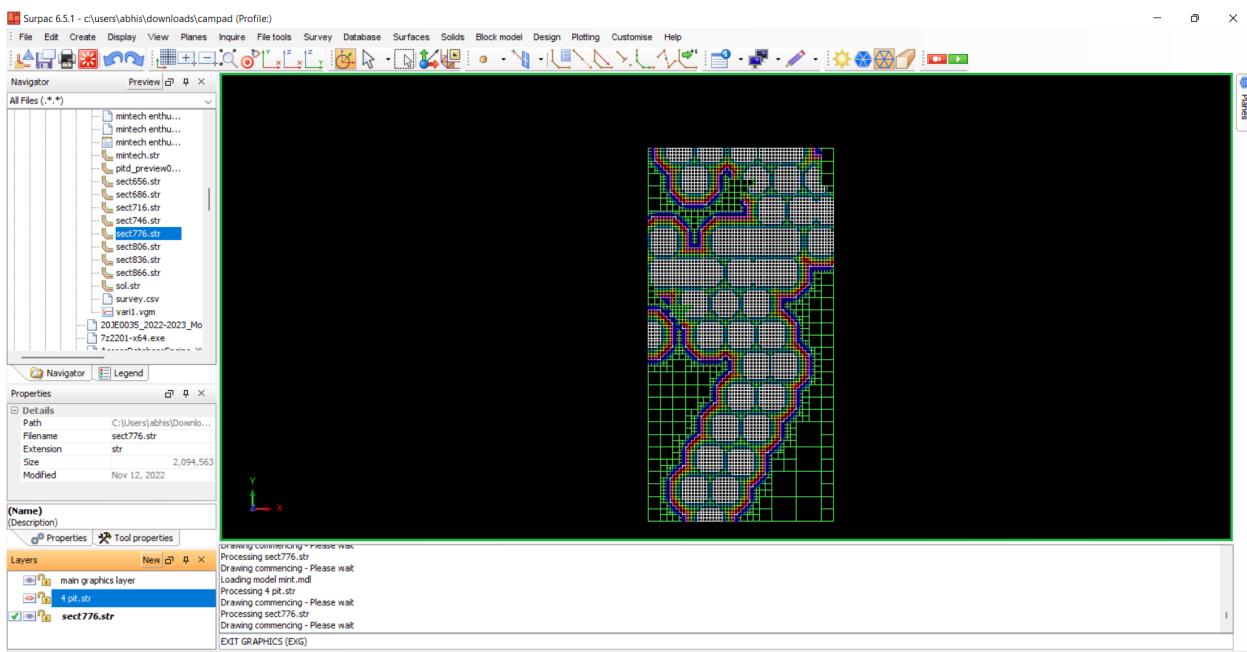
2. Block Model->Sections->Create



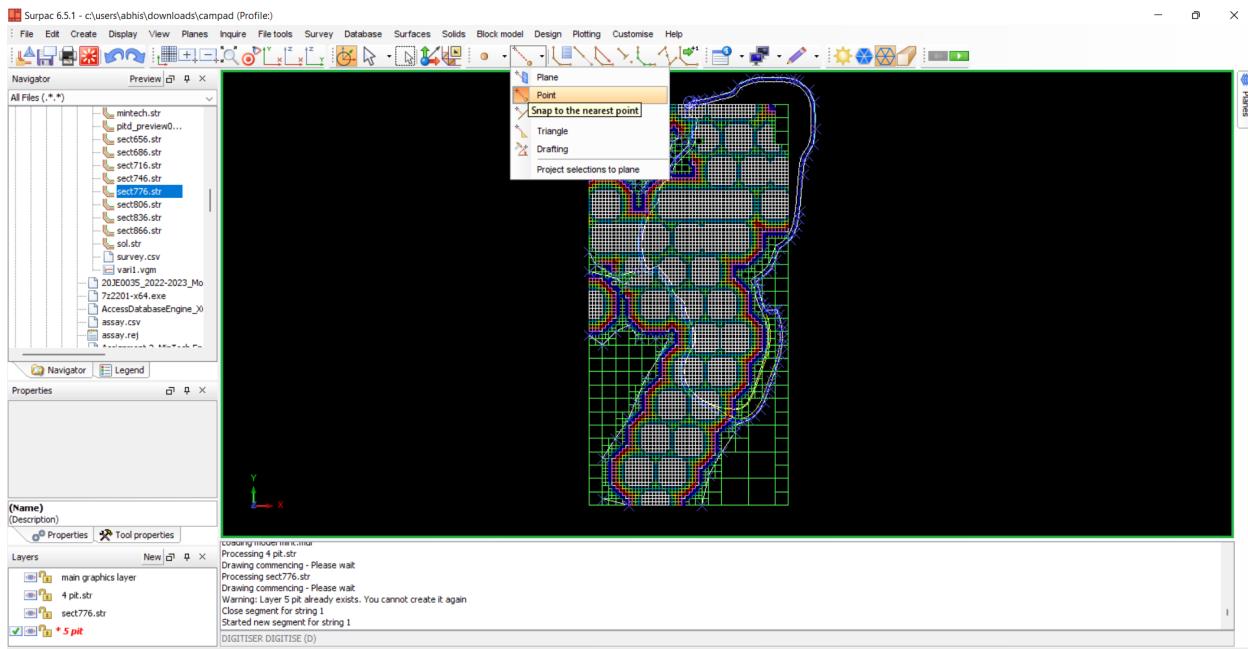
3. Selection of Section Range



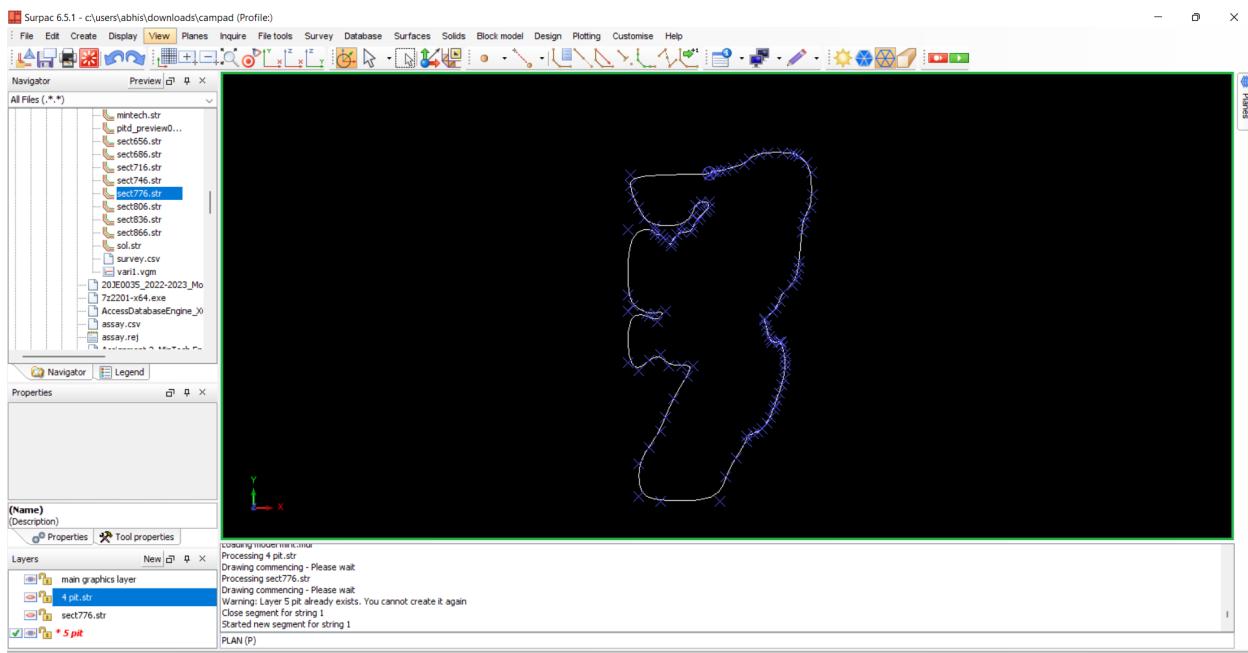
4. Sections Created



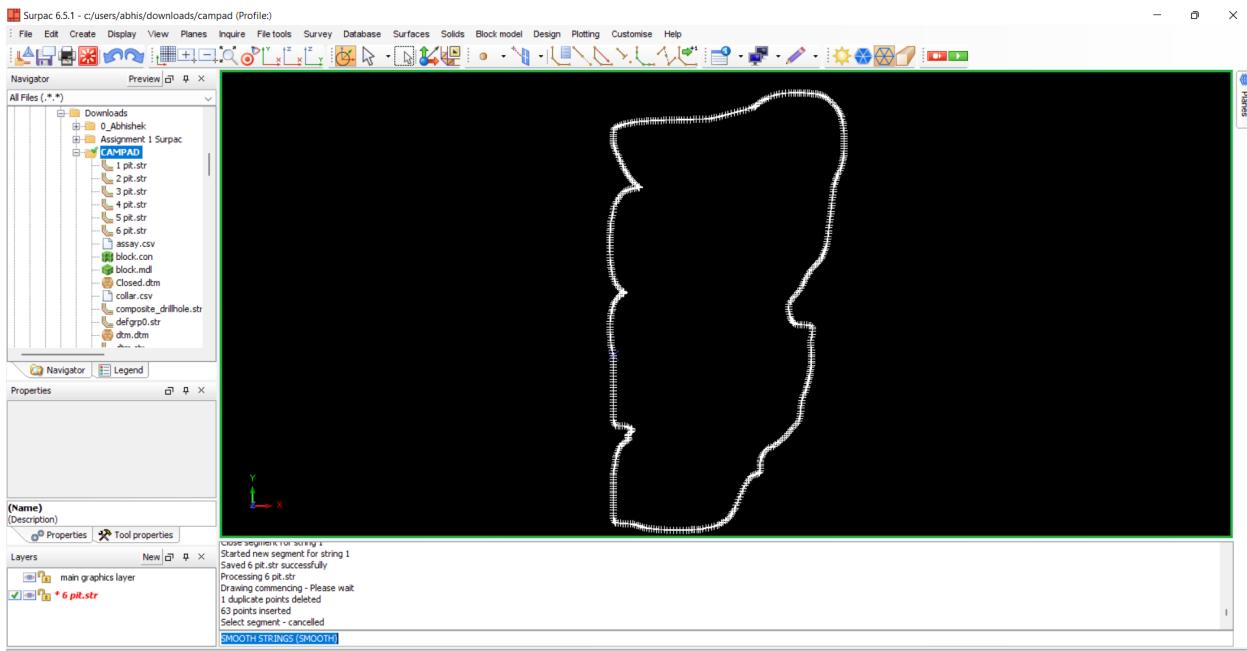
5. To create the boundary according to extent of deposit



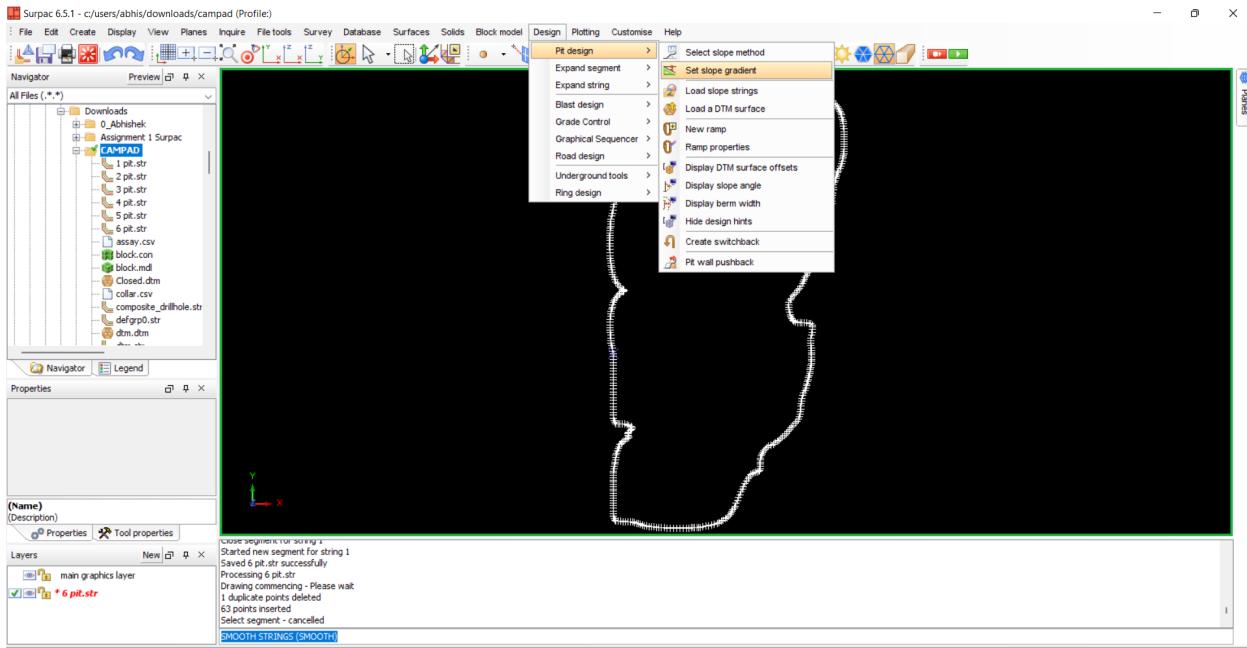
6. String file is created on new layer



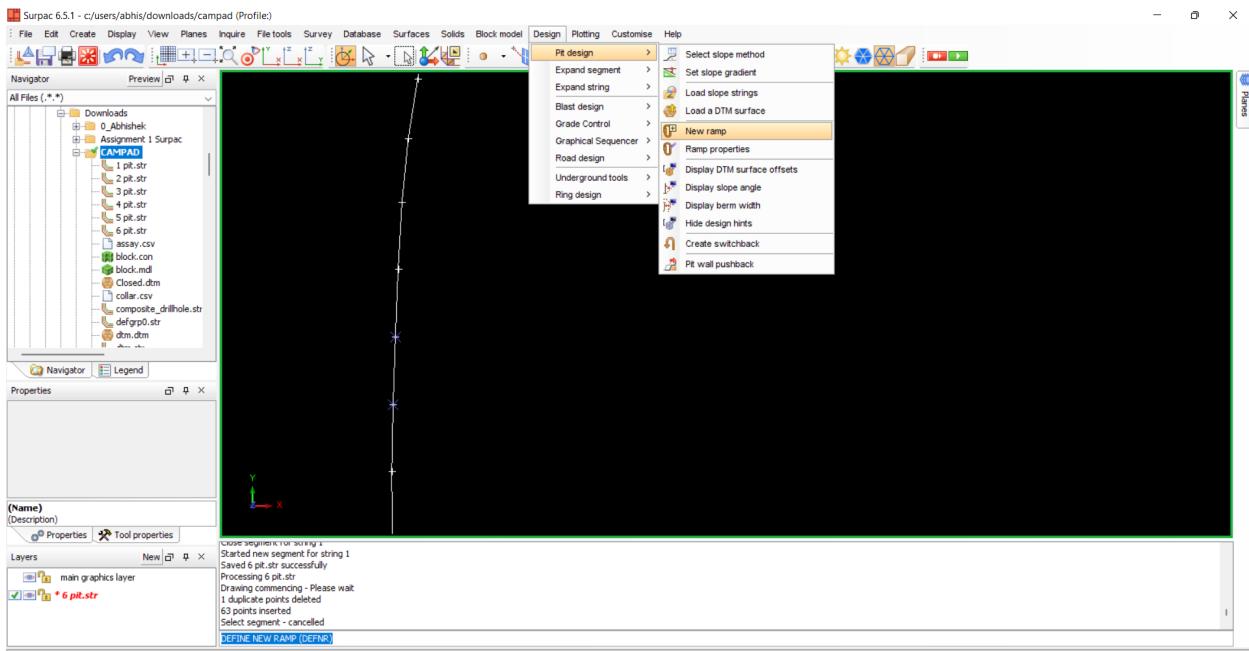
7. Normalize the Segment with 30 as parameter



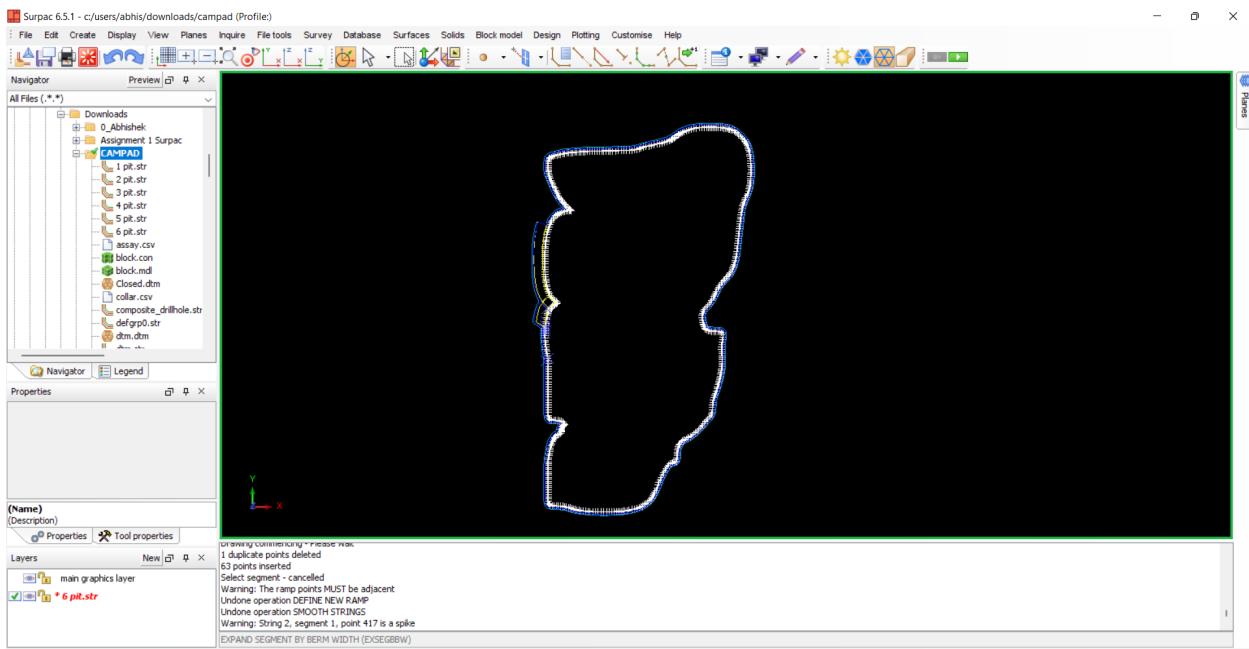
8. Set the slope gradient



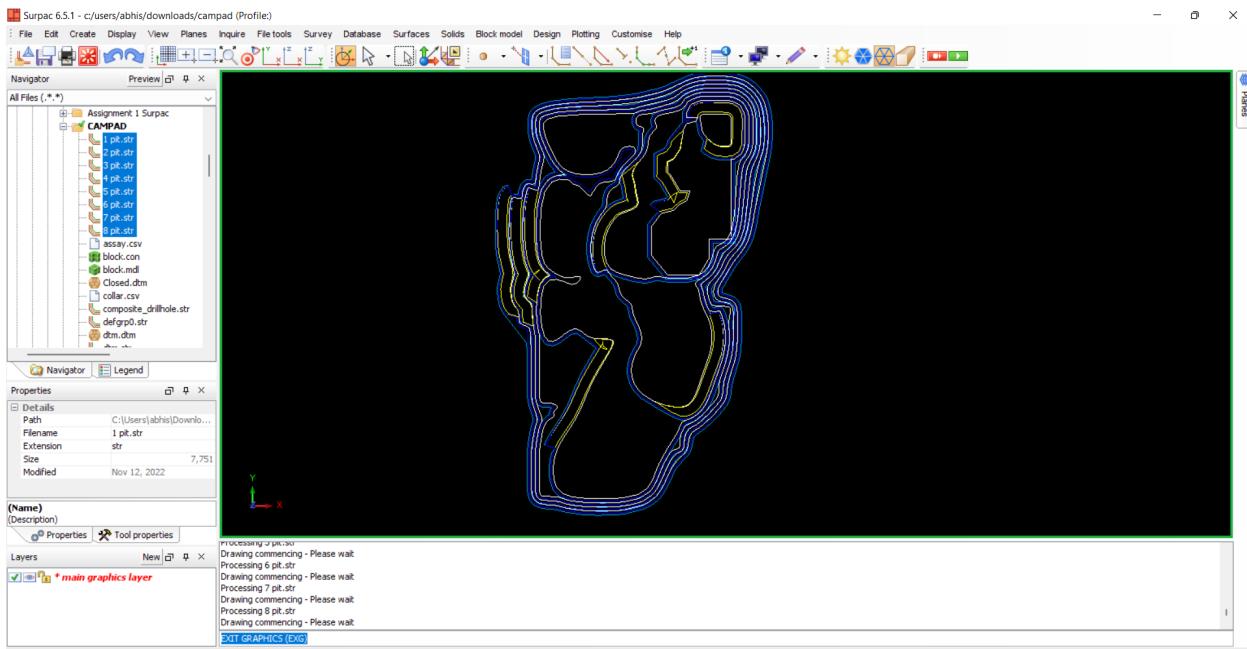
9. Make a new ramp with a ramp width 30m.



10. Expand segment by Bench Height 30m and Berm width 5m



11. Select the string files created by each section



12. Final Pit Design of a mine

