KING LYELL COPPER CLAYS

RESOURCE ASSESSMENT

MAY 1997

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FOR

COPPER MINES OF TASMANIA

SUMMARY

The King Lyell copper clays lie to the east of the King Lyell area, at the head of the Linda Valley. Ten drill holes which intersect the mineralised zone were used in this assessment, together with maps showing the surface outcrop at the western extent, and cross sections from a report by K Wills. K. Morrison defined an overall limit to mineralisation, based on the drill hole data and the field mapping, and this limit has been respected in this assessment.

The mineralised zone is a tongue shaped body, pinching out to surface at the western end, and dipping gently to the east south-east. The body has been interpreted as extending east as far as drill hole M12, just west of the Lyell Highway. The inferred resource is estimated to be 1.2 million tonnes of copper clay with an average grade of 1.37% copper. However, the grades in the western half of the body are consistently higher than in the deeper, eastern half. The average grade in the western 0.6 million tonnes is 2.01% copper.

A conceptual ultimate pit was modelled around the body, assuming an ultimate slope of 60 degrees, to get a feel for stripping ratios. This yielded an overall ratio (tonnes of waste to tonnes of "ore") of 2.3, and 1.3 for the western half only.

The author stresses that this is a very preliminary assessment, based on the field mapping and just ten drill holes. The volumes were calculated by wire-framing from cross sections, with no attempt to model grade distribution at this stage. The grades quoted above are simple arithmetic averages from the drill hole intersections, and the boundaries of mineralisation are based loosely on a minimum grade of 0.2% copper. Therefore the assessment is prepared as a preliminary estimate only, as instructed, and is not claimed to be rigorous.

Comment 2006
still valid as an inferred resource, esp @ high Cu prices.

DATA PREPARATION

Database

All data has been loaded on to a Datamine database. The maps and sections supplied by CMT, from which some data was extracted, are listed in Appendix I.

Topographic data

Topographic data and the locations of creeks and roads were supplied in digital form by CMT as ASCII files

Drill holes

All drill holes have been assumed to be vertical. Collar coordinates were obtained to the nearest half metre from maps supplied by CMT, and elevations were determined to the nearest half metre from the topographic data. Depths were given on the sections prepared by K Wills, and graphical logs in the case of KL1, KL2, and KL13.

Mineralisation Limit

K. Morrison provided an estimate of where the surface geology constrains the extent of mineralisation. This limit has also been included in the database (as a polygon) to control the extent of the model in the cross sections.

The topographic data, drill hole locations, cross section locations, and the mineralisation limit are shown on the base map in Figure 1.

Assays

Average assay values over mineralised intersections were taken from the sections preparaed by K Wills. In the case of KL1, KL2, and KL13, half metre and metre sample values were available, but grades were averaged over the mineralised intersections for consistency with the earlier holes. The intersections are summarised below.

Drill hole	From	To	%Cu
KL2	74.0	77.8	0.86
KL13	42.2	69.4	1.08
KL1	0.0	7.6	1.69
KLC1	45.0	58.0	0.85
KLC2	29.0	38.0	3.11
KL16	36.0	37.5	0.13
ML9	2.0	42.0	2.16
ML10	30.0	37.6	0.44
ML11	47.5	84.0	0.67
ML12	64.0	112.8	0.52

Section location and grids

The topographic data and more recent location maps are based on AMG coordinates. The map showing the location of the cross sections prepared by K. Wills is based on a mine grid. Using the location of drill holes KL1, KL2, and KL13 which are shown in both grids, the location of the cross sections in AMG was determined. AMG coordinates have been used in this evaluation. The section locations are shown on Figure 1.

Topographic profiles

Topographic profiles were obtained for the sections by vertically slicing a wireframe surface (DTM) constructed from the topographic contours, along the sections. There are some minor differences between these profiles and the ones on K. Wills' sections.

Copper Clay Mineralisation

The extent of copper clay mineralisation is shown on Cross Sections 1, 2, and 3 as prepared by K. Wills. These boundaries were digitised into the database as a starting point for modelling the extent of the mineralisation in 3D.

MODELLING

The three cross sections prepared by K.Wills form the basis for the 3D modelling. However, they are too far apart to allow immediate construction of a wireframe to link them. Additional intermediate cross sections were digitised within GUIDE (the graphical side of Datamine) based on limiting the view to include two adjacent original sections, and all drill hole intersections between them. In addition, the location of the overall limit to mineralisation provided by K. Morrison was also displayed, and respected in the construction of the additional cross sections. Topography was also respected where the body outcrops, by using topographic profiles constructed as already described, for all intermediate sections.

The body was extended to the east as far as drill hole M12 which required additional sections beyond those of Wills. The western end of the body was constrained by a small section representing the body just before it pinches out to surface. The Long Section of Wills was used as a guide in modelling the shape of the western and eastern extents of the body.

Once sufficient sections were constructed, they were linked to form a closed wireframe body whose volume can be immediately evaluated.

Grade data is insufficient to allow interpolation of grade distribution. The best (but hardly rigorous !) estimate of overall grade at this stage is simply to average the average grades of the intersections.

The sections corresponding to the locations of K.Wills' sections, as well as the section through ML12 are shown in Figures 2 to 6.

Figure 7 is an isometric view of the polygons defining the mineralised body, together with the drill holes and mineralised intersections.

Figure 8 is a West-East section projection of the wireframe (back side hidden) enclosing the body, together with the drill holes.

CONCEPTUAL PITS

In order to get a preliminary feel for stripping ratio, the body was enclosed in a wireframe representing an open pit based on an ultimate slope of 60 degrees. This pit is only conceptual, and was constructed by digitising (within GUIDE) pit sections around the body on each section, and respecting the topographic sections described above.

Figure 9 shows the pit outlines enclosing the body outlines.

RESULTS

The average grades in the western half of the body are consistently higher than those in the eastern, deeper half of the body. Therefore the results are presented for the case where only the western half of the body is considered, as well as for the whole body as far as drill hole M12.

	Mineralised Zone		Overburden			
	Cubic metres	Tonnes	Cubic metres	Tonnes	S/R	Grade
West only	240,123	612,314	363,469	799,632	1.3	2.01%
Whole body	475,085	1,211,467	1,243,028	2,734,662	2.3	1.37%

Note that the grades have been calculated excluding the intersections from KL16 and ML10 which lie at the very edge of the body as it is now defined (see figures 2 and 3), and whose grades are below the minimum of 0.2% on which the intersections have been (loosely) based. Tonnages were calculated using densities supplied by CMT of 2.55 for mineralised rock, and 2.2 for waste.

APPENDIX I

List of maps and diagrams supplied by CMT

King Lyell Data Compilation Fig. 15 (Dwg No KL1001)

King Lyell Cross Section 1 (6345E) Fig 16 (Dwg No 1002)

King Lyell Cross Section 2 (6410E) Fig 17 (Dwg No 1003)

King Lyell Cross Section 3 (6493E) Fig 18 (Dwg No 1004)

King Lyell Long Section 4 (4658N) Fig 19 (Dwg No 1005)

King Lyell Dholes - Rockchips Cu_ppm 06-Nov-96 (AMG)

King Lyell 18-Aug-96 (AMG)

King Lyell Geology EL52/94 21-Mar-97 (AMG)

King Lyell Geology & Drill Holes EL52/94 21-Mar-97 (AMG)

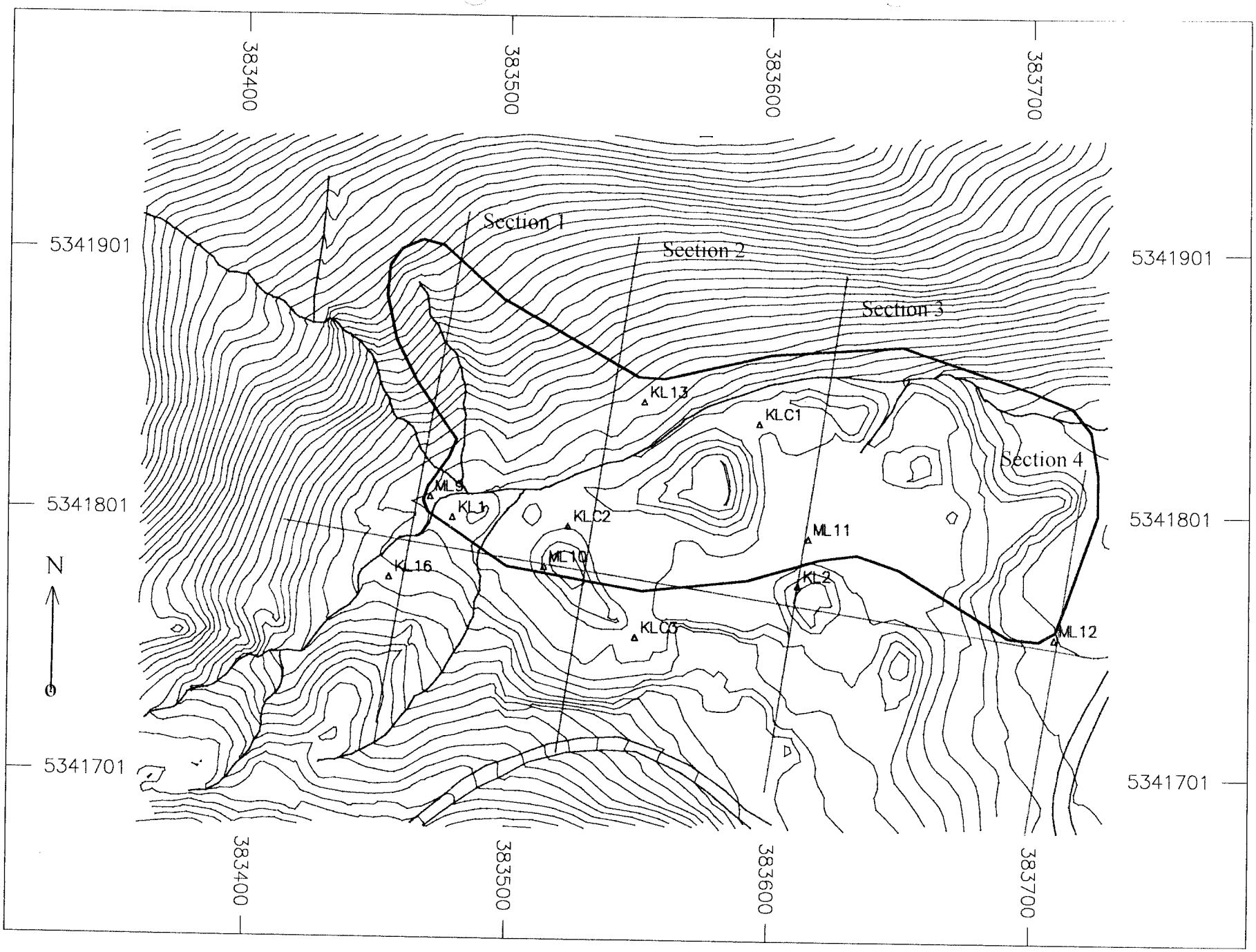

Figure 1. Base map, scale 1:2000, showing topography, creeks, Lyell Highway (red), limit to mineralisation (magenta) drill hole locations (AMG coordinates), and section locations (green)

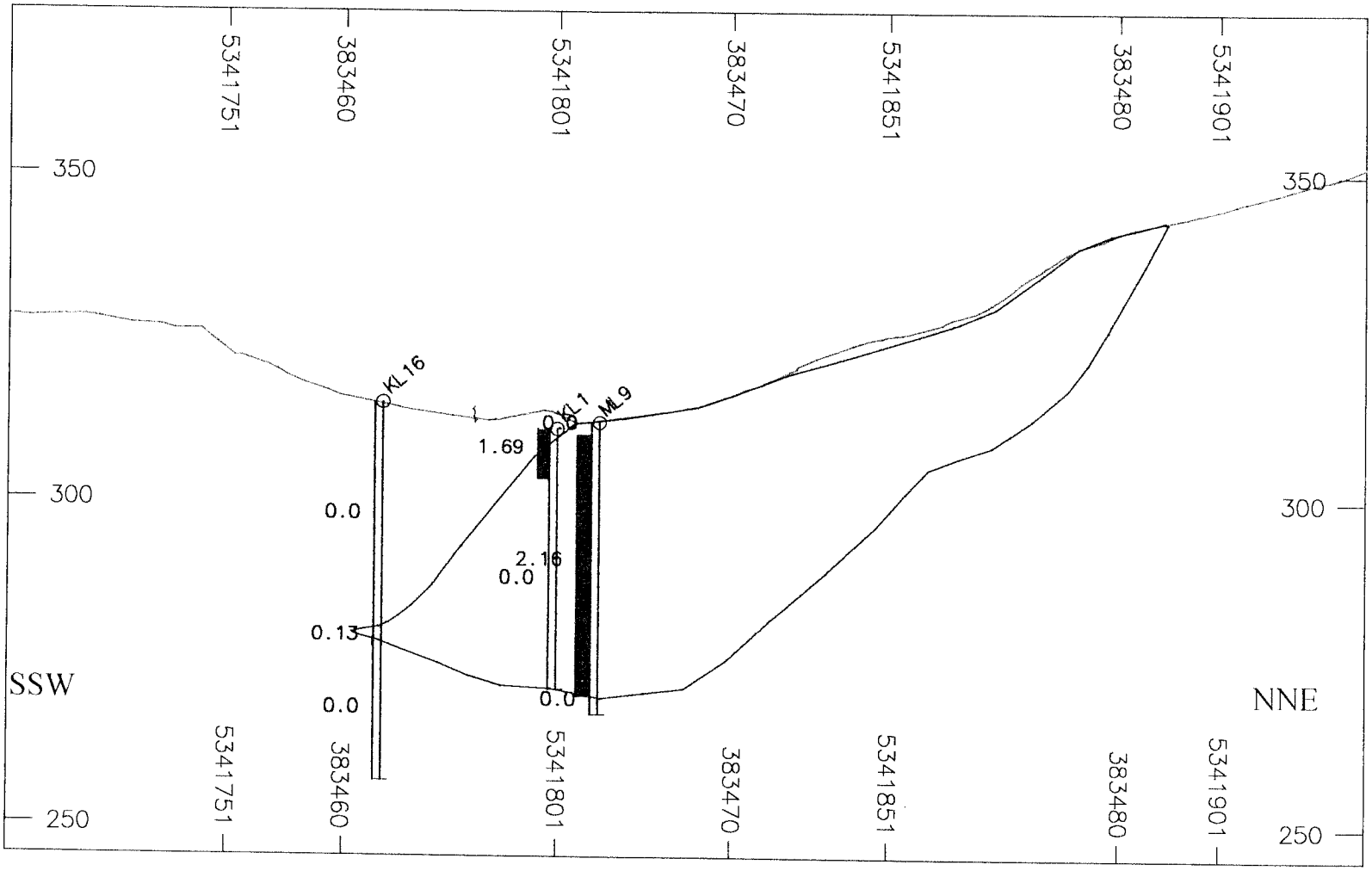

Figure 2. Cross Section 1, showing intersection grades in % Cu.

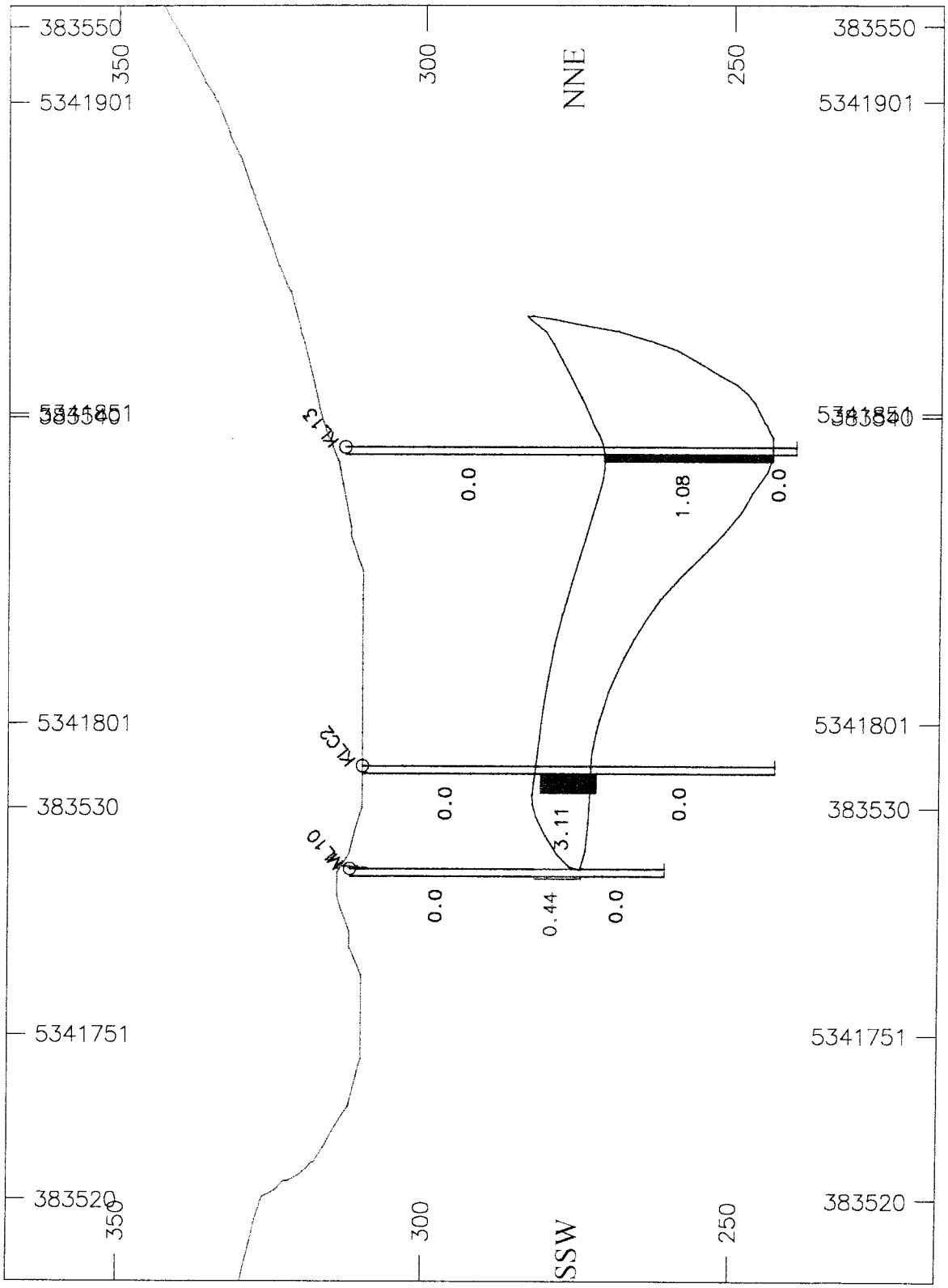

Figure 3. Cross Section 2, showing intersection grades in % Cu.

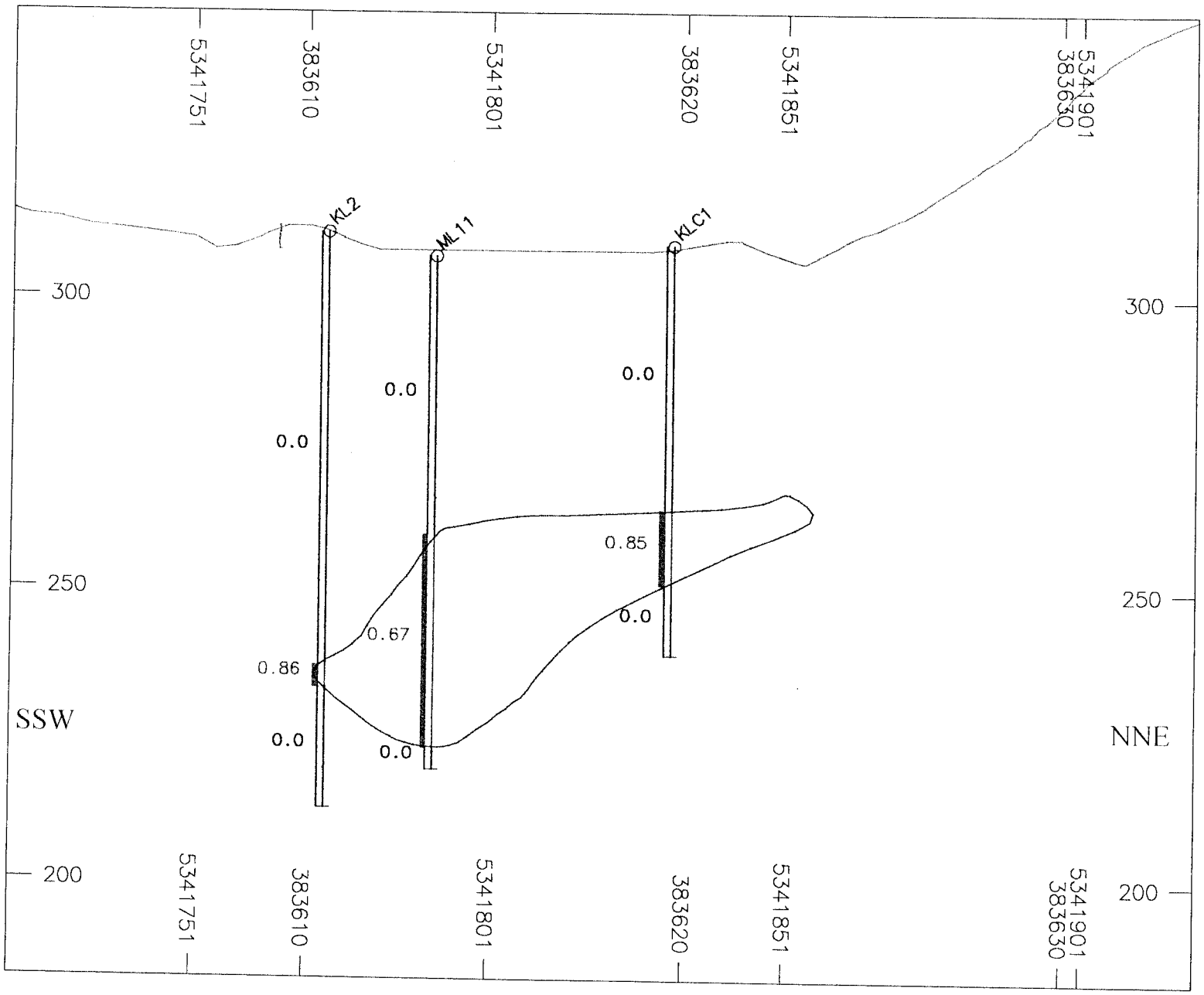

Figure 4. Cross Section 3, showing intersection grades in % Cu.

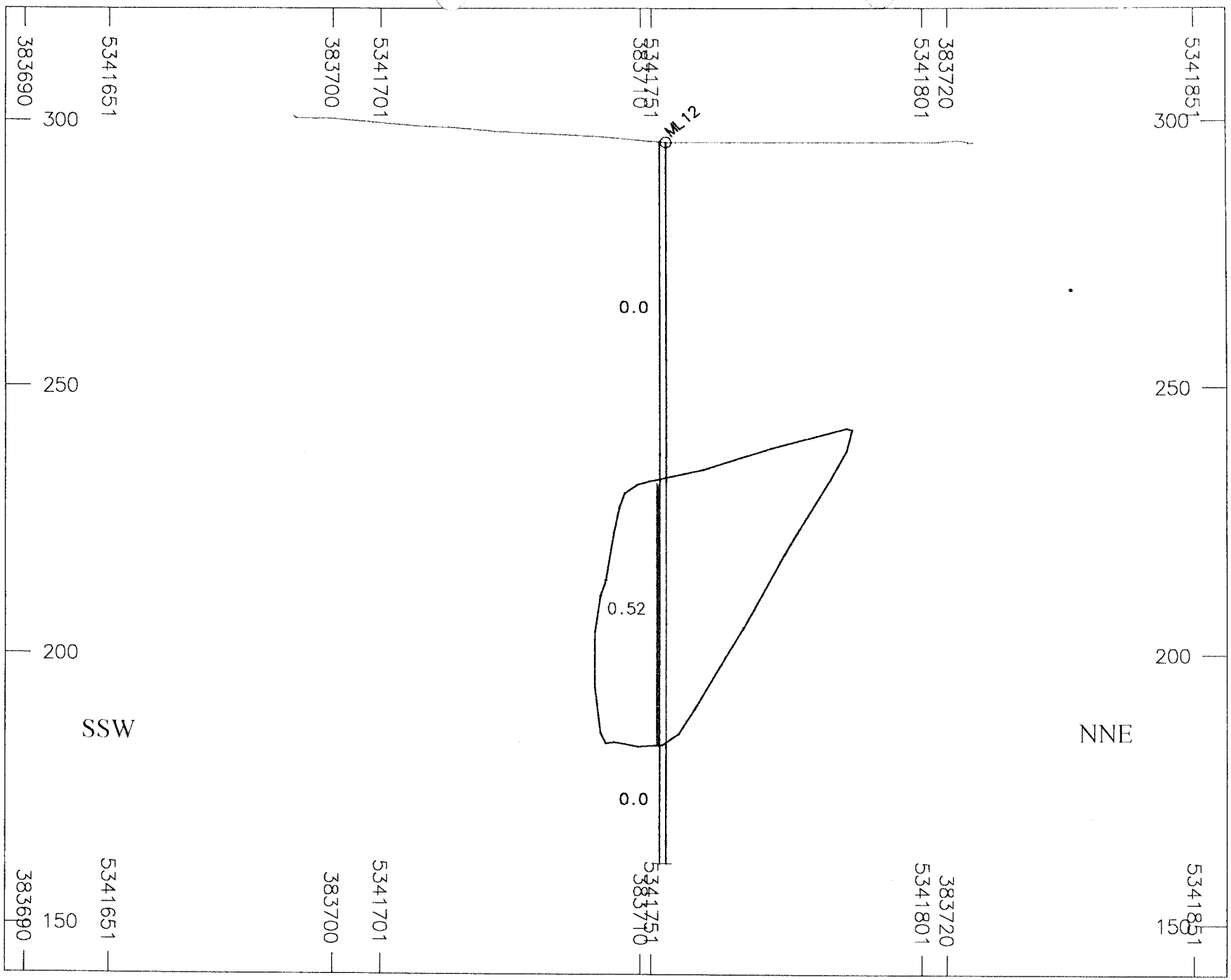

Figure 5. Cross Section 4 through drill hole ML12, showing intersection grades in % Cu.

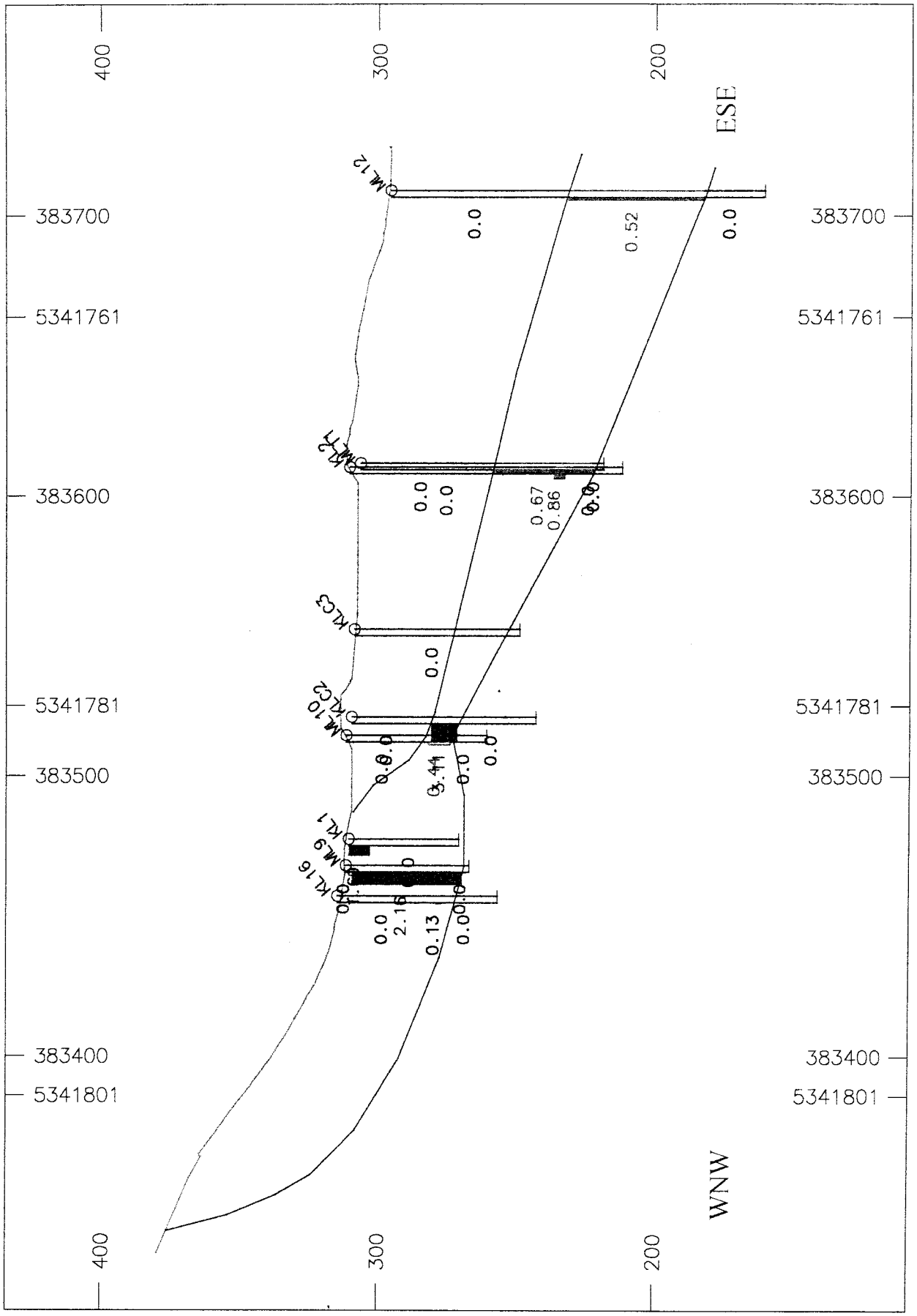

Figure 6. Longitudinal Projection through drill hole ML12, showing intersection grades in % Cu.

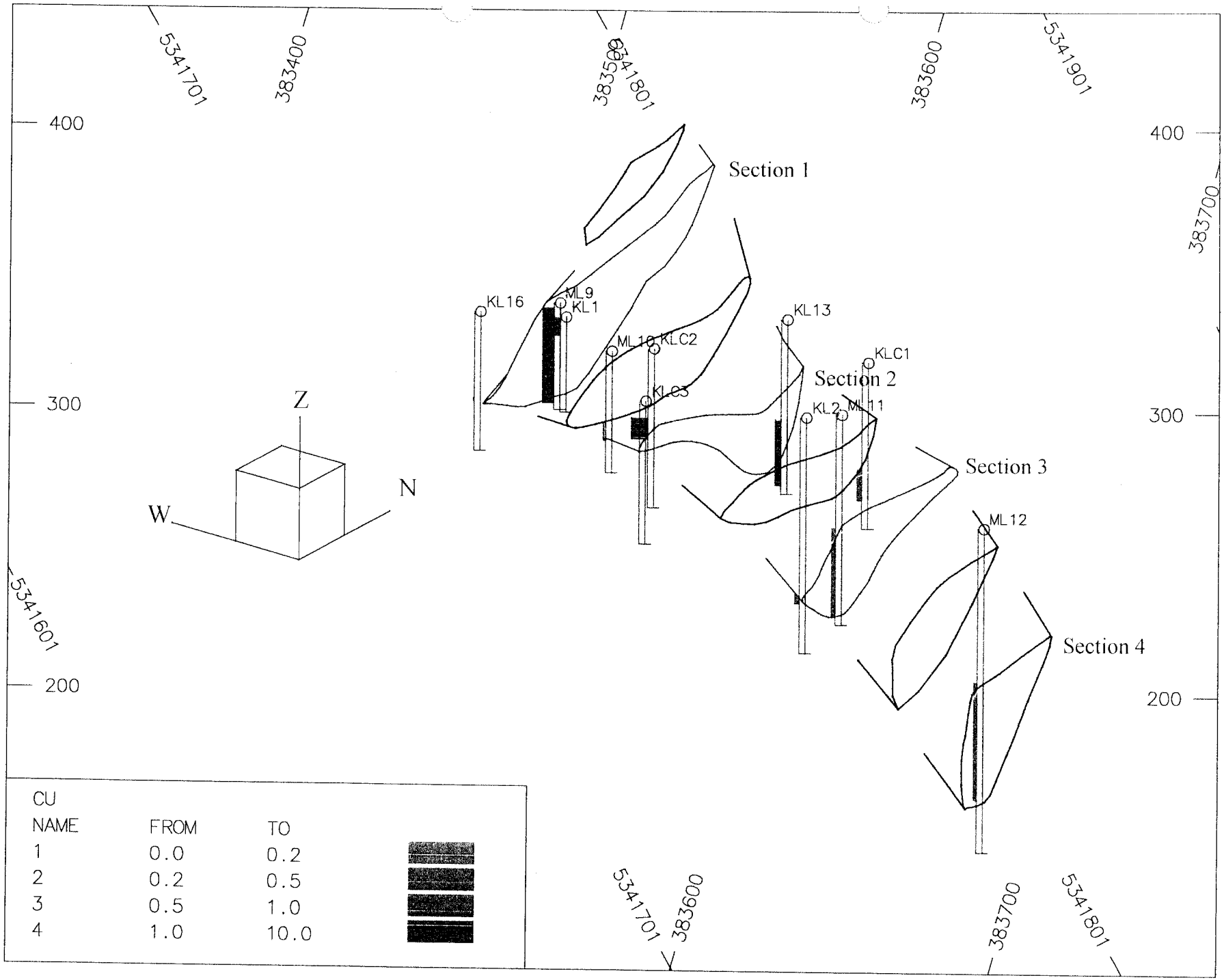

Figure 7. Isometric Projection showing model sections, drill holes and mineralised intersections

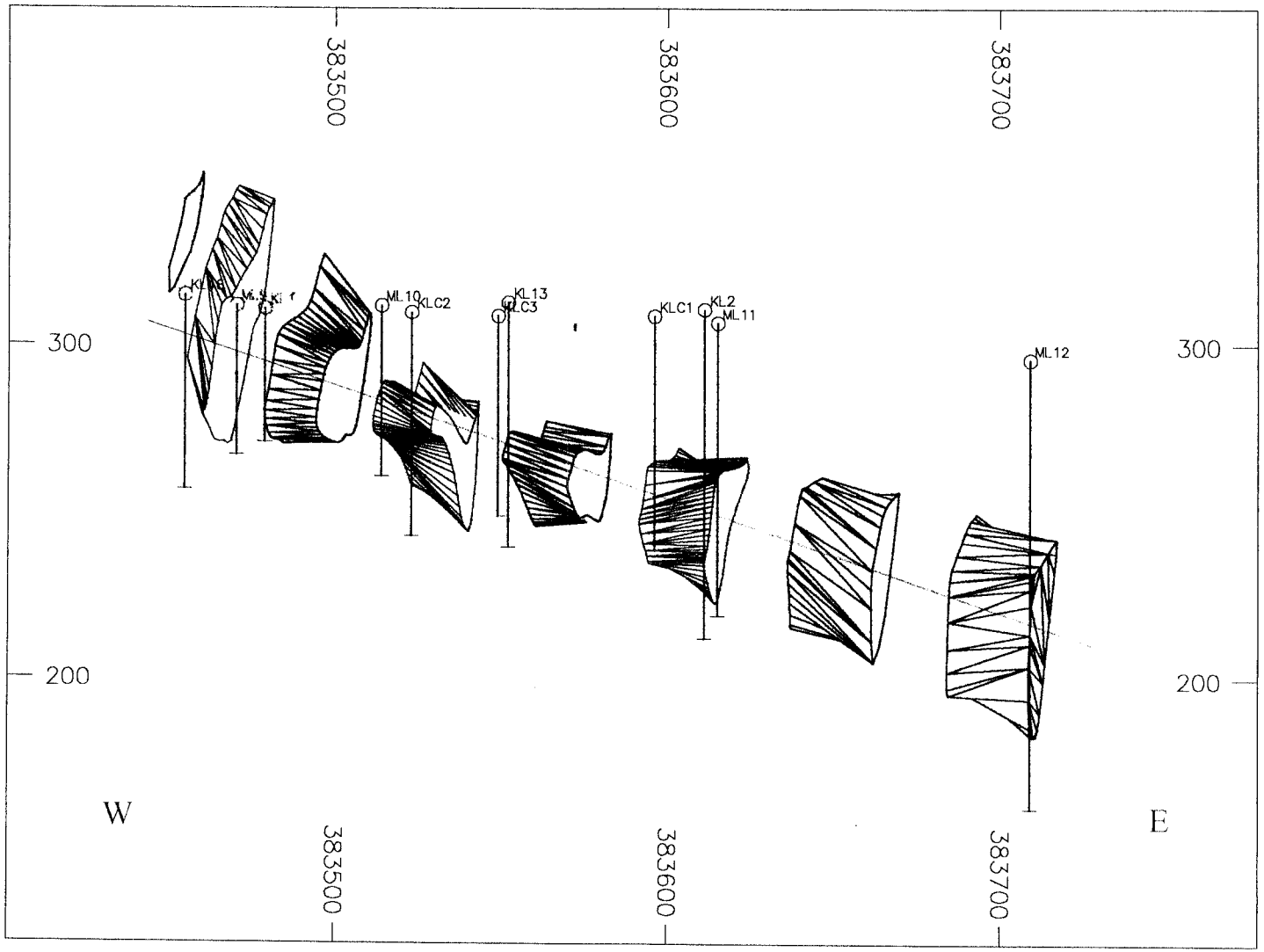

Figure 8. West to East Longitudinal Projection, showing wireframe around mineralised body (back side hidden), sections, and drill holes

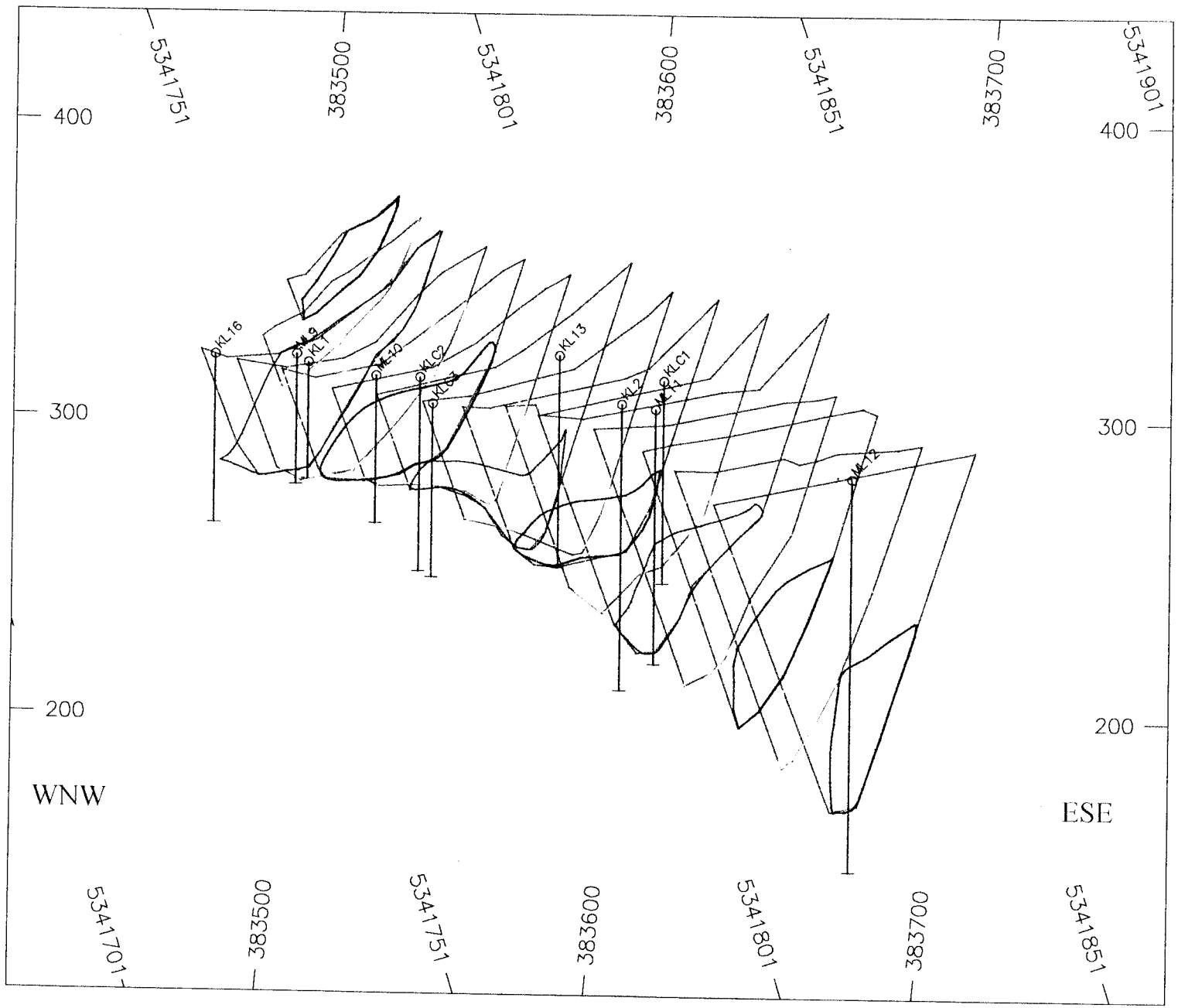

Figure 9. Isometric Projection,showing conceptual pit outlines surrounding mineralised body outlines