

*Directional Drilling/Gas
Drainage Logistics
- Baijigou Mine*

*Frank Hungerford
Valley Longwall Drilling*

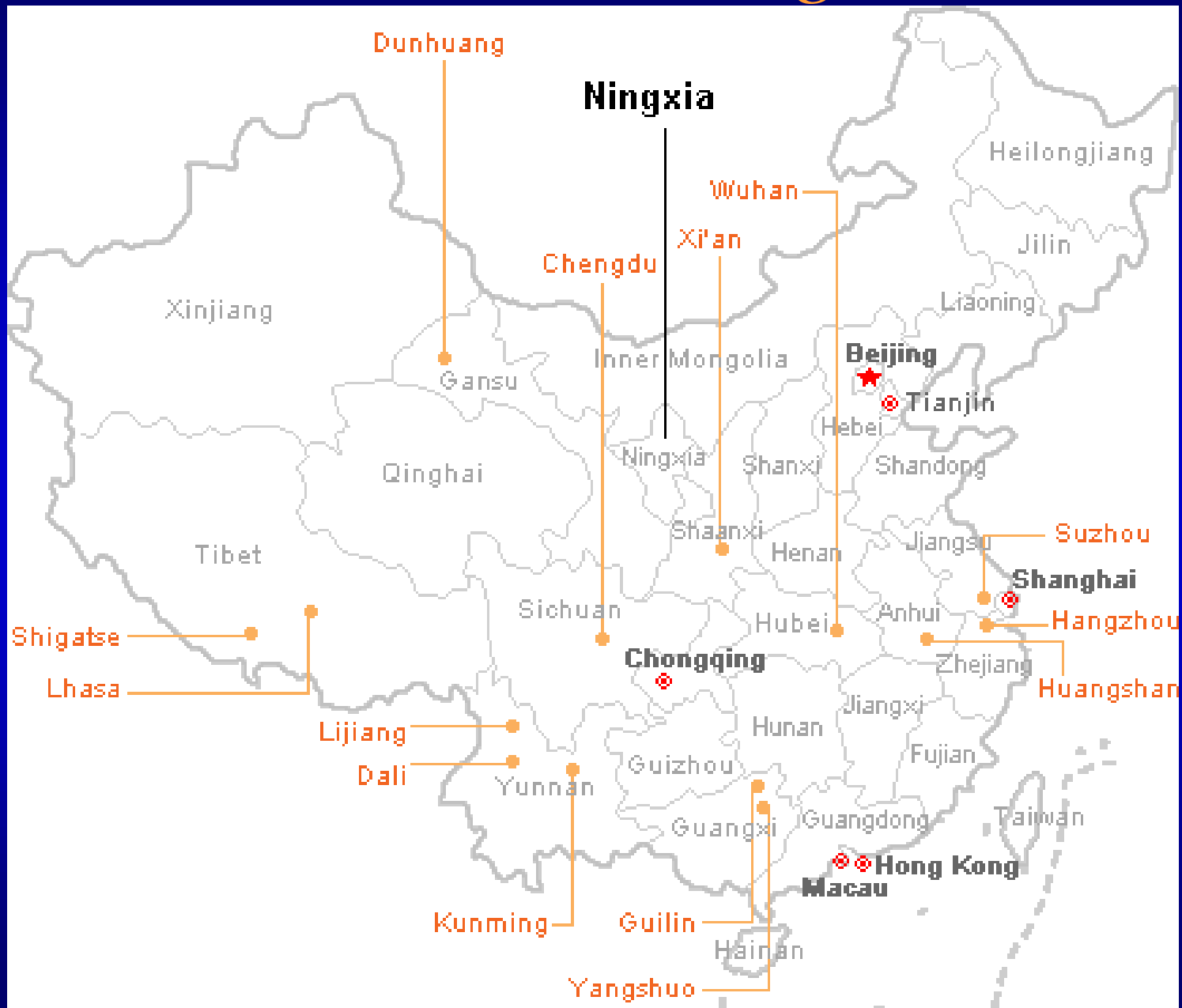
Introduction – Mine Audits

- Mine Safety - safe to operate in?
- Seam conditions – is the coal drillable?
- Drilling applications
- Services – air, water, power – fittings
- Access, transport, dimensions
- Surface facilities
- Accommodation
- Location, access to mine site

Baijigou Service Project

- CAMDA – AMSI hold contract to gas drain Baijigou longwall blocks
- GeoGAS consulted for gas content and drainage characteristics
- Drilling Project in 2 components
- VLD to complete the underground component
- Mitchell Drilling to complete the SIS component

Location - Ningxia



Baijigou Mine



Drive to Baijigou Mine



Baijigou – Mountain Drive



Baijigou – Local Environment



Baijigou Township



Baijigou Township



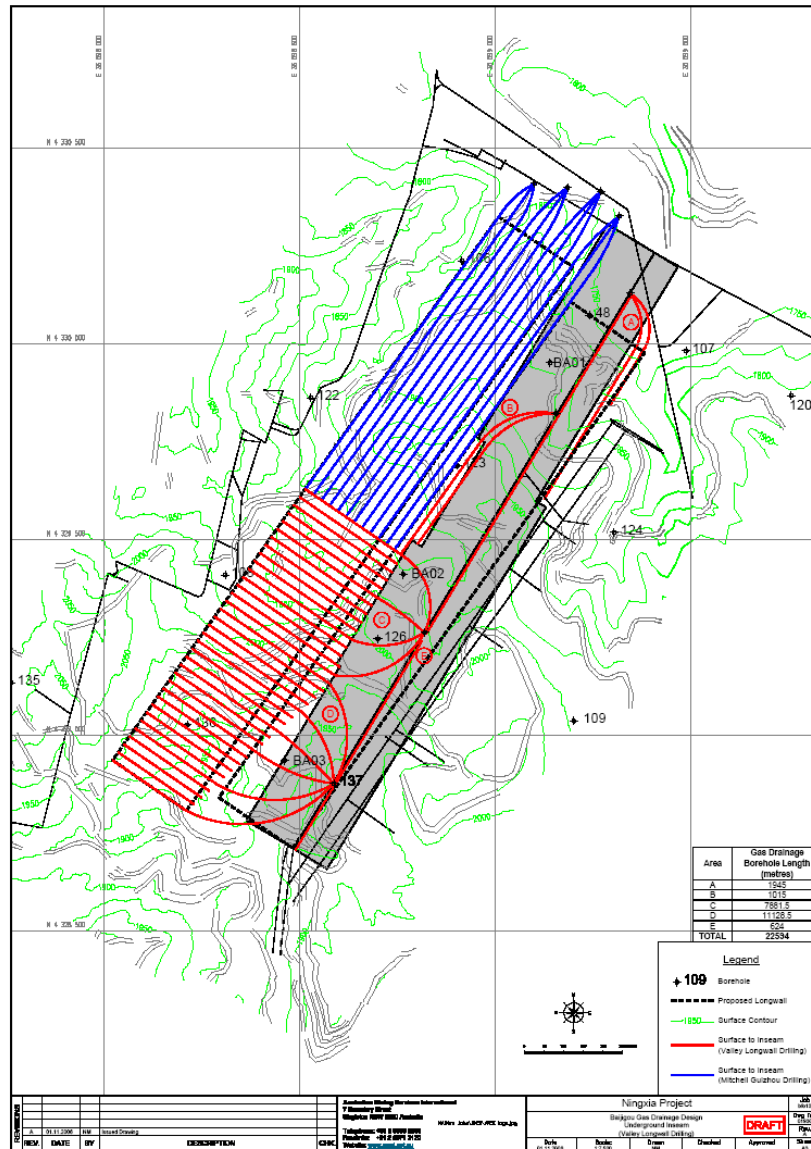
Contract Signing Ceremony



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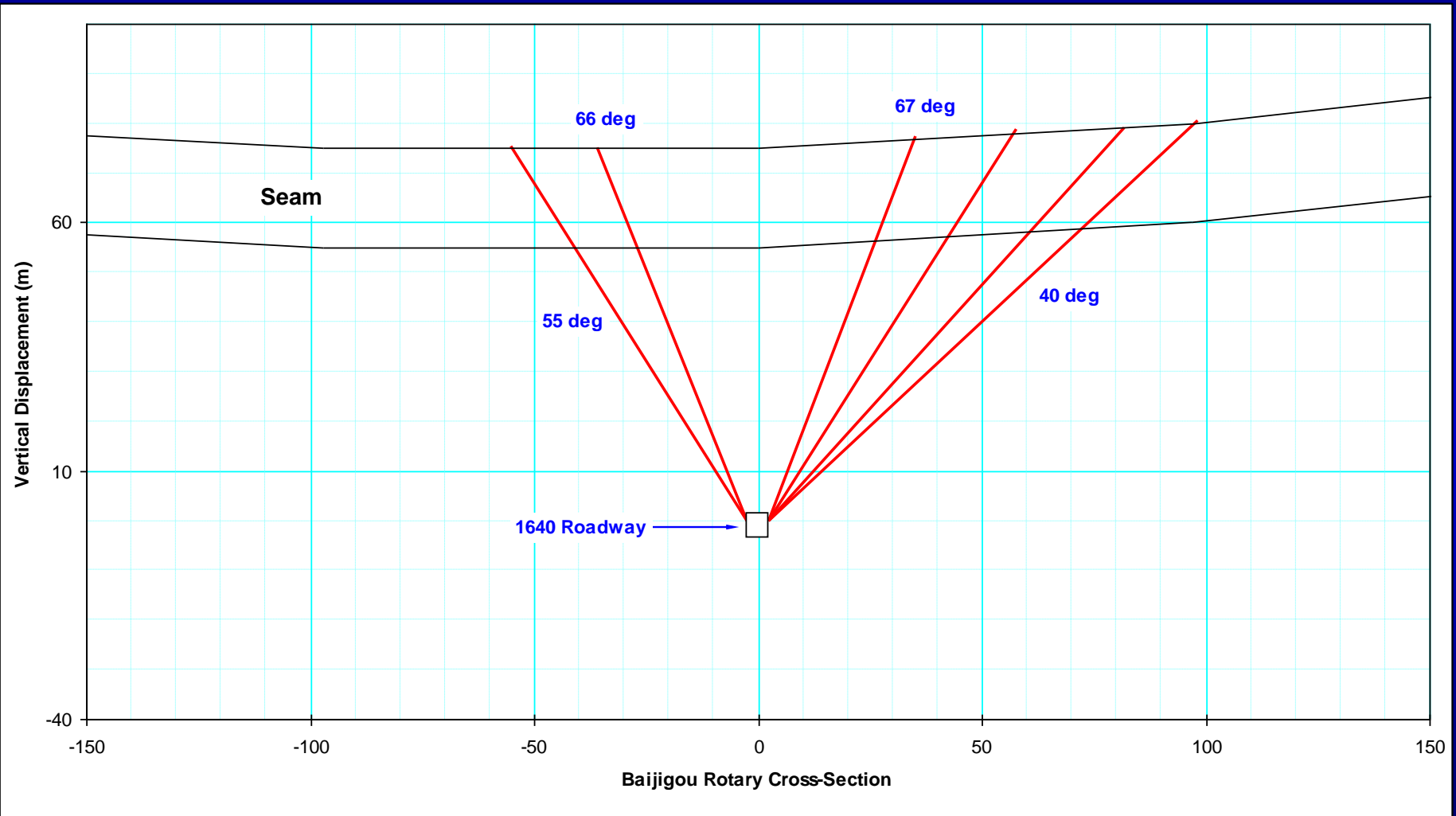
Initial Borehole Layout - Baijigou Mine



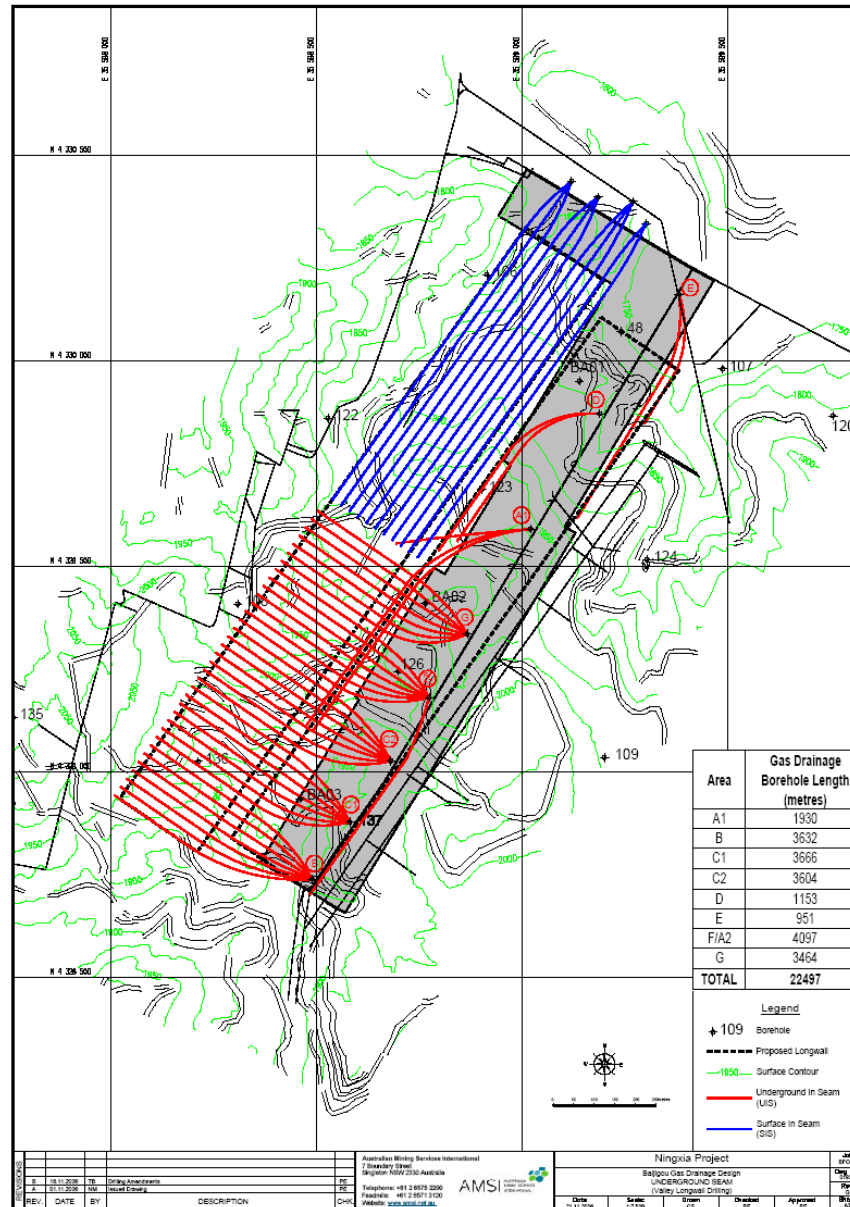
Initial Audit Results

- Cross-measure drilling from under the seam
- Stone strength apparently f2 (20 MPa)
 - Revised to f7-f12 (70-120 MPa)
- Angled drilling would require rig with vertical adjustment – Modular
- Mono-rail requirement for each site
- Design straight stone sections to allow for rotary roller-cone drilling if required

Baijigou Rotary Gas Drainage



Borehole Layout - Baijigou Mine



Modular Rig – Feed Frame



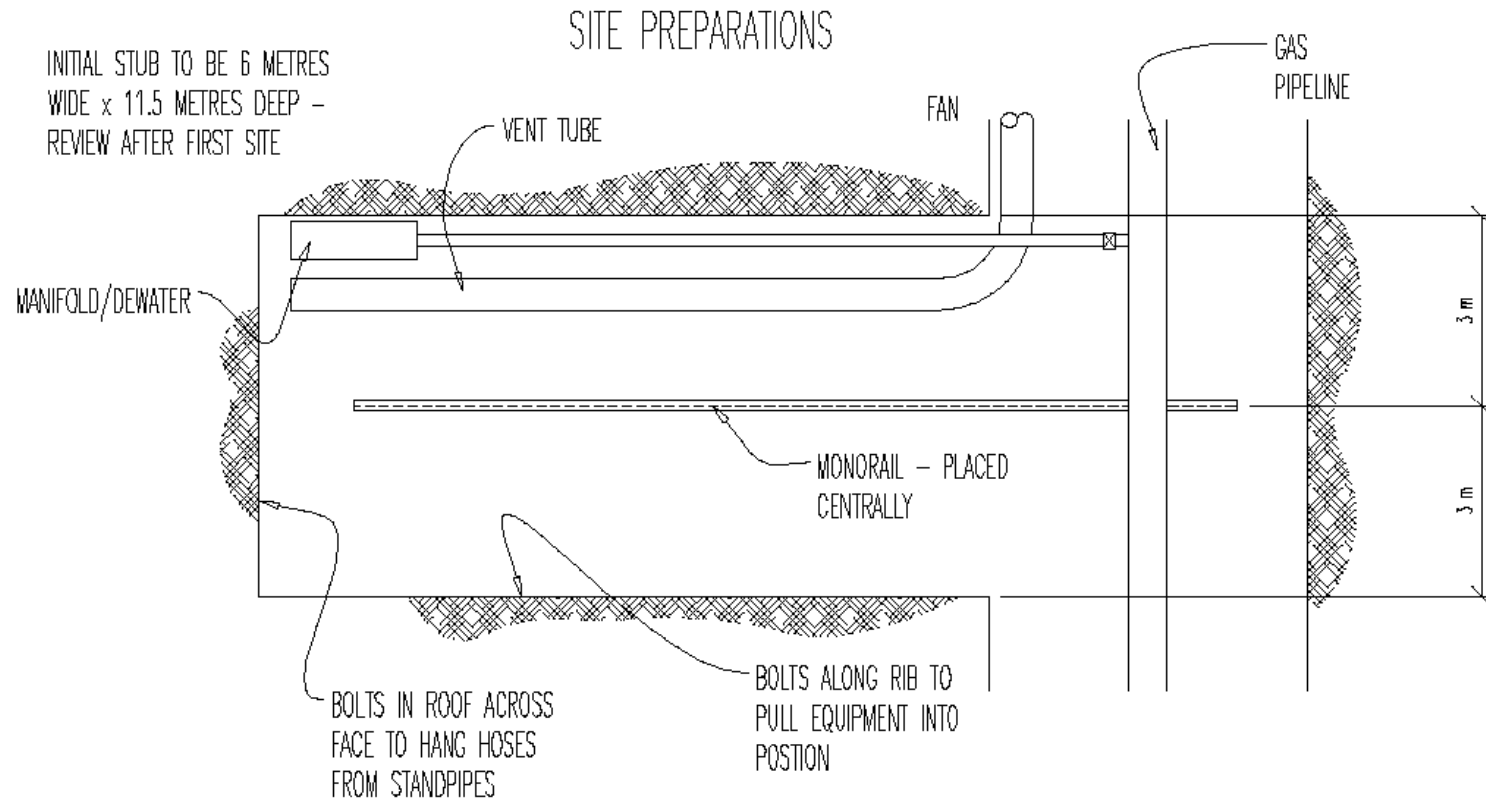
Modular Rig – Power Pack



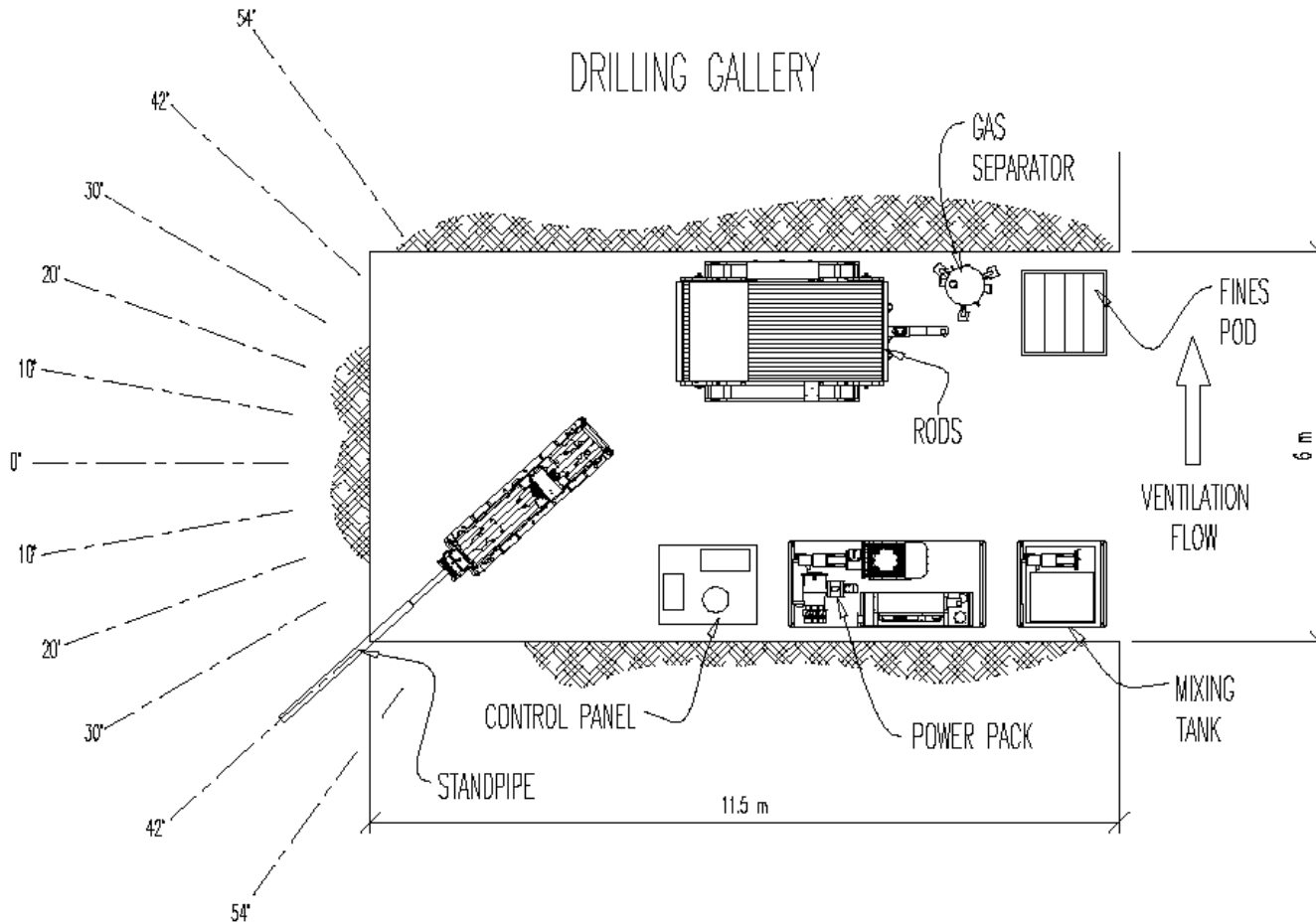
Modular Rig – Operators Console



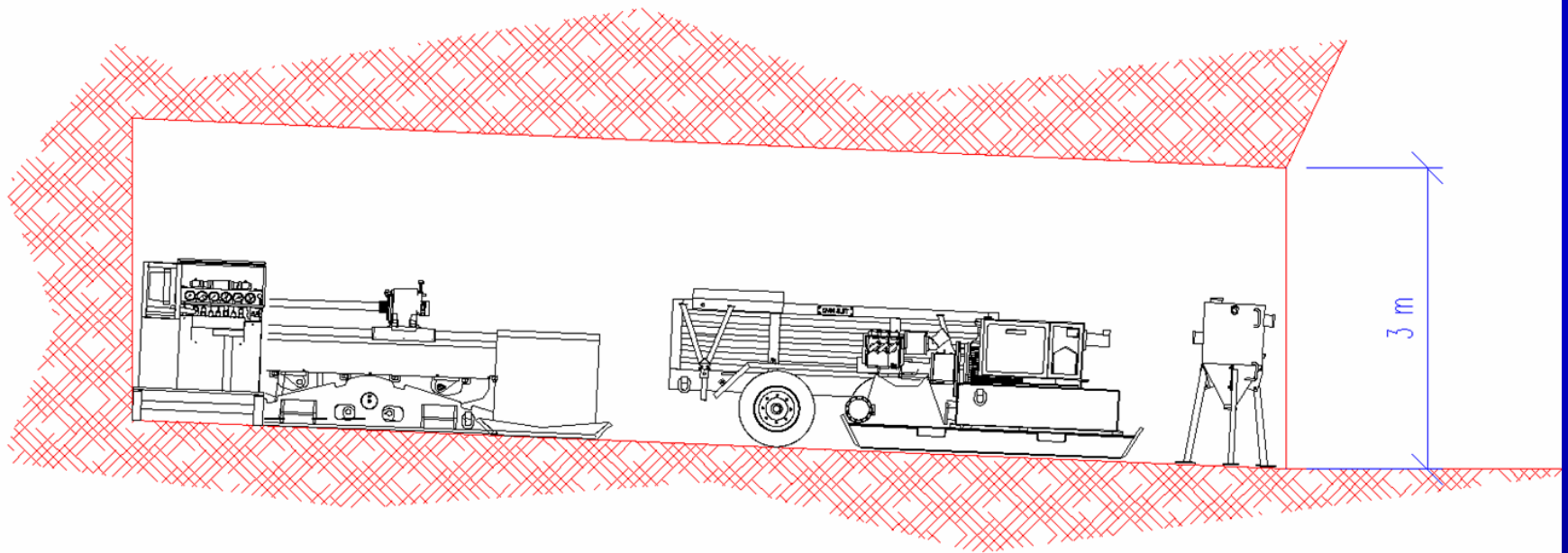
Site Preparations



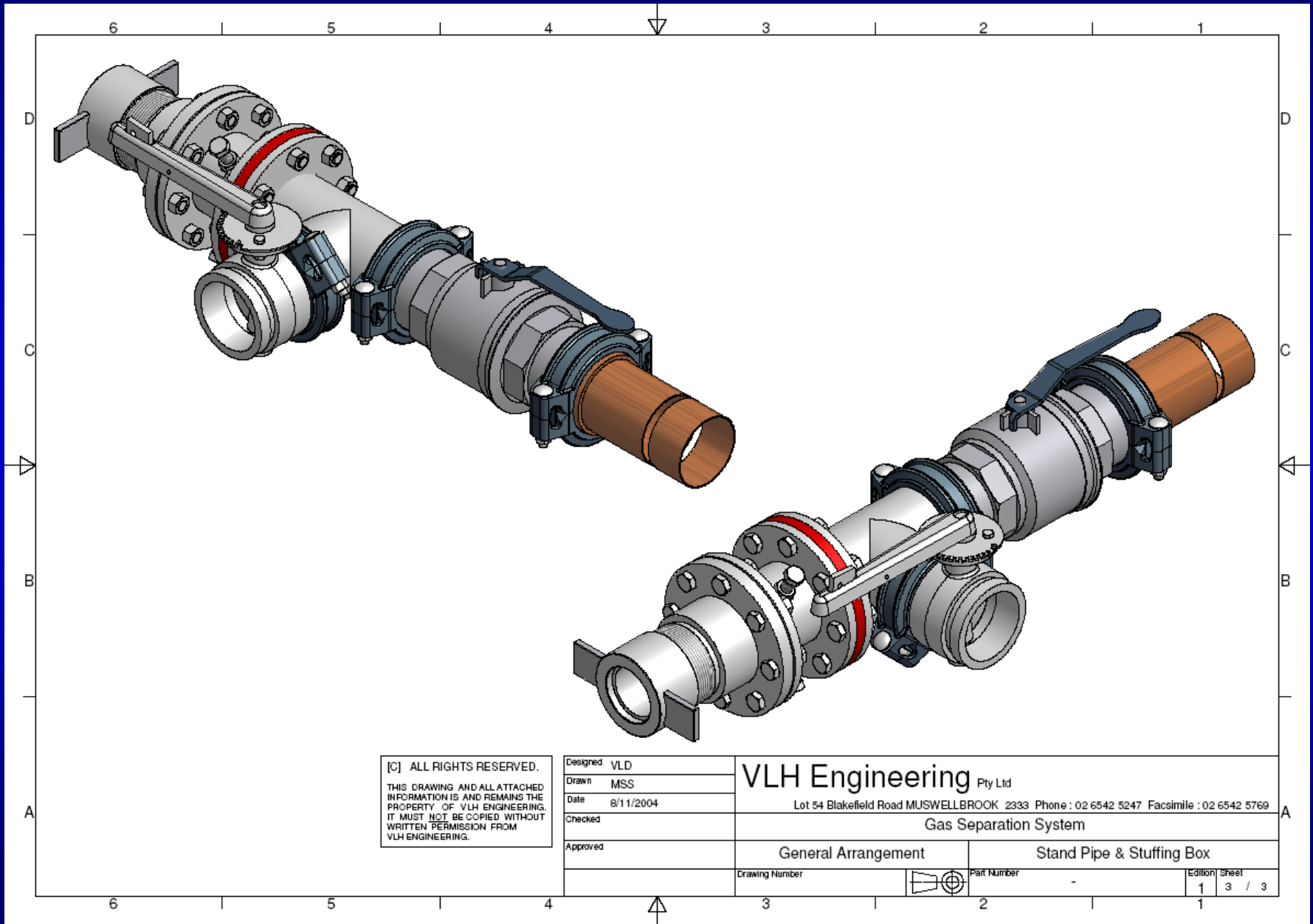
Site Layout - Baijigou Mine



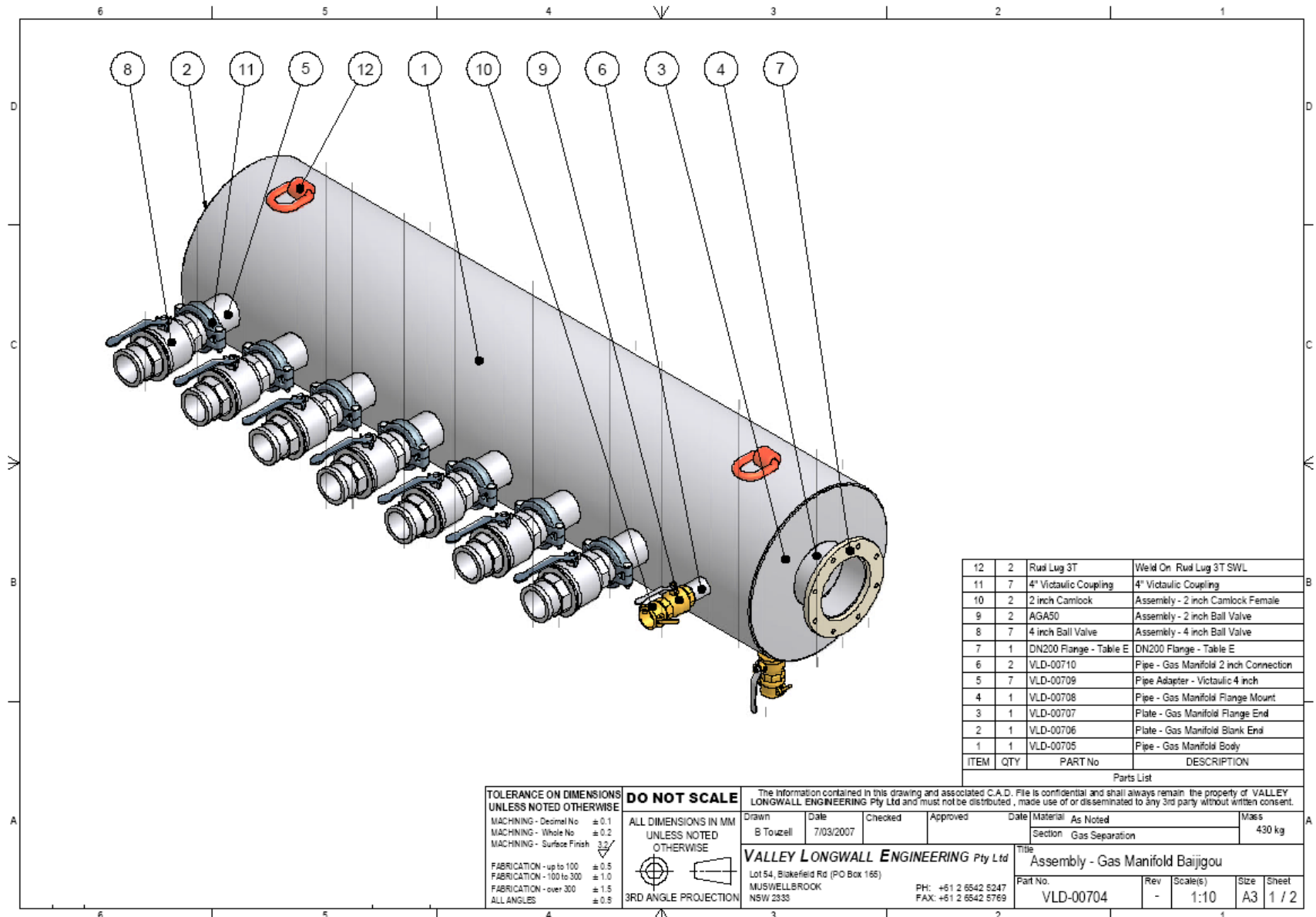
Drill Site – Side View



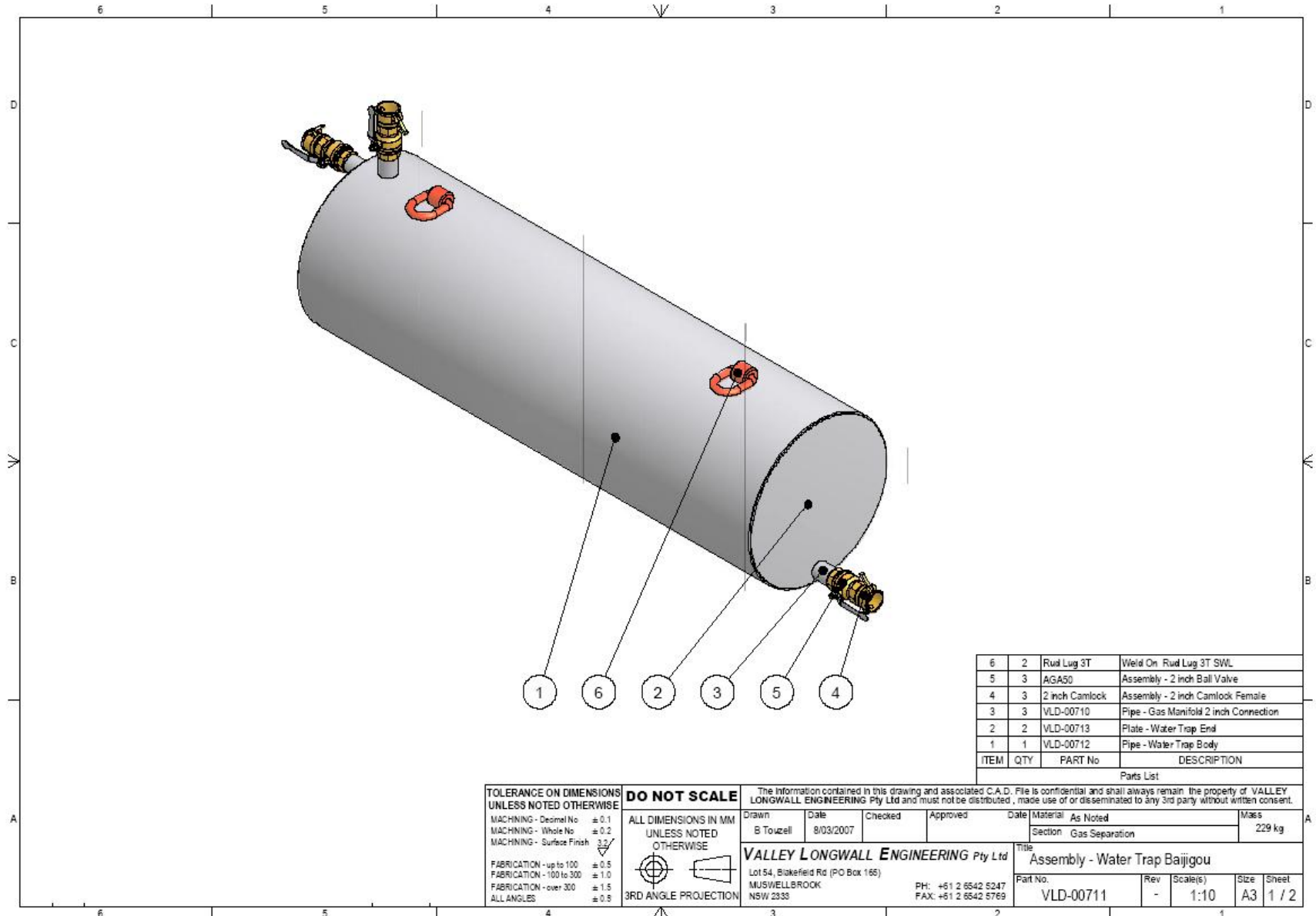
Borehole Collar – Standpipe Fittings



Gas Manifold – Drill Site



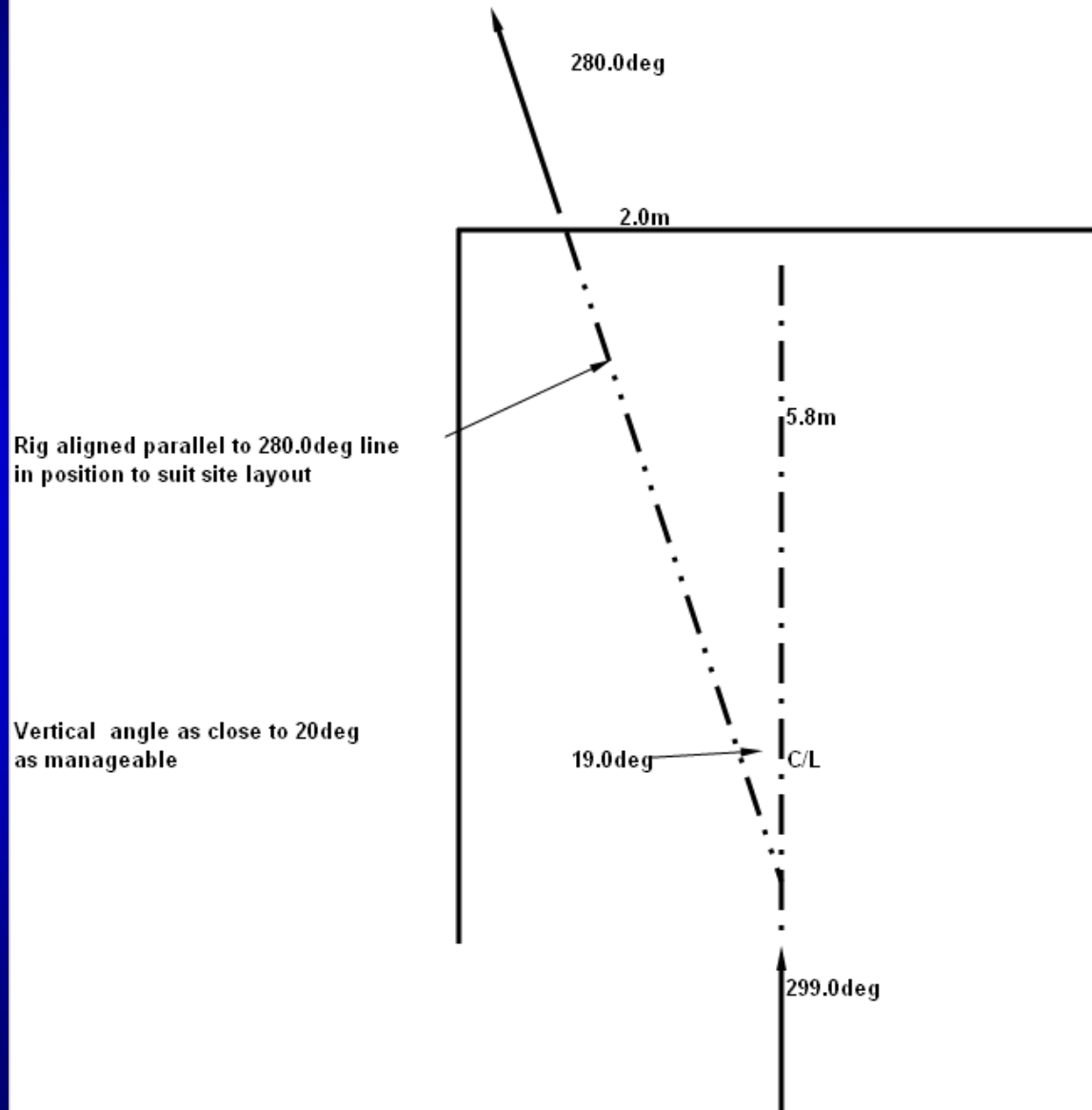
Water Trap – Drill Site



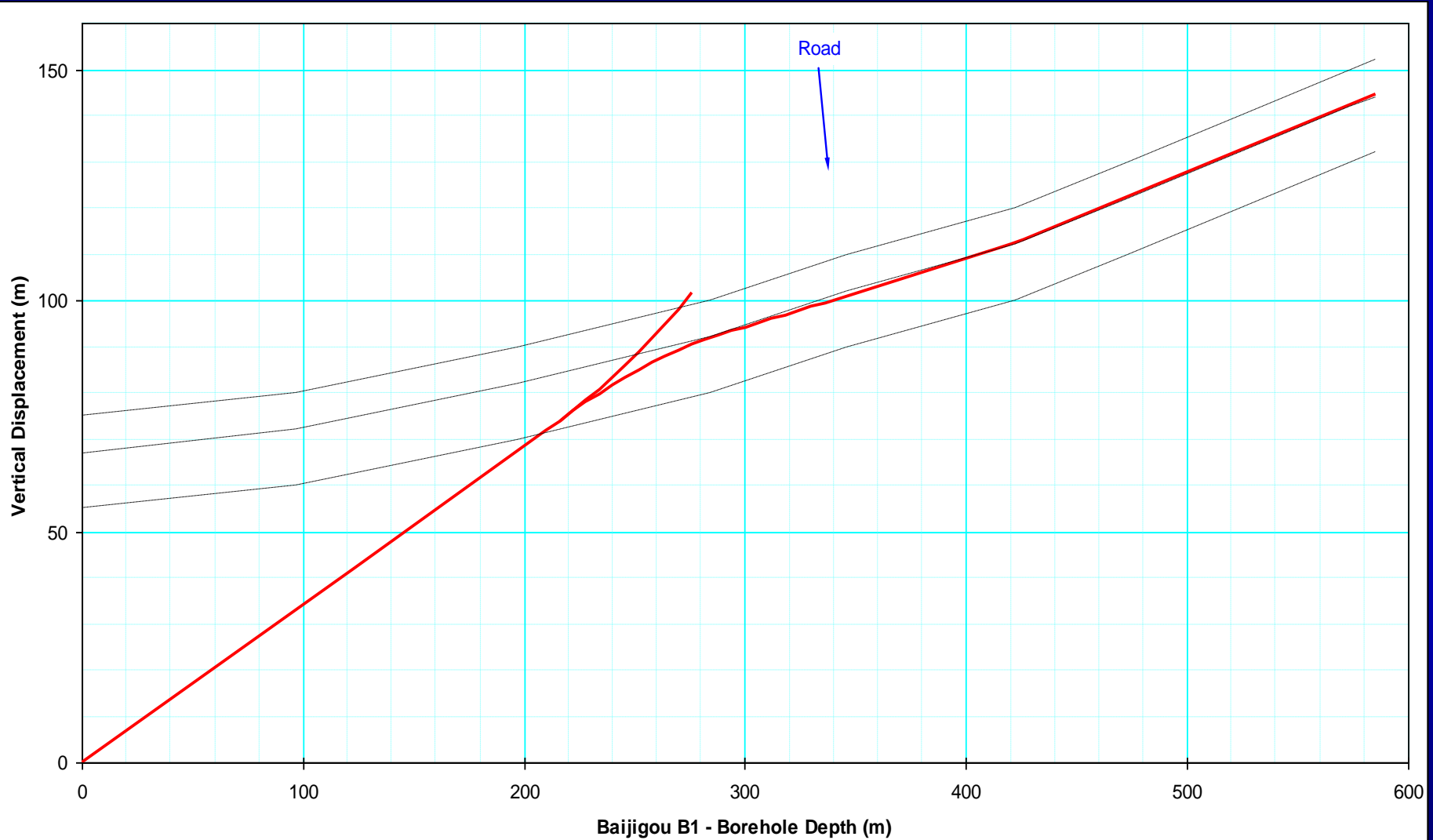
Drilling Design

- Rotary roller-cone 150mm x 3m - standpipe
- Rotary roller-cone 98mm to coal
- Directional drill up into seam roof
- Branch from coal intersect and follow 8m line below roof
- 1.5 deg/6m lateral curve and 1.0 deg/6m vertical curve (combined 1.8 deg/6m)
- Regular sharp roof intersections for profile definition – unstable upper seam coal

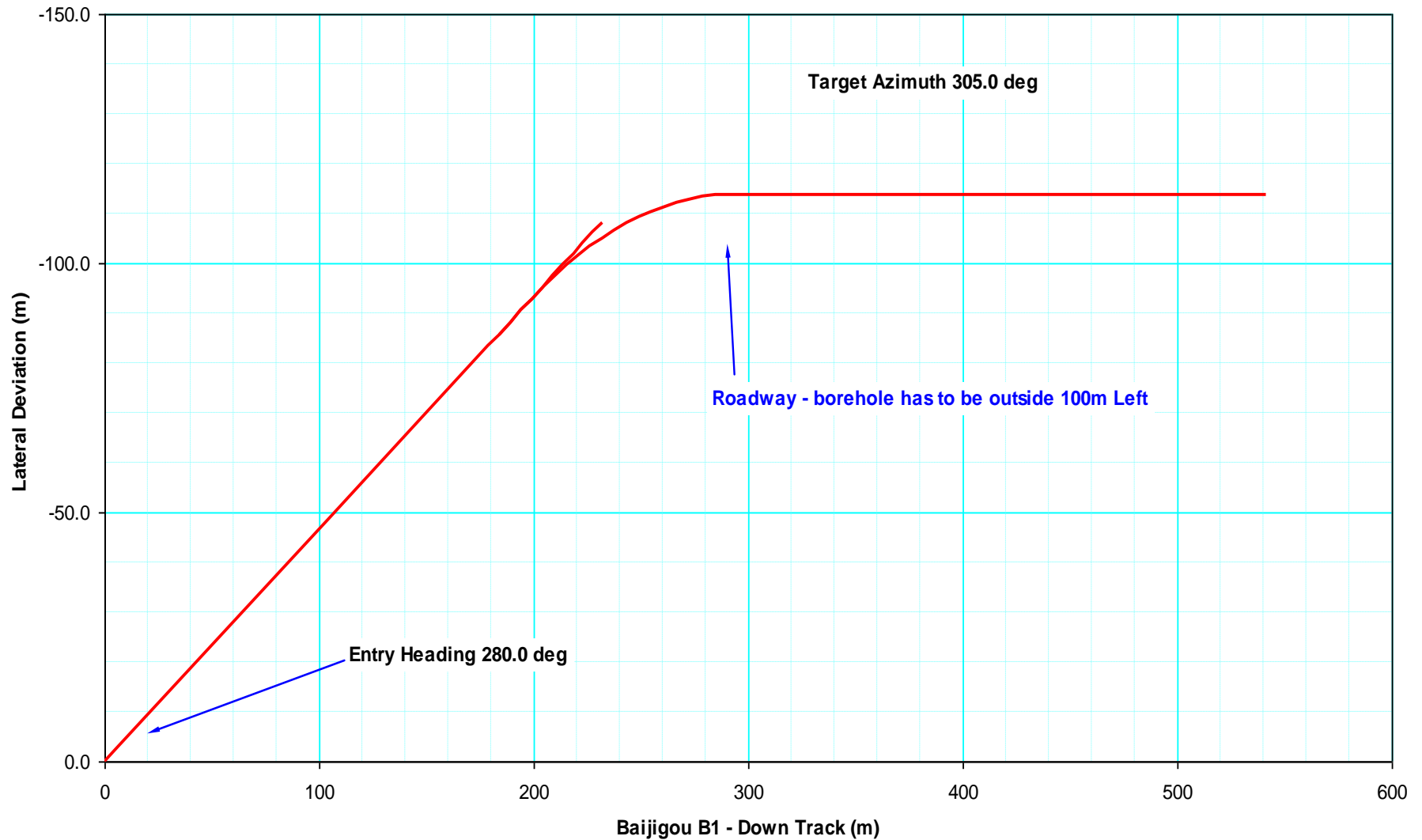
Drill Site – Rig Alignment



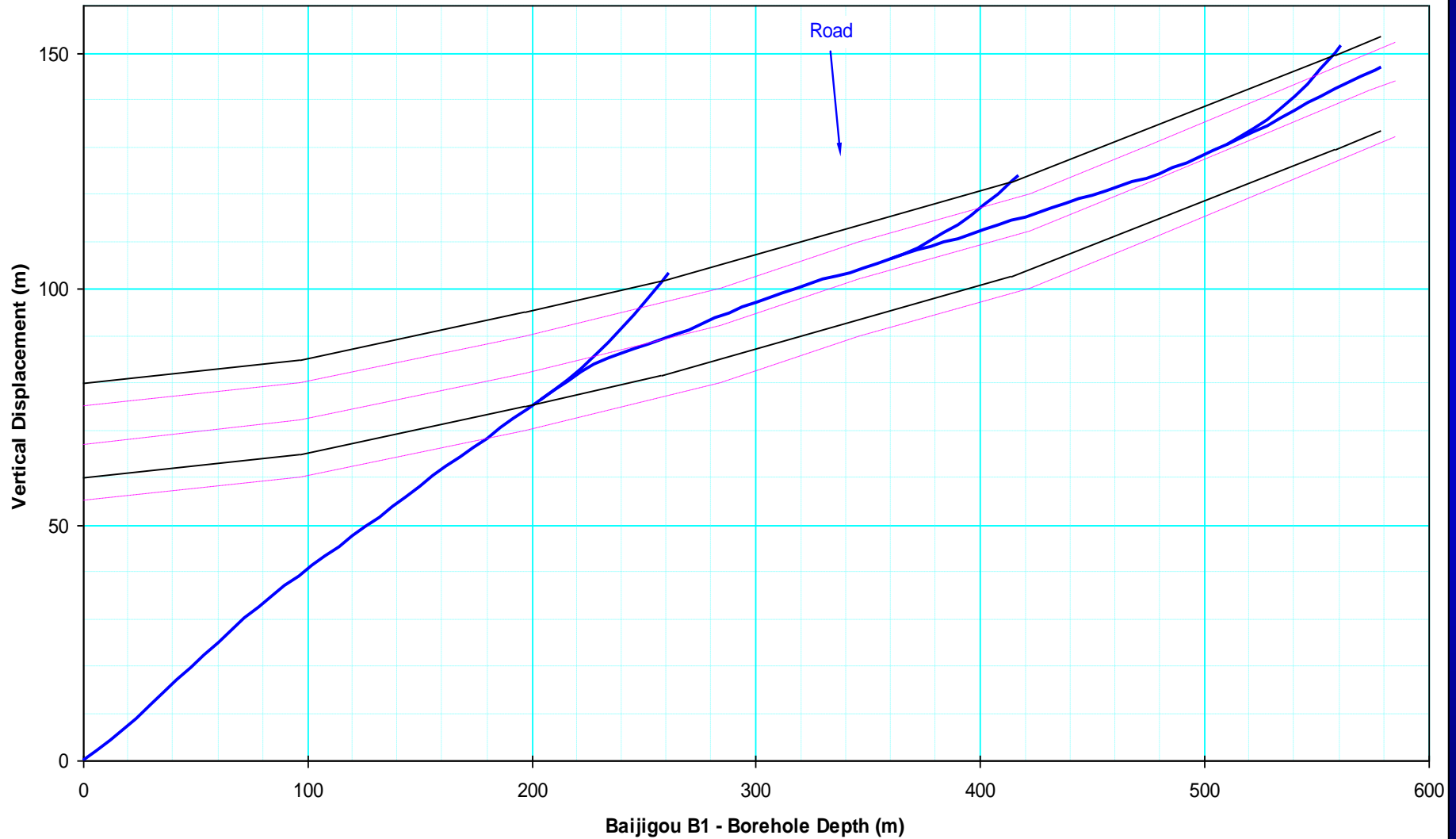
Profile Design



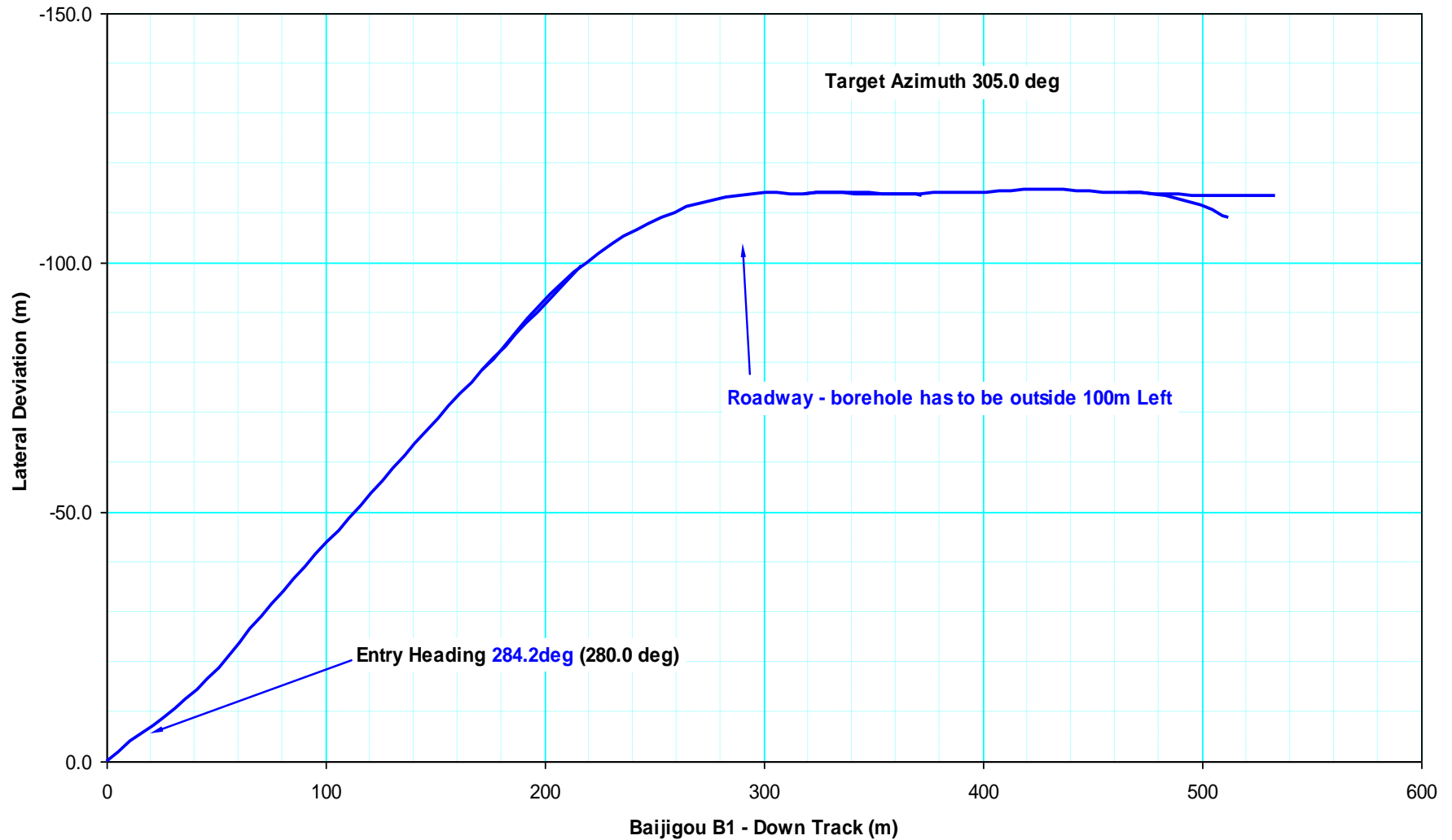
Lateral Design



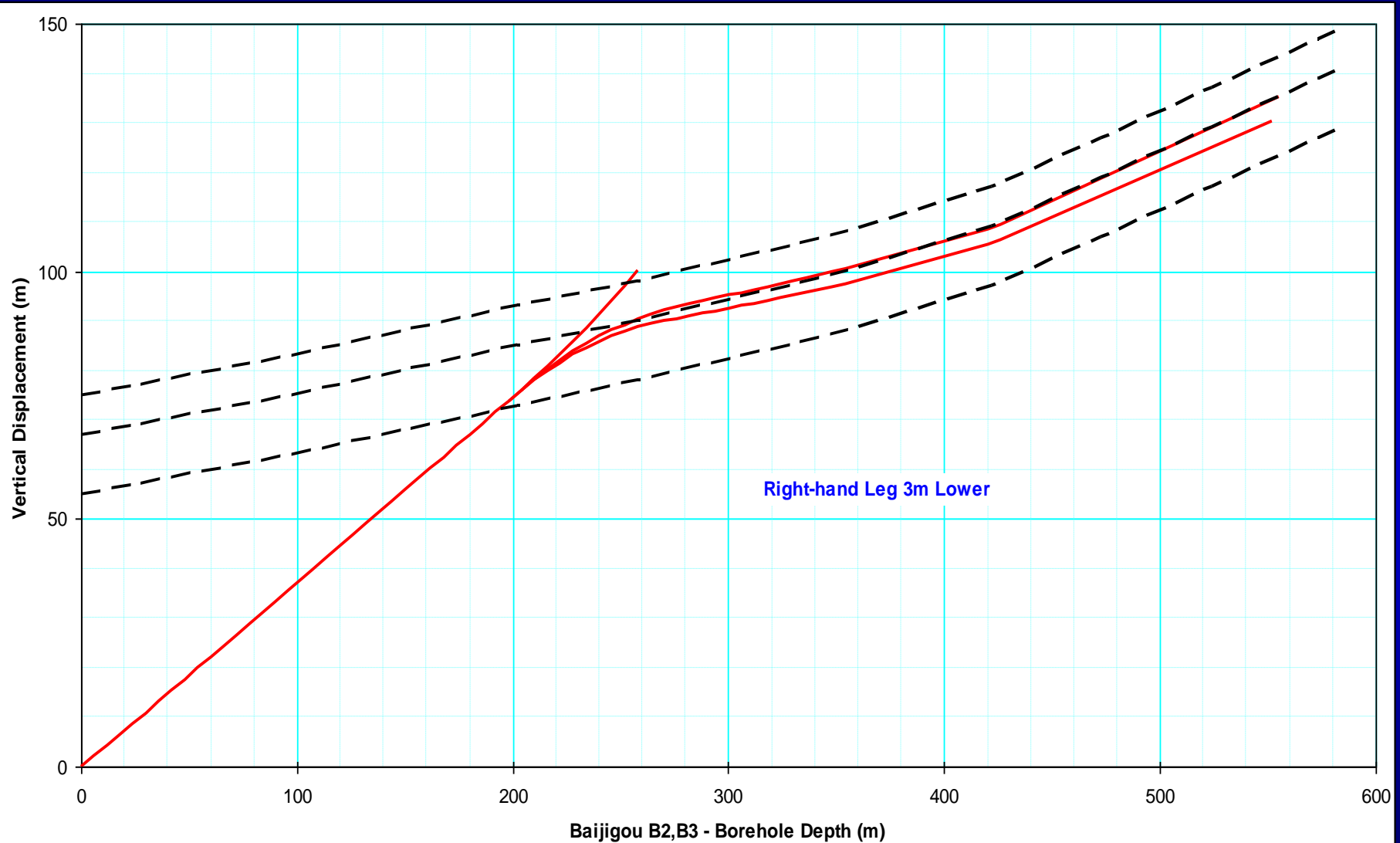
Borehole B1 Profile



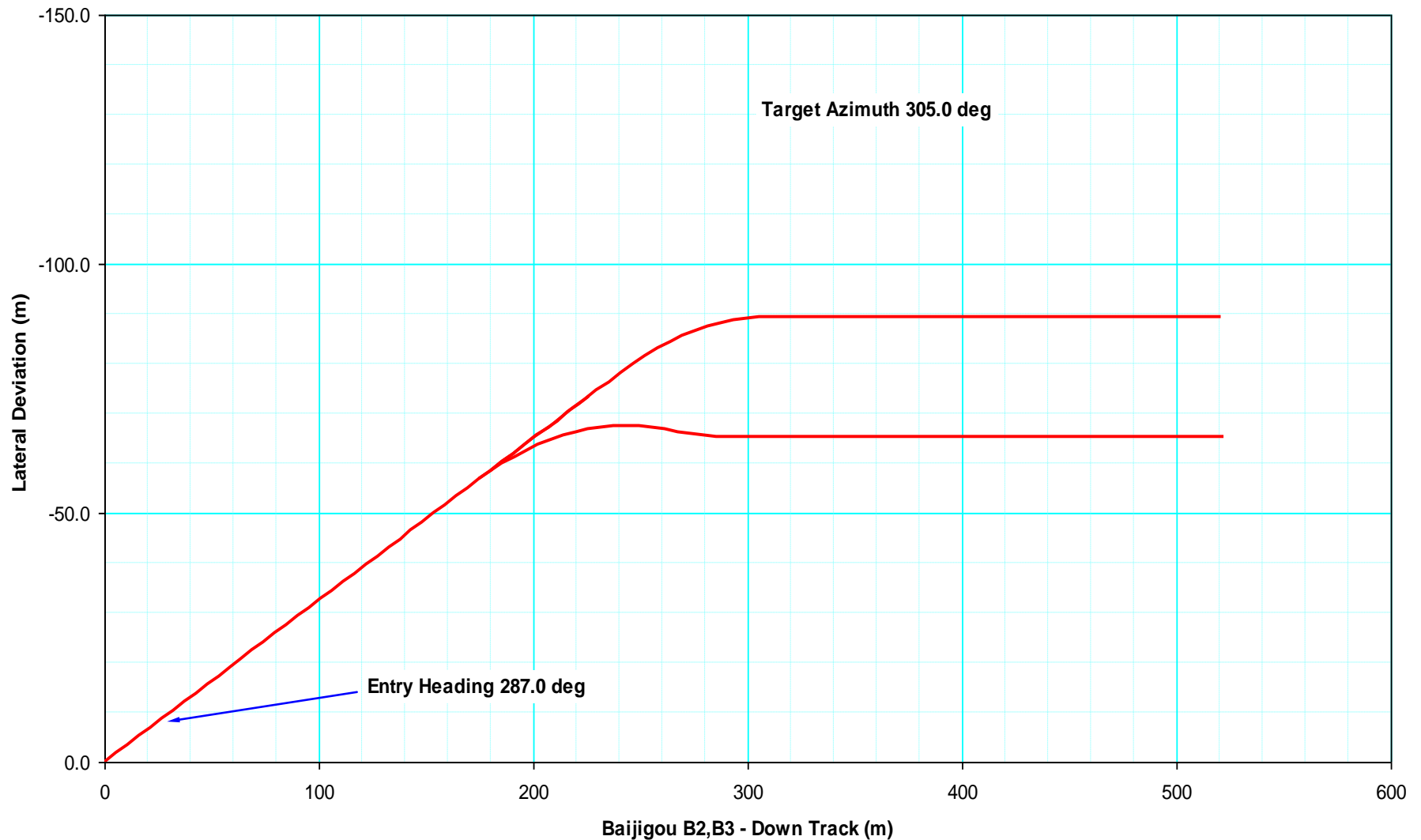
Borehole Layout - Baijigou Mine



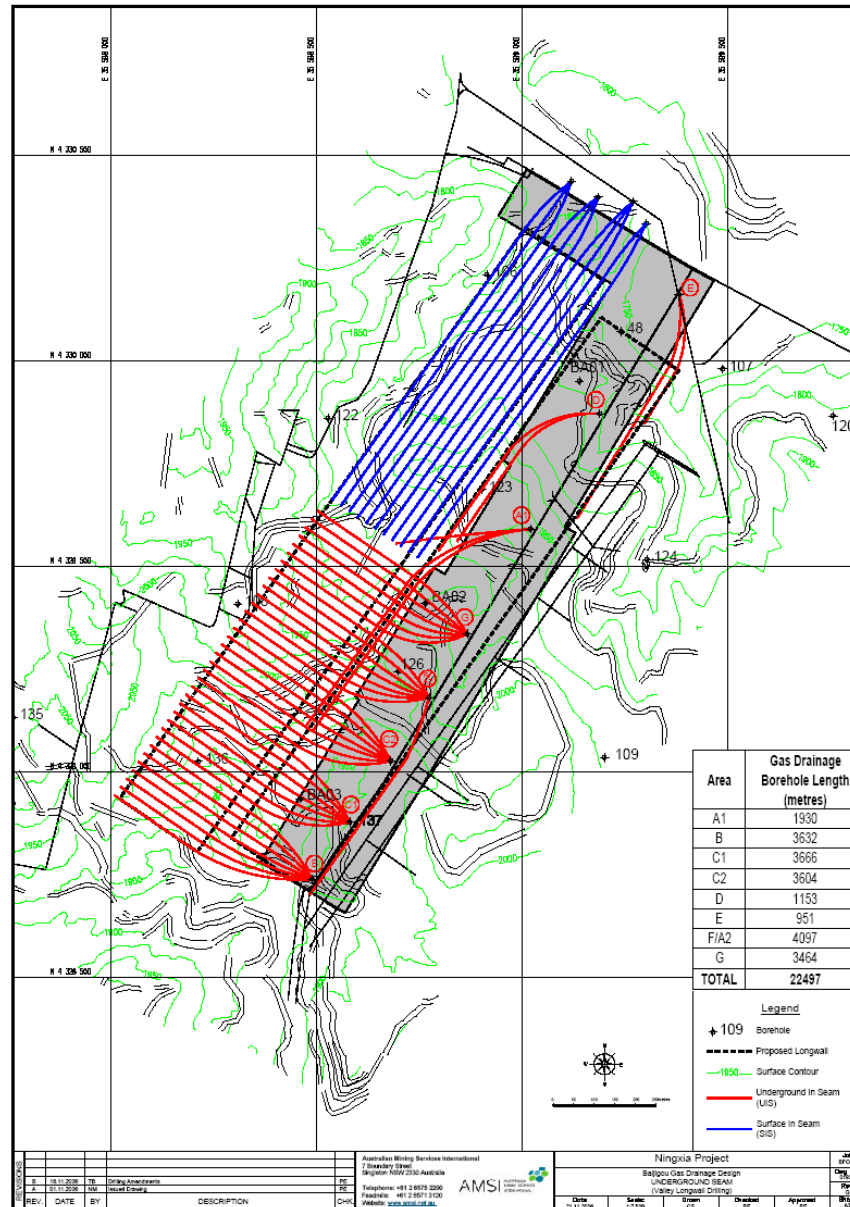
Profile Design



Borehole Layout - Baijigou Mine



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Calibration Site and SIS Environment



Calibration Site and SIS Environment

