6 MINERAL RECOVERY METHODS

6.1 Mining Sequencing

6.1.1 MINING STAGES

The proposed mining sequence has been separated into six (6) stages, based on the current geological modeling and the requirement to relocate the Salt Creek that crosses the deposit from West to East. A plan of the mining stages is attached in Appendix A.

Stage 1
Current Mine Operations

The current mine operations are based on the original 50 million tonne mine plan that has provided coal to the adjacent power station since 1969. This plan has been concentrated on the main seam and provides sufficient coal reserves to meet the power station demands until 2016.

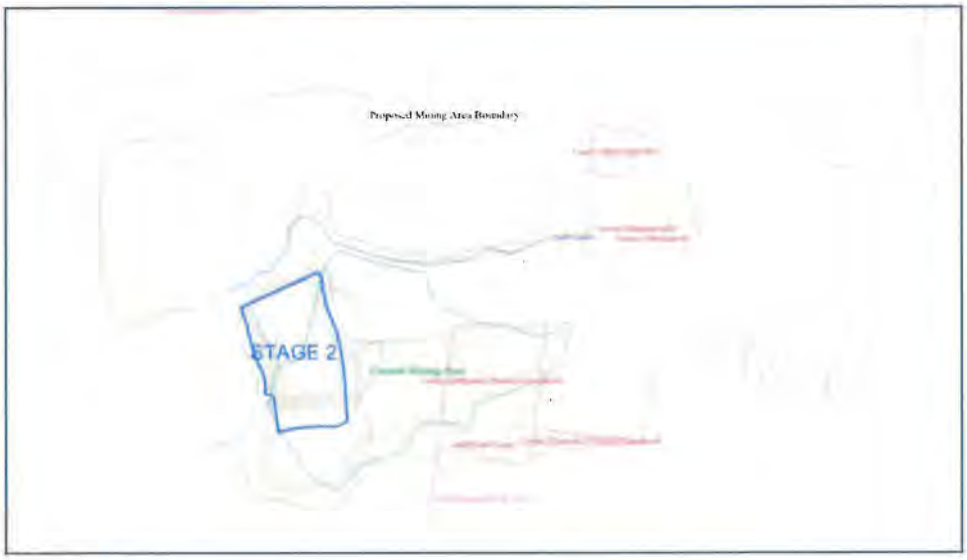
The coal is currently mined by open cut method, using excavators and haul trucks to load and transport coal to the Primary Crusher and then via a conveyor system to the stockpiles.

The average main seam thickness is 27 metres, with an average stripping ratio of 2.5 m^3/tonne coal for the whole field. Due to the nature of the mined materials, no blasting is undertaken.

The mined area is being progressively backfilled, using the overburden from the current strip area, which is typically extracted at between 1.6 and 1.8 Mm^3/year (also using a truck and excavator operation).

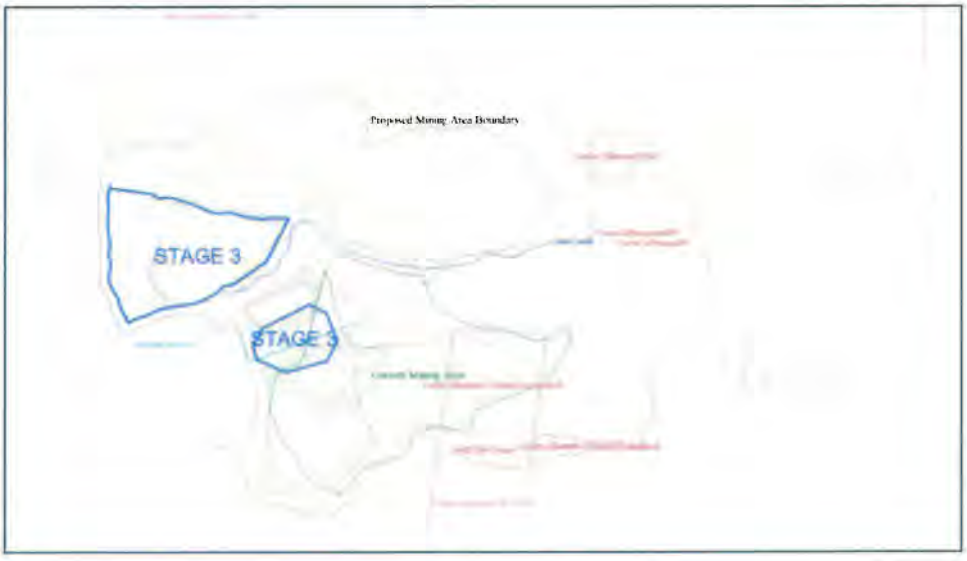
The mine currently operates on a 12 hour day shift, seven days a week. The operation is currently team based with both operating and team functions shared amongst the team members. Mining is performed during day shift only, to minimize any potential noise and other impacts on the adjacent township of Anglesea.

Stage 2
Pit Extension North, Northwest (NNW)



Following extraction of the main seam from the current pit, the mining operations are proposed to extend north, northwest (NNW) to recover the L1 seam that underlies the main seam. Overburden material would be used to backfill the main pit from East to West to an average Reduced Level of 10mRL

Stage 3
Salt Creek Diversion



For operations to continue after the extraction of the L1 seam in Stage 2, Salt Creek that flows through the deposit needs to be relocated to maintain the current creek flow and reduce the potential water inflow into mining operations from high rainfall intensity. An area of 68.8 Hectares of Overburden is to be removed from north of the Stage 2 pit and backfilled to a height of 15mRL inside the mined out area of Stage 2 to form an earthen bridge across the deposit. A re-engineered diversion channel will be constructed to transfer the creek flow and reconnect it to the existing drainage on the eastern side of the proposed operations.

Stage 4

Extraction of L3 Seam

Stage 4 continues the extraction to the north of the Salt Creek diversion removing the L3 seam (lowest) and backfilling overburden north of the diversion behind the advancing coal face. Overburden is proposed to be filled to a maximum height of 40mRL

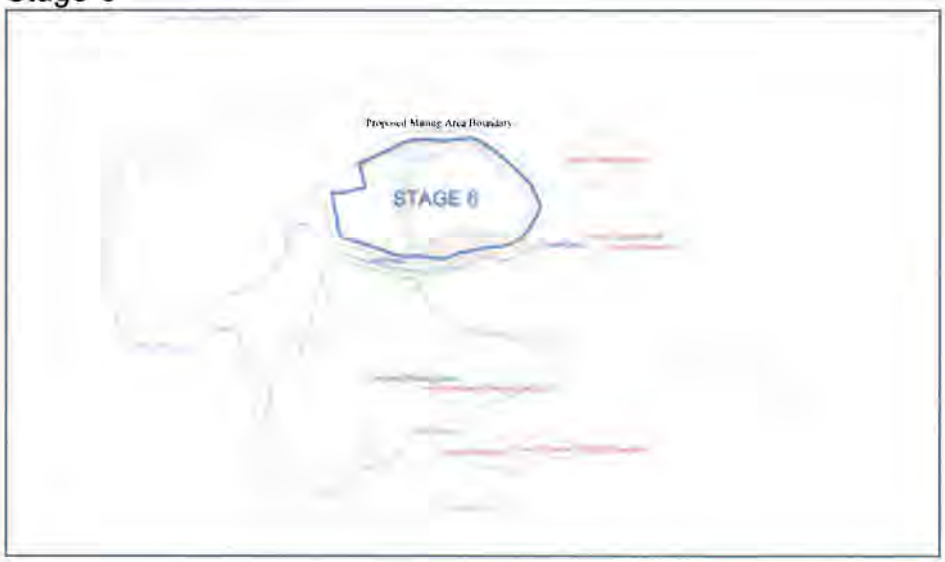
Stage 5

Extraction of L1 Seam

The proposed Stage 5 extension to the northeast is limited by the coal resource model and removes the L1 seam with the lower seams discontinuing north of the Stage 4 pit boundary.

Waste material is backfilled to the 40mRL level behind the advancing coal extraction face.

Stage 6



Main Seam Extraction

Stage 6 proposes the extraction of the main seam to the East of Stage 5 and has the highest strip ratio of all the proposed mining areas. The pit is restricted from the north and west by limited modeled coal reserves and bounded by Salt Creek to the south and Marshy Creek to the east. Waste material is continued to be backfilled to 40mRL until all overburden is placed within mining limits.

The mine sequencing of overburden and coal removal for the current modeled reserves according to the mining stages is included in Table 4.1. The dates included are for the proposed mining sequence, relocating the Salt creek to the south after the extraction of the L1 seam in Stage 2. Further geotechnical and environmental design may affect the proposed schedule as well as any extension or reduction to the coal resource as a result of infill/regional drilling programs.

6.2 Salt Creek Diversion

Diversion of the Salt Creek to recover the coal resources that exist in strata below would be required and it is proposed to create a diversion channel to the south of the current creek location to ensure that the waterway has minimal disruption and can continue to flow after periods of significant rainfall.

The proposed future diversion of the creek will require a full engineering design to ensure geotechnical stability and to reduce the risk of inflow into the mining area.

At least 12 months prior to undertaking any stream diversion work, the above engineering study shall be completed and submitted to the DPI for approval along with an appropriate Work Plan variation. Approval for such work would also need approval from the appropriate authority.

6.3 Stripping Ratio

The strip ratio for all six stages is approximately 1.91:1 (overburden m^3:coal tonnes) with the highest strip ratio occurring in the final Stage 6 with 2.79m^3:1 tonne of coal. The proposed disturbance area for future mining operations is 409 hectares (346 Ha pit crest area), with a 50metre maximum disturbance boundary from the pit crest that is included in plans (see Appendix A).

Overburden removal for the proposed stages of development is summarised in Table 4.

Table 6.1- Overburden removal by stage

Stage	1	2	3	4	5	6
Approximate Overburden M^3	6,300	17,300	9,500	34,000	18,500	46,000

6.4 Mine Plan and Mine Life

Total coal delivery by stage is characterised below in Table 4.3. The Anglesea mine has reported reserves to maintain production at the current ROM feed rate of 1.1Mtpa till approximately 2071. There is potential to further increase or decrease the resource with regional and infill drilling depending on the strip ratio and economics. Total reserves may also be compromised by optimistic dilution factors used in the design process, given current knowledge of lower seam quality aspects.

Other aspects that give rise to declaring more reserves in the plan than required is around the quality aspect of sulphur which may lead to some high sulphur content coals being unacceptable for use in the adjacent power station. Additionally, some of the drilling data obtained from drilling work done in the 1950s and 1960s depict some gaps in some of the lower seam information and may have an impact on some aspects of the modeling. Infill drilling may be required to fully understand the deposit where there are clear gaps in the original drillhole data.

Table 6.2 - Coal extraction by stage

Stage	1	2	3	4	5	6
Approximate Coal tonnes (000's)	7,700	5,500	3,300	37,500	3,600	15,900

6.5 Mining Method

6.5.1 MINING AND PIT DESIGN

Alcoa's current mining operation at Anglesea utilises a truck and shovel configuration targeting the Main Seam located within the original 50 million tonne mine plan. The mining activities in the current pit have been referred to as Stage 1 and are due for completion of coal extraction activities in 2016 at current productivity levels.

Pit design is based on typical batter designs (see page 24) that have evolved over time and are dependent on standard conditions that may need to be modified dependent on specific issues that may be encountered as the mine develops or the evolution of the mine design based on technical input.

Whereas the depicted Stages above are designed to utilize the maximum amount of known coal reserve, the sequencing may be subject to alteration over time given various cost and sustainability issues that may be encountered.

6.5.2 MINING OVERBURDEN DISPOSAL

Overburden material disposal at Anglesea is designed to be placed within pit boundaries behind the advancing coal face. Once the backfill area reaches the designed height, the area is battered down where necessary and topsoil and subsoil replaced and rehabilitated to ensure minimal impact to the environment and community. The maximum backfill height proposed for the project is 40mRL.

The placement of overburden material is backfilled in the current operating area where the main seam reserves have been extracted. This will continue from east to west at an elevation of 10mRL and then north following the Stage 1 pit. The dump design profiles can be viewed in the mine closure (rehabilitation) profiles in Appendix D

6.5.3 COAL RECOVERY

Coal has been assumed to be unrecoverable for the top and bottom 10cm of the seam and the figures used in Table 4.3 reflect this dilution of the seam reserves. Historically, dilution effects have been averaged at the above design levels however, this may prove to be optimistic when working with multiple seams and so total declared coal reserves are also higher to compensate for this outcome. Working coal batters are extracted at 45° and flattened to the slope design from historical geotechnical investigations. (see Table 8.1 and cross-sections in Appendix C)

6.5.4 FUTURE COAL MINING

Given the current knowledge of the future coal deposits and the historic mining methods employed, it is envisaged that mining into the future will still utilize excavator, truck and other earthmoving equipment resources. However, over time, the development of the mine and alternative mining methods will undergo periodic review to ensure optimum methodology is applied to the mining operation for cost, efficiency and technical reasons.

6.5.5 DRILLING

Due to some of the resource data gaps described earlier and the potential need for additional geotechnical information, there is a high likelihood that additional drilling will be required within the described mining envelope at some stage through the life of the Work Plan.

Even though this predicted drilling will occur within the mine plan footprint and is not strictly seen as exploratory in nature, drilling will be undertaken using best practice methods and be aligned to any Code of Practice for Mineral Exploration current at the time of drilling.

FIGURE 10

5748500N

250500E

251500E

252500E

253500E

254500E

5747500N

5746500N

5745500N

50m Crest Boundary

STAGE 5

STAGE 4

STAGE 3

STAGE 6

STAGE 2

STAGE 1

Salt Creek

Proposed Salt Creek Diversion

CURRENT MINING AREA

GOLF CLUB LEASE

CROWN ALLOTMENT 63B1

CROWN ALLOTMENT 64D

CROWN ALLOTMENT 65

Crown Allotment 1 Parish of Anderbook

Crown Allotment 1 Parish of Anderbook

Mining One Pty Ltd

ANGLESEA COAL MINE

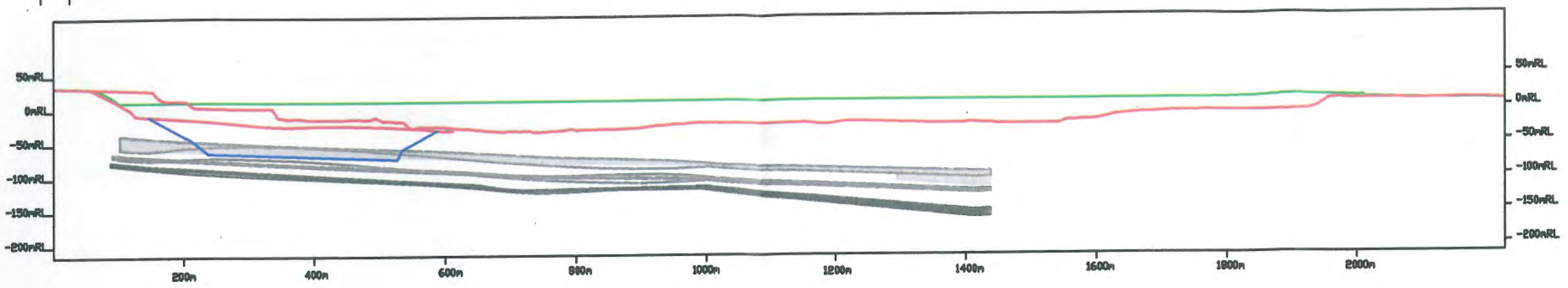
PROPOSED DEVELOPMENT STAGES

PLAN VIEW

Scale	1:1500 (A3)	Date	3-Feb-2011
Job No.	1347_G	File	anglesea_topography_a3_v2.dwg

FIG. 10

Section 1



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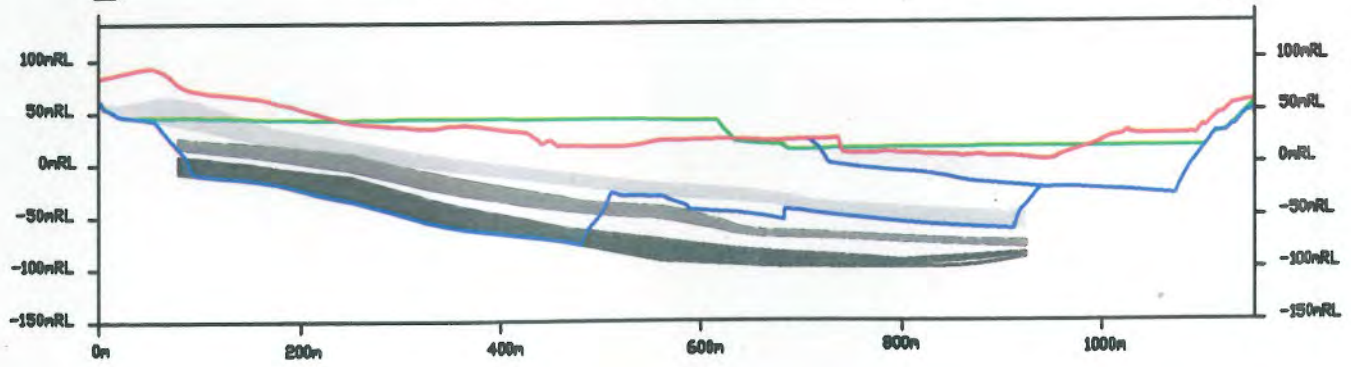
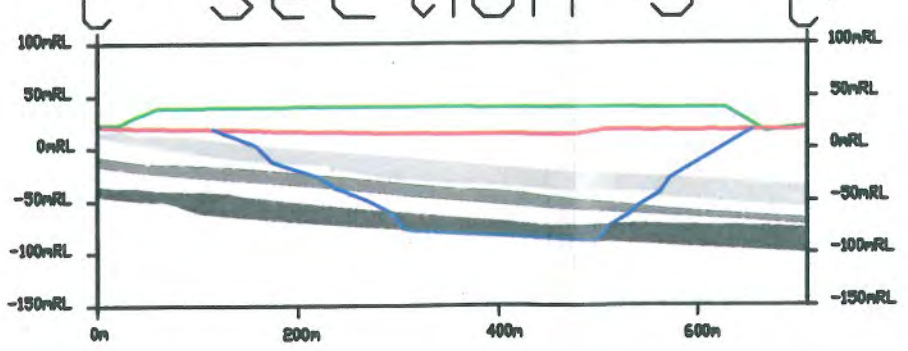


Section 3

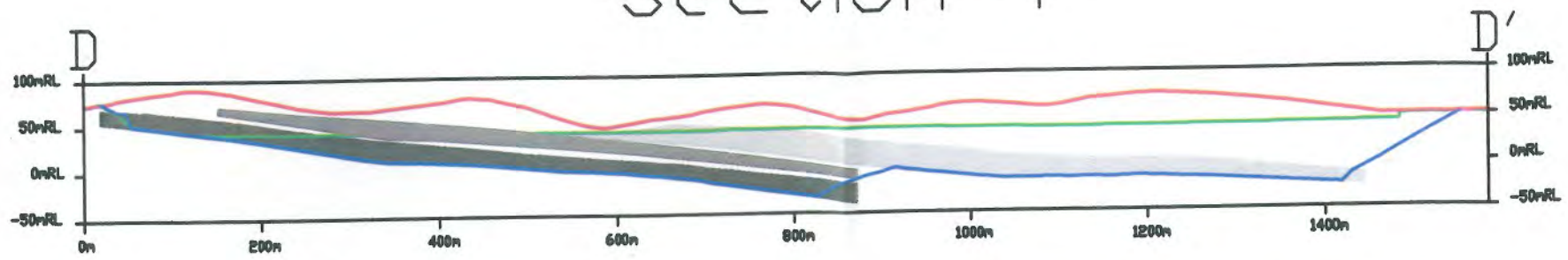


LEGEND

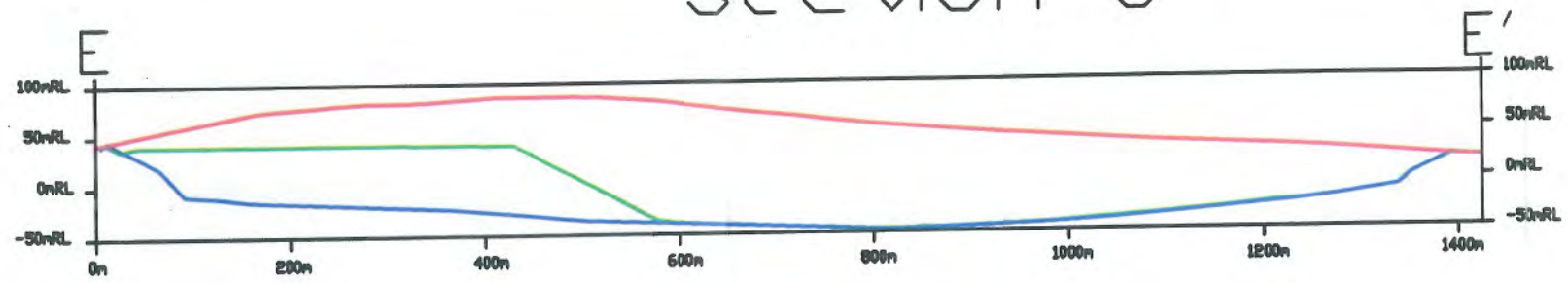
- Current Topography
- Final Topography
- Pit Outline
- Main Coal Seam
- L1 Coal Seam
- L2 Coal Seam
- L3 Coal Seam

CLIENT	ALCOA LTD - ANGLESEA POWER STATION	Cross Section of Proposed Mining Operations	
MiningOne Pty Ltd		JOB# 1347_G / SCALE 1:100	FIG. 11
		FILE Anglesea Sections1-3.dwg / DATE 14 Sept 2010	

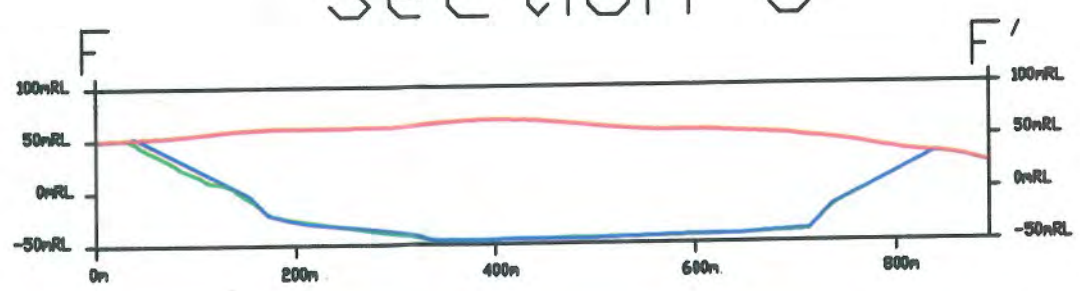
Section 4



Section 5



Section 6



LEGEND

- Current Topography
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CLIENT	ALCOA LTD - ANGLESEA POWER STATION	Cross Section of Proposed Mining Operations	
MiningOne Pty Ltd		JOB# 1347_G	SCALE 1:100
		FILE Anglesea Sections4-6.dwg	DATE 14 Sept 2010
			FIG. 12