



การใช้ข้อมูลภาพถ่ายทางอากาศในการประเมินปริมาณสำรองแหล่งหิน

MINING AND
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ENGINEERING

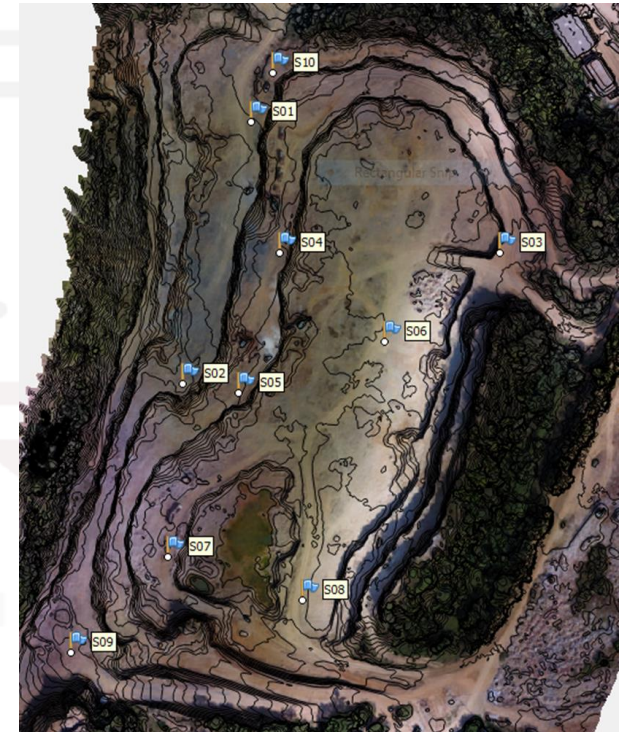
สุทธิเทพ รมยเวศม์

ภาควิชาวิศวกรรมเหมืองแร่และปิโตรเลียม

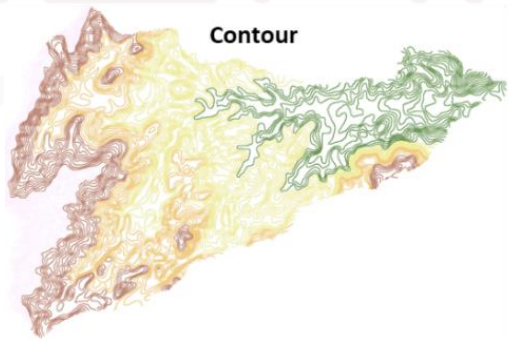
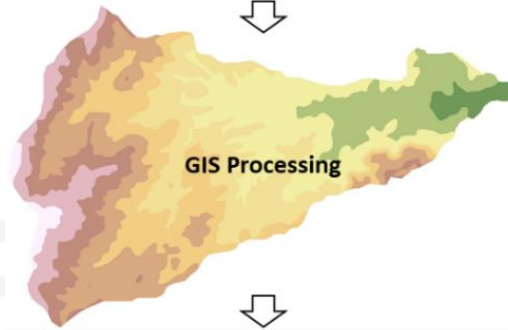
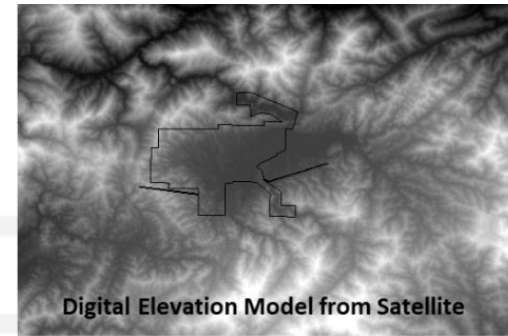
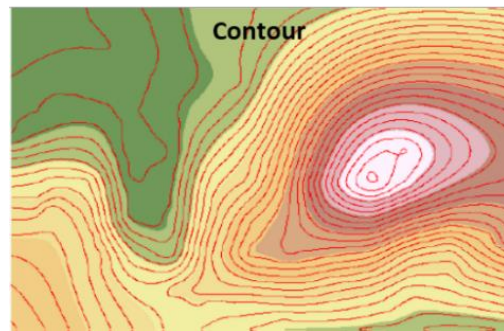
คณะวิศวกรรมศาสตร์ มหาวิทยาลัยเชียงใหม่

แหล่งที่มาของข้อมูลภาพถ่ายทางอากาศในโครงการ

➤ อากาศยานไร้คนขับ (Drone/UAV)

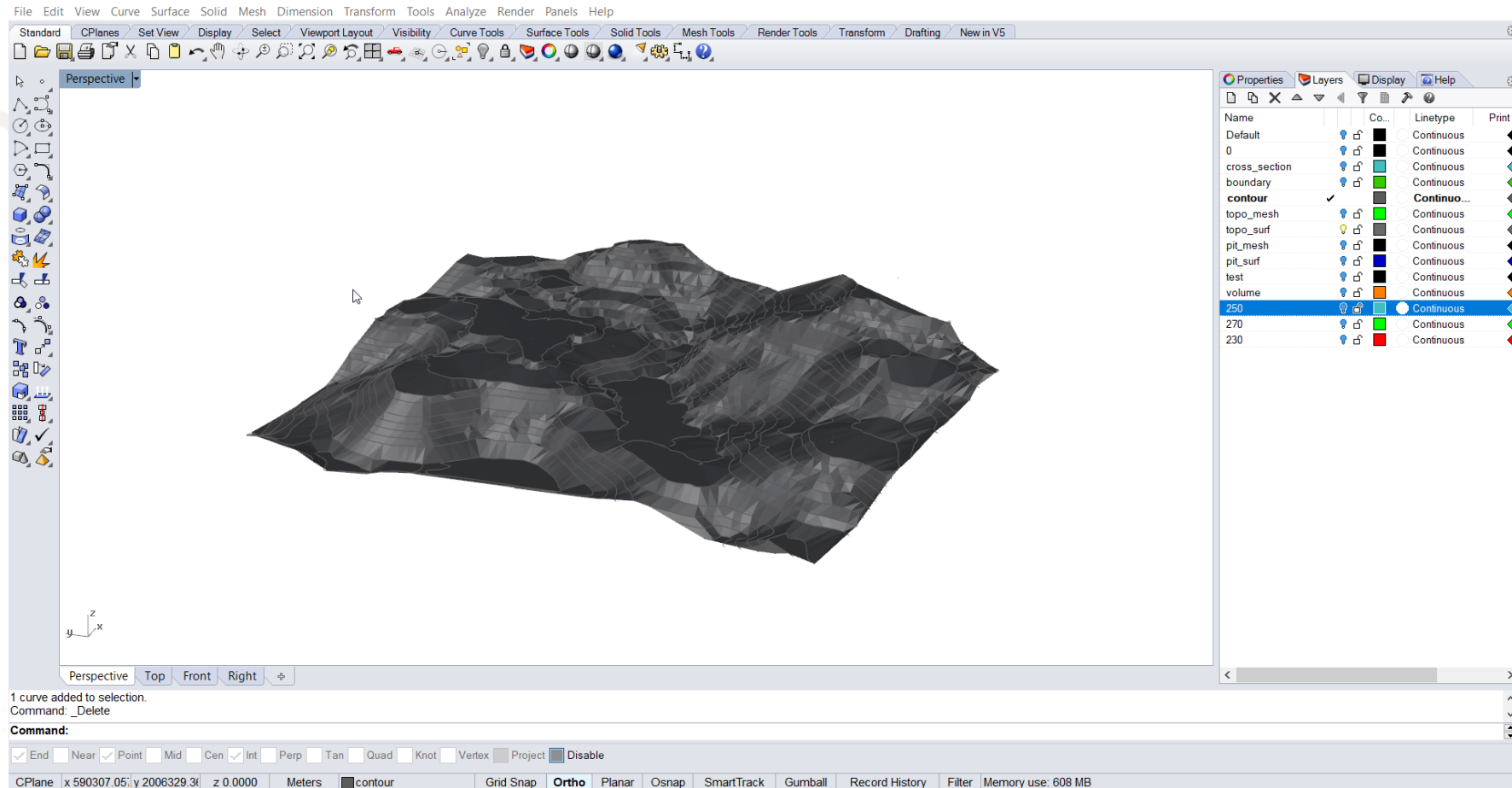


➤ ภาพถ่ายดาวเทียม



ขั้นตอนในการประเมินปริมาณสำรองด้วยโปรแกรม Rhionceros

➤ สร้างพื้นผิวจากเส้นชั้นความสูง





สร้างขอบเขตบ่อเหมือง

The screenshot displays a CAD application window with the following elements:

- Menu Bar:** File, Edit, View, Curve, Surface, Solid, Mesh, Dimension, Transform, Tools, Analyze, Render, Panels, Help.
- Toolbars:** Standard, CPlanes, Set View, Display, Select, Viewport Layout, Visibility, Curve Tools, Surface Tools, Solid Tools, Mesh Tools, Render Tools, Transform, Drafting, New in V5.
- Viewports:** Perspective view showing a 3D model of a mine pit. The pit has a brown top surface and a dark grey mesh bottom. A coordinate system (x, y, z) is visible in the bottom-left corner of the viewport.
- Properties Panel (Right):** A table listing various objects and their properties.

Name	Co...	Linetype	Print C
Default		<input type="radio"/> Continuous	
0		<input type="radio"/> Continuous	
cross_section		<input type="radio"/> Continuous	
boundary		<input type="radio"/> Continuous	
contour		<input checked="" type="radio"/> Continuous	
topo_mesh		<input type="radio"/> Continuous	
topo_surf		<input type="radio"/> Continuous	
pit_mesh		<input type="radio"/> Continuous	
pit_surf		<input type="radio"/> Continuous	
test		<input checked="" type="radio"/> Continuo...	
volume		<input type="radio"/> Continuous	
250		<input type="radio"/> Continuous	
270		<input type="radio"/> Continuous	
230		<input type="radio"/> Continuous	

Command line: 1 polysurface added to selection. Command: _Delete

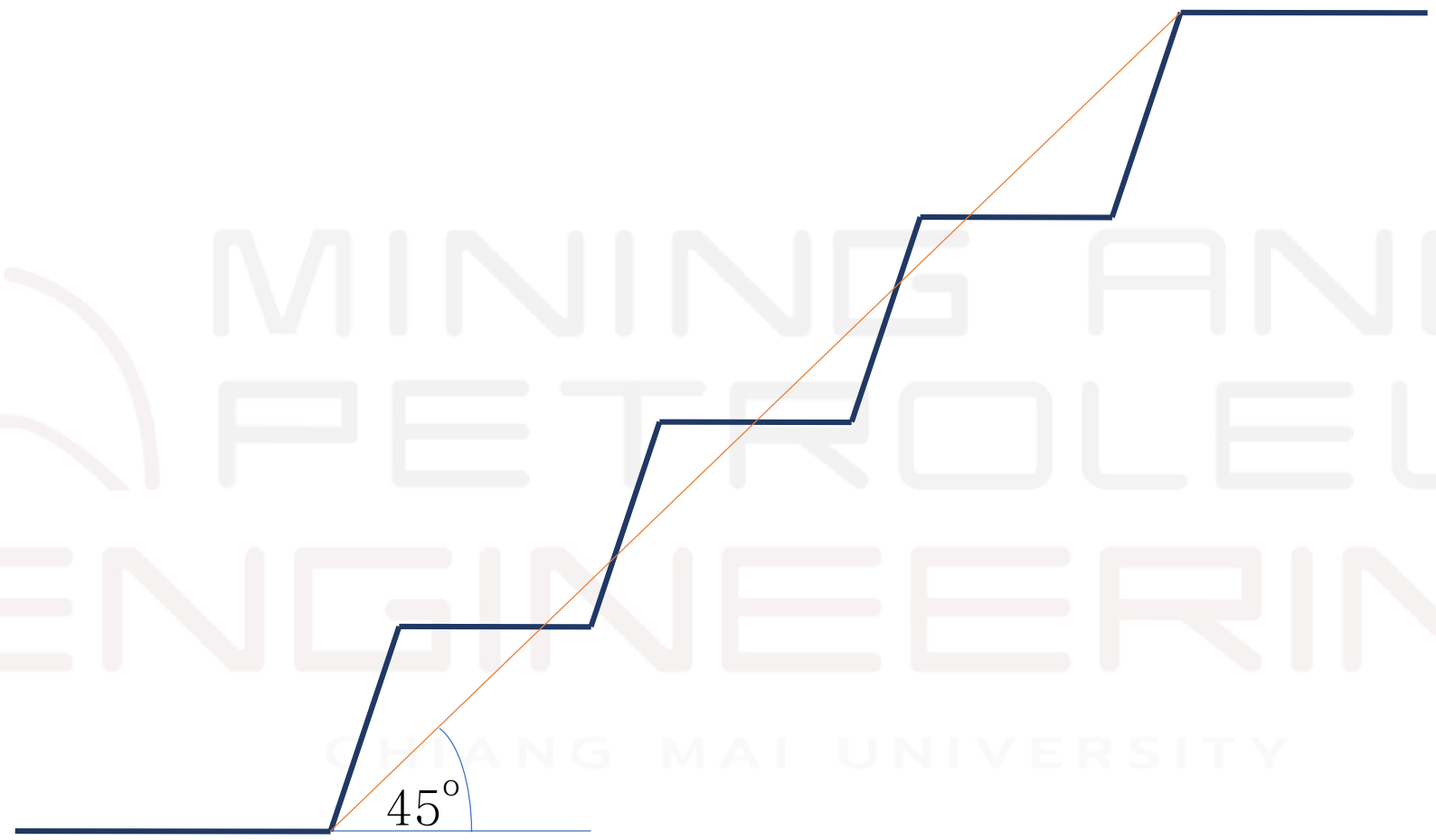
Command: End Near Point Mid Cen Int Perp Tan Quad Knot Vertex Project Disable

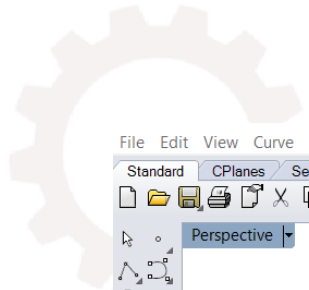
Bottom status bar: CPlane x 588040.52| y 2003754.5| z 0.0000 Meters test Grid Snap Ortho Planar Osnap SmartTrack Gumball Record History Filter Absolute tolerance: 0.001



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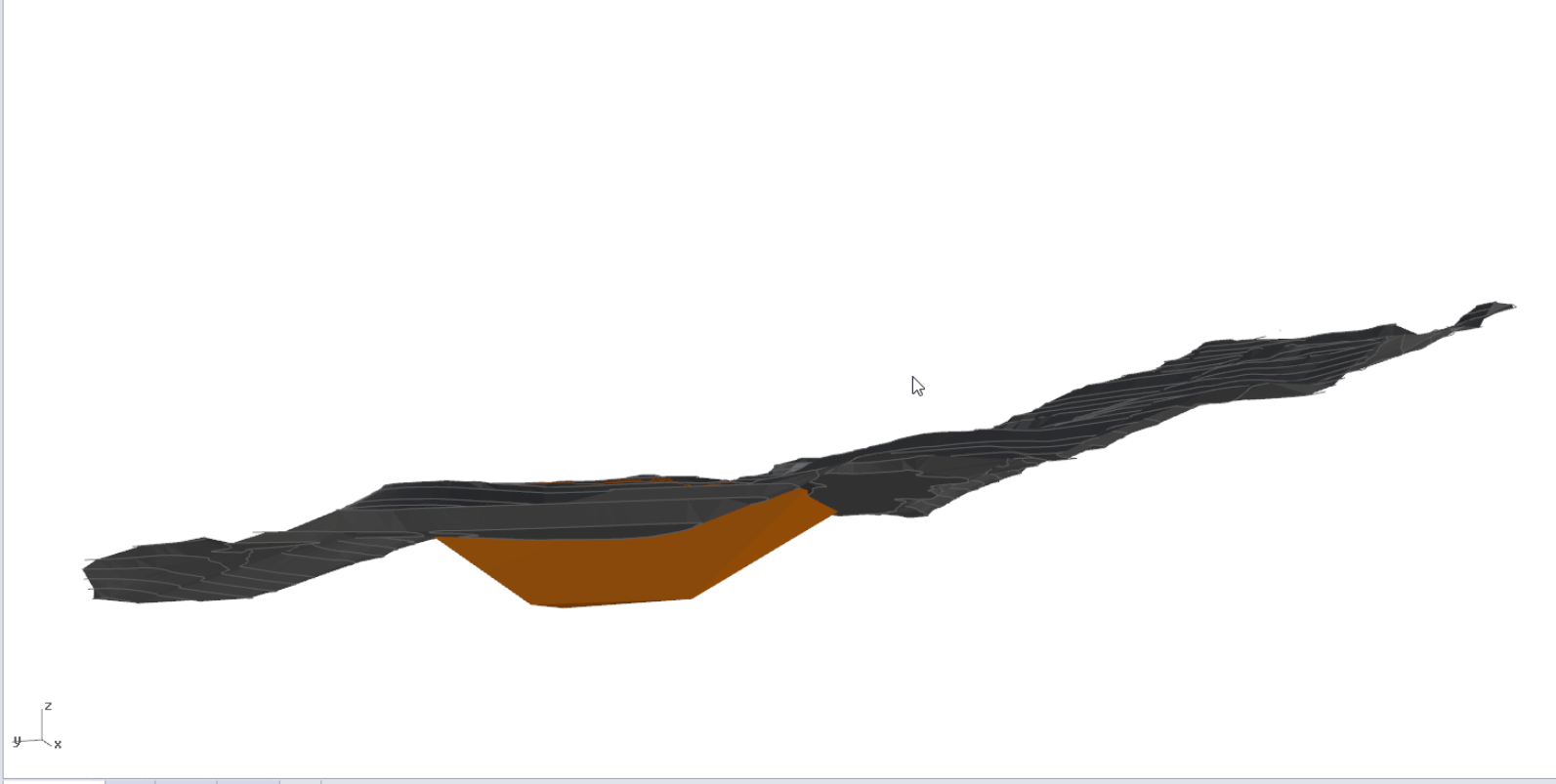


File Edit View Curve Surface Solid Mesh Dimension Transform Tools Analyze Render Panels Help

Standard CPlanes Set View Display Select Viewport Layout Visibility Curve Tools Surface Tools Solid Tools Mesh Tools Render Tools Transform Drafting New in V5



Perspective



Perspective Top Front Right

Properties Layers Display Help

Name	Co...	Linetype	Print C
Default			
0			
cross_section			
boundary			
contour			
topo_mesh			
topo_surf			
pit_mesh			
pit_surf			
test			
volume	<input checked="" type="checkbox"/>		
250			
270			
230			

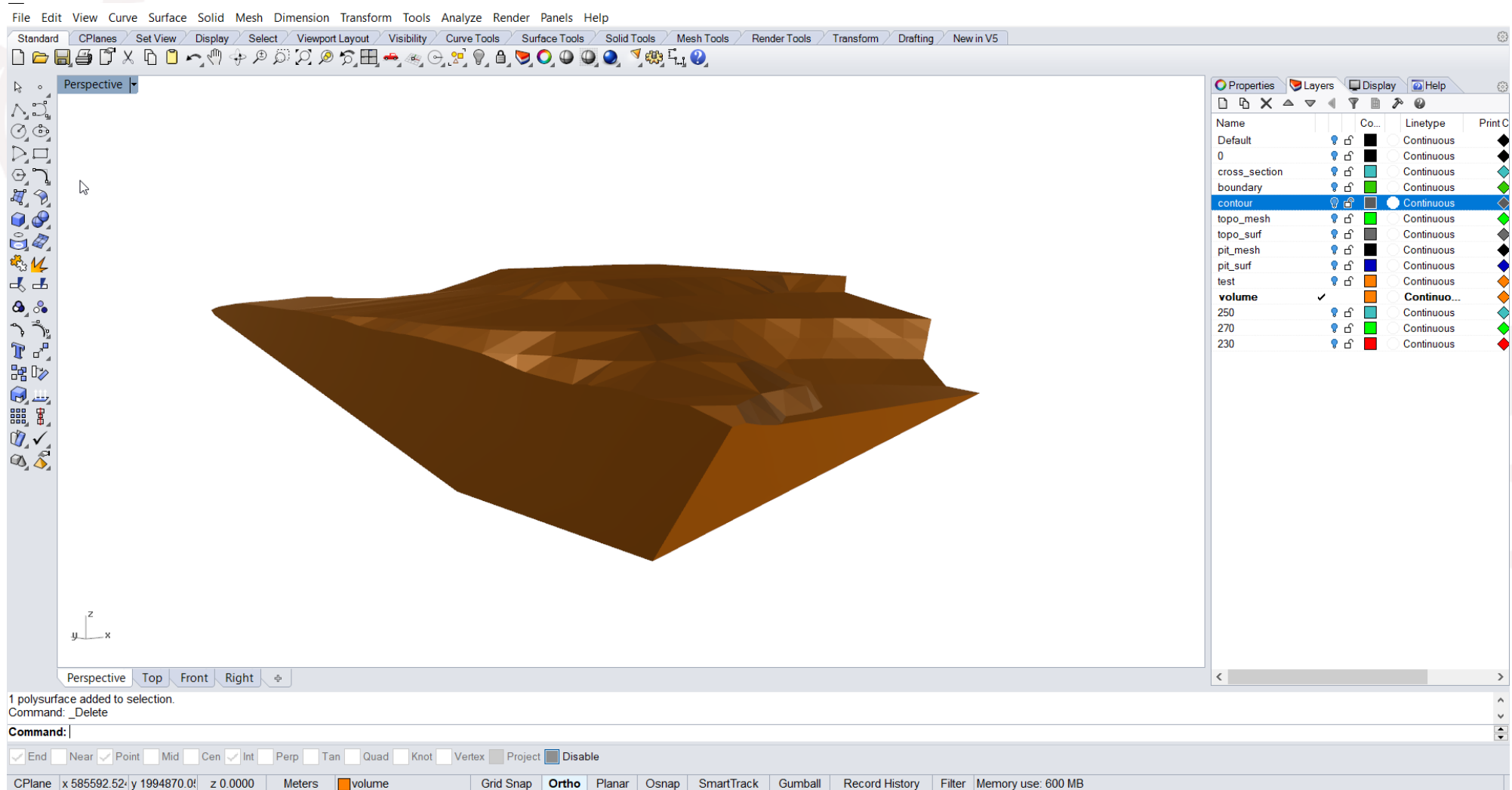
1 polysurface added to selection.
Command: _Delete

Command:

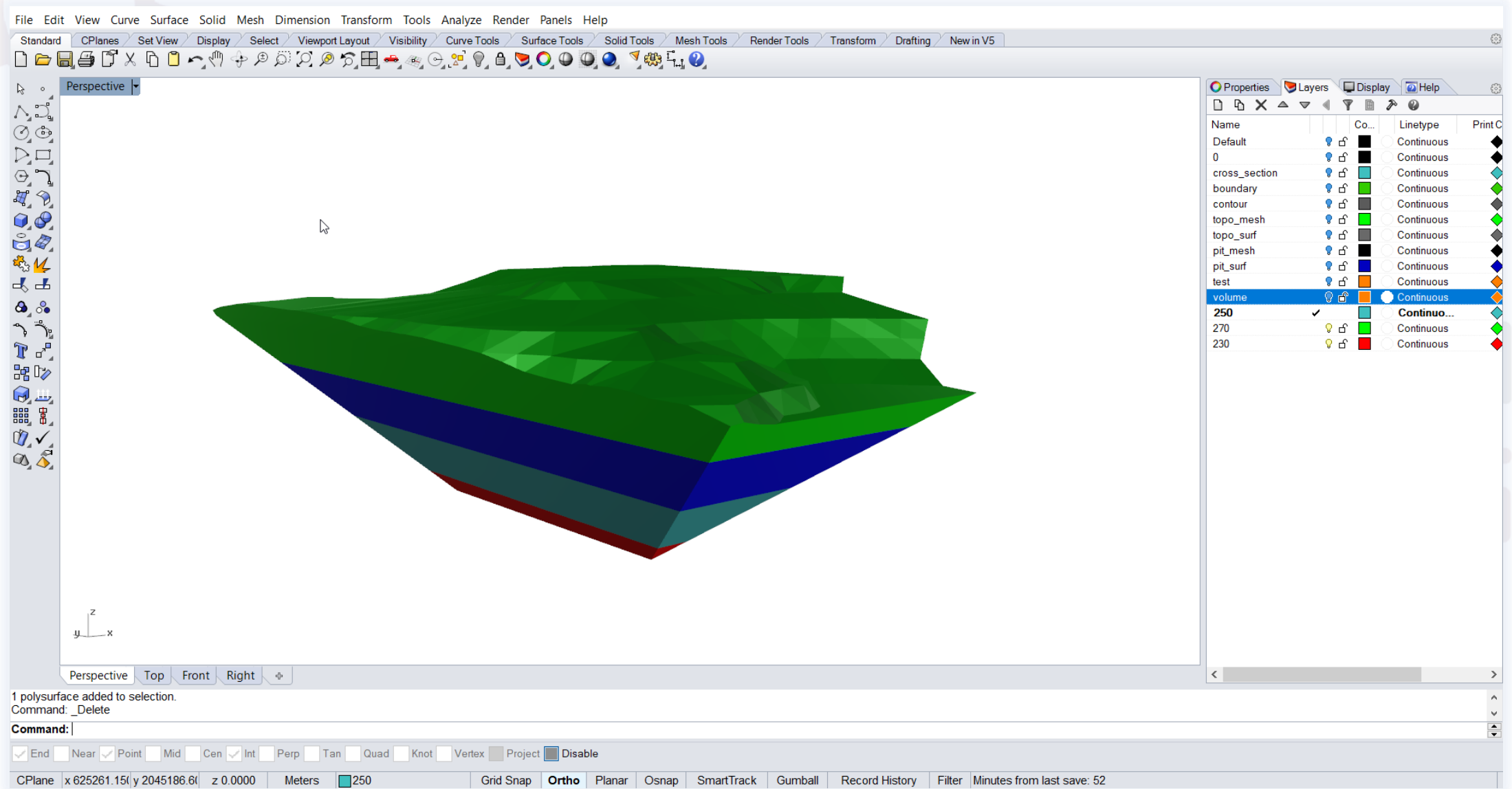
End Near Point Mid Cen Int Perp Tan Quad Knot Vertex Project Disable

CPlane x 587840.34 y 2005228.5 z 0.0000 Meters volume Grid Snap Ortho Planar Osnap SmartTrack Gumball Record History Filter CPU use: 0.7 %

คำนวณหาปริมาณสำรองของบ่อเหมืองทั้งหมด



➤ กำหนดหาปริมาณสำรองในแต่ละระดับความลึก



File Edit View Curve Surface Solid Mesh Dimension Transform Tools Analyze Render Panels Help

Standard CPlanes Set View Display Select Viewport Layout Visibility Curve Tools Surface Tools Solid Tools Mesh Tools Render Tools Transform Drafting New in V5

Perspective

Properties Layers Display Help

Name	Co...	Linetype	Print C
Default			
0			
cross_section			
boundary			
contour			
topo_mesh			
topo_surf			
pit_mesh			
pit_surf			
test			
volume			
250	<input checked="" type="checkbox"/>		
270			
230			

1 polysurface added to selection.
Command: _Delete

Command: |

End Near Point Mid Cen Int Perp Tan Quad Knot Vertex Project Disable

CPlane x 625261.15|y 2045186.6| z 0.0000 Meters 250 Grid Snap Ortho Planar Osnap SmartTrack Gumball Record History Filter Minutes from last save: 52



จบการนำเสนอ

ขอบคุณครับ

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