3.3.10 VITARADENIYA AREA (H2) --- *SURVEY LINE, FIGURE 3.23, RESISTIVITY CROSS SECTION, FIGURE 3.24*

Highly resistive bedrock is detected at shallower depths between stations 6 to 12, while comparatively low resistivity is distributed in the western side of the section. A geological boundary can be drawn between stations 12 and 13 on the eastern side, and another between 5 and 6. No other promising anomaly at depths was found on this section.

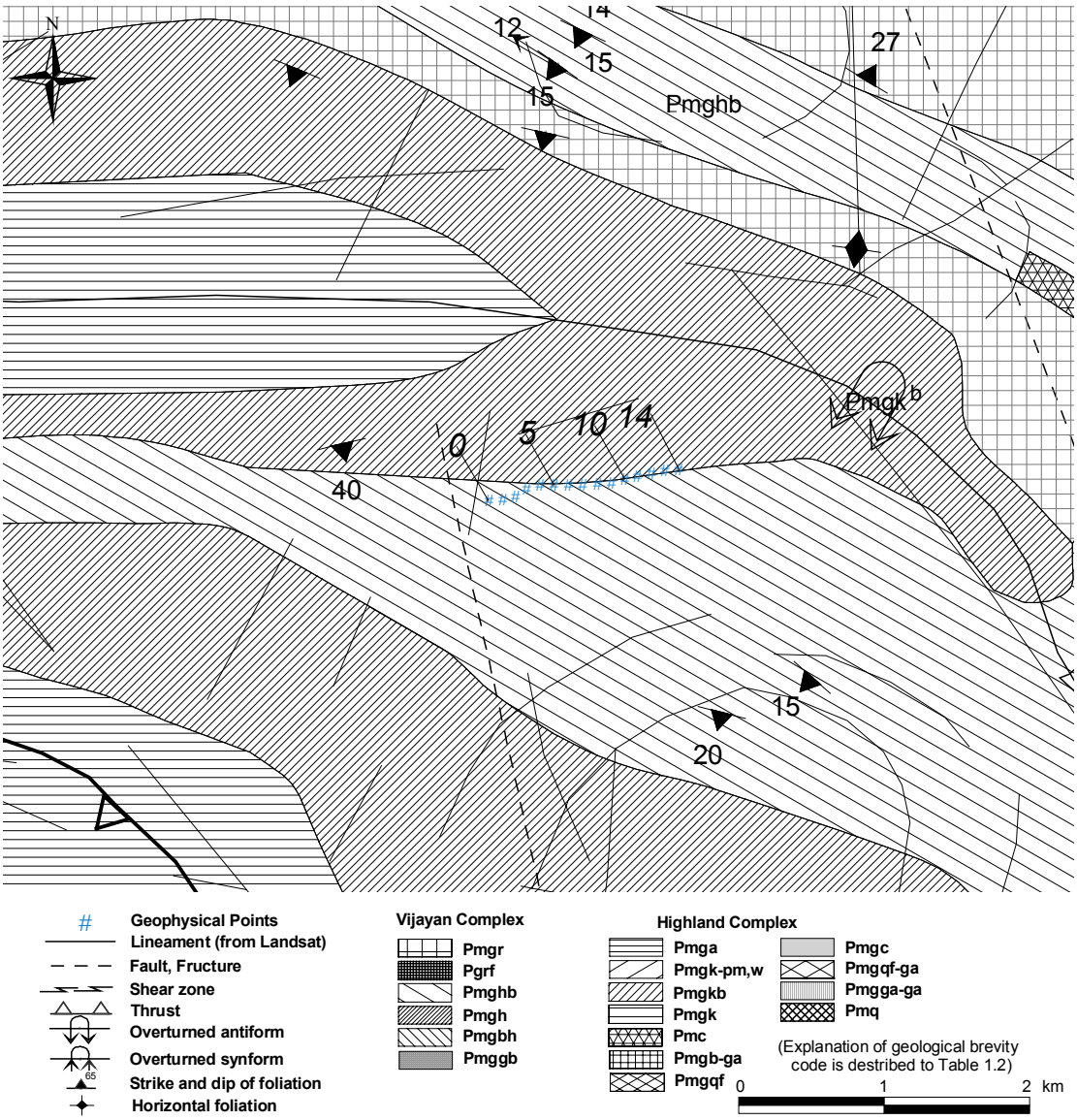

FIGURE 3.23 SURVEY LINE - VITARADENIYA (H-2)

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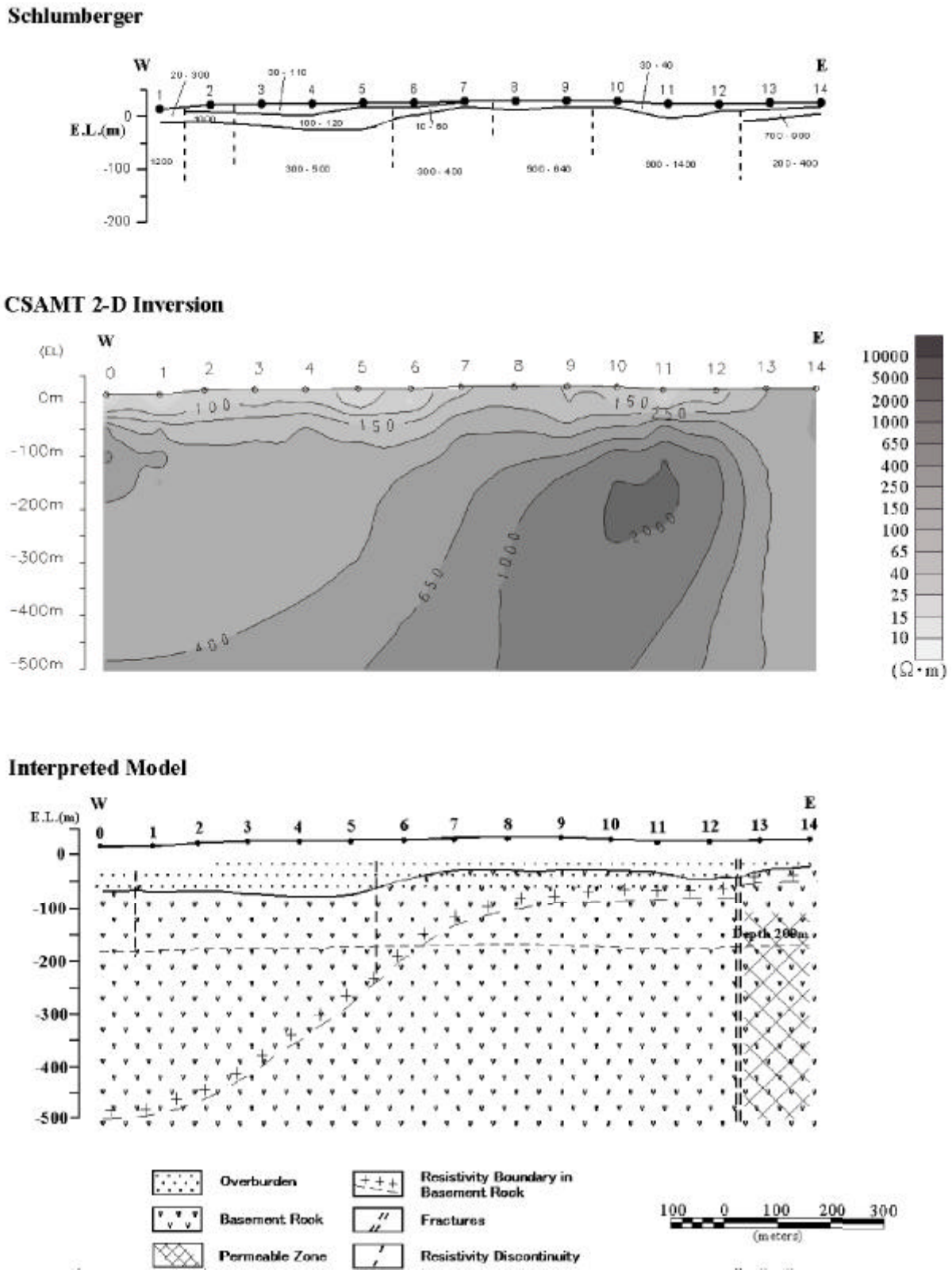

FIGURE 3.24 RESISTIVITY CROSS SECTION - VITARANDENIA (H2)

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3.3.11 TALUNNA AREA (H3) --- *SURVEY LINE, FIGURE 3.25, RESISTIVITY CROSS SECTION, FIGURE 3.26*

Between stations 4 and 5 along the NW-SE sections, it is detected a resistivity discontinuity indicating a very resistive geological unit in the southeastern side. The same anomaly pattern is recognized along the SW-NE line around station 13. These resistivity contrasts suggest promising places near the boundary that runs along N-S direction, and around the western side of the boundary corresponding to a conductive zone. The most promising sites for drilling are station 3 and the low resistivity zone towards south.

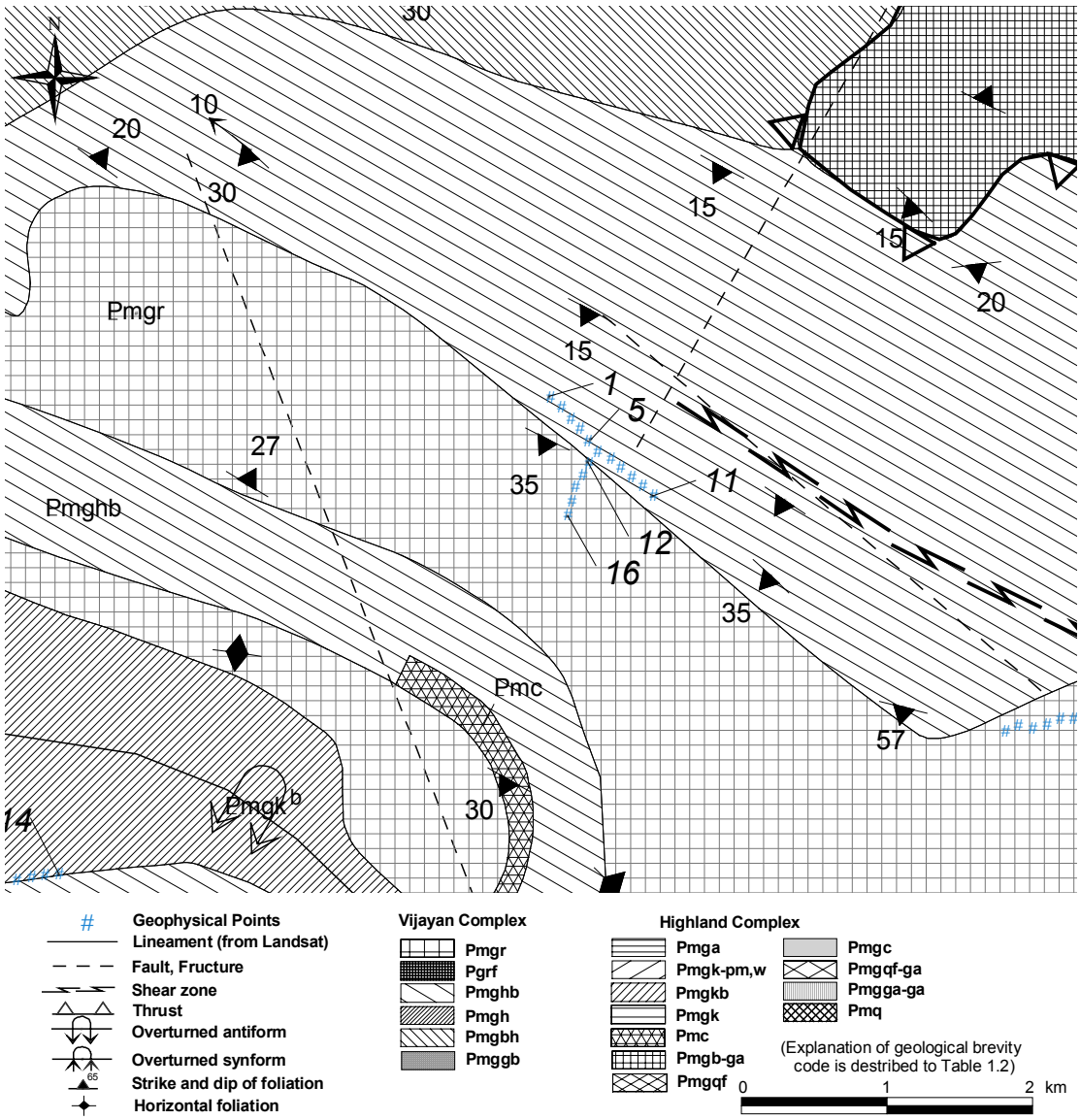

FIGURE 3.25 SURVEY LINE - TALUNNA (H-3)

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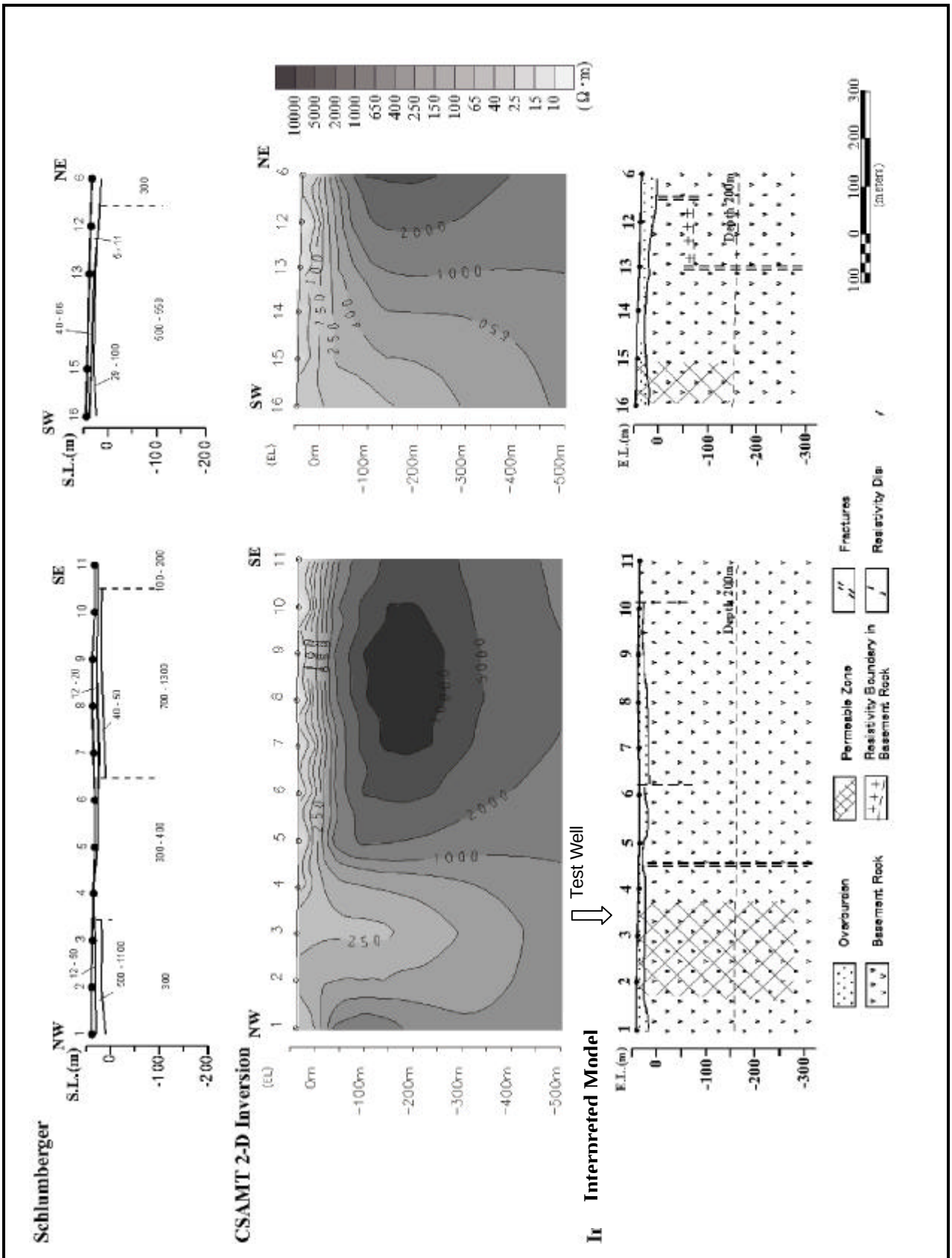

FIGURE 3.26 RESISTIVITY CROSS SECTION - TALUNNA (H3)

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3.3.12 WEDIWEWA AREA (H4) --- *SURVEY LINE, FIGURE 3.27, RESISTIVITY CROSS SECTION, FIGURE 3.28*

Highly resistive bedrock observed in the centre of the line between stations 4 and 11 reflects low resistivity values at deeper level of 250 mBGL. Deep-seated low resistivity less than 400 Ohm-m appears a little shallower at station 11, which may indicate a deep aquifer along the fractured zone. At the southern most end of the line at stations 13 and 14, a high resistivity distribution was detected in the depths, which suggest a north-dipping boundary. A NE-SW trending fault seems to run around station 12. A site between stations 10 to 11 is recommended for an exploratory deep drilling.

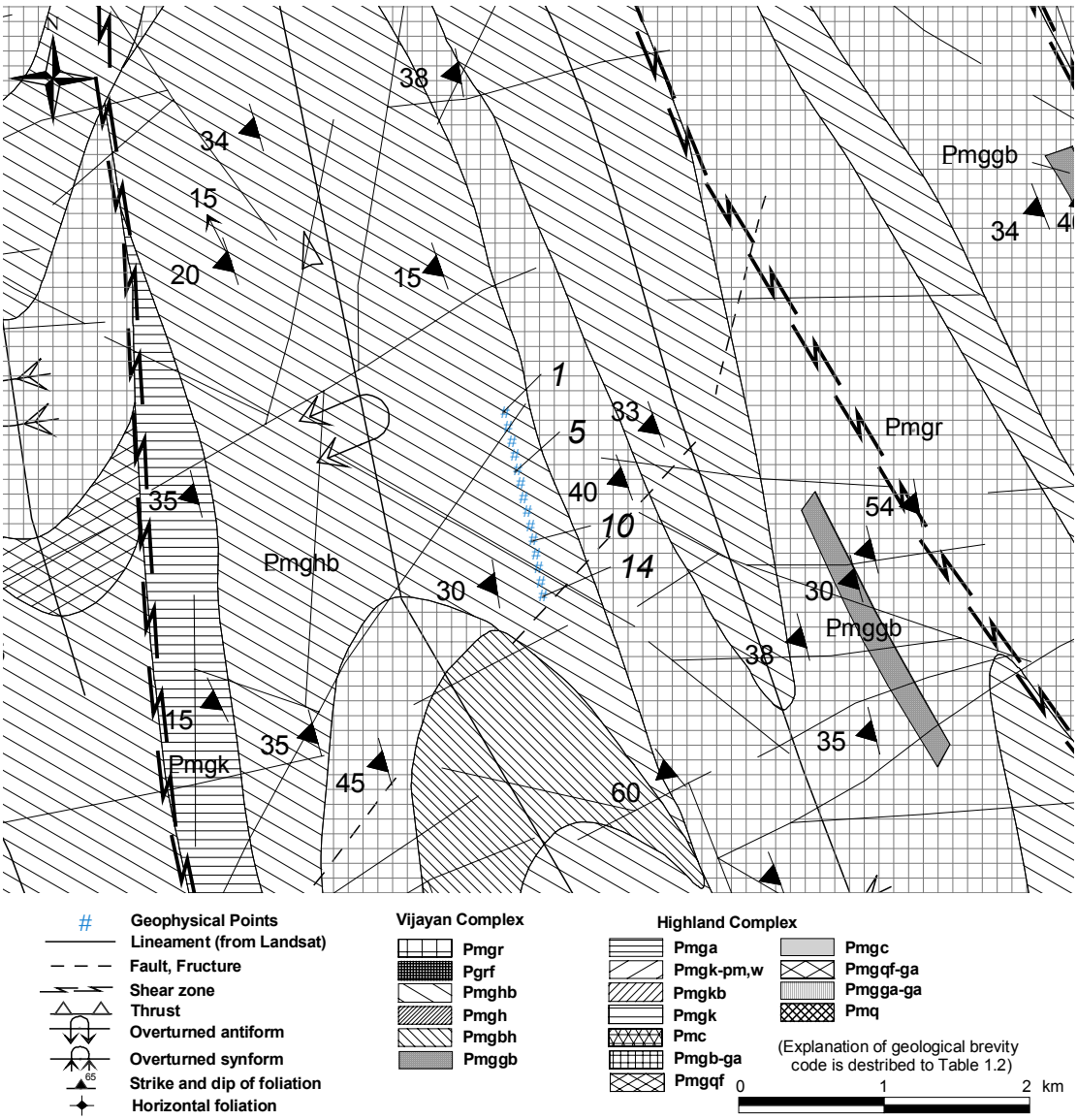

FIGURE 3.27 SURVEY LINE - WEDIWEWA (H-4)

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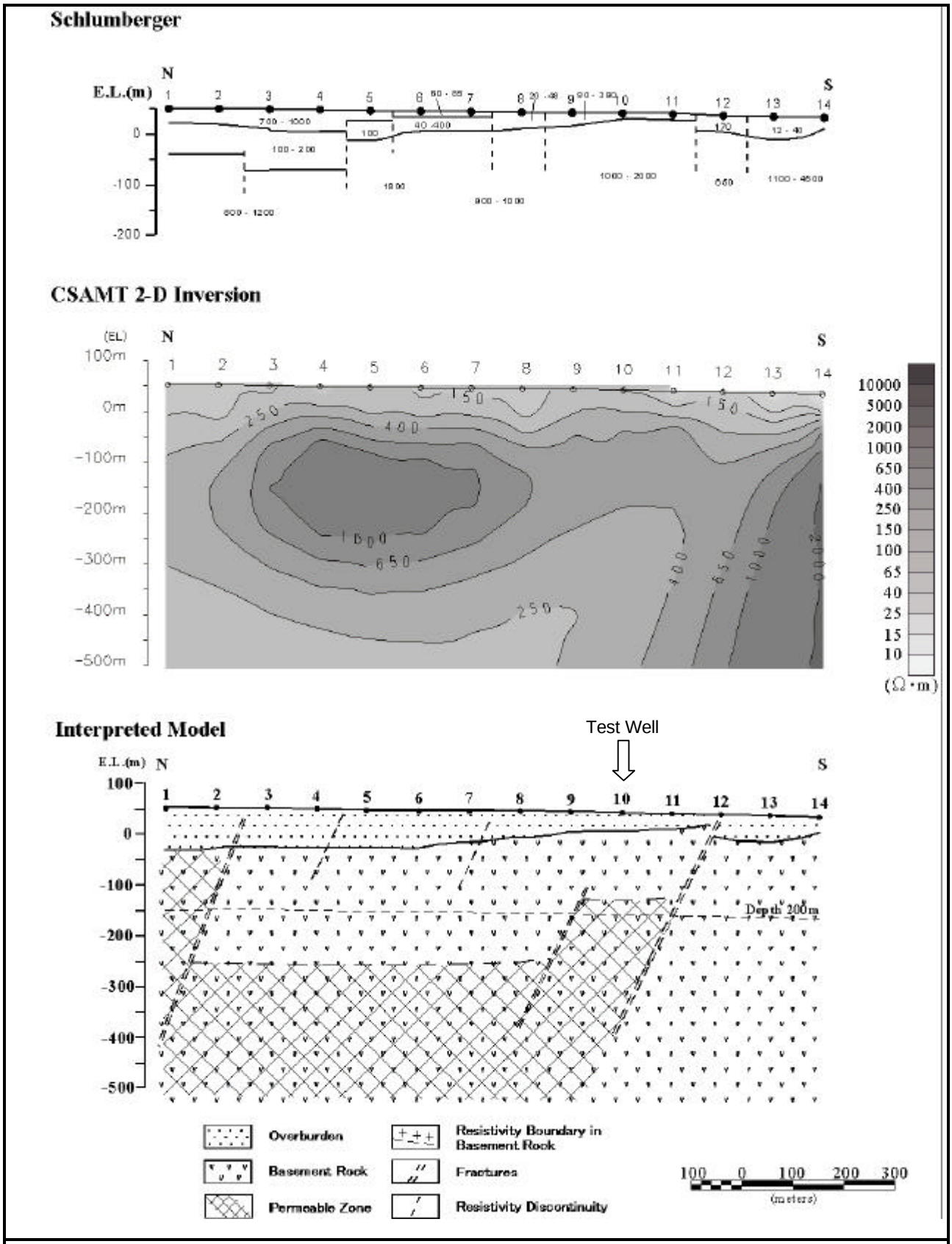

FIGURE 3.28 RESISTIVITY CROSS SECTION - WEDIWEWA (H4)

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3.3.13 TAMMENNAWEWA AREA (H5) --- *SURVEY LINE, FIGURE 3.29, RESISTIVITY CROSS SECTION, FIGURE 3.30*

The resistivity pattern of this line shows gradual change from high values in the south to low values towards the north. The base rock seems to be delimited by a south-dipping boundary at around station 7, while the northern most end of the line indicates a conductive zone at depths. A conductive zone, which may indicate an aquifer, is detected in a formation deeper than 150 m from the surface, so that the most promising point of drilling can be located in the northern end of the line.

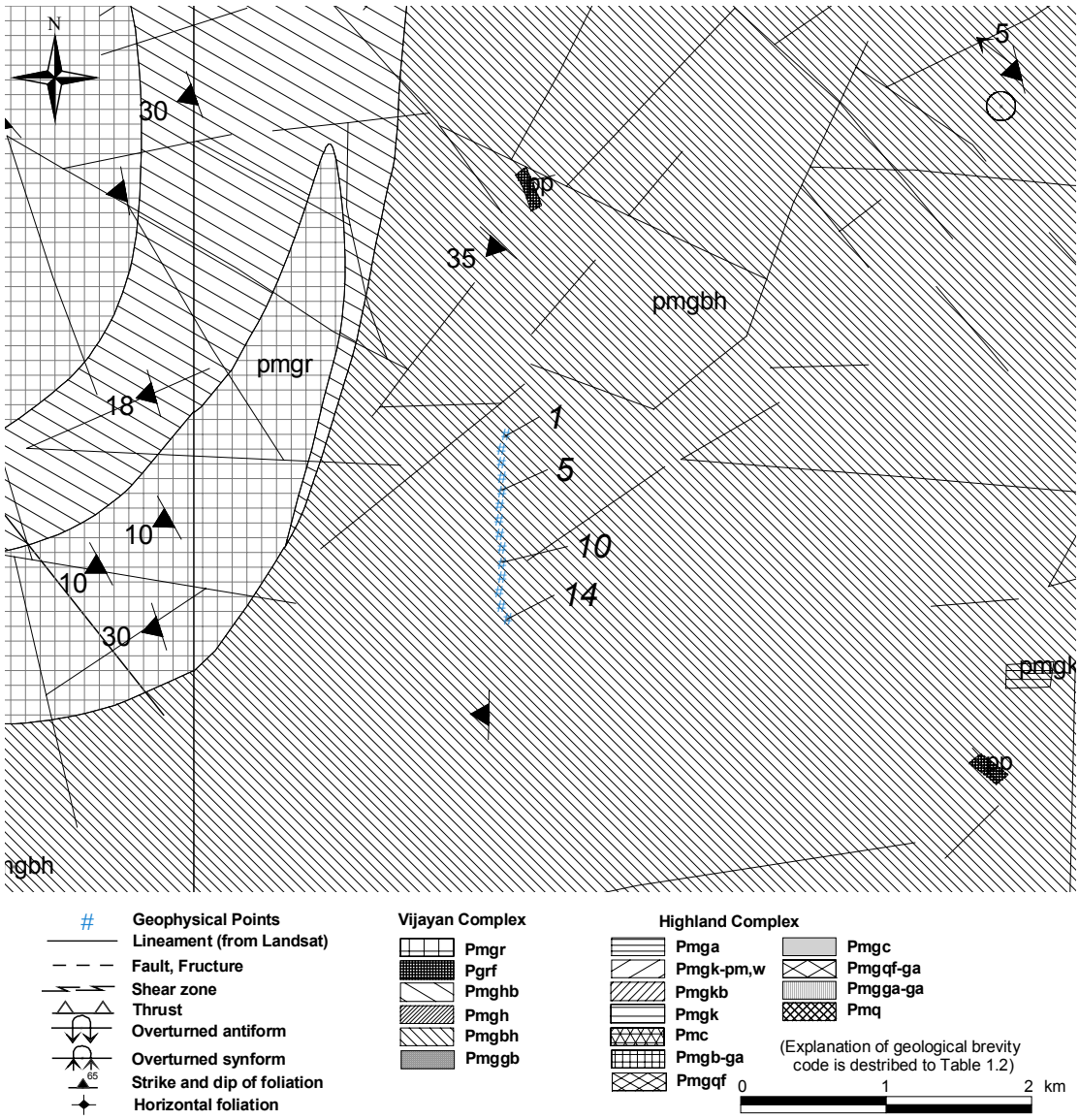

FIGURE 3.29 SURVEY LINE - TAMMENNAWEWA (H-5)

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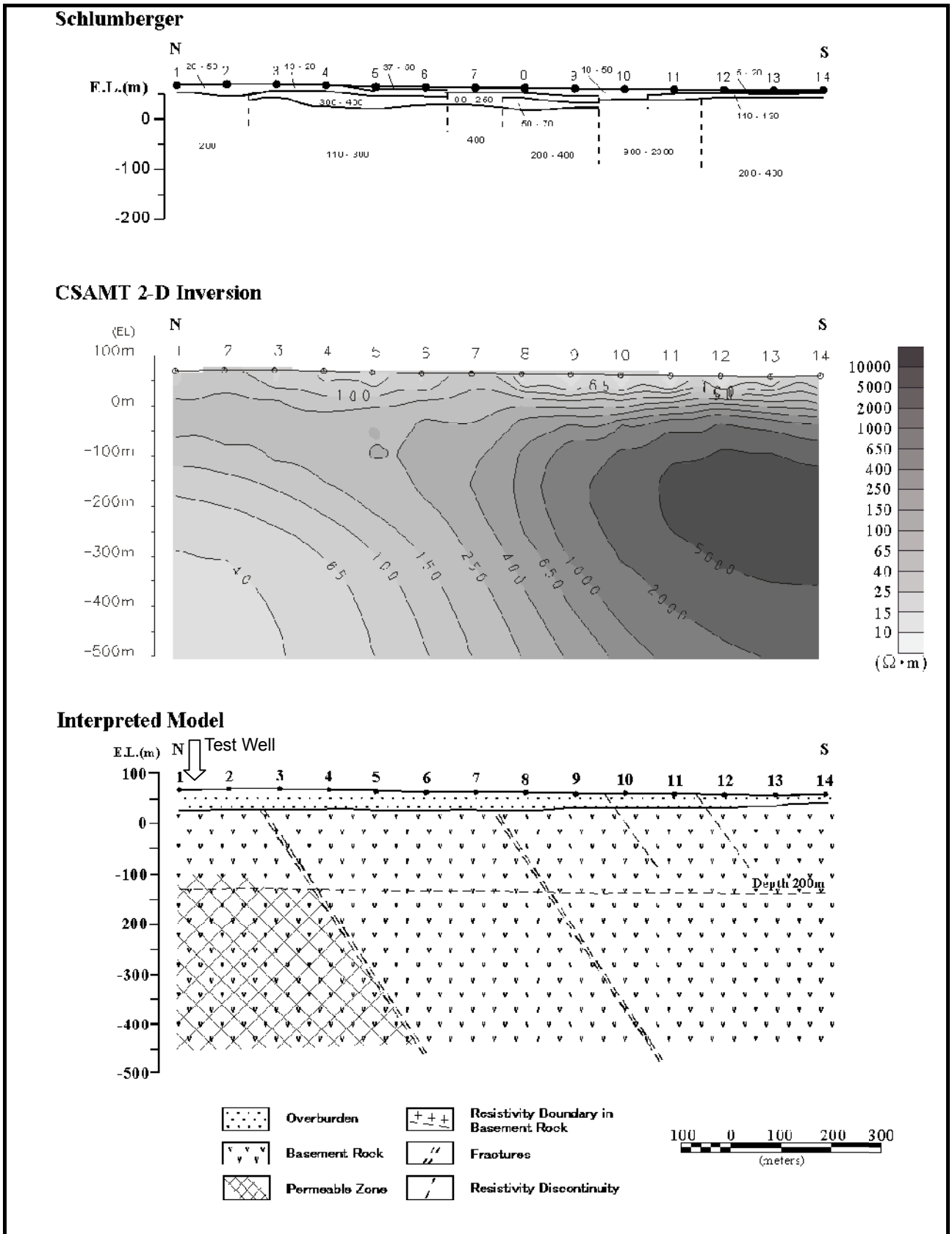

FIGURE 3.30 RESISTIVITY CROSS SECTION - TAMMENNAWEWA (H5)

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3.3.14 MATTALA AREA (H6) --- *SURVEY LINE, FIGURE 3.31, RESISTIVITY CROSS SECTION, FIGURE 3.32*

A thick overburden was detected from stations 5 to 11. The basin structure seen here may be indicative of an aquifer at 200 m from the surface. A geological boundary is interpreted between stations 7 and 8 by the result of Schlumberger survey.

Station 10, which is the most promising site of drilling on this line, indicates the thickest part of the conductive overburden and weathered zone. The test well location was decided as station 9, based on the availability of the land.

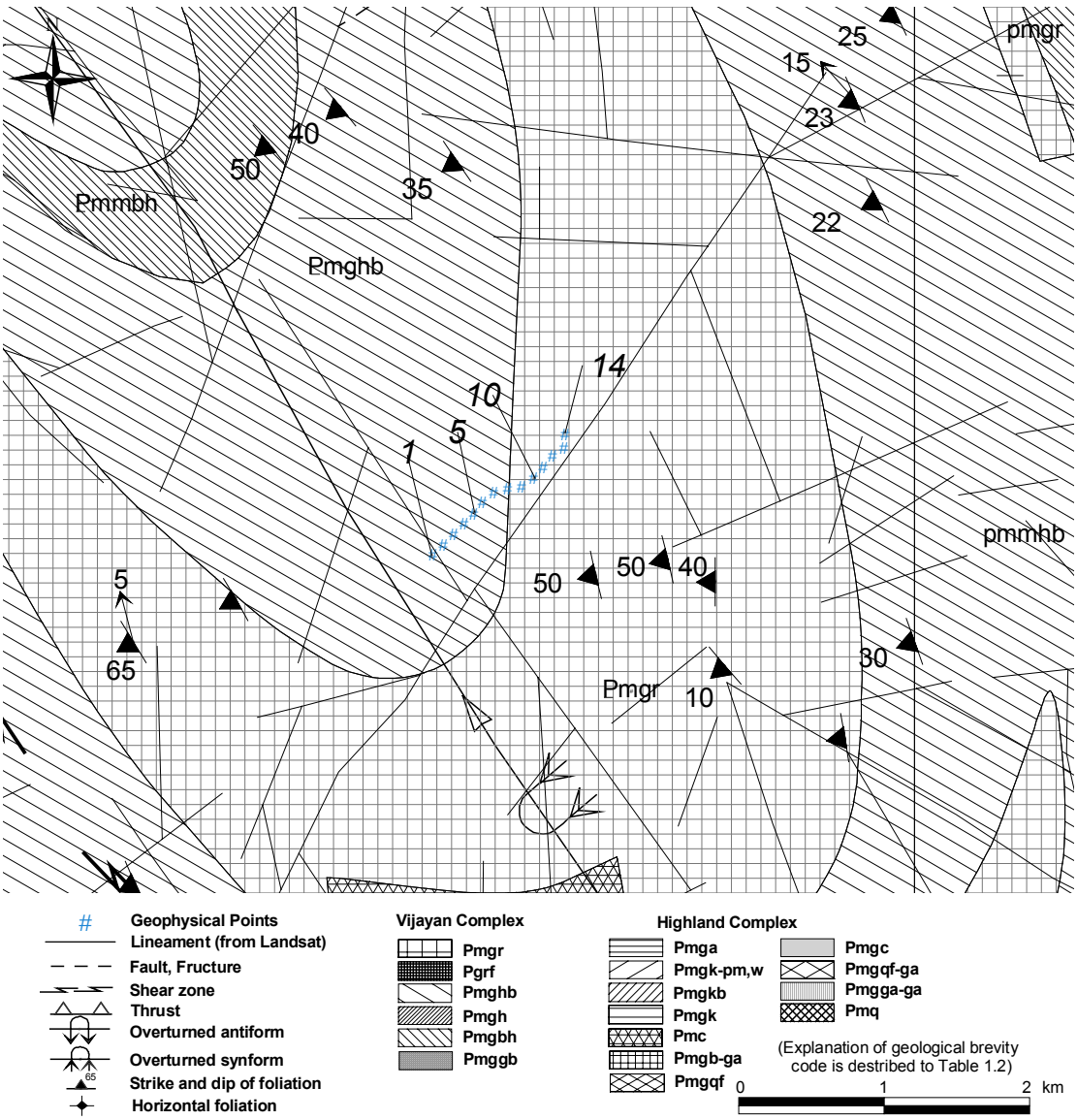

FIGURE 3.31 SURVEY LINE - MATTALA (H-6)

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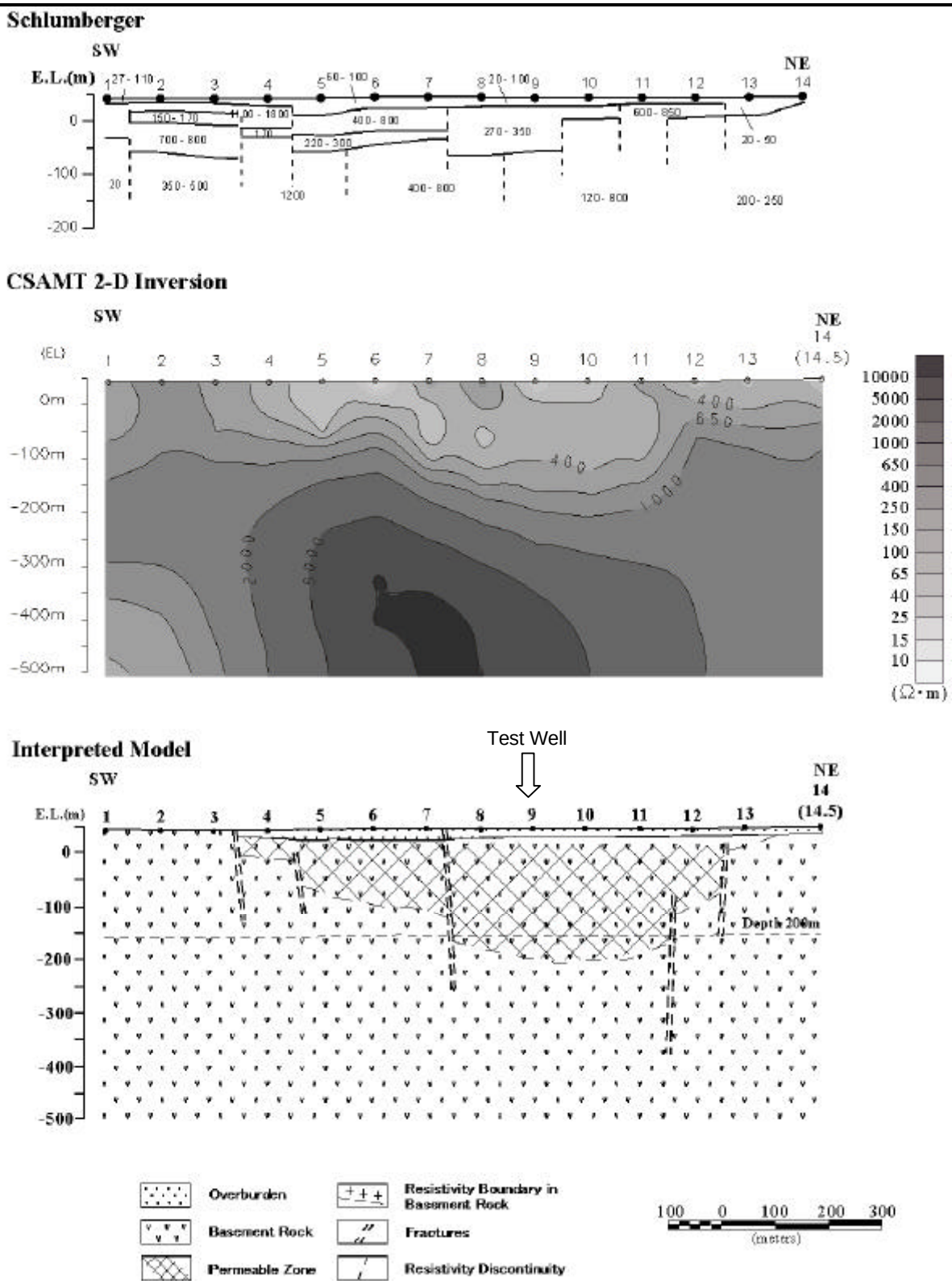

FIGURE 3.32 RESISTIVITY CROSS SECTION - MATTALA (H6)

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3.3.15 SIYAMBALAGASWILA AREA (H7) --- *SURVEY LINE, FIGURE 3.33, RESISTIVITY CROSS SECTION, FIGURE 3.34*

A wide conductive zone was detected in the centre of the line showing resistivity values around 100 Ohm-m. A shallow well drilled at station 7 was not successful, however, zones deeper than 200 m could yield more interesting results. Two resistivity boundaries can be drawn at around 4 to 5 and 8 to 9. The zone between these boundaries is inferred to be a rich fractured zone bearing considerable amount of water. Therefore, the test well location was decided as station 7.

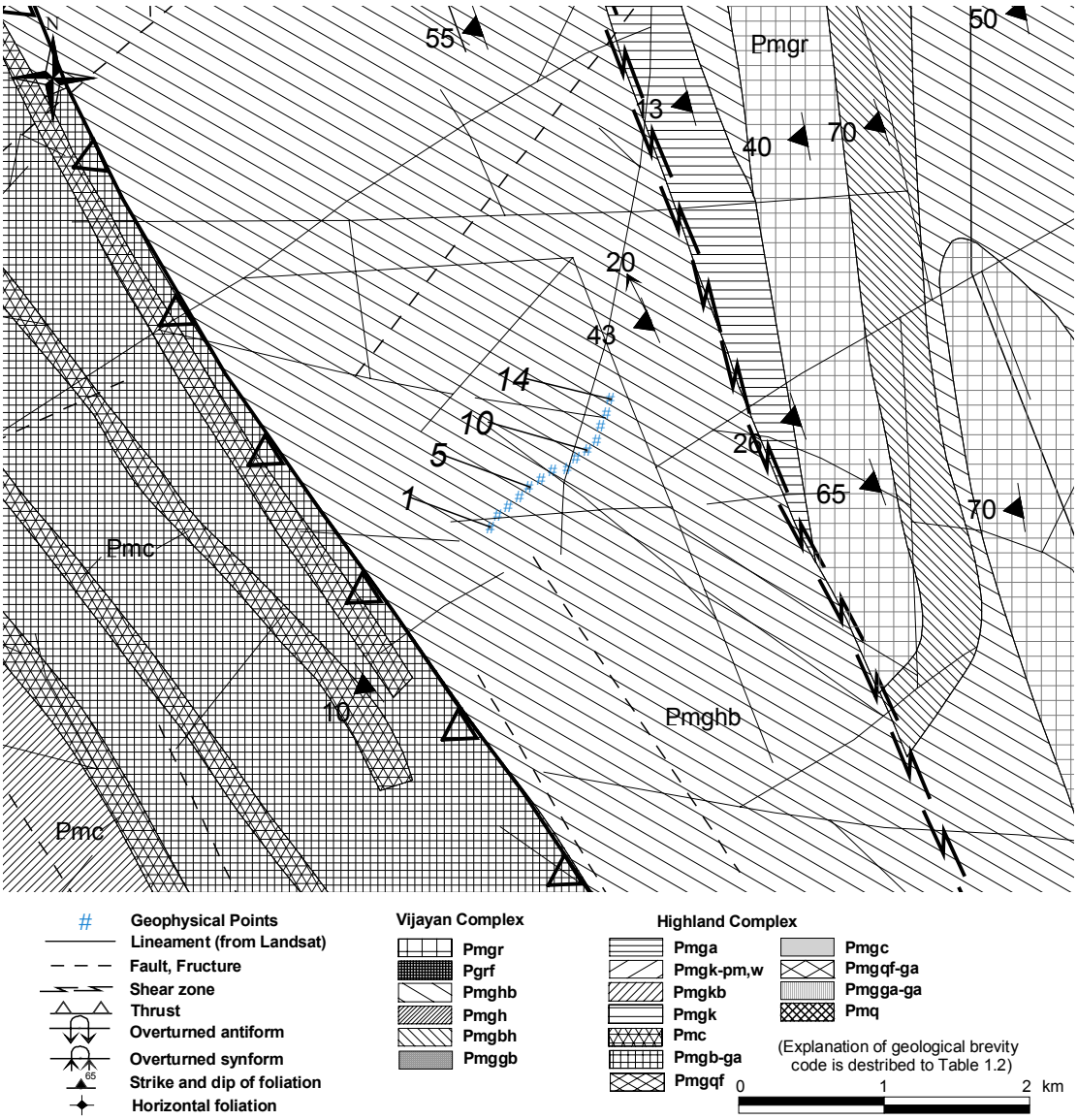

FIGURE 3.33 SURVEY LINE - SIYAMBALAGASWILA (H-7)

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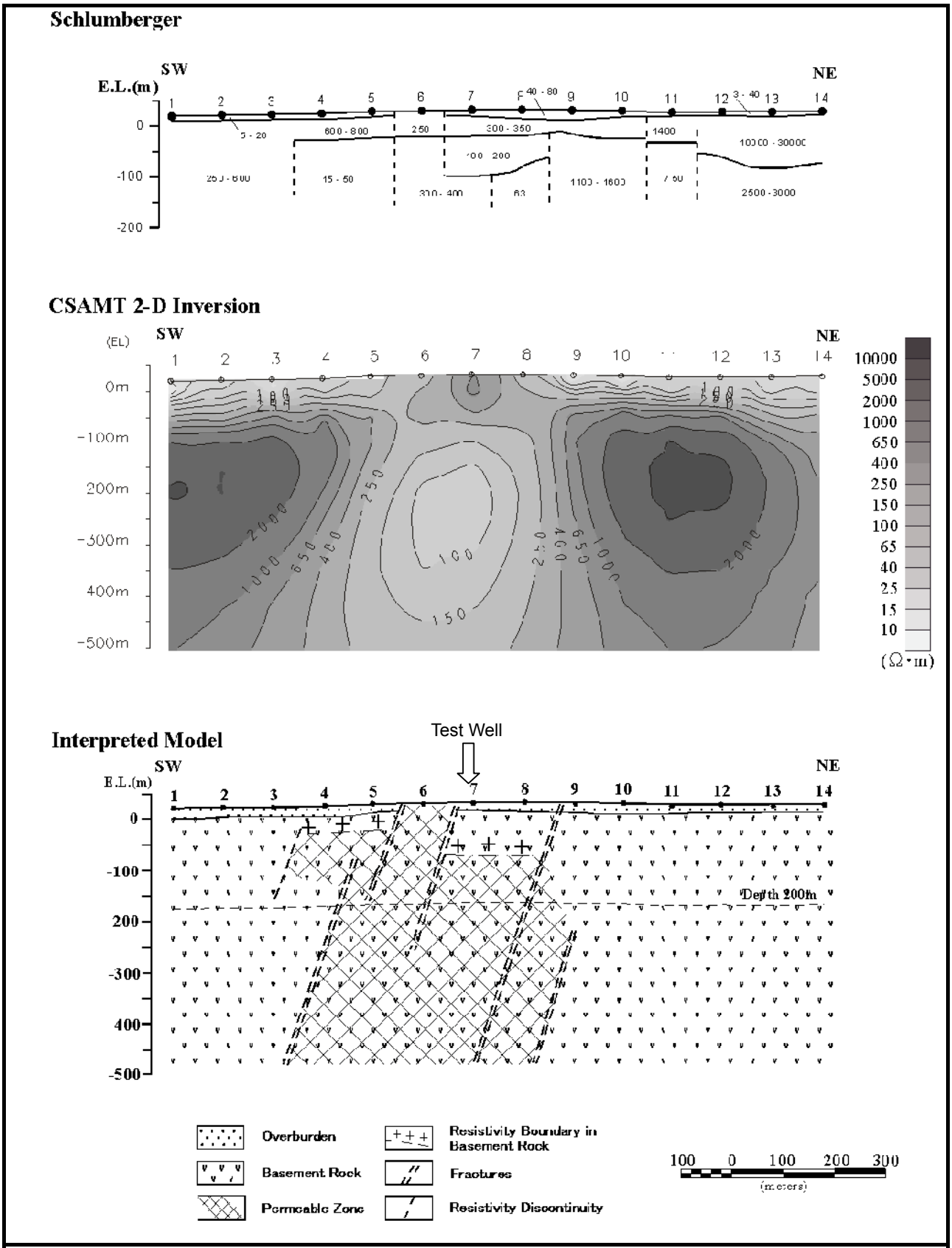

FIGURE 3.34 RESISTIVITY CROSS SECTION - SIYAMBALAGASWILA (H7)

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3.3.16 RANNA AREA (H8) --- *SURVEY LINE, FIGURE 3.35, RESISTIVITY CROSS SECTION, FIGURE 3.36*

Deep resistive body is widely distributed at depths, but the western end of the line shows rather low resistivity at the depth of 250 m from the surface. No specific features are found in the shallow overburden, but the overburden is thicker in the eastern end of the line.

A resistivity boundary can be drawn in between stations 5 and 6 according to the Schlumberger method, which may correspond to a geological boundary across the line.

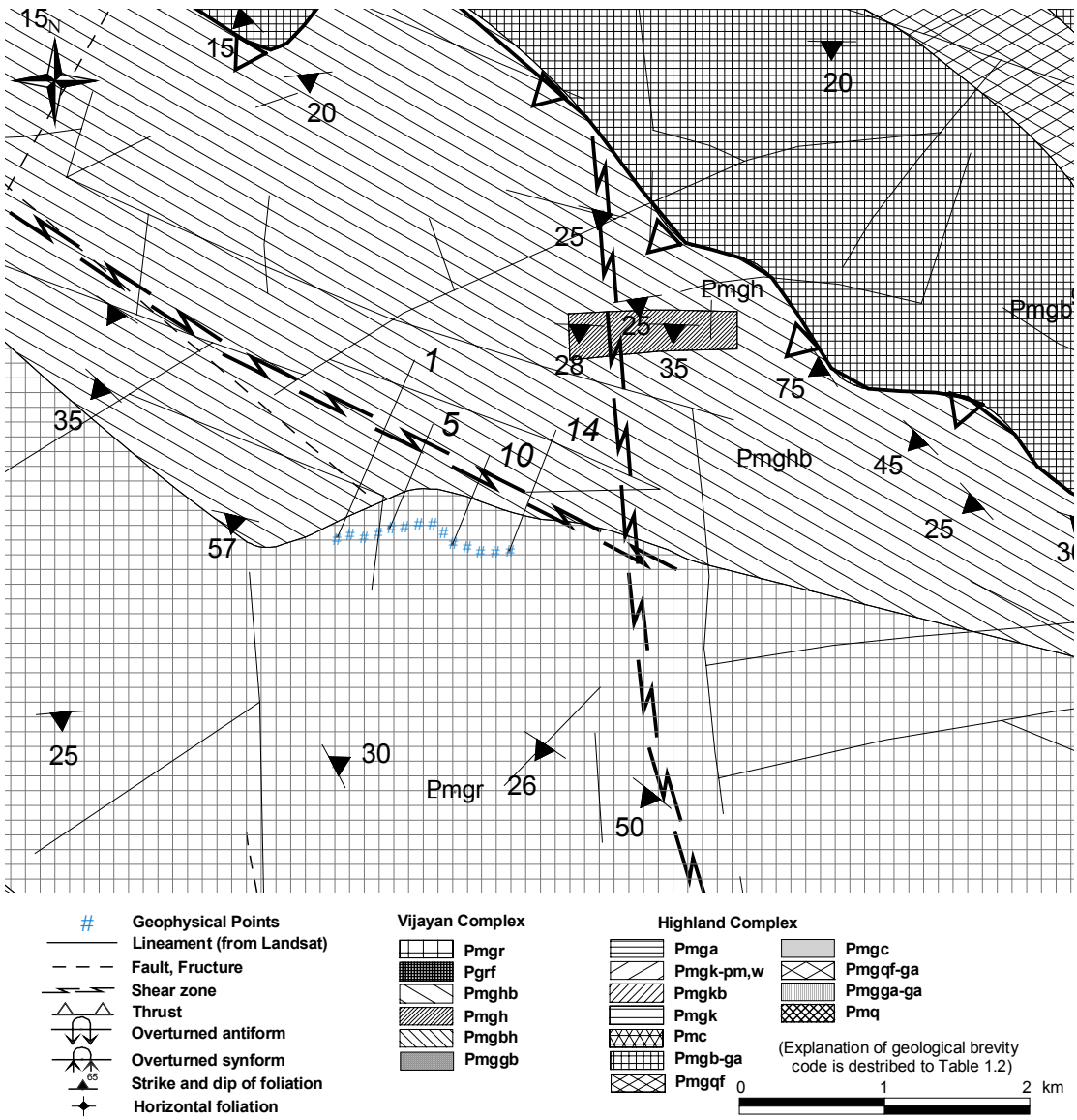

FIGURE 3.35 SURVEY LINE - RANNA (H-8)

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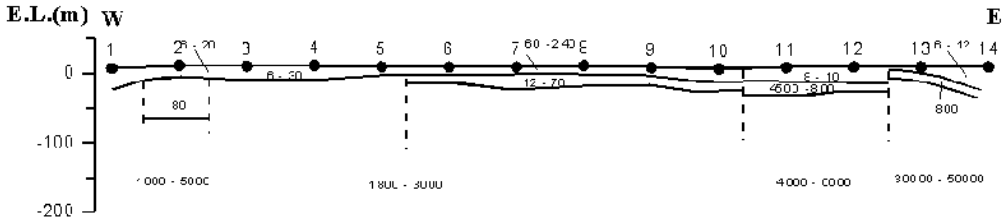
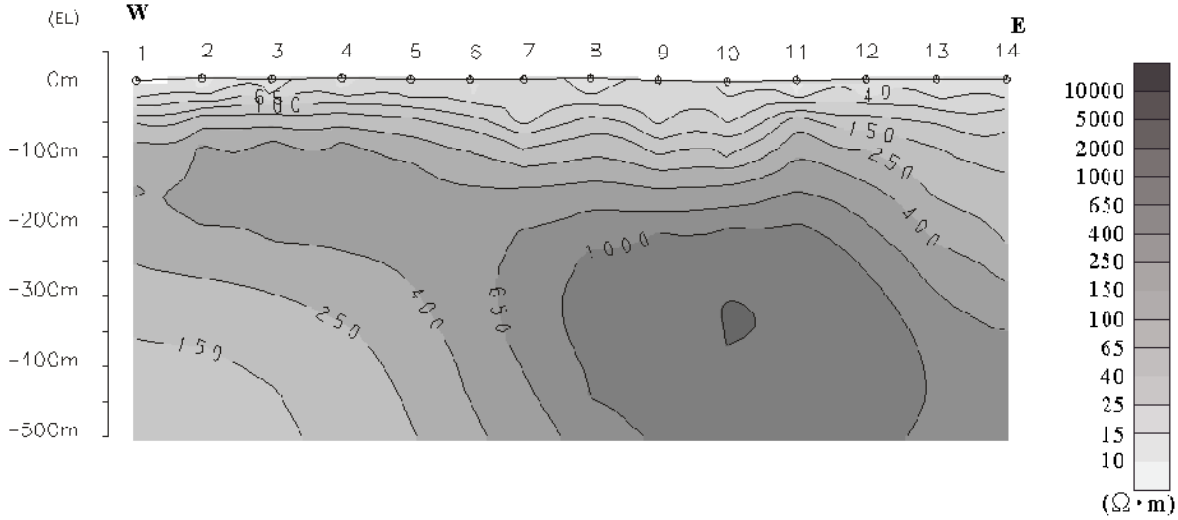
Schlumberger



CSAMT 2-D Inversion



Interpreted Model

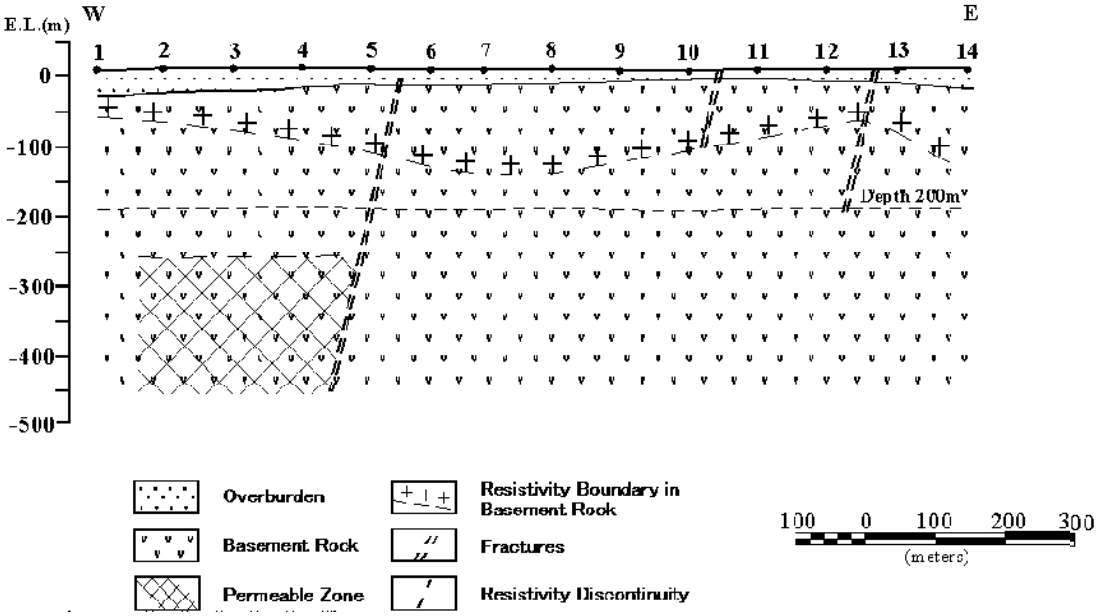


FIGURE 3.36 RESISTIVITY CROSS SECTION - RANNA (H8)

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3.3.17 HOT SPRING (MAHAPELESSA AREA) (H9) --- *SURVEY LINE, FIGURE 3.37, RESISTIVITY CROSS SECTION, FIGURE 3.38*

Hot spring is located at station 100, which is about 100 m south of stations 9 and 10, but no resistivity anomalies were detected on this point by ground geophysical survey with neither Schlumberger nor CSAMT methods. Although hot spring water itself indicated a resistivity of 1.5 Ohm-m, no resistivity anomaly was detected, which means that the hot water is springing out to the surface through small-scale fractures in the bedrock.

The shallow overburden is generally conductive with a flat structure except for the station 3. The second analysed layer indicates relatively low resistivity values around stations 2 to 4, which suggests that the N-S trending sheared zone or a fault may run across this line at station 3.

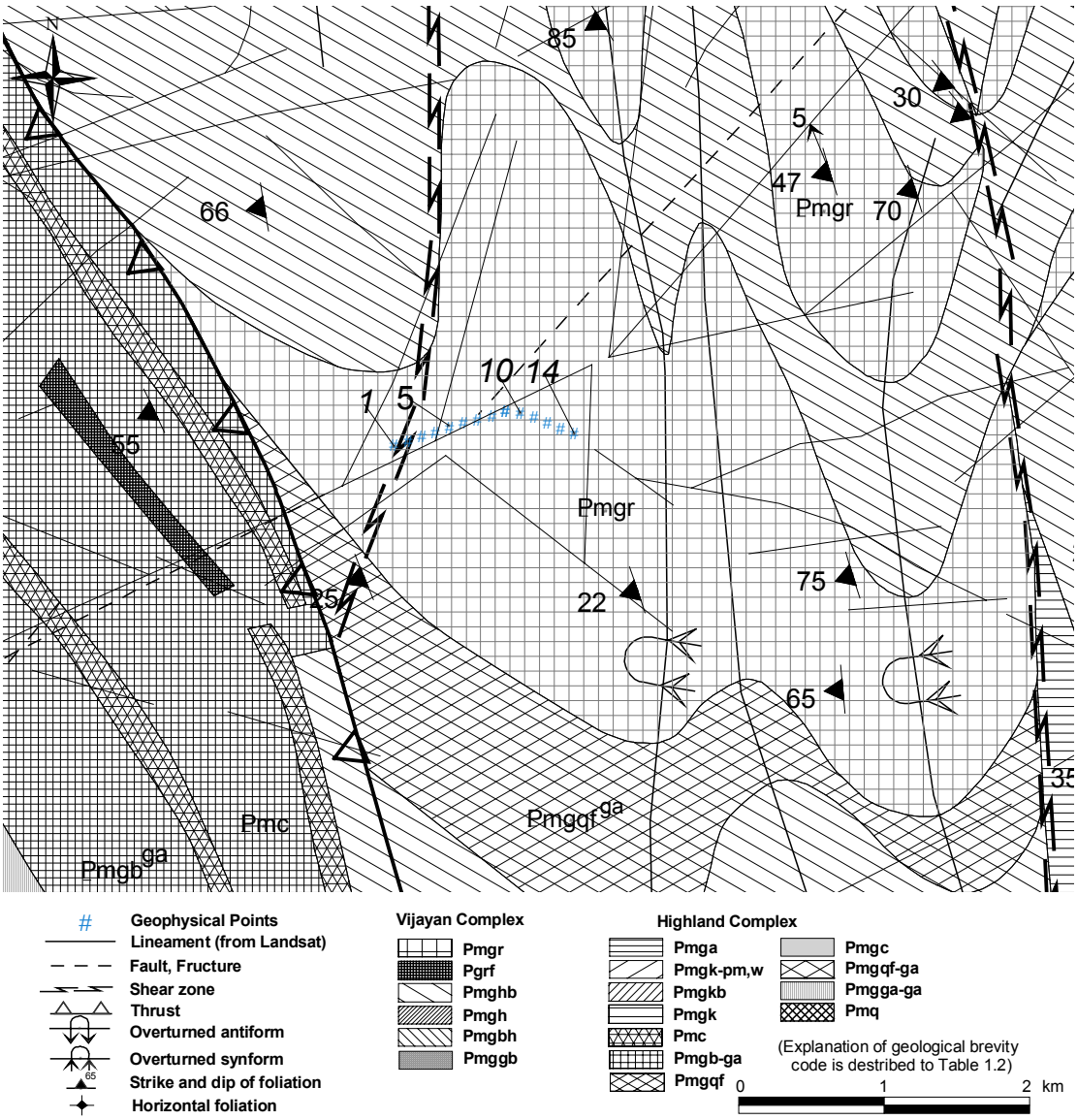

FIGURE 3.37 SURVEY LINE - HOT SPRING (MAHAPELESSA) (H-9)

THE STUDY ON COMPREHENSIVE GROUNDWATER RESOURCES DEVELOPMENT | **JICA**

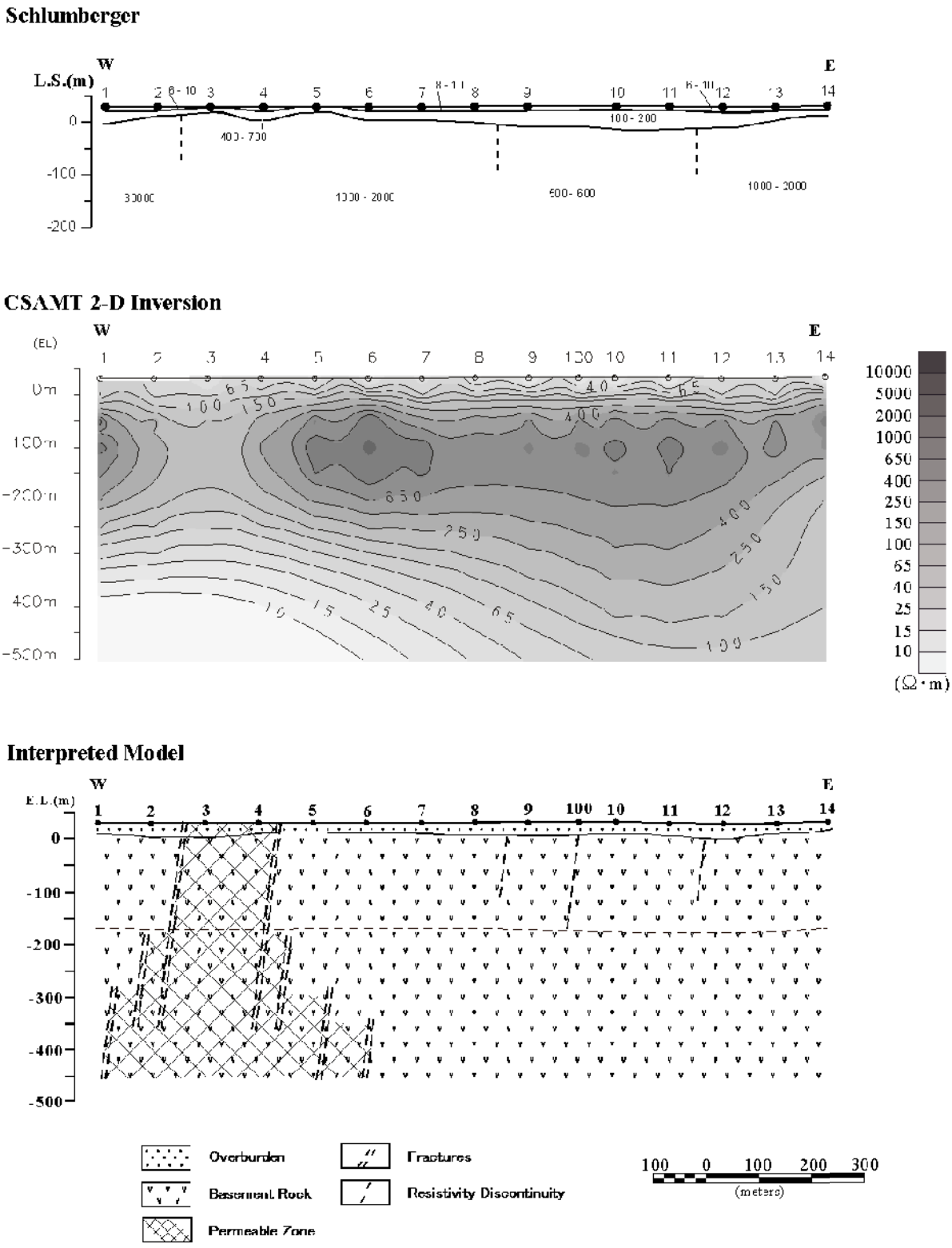

FIGURE 3.38 RESISTIVITY CROSS SECTION - HOT SPRING (MAHAPELESSA) (H9)

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