GEOLOGICAL SURVEY BRANCH ASSESSMENT REPORTS DATE RECEIVED OCT 2 8 1996 **Highland Valley Copper** INDUCED POLARIZATION and **RESISTIVITY REPORT** on the NB 1-10 AND NB 16-17 MINERAL CLAIMS **NORTHWEST GRID KAMLOOPS MINING DIVISION** NTS 921/11E Longitude 121°10' Latitude 50°34' for **HIGHLAND VALLEY COPPER** P.O. BOX 1500 LOGAN LAKE, B.C. **V0K 1W0** FILMED **REPORT BY:** LORNE A. BOND Logan Lake, B.C. October 18, 1996 GEOLOGICAL SURVEY BRANCH ASSESSMENT REPORT ENG/LB96073 All athings

Table of Contents

			<u>Page</u>		
1.0	Introduction		1		
2.0	Survey Parameters and Equipment				
3.0	Data Presentation				
4.0	Description of Results and Conclusions				
5.0	Statement of Costs		6		
6.0	Statement of Qualifications		7		
List of Figures					
Figure 1		Location Plan Scale 1:50,000	3		
Figure 2		Claim and Grid Map Scale 1:50,000	4		
In Pocket					
Figure 3		Chargeability Contour Plan Scale 1:10,000			
Figure 4		Resistivity Contour Plan Scale 1:10,000			
Figure 5		Chargeability/Resistivity Pseudosections Lines 0S - 900S			
Figure 6		Chargeability/Resistivity Pseudosections Lines 1200S - 1800S			
Figure 7		Chargeability/Resistivity Pseudosections Lines 2100S - 3300S			

1.0 INTRODUCTION

During the period April 30 to July 2, 1996, a program of induced polarization and resistivity surveys was conducted over a portion of the property holdings of the Highland Valley Copper partnership. The grid was located immediately north of the main Highland Valley tailings impoundment area and straddled the Logan Lake to Ashcroft highway. *Figure 1* shows the general location of the survey grid and *Figure 2* illustrates the position of the grid relative to the mineral claim holdings of Highland Valley Copper.

The objective of the survey was to test for large tonnage porphyry type sulfide mineralization within the grid area. This report describes the procedures used for this survey, presents the data, and discusses the results.

Expenditures on this program have been applied to property mineral claims on Statement of Work 3090753 (Group HVC 96-5) and 3090770 (Group HVC 96-6) filed on July 24, 1996.

2.0 SURVEY PARAMETERS AND EQUIPMENT

Daryl Calder of Cranbrook was contracted to carry out the geophysical grid preparation program. Line cutting and chaining of this grid commenced on April 30 and was completed on May 27, 1996. Maps of the completed grids with as-cut gridline locations were prepared by the contractor. A total of 65.3 kilometers of gridlines, baselines, and tielines were cut and chained on the Northwest grid.

The contract for the Induced Polarization/Resistivity survey was awarded to Scott Geophysics Ltd. of Vancouver. Surveying of the grid was executed between June 12 and July 2, 1996. A total of 57.5 line kilometers were surveyed on twelve (12) east-west gridlines. The exploration target was a large tonnage, low grade, porphyry copper system.

For this reconnaissance type program, the gridlines were positioned 300 metres apart. A pole-dipole array was used for the IP/Resistivity surveys, with an electrode spacing of a=100 metres and separations of n=1-6. The online current electrode was to the east of the receiving electrodes on all survey lines (array heading west).

A Scintrex IPR-12 receiver and Scintrex TSQ4 (10.0 kw) transmitter were used on the survey. Readings were taken in the time domain using a two (2) second current pulse (0.125 Hz). Chargeabilities measured were for the interval 120 to 1,020 milliseconds after current interruption.

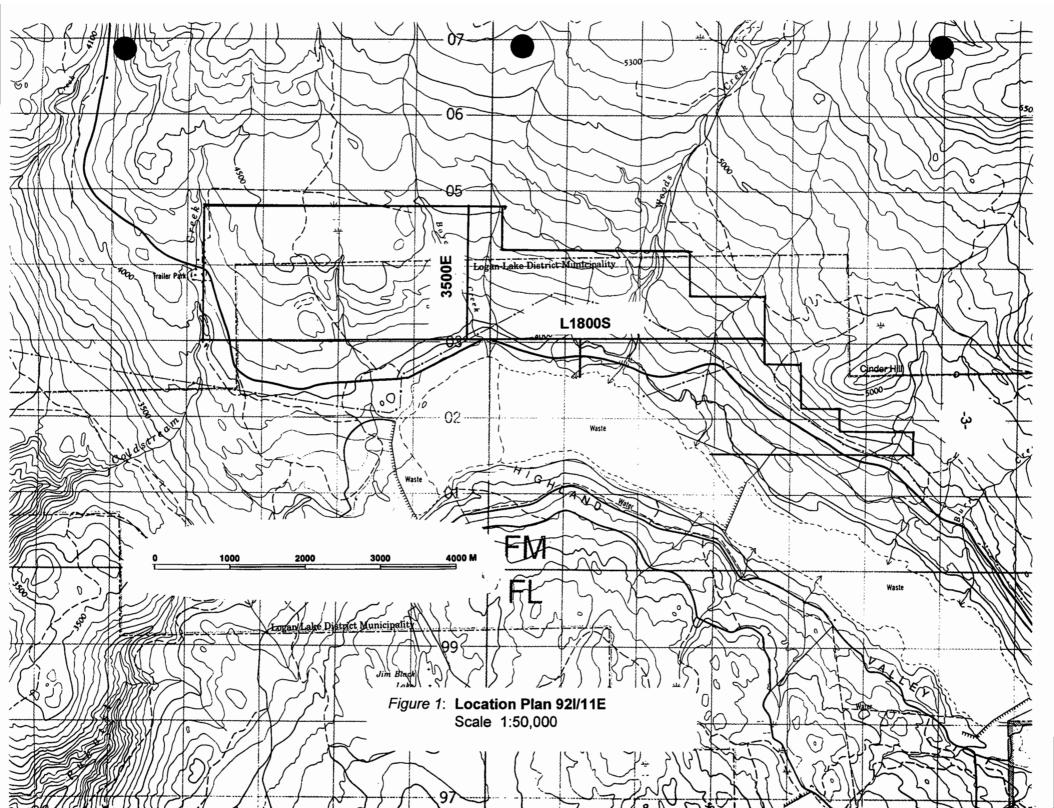
3.0 DATA PRESENTATION

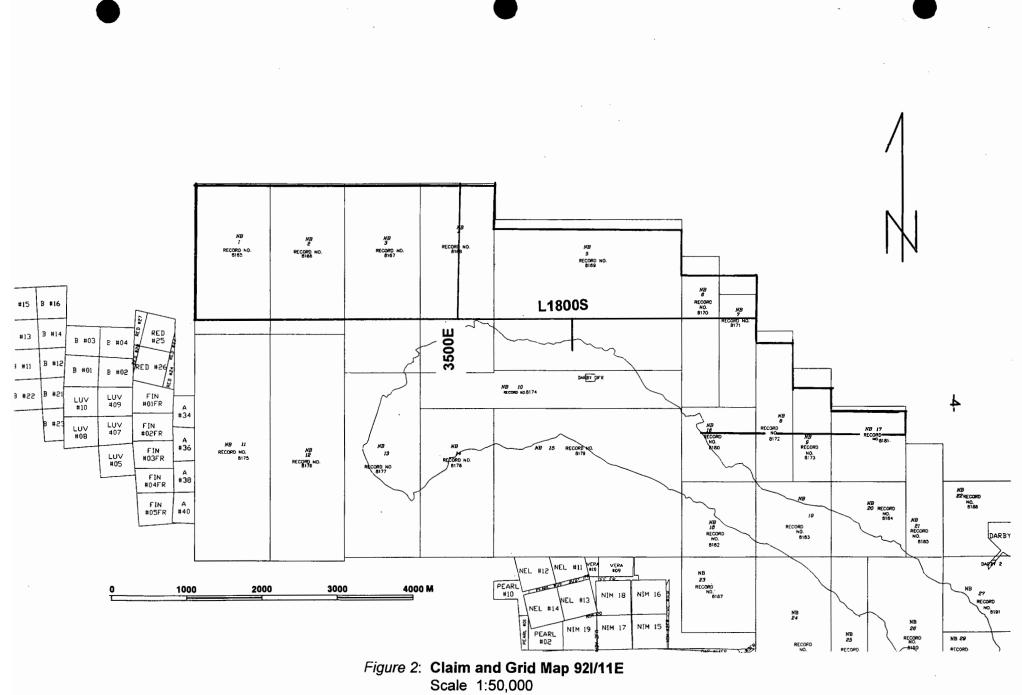
The chargeability and resistivity results are presented in standard pseudosection format and as contour plans for the triangular filtered values. The results for each survey line are displayed in standard pseudosection form for chargeability expressed in mV/V (Ma for 120 - 1,020 msecs) and apparent resistivities in ohm-m. Horizontal scale is 1:10,000 and contours are at 2.5 mV/V and 250 ohm-m increments for chargeability and apparent resistivity respectively. The results are also presented in contour plan for the averaged values of chargeability and resistivity. The average values were obtained using a moving triangular filter comprising one n=1 to six n=6 values. The weighting factor for each data point is one (1). The average value is therefore emphasizing the effects of deeper n-separations, thereby minimizing the effects of overburden and/or near surface weathering effects.

4.0 DESCRIPTIONS OF RESULTS AND CONCLUSIONS

On the Northwest grid, background levels are in the 3 - 5 mV/V range for chargeability (Ma) and 50 - 200 ohm-m for resistivity. These values would appear to reflect generally thick overburden. Other areas where low chargeability values combined with high resistivity values occur most likely reflect barren phases of the Guichon Batholith with the highest resistivity values (>1000 ohm-m) indicating areas of very thin overburden.

-2-





A zone of elevated chargeability can be traced from Line 300S to 1800S and from 4500E to 5600E. The chargeability values are up to 7 mV/V including 9.9 mV/V at 5550E on L900S. This zone of elevated chargeability, while not considered anomalous, appears to occur along the contact of two intrusive phases of the batholith. Sharp contrasts including negative chargeability legs were noted at 3800E on L900S, 2200E on L1200S, and 2400E on L1800S. These are considered to be cultural effects due to surface infrastructure.

5.0 STATEMENT OF COSTS Northwest Grid

Linecutting - grid preparation - 65.3 kilometres Daryl Calder and associates	\$34,282
Geophysics - IP/Res Survey - 57.5 kilometres conducted by Scott Geophysics Ltd.	\$40,792
Project management, planning, supervision, report preparation Lorne Bond, Senior Mine Geologist Highland Valley Copper 10 days @ \$300/day	<u>\$ 3,000</u>
ΤΟΤΑΙ	\$78.074

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6.0 STATEMENT OF QUALIFICATIONS

I, Lorne Allan Bond, of the city of Kamloops, British Columbia do hereby certify that:

1. I am a qualified, practicing Geologist.

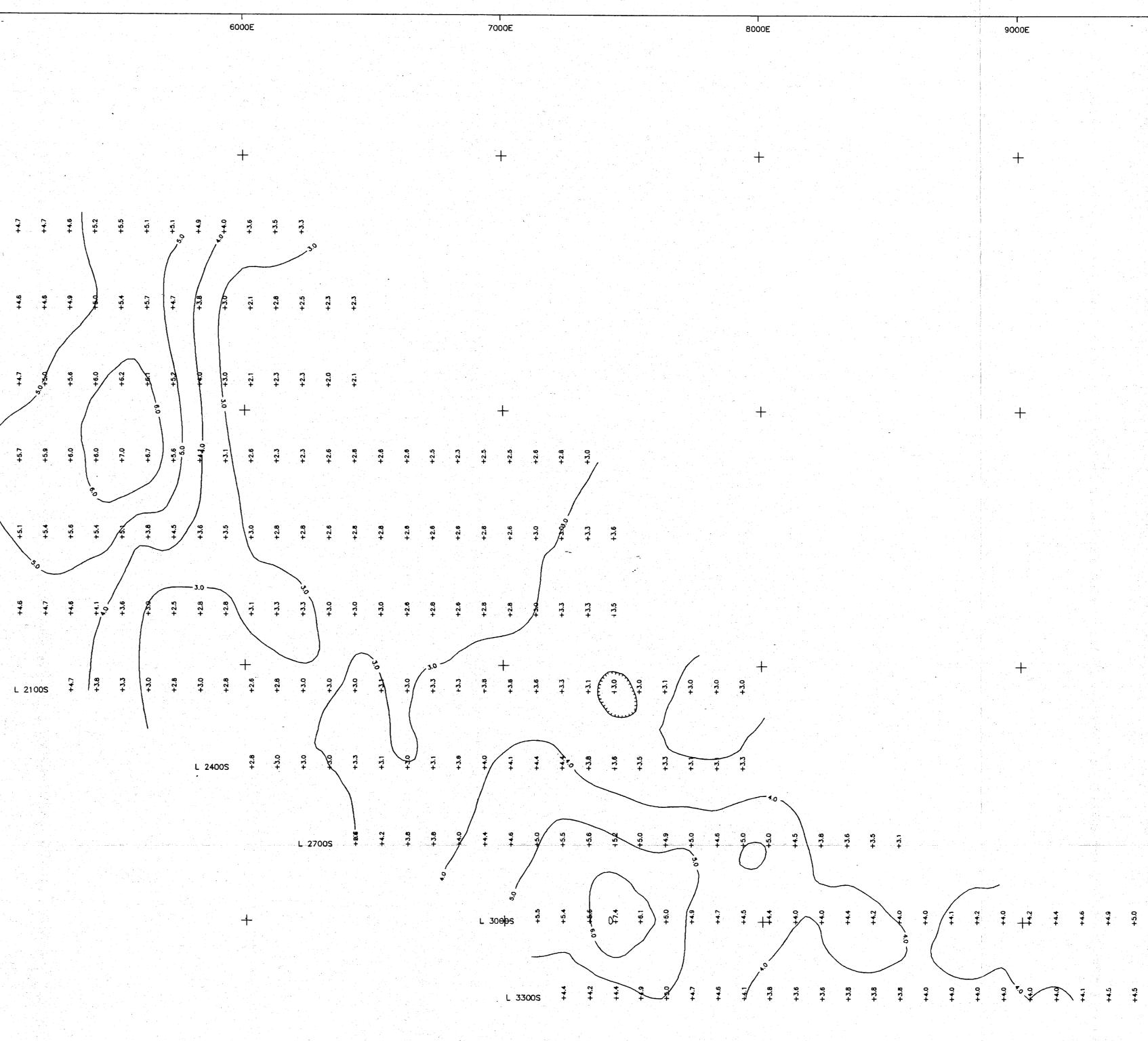
2. I am a graduate of Loyola College (Concordia University), with a B.Sc. (1967) in Geotechnical Sciences.

3. I have practiced my profession since 1967 while employed with Sherritt-Gordon Mines Ltd., Cominco, Afton Operating Corporation, and Highland Valley Copper.

4. This report describes geophysical exploration performed under my direction during the period April 30 to July 2, 1996.

Lorne A. Bond Senior Mine Geologist Highland Valley Copper October 18, 1996

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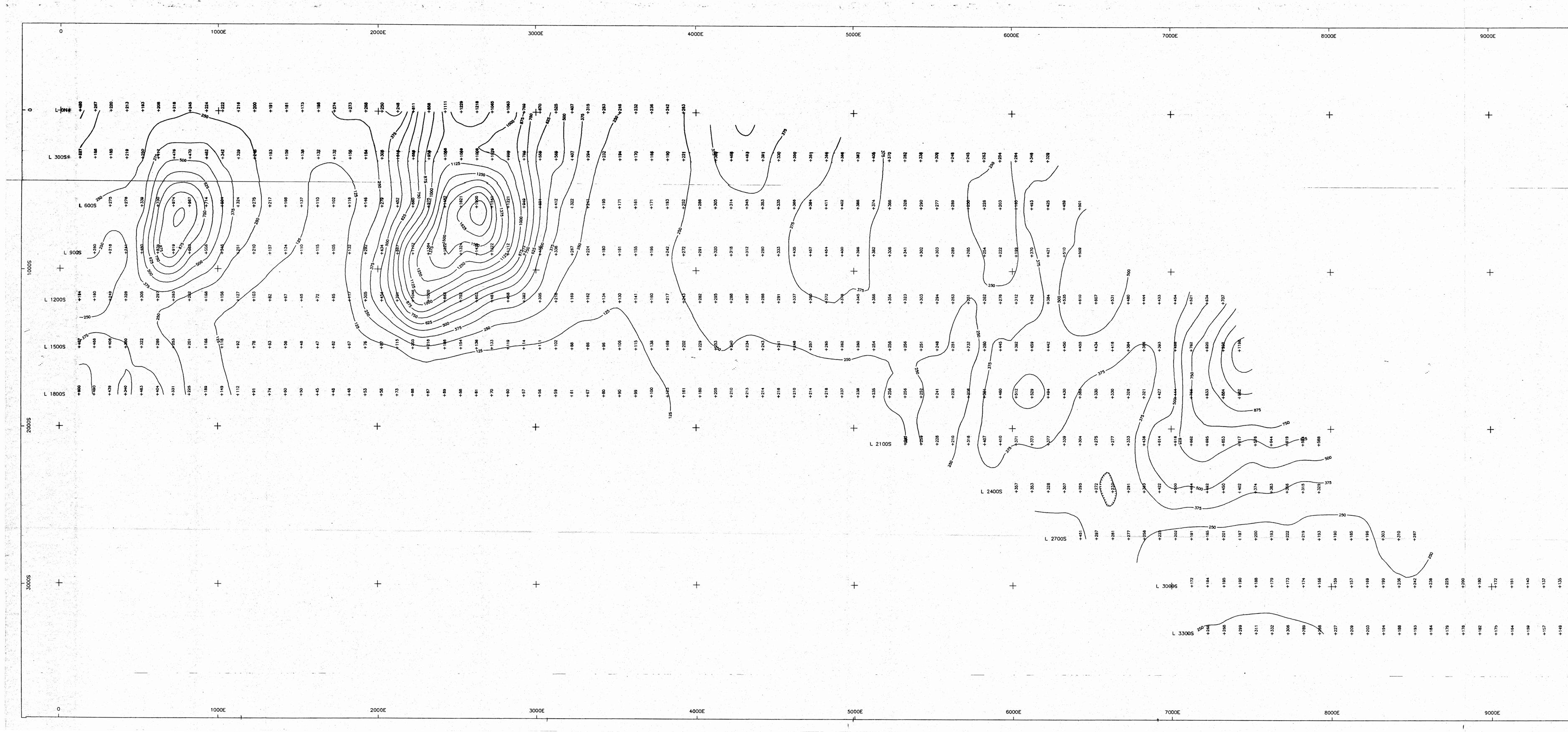


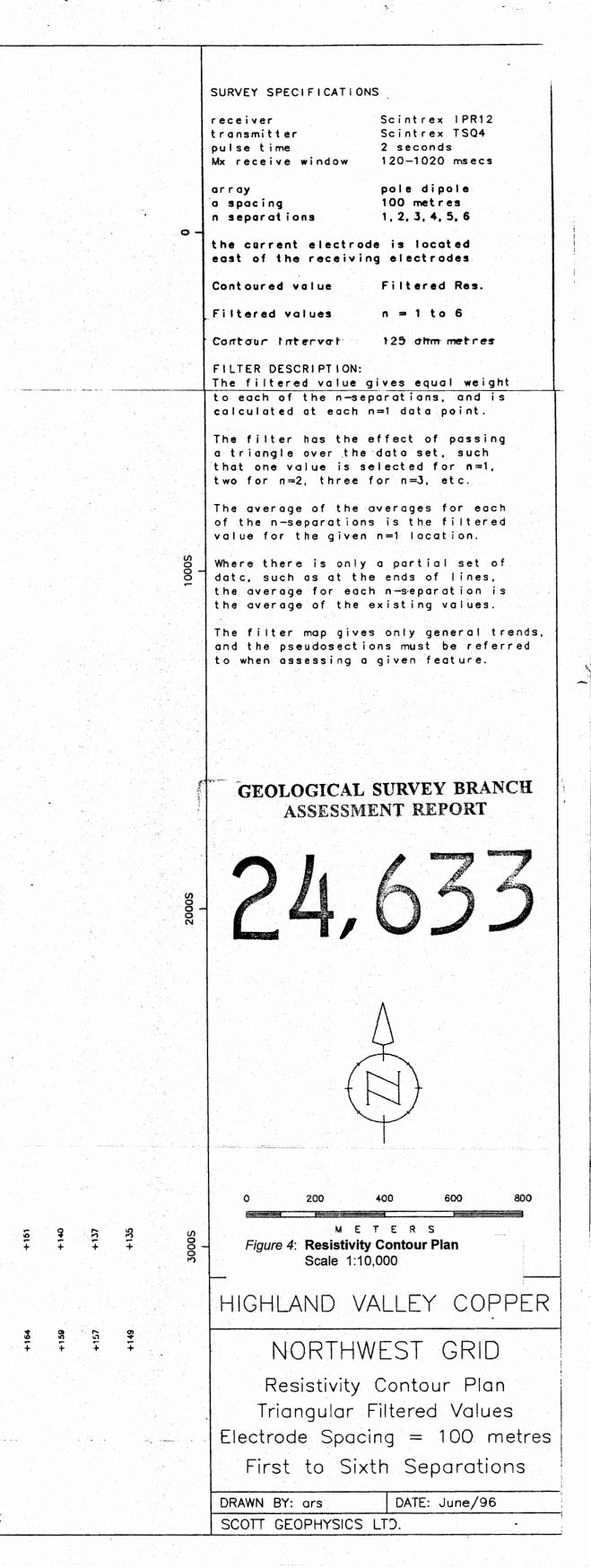
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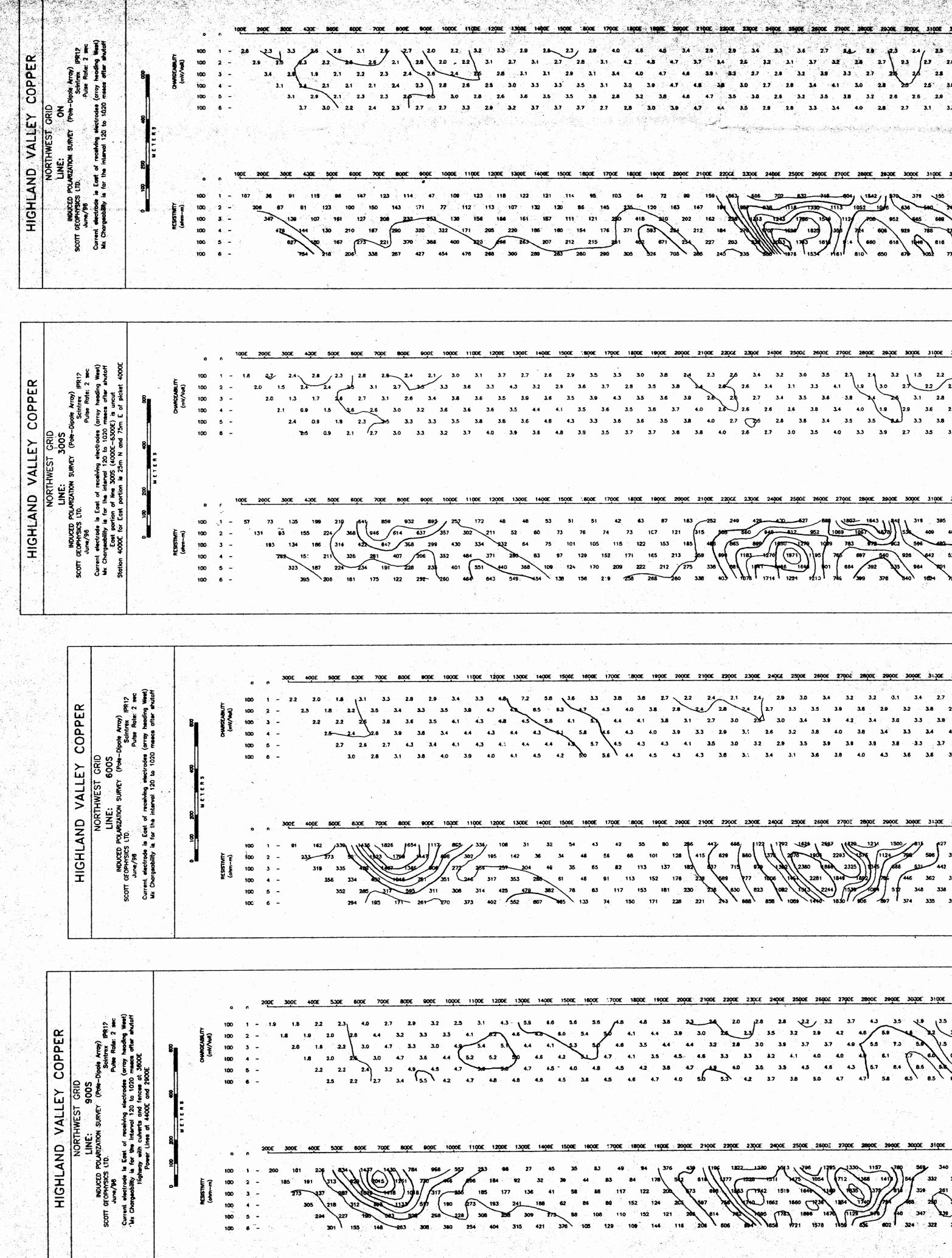
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SURVEY SPECIFICATIONS Scintrex IPR12 receiver Scintrex TSQ4 transmitter 2 seconds pulse time 120-1020 msecs Mx receive window pole dipole array 100 metres a spacing 1, 2, 3, 4, 5, 6 n separations the current electrode is located east of the receiving electrodes Contoured value Filtered Mx Filtered values n = 1 to 6Contour Interval 1.0 mV/V FILTER DESCRIPTION: The filtered value gives equal weight to each of the n-separations, and is calculated at each n=1 data point. The filter has the effect of passing a triangle over the data set, such that one value is selected for n=1, two for n=2, three for n=3, etc. The average of the averages for each of the n-separations is the filtered value for the given n=1 location. Where there is only a partial set of data, such as at the ends of lines, the average for each n-separation is the average of the existing values. The filter map gives only general trends, and the pseudosections must be referred to when assessing a given feature. NOTE: Power lines, culverts, roads, steel pipelines, and pumping stations exist in the survey area. IP highs that are obviously due to such features are noted in the title block orea of the pseudosection for each survey line. GEOLOGICAL SURVEY BRANCH ASSESSMENT REPORT 200 METERS Figure 3: Chargeability Contour Plan Scale 1:10,000 HIGHLAND VALLEY COPPER NORTHWEST GRID Chargeability Contour Plan Triangular Filtered Values Electrode Spacing = 100 metres First to Sixth Separations DATE: June/96 DRAWN BY: ars 9000E SCOTT GEOPHYSICS LTD.







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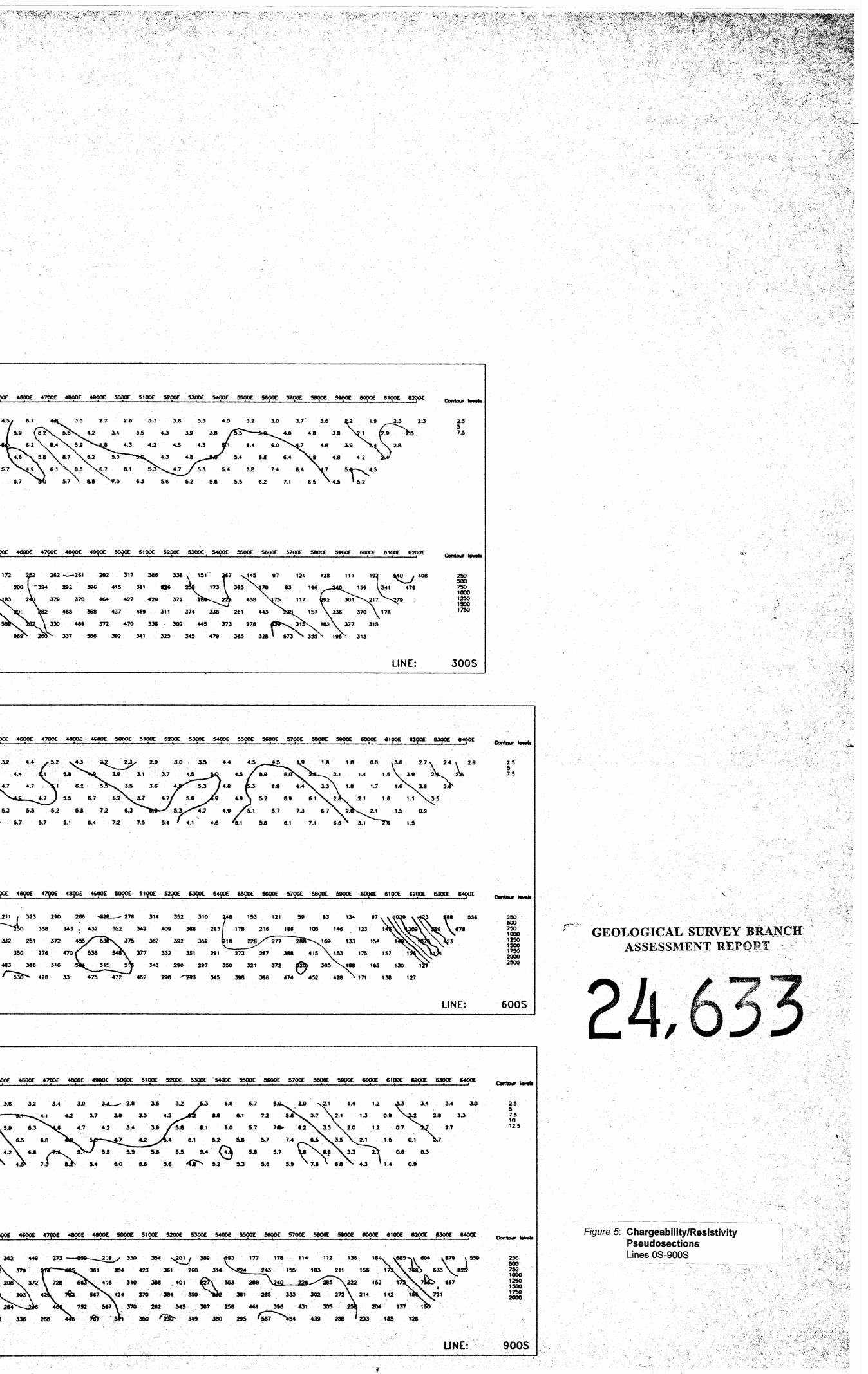
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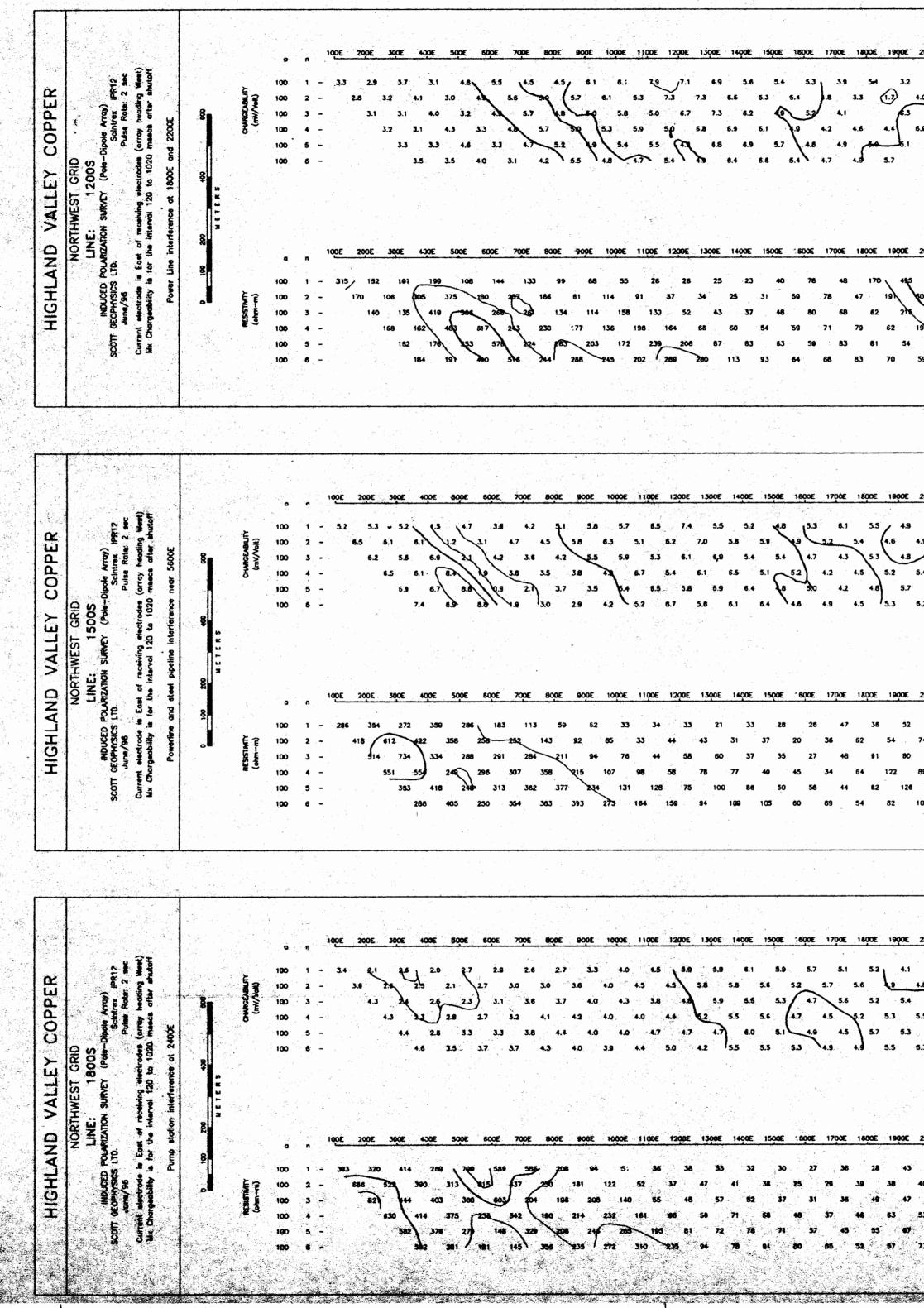
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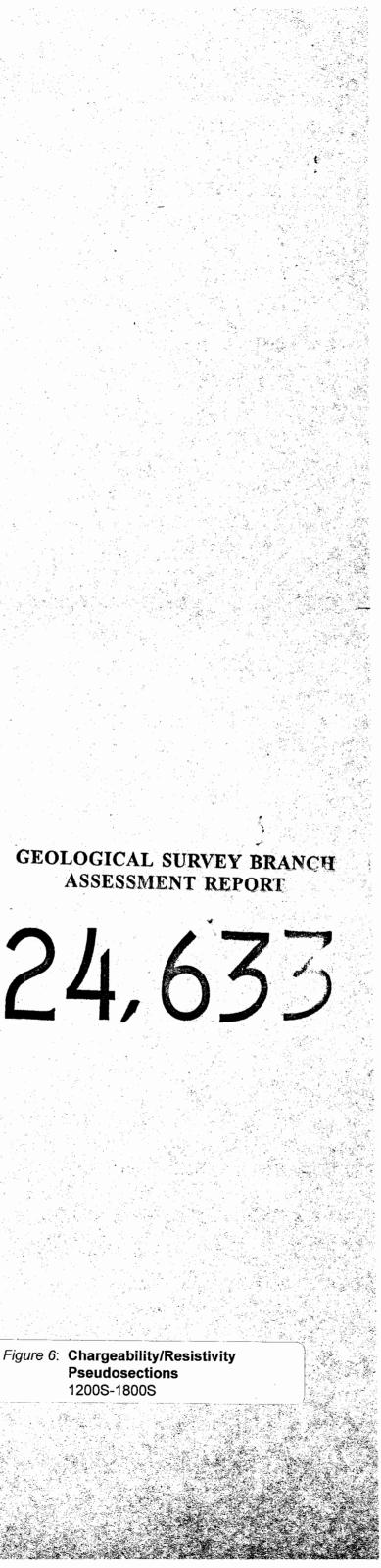




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LINE: 1800S

Figure 6: Chargeability/Resistivity Pseudosections 1200S-1800S

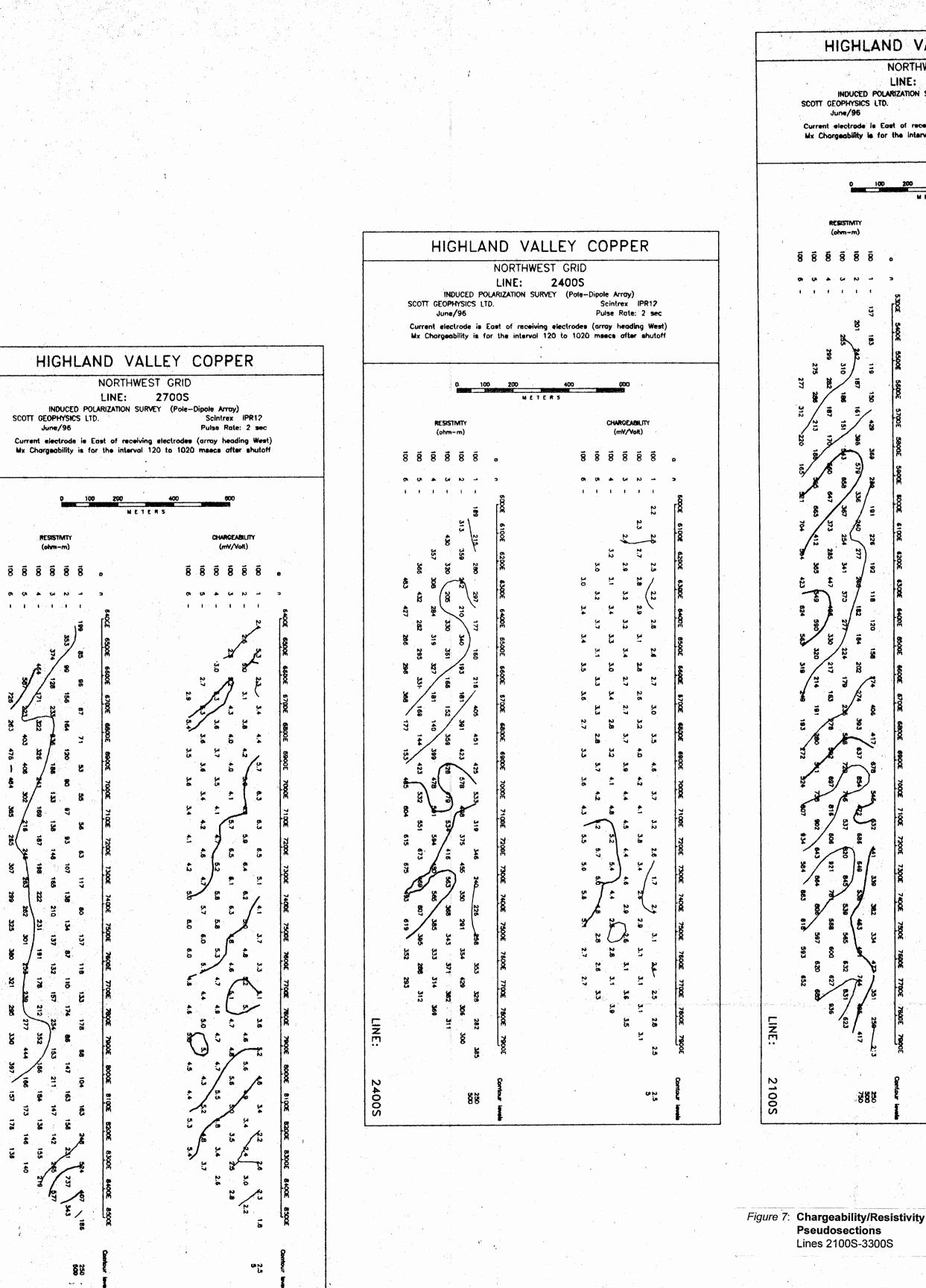


HIGHLAND VALLEY COPPER	HIGHLAND VALLEY COPPER NORTHWEST GRID
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GEOLOGICAL SURVEY BRANCH ASSESSMENT REPORT

24,633

HIGHLAND VALLEY COPPER NORTHWEST GRID NUKTINVEUT LINE: 21005 INDUCED POLARIZATION SURVEY (Pole-Dipole Arroy) Scintrex IPR12 Scintrex IPR12 Pulse Rate: 2 sec Current electrode is East of receiving electrodes (orray heading West) Mx Chargeability is for the interval 120 to 1020 mascs after shutoff CHARGEABILITY (mv/Voll) 888888 0 U A U N - 3 4 4 4 4 4 2 3.0 2/ Ľ 3 5 ų, 2.7 2 2.7 (5 5 2 . بو 0 2.0 **.** 1 26 5 3.6 2 5 2 aN