

REPUBLIC OF TURKEY
MINERAL RESEARCH AND EXPLORATION INSTITUTE

REPORT ON GEOLOGICAL SURVEY
OF
TRABZON AREA, NORTHEASTERN TURKEY

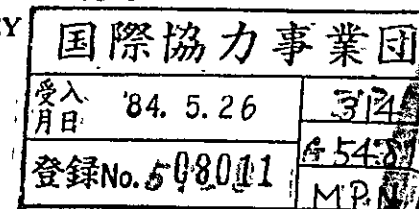
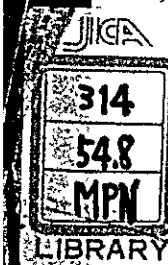
PHASE III

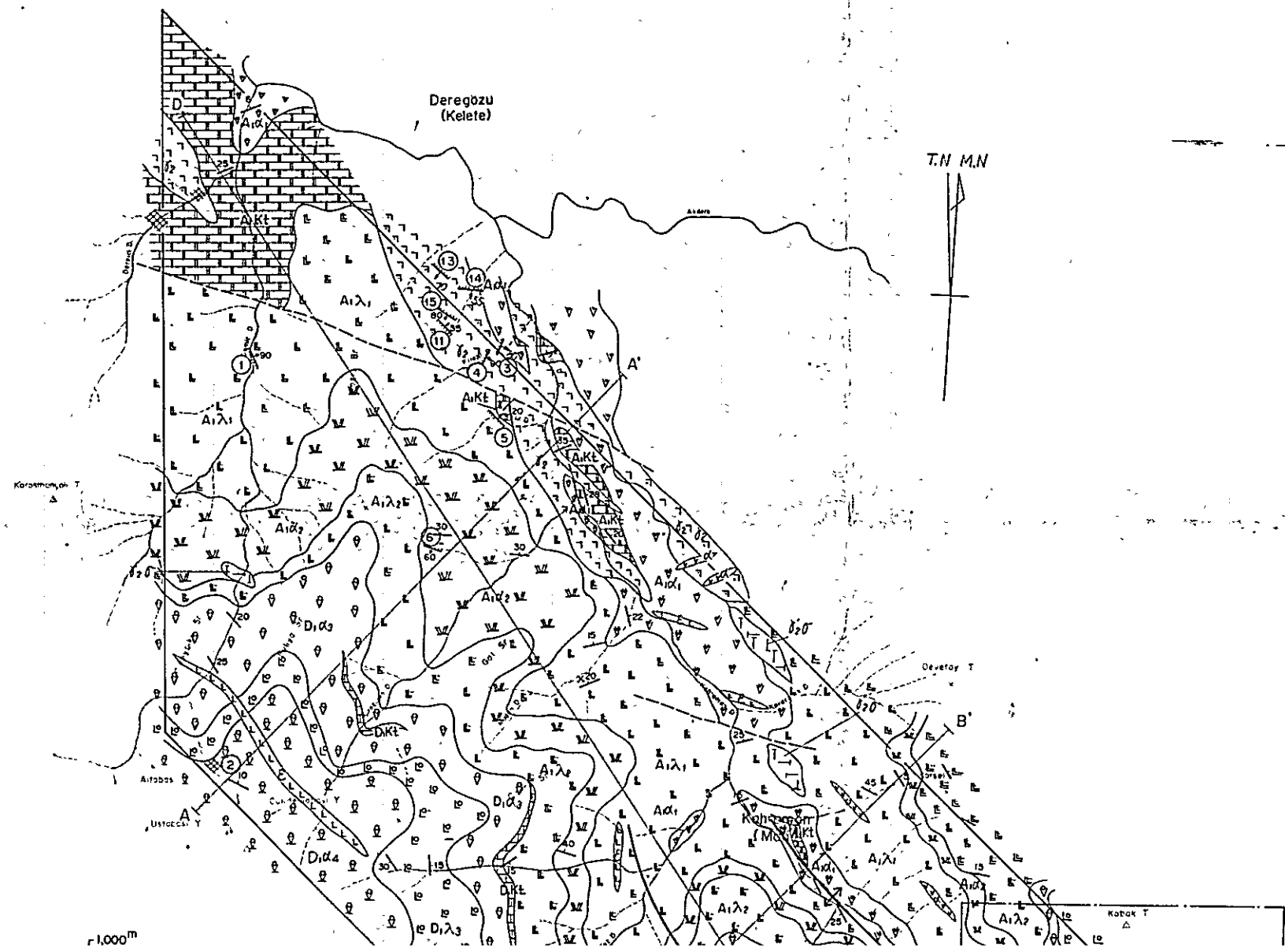
VOL. 1

GEOLOGICAL SURVEY
GEOPHYSICAL SURVEY
DRILLING EXPLORATION

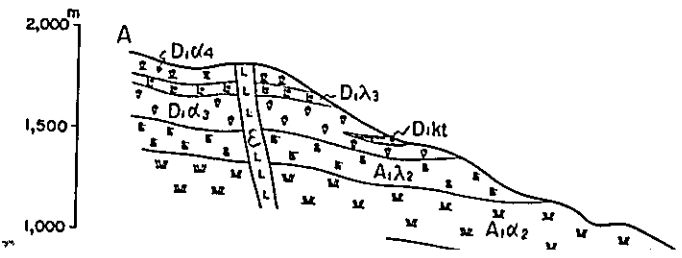
ATTACHED SHEETS

- PL.1-1 ~ 14 GEOLOGICAL MAP WITH GEOLOGICAL PROFILE,
COLUMNAR SECTION AND FUTURE RECOMMENDATION
- PL.2-1 ~ 14 ROUTE MAP WITH LOCALITIES OF ROCK SAMPLES
- PL.3-1 ~ 14 ALTERATION AND MINERALIZATION MAP
- PL.4-1 ~ 2 WELL - LOGS
- PL.5 LOCATION MAP OF IP SURVEY IN KEN DERE FOL DERE
- PL.6 CONTOURS OF FREQUENCY EFFECT FOR $n=1\sim 4$
- PL.7 CONTOURS OF APPARENT RESISTIVITY FOR $n=1\sim 4$
- PL.8 CONTOURS OF METAL CONDUCTION FACTOR FOR $n=1\sim 4$
- PL.9-1 ~ 14 CROSS SECTIONS OF INDUCED POLARIZATION
- PL.10 INTERPRETATION MAP OF IP SURVEY





Number Üye	Column section Sütun kesit (NW)	Rock facies Kayaç faciyesi	Thickness Kalınlık	Mineralization Mineralizasyon
A1α4		andesite lava	50 ⁺	
D1λ4		dacite tuff breccia (aplit tuff)	50 ⁺	
D1α4		andesite lava andesite tuff breccia (aplit tuff)	70 ⁺	skarn type
D1λ3		andesite lava andesite tuff breccia (aplit tuff)	50-650	vein type vein type (Kahraman D)
D1α3		andesite lava andesite tuff breccia (aplit tuff)	150 ~300	
A1λ2		andesite lava andesite tuff breccia (aplit tuff)	200 ~500	vein type
A1α2		andesite lava andesite tuff breccia (aplit tuff)	50-250	vein type
A1λ1		andesite lava andesite tuff breccia (aplit tuff)	150 ~450	vein type
A1α1		andesite lava andesite tuff breccia (aplit tuff)	0-150 400 ⁺	skarn type

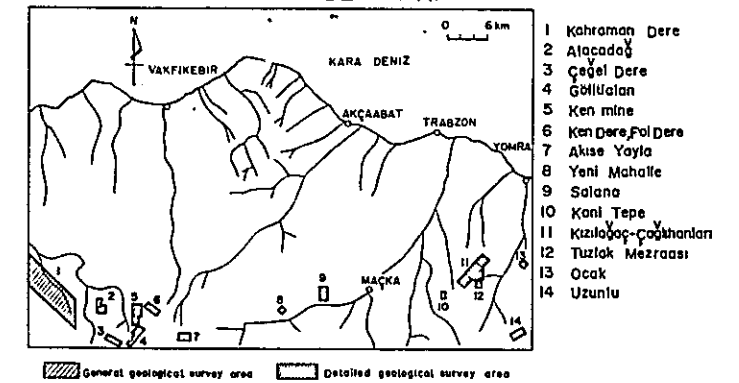


MINERAL RESEARCH AND EXPLORATION INSTITUTE
 GEOLOGICAL SURVEY
 OF
 TRABZON AREA, NORTHEASTERN TURKEY

PHASE III
 GEOLOGICAL MAP WITH GEOLOGICAL PROFILE,
 COLUMNAR SECTION AND FUTURE RECOMENDATION
 OF KAHRAMAN DERE AREA

KAHRAMAN DERE SAHASININ JEOLoji
 HARITASI JEOLoji KESITLERI SÜTUN KESİTİ
 VE ÖNERİLER

INDEX MAP



Scale 1 : 25,000
 Ölçek 1 : 25,000

METAL MINING AGENCY OF JAPAN
 JAPAN INTERNATIONAL COOPERATION AGENCY
 FEBRUARY 1977

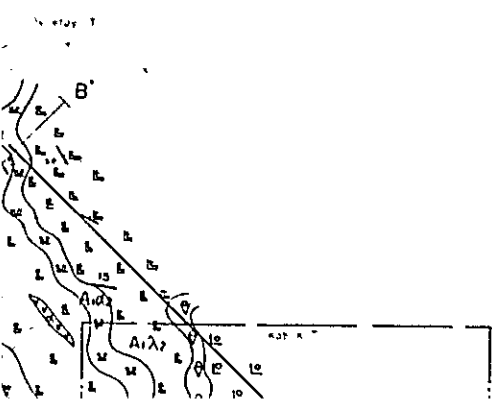
Prepared by Nikko Exploration & Development Co., Ltd.

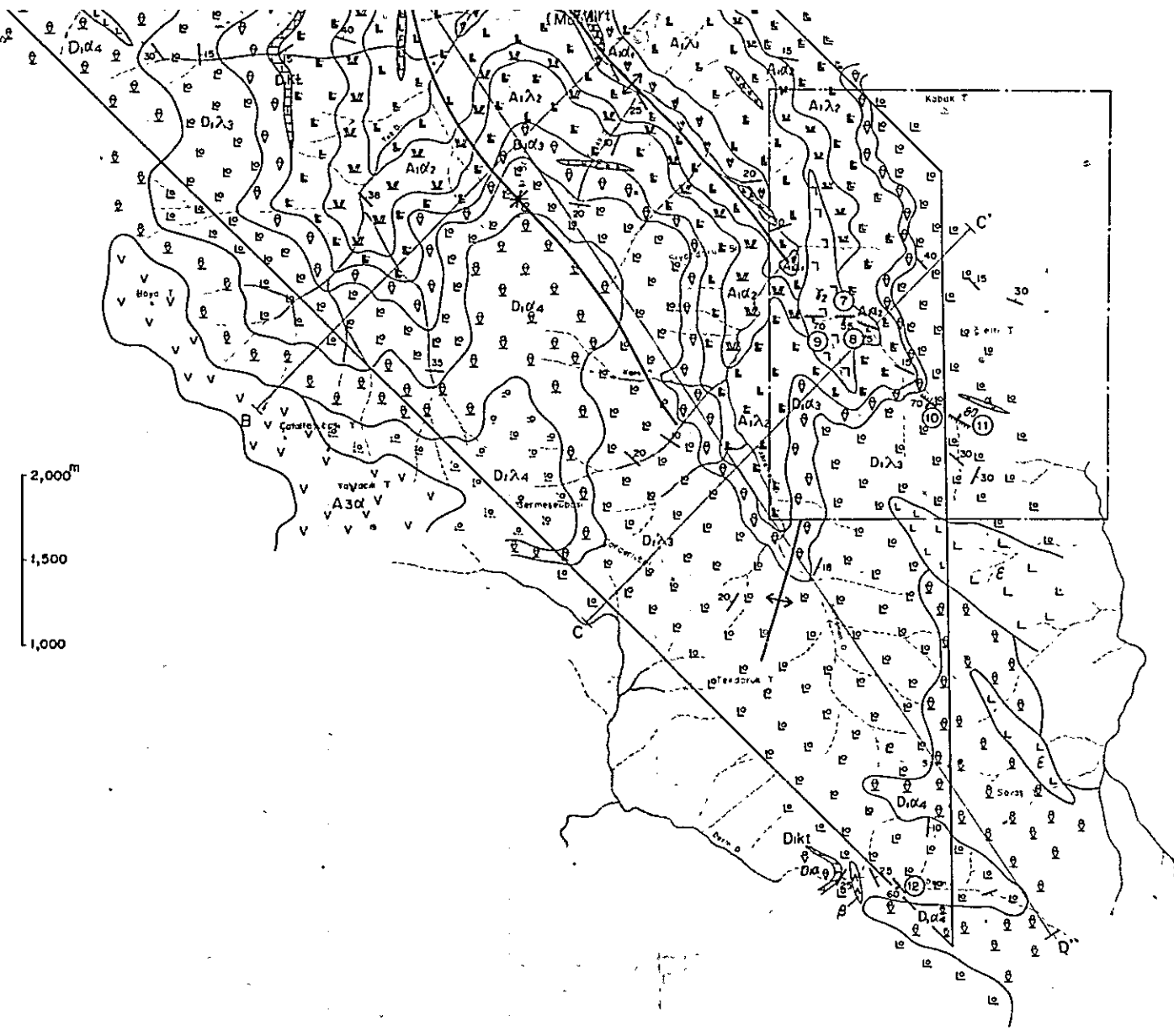
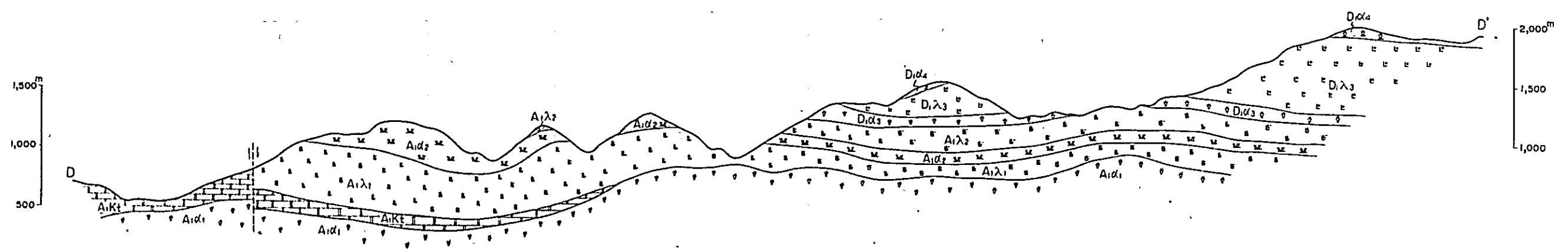
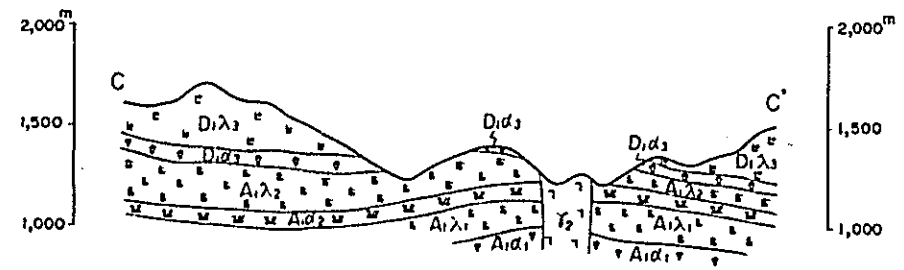
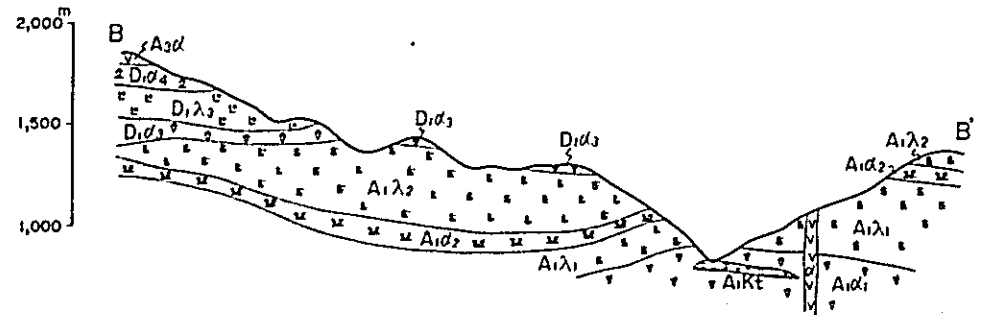
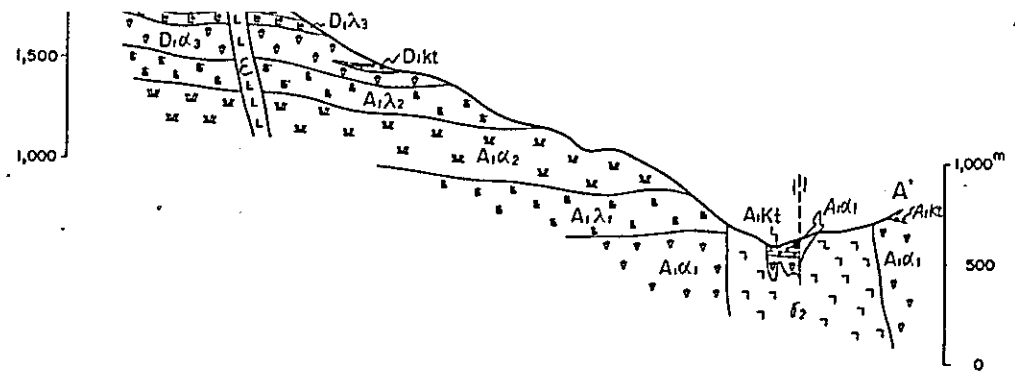
Number Üye	Columnar section Sütun kesit (NW)	Rock facies Kayaç fasiyesi	Thickness Kalınlık	Mineralization Mineralizasyon
A _{1d}		andésite lava (unconformity)	50 m	
D _{1A}		dacite tuff breccia (unconformity)	50 m	
D _{1d}		andésite lava tuff breccia (unconformity)	70 m	skarn type vein type
D _{1A}		andésite lava tuff breccia (unconformity)	50-650 m	vein type (Kahraman D)
D _{1d}		andésite lava tuff breccia (unconformity)	150 m ~ 300 m	
A _{1A}		andésite lava tuff breccia (unconformity)	200 m ~ 500 m	vein type
A _{1d}		andésite lava tuff breccia (unconformity)	50-250 m	vein type
A _{1A}		andésite lava tuff breccia (unconformity)	150 m ~ 450 m	vein type
A _{1d}		andésite lava tuff breccia (unconformity)	0-150 m	skarn type
A _{1d}		andésite lava tuff breccia (unconformity)	400 m	

Sample No.	Index No.	Kind of ore mineral	Mode of occurrence	Width or thickness (cm)	Strike & dip	Sampling width (cm)	Sampling method	Cu %	Pb %	Zn %	Fe %	S %
D-3	10	Cpy-Ga-Spy	vein	max 5	N45W 70SW	5	G	3.63	11.07	20.00		
D-5	8	Ga-Sph(-Cpy)	vein	max 10	N75W 75SW	10	G	3.00	15.94	22.50		
D-6	7	Cpy-Ga-Sph	vein	max 80 av 30	EW 55S	30	G	3.00	0.89	14.00		
D-8	9	Cpy-Ga-Sph	swarm of vein	180	N85W 70SW	30	G	2.31	12.68	27.50		
D-41	6	Cpy-Ga	vein	max 20	N70W 60SW	20	G	2.25	0.95	3.50		
K-11	-	Cpy	diss					6.75	0.04	0.05		
K-12/1	-	Cpy	diss					5.00	0.58	0.19		
K-64	1	Ga-Sph-Py	vein	max 20	N23W 90			0.41	4.57	24.00		
K-67	2	Spc-Ht	skarn					0.007	0.0015	tr	31.68	
Y-47	14	Py	vein		N50W 80S			0.04	0.001	0.07		34.27
Y-48	14	Py	vein					0.15	0.007	1.0		33.91
Y-49	14	Py	vein					0.15	0.2	1.53		
Y-53	16	Py						0.07	0.001	tr		24.85
Y-56	13	Py	vein		N45W 70W			0.03	0.03	0.2		4.73
Y-57	13	Py	vein					0.15	0.07	2.55		30.75

* R : random sampling L : line cutting sampling G : gravel sampling of high grade ore

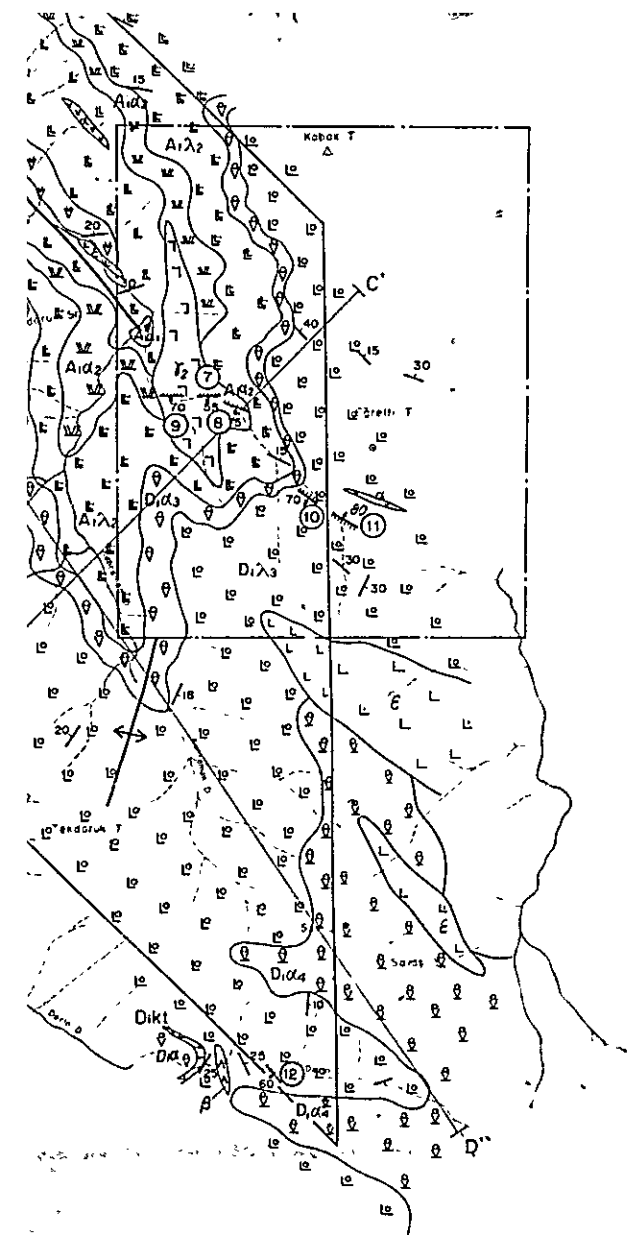
T.N.M.N





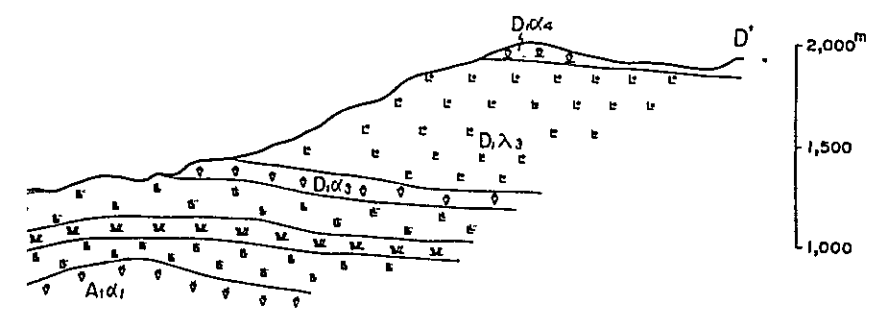
Y-48	14	Py	vein					0.15	0.007	1.0		33.91
Y-49	14	Py	vein					0.15	0.2	1.53		
Y-53	16	Py						0.07	0.001	tr.		24.85
Y-56	13	Py	vein			N45W	70W	0.03	0.03	0.2		4.73
Y-57	13	Py	vein					0.15	0.07	2.55		30.75

* R : random sampling L : line cutting sampling G : gravel sampling of high grade ore



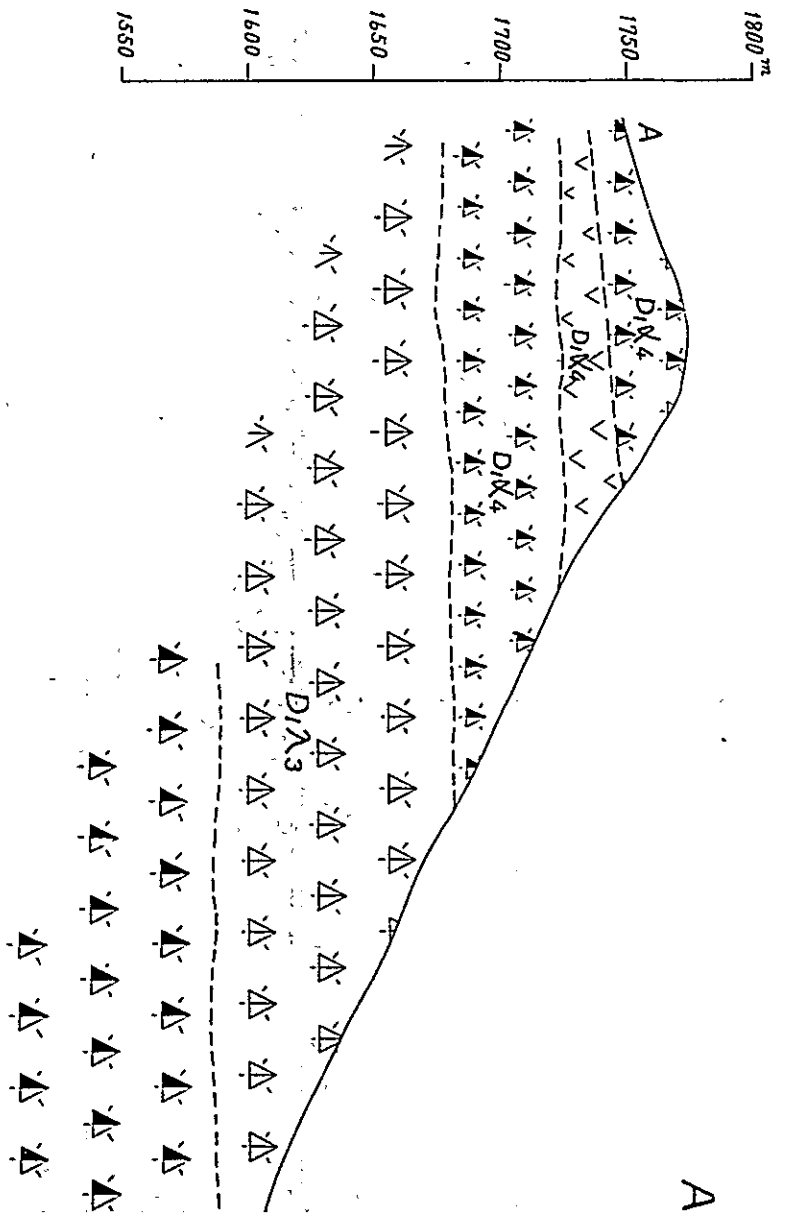
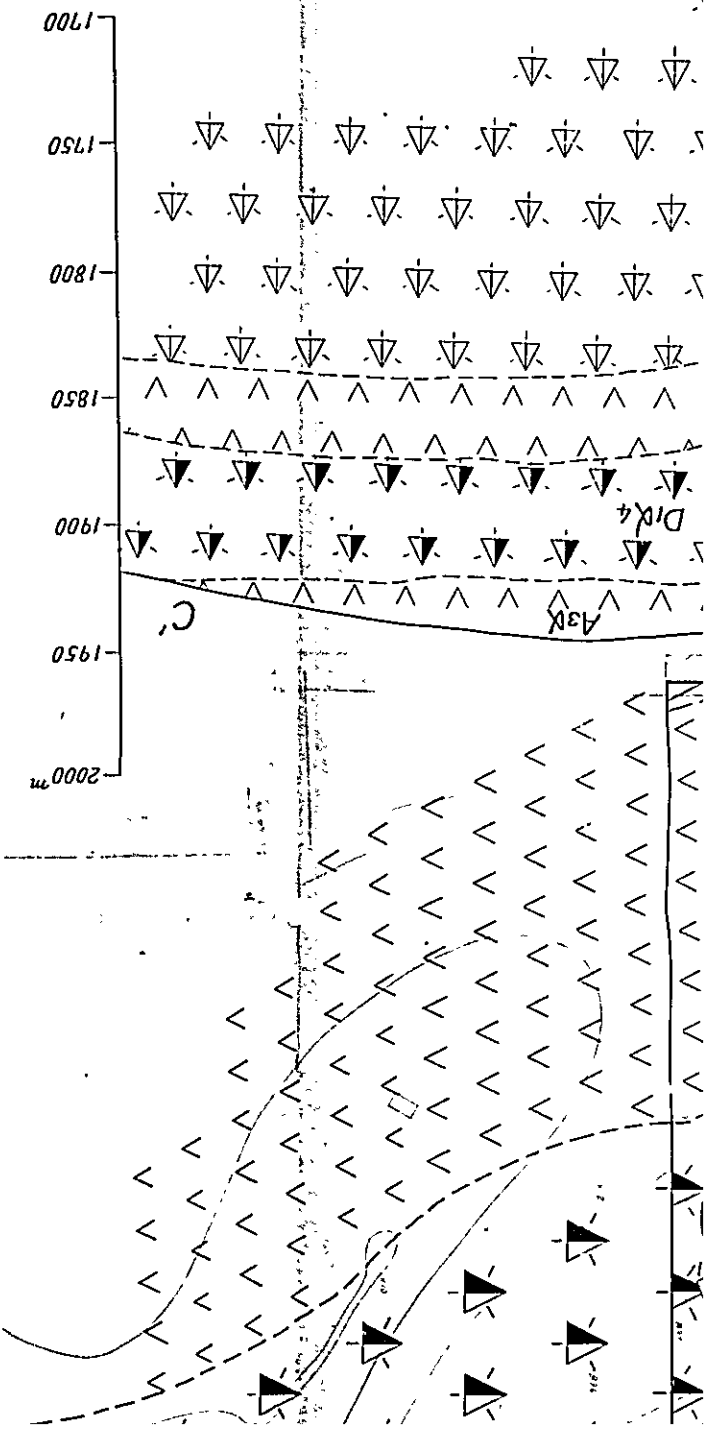
LEGEND
LEJAND

Geological age <i>Jeolojik yaş</i>	Formation <i>Formasyon</i>	Stratigraphical <i>Stratigrafik</i>		Lithology <i>Litoloji</i>
		Marks <i>İsaretler</i>	Symbol <i>Sembol</i>	
Paleogene <i>Paleosen</i> Neogene <i>Miyosen</i>	A3		A3α	Andesite lava <i>Andezit lavı</i>
Upper Cretaceous <i>Ust Kretase</i>	D1		D1λ4	Dacite lava with pyroclastics <i>Piroklastikler ihtiva eden dasit lavı</i>
			D1α4	Andesite lava with pyroclastics <i>Piroklastikler ihtiva eden andezitik lav</i>
		D1λ3	Dacite lava with pyroclastics <i>Piroklastikler ihtiva eden dasit lav</i>	
		D1α3	Andesite lava with pyroclastics <i>Piroklastikler ihtiva eden andezitik lav</i>	
			D1kt	Limestone, marl, calcareous mudstone <i>Kireçtaşı, marn, kalkerli çamurtaşı</i>
Intrusive rocks <i>Intruzifler</i>	A1		A1λ2	Dacite lava with pyroclastics <i>Piroklastikler ihtiva eden dasit lavı</i>
			A1α2	Andesite lava with pyroclastics <i>Piroklastikler ihtiva eden andezitik lav</i>
			A1λ1	Dacite lava with pyroclastics <i>Piroklastikler ihtiva eden dasit lavı</i>
			A1α1	Andesite lava with pyroclastics <i>Piroklastikler ihtiva eden andezitik lav</i>
			A1kt	Limestone, marl, calcareous mudstone <i>Kireçtaşı, marn, kalkerli çamurtaşı</i>
			α	Andesite <i>Andezit</i>
			ε	Dacite <i>Dasit</i>
			σ ₂	Quartz diorite <i>Kuars diorit</i>
			σ ₂ σ	Quartz porphyry <i>Kuars porfiri</i>
				Bedding <i>Tabaka</i>
				Fault <i>Fay</i>
				Anticlinal/synclinal axis <i>Antiklinal/senkinal eksen</i>
				Working mine/abandoned mine <i>Çalışan maden/kapah maden</i>
				Mineralization vein type/skarn type <i>Mineralizasyon damar tipi/skarn tipi</i>
				Geological profile line <i>Jeolojik kesit çizgisi</i>



Future recommendation

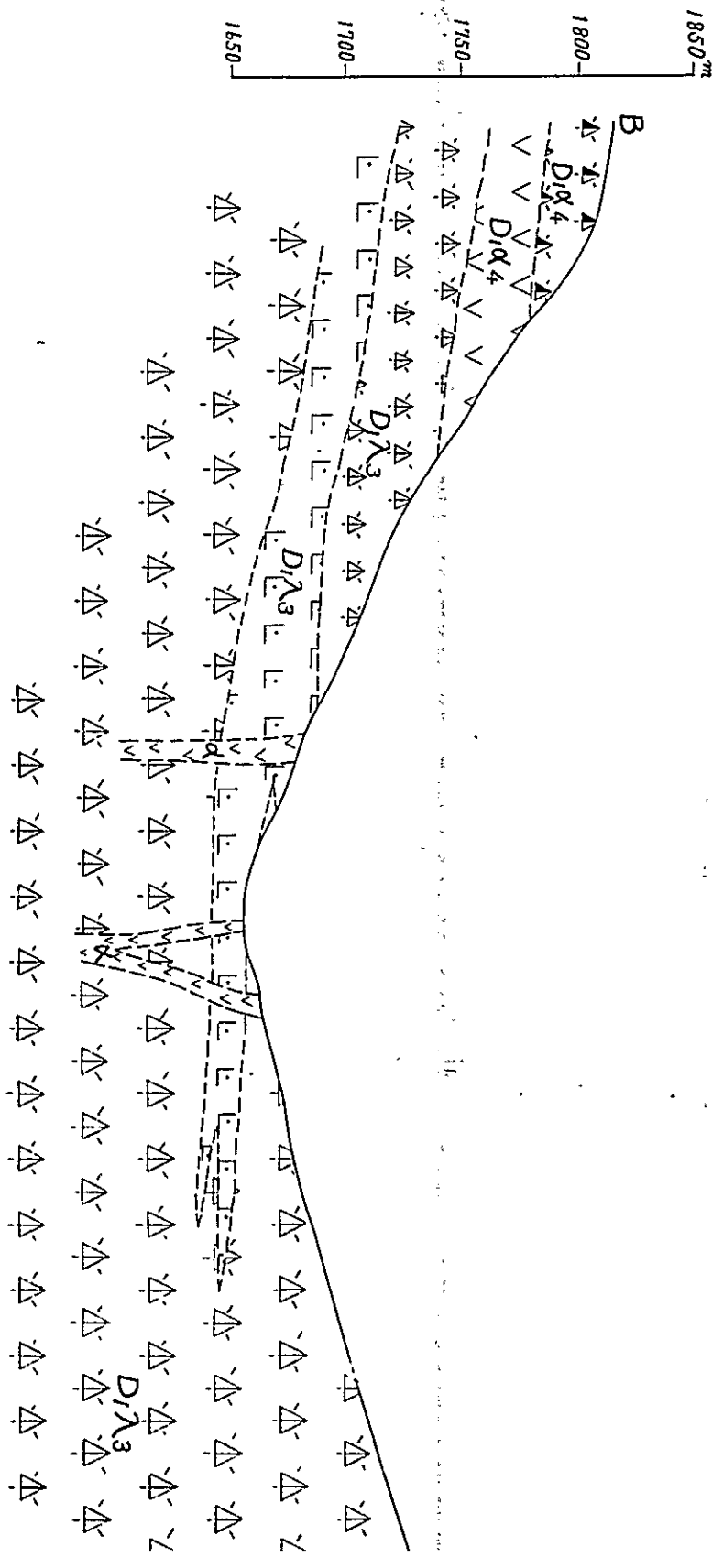
Mark	Method	No.	Amount of works
	Detailed geological survey		5 km ² (N-S 2.5 km) (E-W 2.0 km)

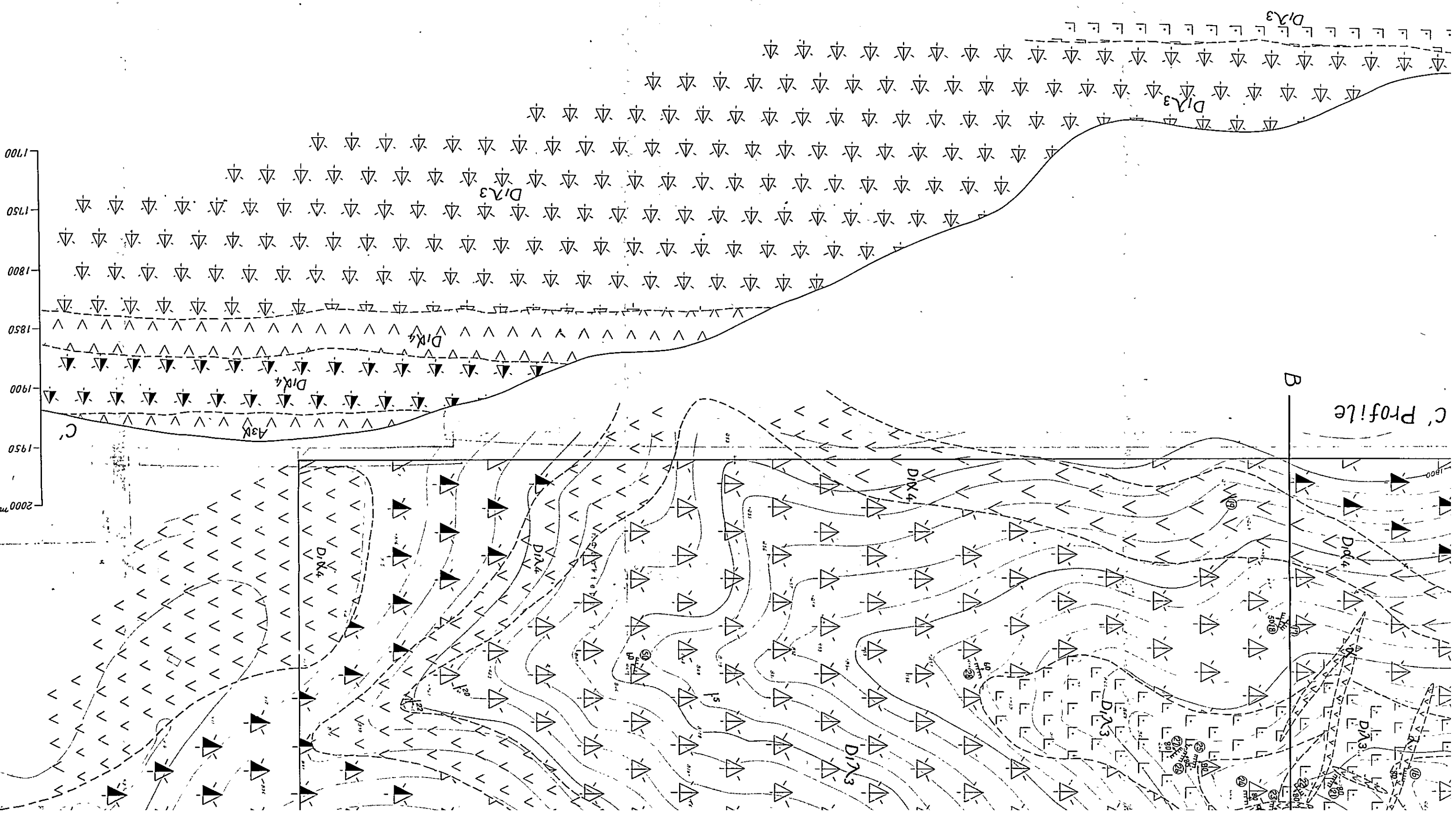


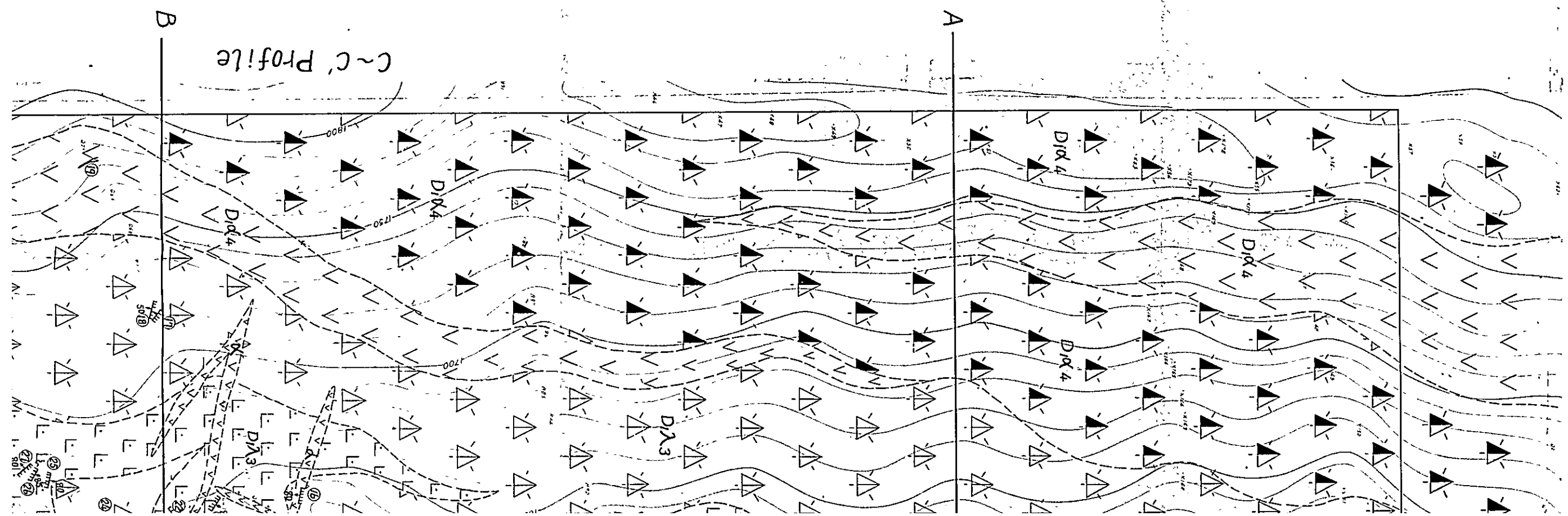
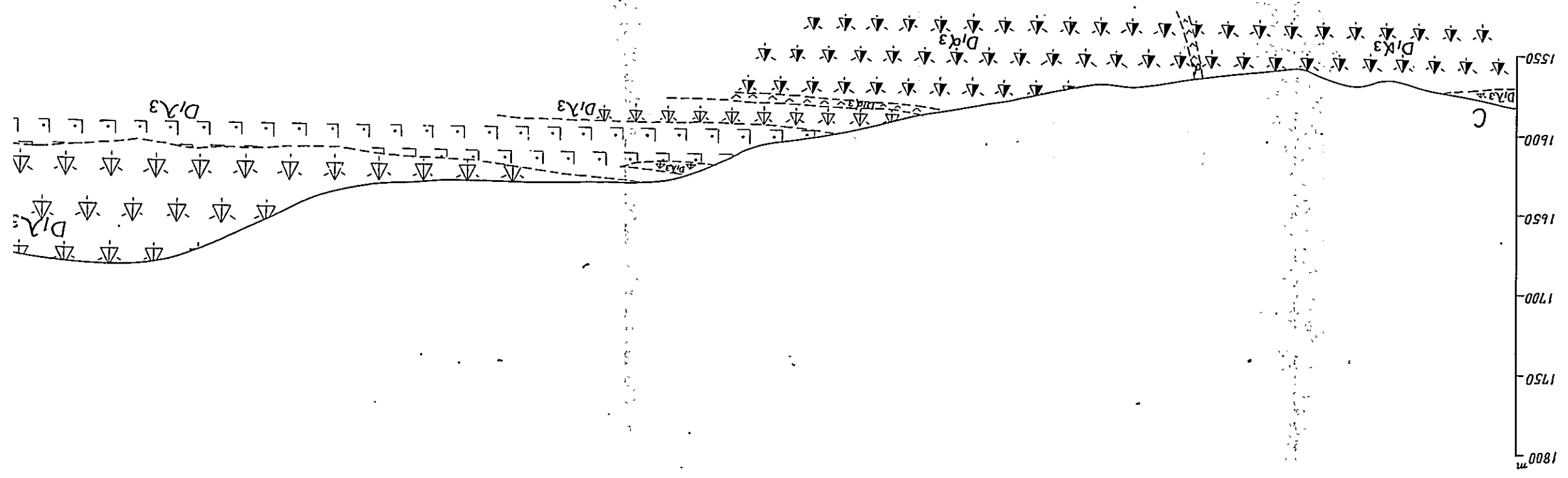
Sample No.	Index No.	Kind of ore mineral	Mode of occurrence	Width or thickness (cm)	Sampling width (cm)	Sampling method	Cu (%)	Pb (%)	Zn (%)
C-07	12	Cpy-Sph(-Ba)	vein	50	45	L	3.25	3.66	15.50
C-74	14	Cpy-Sph	vein	max 15	15	G	0.49	3.02	6.25
C-75	15	Cpy-Sph	vein	max 8	8	G	1.69	1.60	33.50
C-77	16	Ga-Sph	vein	max 11 av 5	5	G	0.69	1.71	13.50
C-81	18	Cpy-Ga-Sph	vein	max 25	20	G	1.81	8.79	15.00
C-82	17	Cpy	vein	7	7	G	1.13	13.55	21.00
C-86	31	Cpy(-Sph)	vein	max 5	5	G	16.88	6.60	0.93
C-87	32	Cpy-Sph	vein	max 10	10	G	3.63	9.76	13.25
C-88	29	Cpy-Sph	vein	max 20	20	G	5.63	9.11	5.00
C-89	27	Cpy-Ga-Sph	swarm of veinlet	10-15	10	G	0.58	5.61	1.13

R : Random sampling L : Line cutting sampling G : gravel sampling of high grade ore

B ~ B' PH







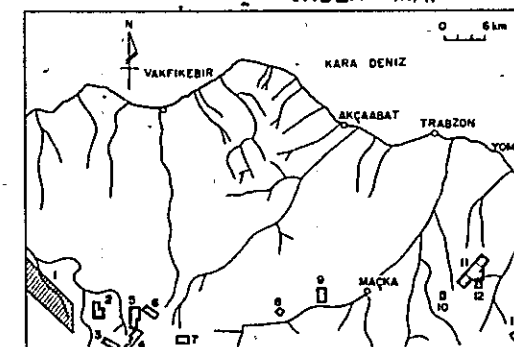
MINERAL RESEARCH AND EXPLORATION INSTITUTE
 GEOLOGICAL SURVEY
 OF
 TRABZON AREA, NORTHEASTERN TURKEY

PHASE III

GEOLOGICAL MAP WITH GEOLOGICAL PROFILE
 AND COLUMNAR SECTION OF ALACADAĞ AREA

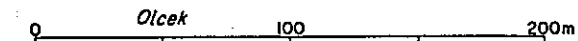
ALACADAĞ SAHAŞININ JEOLoji
 HARITASI JEOLoji KESİTLERİ VE
 SÜTUN KESİTİ

INDEX MAP



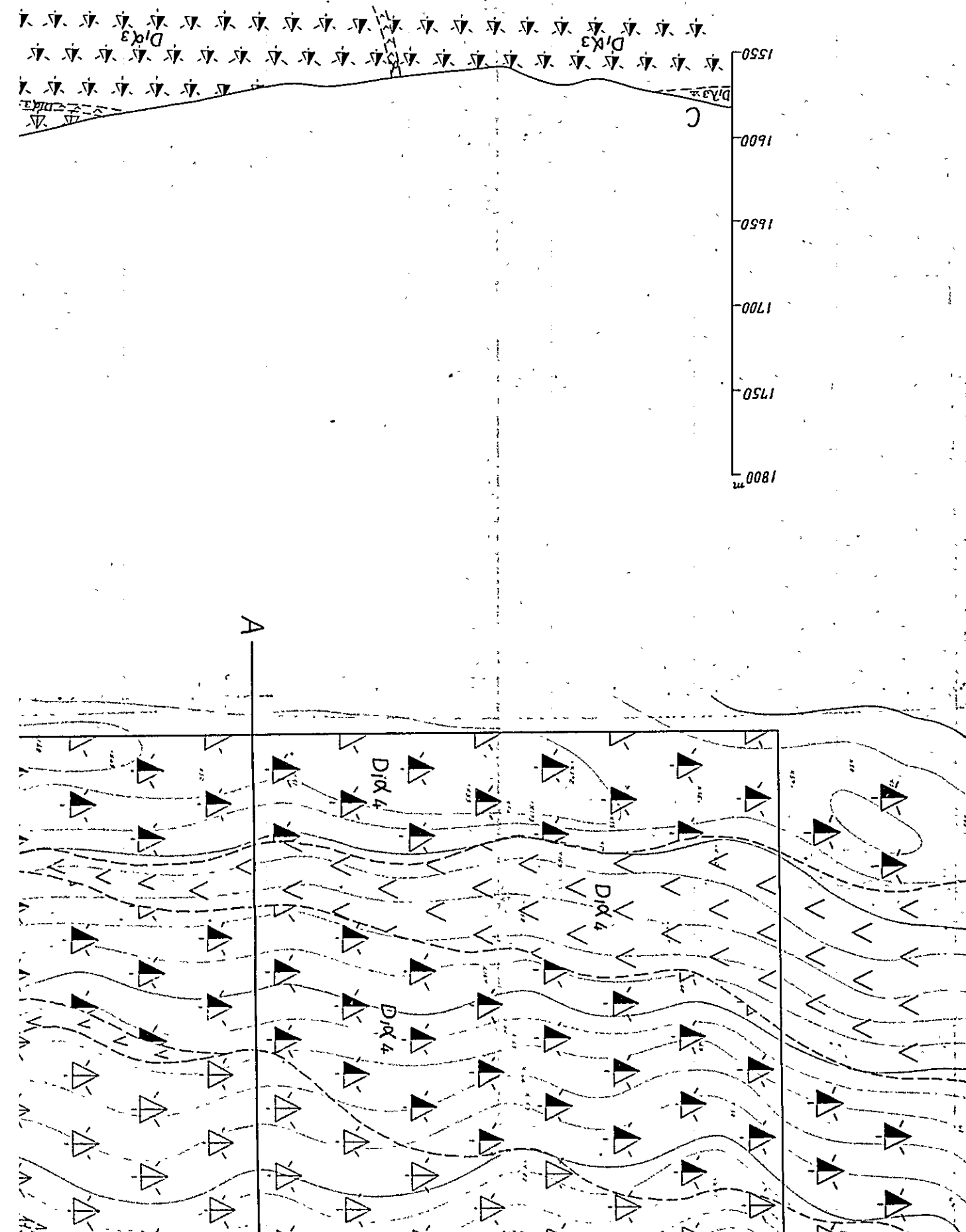
- 1 Kahraman Dere
- 2 Alacadağ
- 3 Çeşel Dere
- 4 Gölüalan
- 5 Ken mine
- 6 Ken Dere, Fırdere
- 7 Akise Yayla
- 8 Yeni Mahalle
- 9 Salana
- 10 Kani Tepe
- 11 Kızılcık-Coşkunhan
- 12 Tuzlak Mezraası
- 13 Ocak
- 14 Uzunlu

Scale 1 : 2,000



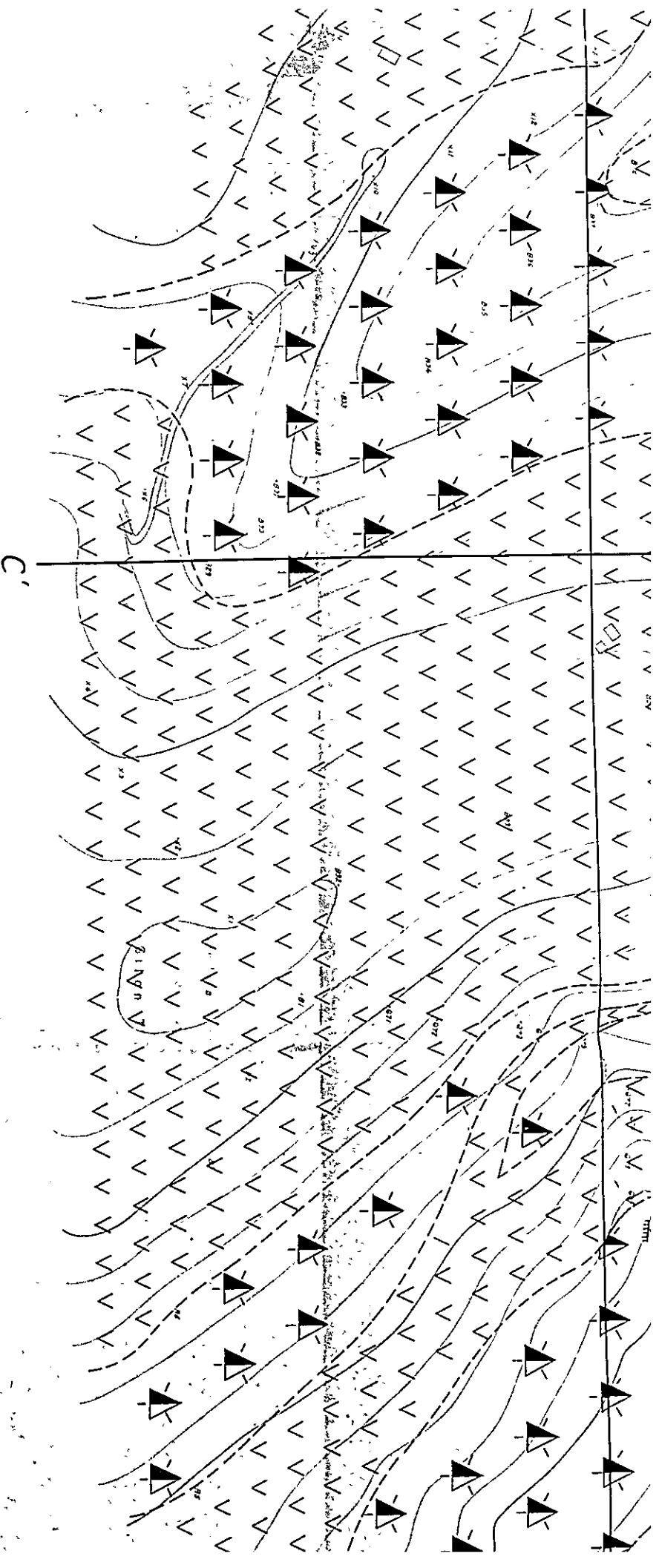
METAL MINING AGENCY OF JAPAN
 JAPAN INTERNATIONAL COOPERATION AGENCY
 FEBRUARY 1977

Prepared by Nikko Exploration & Development Co., Ltd.

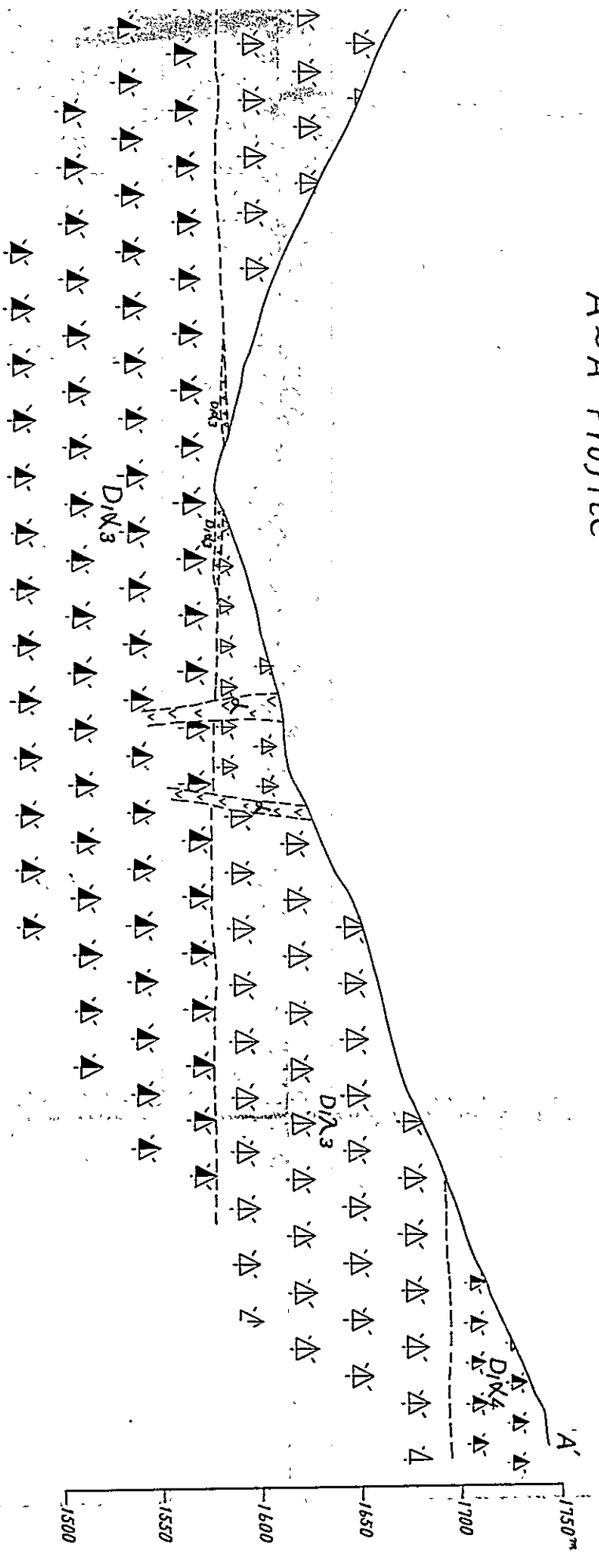


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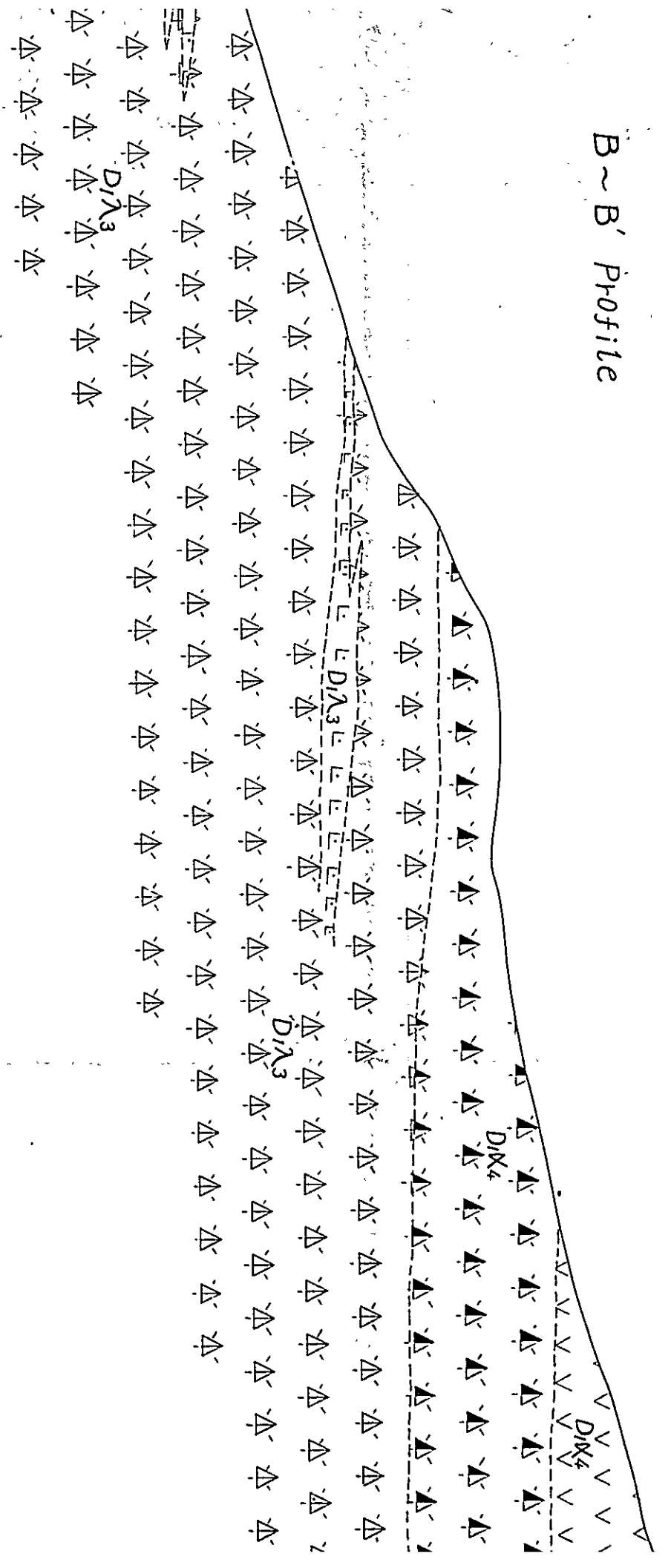
Geological age Jeolojik yas	Formation Formasyon	Stratigraphical Stratigrafik		Lithology Litoloji
		Marks İsaretiler	Symbol Sembol	
Paleogene				

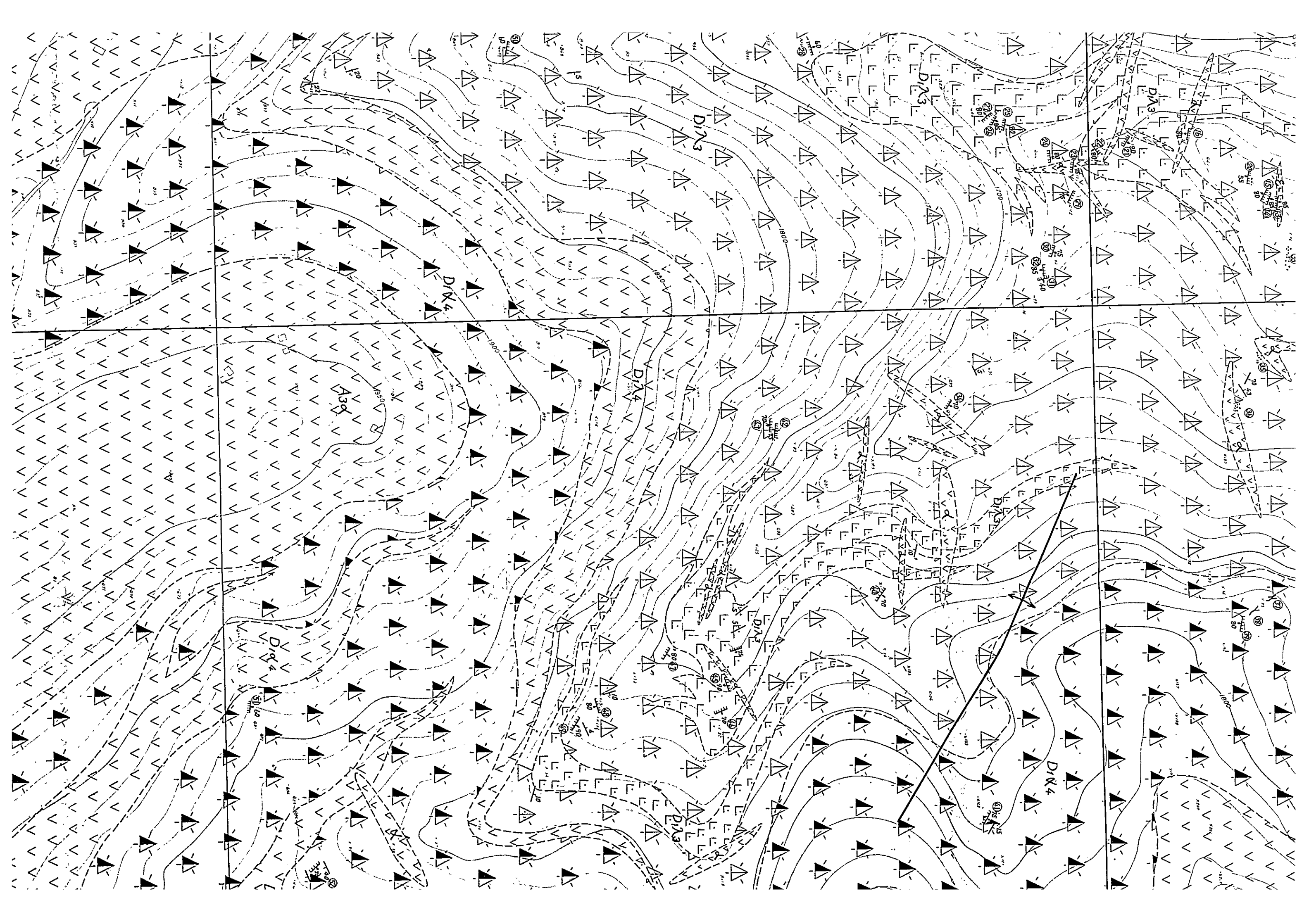


A~A Profile

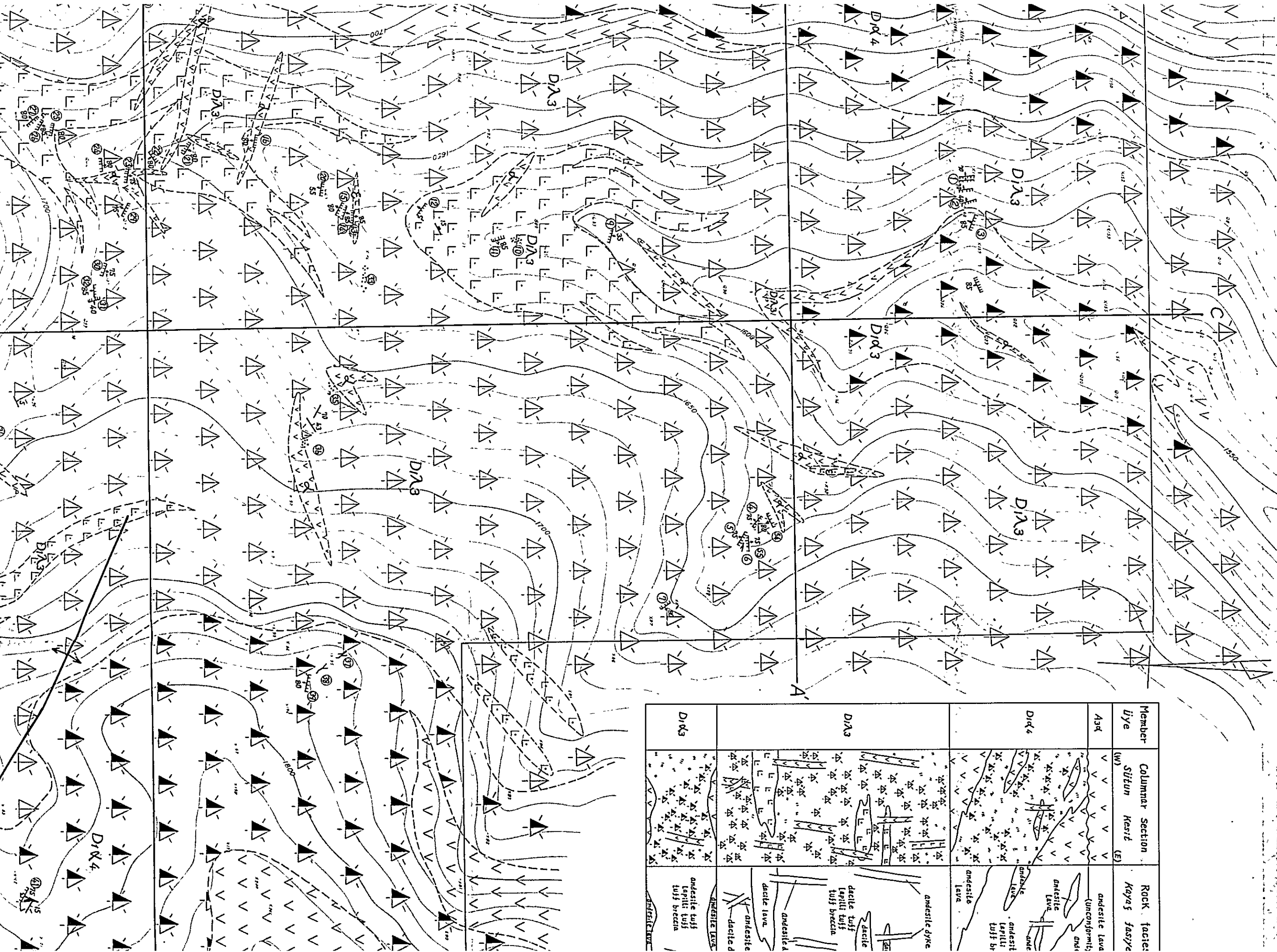


B~B' Profile

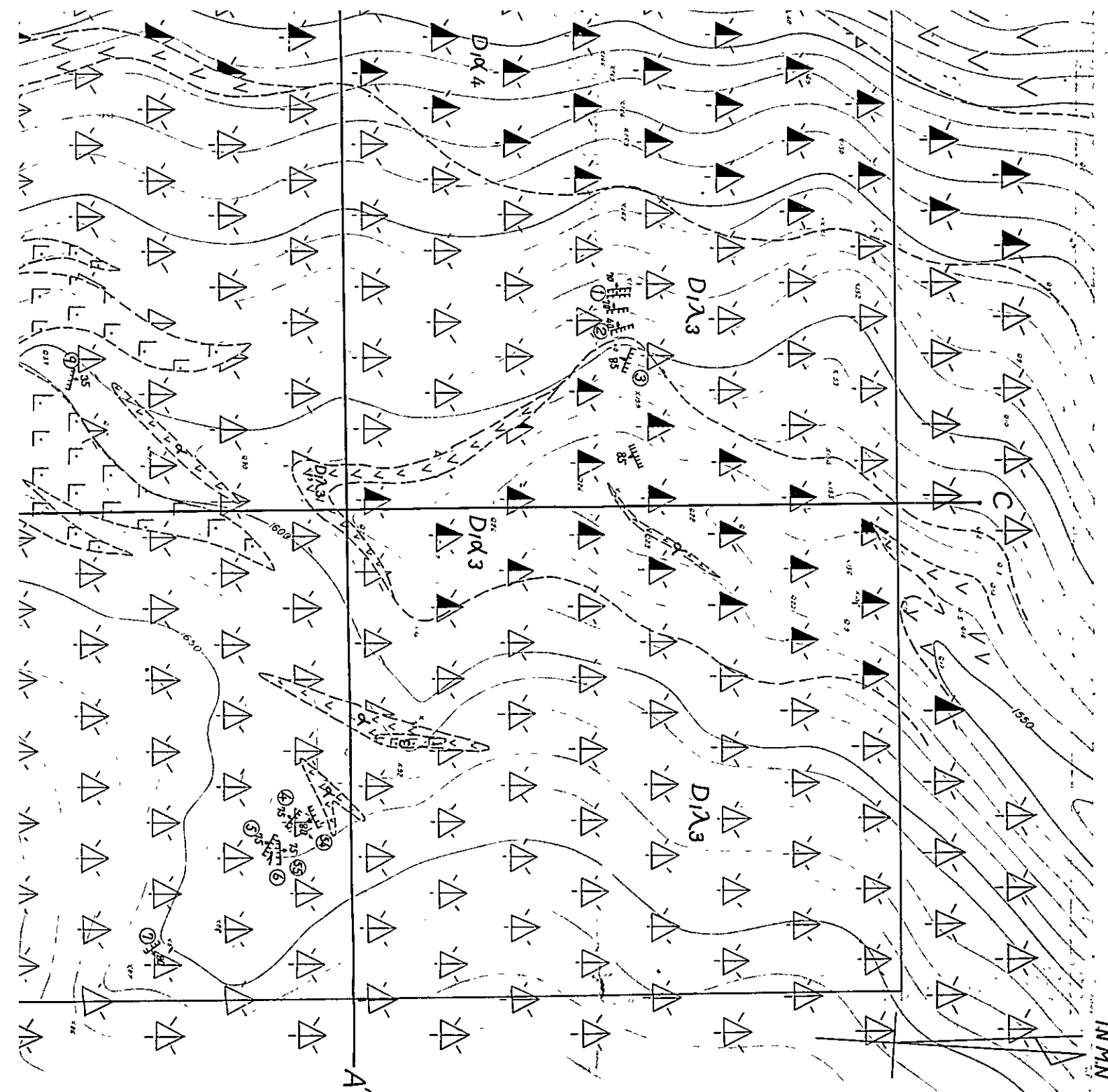




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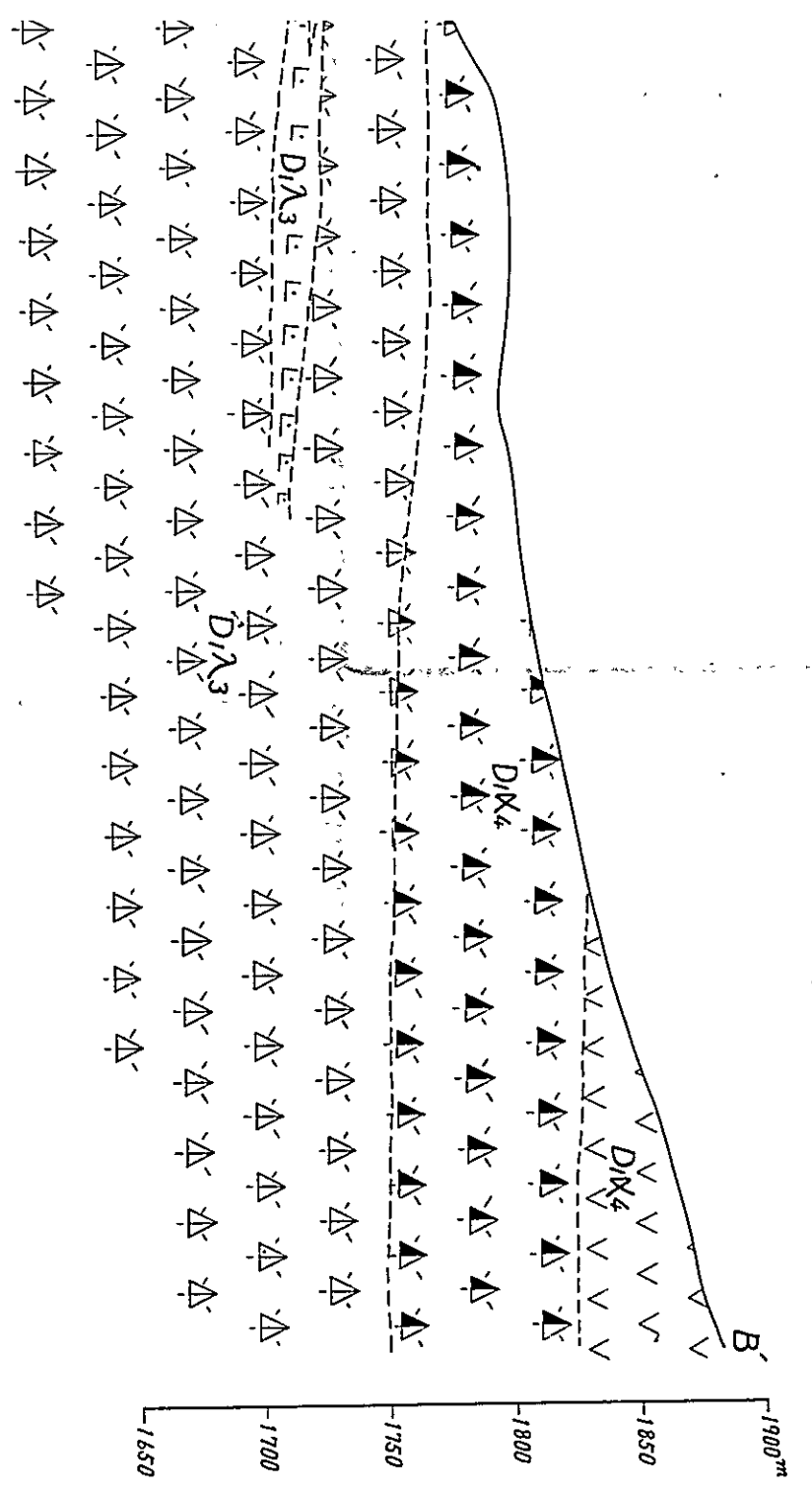
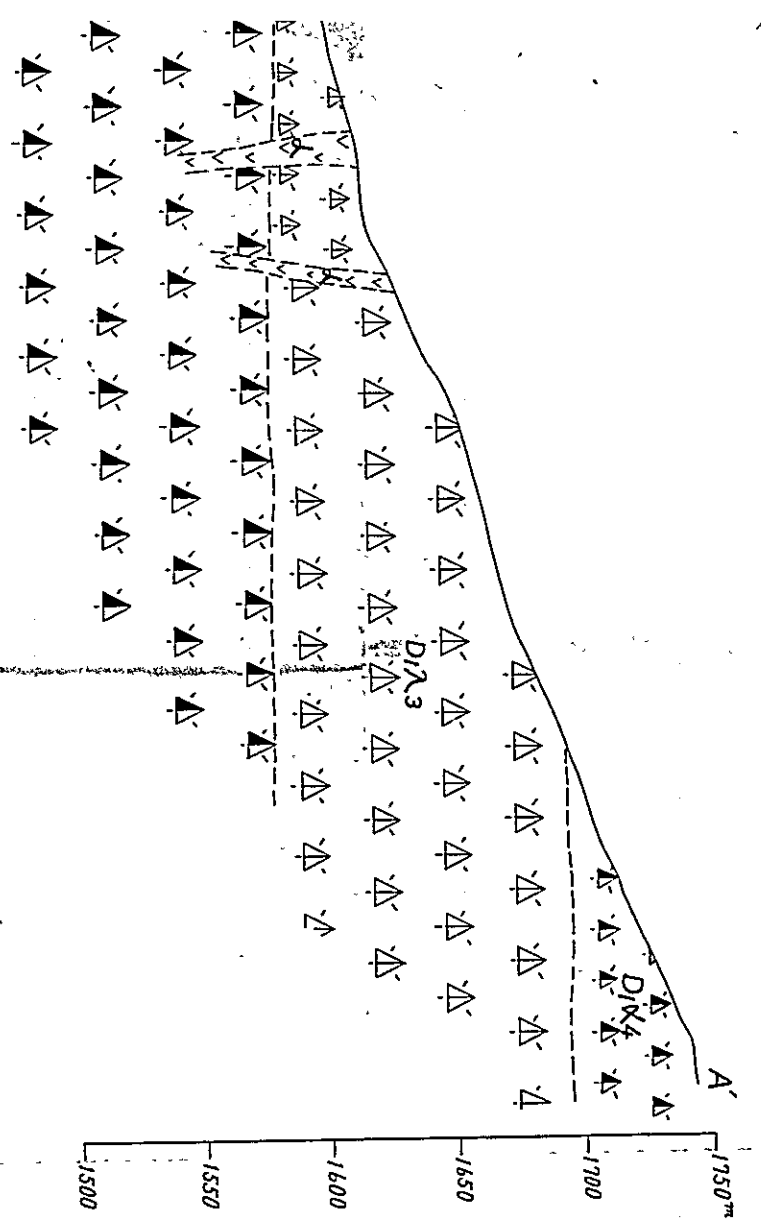
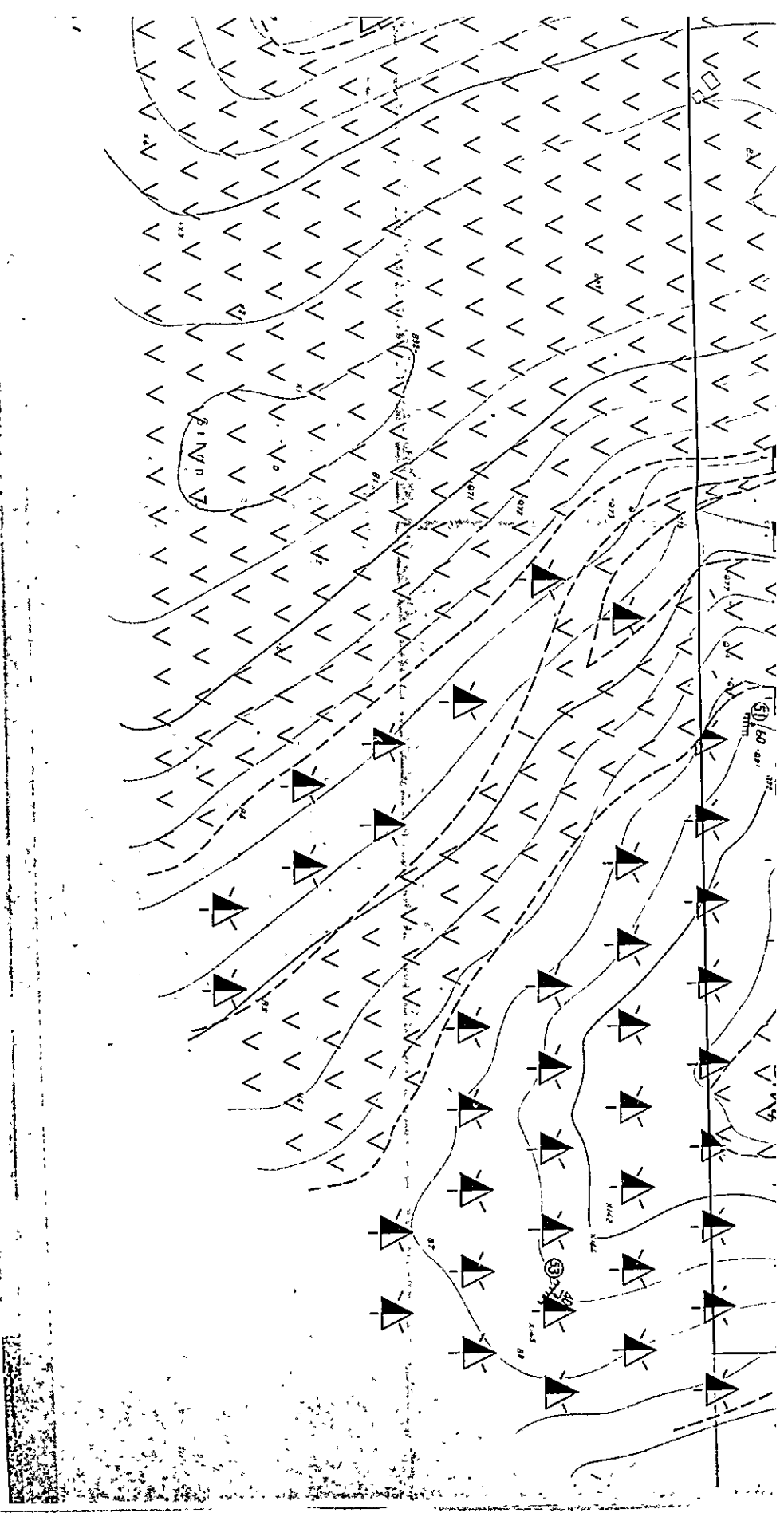
Member Ijye	Columnar Section Sifun Kerit (E)	Rock facies Kapas fasye
A3d		andesite lava (unconformity and)
D1A4		andesite Lepilli tuff br
D1A3		andesite dyke dacite dacite tuff Lepilli tuff tuff breccia
D1A3		andesite dacite lava andesite dacite
D1A3		andesite tuff Lepilli tuff tuff breccia

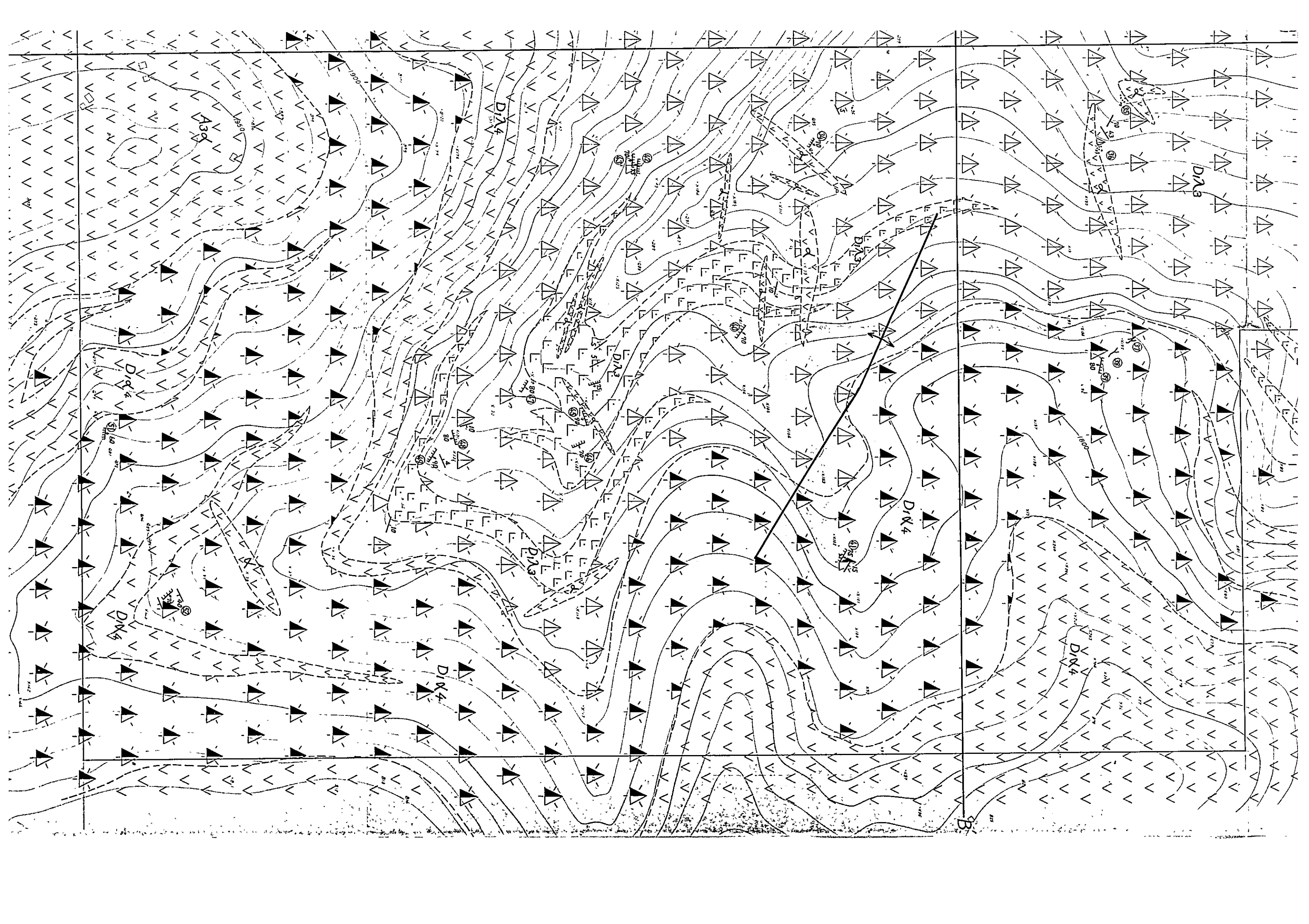


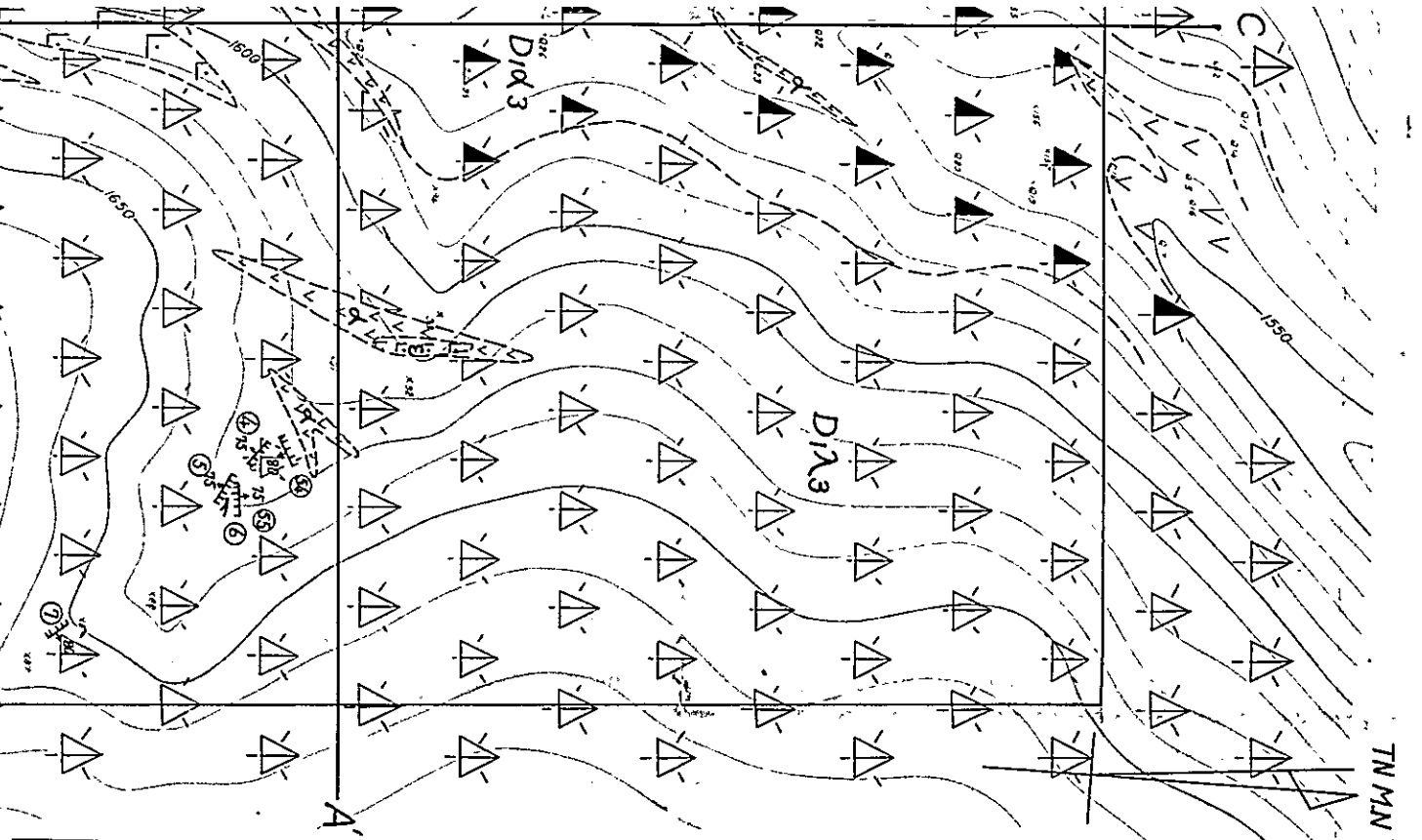
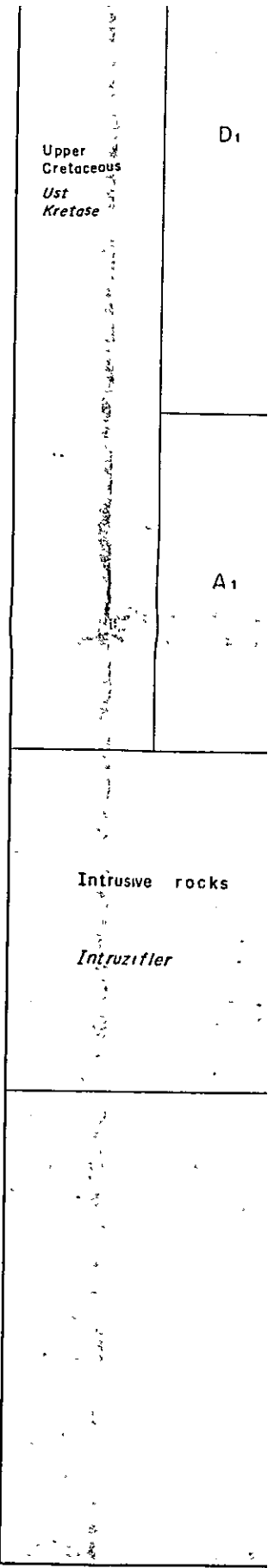
LEGEND
LEJAND

Geological age Jeolojik yaş	Formation Formasyon	Stratigraphical Stratigrafik		Lithology Litoloji
		Marks İsaretler	Symbol Sembol	
Paleogene Paleosen Neogene Miyosen	A3		A3α	Andesite lava Andezit lavı
	A2		A2α	Andesite pyroclastics Andezitik Piroklastikler
Upper Cretaceous Üst Kretase	D1		D1λ4	Dacite lava Dasit lavı
				Dacite pyroclastics Dasit Piroklastikler
				Fine tuff & calcareous mudstone İnce tüf & kalkerli çamurtaşı
				Andesite lava Andezitik lav
		D1λ4	Andesite pyroclastics Andezitik Piroklastikler	
			D1λ3	Dacite lava Dasit lavı
		Dacite pyroclastics Dasit Piroklastikler		
		Basalt lava Bazalt lavı		
		Fine tuff & calcareous mudstone İnce tüf & kalkerli çamurtaşı		
		D1α3	Andesite lava Andezitik lav	
	Andesite pyroclastics Andezitik Piroklastikler			
	Fine tuff & calcareous mudstone İnce tüf & kalkerli çamurtaşı			
	D1kt	Limestone, marl Kireçtaşı, marl		
A1	A1		A1λ2	Dacite lava Dasit lavı
				Dacite pyroclastics Dasit Piroklastikler
				Fine tuff & calcareous mudstone İnce tüf & kalkerli çamurtaşı
				Limestone, marl Kireçtaşı, marl
		A1α2	Andesite lava Andezitik lav	
			Andesite pyroclastics Andezitik Piroklastikler	
	Fine tuff & calcareous mudstone İnce tüf & kalkerli çamurtaşı			
	A1kt	Limestone, marl Kireçtaşı, marl		
Intrusive rocks İntruzifler			β	Basalt Bazalt
			α	Andesite Andezit
			ε	Dacite Dasit
			σ	Porphyrite Porfirit
			δσ2	Diorite porphyrite Diorit porfirit
			σ2	Quartz diorite Kuvars diorit
			σ2σ	Quartz diorite porphyrite Kuvars diorit porfirit
			σ2σ	Quartz porphyry Kuvars porfiri
			30	Bedding Tahaka
			70	Fault Fay
	40	Joint Kirik		

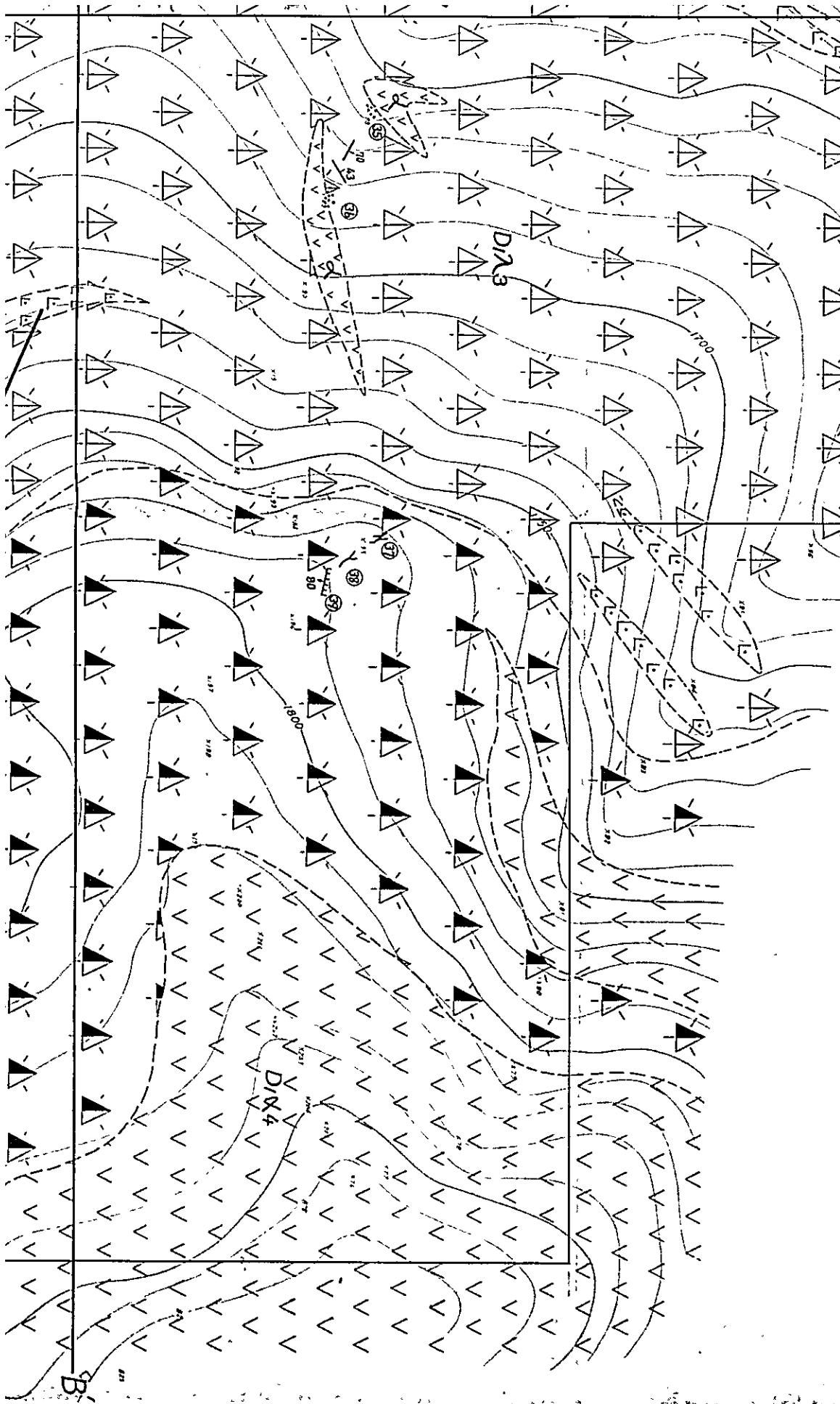
Member Üye	Columnar section Sütun Kesit	Rock face Kayas fası
A3d		andesite la (unconform)
D1α4		andesite Lave andesite Lave Andezit Lave Andezit Lave
D1λ3		dacite tuff Lapilli tuff tuff breccia
D1α3		andesite tuff Lapilli tuff tuff breccia

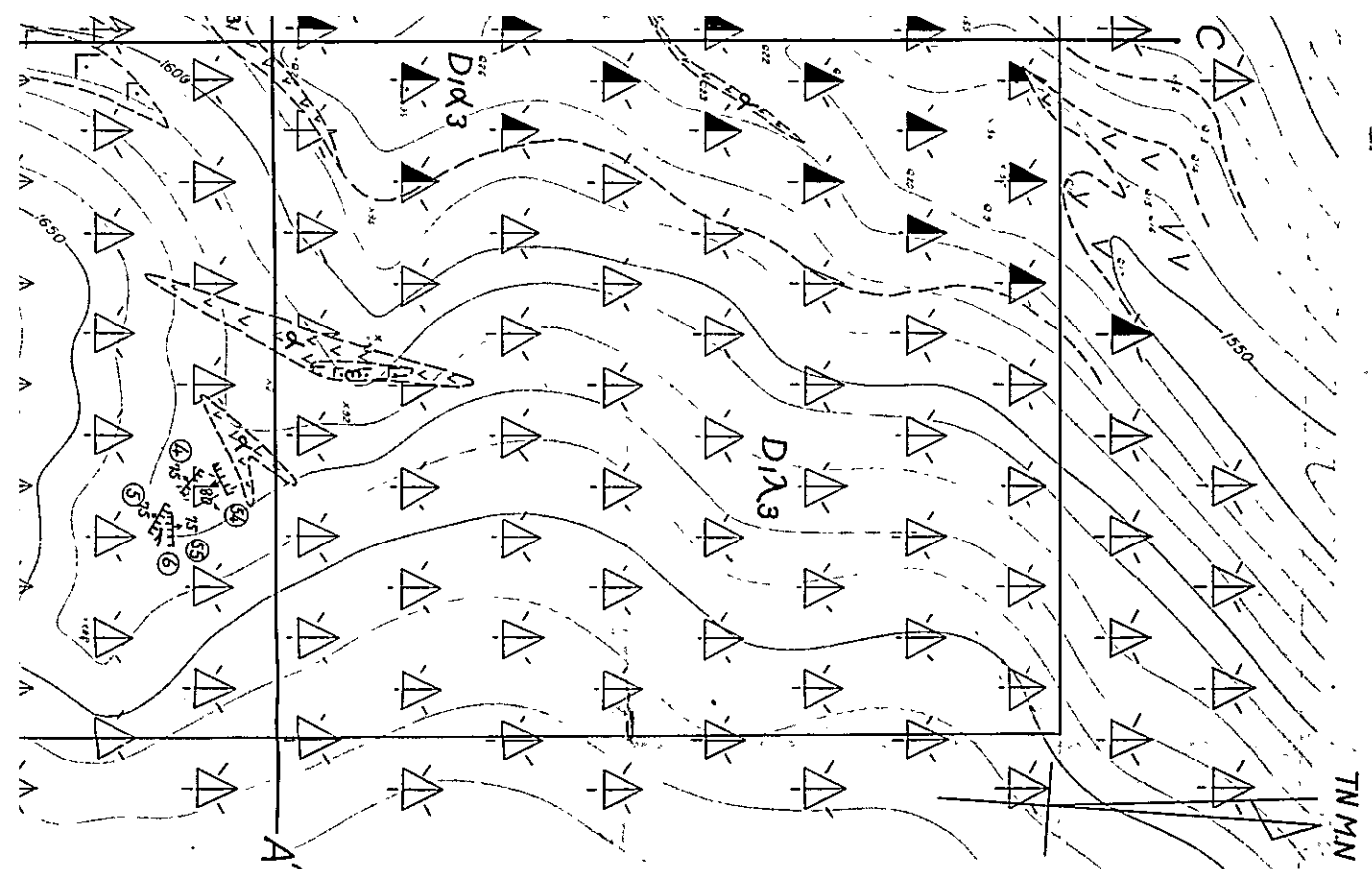






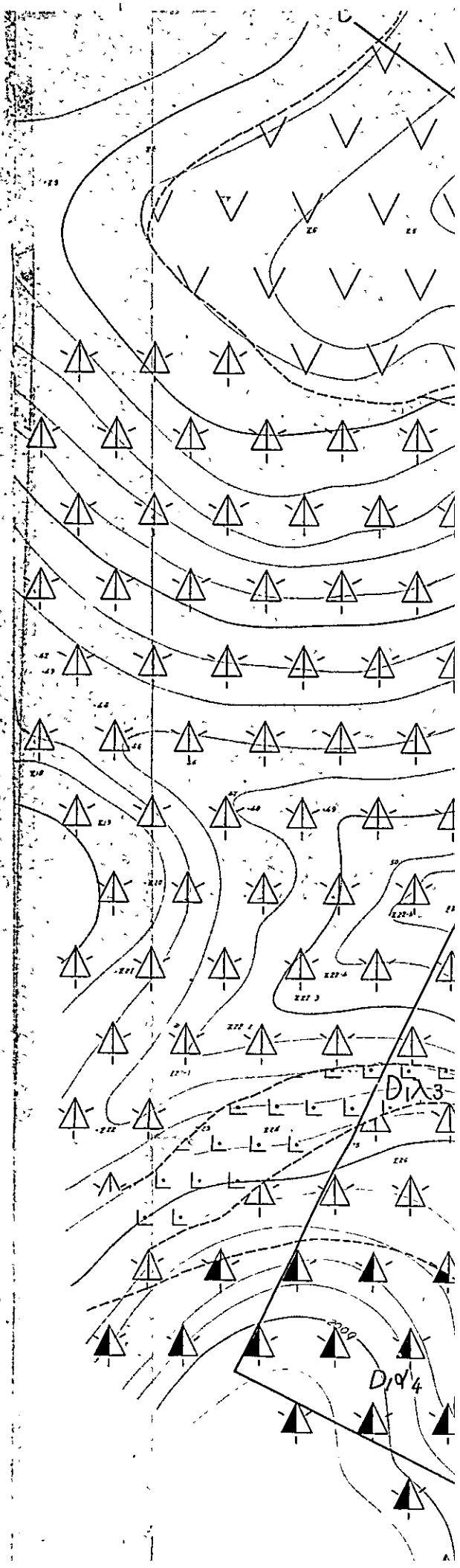
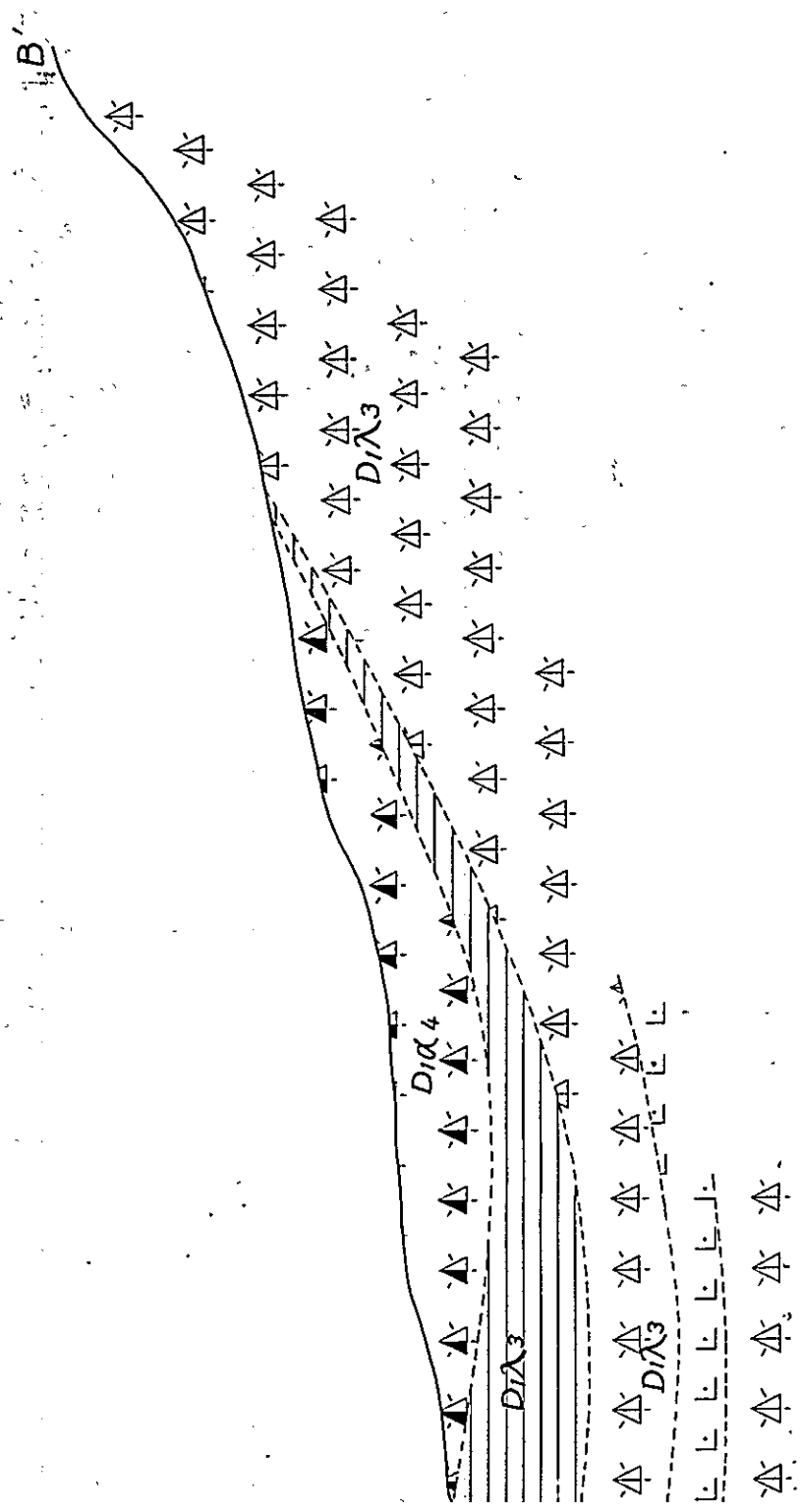
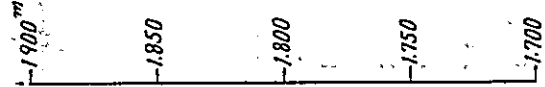
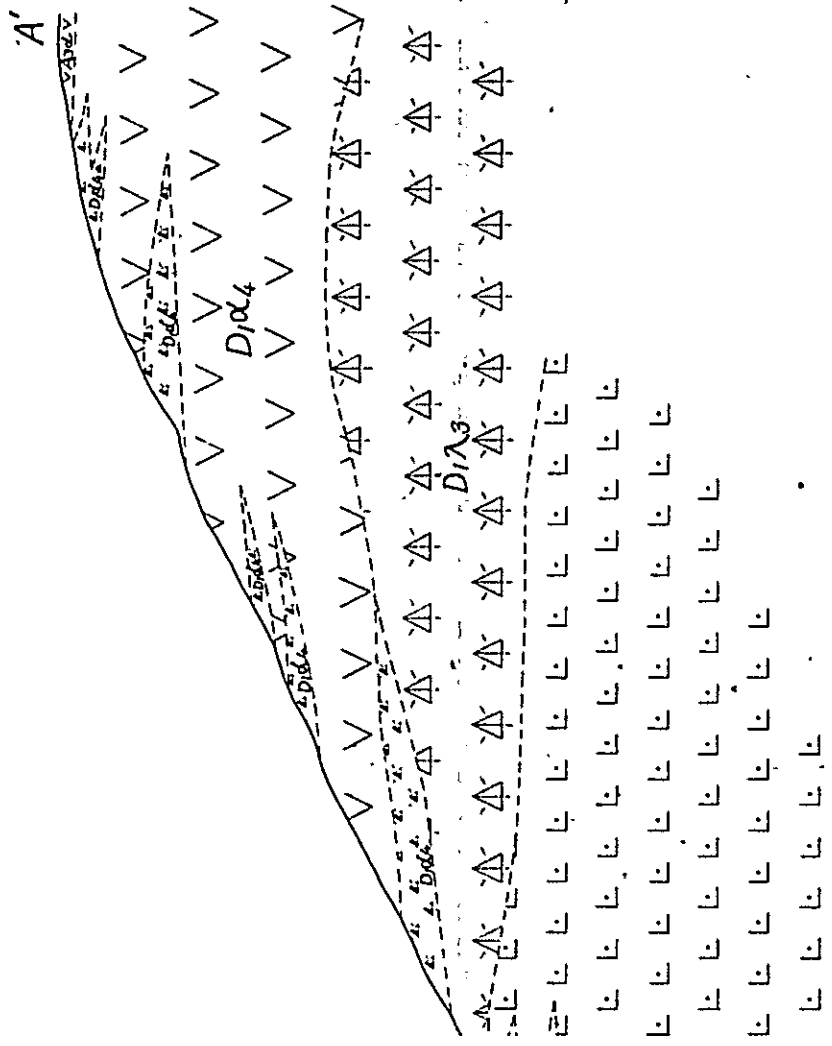
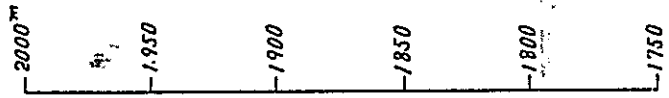
Member Dye	Columnar section (W) Sifun Kesit (E)	Rock facies Kayaş fasıyesi	Thickness Kalınlık	Mineralization Mineralizasyon
A3d		andesite lava (unconformity) andesite lava andesite lava andesite tuff lepilli tuff tuff breccia	20 m	quartz-limonite vein
Dix4		andesite lava andesite lava andesite lava andesite tuff lepilli tuff tuff breccia andesite dyke dacite lava andesite dyke andesite dyke andesite dyke	120 m + d	Alcedağ mine (vein)
Dix3		andesite tuff lepilli tuff tuff breccia andesite lava andesite dyke	60 m +	vein type 100 m 200 m

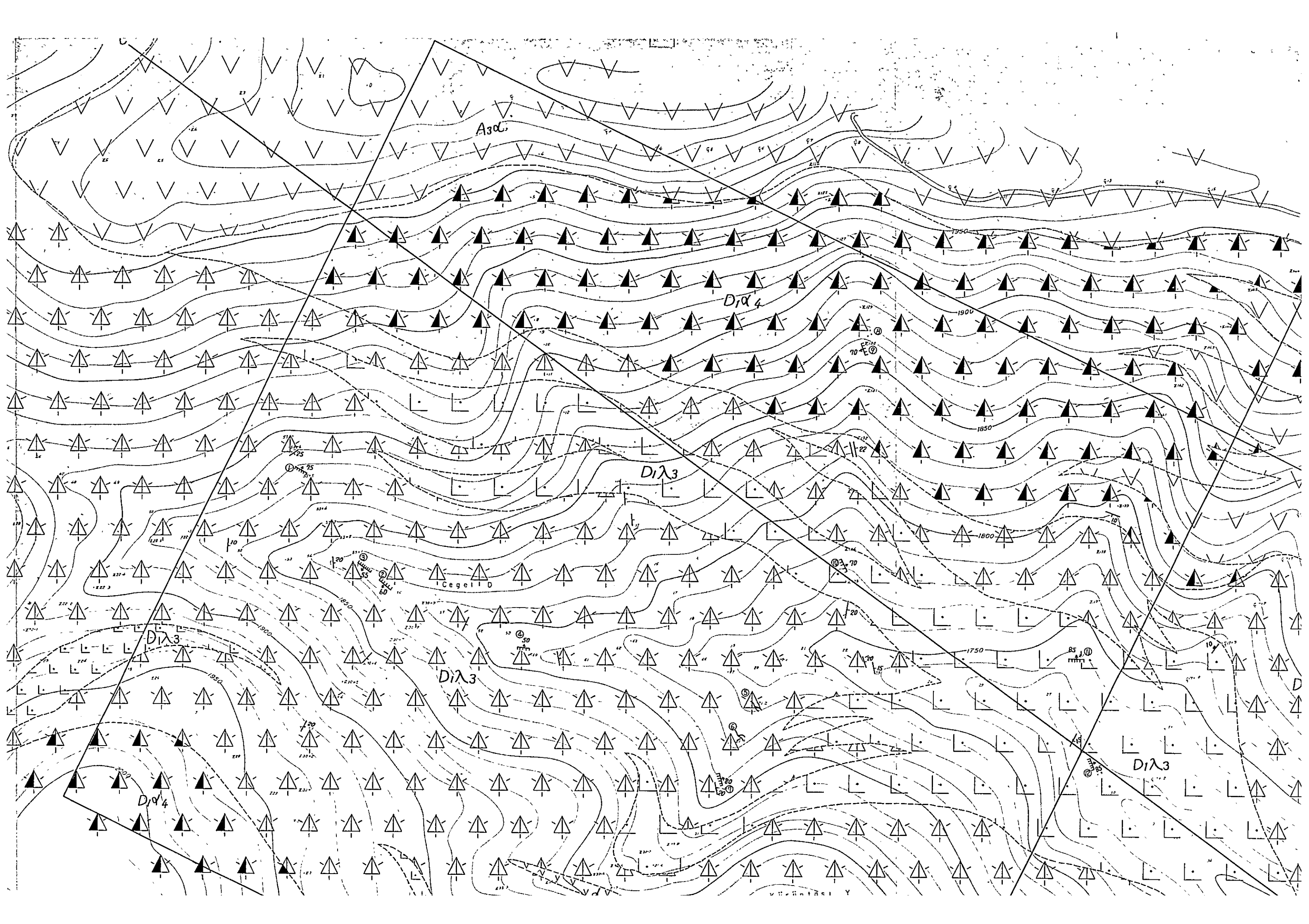


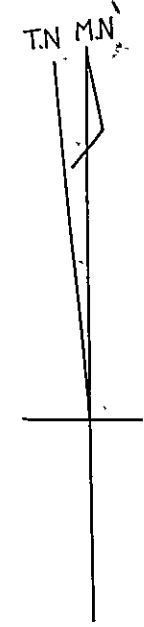
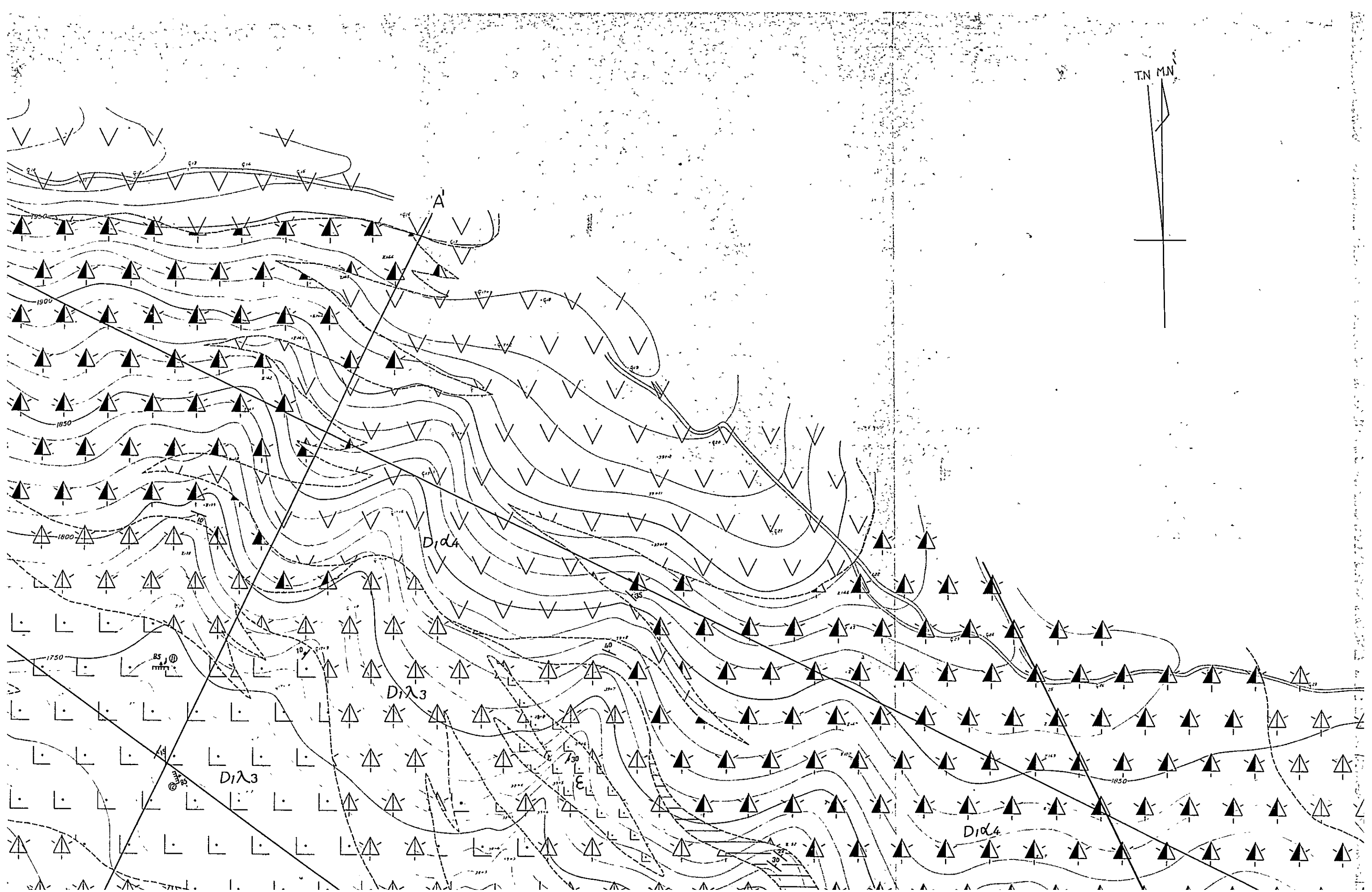


Member üye	Columnar Section (Sütun Kesit (E))	Rock facies (Kayaş faciyesi)	Thickness (Kalınlık)	Mineralization (Mineralizasyon)
D1λ4		andesite Lava (unconformity) andesite Lava andesite tuff lapilli tuff tuff breccia	20m	quartz - limonite vein
D1λ3		andesite dyke andesite lava dacite lava dacite tuff lapilli tuff tuff breccia	100m - 200m	vein type Alacadağ mine (vein)

Upper Cretaceous Ust Kretase	D1	D1λ4	Andesite lava Andezitik lav Andesite pyroclastics Andezitik Piroklastikler
		D1λ3	Dacite lava Dasit lavı Dacite pyroclastics Dasit Piroklastikler Basalt lava Bazalt lavı Fine tuff & calcareous mudstone İnce tüf & kalkerli çamurtaşı
		D1λ3	Andesite lava Andezitik lav Andesite pyroclastics Andezitik Piroklastikler Fine tuff & calcareous mudstone İnce tüf & kalkerli çamurtaşı
		D1kt	Limestone, marl. Kireçtaşı, marl
	A1	A1λ2	Dacite lava Dasit lavı Dacite pyroclastics Dasit Piroklastikler Fine tuff & calcareous mudstone İnce tüf & kalkerli çamurtaşı Limestone, marl. Kireçtaşı, marl
		A1λ2	Andesite lava Andezitik lav Andesite pyroclastics Andezitik Piroklastikler Fine tuff & calcareous mudstone İnce tüf & kalkerli çamurtaşı
		A1kt	Limestone, marl. Kireçtaşı, marl
Intrusive rocks Intruzifler		β	Basalt Bazalt
		α	Andesite Andezit
		ε	Dacite Dasit
		σ	Porphyrite Porfirit
		σ ₂	Diorite porphyrite Diorit porfirit
		σ ₂	Quartz diorite Kuvars diorit
		σ ₂ σ	Quartz diorite porphyrite Kuvars diorit porfirit
		σ ₂ σ	Quartz porphyry Kuvars porfiri
			Bedding Tabaka
			Fault Fay
			Joint Kırık
			Flow structure Akıntılı yapı
			Anticlinal/synclinal, axis Antiklinal/senklinal eksen
			Working mine/abandoned mine Çalışan maden/kapalı maden
			Mineralization vein type/dissemination type Mineralizasyon damar tip/disseminasyon tip
			Massive, bedded ore/veinlets Masif, tabakalı cevher/damarciklar
			Skarnized zone Skarn zonu
			Drilling site Sondaj yer
			Geological profile line Jeolojik kesit çizgisi







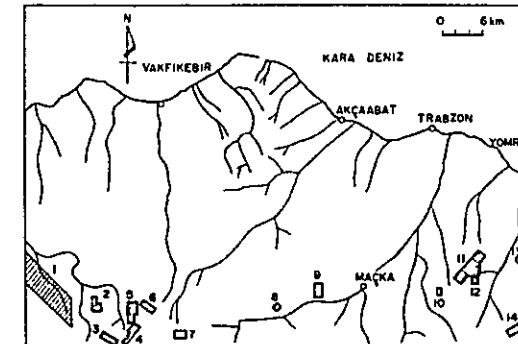
MINERAL RESEARCH AND EXPLORATION INSTITUTE
 GEOLOGICAL SURVEY
 OF
 TRABZON AREA, NORTHEASTERN TURKEY

PHASE III

GEOLOGICAL MAP WITH GEOLOGICAL PROFILE
 AND COLUMNAR SECTION OF ÇEĞEL DERE AREA

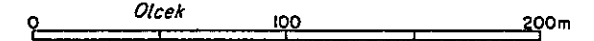
ÇEĞEL DERE SAHASININ JEOLoji
 HARITASI JEOLoji KESİTLERİ VE SÜTUN
 KESİTİ

INDEX MAP



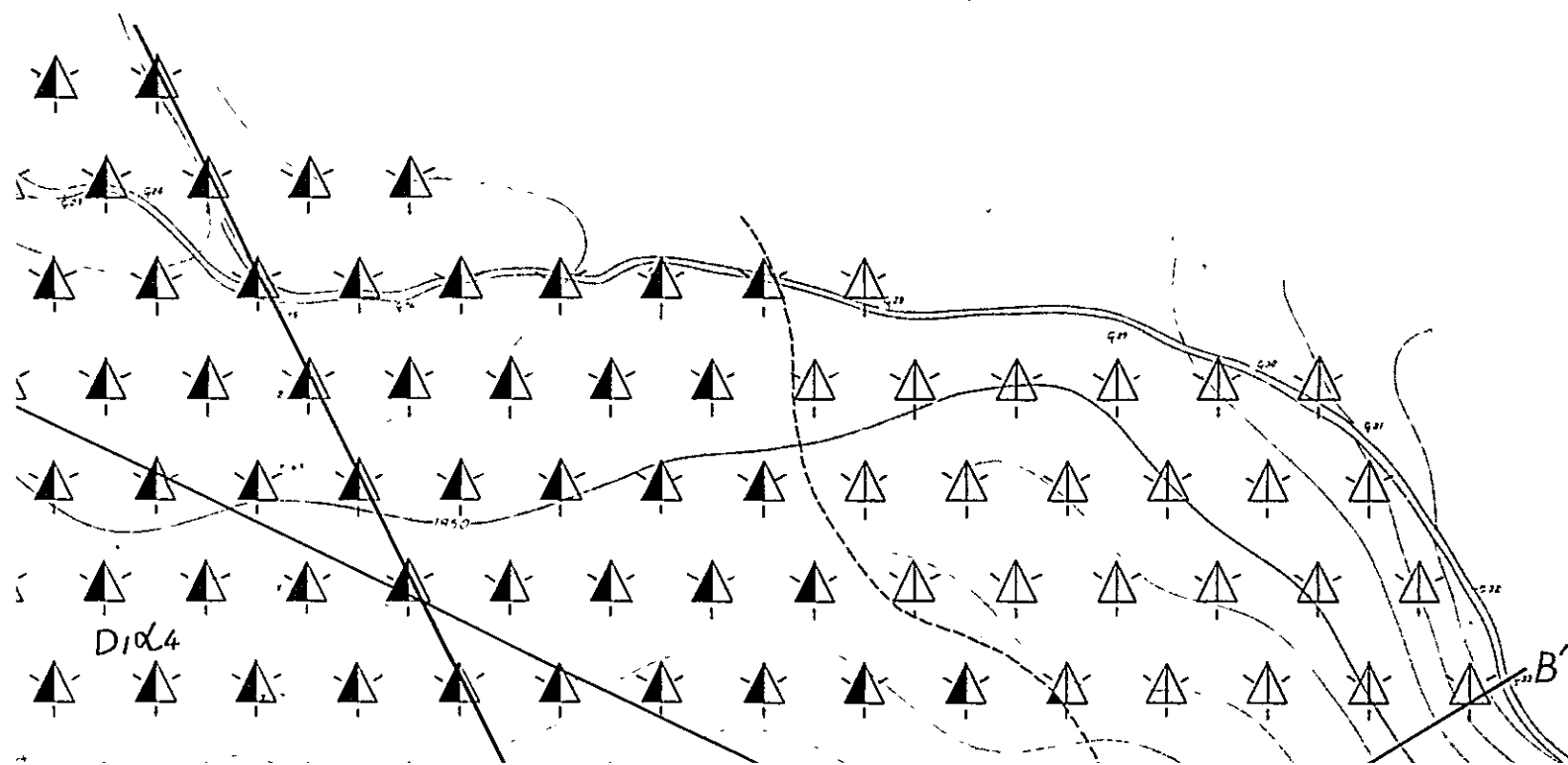
- 1 Kahraman Dere
- 2 Alaçadağ
- 3 Çeğel Dere
- 4 Gölüalan
- 5 Ken mine
- 6 Ken Dere, Fol Dere
- 7 Akise Yayla
- 8 Yeni Mahalle
- 9 Salana
- 10 Kanlı Tepe
- 11 Kızıldağ-Çağhanlar
- 12 Tuzlak Mezraası
- 13 Ocak
- 14 Uzunlu

Scale 1 : 2,000



METAL MINING AGENCY OF JAPAN
 JAPAN INTERNATIONAL COOPERATION AGENCY
 FEBRUARY 1977

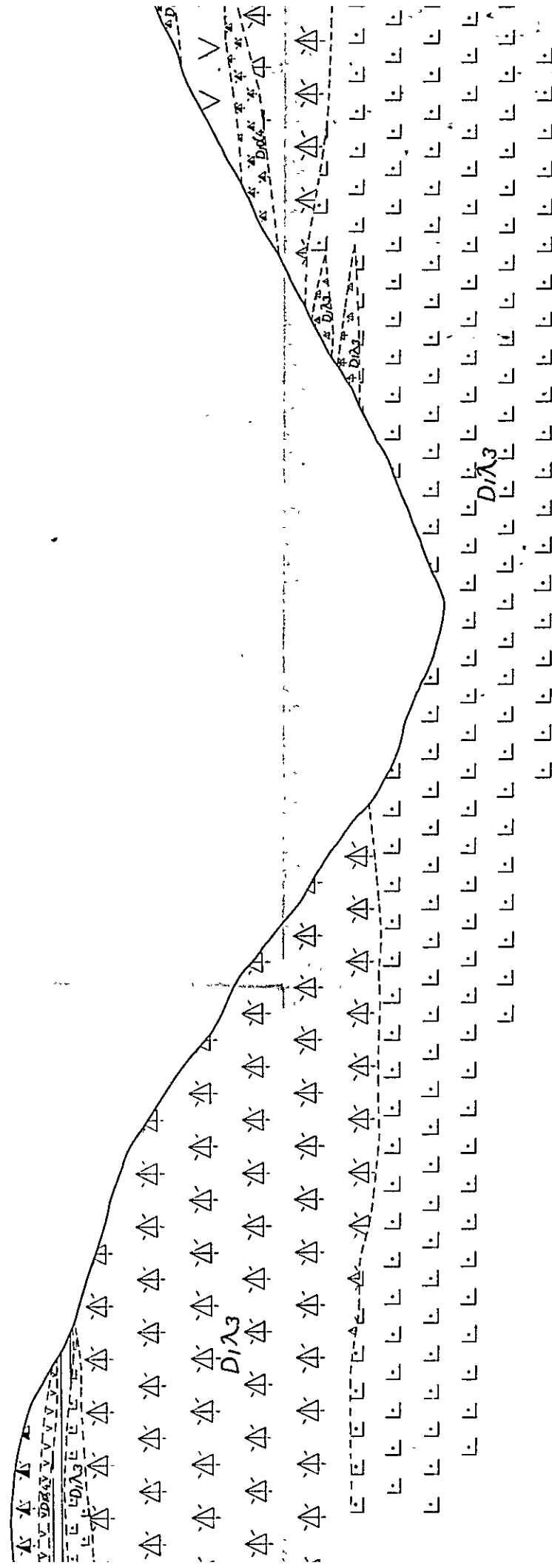
Prepared by Nikko Exploration & Development Co., Ltd.



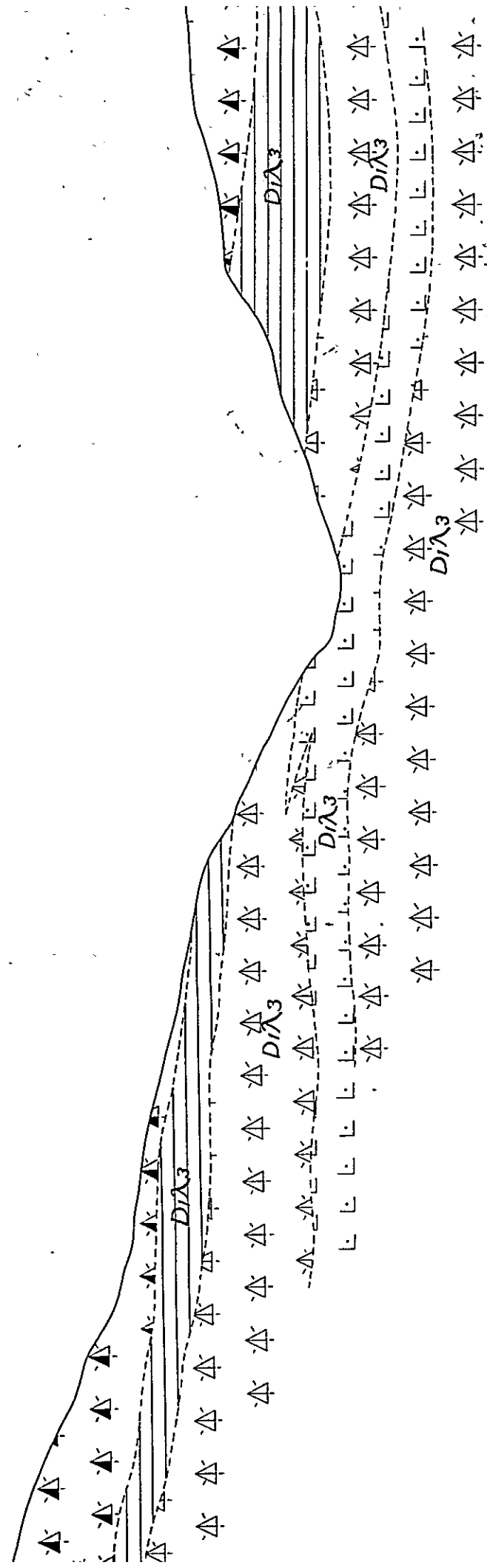
LEGEND
 LEJAND

Geological age Jeolojik yaş	Formation Formasyon	Stratigraphical Stratigrafik		Lithology Litoloji
		Marks İsaretiler	Symbol Sembol	
Paleogene Paleosen Neogene Miyosen	A3		A3α	Andesite lava Andezit lavı
	A2		A2α	Andesite pyroclastics Andezitik Piroklastikler
			D1α4	Dacite lava Dazit lavı
				Dacite pyroclastics Dazit Piroklastikler
			D1α4	Fine tuff & calcareous mudstone İnce tüf & kalkerli çamurtaşı
				Andesite lava Andezitik lav

A~A' Profile.

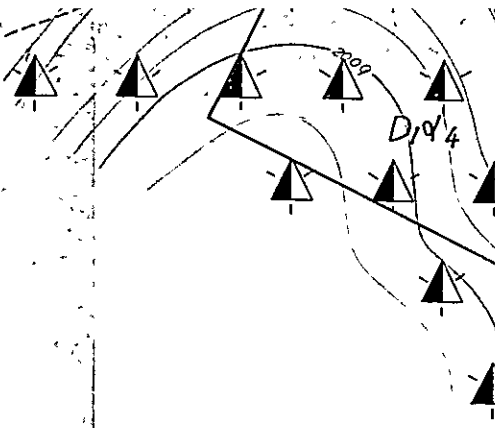


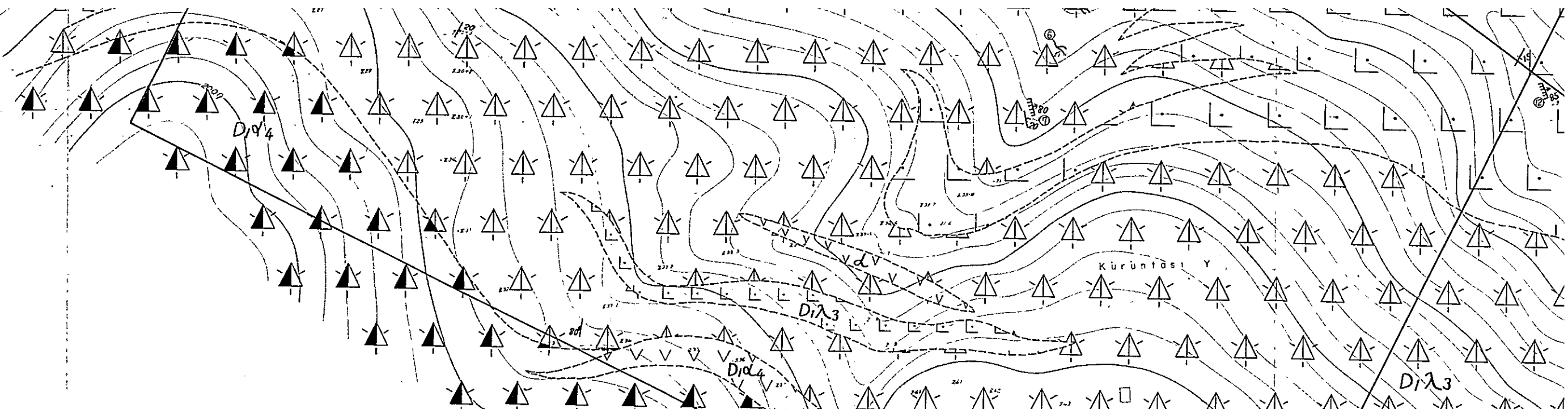
B~B' Profile



Member Üye	Columnar section Sütun Kesit (W) (E)	Rock Kayaç
A3d		andesi (uncol)
D1d4		andesi tuff
		andesi tuff - lapilli tuff
		andesi tuff breccia
D1A3		dacite lava
		andesi dyke
		dacit lapi tuff
		dacite lav dacite lapilli tuff breccia

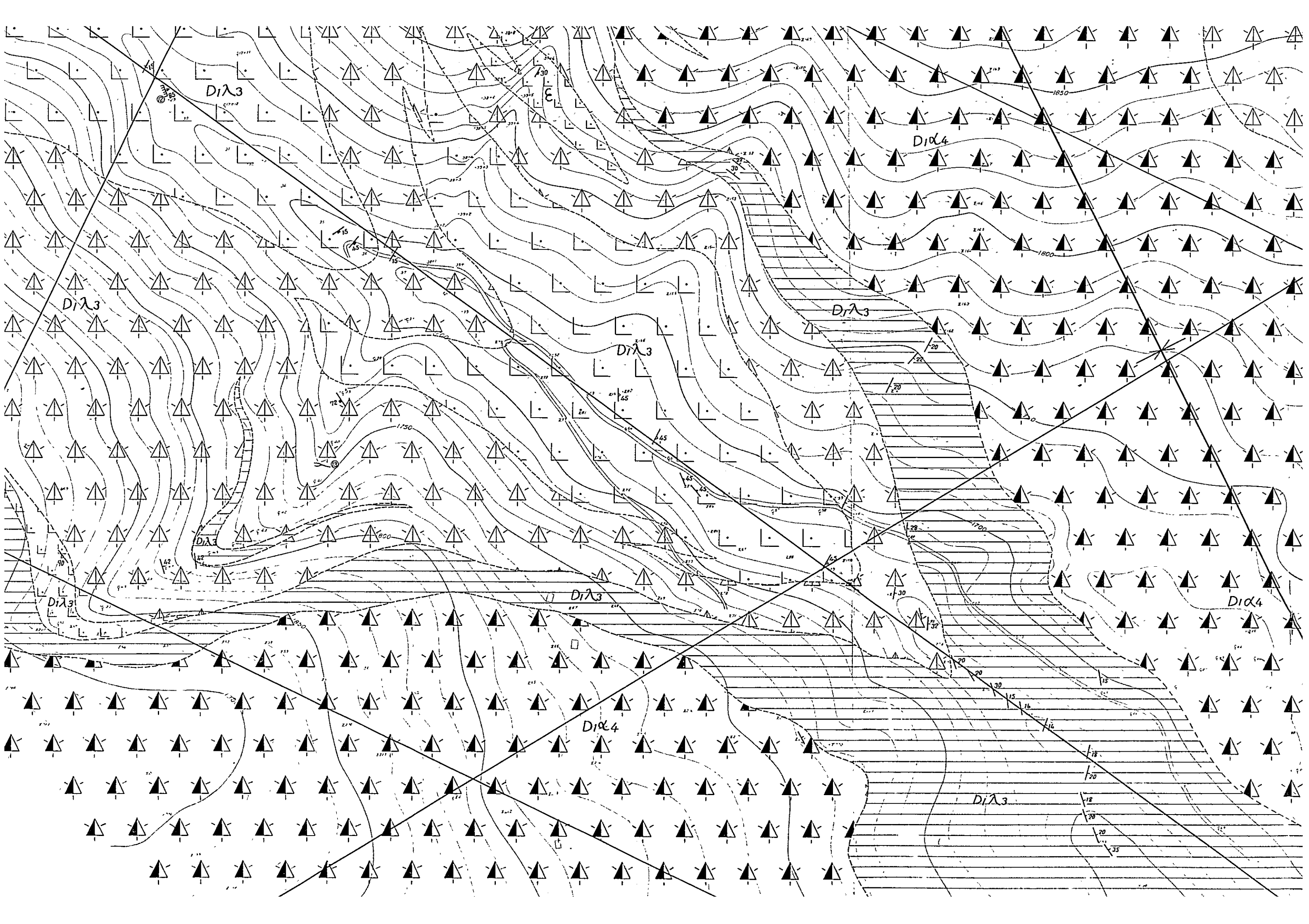
Sample No.	Index No.	Kind of ore mineral	Mode of occurrence
C-36	12	Ga-Sph	vein
C-45	3	Ga-Sph(-Cpy)	vein
C-48	2	Ga-Sph	vein
Y 28	8	Py	network & d

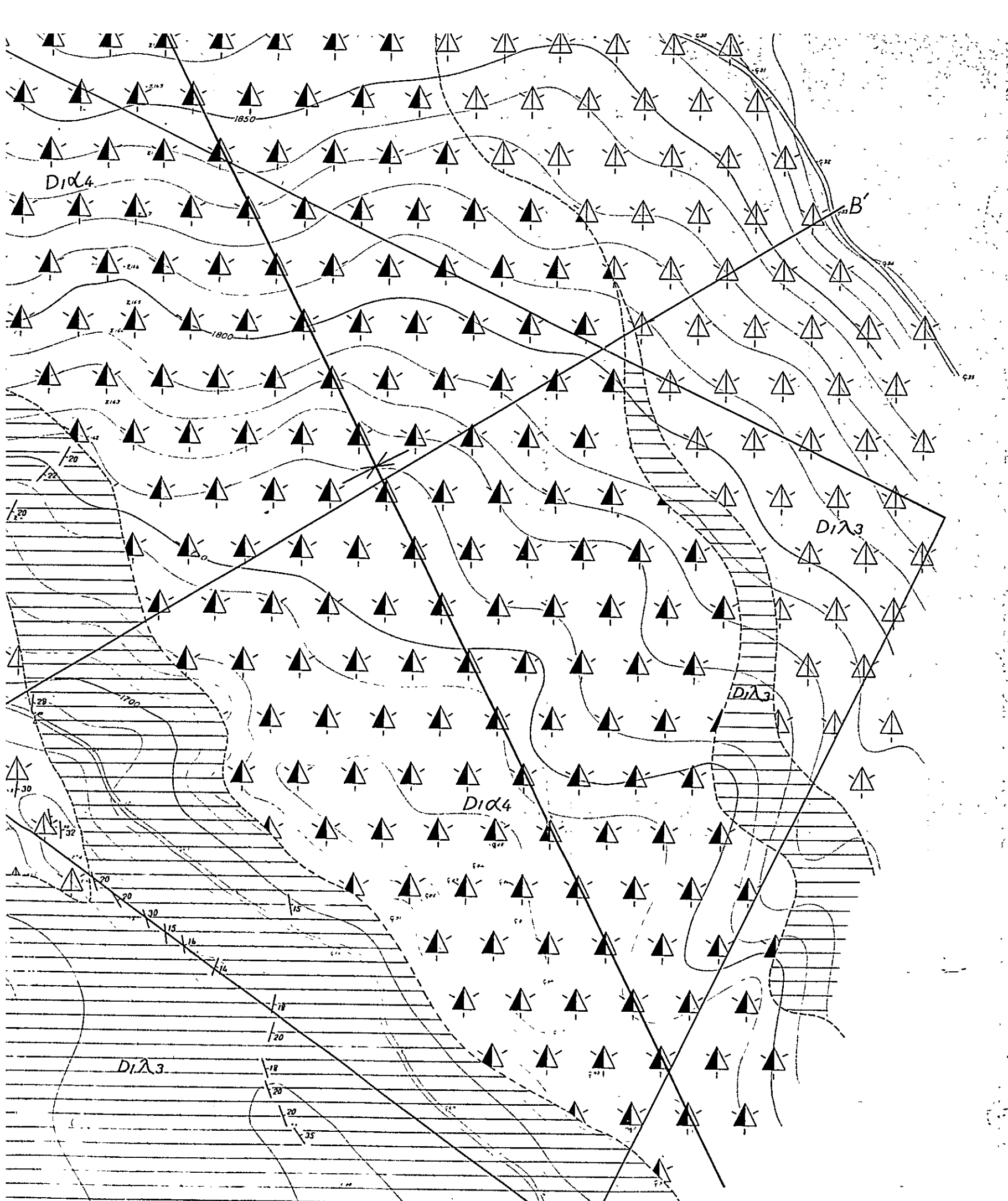




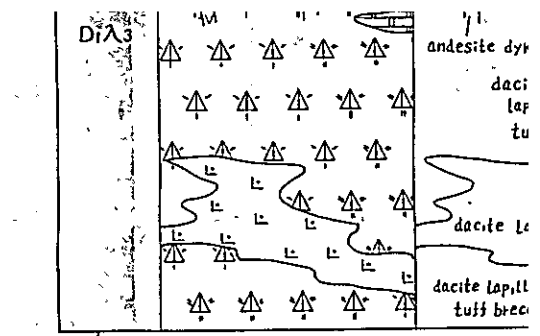
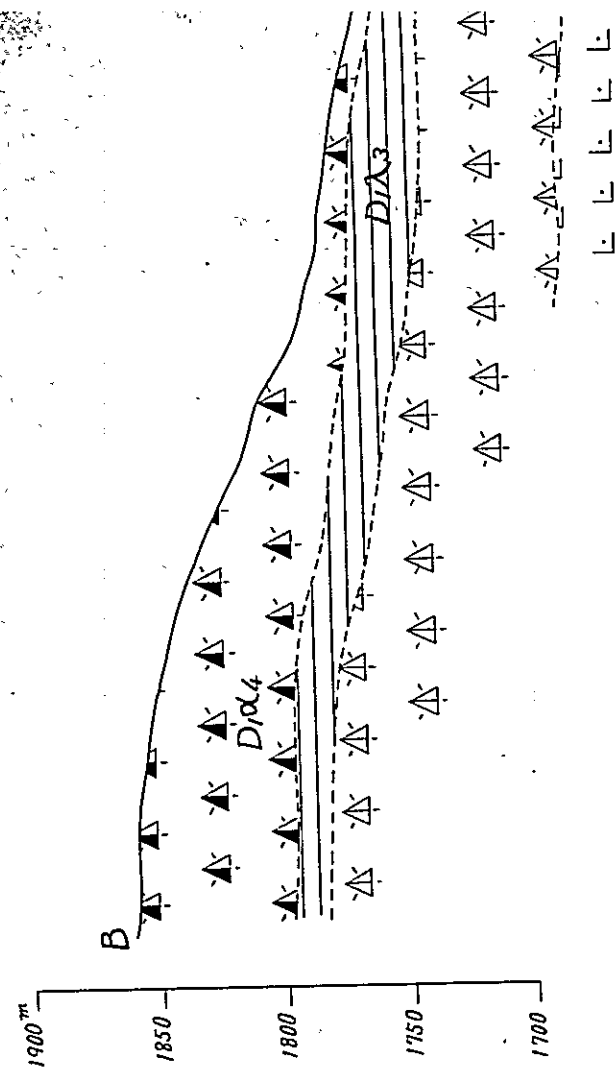
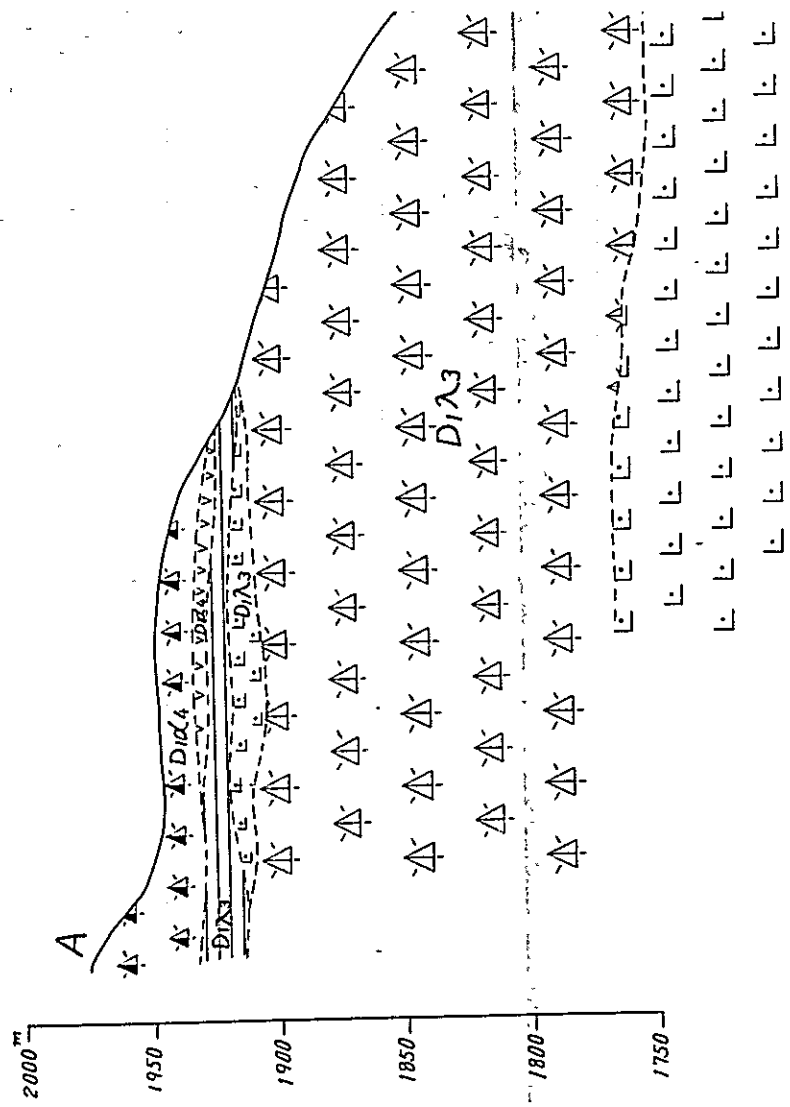
Member <i>Üye</i>	Columnar section <i>Sütun Kesit</i>	Rock facies <i>Kayaş faciezi</i>	Thickness <i>Kalinlık</i>	Mineralization <i>Mineralizasyon</i>
A3d		andesite Lava (unconformity)	20m+	
D1A4		andesite tuff andesite tuff lapilli tuff andesite tuff breccia	190m+	vein type
D1A3		dacite lava mudstone, marl intercalated andesite dyke dacite dyke dacite tuff, lapilli tuff tuff breccia dacite lava dacite lapill. tuff tuff breccia	200m+	vein type

Sample No.	Index No	Kind of ore mineral	Mode of occurrence	Width or thickness (cm)	Strike & dip	Sampling width (cm)	Sampling method	Cu (%)	Pb (%)	Zn (%)
C-36	12	Ga-Sph	vein	40	N20W 85NE	80				



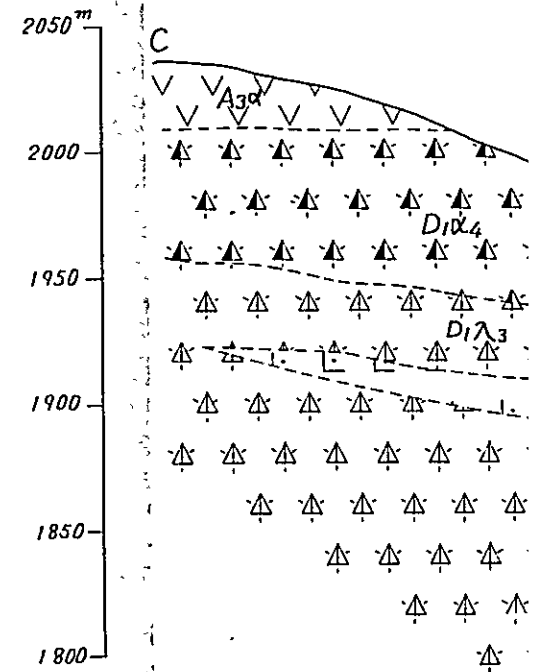


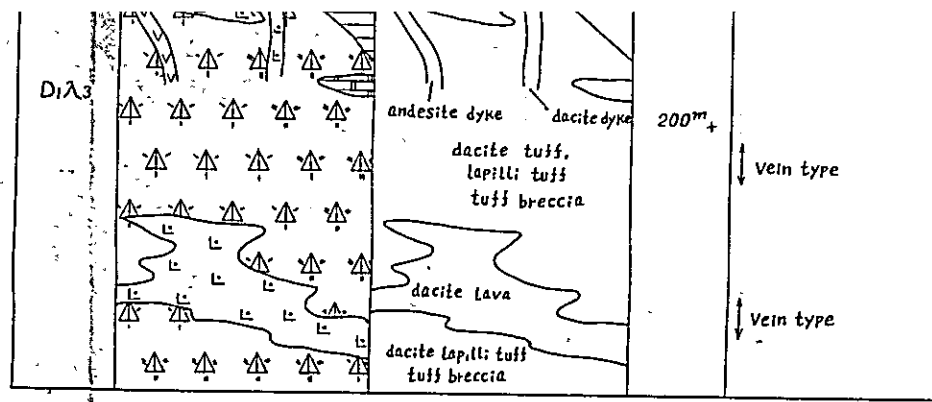
Jeolojik yaş	Formasyon	Marks - Isaretleler	Symbol Sembol	Litoloji
Paleogene Paleosen Neogene Miyosen	A ₃		A ₃ α	Andesite lava Andezit lavı
	A ₂		A ₂ α	Andesite pyroclastics Andezitik Piroklastikler
Upper Cretaceous Üst Kretase	D ₁		D ₁ λ ₄	Dacite lava Dasit lavı Dacite pyroclastics Dasit Piroklastikler
			D ₁ α ₄	Fine tuff & calcareous mudstone İnce tüf & kalkerli çamurtaşı
			D ₁ α ₄	Andesite lava Andezitik lav Andesite pyroclastics Andezitik Piroklastikler
			D ₁ λ ₃	Dacite lava Dasit lavı Dacite pyroclastics Dasit Piroklastikler
	A ₁		A ₁ λ ₃	Basalt lava Bazalt lavı Fine tuff & calcareous mudstone İnce tüf & kalkerli çamurtaşı
			D ₁ α ₃	Andesite lava Andezitik lav Andesite pyroclastics Andezitik Piroklastikler
			D ₁ kt	Limestone, marl. Kireçtaşı, marl
			A ₁ λ ₂	Dacite lava Dasit lavı Dacite pyroclastics Dasit Piroklastikler
			A ₁ α ₂	Fine tuff & calcareous mudstone İnce tüf & kalkerli çamurtaşı
			A ₁ kt	Limestone, marl. Kireçtaşı, marl.
Intrusive rocks Intruzifler		β	Basalt Bazalt	
		α	Andesite Andezit	
		ε	Dacite Dasit	
		σ	Porphyrite Porfirit	
		δσ ₂	Diorite porphyrite Diorit porfirit	
		δ ₂	Quartz diorite Kuvars diorit	
		δ ₂ σ	Quartz diorite porphyrite Kuvars diorit porfirit	
		δ ₂ σ	Quartz porphyry Kuvars porfiri	
			Bedding Tabaka	
		Fault Fay		
		Joint Kırık		
		Flow structure Akıntılı yapı		
		Anticlinal/synclinal axis Antiklinal/senklinal eksen		
		Working mine/abandoned mine Çalışan maden/kapalı maden		
		Mineralization vein type/dissemination type Mineralizasyon damar tip/disseminasyon tip		
		Massive, bedded ore/veinlets Masif, tabakalı cevher/damarcıklar		
		Skarnized zone Skarn zonu		
		Drilling site		



Sample No.	Index No.	Kind of ore mineral	Mode of occurrence
C-36	12	Ga-Sph	vein
C-45	3	Ga-Sph(-Cpy)	vein
C-48	2	Ga-Sph	vein
Y 28	8	Py	network &

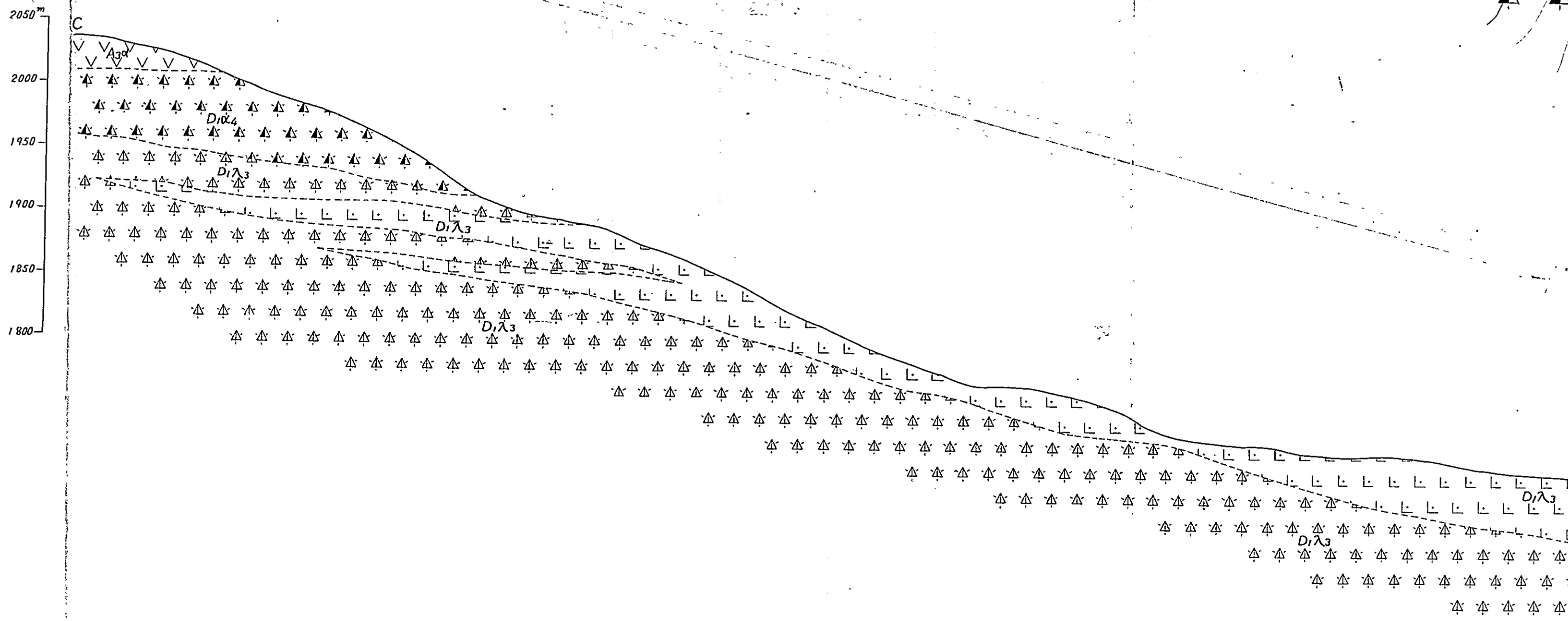
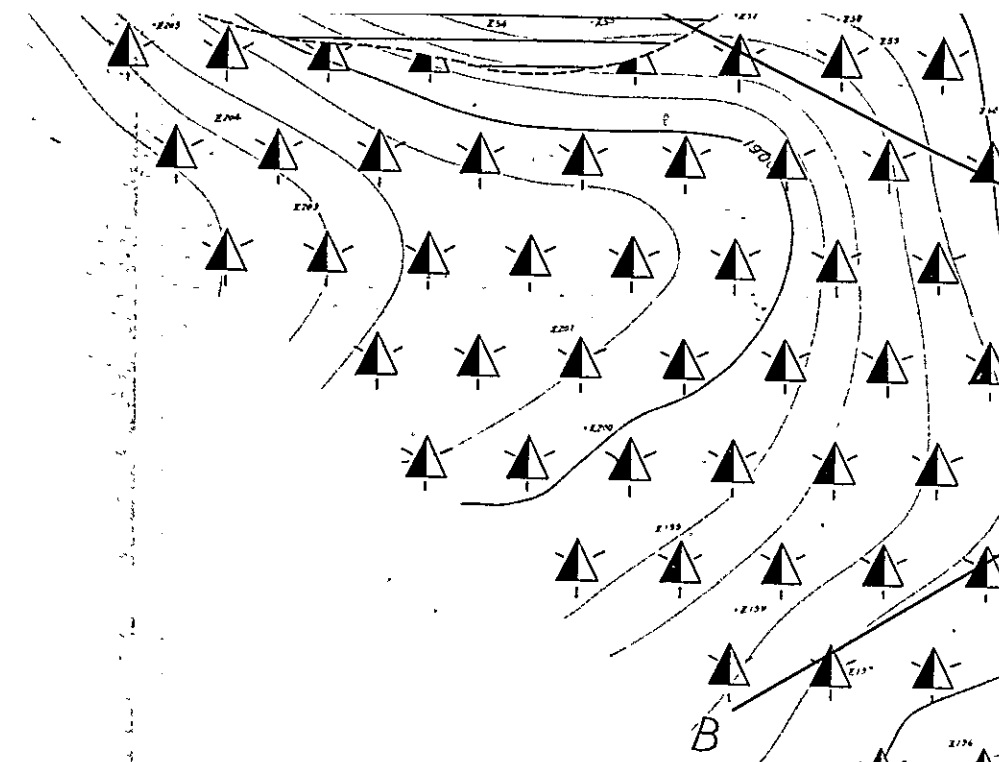
R : random sampling L : line

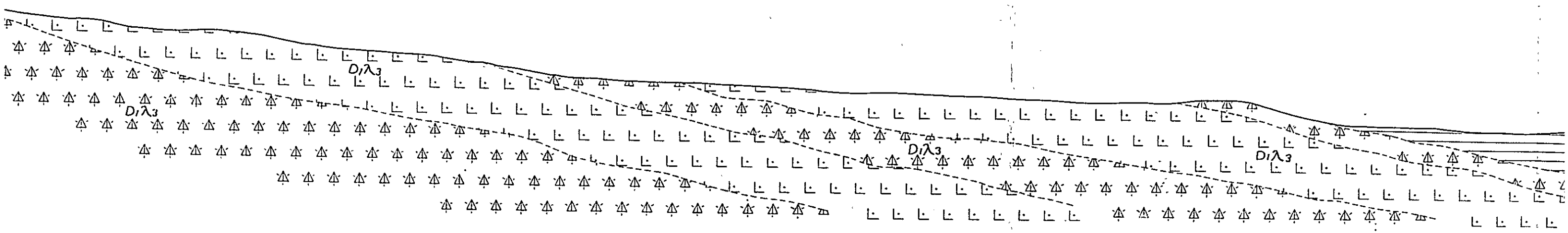
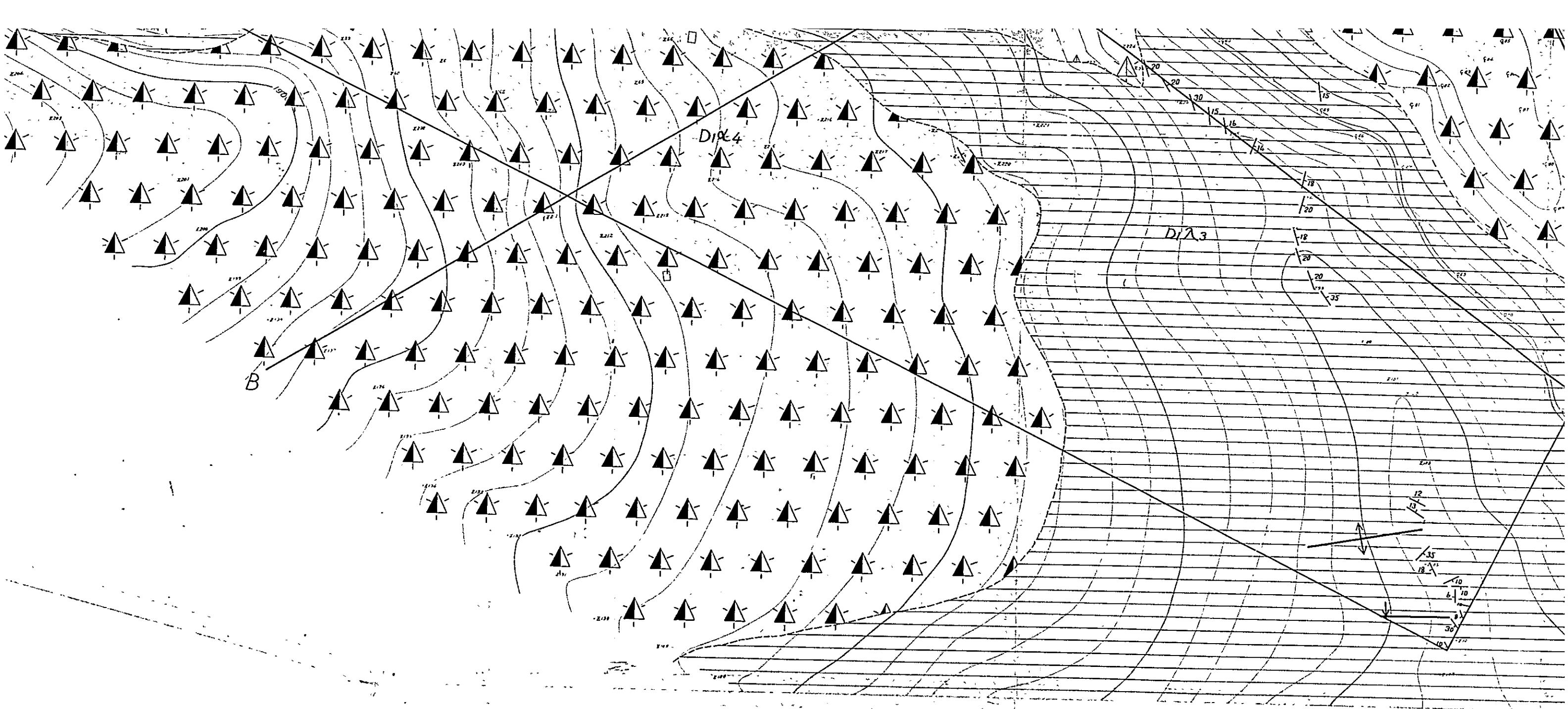


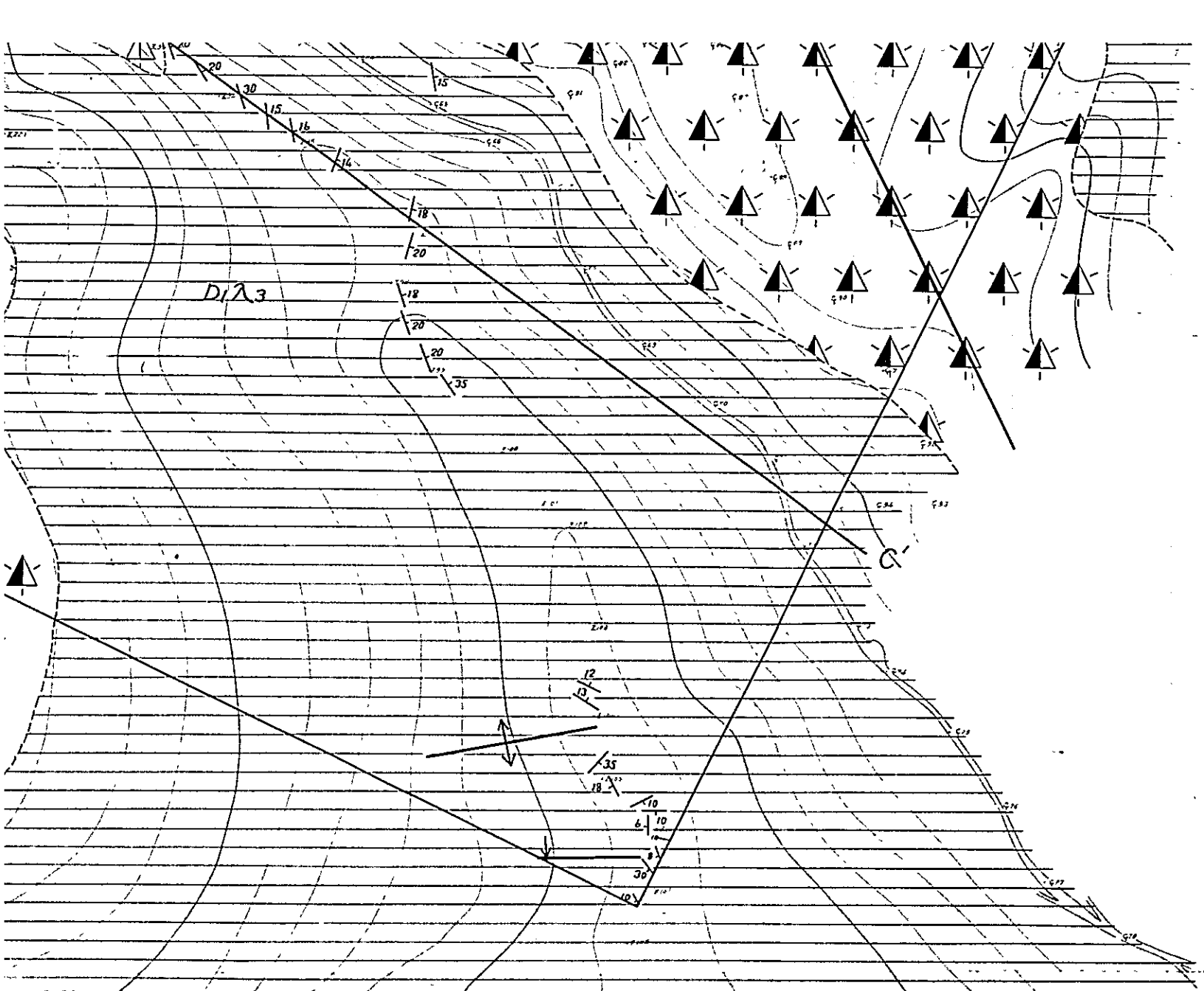


Sample No.	Index No.	Kind of ore mineral	Mode of occurrence	Width or thickness (cm)	Strike & dip		Sampling width (cm)	Sampling method	Cu (%)	Pb (%)	Zn (%)
C-36	12	Ga-Sph	vein	40	N20W	85NE	80	L	tr.	0.43	0.53
C-45	3	Ga-Sph(-Cpy)	vein	max 80	N50W	55SW	100	L	0.49	0.38	0.88
C-48	2	Ga-Sph	vein	max 80	N45W	55-60SW	80	L	tr.	0.76	3.20
Y 28	8	Py	network & diss	45					0.007	0.01	tr.

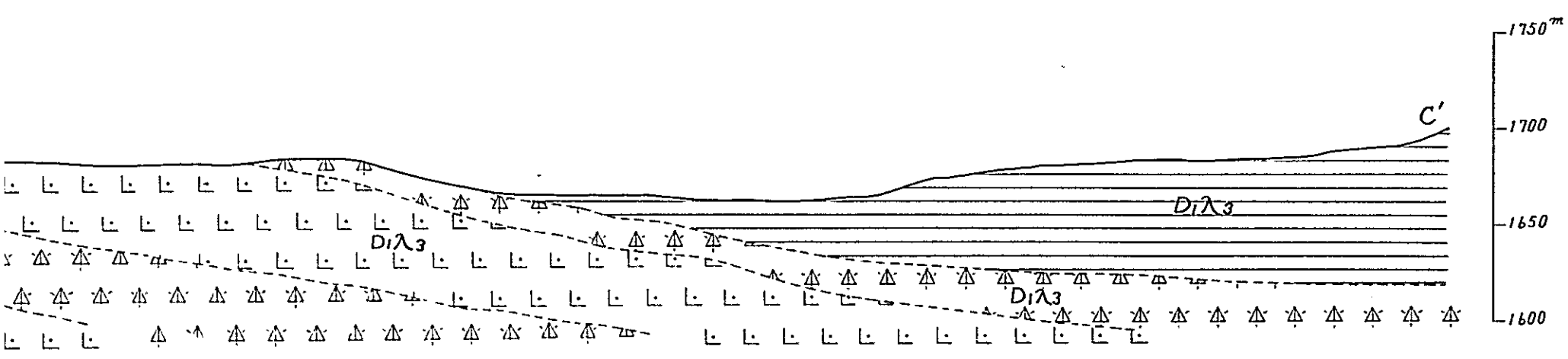
R : random sampling L : line cutting sampling G : gravel sampling of high grade ore



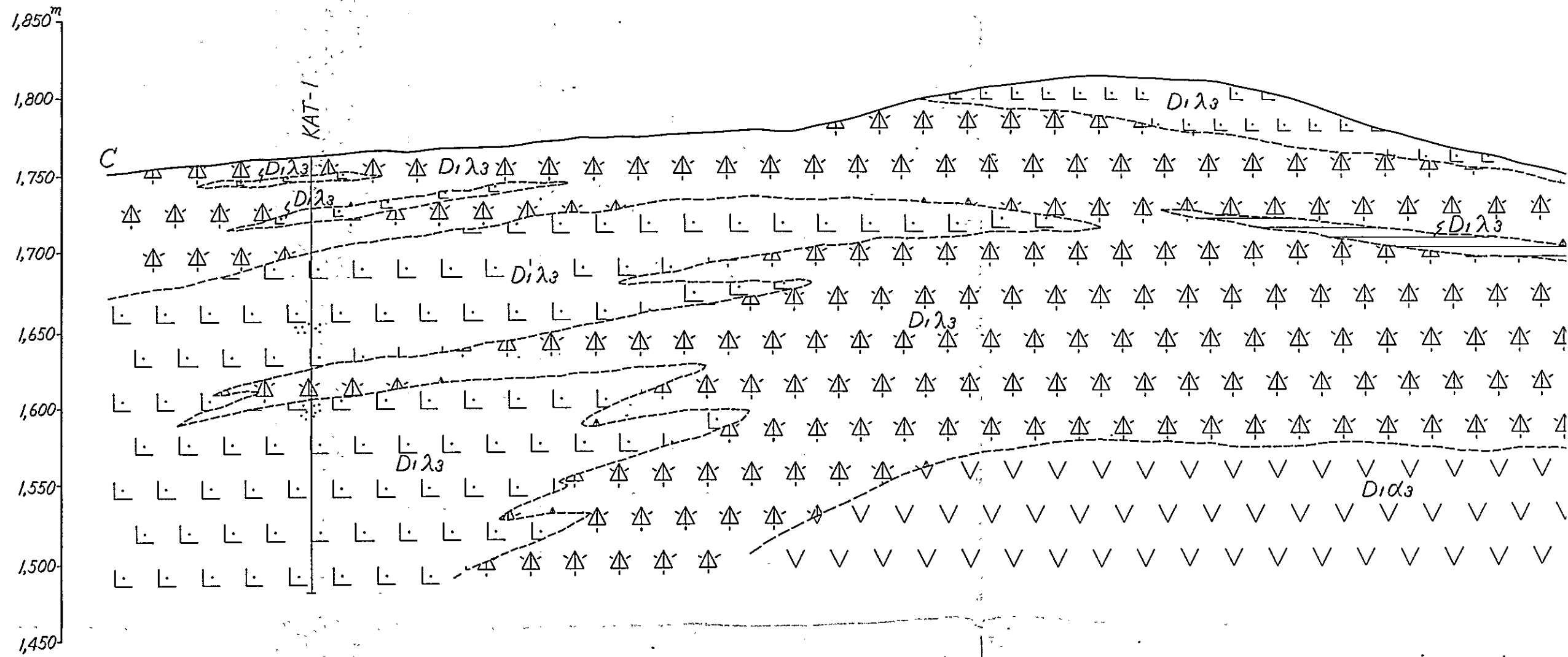




	$\delta_2 \sigma$	Quartz diorite porphyry Kuvars diorit porfirü
	$\delta_2 \sigma$	Quartz porphyry Kuvars porfiri
		Bedding Tabaka
		Fault Fay
		Joint Kırık
		Flow structure Akıntılı yapı
		Anticlinal/synclinal, axis Antiklinal/senklinial eksen
		Working mine/abandoned mine Çalışan maden/kapalı maden
		Mineralization, vein type/dissemination type Mineralizasyon damar tip/disseminasyon tip
		Massive, bedded ore/veinlets Masif, tabakalı cevher/damarcıklar
		Skarnized zone Skarn zonu
		Drilling site Sondaj yer
		Geological profile line Jeolojik kesit çizgisi



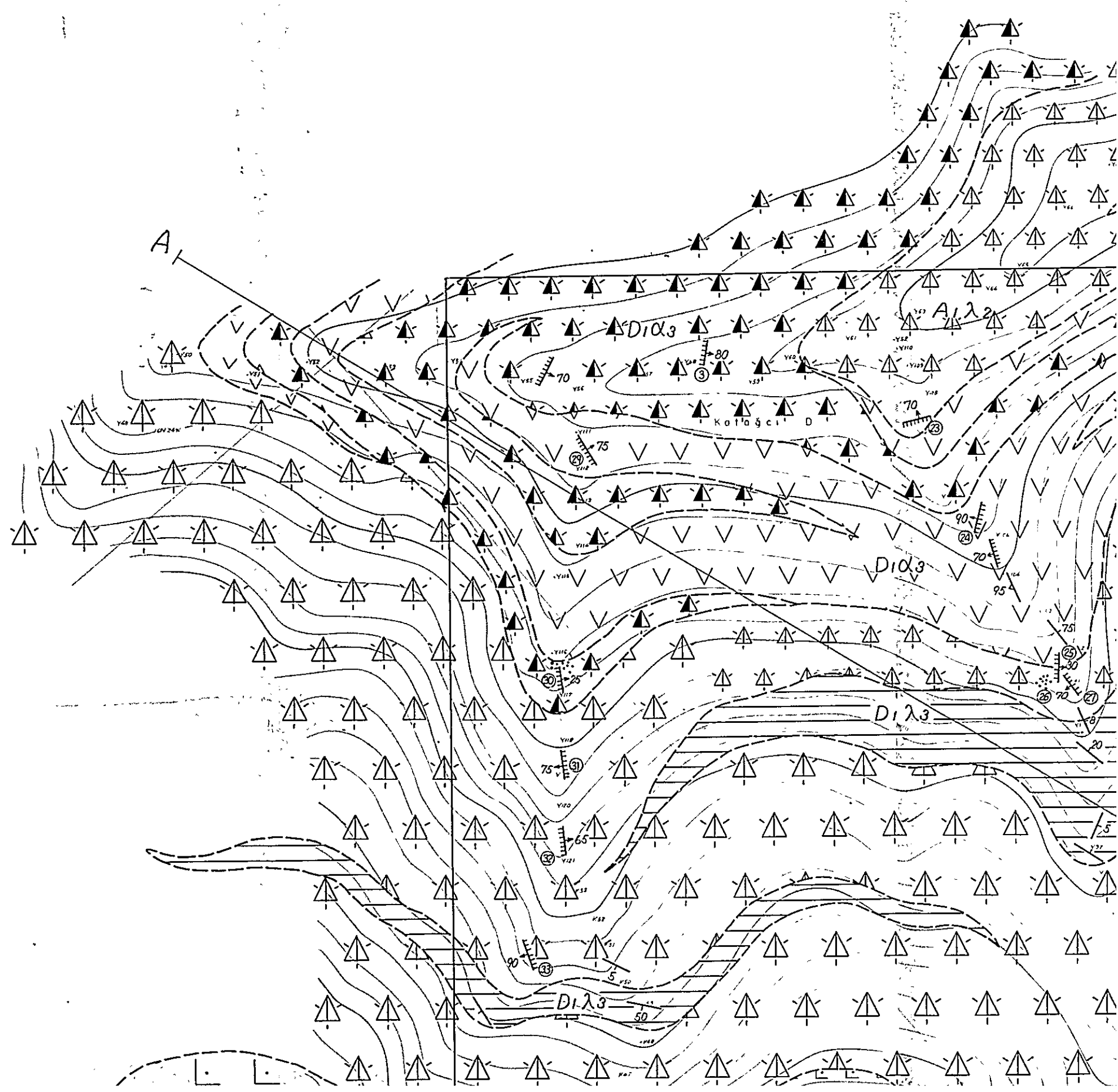
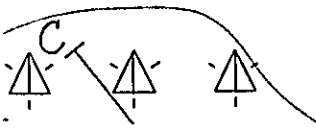
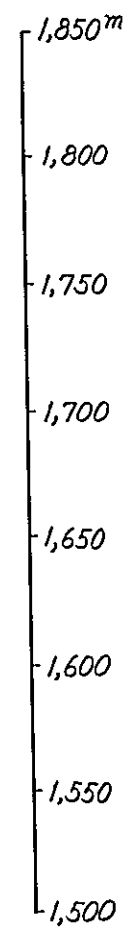
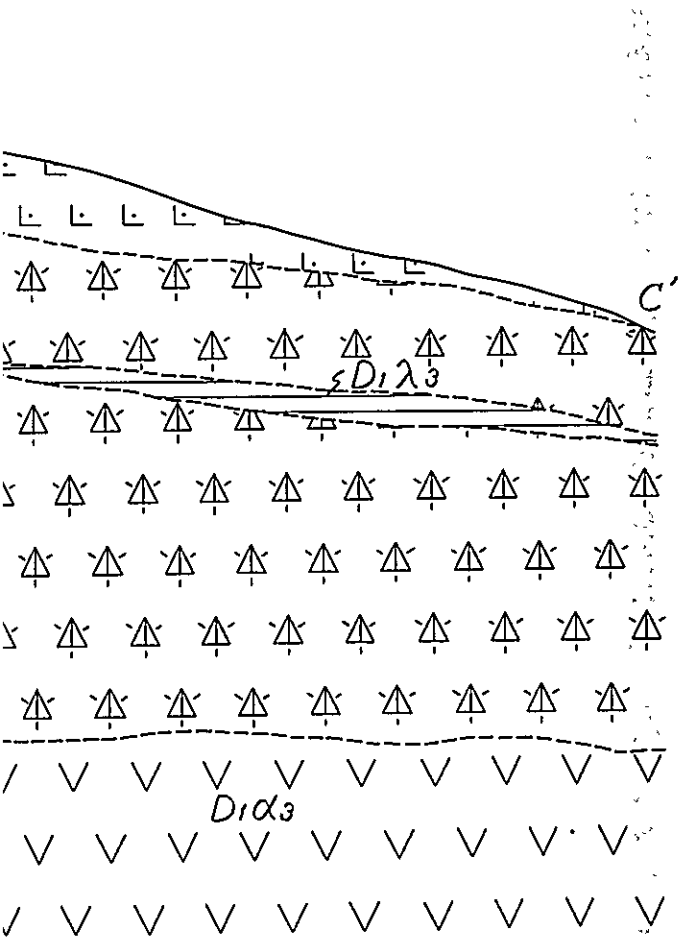
C-C' Profile

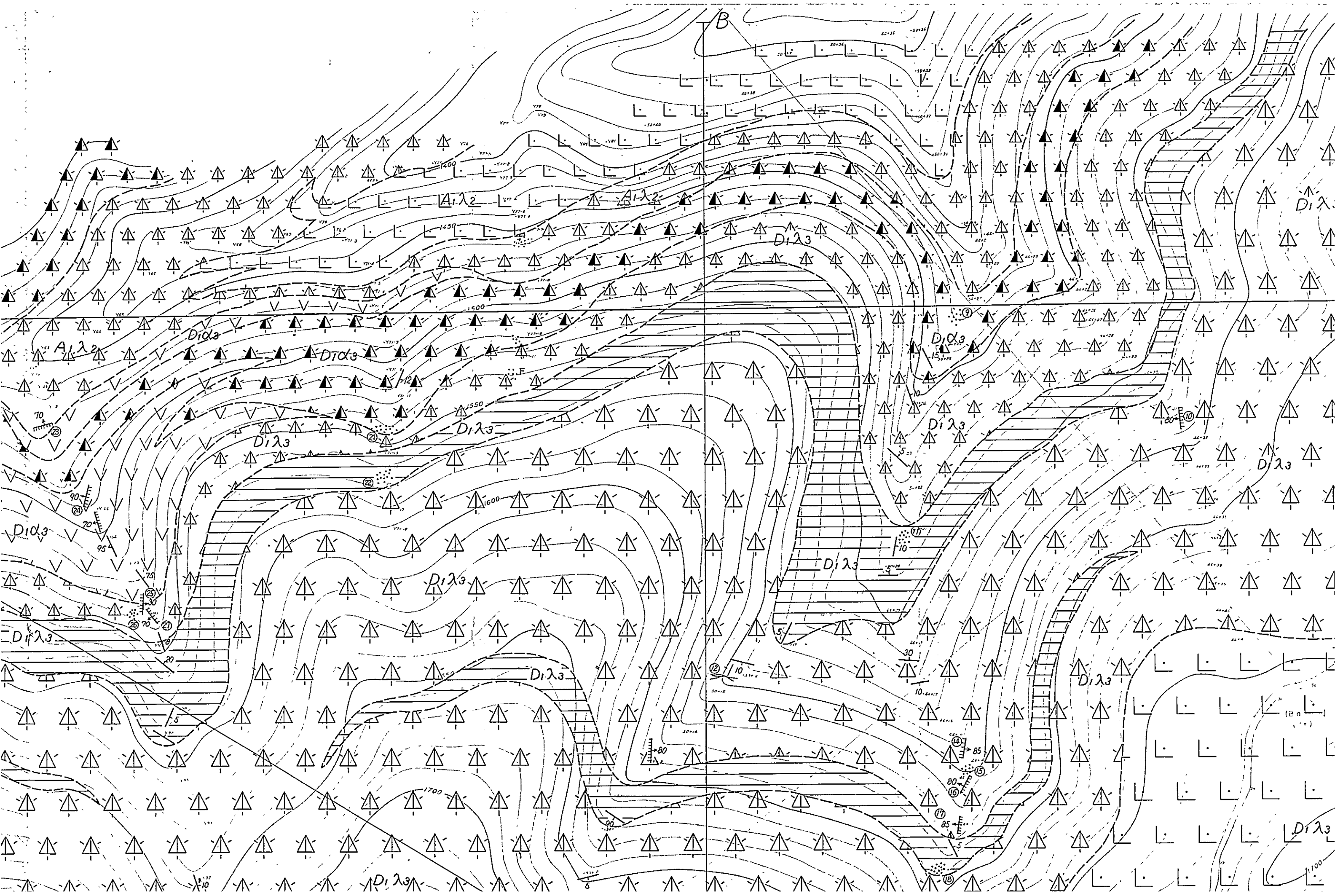


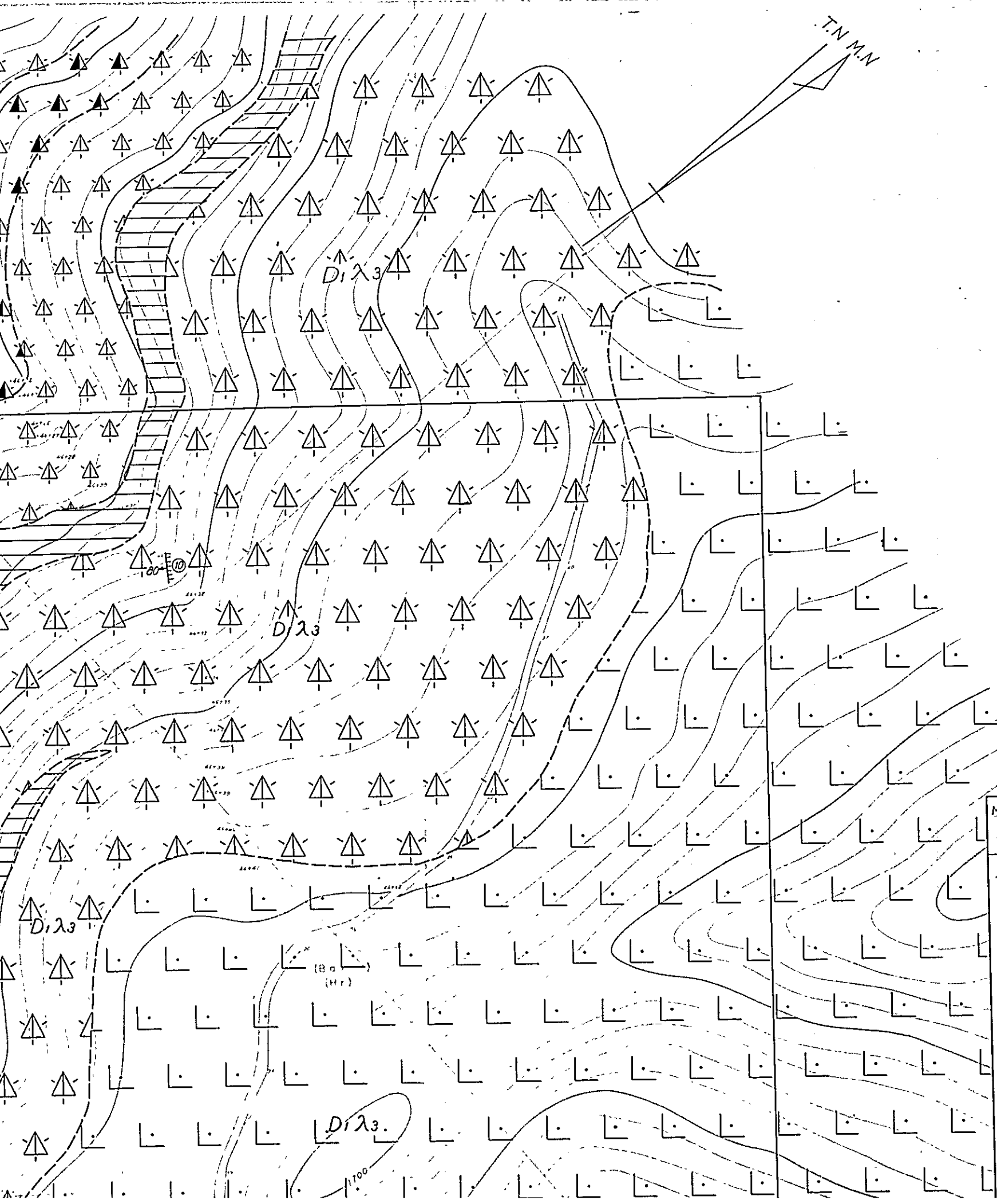
Sample No.	Index No.	Kind of ore mineral	Mode of occurrence	Width or thickness (cm)	Strike & dip	Sampling width (cm)	Sampling method	Cu (%)	Pb (%)	Zn (%)
C-11	8	Ga-Sph	vein	40	N80E 70SE	40	L	0.30	0.98	0.58
C-13	18	Ga-Sph	fissure filling veinlet				R	0.05	0.80	1.23
C-14	17	Ga-Sph	diss & veinlet		N40W 85SW	150	L	0.03	0.54	0.88
C-25	41	Ga-Sph	vein	max 50	N10W 80NE	50	L	1.50	0.45	0.02
C-30	21	Ga-Sph	diss	30		30	R	0.09	0.55	0.78
C-31	22	Ga(-Sph)	diss	10		10	R	0.01	0.24	0.36
Y-14	23	Py	vein	105	N20E 70W			0.07	1.93	0.04
Y-17	36	Py-Ga	vein	15	N60W 70N			0.3	0.4	0.1
Y-19	38	Py	network & diss	200				0.07	0.04	tr
Y-20		Py	diss					0.4	0.01	tr

R : random sampling L : line cutting sampling G : gravel sampling of high grade ore









MINERAL RE
TRABZON
GEOLOGICAL
AND COLUMNNA
GÖL
HARİTAS

General geologic
ME
JAPAN I
Prepared by

Member Üye	Columnar section Sütun kesit (ii)	Rock facies Kayaç fasiyezi	Thickness Kalınlık	Mineralization Mineralizasyon
D1λ3		dacite lava	50m ⁺	Göllüalan (vein)
		dacite tuff tuff breccia lapilli tuff	200m	vein type
		siltstone, calcareous mudstone, marl & fine tuff intercalated		
				dissemination type

LEGEND
LEJAND

Geological age Jeolojik yaş	Formation Formasyon	Stratigraphic Marks İsaretler
Paleogene Paleosen	A3	
Neogene Miyosen		
	A2	

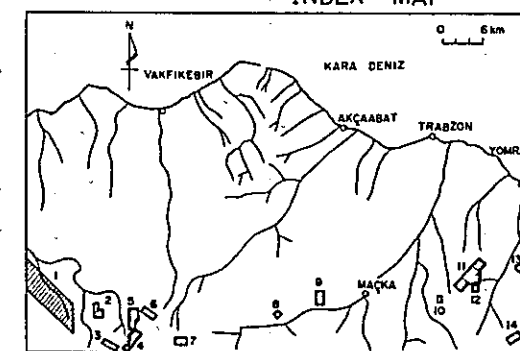
MINERAL RESEARCH AND EXPLORATION INSTITUTE
GEOLOGICAL SURVEY
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TRABZON AREA, NORTHEASTERN TURKEY

PHASE III

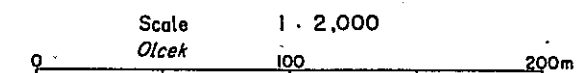
GEOLOGICAL MAP WITH GEOLOGICAL PROFILE
AND COLUMNAR SECTION OF GÖLLÜALAN AREA

GÖLLÜALAN SAHASININ JEOLoji
HARİTASI JEOLoji KESİTLERİ VE
SÜTUN KESİTİ

INDEX MAP

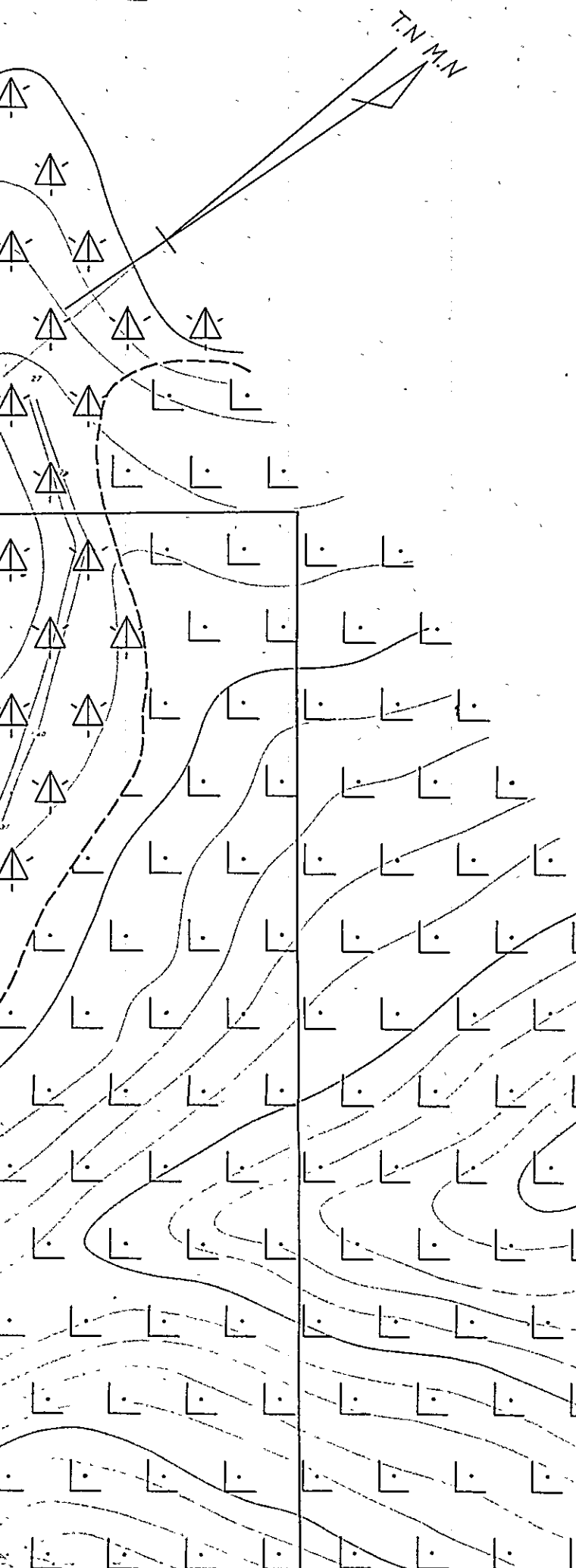


- 1 Kahraman Dere
- 2 Alaçadağ
- 3 Çeğel Dere
- 4 Göllüalan
- 5 Ken mine
- 6 Ken Dere, Fol Dere
- 7 Akise Yayla
- 8 Yeni Mahalle
- 9 Salana
- 10 Kani Tepe
- 11 Kızıllıoğlu Çukurlukları
- 12 Tuzlak Mezrası
- 13 Ocak
- 14 Uzunlu



METAL MINING AGENCY OF JAPAN
JAPAN INTERNATIONAL COOPERATION AGENCY
FEBRUARY 1977

Prepared by Nikko Exploration & Development Co., Ltd.



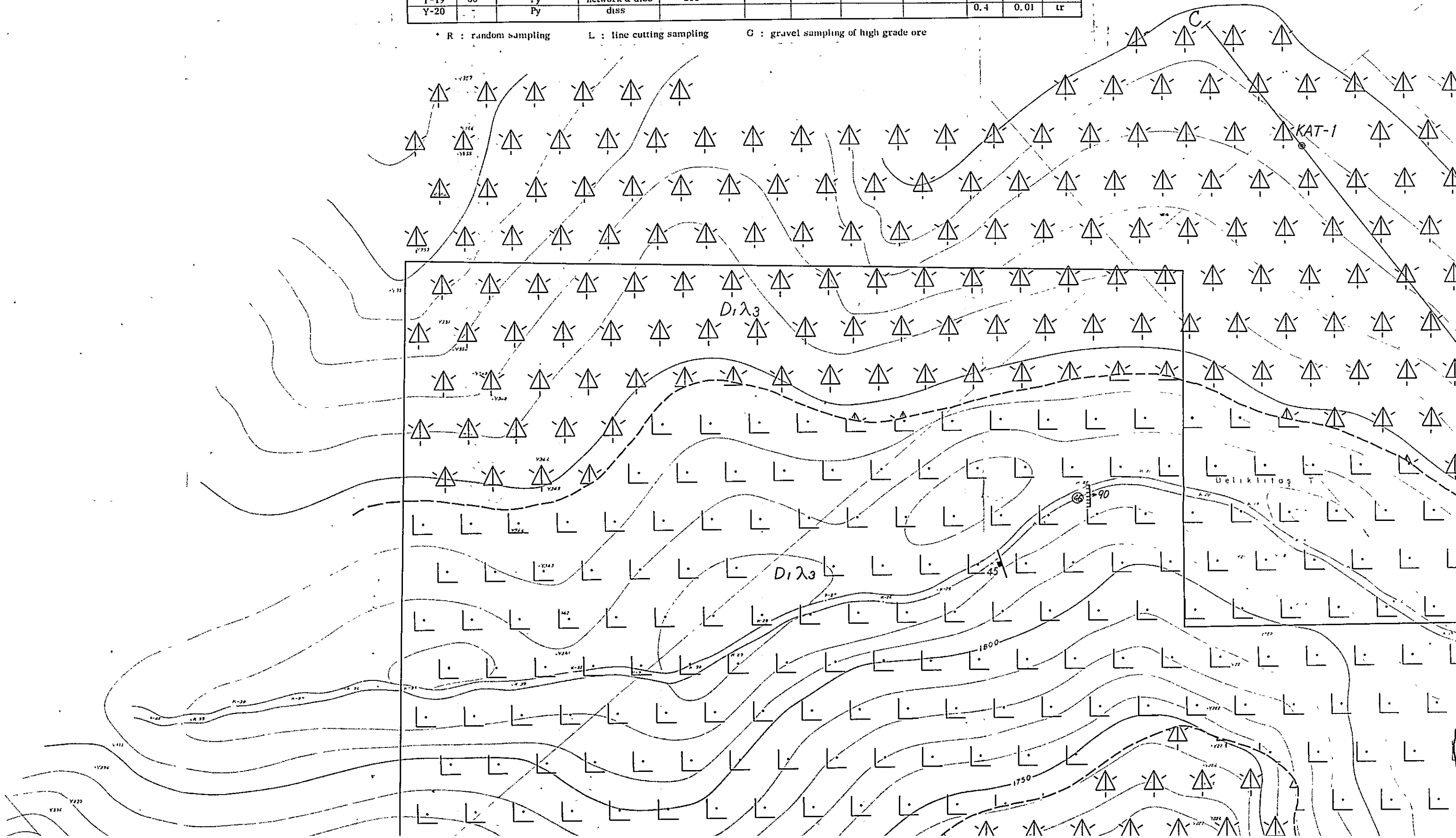
Member Üye	Columnar section Sütun kesit	Rock facies Kayaş fasiyezi	Thickness Kalınlık	Mineralization Mineralizasyon
(N)	(S)			
D1λ3		dacite lava	50m+	Göllüalan (vein)
		dacite tuff tuff breccia lapilli tuff siltstone, calcareous mudstone, marl & fine tuff intercalated	200m	vein type dissemination type

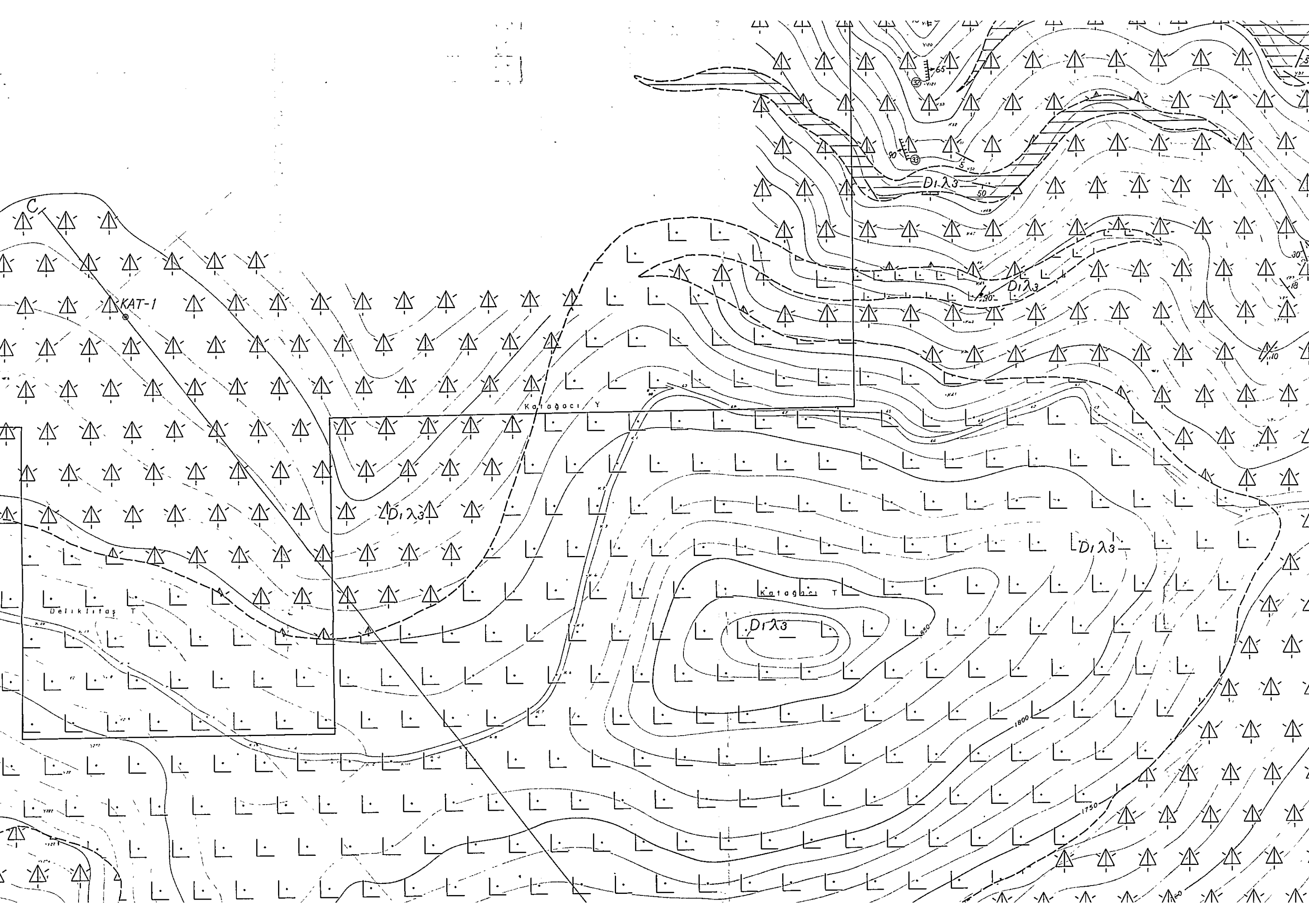
LEGEND
LEJAND

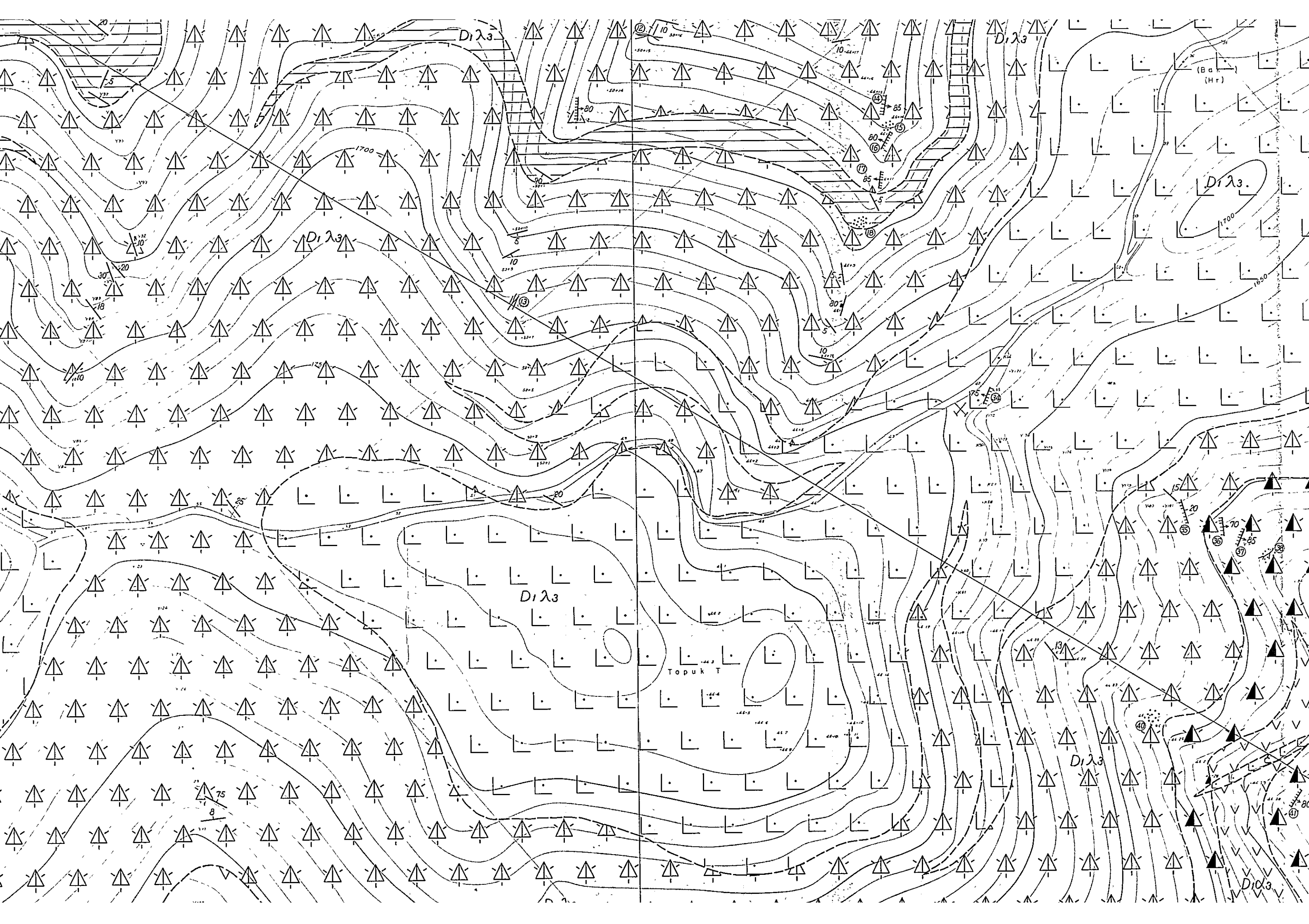
Geological age Jeolojik yas	Formation Formasyon	Stratigraphical Stratigrafik		Lithology Litoloji
		Marks İsarettler	Symbol Sembol	
Paleogene Paleosen Neogene Miyosen	A3		A3d	Andesite lava Andezit lavı
	A2		A2d	Andesite pyroclastics Andezitik Piroklastikler
			D1λ4	Dacite lava Dazit lavı
				Dacite pyroclastics Dazit Piroklastikler Fine tuff & calcareous mudstone İnce tüf & kalkerli çamurtaşı

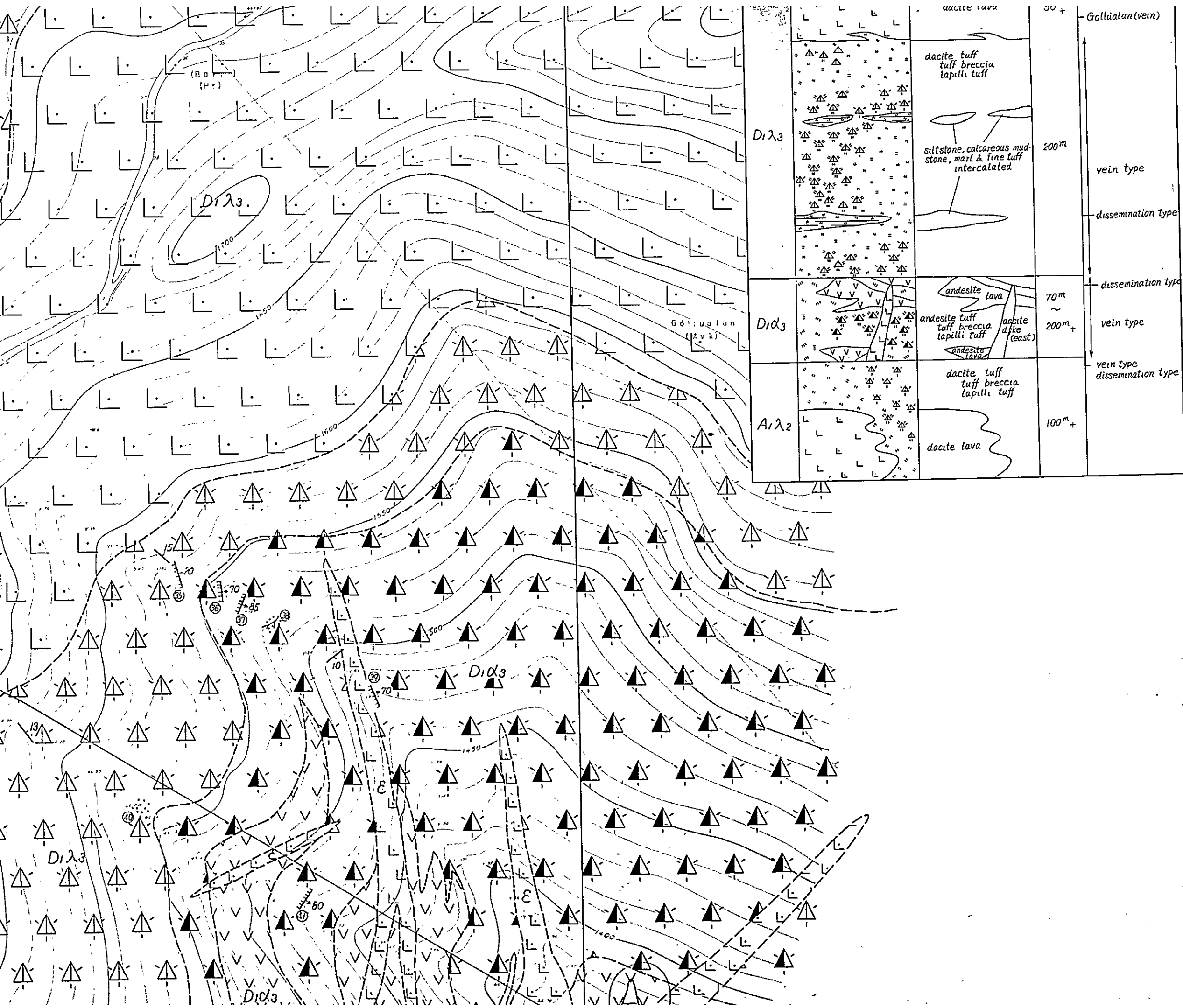
Sample No.	Index No.	Kind of ore mineral	Mode of occurrence	Width or thickness (cm)	Strike & dip		Sampling width (cm)	Sampling method	Cu (%)	Pb (%)	Zn (%)
C-11	8	Ga-Sph	vein	40	N80E	70SE	40	L	0.30	0.98	0.58
C-13	18	Ga-Sph	fissure filling veinlet					R	0.05	0.80	1.23
C-14	17	Ga-Sph	diss & veinlet		N40W	85SW	150	L	0.03	0.54	0.88
C-25	41	Ga-Sph	vein	max 50	N10W	80NE	50	L	1.50	0.45	0.02
C-30	21	Ga-Sph	diss	30			30	R	0.09	0.55	0.78
C-31	22	Ga(-Sph)	diss	10			10	R	0.01	0.24	0.36
Y-14	23	Py	vein	105	N20E	70W			0.07	1.93	0.04
Y-17	36	Py-Ga	vein	15	N60W	70N			0.3	0.4	0.1
Y-19	38	Py	network & diss	200					0.07	0.04	tr
Y-20		Py	diss						0.4	0.01	tr

* R : random sampling L : line cutting sampling G : gravel sampling of high grade ore



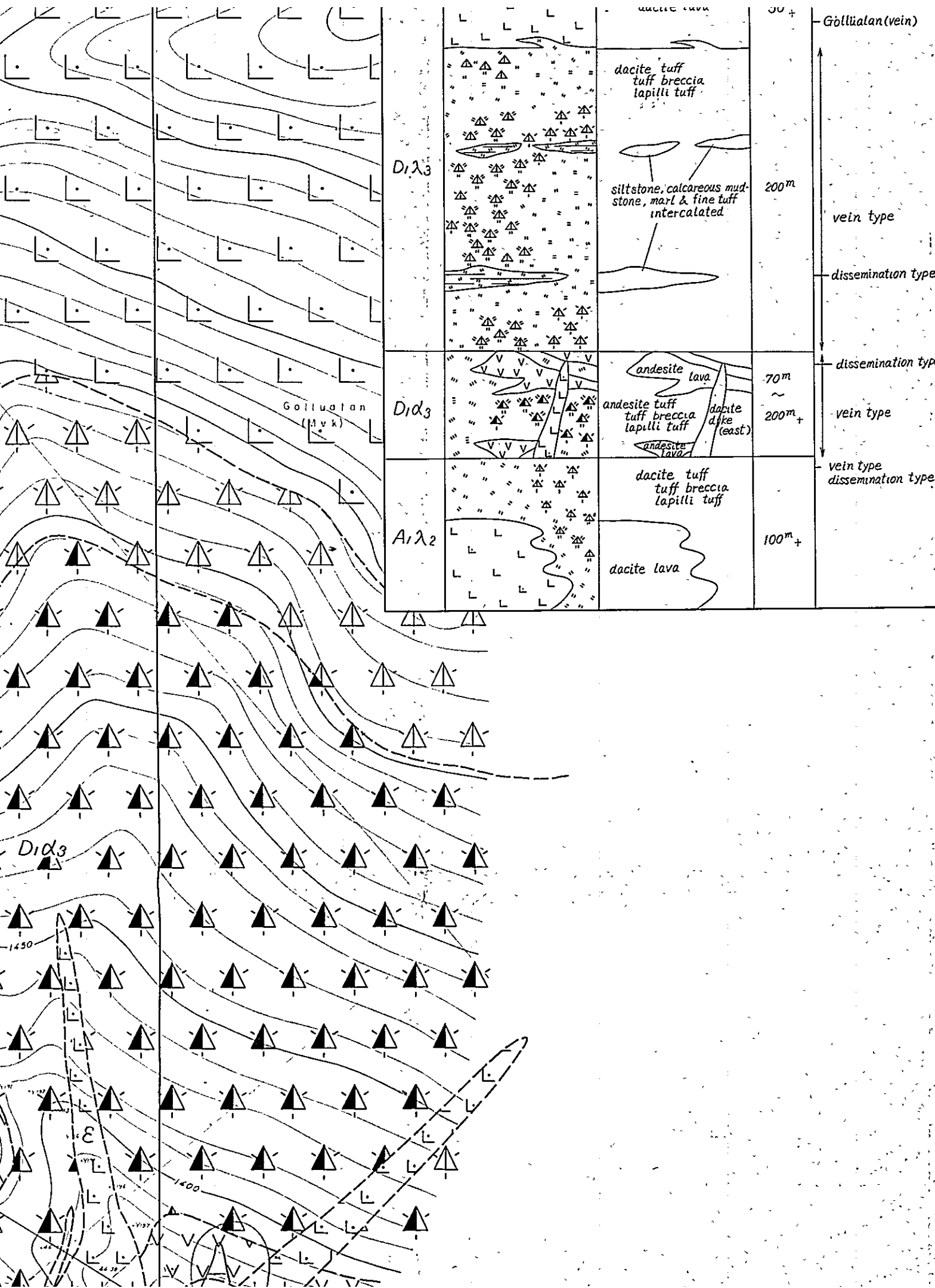






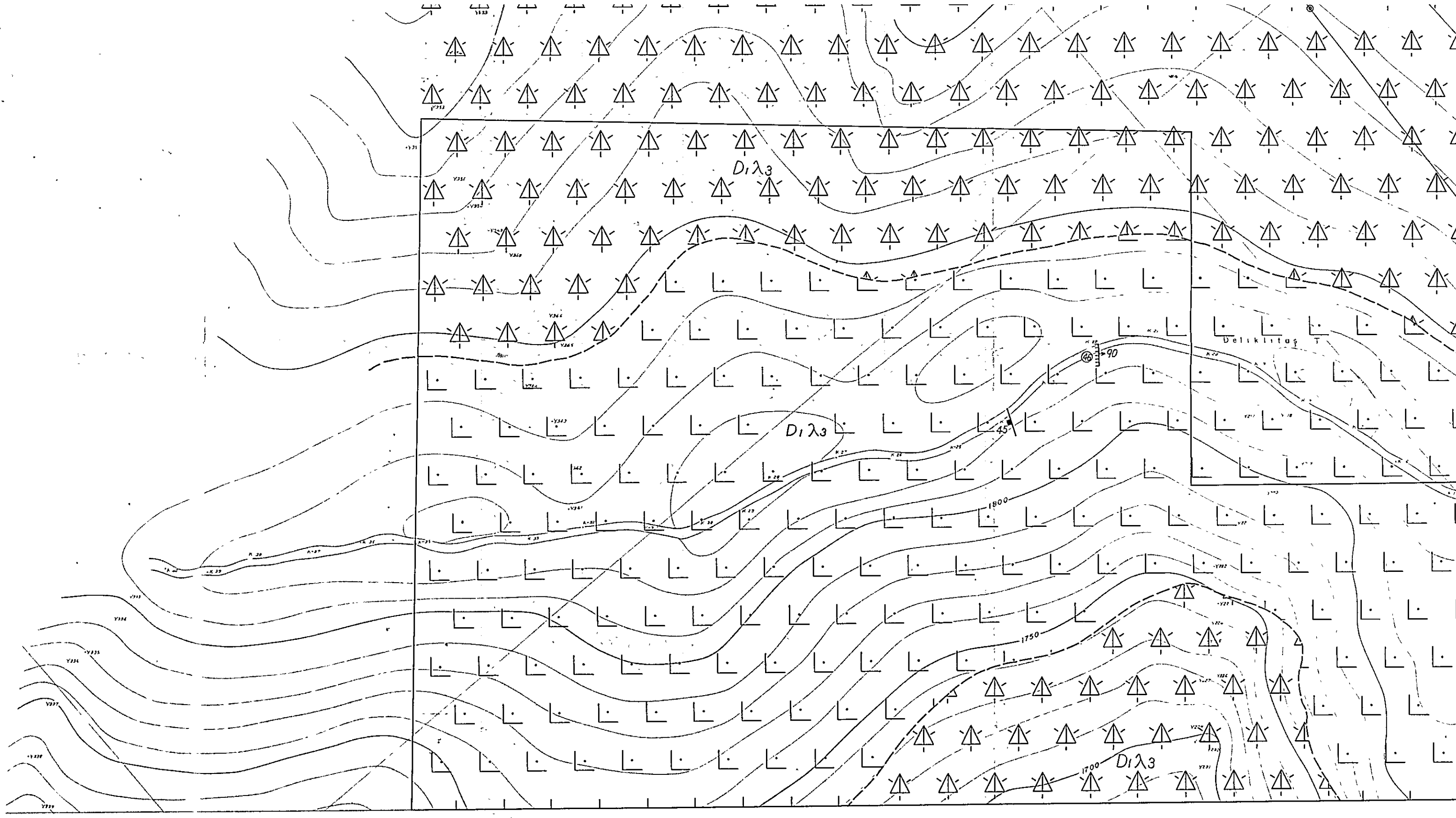
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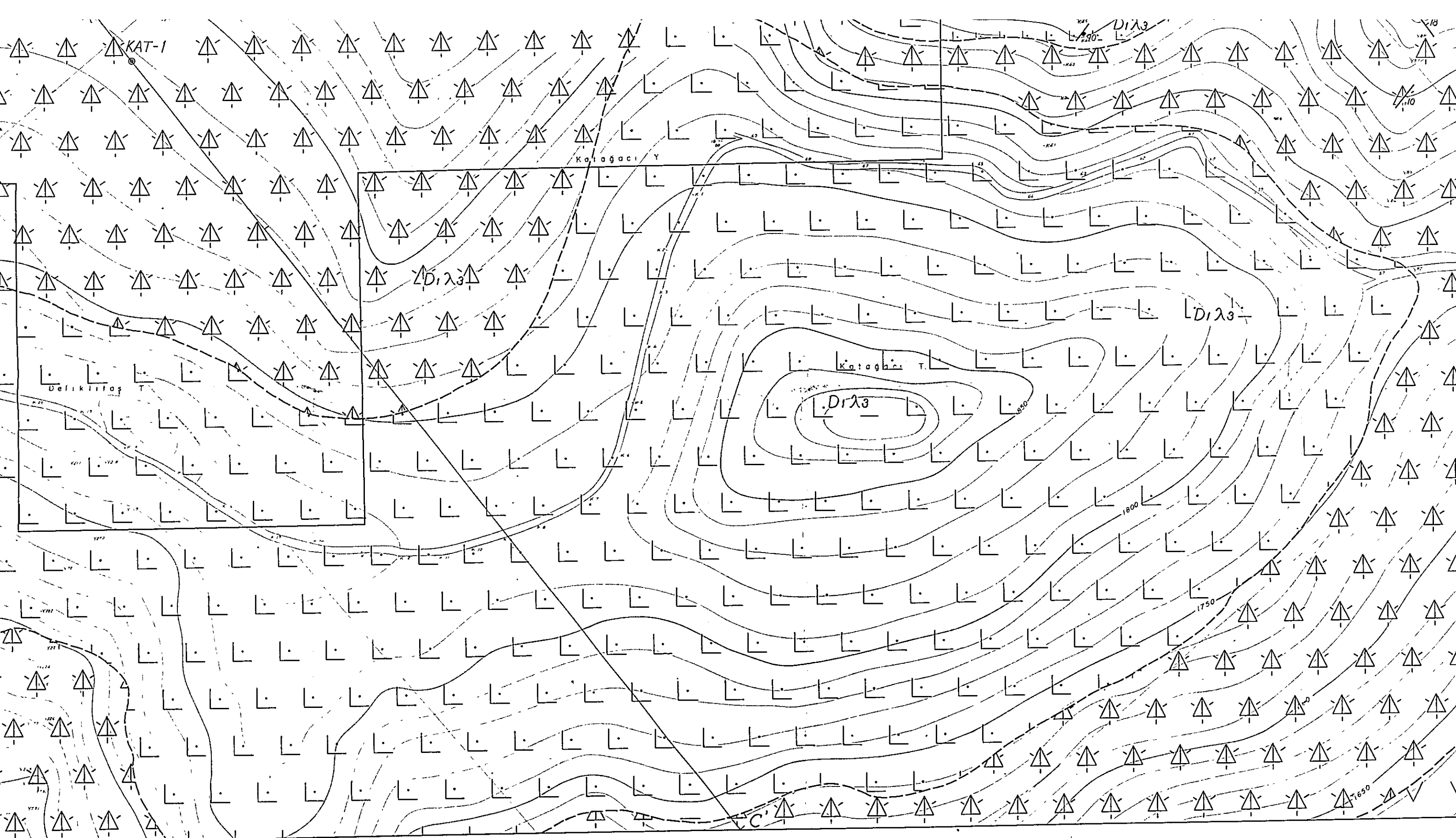
Geological age <i>Jeolojik yas</i>	Formation <i>Formasyon</i>	Stratigraphical <i>Stratigrafik</i>		
		Marks <i>Isaretler</i>	Symbol <i>Sembol</i>	
Paleogene <i>Paleosen</i> Neogene <i>Miyosen</i>	A3		A3α	
	D1	A2		A2α
		D1	D1λ4	
	D1α4			D1α4
	D1λ3			D1λ3
	D1α3			D1α3
	D1kt			D1kt
	A1		A1λ2	
		A1α2		A1α2
		A1kt		A1kt
		Intrusive rocks <i>Intruzifler</i>	β	
	α			α
ε			ε	
σ			σ	
δσ2			δσ2	
δ2σ			δ2σ	

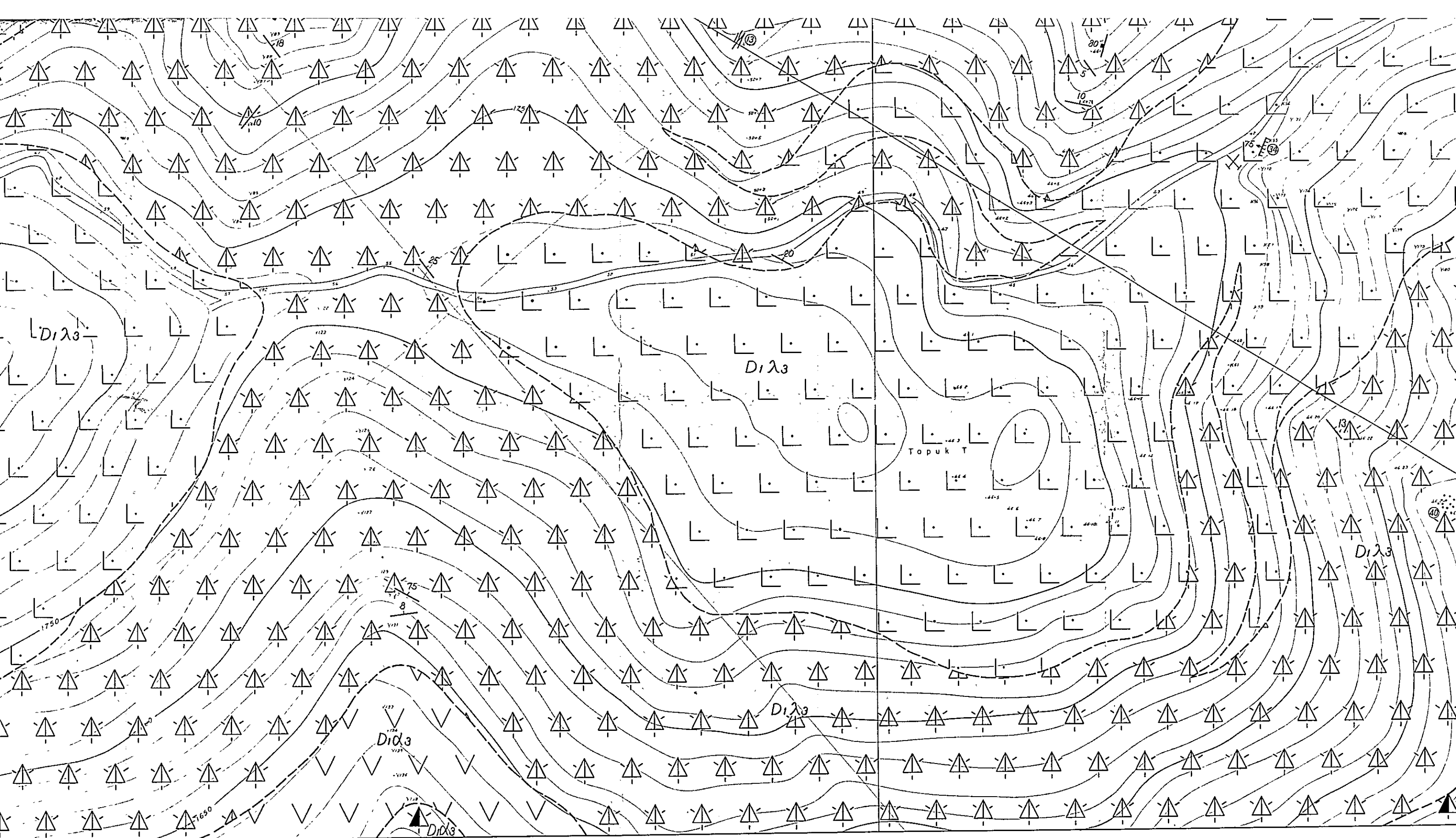


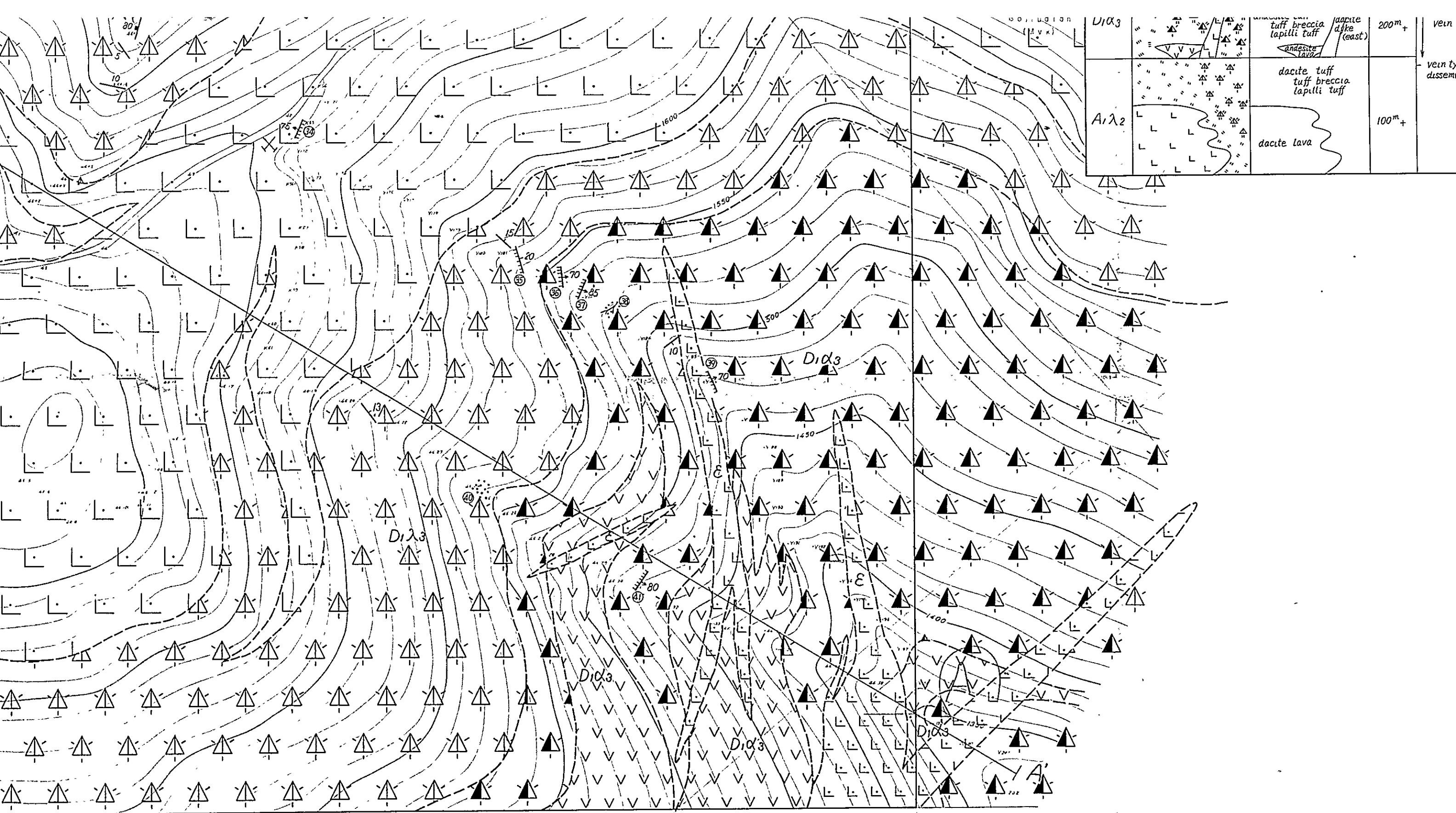
LEGEND
LEJAND

Geological age Jeolojik yaş	Formation Formasyon	Stratigraphical Stratigrafik		Lithology Litoloji
		Marks İsaretleler	Symbol Sembol	
Paleogene Paleosen Neogene Miyosen	A3		A3α	Andesite lava Andezit lavı
	A2		A2α	Andesite pyroclastics Andezitik Piroklastikler
			D1λ4	Dacite lava Dasit lavı
				Dacite pyroclastics Dasit Piroklastikler Fine tuff & calcareous mudstone İnce tüf & kalkerli çamurtaşı
	D1α4		Andesite lava Andezitik lav	
			Andesite pyroclastics Andezitik Piroklastikler	
	D1		D1λ3	Dacite lava Dasit lavı Dacite pyroclastics Dasit Piroklastikler
				Basalt lava Bazalt lavı Fine tuff & calcareous mudstone İnce tüf & kalkerli çamurtaşı
			D1α3	Andesite lava Andezitik lav
				Andesite pyroclastics Andezitik Piroklastikler Fine tuff & calcareous mudstone İnce tüf & kalkerli çamurtaşı
			D1kt	Limestone, marl. Kireçtaşı, marl.
			A1	
A1α2	Andesite lava Andezitik lav Andesite pyroclastics Andezitik Piroklastikler Fine tuff & calcareous mudstone İnce tüf & kalkerli çamurtaşı			
A1kt	Limestone, marl. Kireçtaşı, marl.			
Intrusive rocks Intruzitler		β	Basalt Bazalt	
		α	Andesite Andezit	
		ε	Dacite Dasit	
		σ	Porphyrite Porfirit	
		δσ2	Diorite porphyrite Diorit porfirit	
		δ2	Quartz diorite Kuvars diorit	
		δ2σ	Quartz diorite porphyrite Kuvars diorit porfirit	
		δ2σ	Quartz porphyry Kuvars porfir	
			Bedding Tahaka	
			Fault Fay	
			Joint Kırık	
			Flow structure Akıntılı yapı	
			Anticlinal/synclinal, axis Antiklinal/senkinal eksen	
			Working mine/abandoned mine Çalışan maden/kapalı maden	
			Mineralization, vein type/dissemination type	

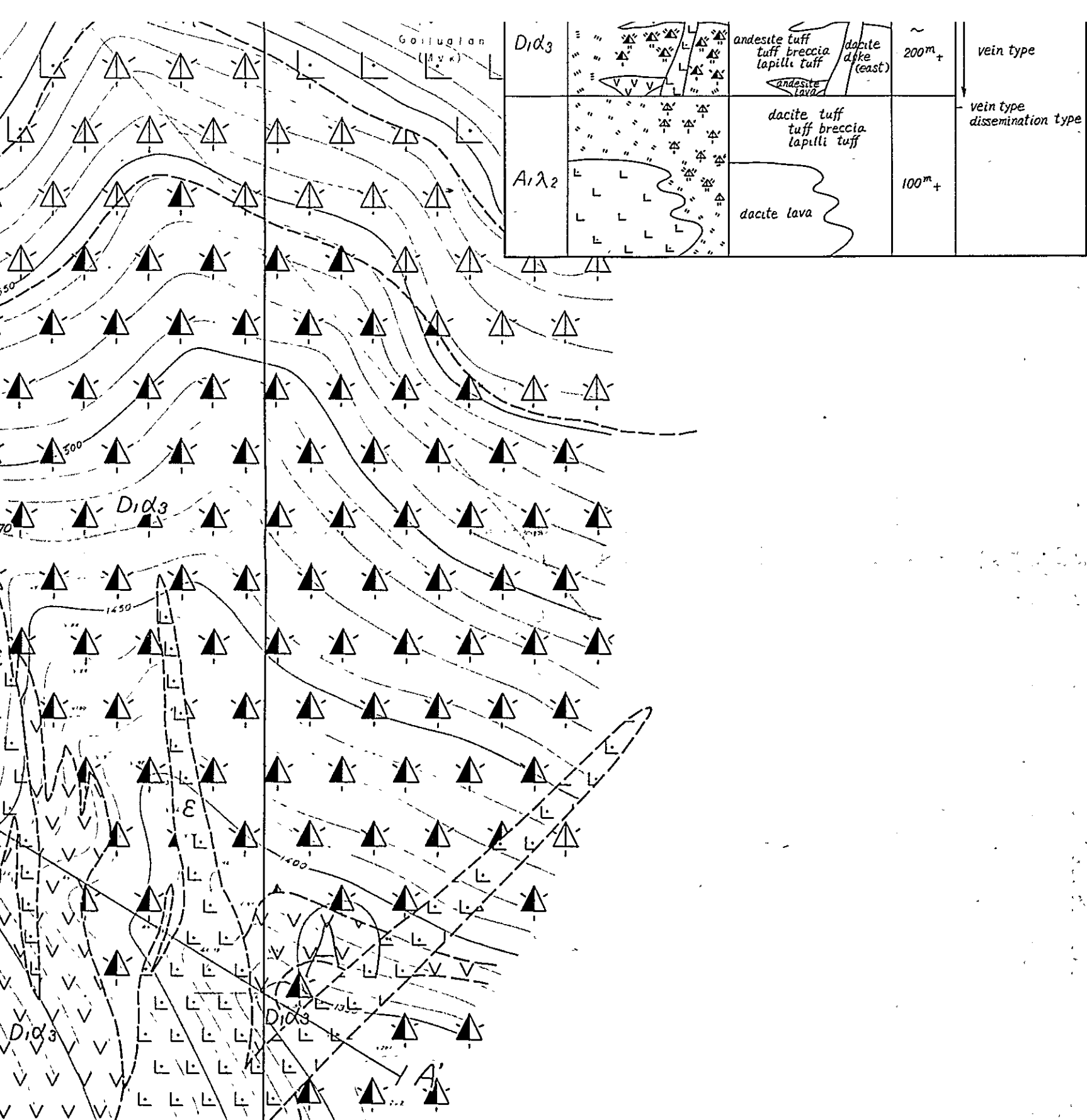




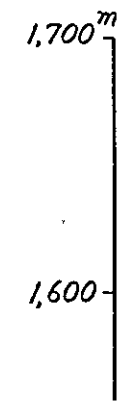
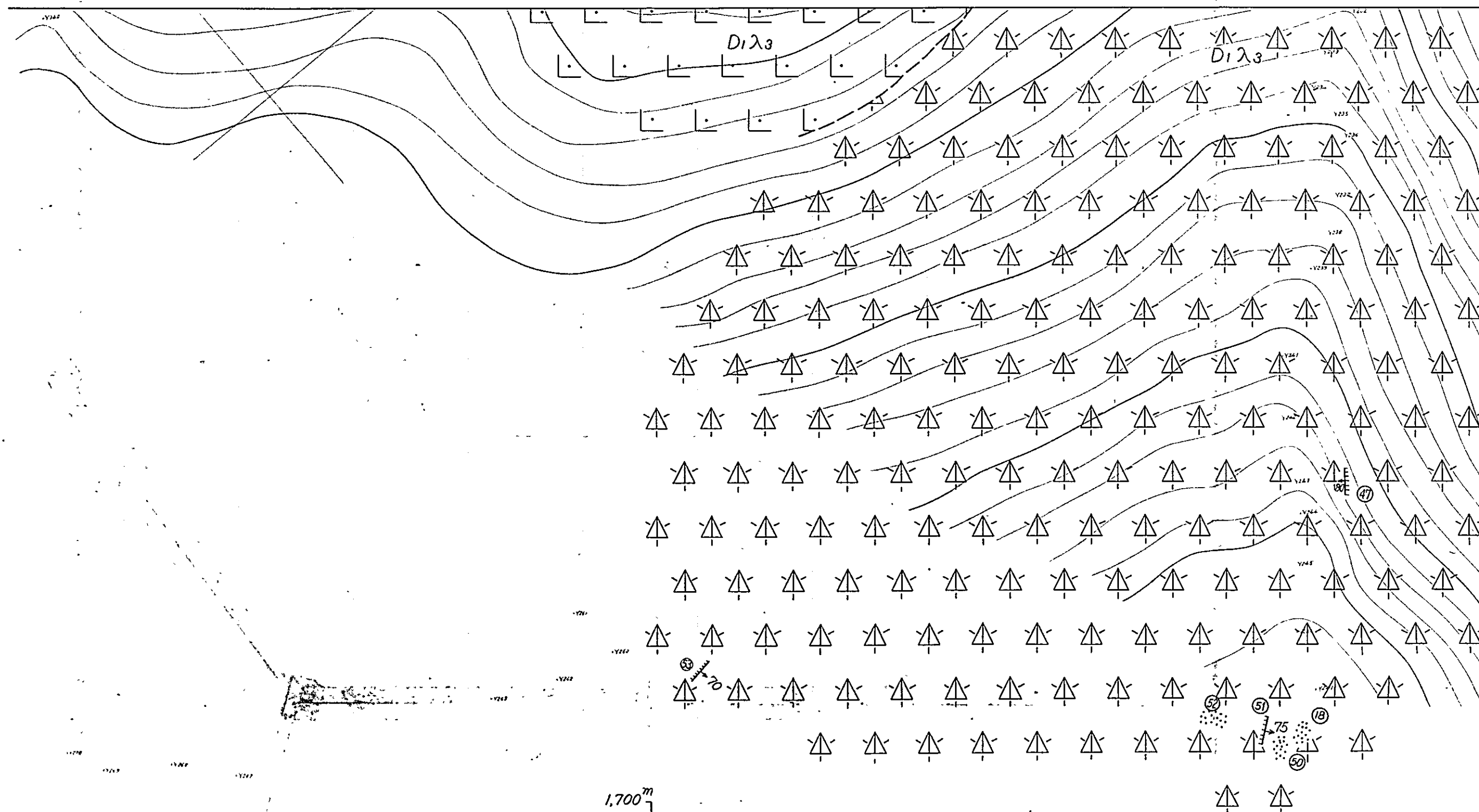


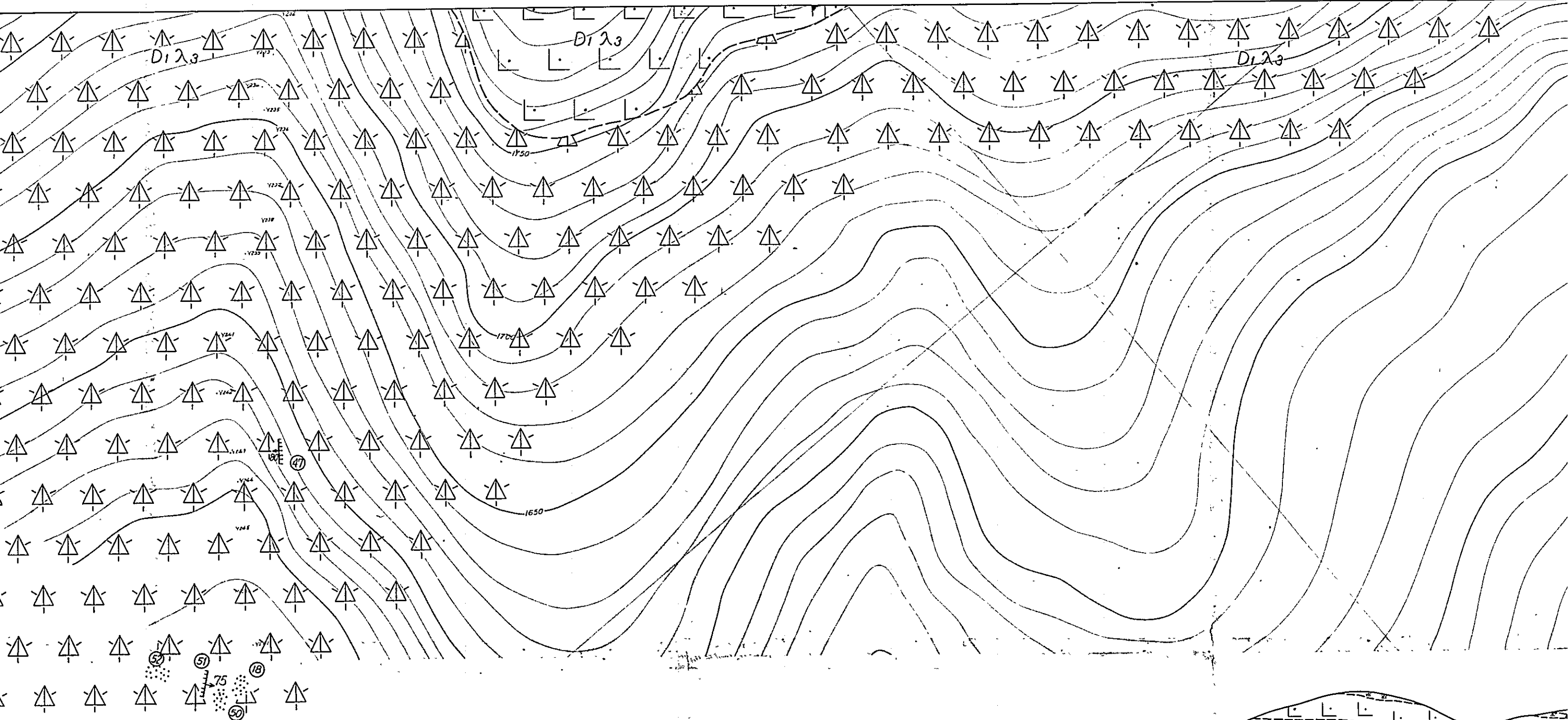


$D1\alpha_3$		tuff breccia lapilli tuff	200m+	vein dissem
$A1\lambda_2$		dacite tuff tuff breccia lapilli tuff	100m+	
		dacite lava		

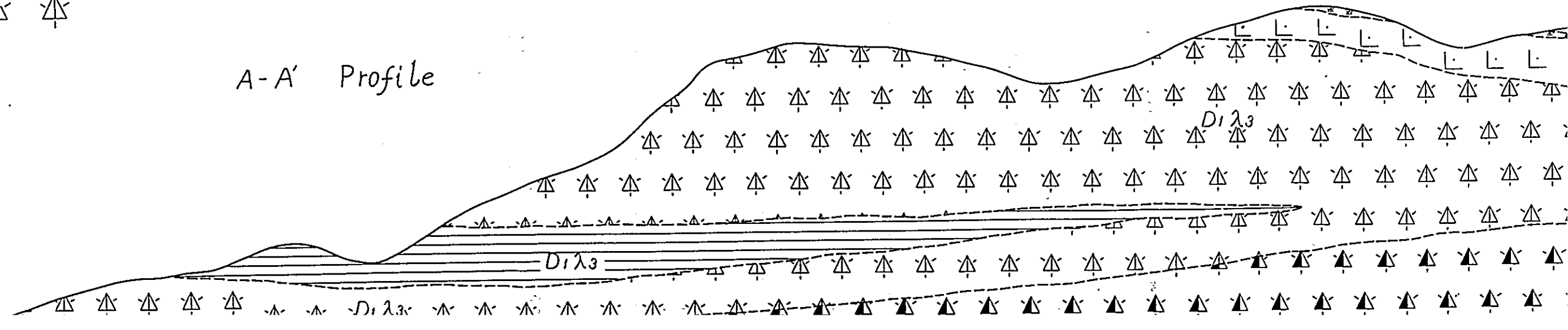


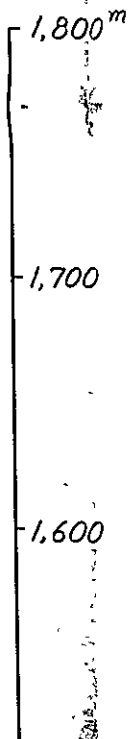
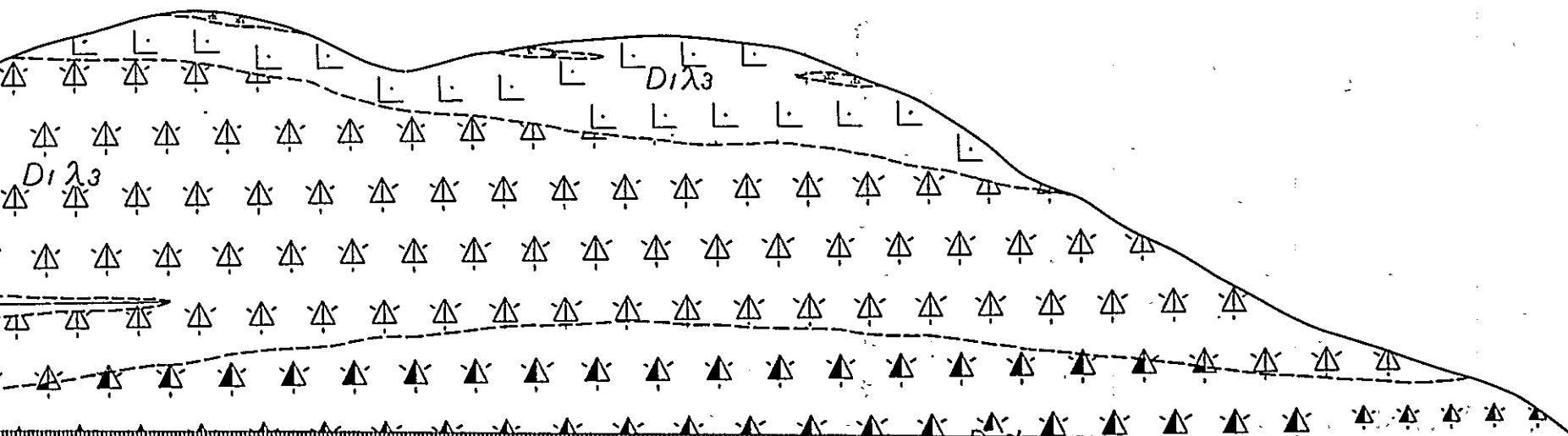
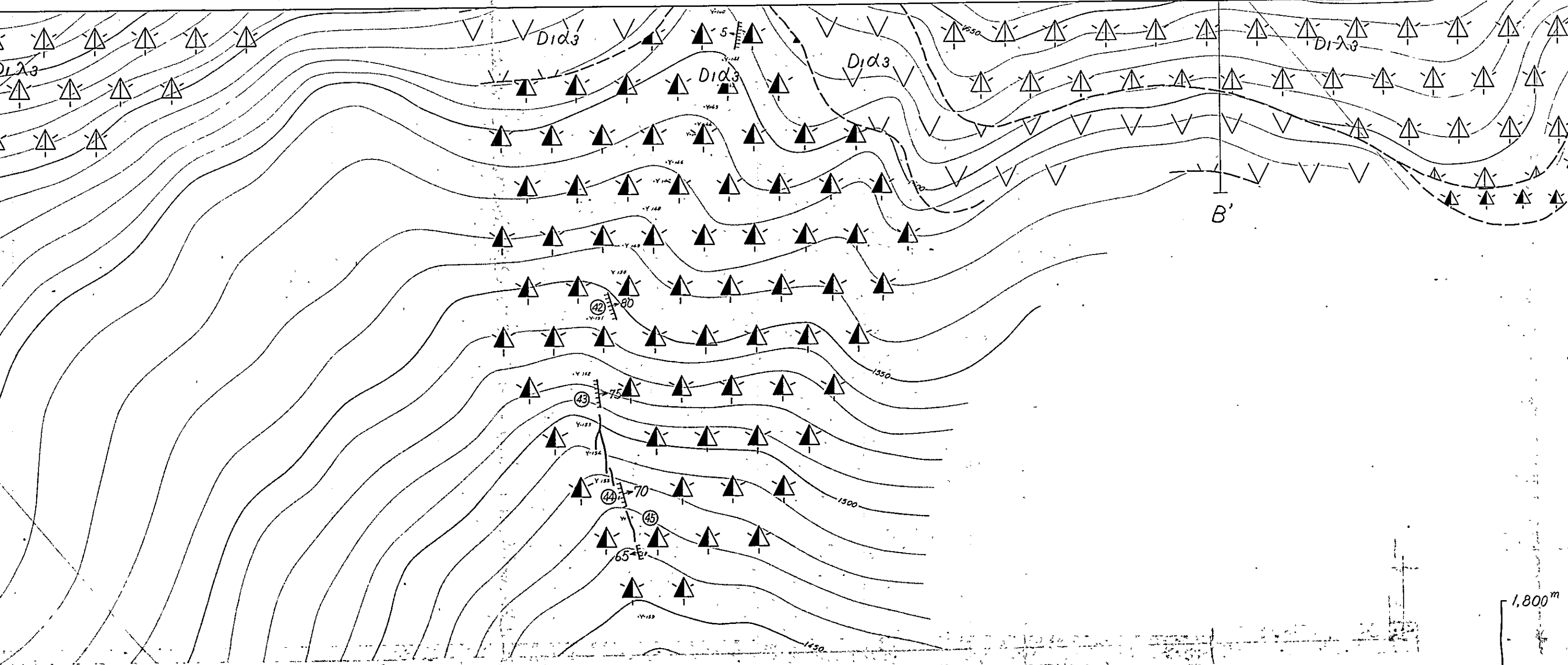
Upper Cretaceous Üst Kretase	D ₁	D ₁ λ ₃	Dacite lava <i>Dasit lavası</i> Dacite pyroclastics <i>Dasit Piroklastikler</i> Basalt lava <i>Bazalt lavası</i> Fine tuff & calcareous mudstone <i>İnce tüf & kalkerli çamurtaşı</i>
		D ₁ α ₃	Andesite lava <i>Andezitik lav</i> Andesite pyroclastics <i>Andezitik Piroklastikler</i> Fine tuff & calcareous mudstone <i>İnce tüf & kalkerli çamurtaşı</i>
		D ₁ kt	Limestone, marl. <i>Kireçtaşı, marl.</i>
	A ₁	A ₁ λ ₂	Dacite lava <i>Dasit lavası</i> Dacite pyroclastics <i>Dasit Piroklastikler</i> Fine tuff & calcareous mudstone <i>İnce tüf & kalkerli çamurtaşı.</i> Limestone, marl. <i>Kireçtaşı, marl.</i>
		A ₁ α ₂	Andesite lava <i>Andezitik lav</i> Andesite pyroclastics <i>Andezitik Piroklastikler</i> Fine tuff & calcareous mudstone <i>İnce tüf & kalkerli çamurtaşı</i>
		A ₁ kt	Limestone, marl. <i>Kireçtaşı, marl.</i>
Intrusive rocks <i>Intruzifler</i>	β	Basalt <i>Bazalt</i>	
	α	Andesite <i>Andezit</i>	
	ε	Dacite <i>Dasit</i>	
	σ	Porphyrite <i>Porfir</i>	
	δσ ₂	Diorite porphyrite <i>Diorit porfir</i>	
	δ ₂	Quartz diorite <i>Kuvars diorit</i>	
	δ ₂ σ	Quartz diorite porphyrite <i>Kuvars diorit porfir</i>	
	δ ₂ σ	Quartz porphyry <i>Kuvars porfiri</i>	
	30	Bedding <i>Tabaka</i>	
	70	Fault <i>Fay</i>	
	40	Joint <i>Kirik</i>	
	20	Flow structure <i>Akbitiş yapı</i>	
	X	Anticlinal/synclinal, axis <i>Antiklinal/senkliyal eksen</i>	
	X	Working mine/abandoned mine <i>Çalışan maden/kapalı maden</i>	
	X	Mineralization vein type/dissemination type <i>Mineralasyon damar tipi/disseminasyon tipi</i>	
	X	Massive, bedded ore/veinlets <i>Masif, tabakalı cevher/damarcıklar</i>	
	X	Skarnized zone <i>Skarn zonu</i>	
	⊙	Drilling site <i>Sondaj yer</i>	
	A-A'	Geological profile line <i>Jeolojik kesit çizgisi</i>	

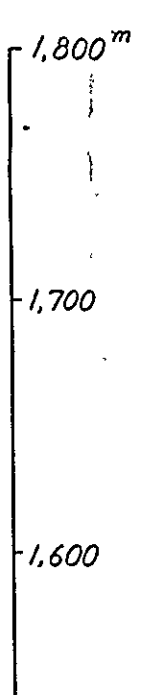
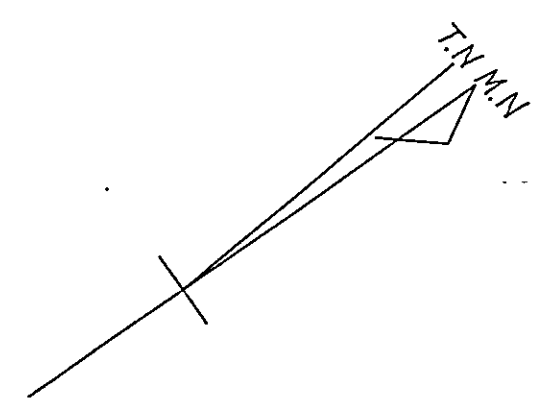
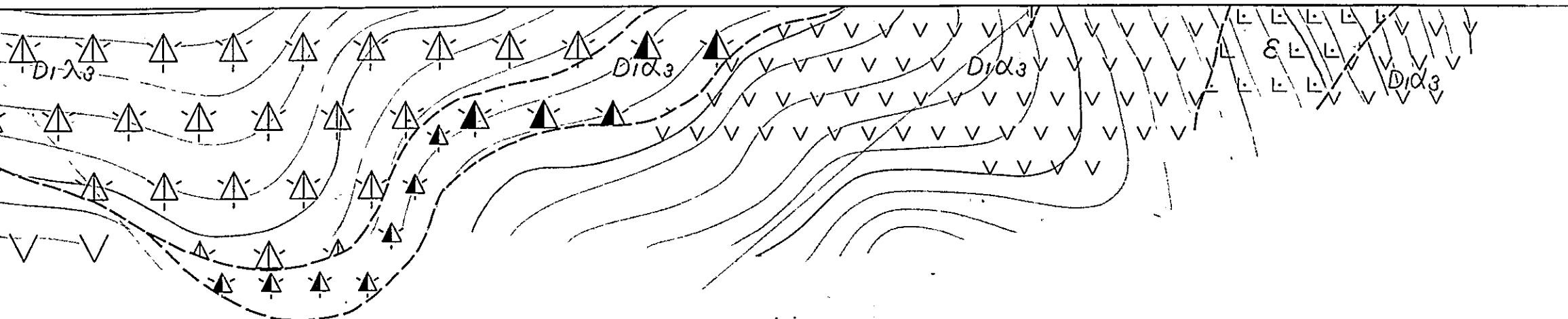




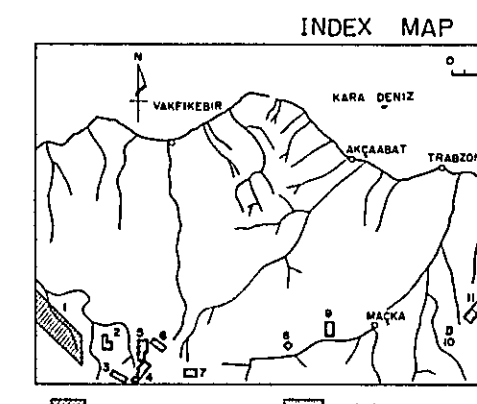
A-A' Profile







MINERAL RESEARCH AND EXPLORATION
 GEOLOGICAL SURVEY
 OF
 TRABZON AREA, NORTHEAST TURKEY
 PHASE III
 GEOLOGICAL MAP WITH GEOLOGICAL
 AND COLUMNAR SECTION OF
 GÖLLÜALAN SAHASI
 HARİTASI JEOLojİ KESİTİ
 SÜTUN KESİTİ



Scale 1 : 2,000
 Ölçek 1 : 2,000

METAL MINING AGENCY
 JAPAN INTERNATIONAL COOPERATION PROGRAM
 FEBRUARY 1988
 Prepared by Nikko Exploration B.

LEGEND
 LEJAND

Geological age Jeolojik yaş	Formation Formasyon	Stratigraphical Stratigrafik		Description
		Marks Isaretiler	Symbol Sembol	
Paleogene Paleosen Neogene Miyosen	A3		A3α	Andesite lava Andezit lavı
	A2		A2α	Andesite pyroclastic Andezitik Piroklastikler
			D1Λ4	Dacite lava Dazit lavı
				Dacite pyroclastics Dazit Piroklastikler
			Fine tuff & calcareous İnce tüf & kalkerli	
				Andesite lava Andezit lavı

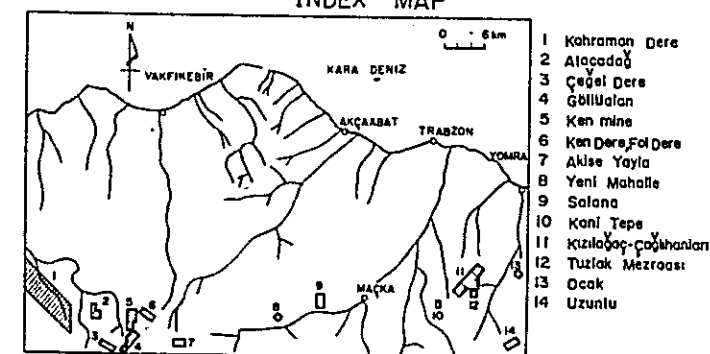
MINERAL RESEARCH AND EXPLORATION INSTITUTE
 GEOLOGICAL SURVEY
 OF
 TRABZON AREA, NORTHEASTERN TURKEY

PHASE III

GEOLOGICAL MAP WITH GEOLOGICAL PROFILE
 AND COLUMNAR SECTION OF GÖLLÜALAN AREA

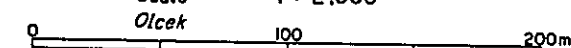
GÖLLÜALAN SAHASININ JEOLÖJİ
 HARİTASI JEOLÖJİ KESİTLERİ VE
 SÜTUN KESİTİ

INDEX MAP



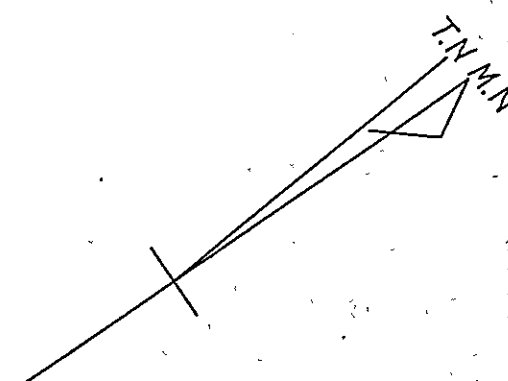
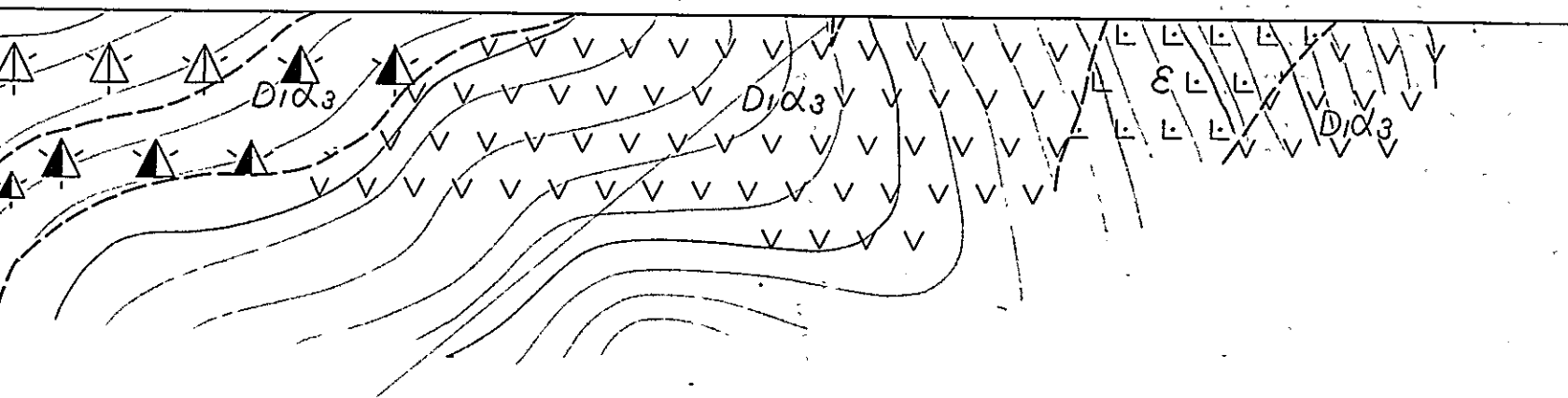
General geological survey area Detailed geological survey area

Scale 1 : 2,000



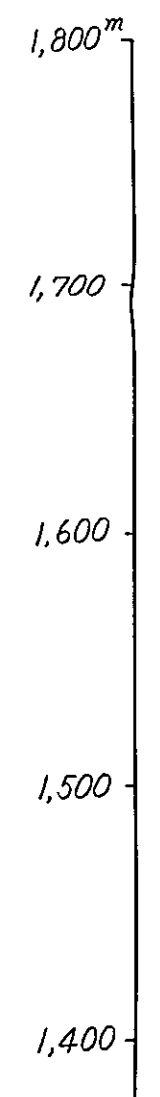
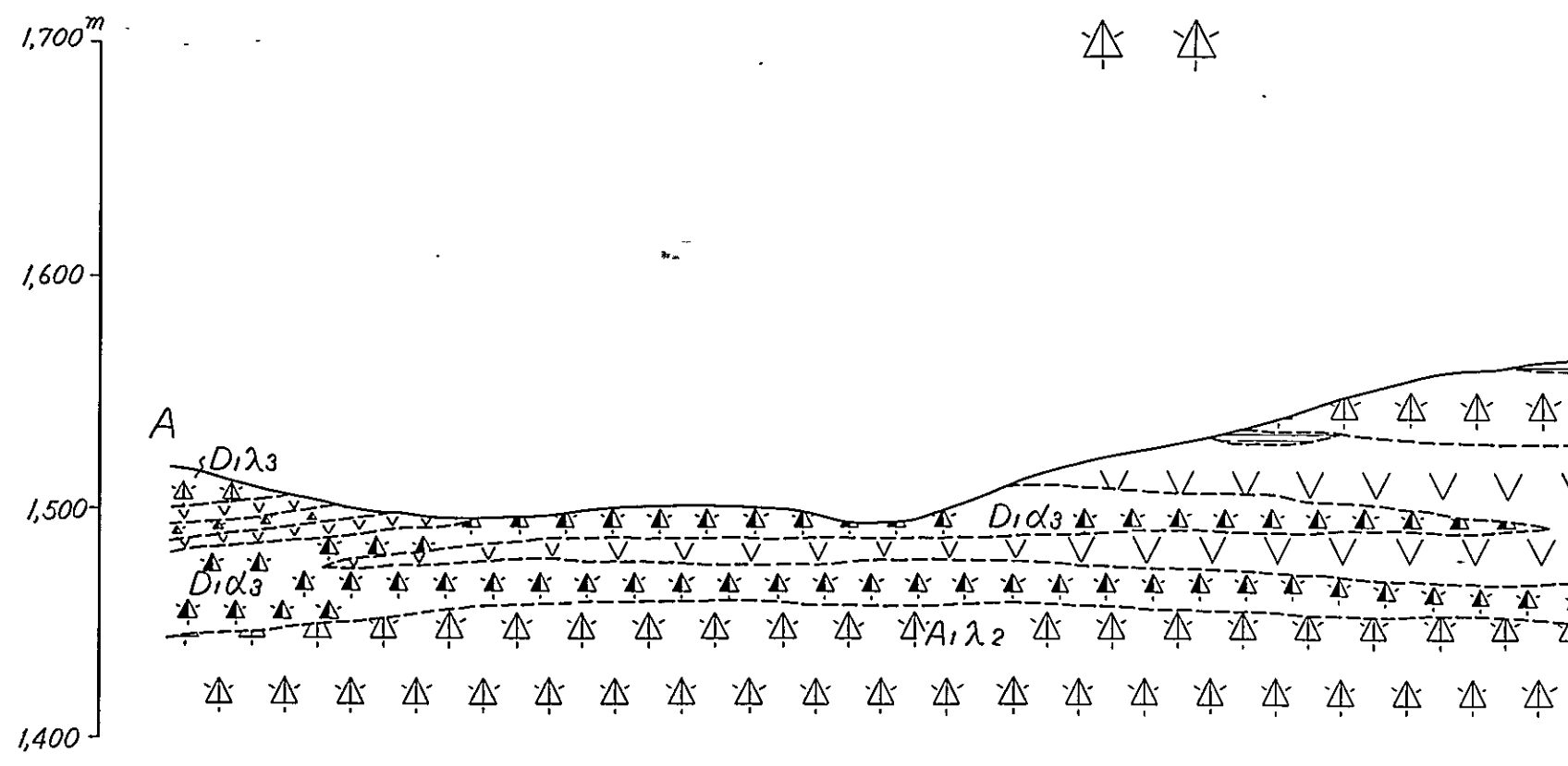
METAL MINING AGENCY OF JAPAN
 JAPAN INTERNATIONAL COOPERATION AGENCY
 FEBRUARY 1977

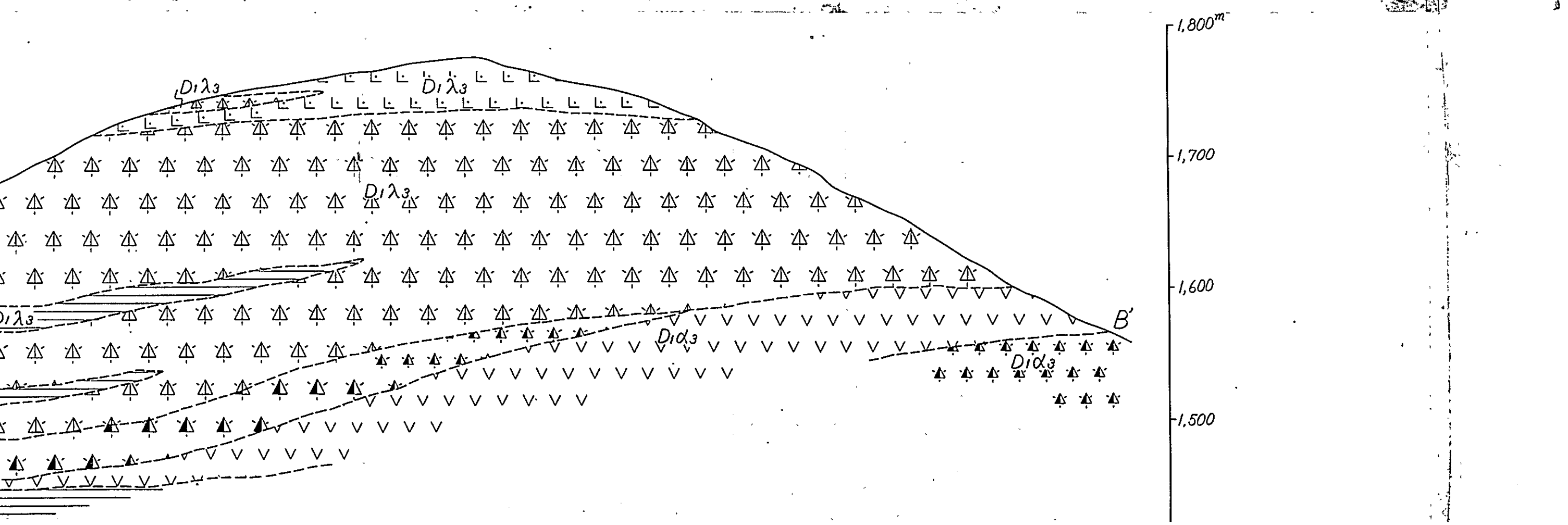
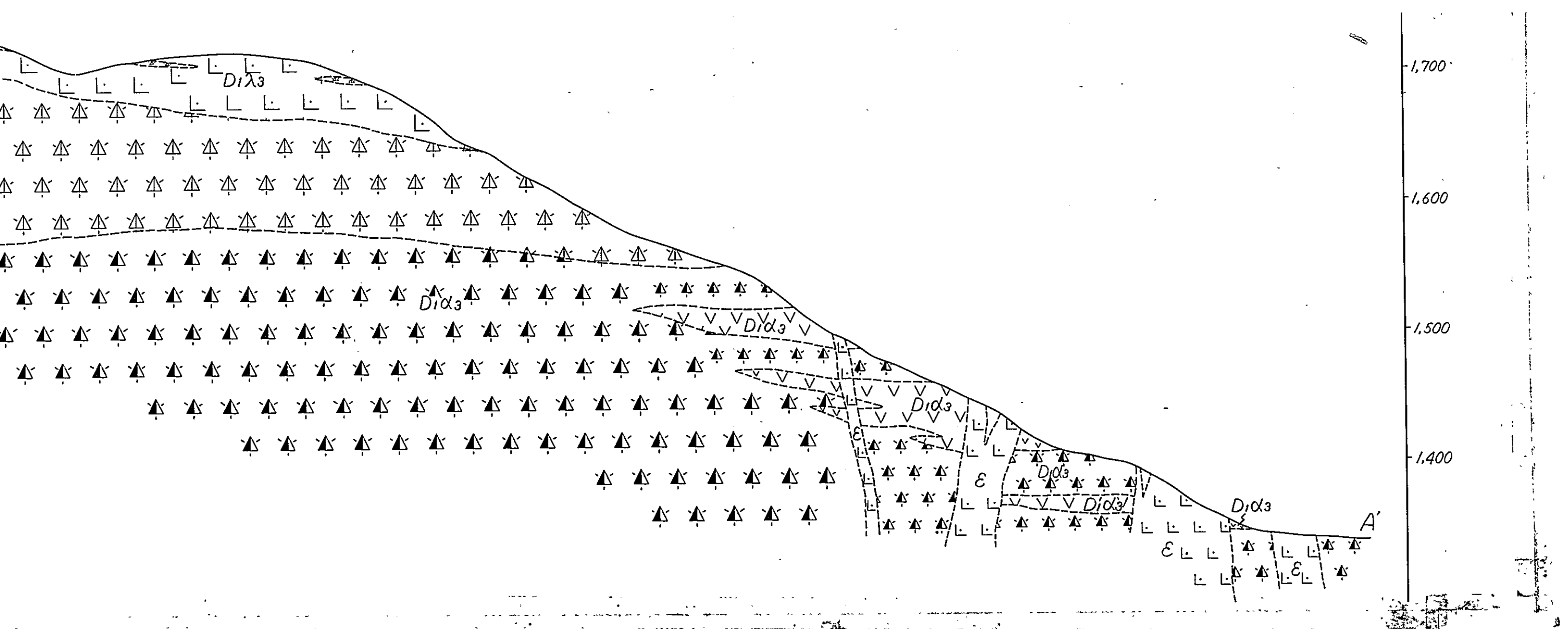
Prepared by Nikko Exploration & Development Co., Ltd.

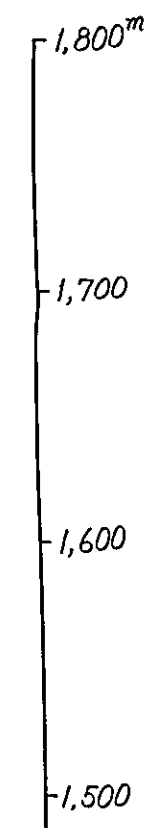
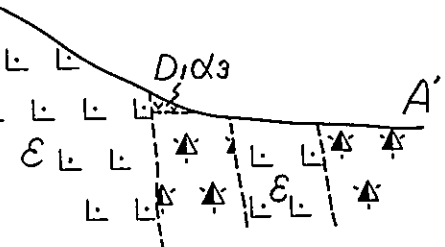
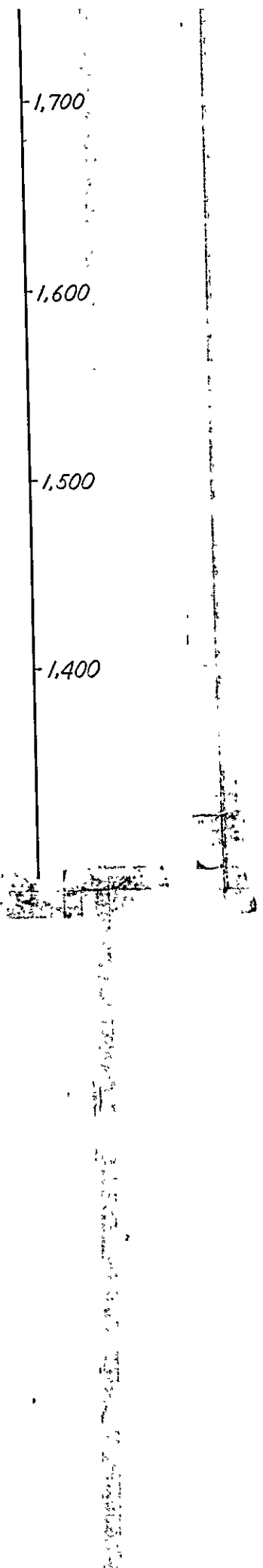


LEGEND
 LEJAND

Geological age Jeolojik yaş	Formation Formasyon	Stratigraphical Stratigrafik		Lithology Litoloji
		Marks İsaretiler	Symbol Sembol	
Paleogene Paleosen ~ Neogene Miyosen	A3		A3α	Andesite lava Andezit lavı
	A2		A2α	Andesite pyroclastics Andezitik Piroklastikler
			D1α4	Dacite lava Dazit lavı
			D1α4	Dacite pyroclastics Dazit Piroklastikler
			D1α4	Fine tuff & calcareous mudstone İnce tüf & kalkerli çamurlaş
			D1α4	Andesite lava Andezitik lav







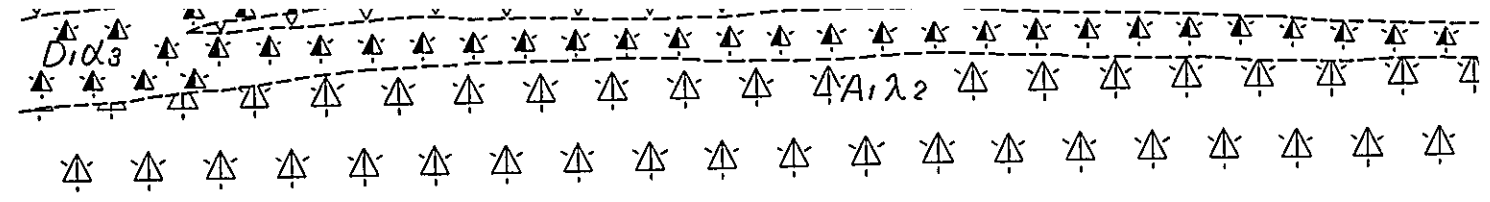
LEGEND
LEJAND

Geological age <i>Jeolojik yas</i>	Formation <i>Formasyon</i>	Stratigraphical <i>Stratigrafik</i>			
		Marks <i>Isarettler</i>	Symbol <i>Sembol</i>		
Paleogene <i>Paleosen</i> Neogene <i>Miyosen</i>	A3		A3α	Ande <i>Ande</i>	
	A2		A2α	Ande <i>Ande</i>	
Upper Cretaceous <i>Ust Kretase</i>	D1		D1α4	Daciti <i>Dasit</i>	
				Daciti <i>Dasit</i>	
				Fine <i>ince</i>	
				Ande <i>Ande</i>	
	D1		D1α4	Ande <i>Ande</i>	
				Ande <i>Ande</i>	
				D1α3	Daciti <i>Dasit</i>
					Daciti <i>Dasit</i>
					Basalt <i>Bazalt</i>
					Fine <i>ince</i>
D1		D1α3	Ande <i>Ande</i>		
			Ande <i>Ande</i>		
			D1kt	Fine <i>ince</i>	
				Lime <i>Kireci</i>	
A1		A1α2	Daciti <i>Dasit</i>		
			Daciti <i>Dasit</i>		
			Fine <i>ince</i>		
			Lime <i>Kireci</i>		
			A1α2	Ande <i>Ande</i>	
				Ande <i>Ande</i>	
Intrusive rocks <i>Intruzifler</i>			β	Basalt <i>Bazalt</i>	
			α	Ande <i>Ande</i>	
			ε	Daciti <i>Dasit</i>	
			σ	Porph <i>Porfir</i>	
			δσ ₂	Diorit <i>Diorit</i>	
			σ ₂	Quart <i>Kuvar</i>	
			δ ₂ σ	Quart <i>Kuvar</i>	
			σ ₂ σ	Quart <i>Kuvar</i>	
			δ ₂ σ	Quart <i>Kuvar</i>	
			δ ₂ σ	Quart <i>Kuvar</i>	
			30	Beddi <i>Tahak</i>	
			70	Fault <i>Fay</i>	
			40	Joint <i>Kirik</i>	
			20	Flow <i>Aklim</i>	
			+	Antic <i>Antik</i>	
			x	Work <i>Çaliş</i>	
			x	Mine <i>Mine</i>	

LEGEND
LEJAND

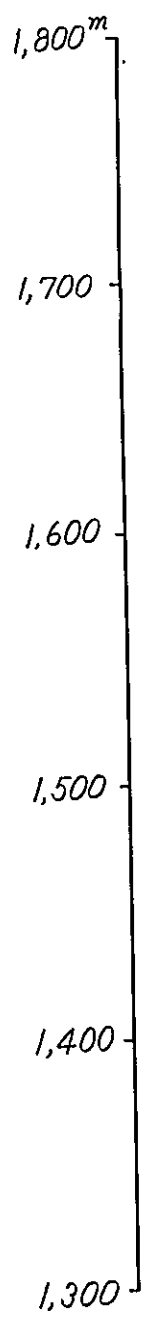
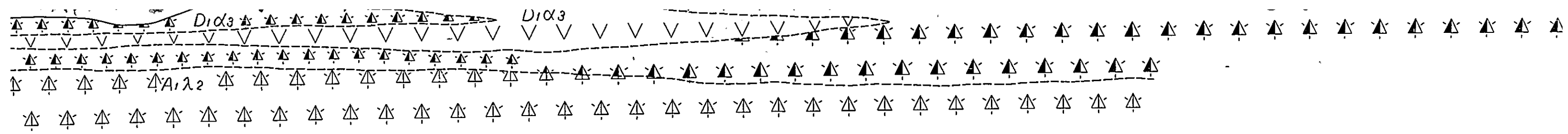
Geological age <i>Jeolojik yası</i>	Formation <i>Formasyon</i>	Stratigraphical <i>Stratigrafik</i>		Lithology <i>Litoloji</i>		
		Marks <i>İsaretleler</i>	Symbol <i>Sembol</i>			
Paleogene <i>Paleosen</i> ~ Neogene <i>Miyosen</i>	A ₃		A ₃ α	Andesite lava <i>Andezit lavı</i>		
	A ₂		A ₂ α	Andesite pyroclastics <i>Andezitik Piroklastikler</i>		
Upper Cretaceous <i>Ust Kretase</i>	D ₁		D ₁ λ ₄	Dacite lava <i>Dasit lavı</i>		
				Dacite pyroclastics <i>Dasit Piroklastikler</i>		
			Fine tuff & calcareous mudstone <i>İnce tüf & kalkerli çamurtaşı</i>			
			D ₁ α ₄	Andesite lava <i>Andezitik lav</i>		
				Andesite pyroclastics <i>Andezitik Piroklastikler</i>		
			D ₁ λ ₃	Dacite lava <i>Dasit lavı</i>		
		Dacite pyroclastics <i>Dasit Piroklastikler</i>				
		Basalt lava <i>Bazalt lavı</i>				
		Fine tuff & calcareous mudstone <i>İnce tüf & kalkerli çamurtaşı</i>				
	A ₁	D ₁ α ₃		Andesite lava <i>Andezitik lav</i>		
			Andesite pyroclastics <i>Andezitik Piroklastikler</i>			
D ₁ kt			Fine tuff & calcareous mudstone <i>İnce tüf & kalkerli çamurtaşı</i>			
			Limestone, marl. <i>Kireçtaşı, marı.</i>			
A ₁	A ₁ λ ₂		Dacite lava <i>Dasit lavı</i>			
			Dacite pyroclastics <i>Dasit Piroklastikler</i>			
	A ₁ α ₂		Fine tuff & calcareous mudstone <i>İnce tüf & kalkerli çamurtaşı</i>			
			Limestone, marl. <i>Kireçtaşı, marı</i>			
Intrusive rocks <i>Intruzifler</i>			β	Basalt <i>Bazalt</i>		
			α	Andesite <i>Andezit</i>		
			ε	Dacite <i>Dasit</i>		
			σ	Porphyrite <i>Porfir</i>		
			δσ ₂	Diorite porphyrite <i>Diorit porfir</i>		
			δ ₂	Quartz diorite <i>Kuvars diorit</i>		
			δ ₂ σ	Quartz diorite porphyrite <i>Kuvars diorit porfir</i>		
			δ ₂ σ	Quartz porphyry <i>Kuvars porfir</i>		
						Bedding <i>Tabaka</i>
						Fault <i>Fay</i>
				Joint <i>Kirik</i>		
				Flow structure <i>Akıntılı yapı</i>		
				Anticlinal/synclinal, axis <i>Antiklinal/senklinel eksen</i>		
				Working mine/abandoned mine <i>Çalışan maden/kapalı maden</i>		
				Mineralization, vein type/dissemination type <i>Mineralizasyon damar tipi/disseminasyon tipi</i>		

1,400

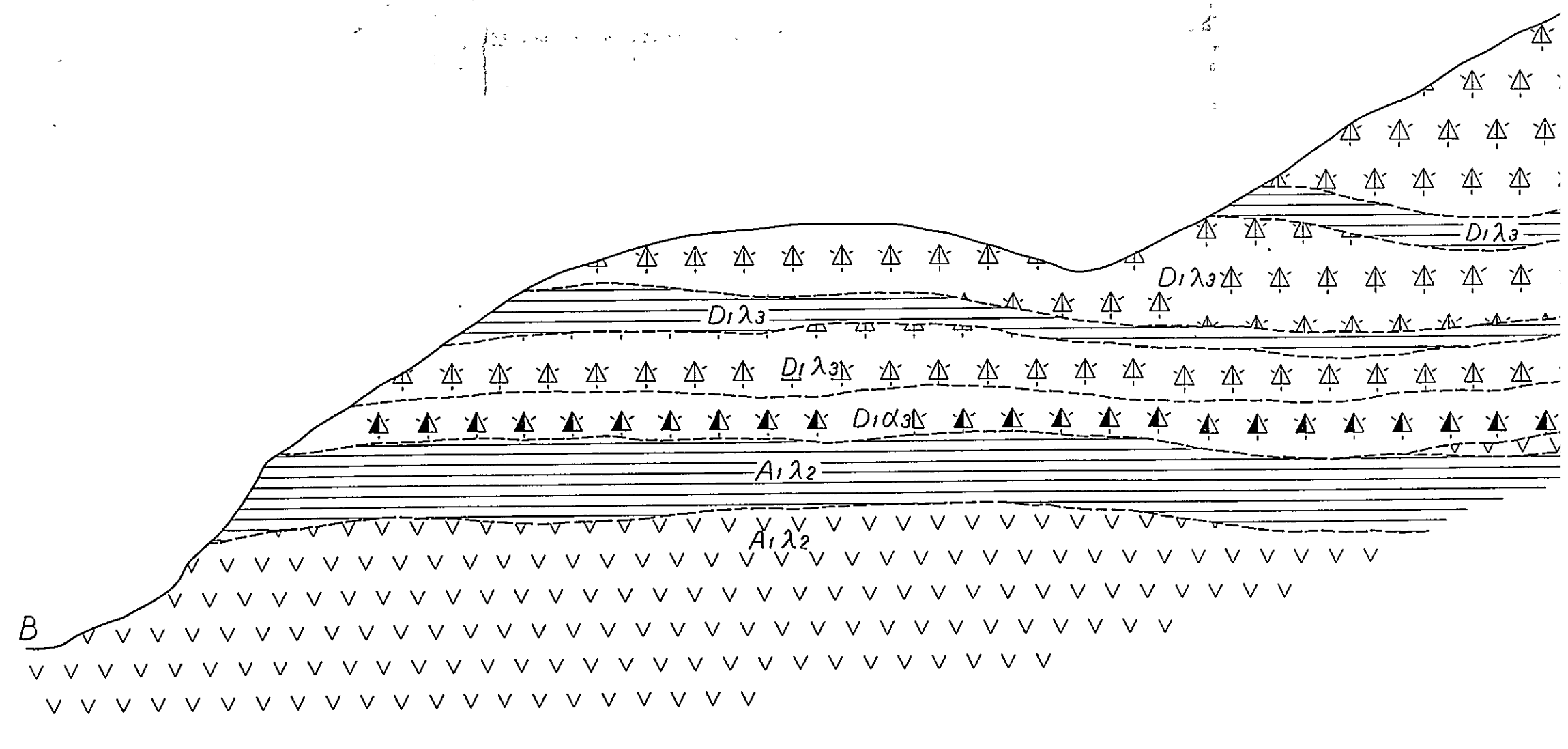


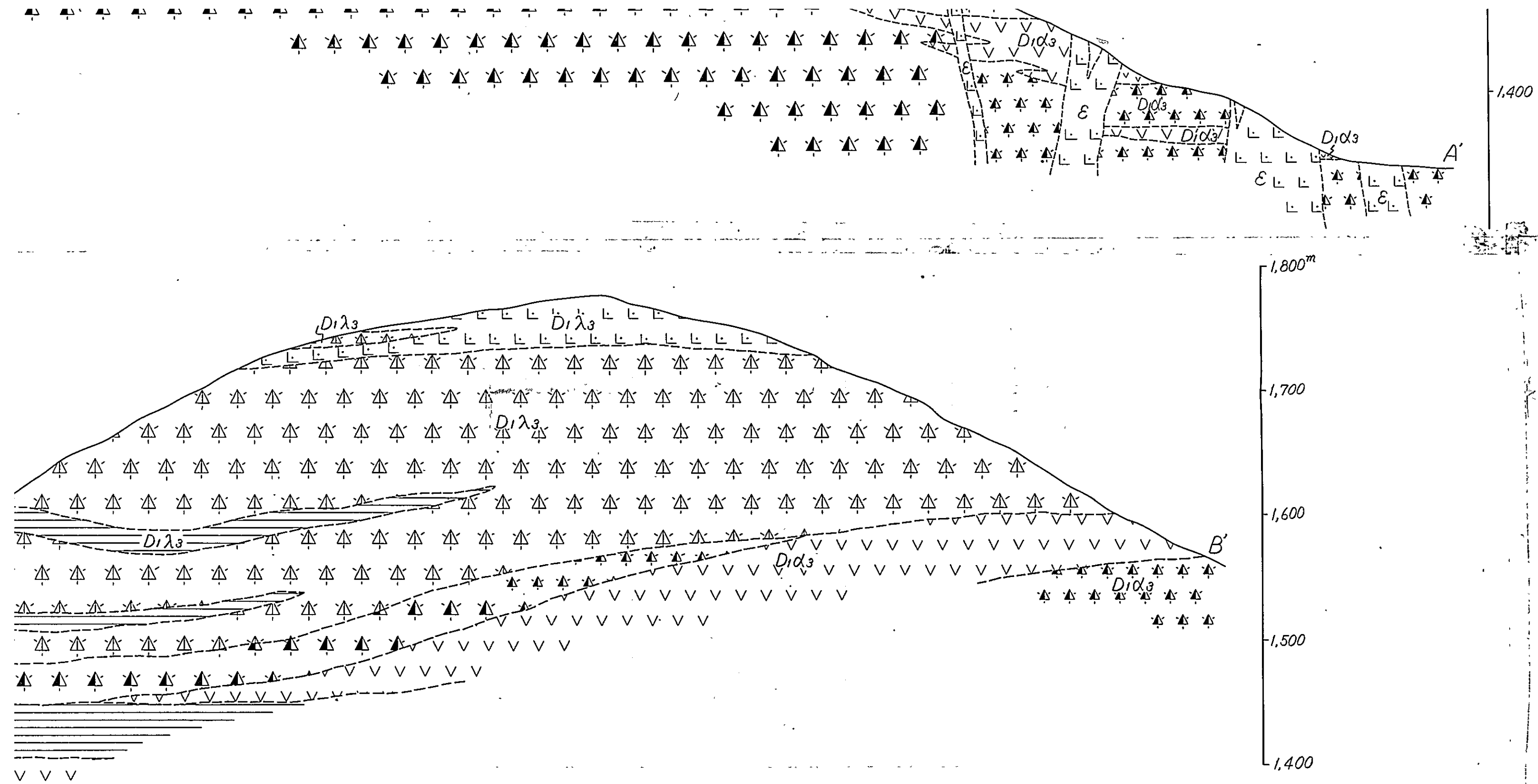
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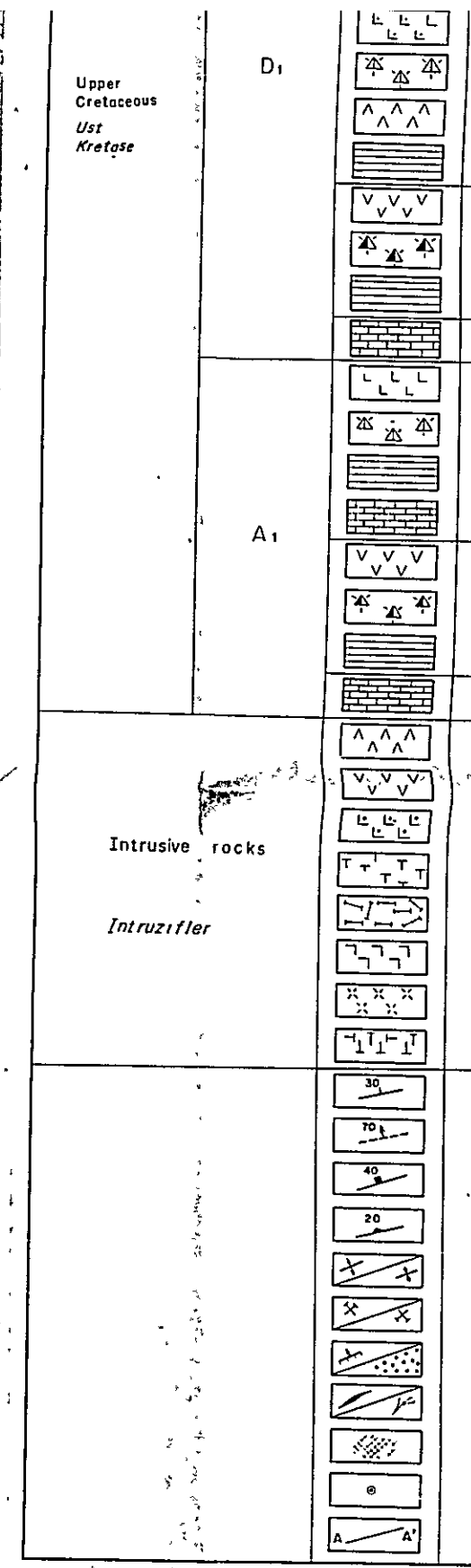
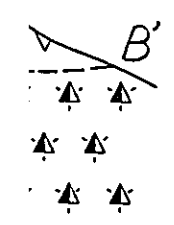
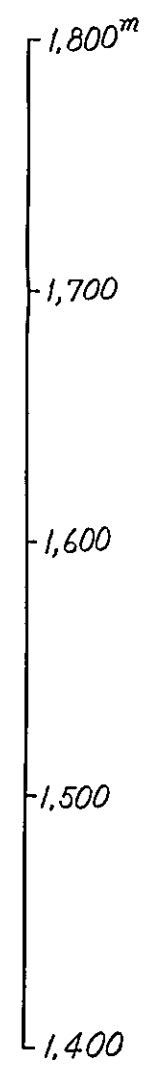
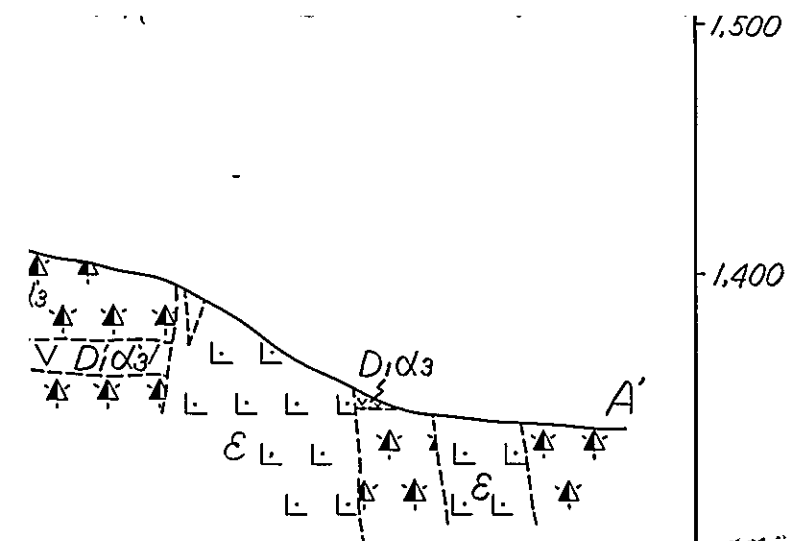
B
v
v



B-B' Profile







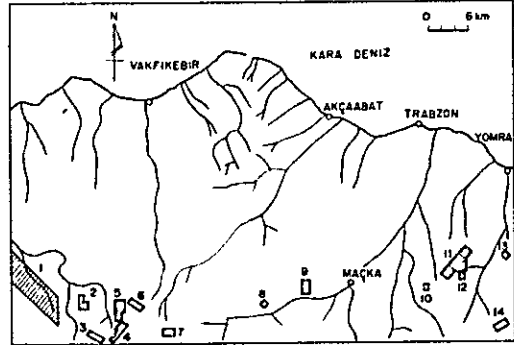
Upper Cretaceous <i>Ust Kretase</i>	D ₁		D ₁ λ ₃	Dacite lava <i>Dasit lavı</i>
				Andesite lava <i>Andezitik lav</i>
				Andesite pyroclastics <i>Andezitik Piroklastikler</i>
	A ₁		A ₁ λ ₂	Dacite pyroclastics <i>Dasit Piroklastikler</i>
				Andesite pyroclastics <i>Andezitik Piroklastikler</i>
				Limestone, marl. <i>Kireçtaşı, marı</i>
Intrusive rocks <i>Intruzifler</i>		β	Basalt <i>Bazalt</i>	
		α	Andesite <i>Andezit</i>	
		ε	Dacite <i>Dasit</i>	
		σ	Porphyrite <i>Porfir</i>	
		δσ ₂	Diorite porphyrite <i>Diorit porfir</i>	
		δ ₂	Quartz diorite <i>Kuvars diorit</i>	
		δ ₂ σ	Quartz diorite porphyrite <i>Kuvars diorit porfir</i>	
		δ ₂ σ	Quartz porphyry <i>Kuvars porfiri</i>	
			Bedding <i>Tabaka</i>	
			Fault <i>Fay</i>	
			Joint <i>Kirik</i>	
			Flow structure <i>Akıntılı yapı</i>	
			Anticlinal/synclinal, axis <i>Antiklinal/senklinel eksen</i>	
			Working mine/abandoned mine <i>Çalışan maden/kapalı maden</i>	
			Mineralization, vein type/dissemination type <i>Mineralizasyon damar tipi/disseminasyon tipi</i>	
			Massive, bedded ore/veinlets <i>Masif, tabakalı cevher/damarciklar</i>	
			Skarnized zone <i>Skarn zonu</i>	
			Drilling site <i>Sondaj yer</i>	
			Geological profile line <i>Jeolojik kesit çizgisi</i>	

MINERAL RESEARCH AND EXPLORATION INSTITUTE
 GEOLOGICAL SURVEY
 OF
 TRABZON AREA, NORTHEASTERN TURKEY

PHASE III
 GEOLOGICAL MAP WITH GEOLOGICAL PROFILE,
 COLUMNAR SECTION AND FUTURE RECOMENDATION
 OF KEN MINE AREA

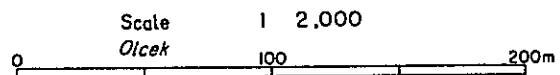
KEN MINE SAHASININ JEOLÖJİ
 HARİTASI JEOLÖJİ KESİTLERİ SÜTUN
 KESİTİ VE ÖNERİLER

INDEX MAP



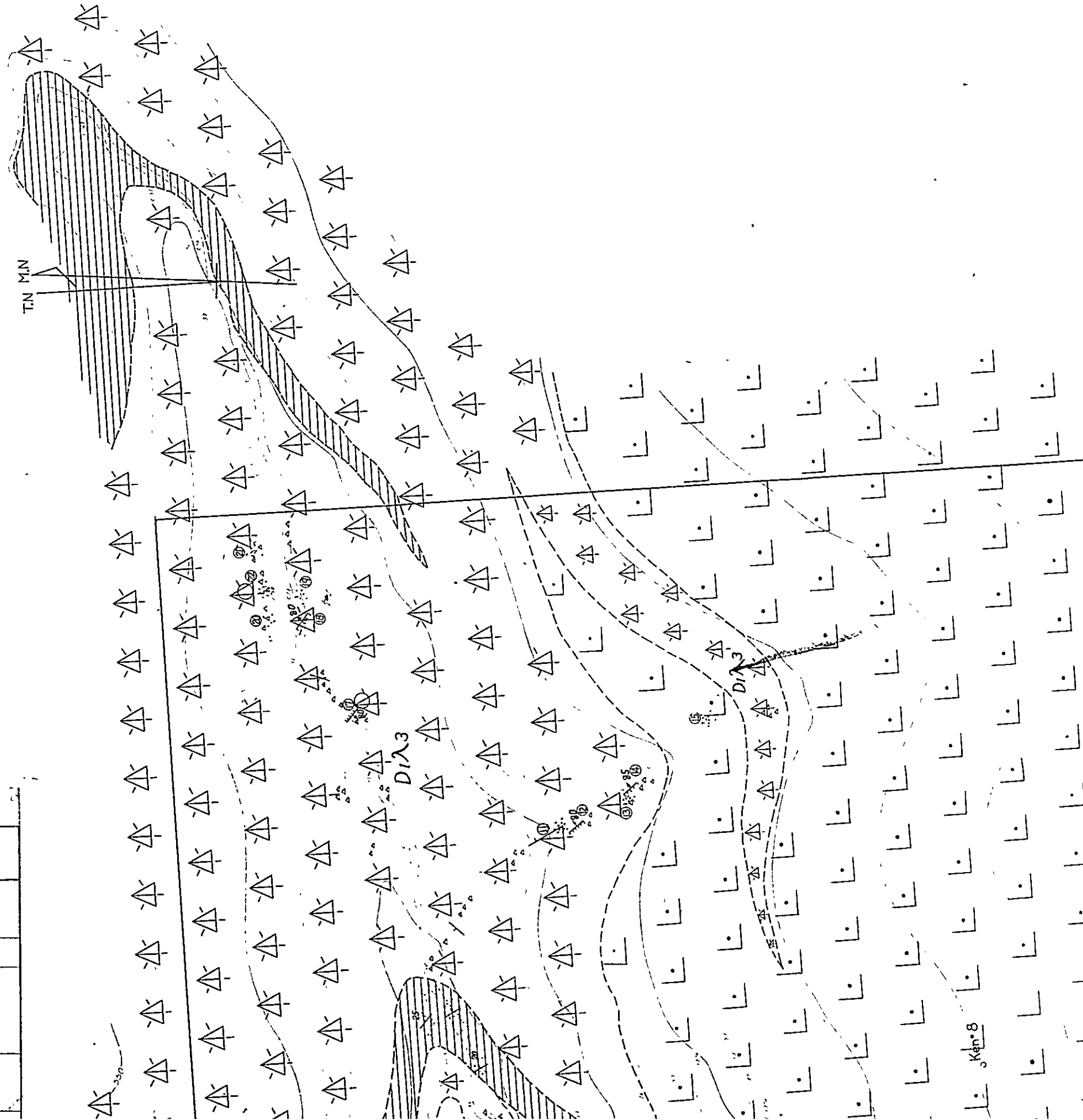
- 1 Kahraman Dere
- 2 Alaçadağ
- 3 Çeşel Dere
- 4 Göllüalan
- 5 Ken mine
- 6 Ken Dere, Fol Dere
- 7 Akise Yayla
- 8 Yeni Mahalle
- 9 Salanc
- 10 Kanlı Tepe
- 11 Kızıldağ-Çağhanlı
- 12 Tuzlak Mezrası
- 13 Ocak
- 14 Uzunlu

General geological survey area Detailed geological survey area



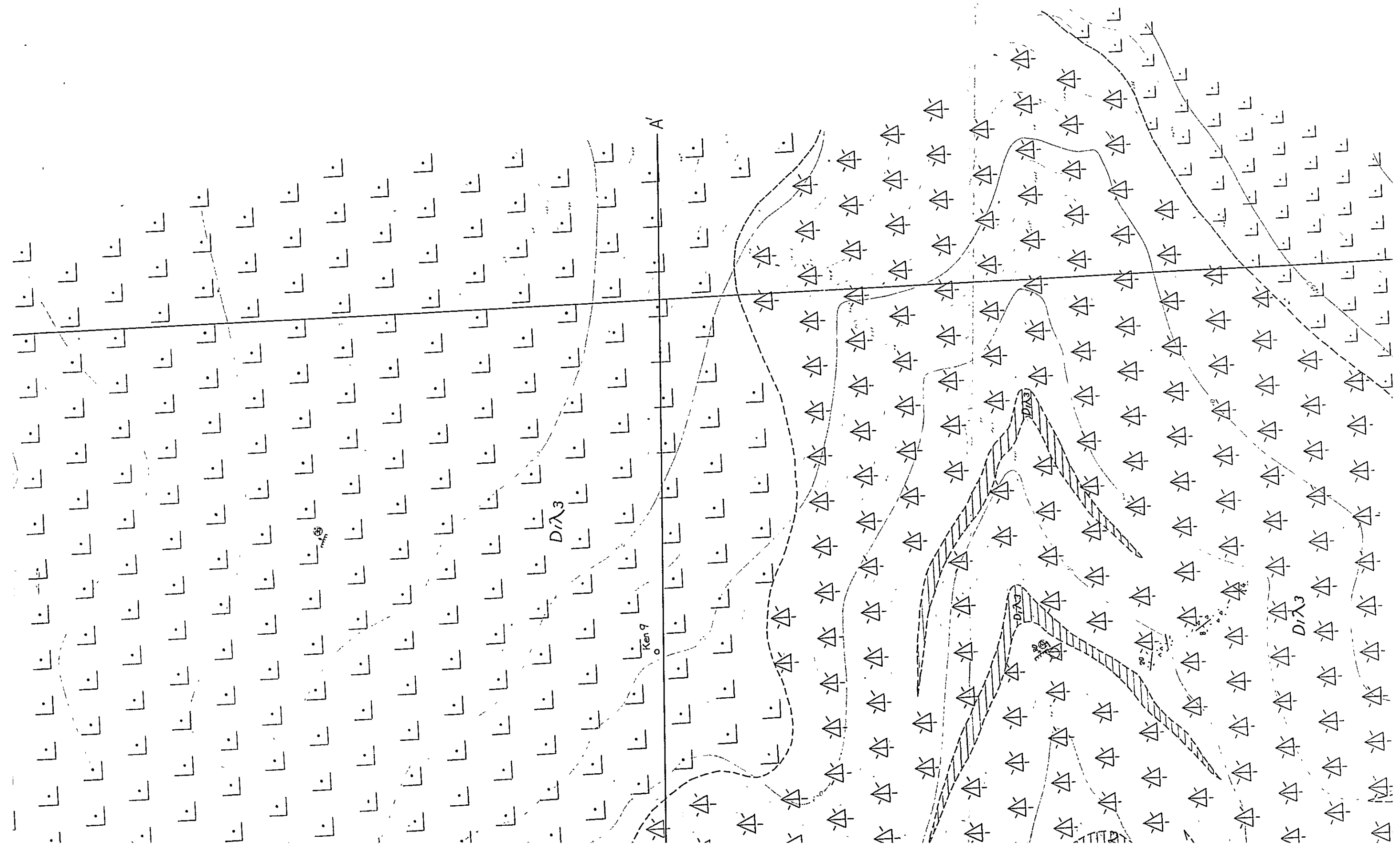
METAL MINING AGENCY OF JAPAN
 JAPAN INTERNATIONAL COOPERATION AGENCY
 FEBRUARY 1977

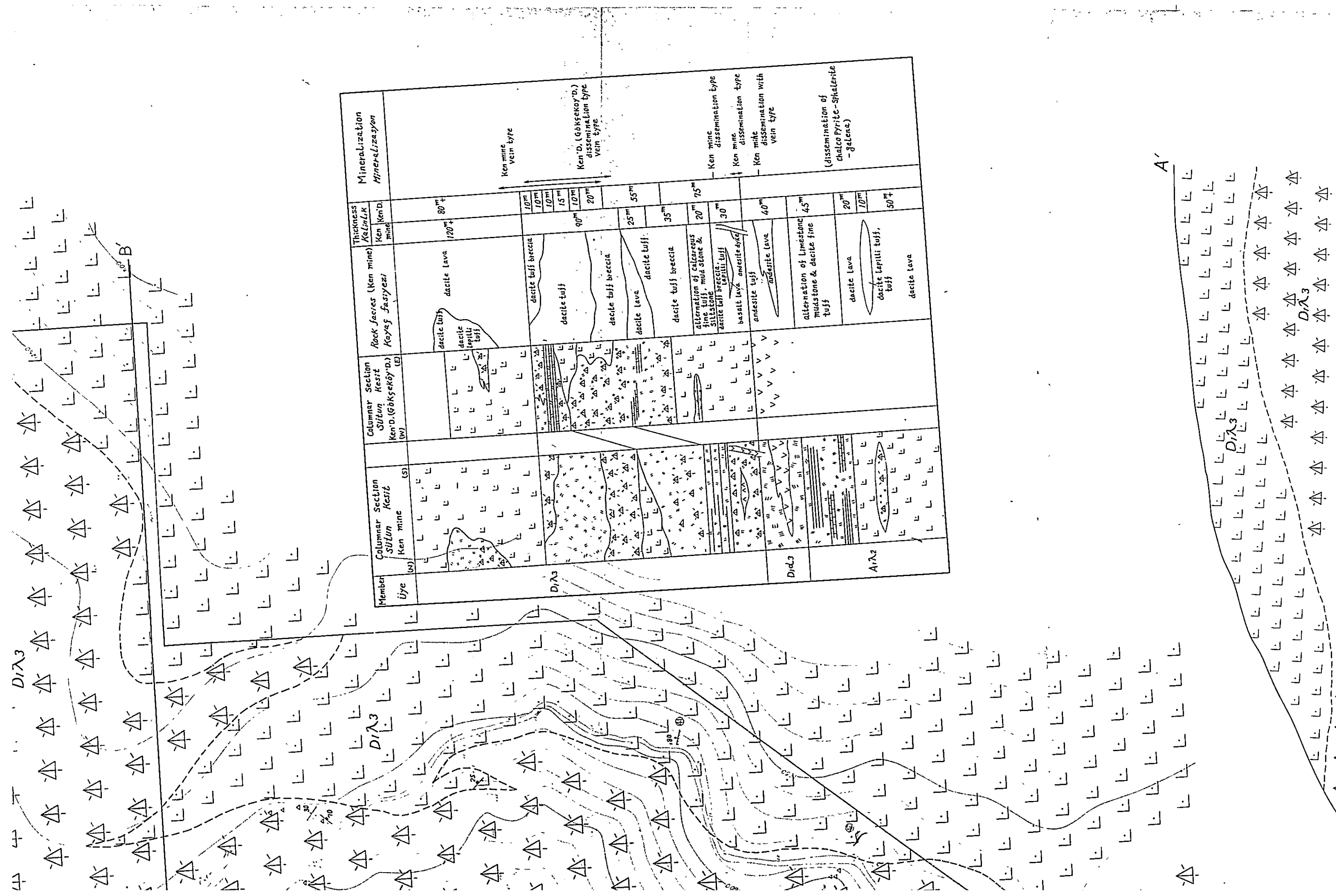
Prepared by Nikko Exploration & Development Co., Ltd.



LEGEND
 LEJAND

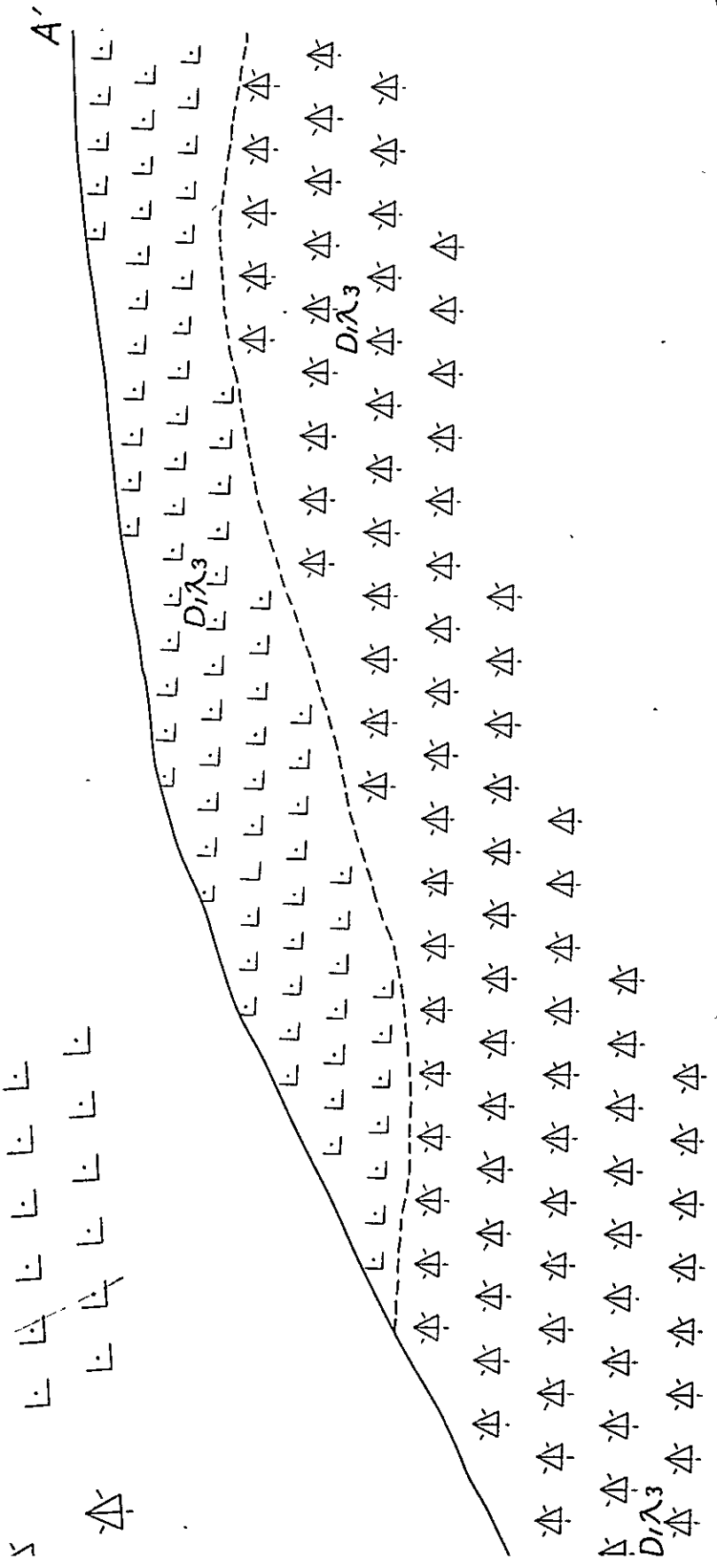
Geological age Jeolojik yaş	Formation Formasyon	Stratigraphical Stratigrafik		Lithology Litoloji
		Marks İsaretleler	Symbol Sembol	
Paleogene Paleosen ~ Neogene Miyosen	A3		A3d	Andesite lava Andezit lavı
	A2		A2d	Andesite pyroclastics Andezitik Piroklastikler
				Dacite lava Dazit lavı
			D1A4	Dacite pyroclastics Dazit Piroklastikler
				Fine tuff & calcareous mudstone İnce tıf & kalkerli çamurtaşı
			D1d4	Andesite lava Andezitik lav
				Andesite pyroclastics Andezitik Piroklastikler



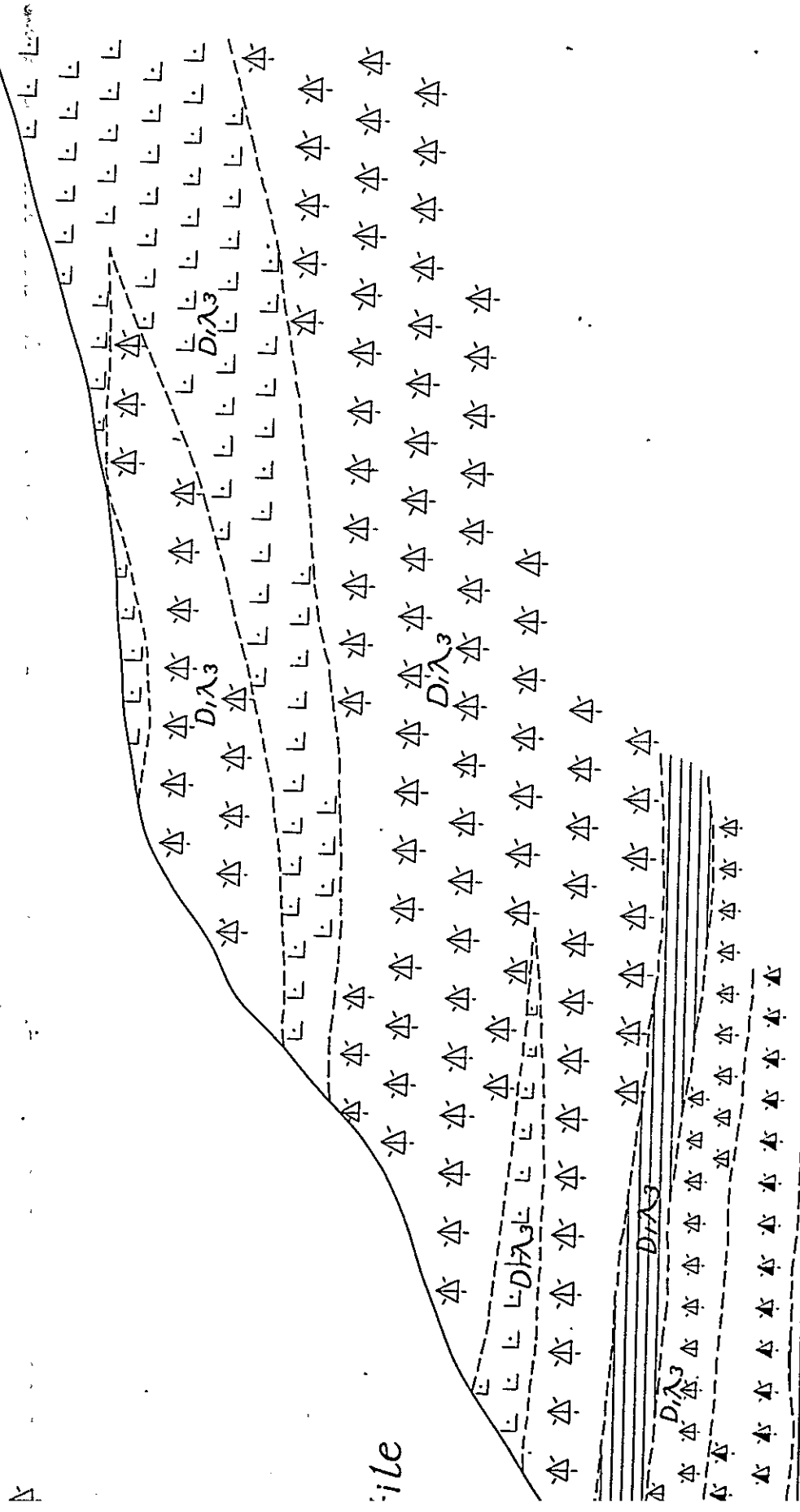


Member	Columnar Section Sütun Kesit Ken mine (s)	Columnar Section Sütun Kesit Ken'D. (Gökşekoy'D.) (E)	Rock facies (Ken mine) Kayış fasiesi	Thickness Kalınlık Ken mine	Mineralization Mineralizasyon
Üye	Ken mine (s)	Ken'D. (Gökşekoy'D.) (E)	dacite tuff dacite lava dacite tuff breccia dacite tuff dacite lava dacite tuff breccia dacite tuff alteration of calcareous fine tuff, mud stone & Siltstone dacite tuff breccia Lapilli tuff basalt lava, andesite dyke andesite tuff andesite lava	120m 80m 10m 10m 15m 10m 20m 25m 35m 20m 30m 40m 45m 20m 10m 50m	Ken mine vein type Ken'D. (Gökşekoy'D.) dissemination type vein type Ken mine dissemination type Ken mine dissemination type Ken mine dissemination with vein type (dissemination of chalco pyrite-sphalerite -galene)
D1A3					
D1A3					
A1A2					

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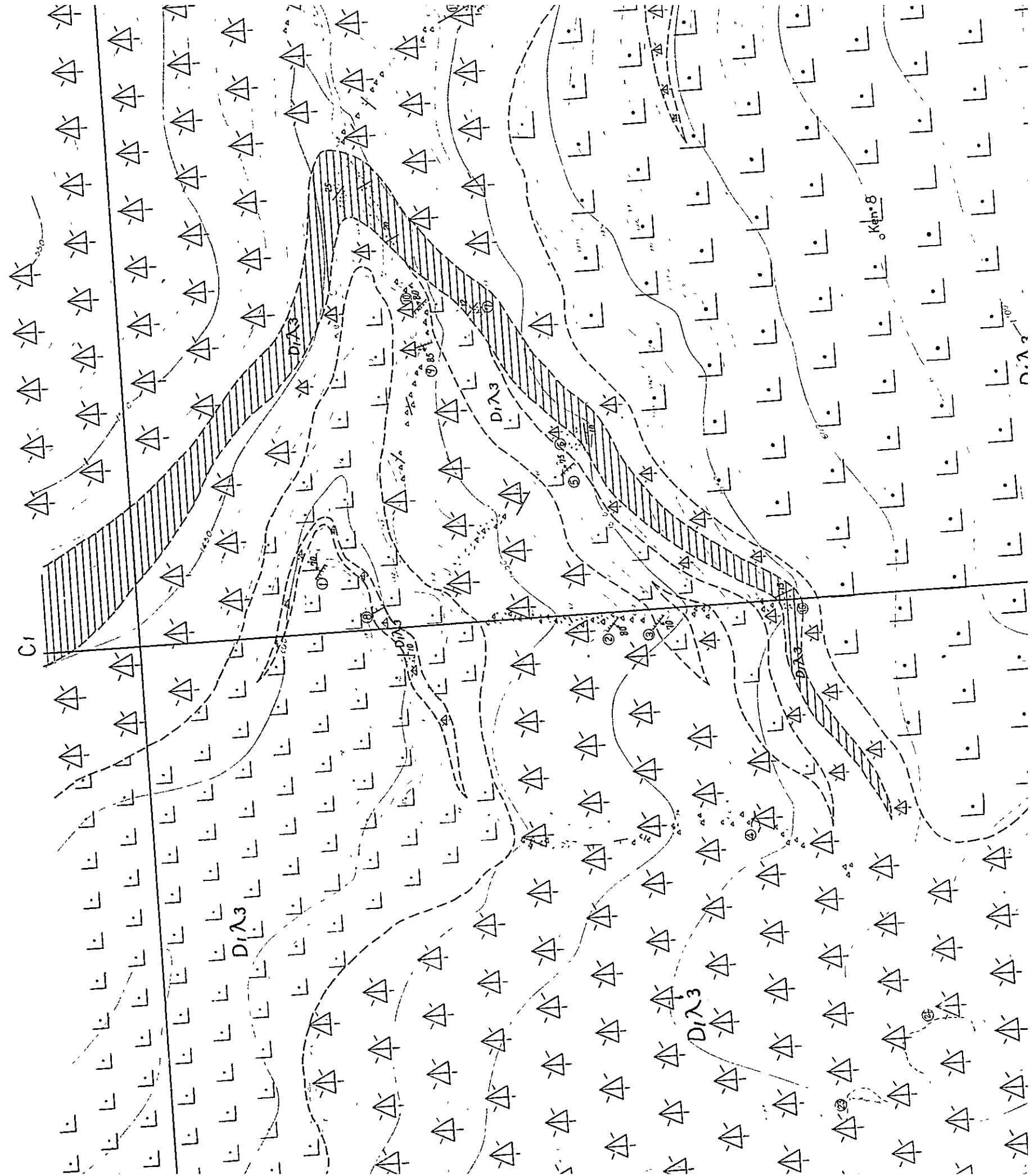
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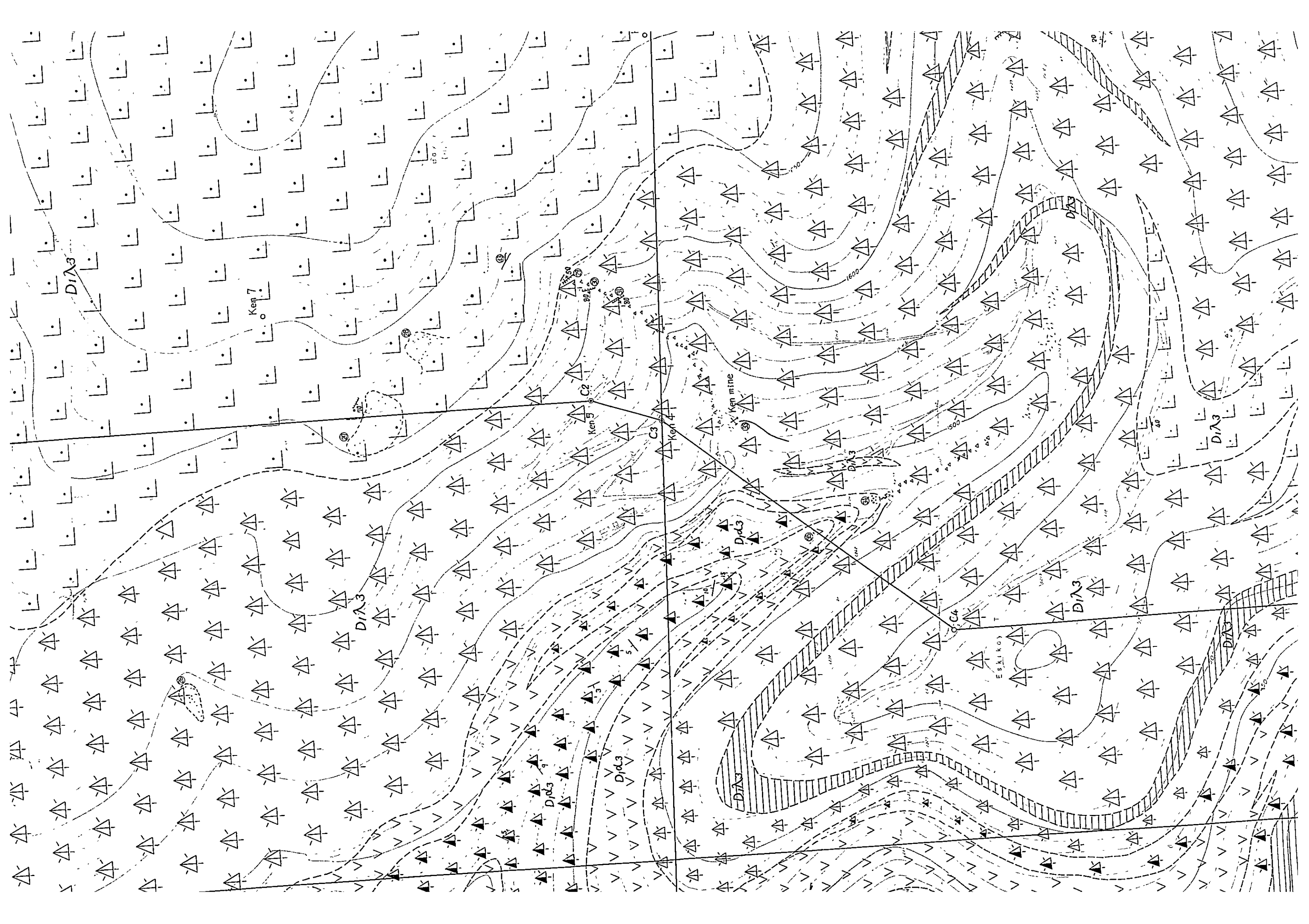


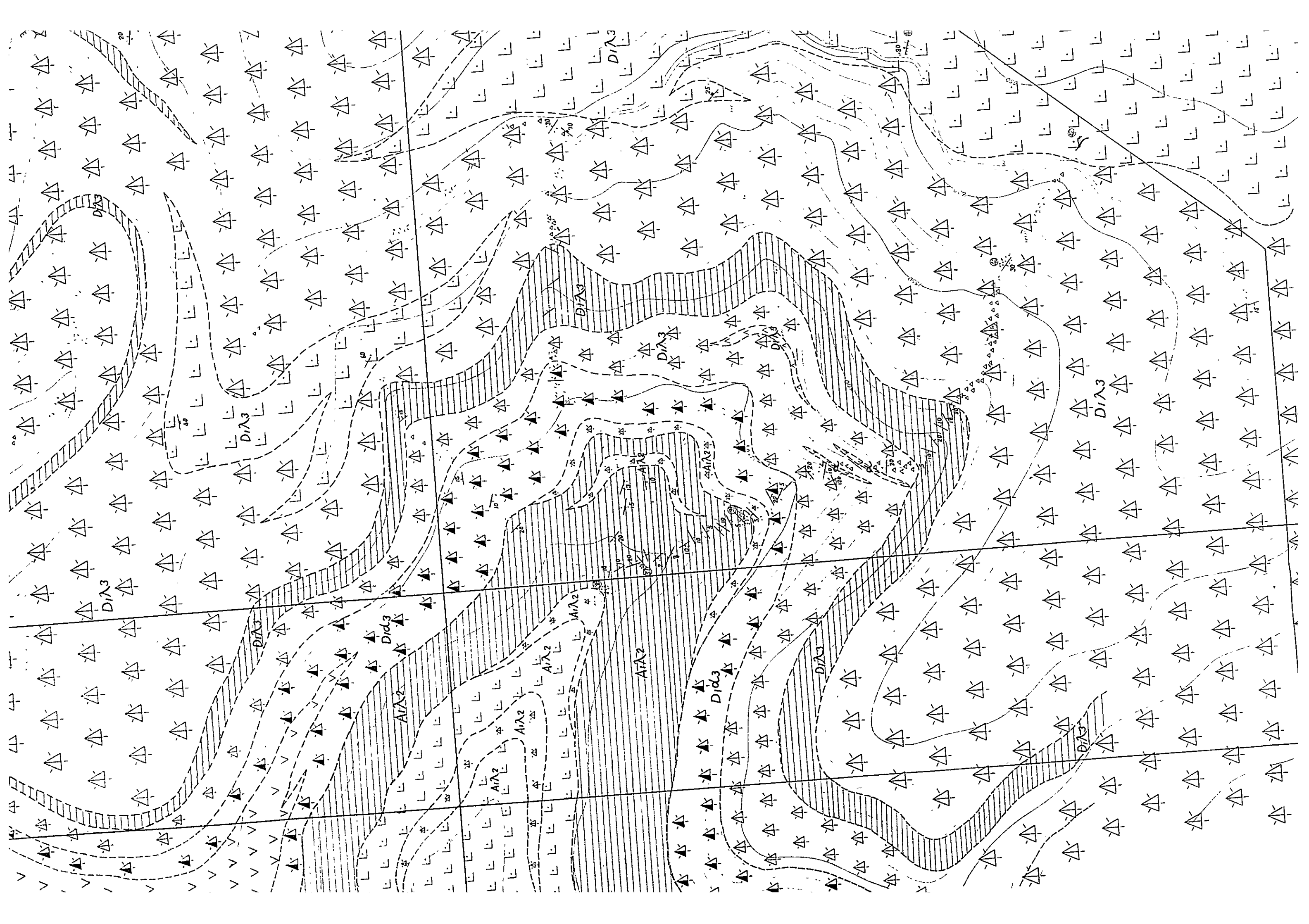
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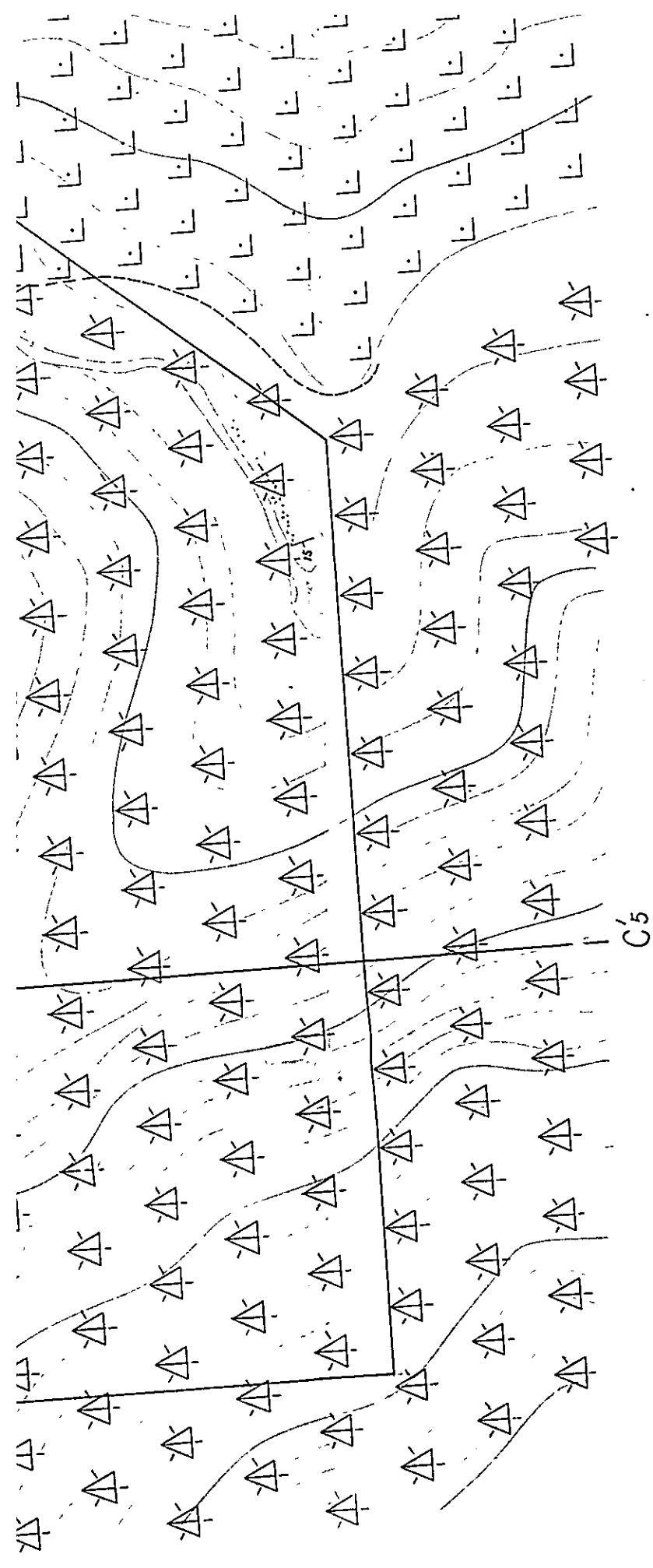
Handwritten text at the bottom of the page, including a series of horizontal lines and a few characters.

Geological age <i>Jeolojik yas</i>	Formation <i>Formasyon</i>	Stratigraphical <i>Stratigrafik</i>		Lithology <i>Litoloji</i>
		Marks <i>Isaretler</i>	Symbol <i>Sembol</i>	
Paleogene <i>Paleosen</i> ~ Neogene <i>Miyosen</i>	A3		A3α	Andesite lava <i>Andezit lavı</i>
	A2		A2α	Andesite pyroclastics <i>Andezitik Piroklastikler</i>
Upper Cretaceous <i>Ust Kretase</i>	D1		D1λ4	Dacite lava <i>Dasit lavı</i>
				Dacite pyroclastics <i>Dasit Piroklastikler</i>
				Fine tuff & calcareous mudstone <i>İnce tüf & kalkerli çamurtaşı</i>
				Andesite lava <i>Andezitik lav</i>
	A1		D1α4	Andesite pyroclastics <i>Andezitik Piroklastikler</i>
				Dacite lava <i>Dasit lavı</i>
				Dacite pyroclastics <i>Dasit Piroklastikler</i>
				Basalt lava <i>Bazalt lavı</i>
				Fine tuff & calcareous mudstone <i>İnce tüf & kalkerli çamurtaşı</i>
				Andesite lava <i>Andezitik lav</i>
A1		D1λ3	Andesite pyroclastics <i>Andezitik Piroklastikler</i>	
			Dacite lava <i>Dasit lavı</i>	
			Dacite pyroclastics <i>Dasit Piroklastikler</i>	
			Basalt lava <i>Bazalt lavı</i>	
A1		D1α3	Fine tuff & calcareous mudstone <i>İnce tüf & kalkerli çamurtaşı</i>	
			Andesite lava <i>Andezitik lav</i>	
			Andesite pyroclastics <i>Andezitik Piroklastikler</i>	
			Fine tuff & calcareous mudstone <i>İnce tüf & kalkerli çamurtaşı</i>	
A1		D1kt	Limestone, marl <i>Kireçtaşı, marl</i>	
			Dacite lava <i>Dasit lavı</i>	
			Dacite pyroclastics <i>Dasit Piroklastikler</i>	
			Fine tuff & calcareous mudstone <i>İnce tüf & kalkerli çamurtaşı</i>	
A1		A1λ2	Limestone, marl <i>Kireçtaşı, marl</i>	
			Andesite lava <i>Andezitik lav</i>	
			Andesite pyroclastics <i>Andezitik Piroklastikler</i>	
			Fine tuff & calcareous mudstone <i>İnce tüf & kalkerli çamurtaşı</i>	
A1		A1α2	Fine tuff & calcareous mudstone <i>İnce tüf & kalkerli çamurtaşı</i>	
			Andesite lava <i>Andezitik lav</i>	
			Andesite pyroclastics <i>Andezitik Piroklastikler</i>	
			Fine tuff & calcareous mudstone <i>İnce tüf & kalkerli çamurtaşı</i>	
Intrusive rocks <i>Intruzifler</i>			A1kt	Limestone, marl <i>Kireçtaşı, marl</i>
			β	Basalt <i>Bazalt</i>
			α	Andesite <i>Andezit</i>
			ε	Dacite <i>Dasit</i>
			σ	Porphyrite <i>Porfirit</i>
			δσ2	Diorite porphyrite <i>Diorit porfirit</i>
			δ2	Quartz diorite <i>Kıvırs diorit</i>
			δ2σ	Quartz diorite porphyrite <i>Kıvırs diorit porfirit</i>
			δ2σ	Quartz porphyry <i>Kıvırs porfirit</i>
			δ2σ	Quartz porphyry <i>Kıvırs porfirit</i>
				Bedding <i>Tabaka</i>
				Fault <i>Fay</i>
				Joint <i>Kirik</i>
				Flow structure <i>Akımlı yapı</i>
				Anticlinal/synclinal, axis <i>Antiklinal/senklinel eksen</i>
				Working mine/abandoned mine <i>Çalışan maden/kapalı maden</i>
				Mineralization vein type/dissemination type <i>Mineralizasyon damar tipi/disseminasyon tipi</i>
				Massive, bedded ore/veinlets <i>Massif, tabakalı cevher/damarcıklar</i>

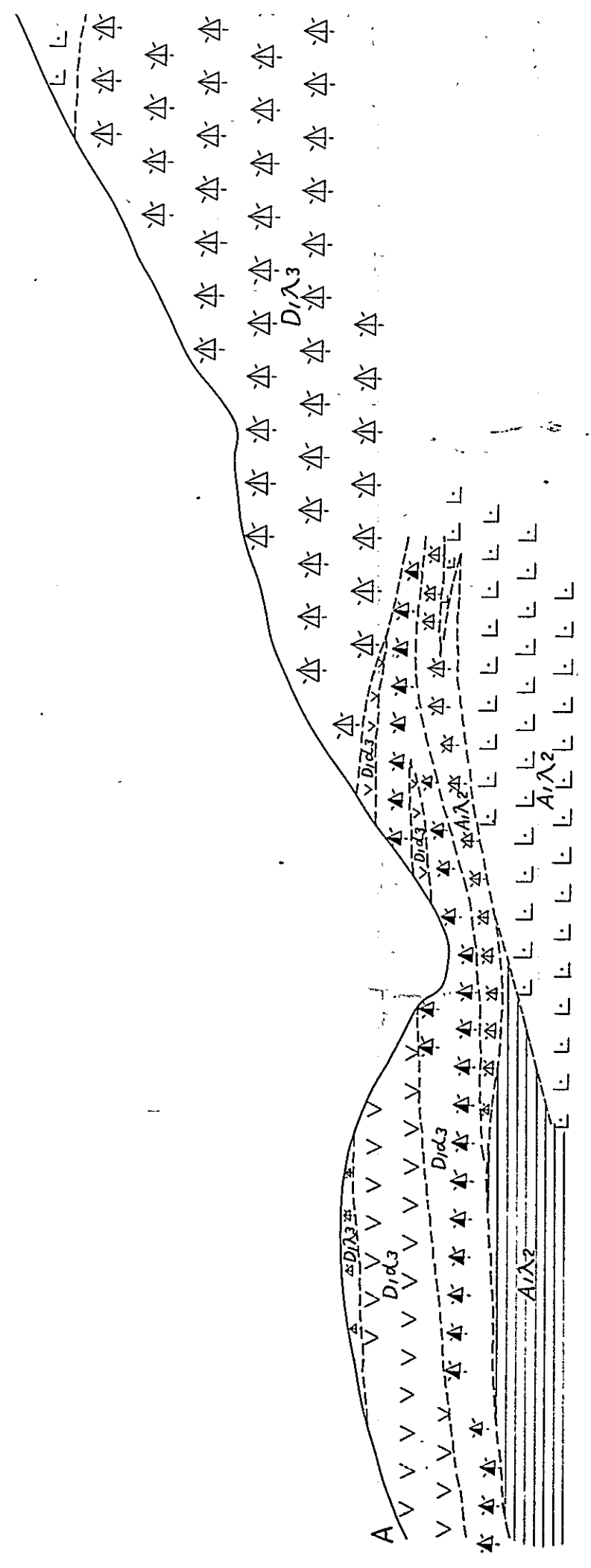




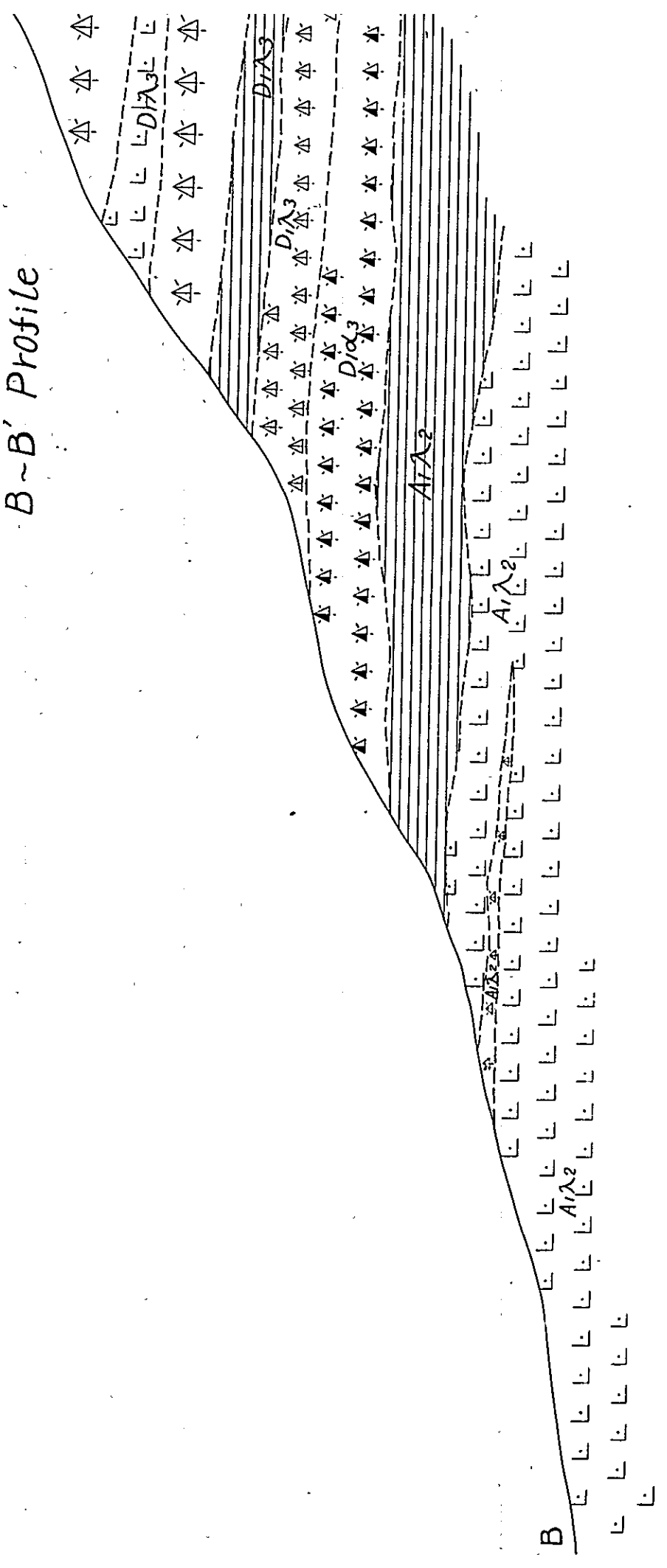




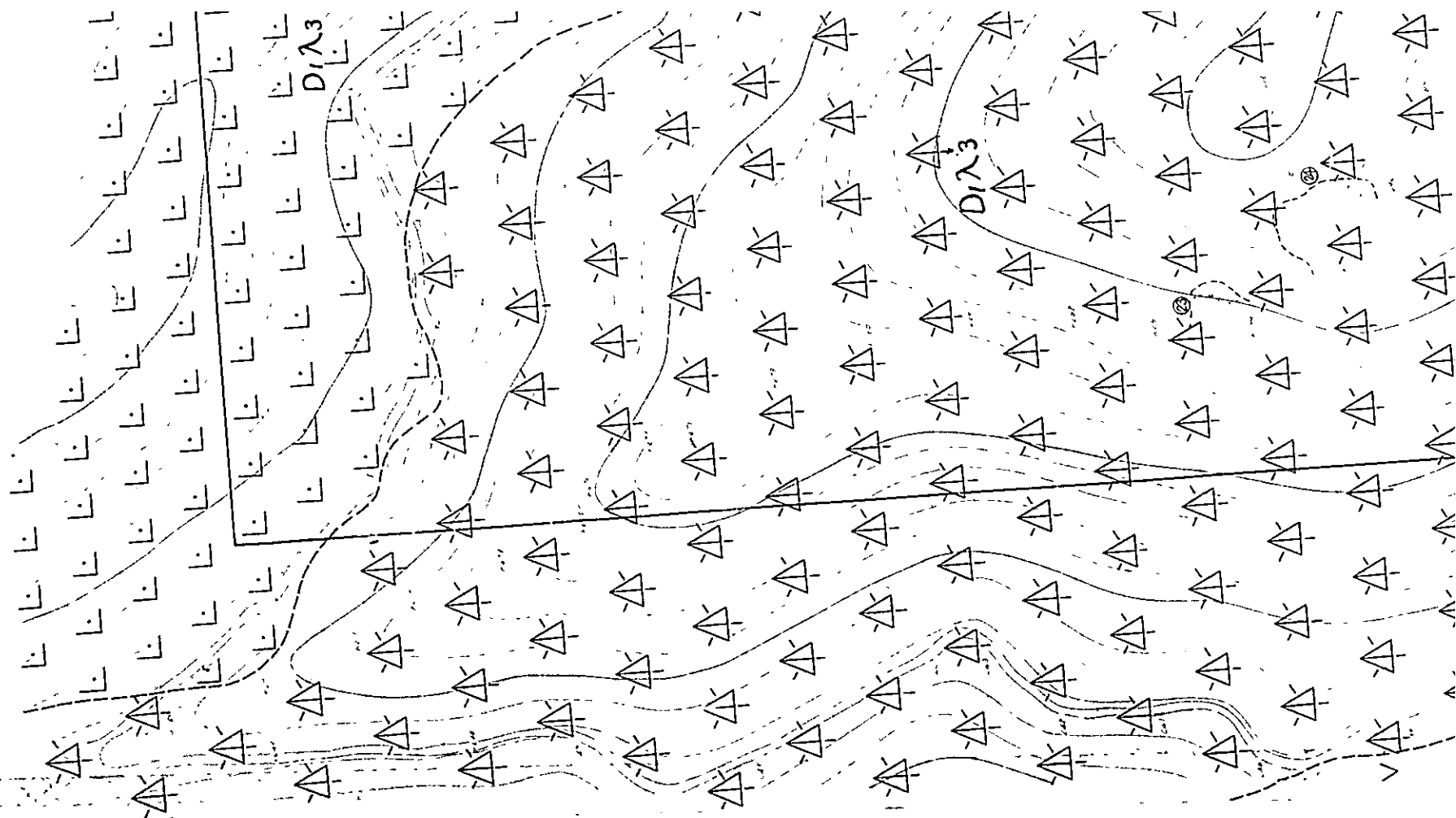
A~A' Profile



B~B' Profile



	$\delta_{2\sigma}$	Quartz diorite porphyrite Kuvars diorit porfirli
	$\delta_{2\sigma}$	Quartz porphyry Kuvars porfirli
		Bedding Tabaka
		Fault Fay
		Joint Kirik
		Flow structure Akintılı yapı
		Anticlinal/synclinal axis Antiklinal/senklinel eksen
		Working mine/abandoned mine Çalışan maden/kapalı maden
		Mineralization vein type/dissemination type Mineralizasyon damar tip/disseminasyon tip
		Massive, bedded ore/veinlets Masif, tabakalı cevher/damarcıklar
		Skarnized zone Skarn zonu
		Drilling site Sondaj yer
		Geological profile line Jeolojik kesit çizgisi

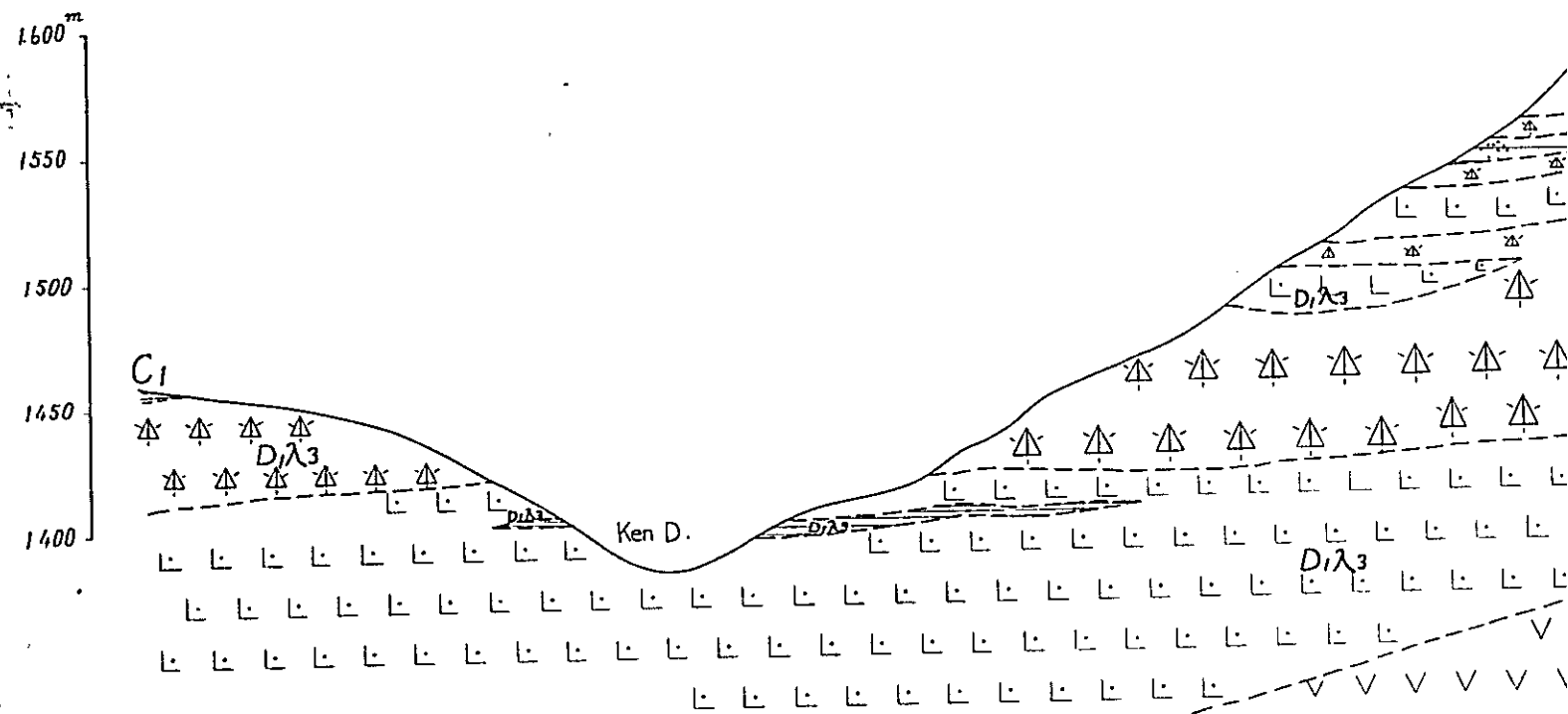


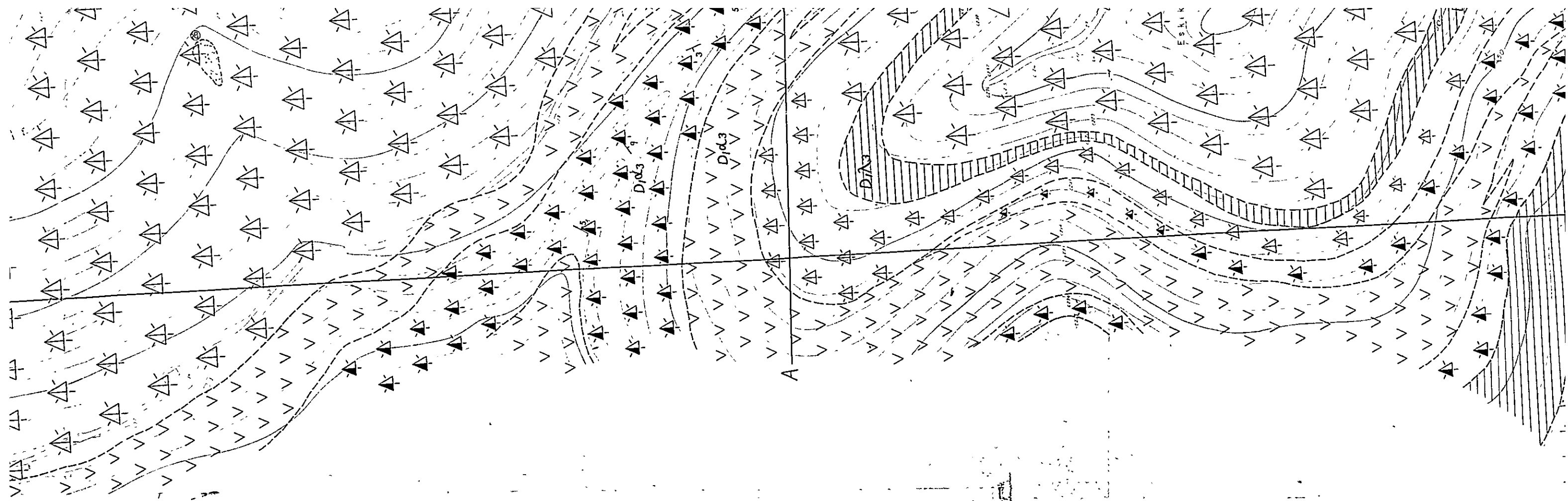
Future recommendation

	Method	No	Amount of works
0	Drilling exploration	Ken - 7	3 0 0 m
		Ken - 8	3 0 0 m
		Ken - 9	3 0 0 m

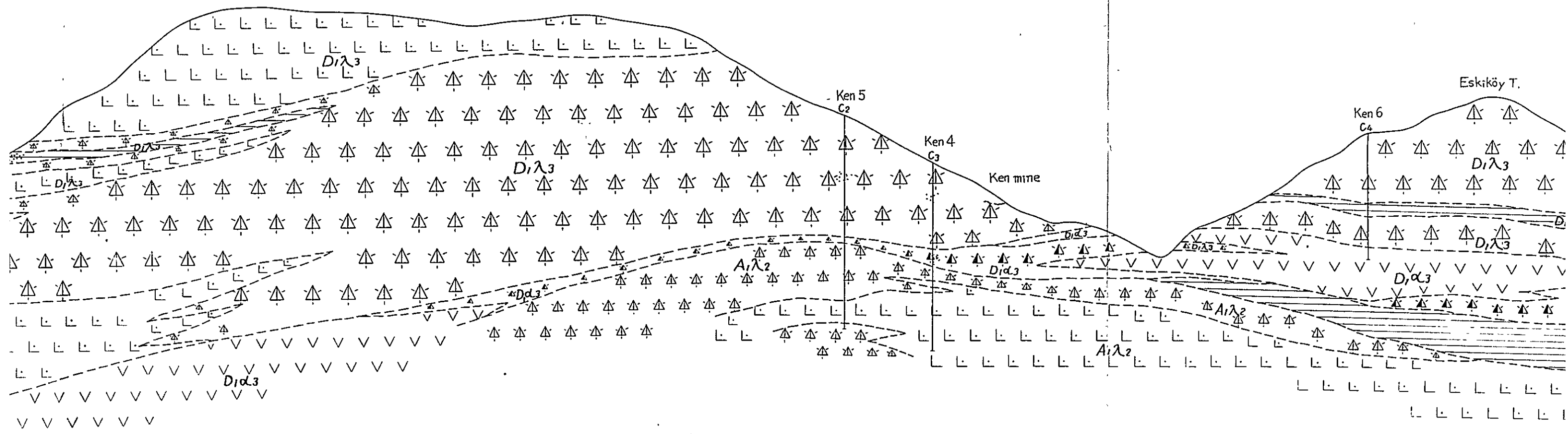
Sample No	Index No.	Kind of ore mineral	Mode of occurrence	Width or thickness (cm)	Strike & dip	Sampling width (cm)	Sampling method	Cu (%)	Pb (%)	Zn (%)
C-42	38	Cpy-Ga-Sph	dtss	50	N70W 10NE	50	G	0.14	0.55	0.38
C-96	19	Ga-Sph	dtss	150		150	R	0.16	1.21	2.30
C-97	16	Ga-Sph(-Cpy)	dtss	300	N20W 15NE	200	R	0.08	2.33	2.75
C-98	3	Cpy-Sph	vein	max 20 av 15	N45W 70SW	20	G	0.89	1.73	2.00
C-99	2	Cpy-Sph	vein	max 14 av 6-7	N40W 80SW	10	G	0.96	19.05	26.50
C-100	15	Sph	dtss	10-20		10	G	0.06	0.13	0.25
C-101	13	Ga-Sph	dtss	200		150	R	0.01	0.53	1.28
C-102	14	Ga-Sph(-Cpy)	vein	max 10	N45W 85SW	10	G	2.44	4.57	39.00
C-103	12	Ga-Sph(-Cpy)	vein	max 20 av 5	N40W 80NE	20	G	0.20	3.48	0.11
C-104	11	Ga	dtss	10		10	G	0.01	0.15	0.05
C-122	21	Ga-Sph	dtss	200		200	R	0.24	0.98	1.43
C-124	20	Ga-Sph	dtss	50		20	G	0.03	0.60	1.15
C-127	8	Ga-Sph	dtss				G	0.01	0.24	0.26
C-132	11	Ga-Sph	vein	25	N30W 80SW	25	G	0.74	0.56	0.46
Y-21	39	Py-Sph-Ga	network	30				0.15	0.07	0.4
Y-17	5	Cpy-Py	vein	5	N40W 75E			2.10	0.04	0.15
Y-18	6	Sph-Ga-Py	dtss	30				0.3	0.03	0.1
Y-19	7	Sph-Ga	dtss	100 ± n				0.02	0.4	1.0

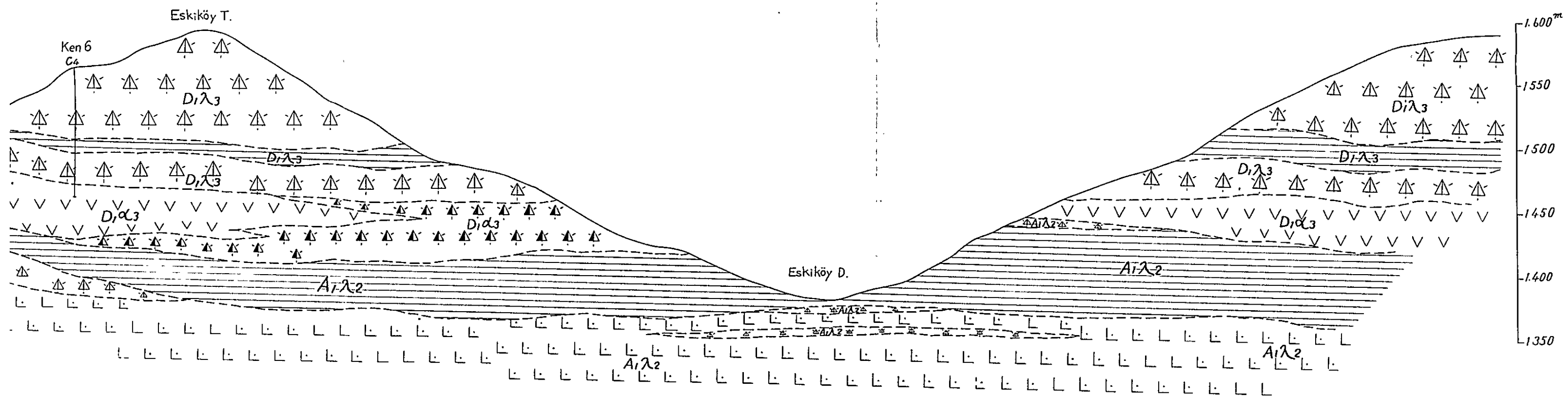
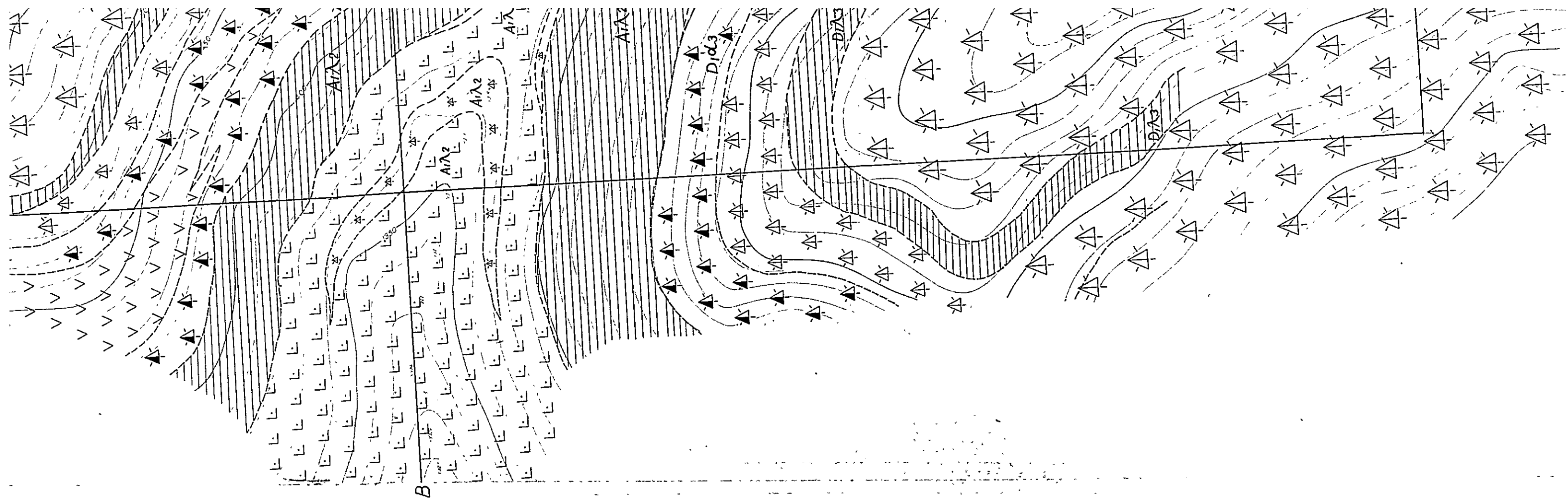
R - random sampling L - the cutting sampling G - gravel sampling of high grade ore

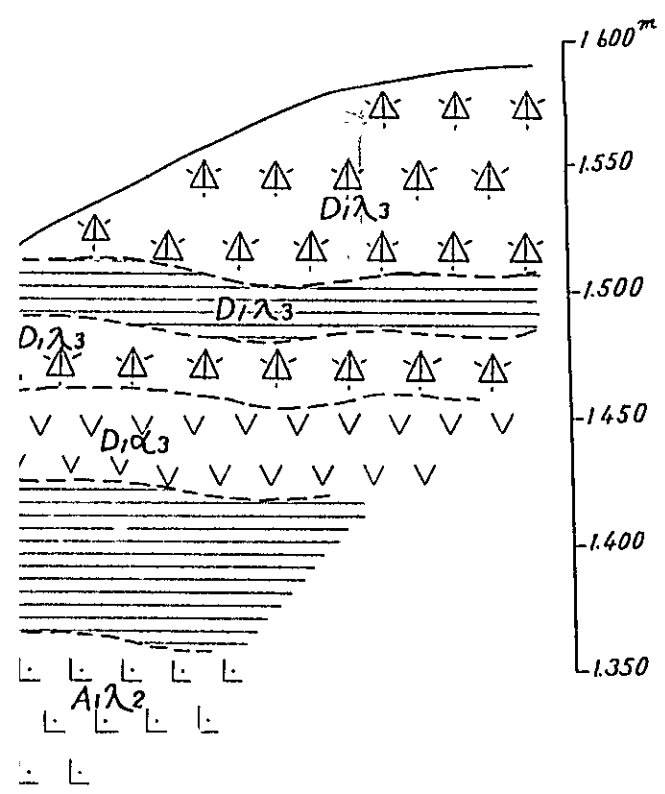
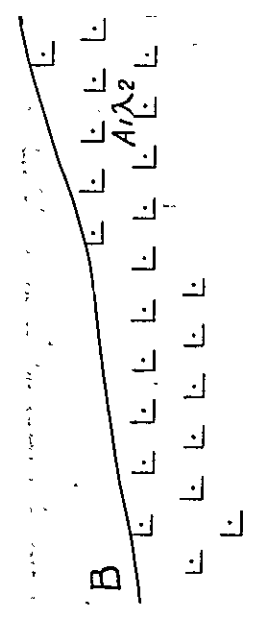
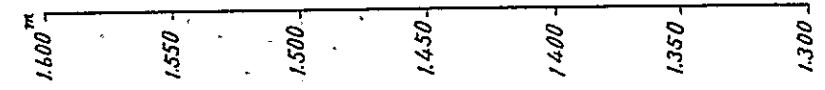
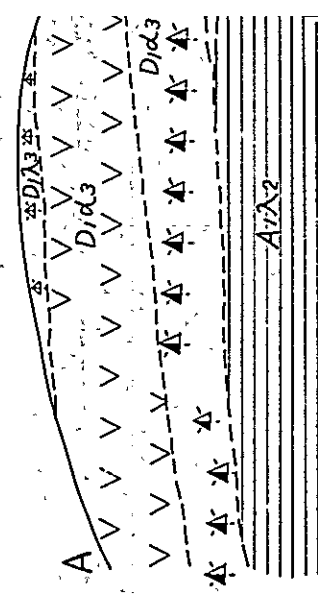
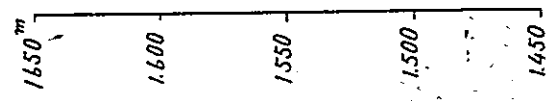
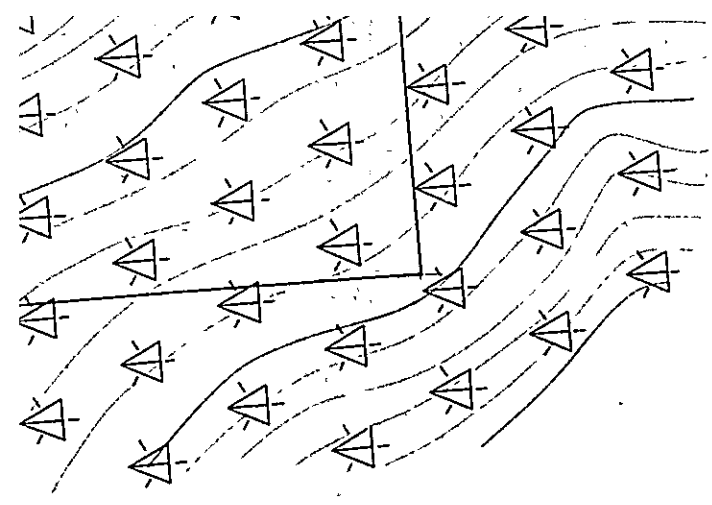


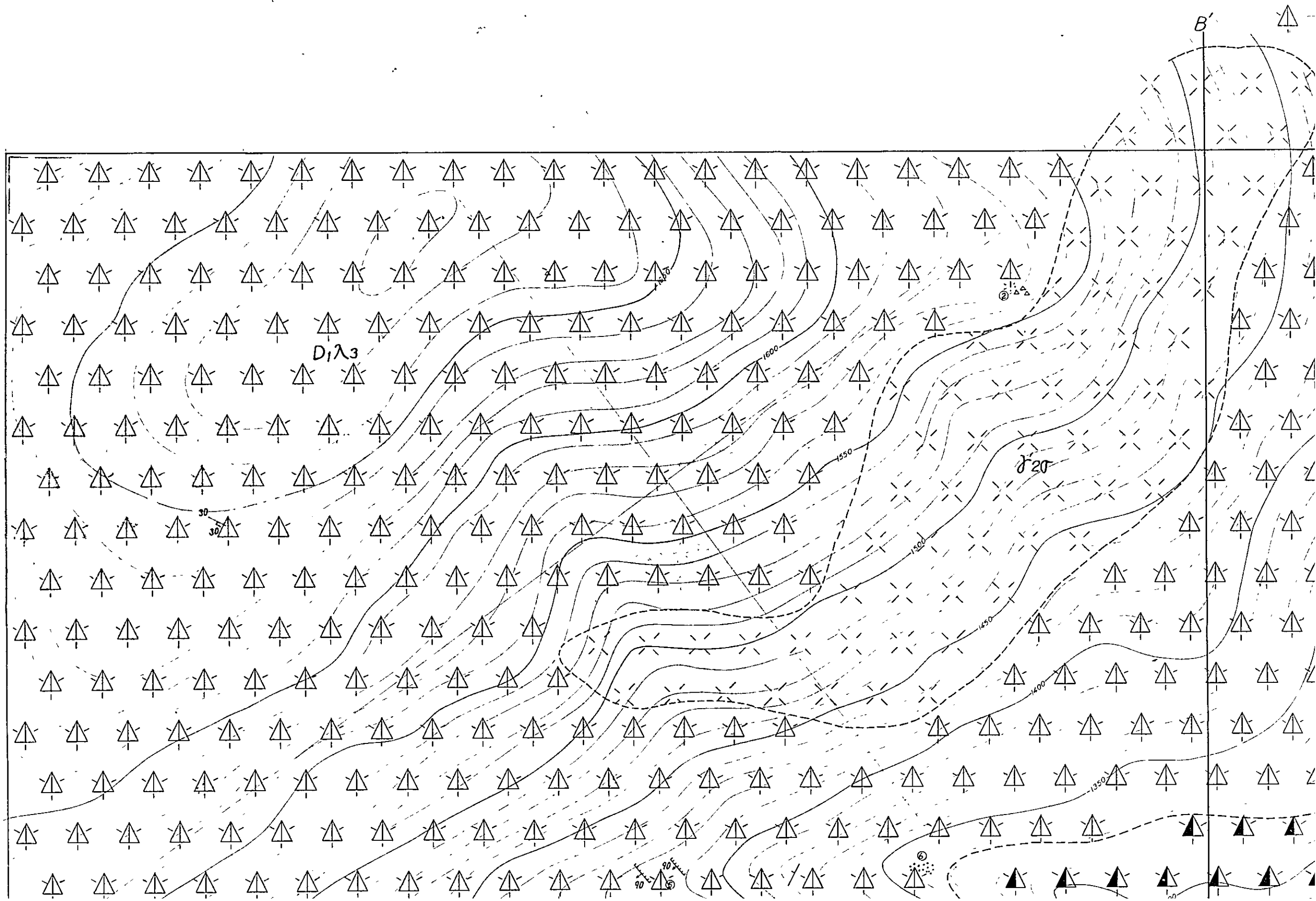


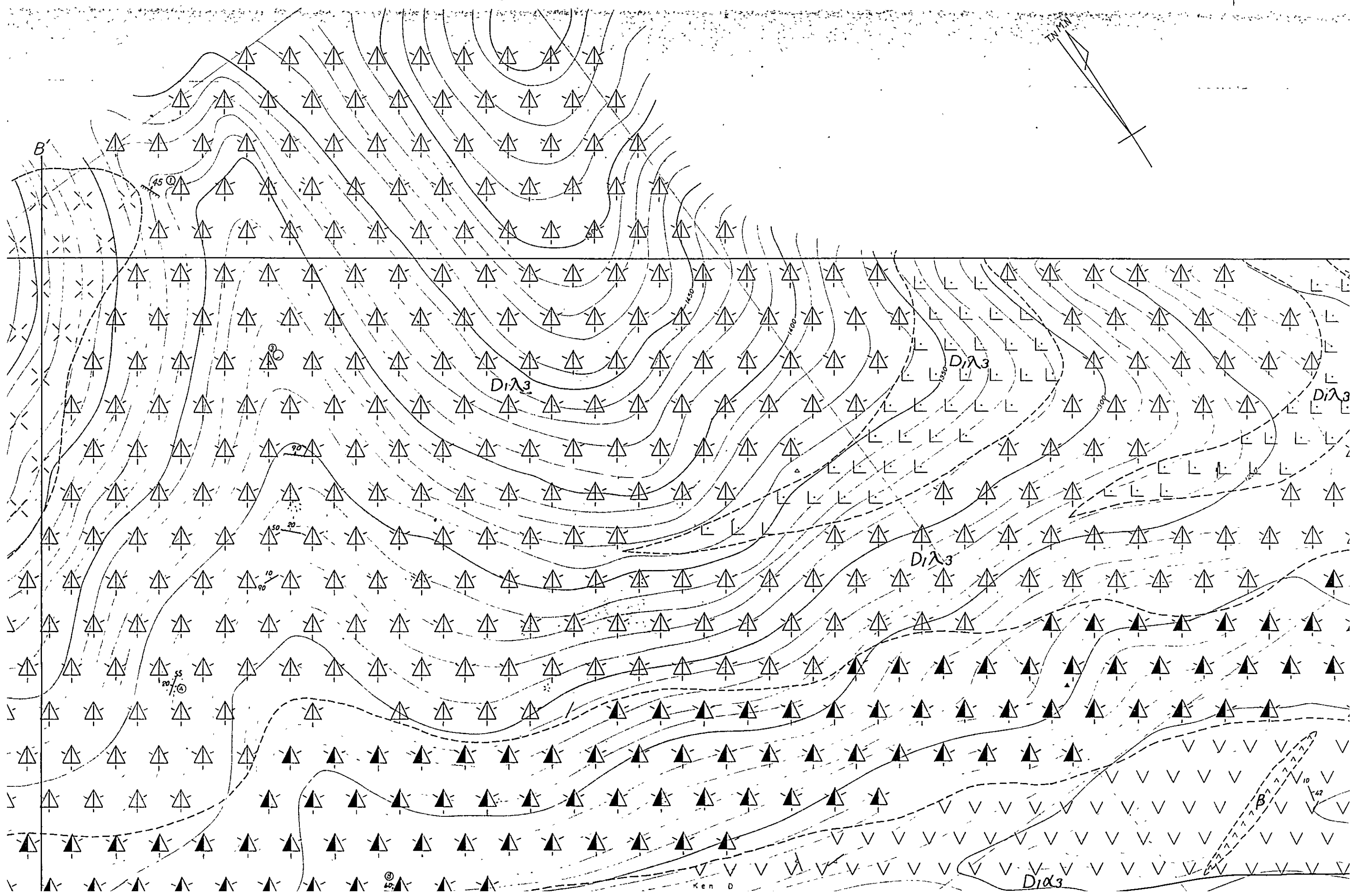
$C_1 \sim C_5$ Profile









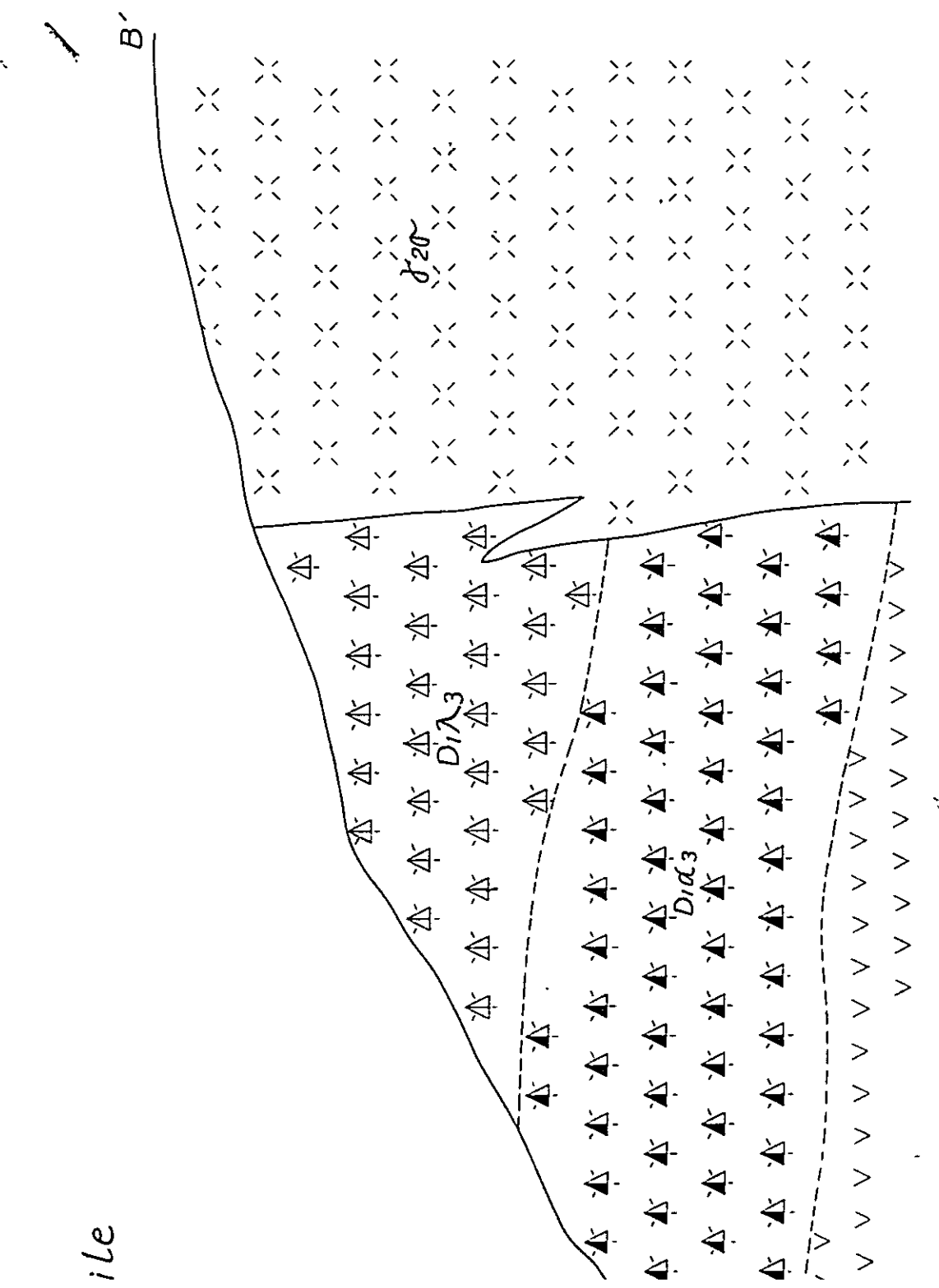
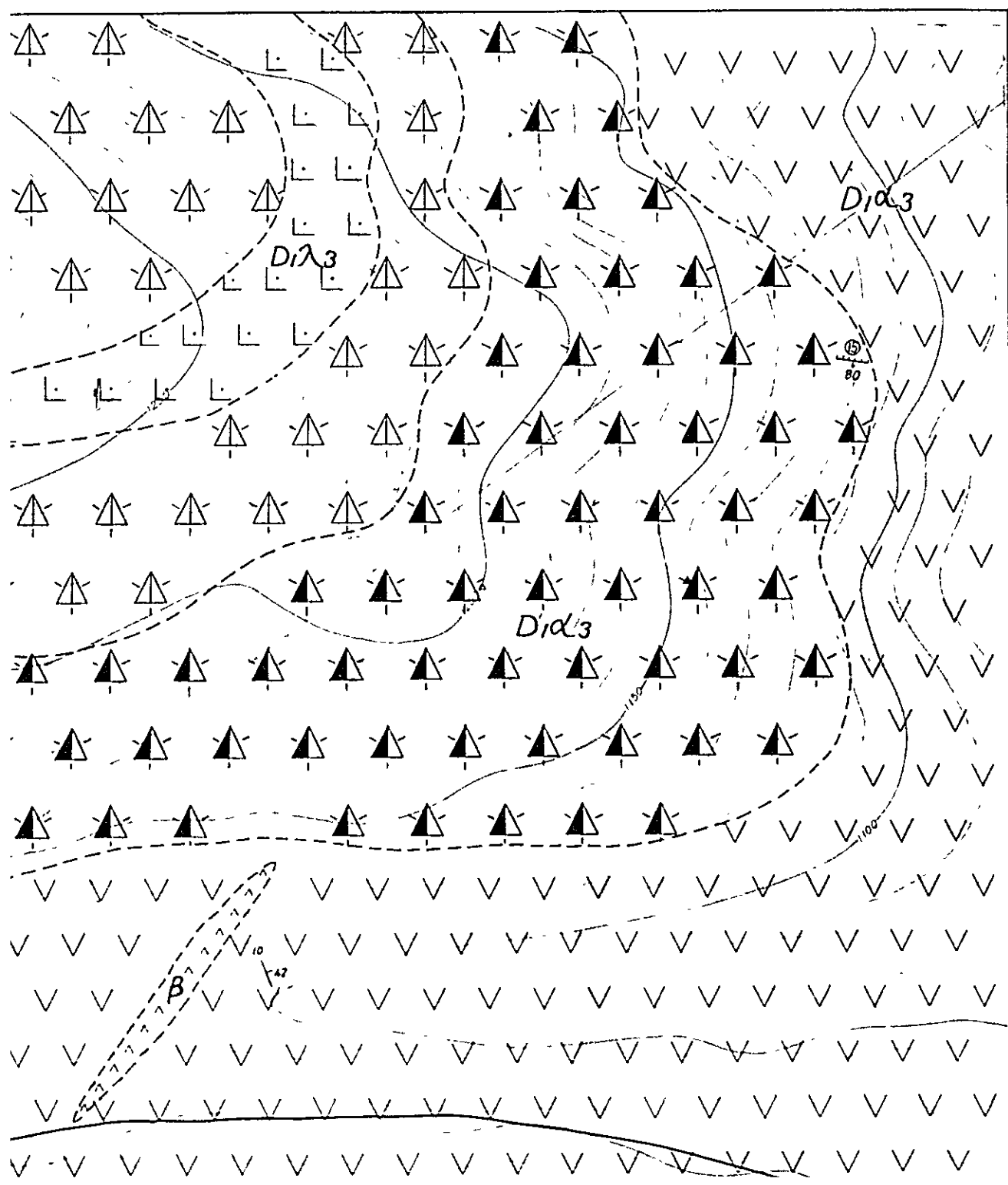
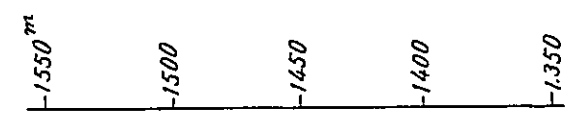


MINERAL
TRABZON
GEOLOGICAL
AND COLUM

KEN
JEOLoji



General geol.
MI
JAPAN
Prepared by



ile

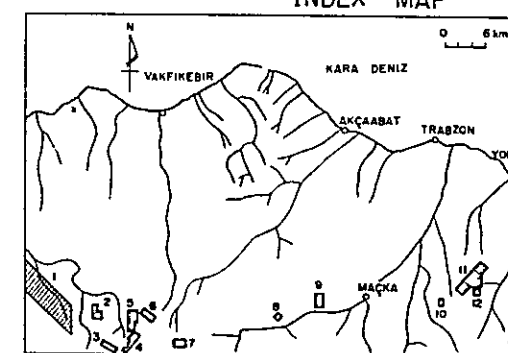
LEGEND
LEJAND

Geological age Jeolojik yas	Formation Formasyon	Stratigraphic Stratig.
		Marks Isarefler
Paleogene Paleosen Neogene Miyosen	A3	
	A2	

MINERAL RESEARCH AND EXPLORATION INSTITUTE
 GEOLOGICAL SURVEY
 OF
 TRABZON AREA, NORTHEASTERN TURKEY

PHASE III
 GEOLOGICAL MAP WITH GEOLOGICAL PROFILE
 AND COLUMNAR SECTION OF KEN DERE,

FOL DERE AREA
 KEN DERE FOL DERE SAHASININ
 JEOLoji HARITASI, JEOLoji KESITLERI
 VE SÜTUN KESITI
 INDEX MAP

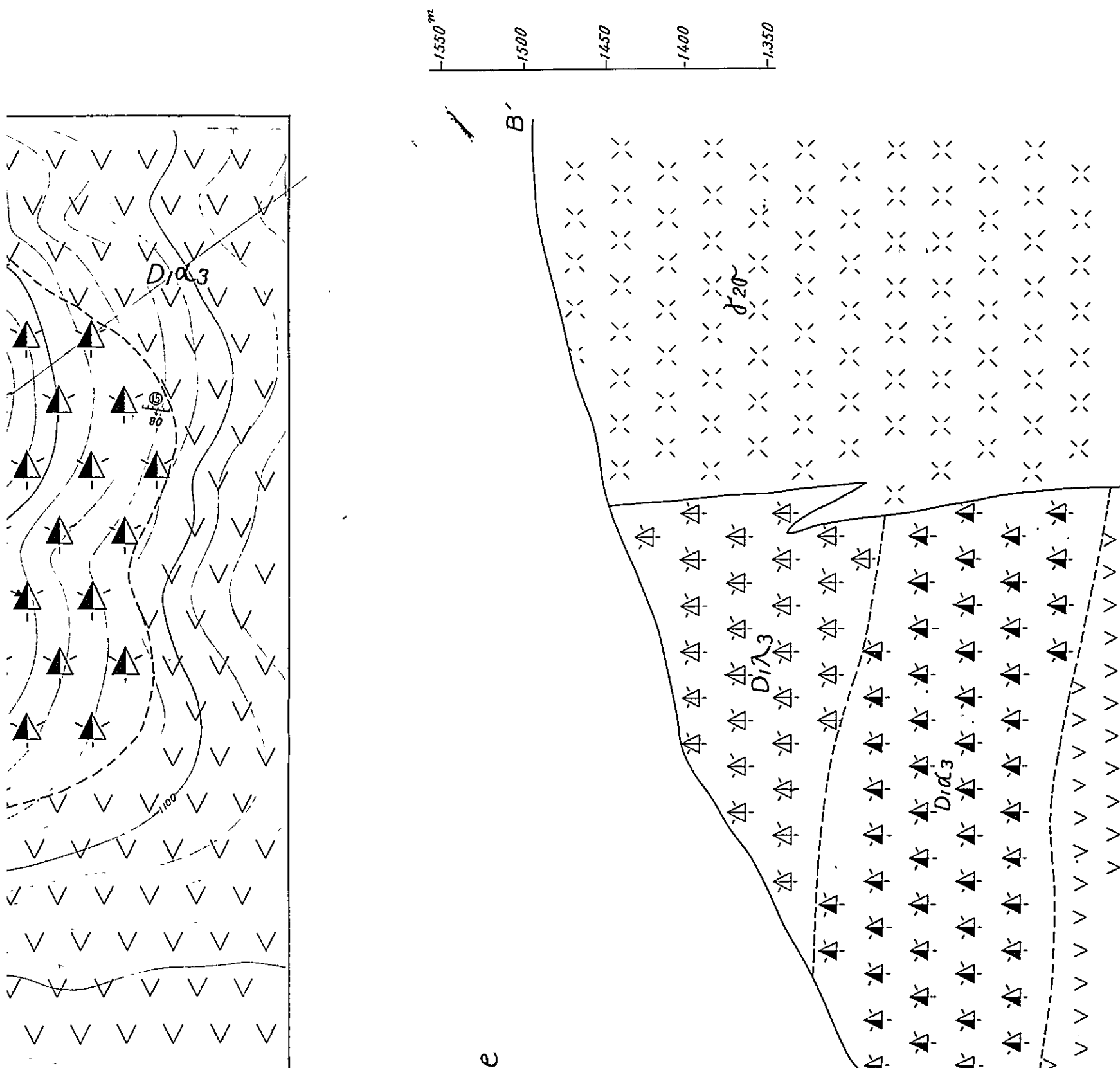


- 1 Kahraman Dere
- 2 Alaçadağ
- 3 Çeşel Dere
- 4 Güllüalan
- 5 Ken mine
- 6 Ken Dere, Fol Dere
- 7 Akise Yayla
- 8 Yeni Mahalle
- 9 Safana
- 10 Kanlı Tepe
- 11 Kızıldağ-Çağhanlıan
- 12 Tuzlak Mevraası
- 13 Ocak
- 14 Uzunlu

Scale 1 : 2,000
 Ölçek 100 200m

METAL MINING AGENCY OF JAPAN
 JAPAN INTERNATIONAL COOPERATION AGENCY
 FEBRUARY 1977

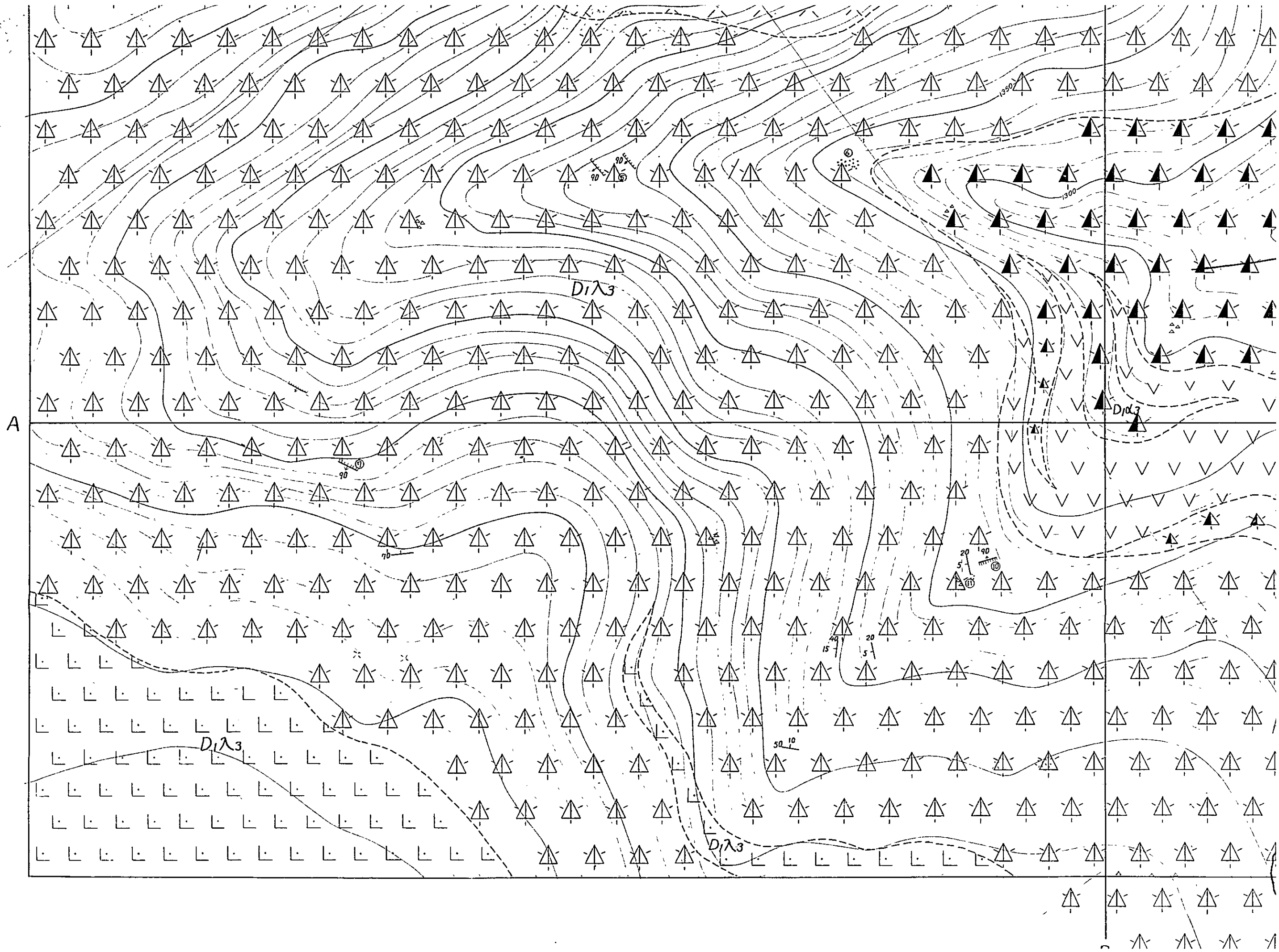
Prepared by Nikko Exploration & Development Co., Ltd

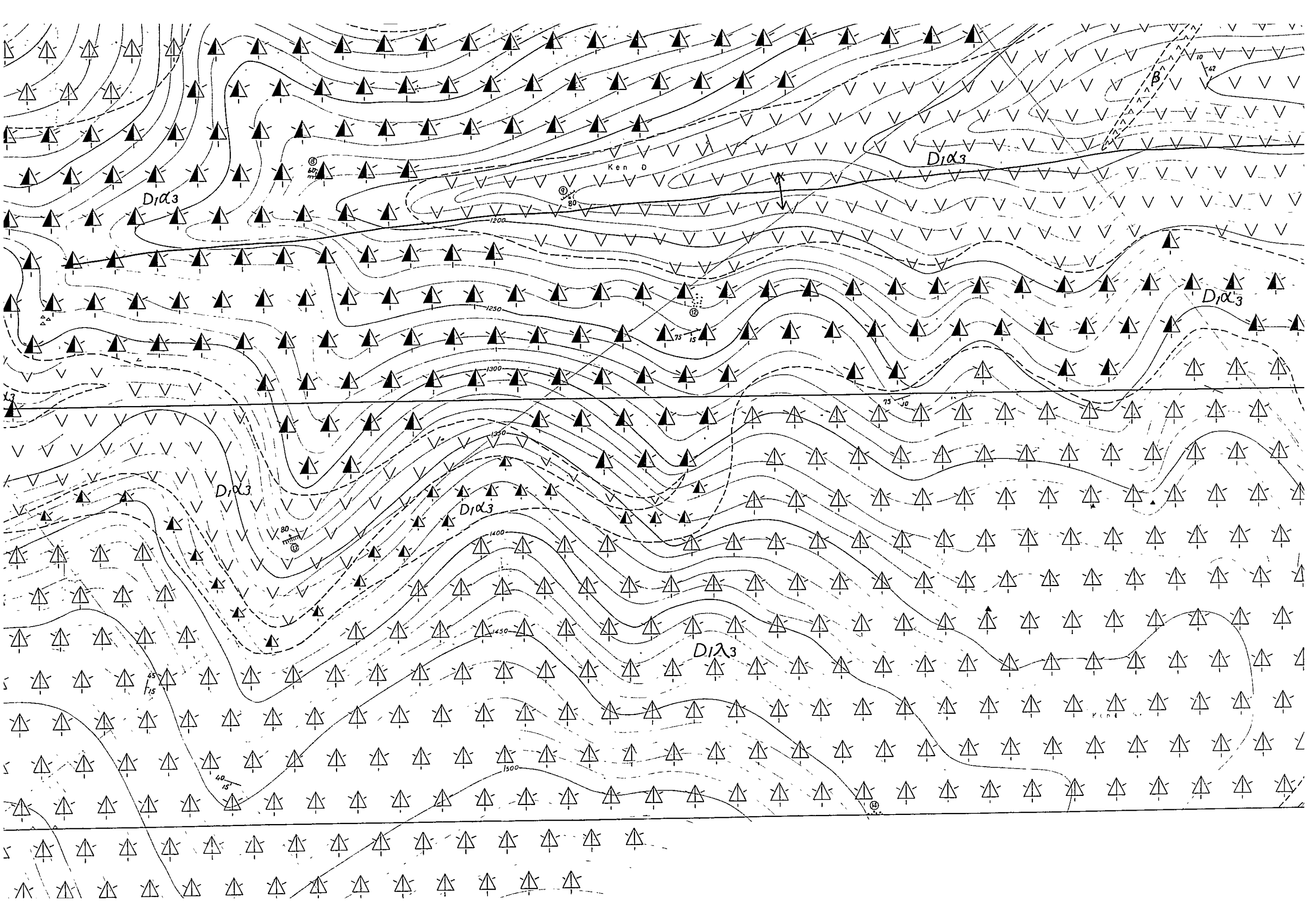


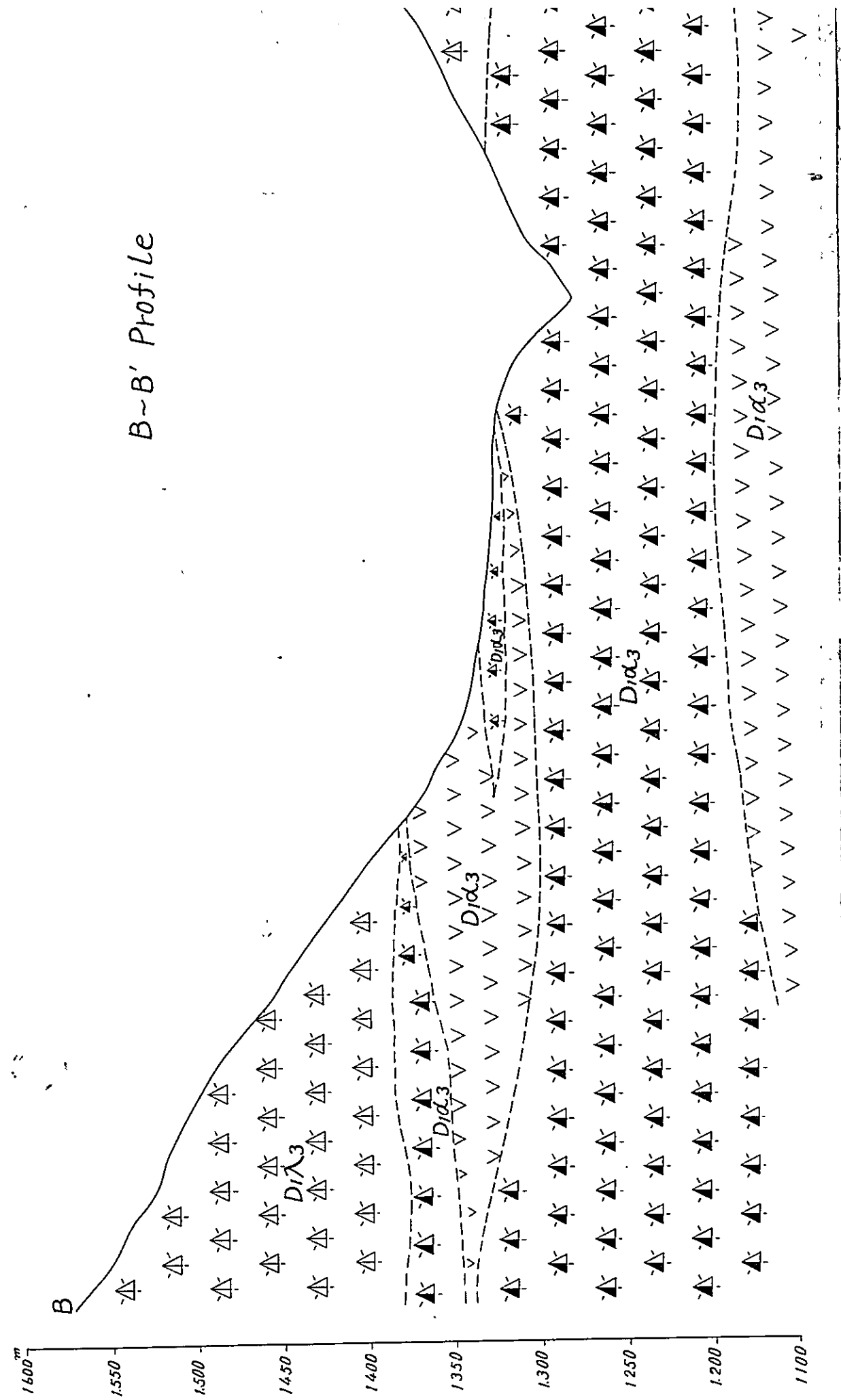
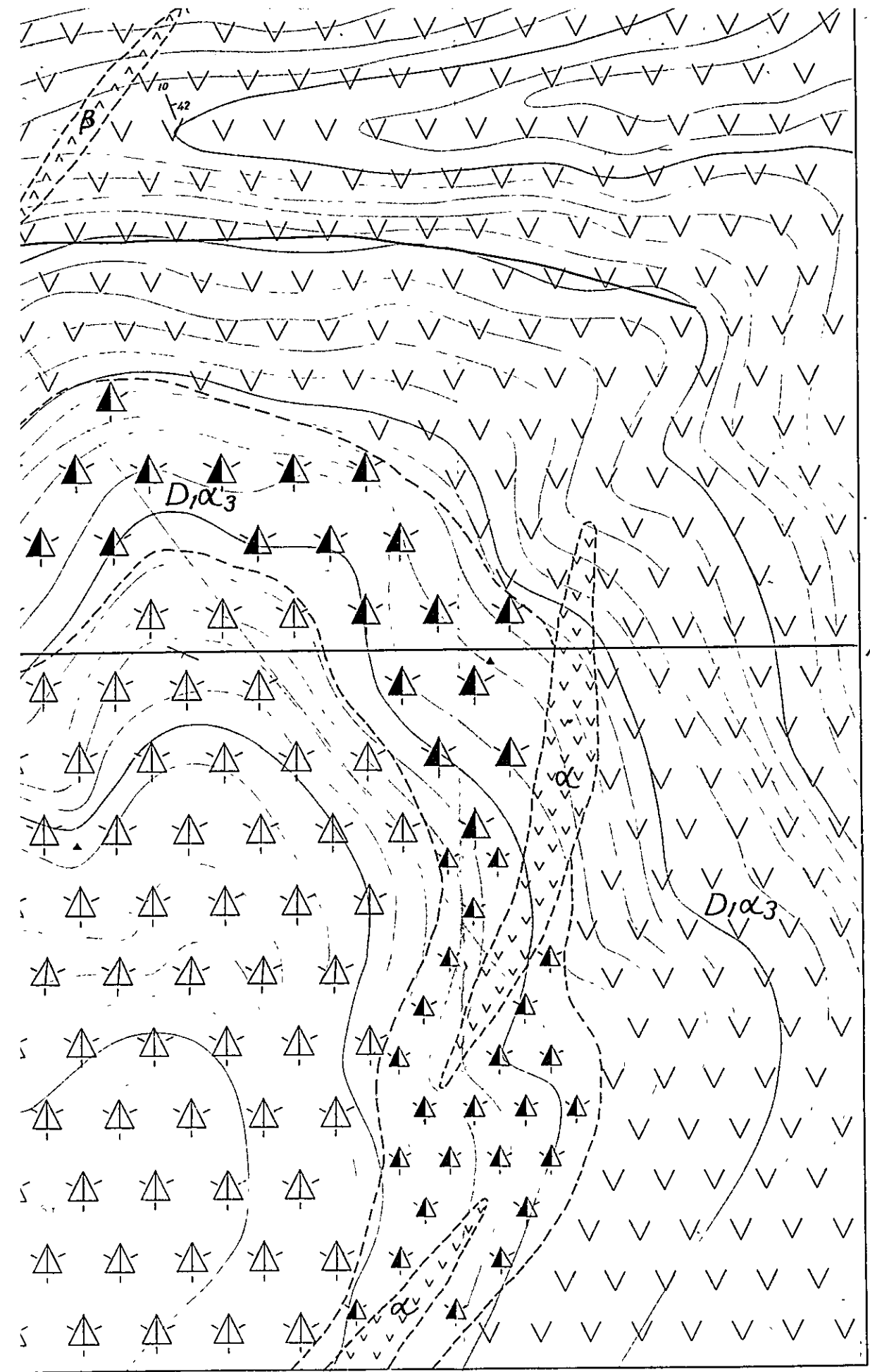
LEGEND
 LEJAND

Geological age Jeolojik yaş	Formation Formasyon	Stratigraphical Stratigrafik		Lithology Litoloji
		Marks İsarettler	Symbol Sembol	
Paleogene Paleosen Neogene Miyosen	A3		A3α	Andesite lava Andezit lavı
	A2		A2α	Andesite pyroclastics Andezitik Proklastikler
			D1λ4	Dacite lava Dasit lavı
				Dacite pyroclastics Dasit Proklastikler
				Fine tuff & calcareous mudstone İnce tıf & kalkerli çamurtaşı
			D1α4	Andesite lava Andezitik lav
				Andesite pyroclastics Andezitik Proklastikler
				Dacite lava

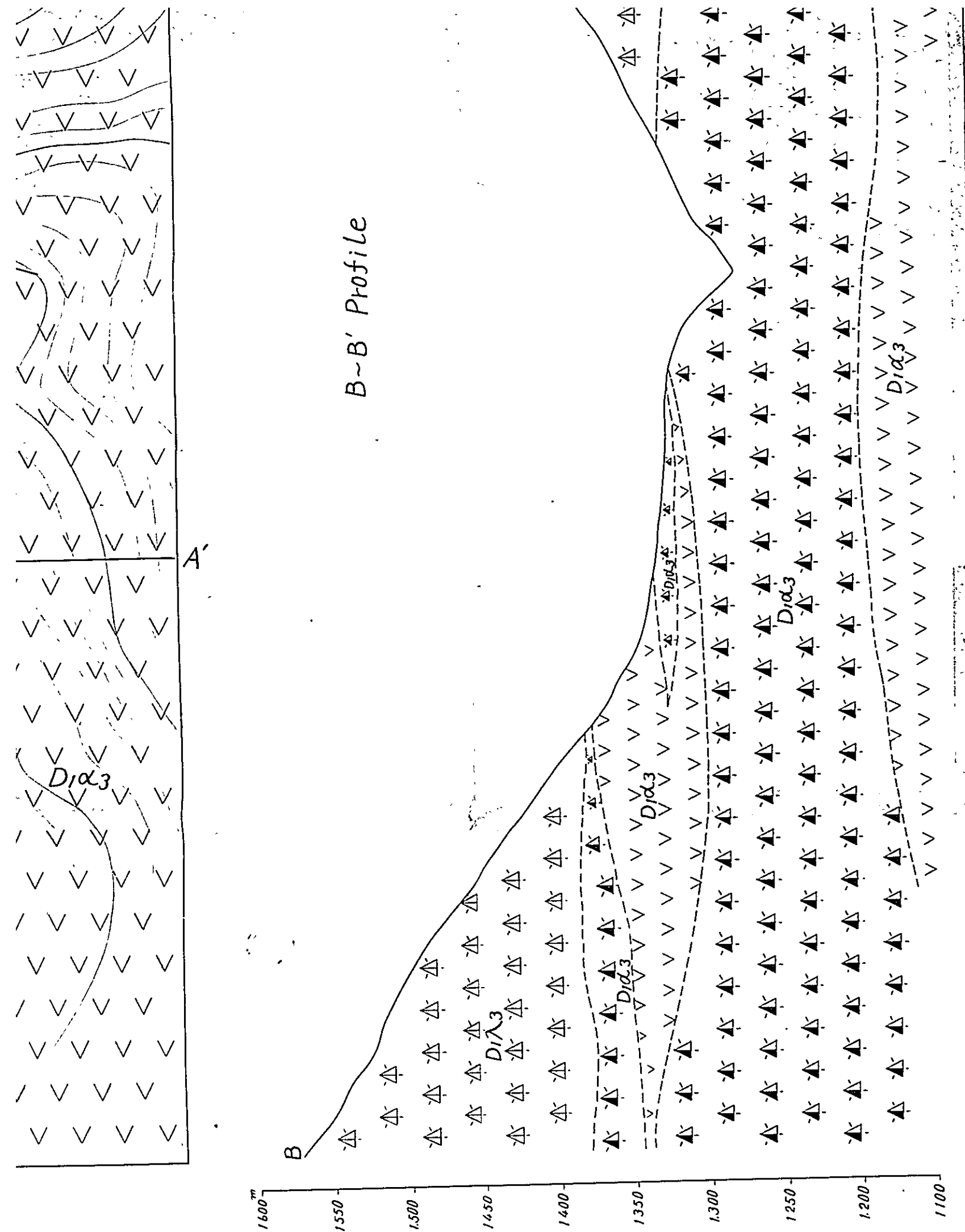
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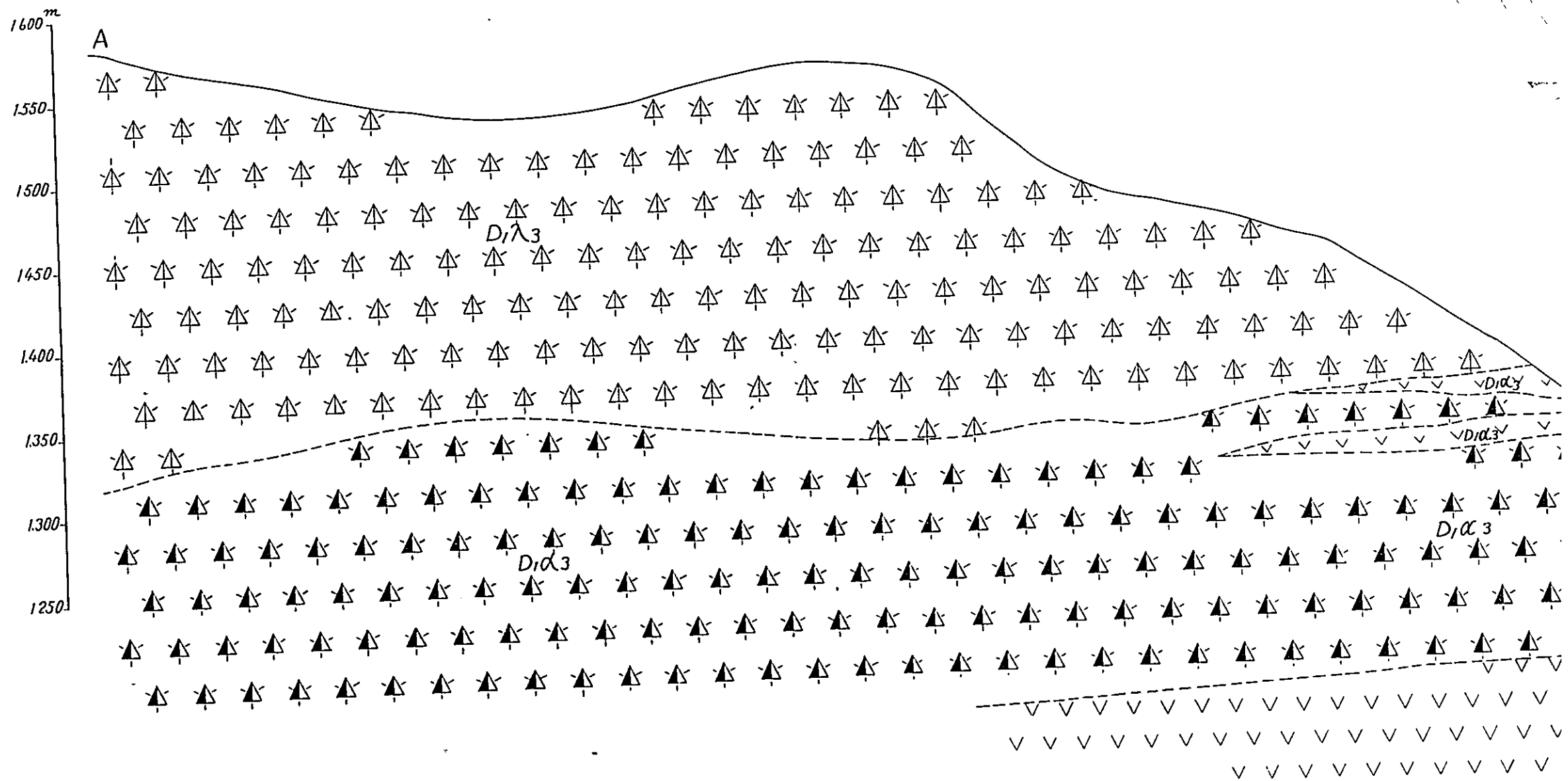
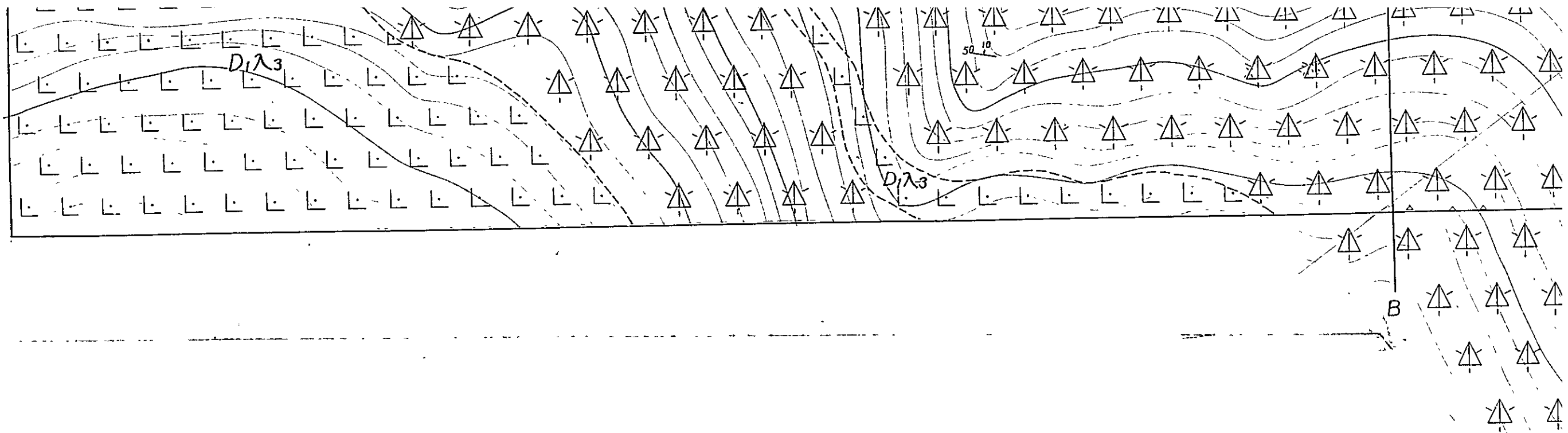


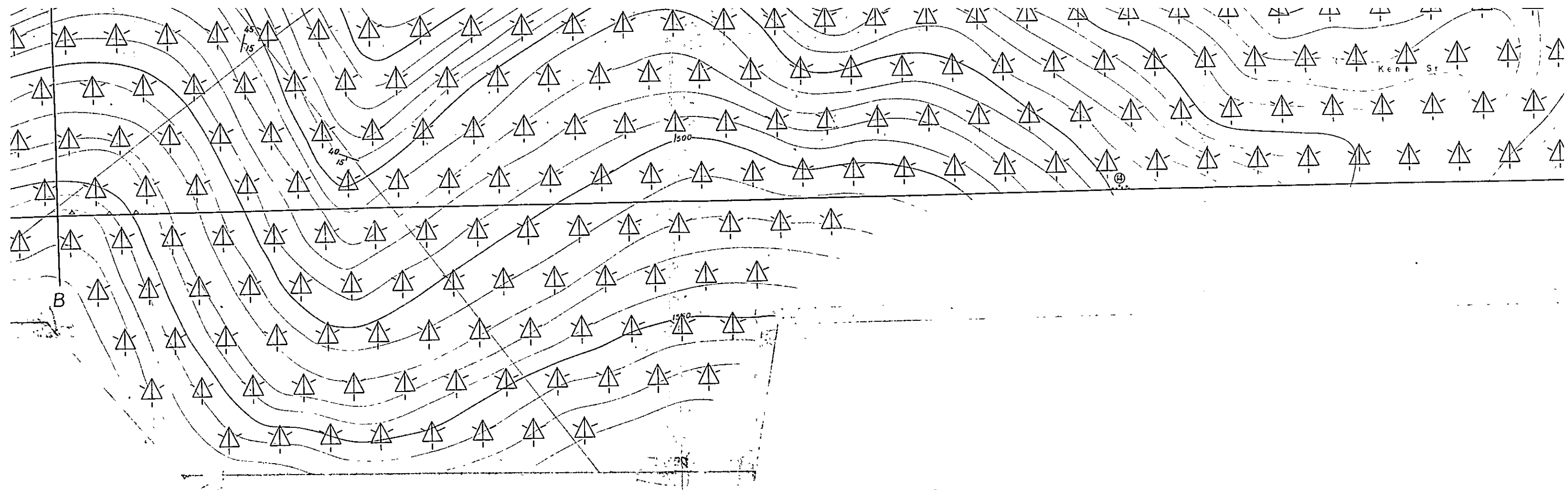


Miyuzen			
Upper Cretaceous Ust Kretase	A ₂		A ₂ α
	D ₁		D ₁ λ ₄
			D ₁ α ₄
			D ₁ λ ₃
			D ₁ α ₃
			D ₁ kt
			A ₁ λ ₂
	A ₁		A ₁ α ₂
			A ₁ kt
			β
Intrusive rocks Intruzifier		α	
		ε	
		σ	
		δσ ₂	
		σ ₂	
		δ ₂ σ	
		δ ₂ σ	
		30	
	70		
	40		
	20		
	X		
	A		

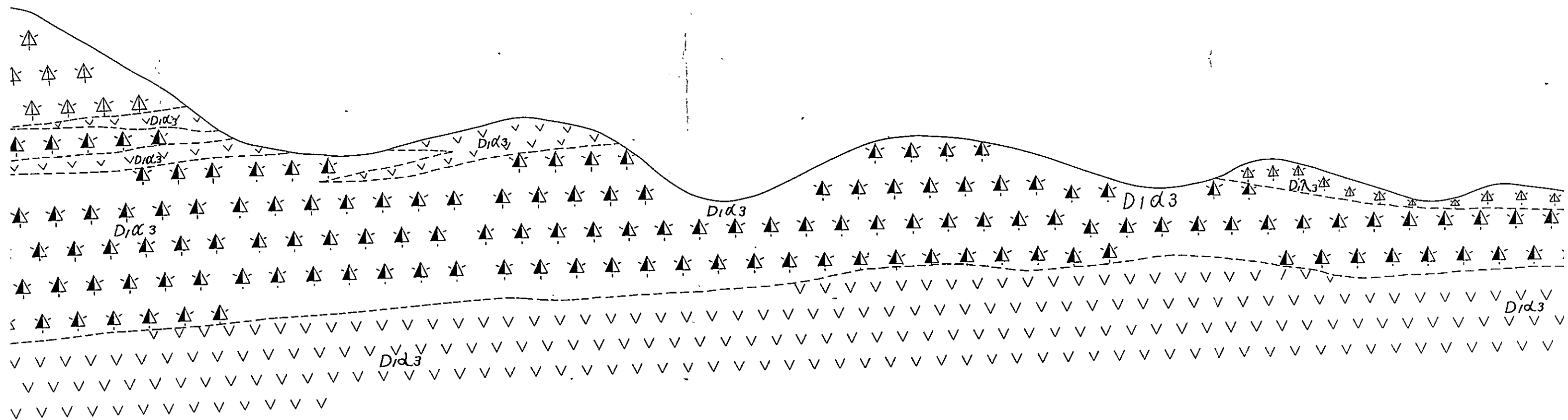


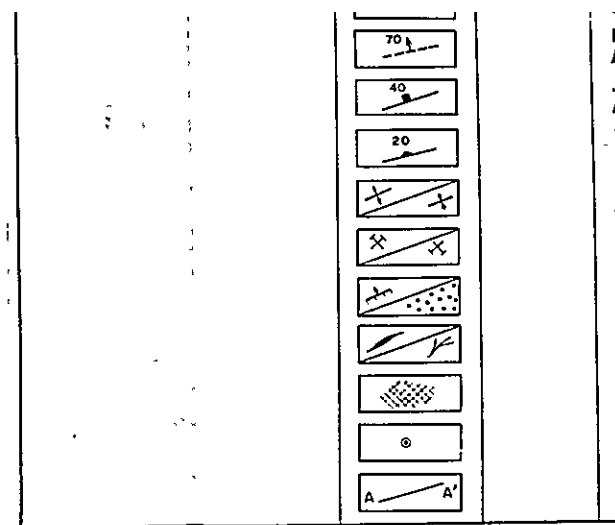
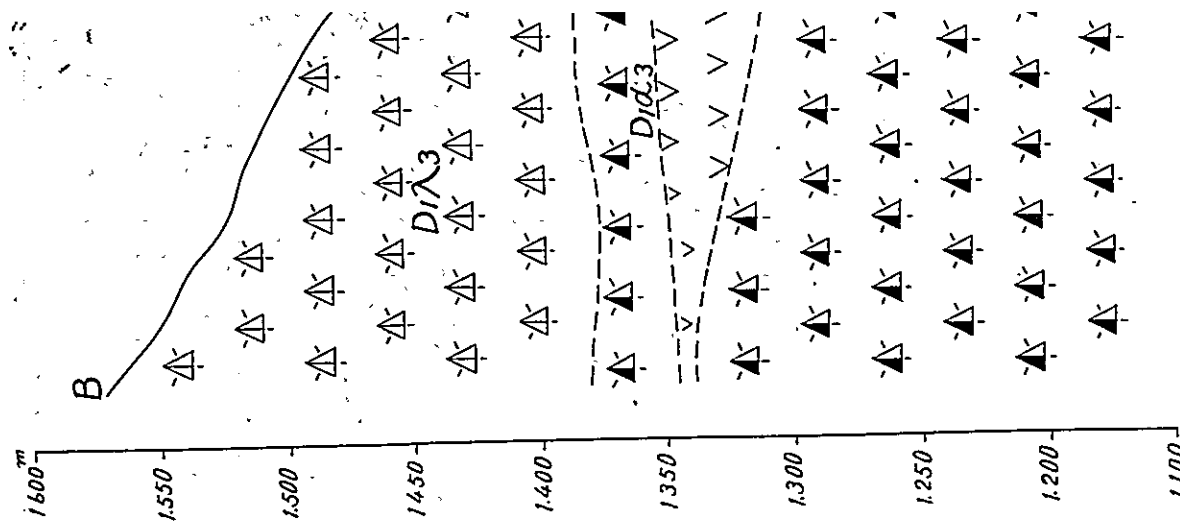
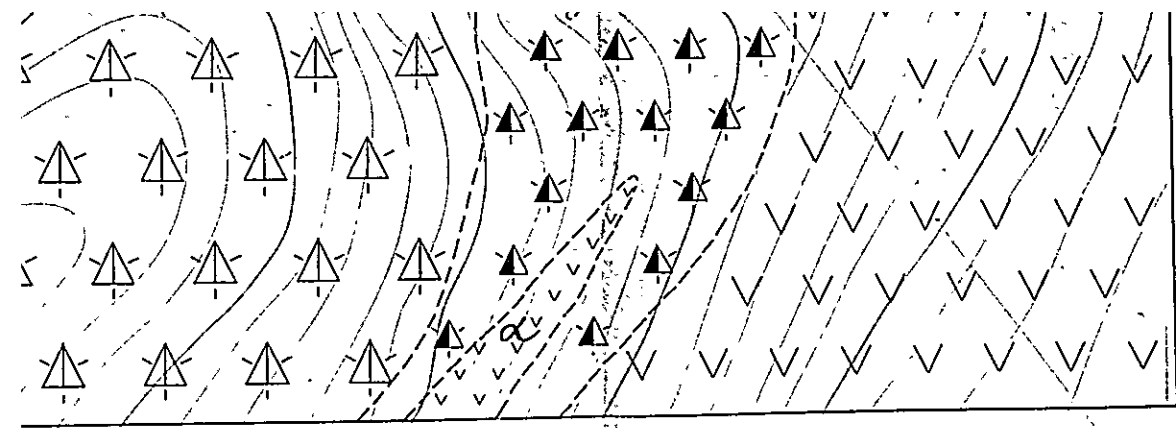
Miyosen					
Upper Cretaceous Üst Kretase	A ₂		A ₂ α	Andesite pyroclastics Andezitik Piroklastikler	
				Dacite lava Dasit lavı	
	D ₁		D ₁ λ ₄		Dacite pyroclastics Dasit Piroklastikler
					Fine tuff & calcareous mudstone İnce tüf & kalkerli çamurtaşı
			D ₁ α ₄		Andesite lava Andezitik lav
					Andesite pyroclastics Andezitik Piroklastikler
			D ₁ λ ₃		Dacite lava Dasit lavı
					Dacite pyroclastics Dasit Piroklastikler
			D ₁ α ₃		Basalt lava Bazalt lavı
					Fine tuff & calcareous mudstone İnce tüf & kalkerli çamurtaşı
	D ₁ kt		Limestone, marl. Kireçtaşı, marı		
A ₁		A ₁ λ ₂		Dacite lava Dasit lavı	
				Dacite pyroclastics Dasit Piroklastikler	
		A ₁ α ₂		Fine tuff & calcareous mudstone İnce tüf & kalkerli çamurtaşı	
				Limestone, marl. Kireçtaşı, marı	
	A ₁ kt		Andesite lava Andezitik lav		
			Andesite pyroclastics Andezitik Piroklastikler		
Intrusive rocks Intruziyer		β		Basalt Bazalt	
		α		Andesite Andezit	
		ε		Dacite Dasit	
		σ		Porphyrite Porfir	
		δσ ₂		Diorite porphyrite Diorit porfir	
		δ ₂		Quartz diorite Kuvars diorit	
		δ ₂ σ		Quartz diorite porphyrite Kuvars diorit porfir	
		δ ₂ σ		Quartz porphyry Kuvars porfir	
				Bedding Tabaka	
				Fault Fay	
			Joint Kırık		
			Flow structure Akıntılı yapı		
			Anticlinal/synclinal axis Antiklinal/senklinel eksen		
			Working mine/abandoned mine Çalışan maden/kapalı maden		
			Mineralization, vein type/dissemination type Mineralizasyon damar tip/disseminasyon tip		
			Massive, bedded ore/veinlets Masif, tabakalı cevher/damarcıklar		
			Skarnized zone Skarn zonu		
			Drilling site Sondaj yer		
			Geological profile line Jeolojik kesit çizgisi		





A-A' Profile

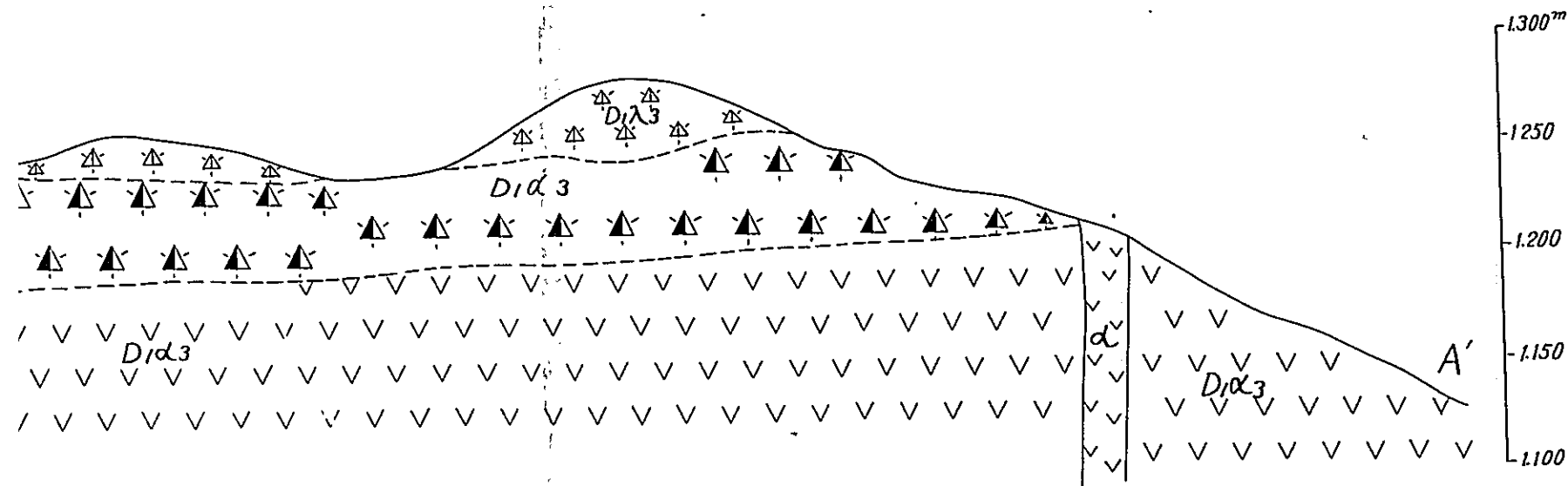


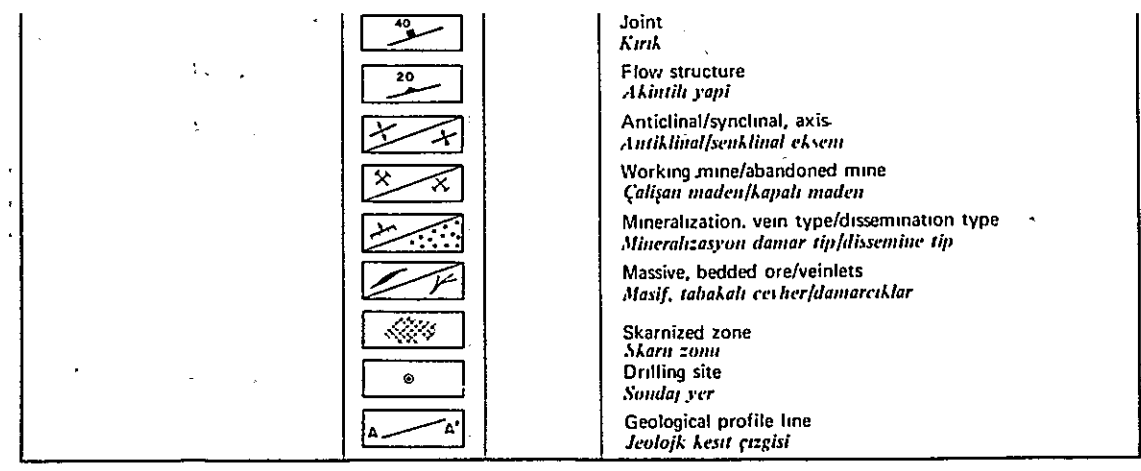
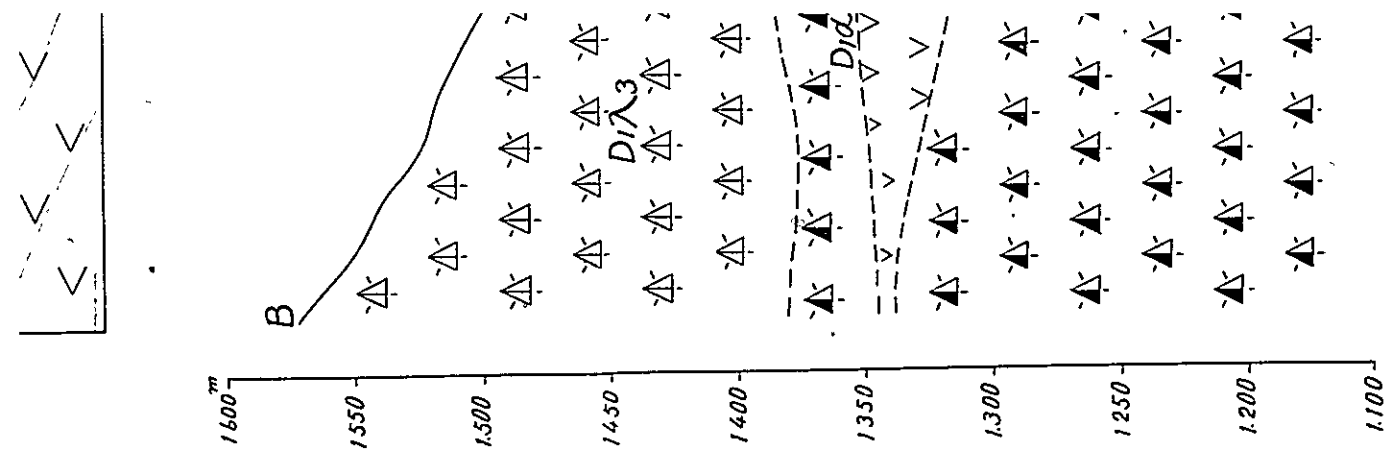


Sample No.	Index No.	Kind of ore mineral	Mode of occurrence	Width or thickness (cm)	Strike & dip	Sampling width (cm)	Sampling method	Cu (%)	Pb (%)	Zn (%)	Fe (%)	S (%)
C-117	2	Cpy	stockwork & diss			15	G	0.34	0.14	0.02		
C-137	-	Sph	diss (float)			20	G	0.23	0.69	1.38		
C-164	14	Cpy	diss	max 30	EW 80S			0.59	0.06	1.33		
D-68	9	Py	vein	5				0.007	0.002	tr	30.68	

R : random sampling L : line cutting sampling G : gravel sampling of high grade ore

Member Üye	Columnar section Sütun Kesit (S) (N)	Rock facies Kayaş fasiyezi	Thickness Kalınlık
D1a3		dacite lava dacite tuff tuff breccia lapilli tuff dacite (lava) quartz diorite porphyrite intrusion dacite lava	175m+
		calcareous dacite tuff	5m
		dacite tuff breccia tuff	45m
D1c3		andesite lava andesite lapilli tuff tuff breccia tuff andesite dyke	180m
		andesite lava	70m+

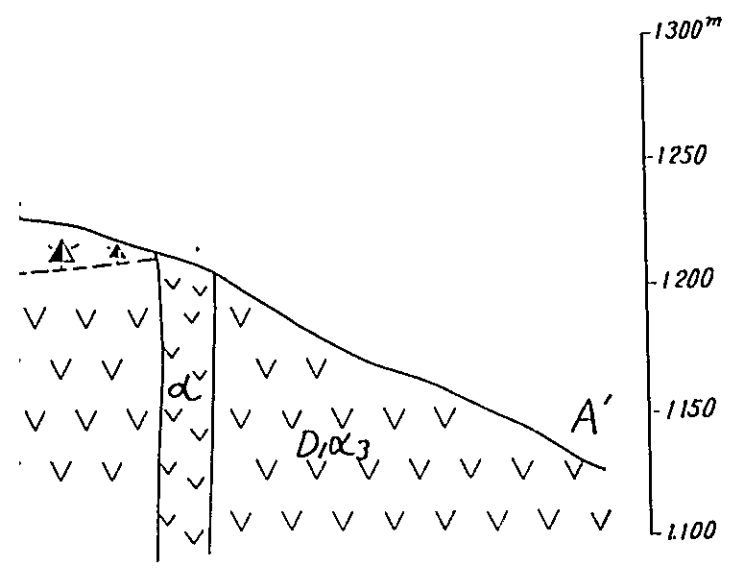


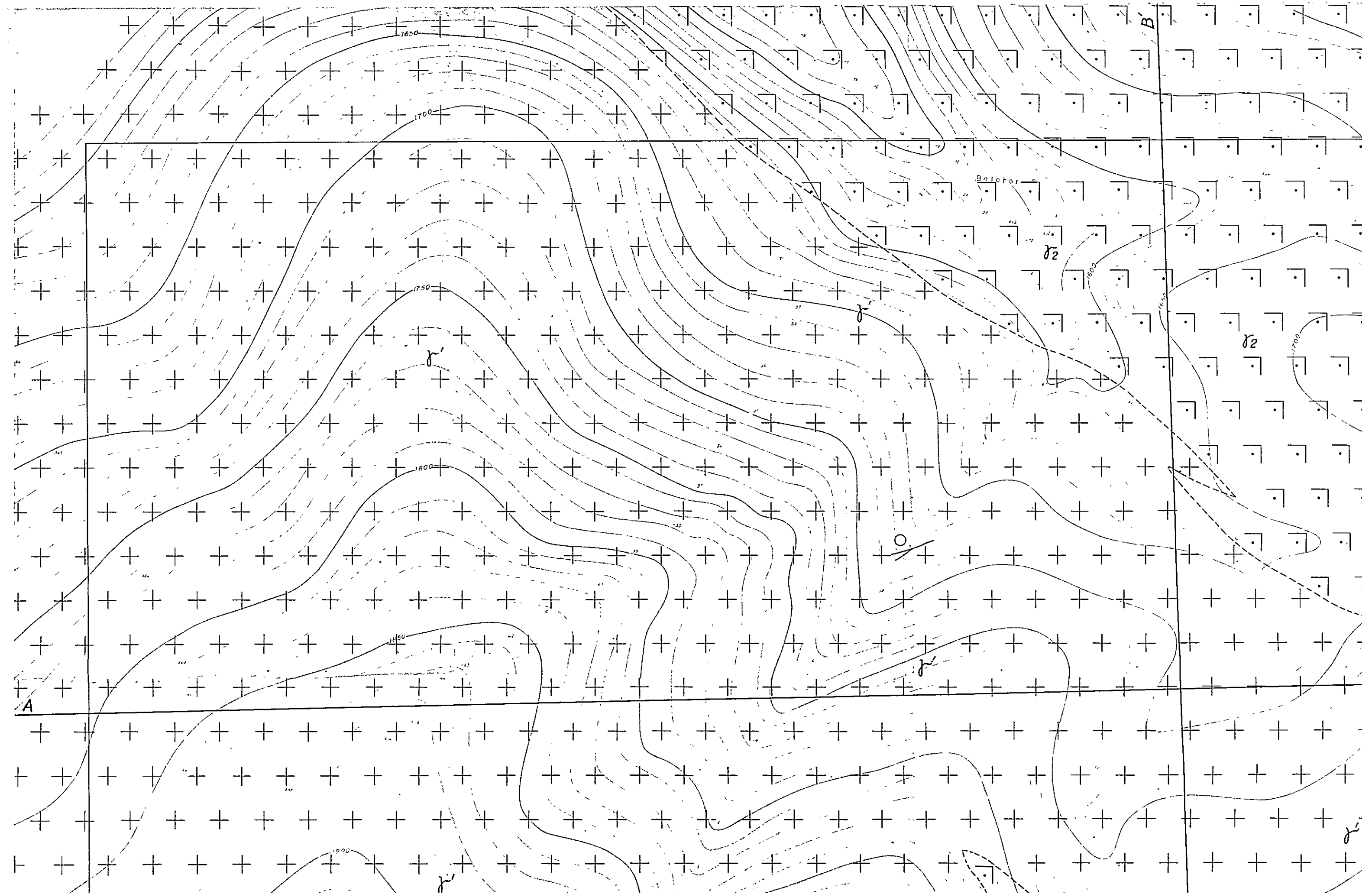


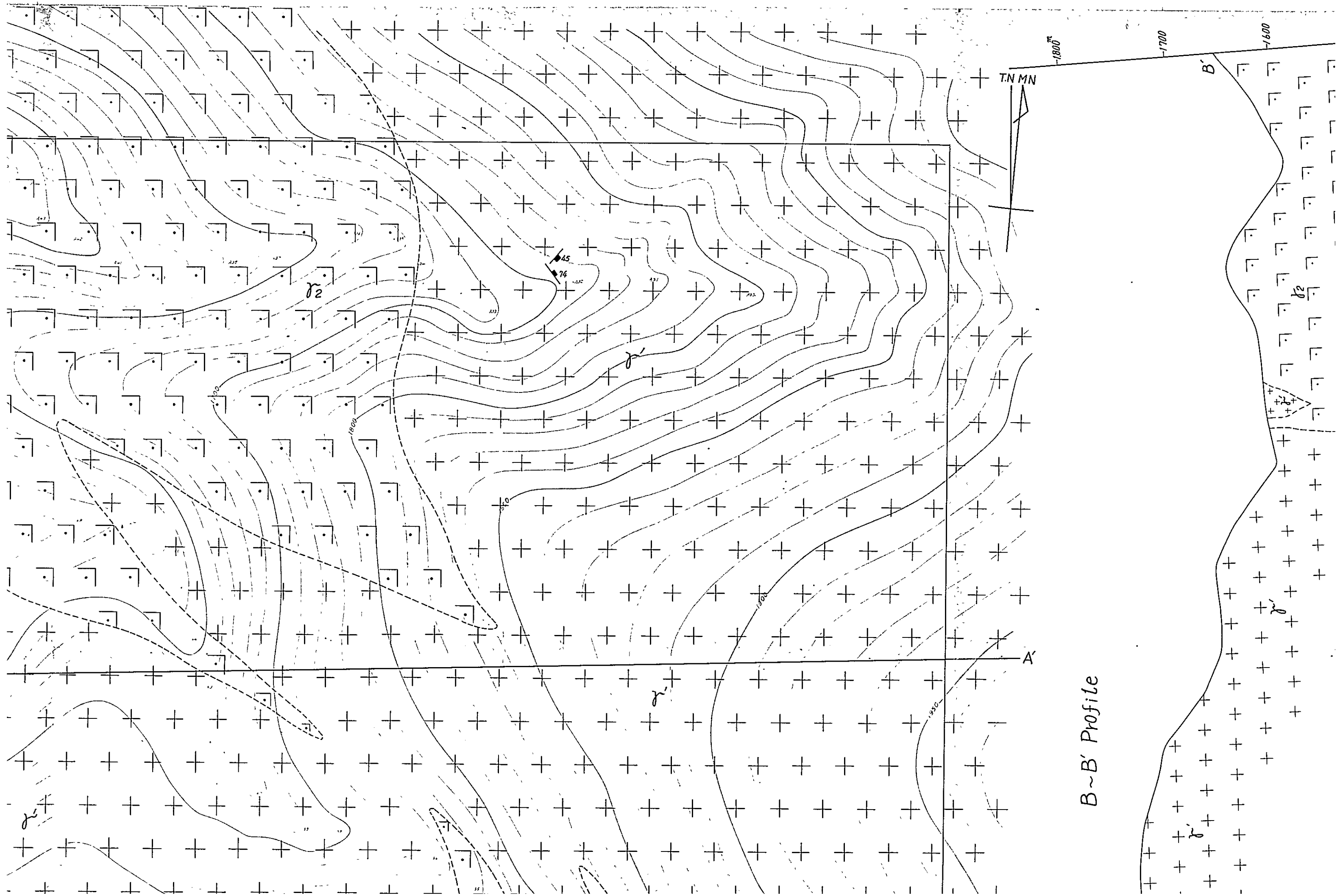
Width or thickness (cm)	Strike & dip	Sampling width (cm)	Sampling method	Cu (%)	Pb (%)	Zn (%)	Fe (%)	S (%)
		15	G	0.34	0.14	0.02		
			G	0.23	0.69	1.38		
max 30		20	G	0.59	0.06	1.33		
5	EW 80S			0.007	0.002	tr	30.68	

G : gravel sampling of high grade ore

Member / Üye	Columnar section / Sütun Kesit	Rock facies / Kayaş fasiyezi	Thickness / Kalınlık	Mineralization / Mineralizasyon
D1A3	(S) (N)	dacite lava dacite tuff tuff breccia lapilli tuff dacite lava quartz diorite porphyrite intrusion dacite lava calcareous dacite tuff	175m 5m	vein type dissemination type
D1A3		dacite tuff breccia tuff	45m	
D1A3		andesite lava andesite lapilli tuff tuff breccia tuff andesite dyke	180m	vein type
		andesite lava basalt dyke	70m	







B~B' Profile

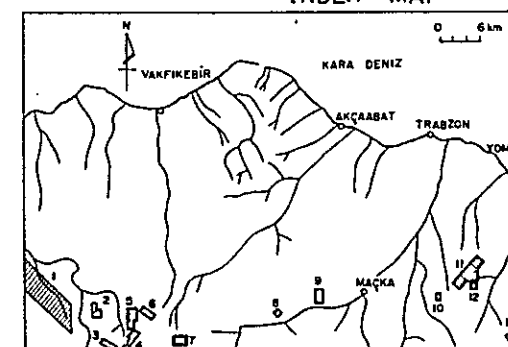
MINERAL RESEARCH AND EXPLORATION INSTITUTE
 GEOLOGICAL SURVEY
 OF
 TRABZON AREA, NORTHEASTERN TURKEY

PHASE III

GEOLOGICAL MAP WITH GEOLOGICAL PROFILE
 AND COLUMNAR SECTION OF AKİSE YAYLA AREA

AKİSE YAYLA SAHASININ JEOLÖJİ
 HARİTASI JEOLÖJİ KESİTLERİ VE SÜTUN
 KESİTİ

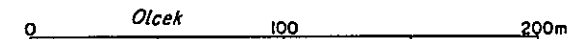
INDEX MAP



- 1 Kahraman Dere
- 2 Ataçadağ
- 3 Çeşel Dere
- 4 Göllüalan
- 5 Ken mine
- 6 Ken Dere, Fol Dere
- 7 Akise Yayla
- 8 Yeni Mahalle
- 9 Salana
- 10 Kani Tepe
- 11 Kızıldağ-Çağhanlar
- 12 Tuzlak Mezarası
- 13 Ocak
- 14 Uzunlu

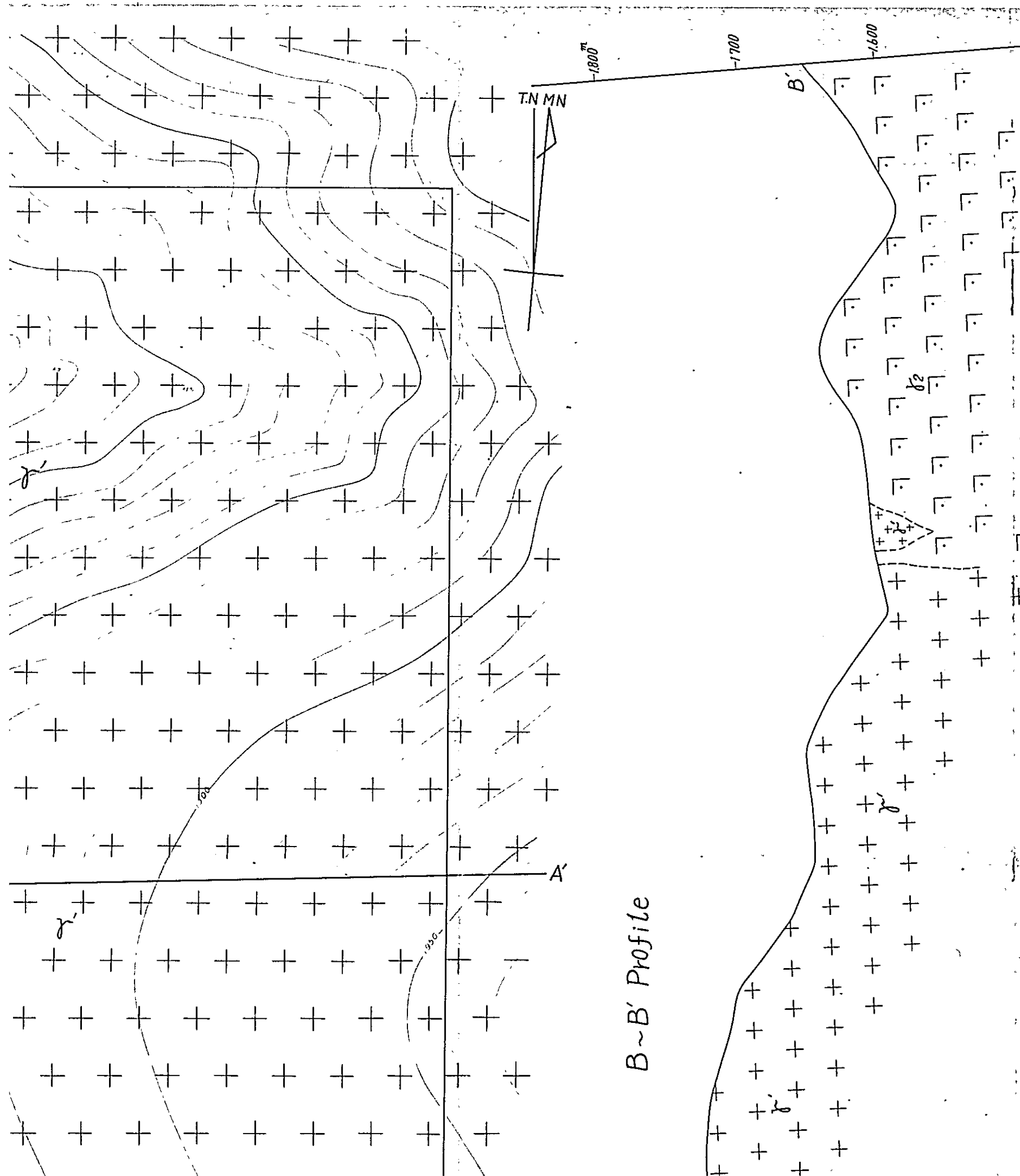
General geological survey area Detailed geological survey area

Scale 1 : 2,000



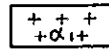
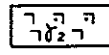
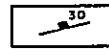
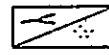
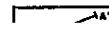
METAL MINING AGENCY OF JAPAN
 JAPAN INTERNATIONAL COOPERATION AGENCY
 FEBRUARY 1977

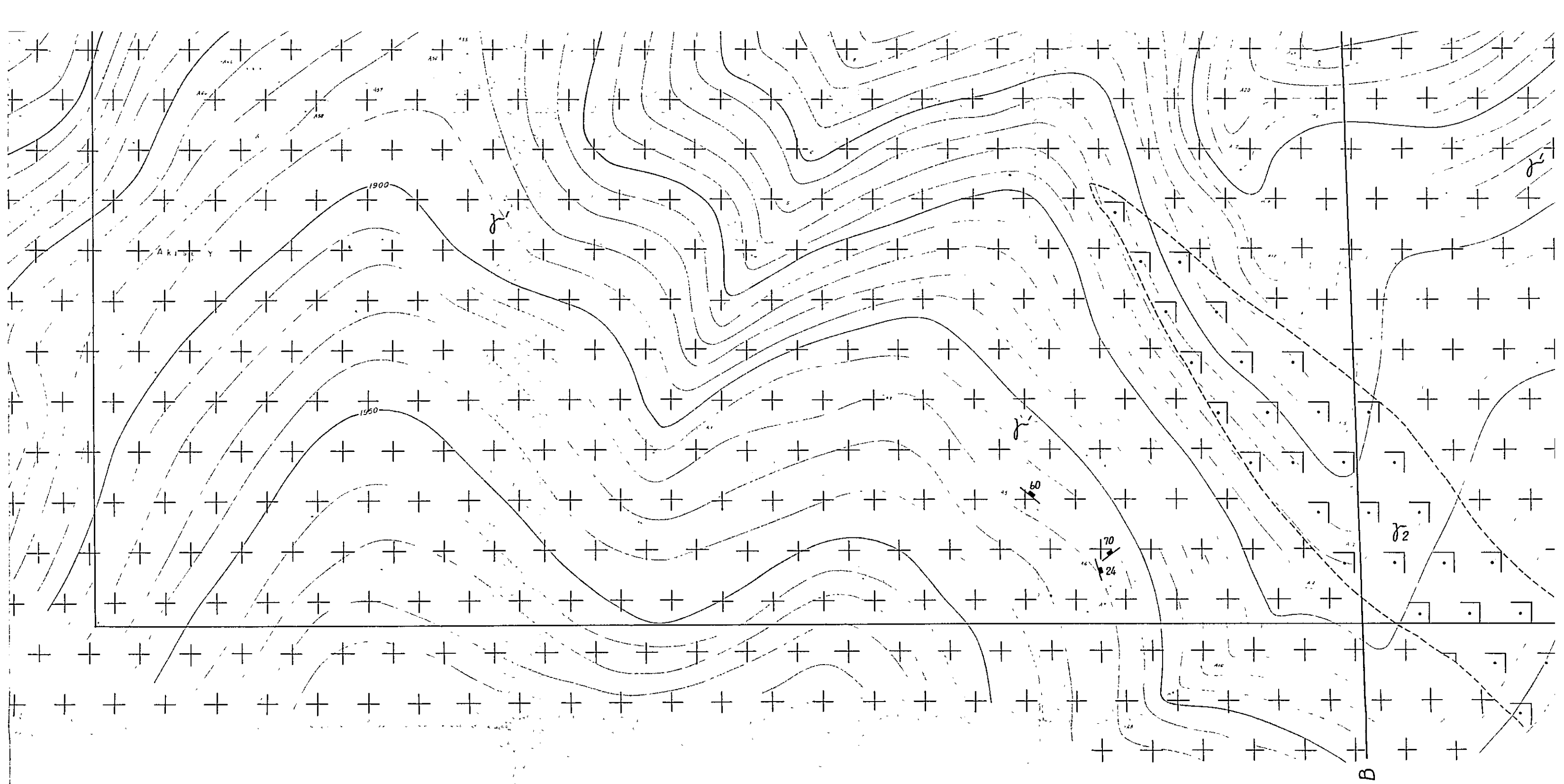
Prepared by Nikko Exploration & Development Co., Ltd.



B~B' Profile

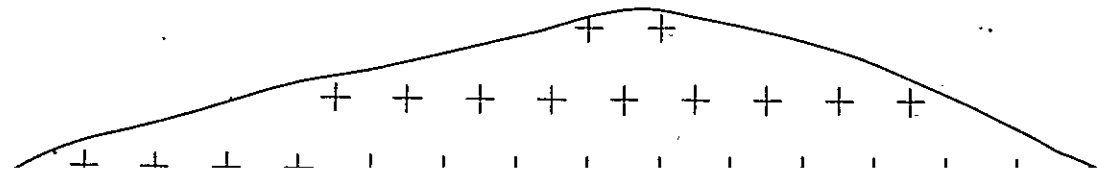
LEGEND
 LEJAND

-  Granite, granodiorite complex (granodiorite predominant)
Granit, granodiorit (granodiorite predominant)
-  Quartz diorite, diorite complex (diorite predominant)
Kuvars diorit (diorite predominant)
-  Joint
Kirik
-  Mineralization veinlet/dissemination type
Mineralizasyon damar tip/disseminatif tip
-  Geological profile line



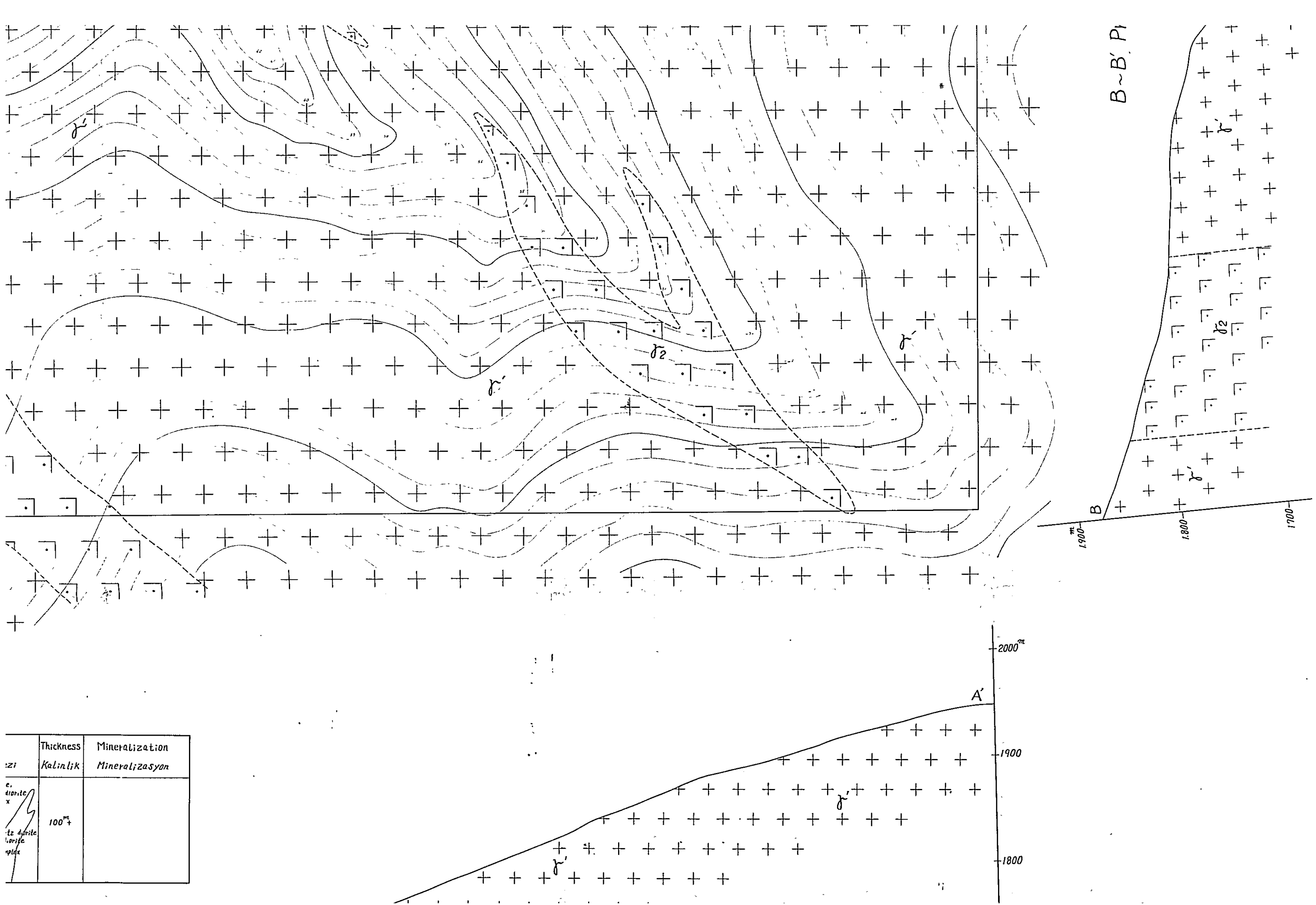
2000^m

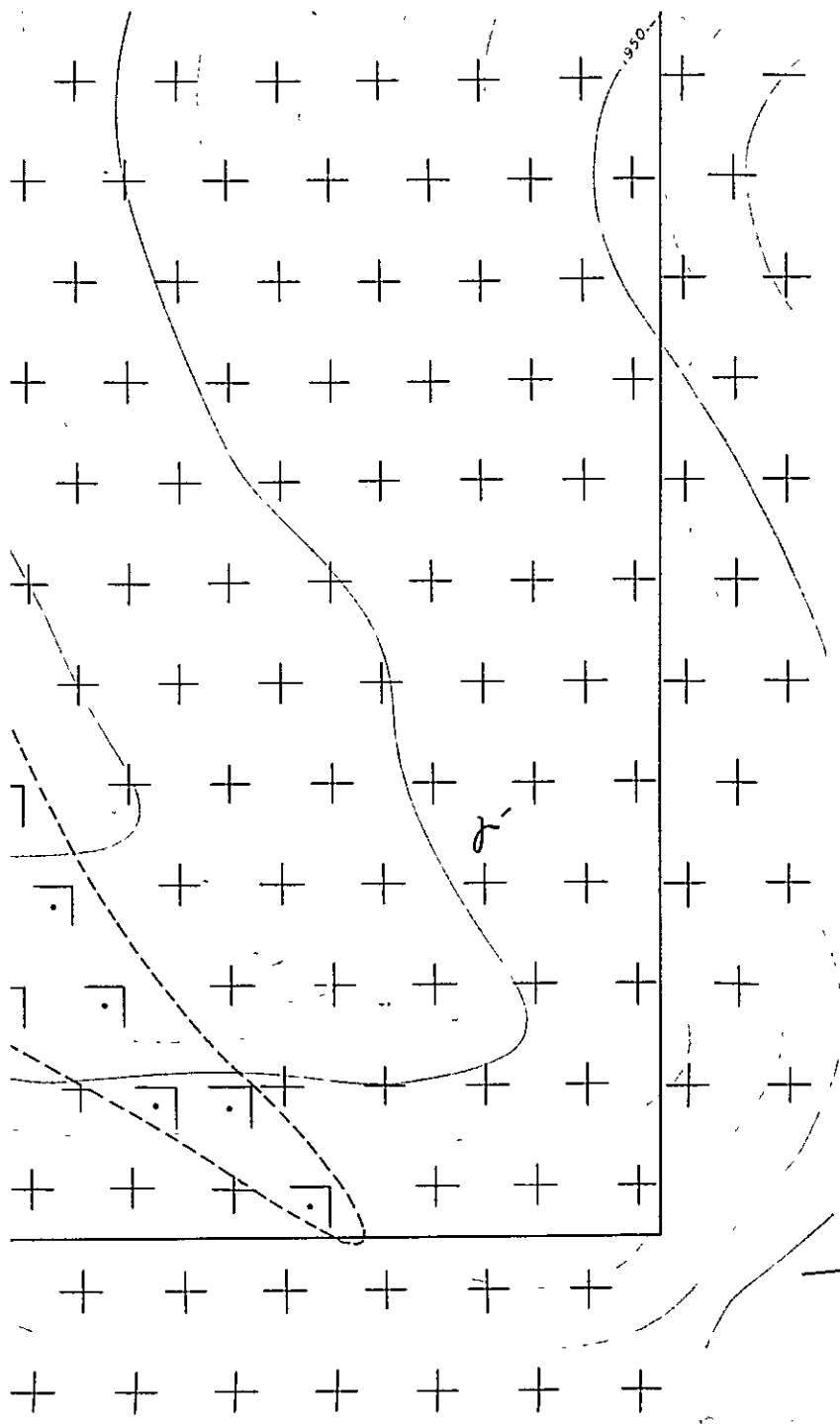
1900



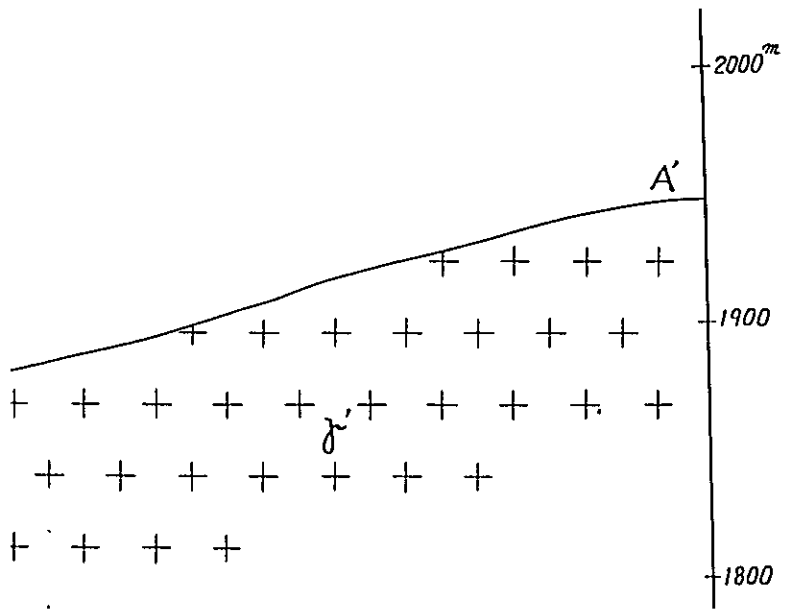
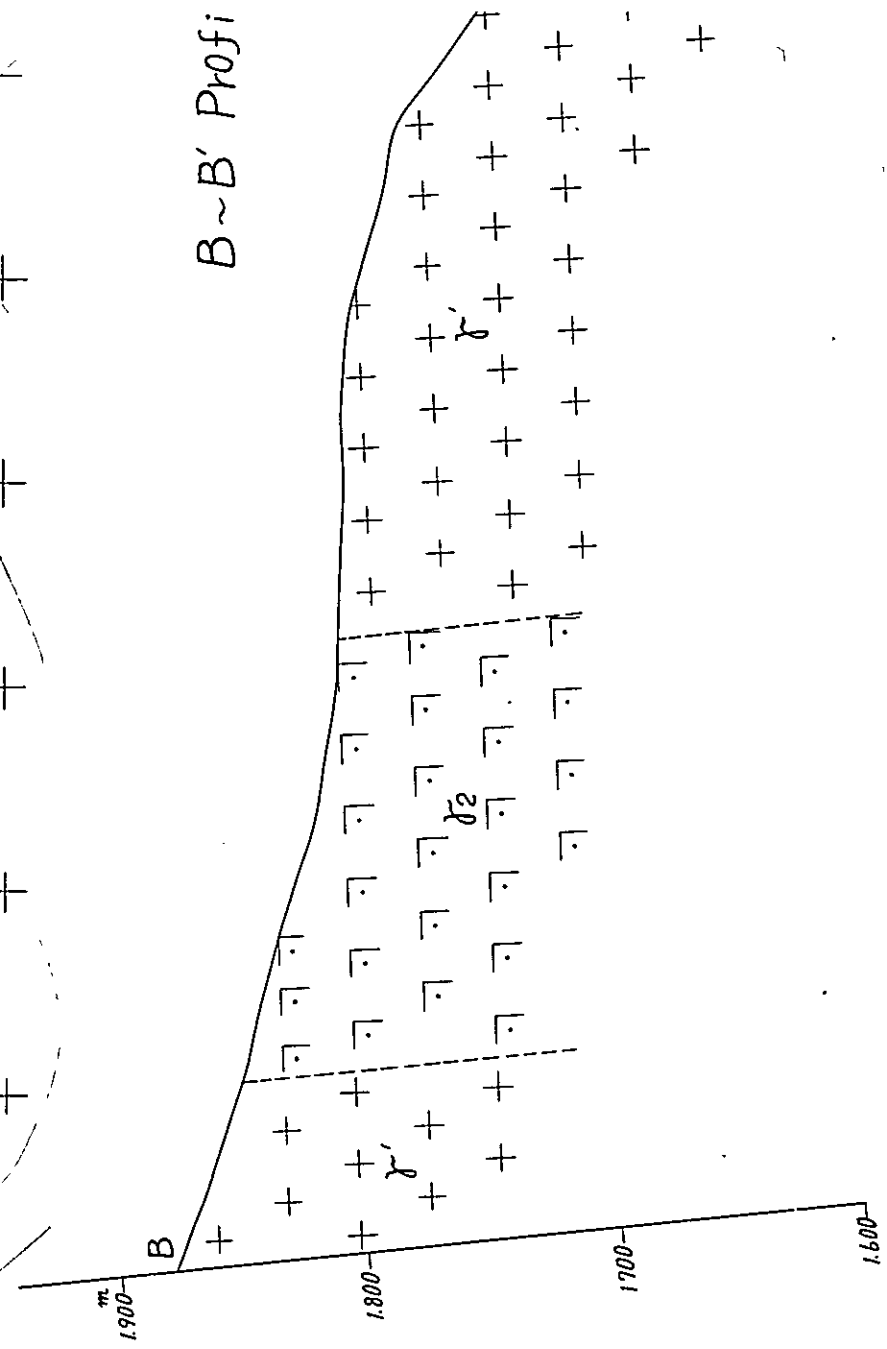
A-A' Profile

Member Üye	Columnar section Sütun Kesit (N)	(S)	Rock facies Kayag Jasiyezi	Thickness Kalınlık
			Granite. granodiorite Complex quartz diorite Complex quartz diorite Complex	100 ^m +

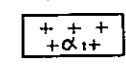




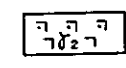
B~B' Profi



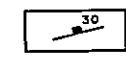
LEGEND
LEJAND



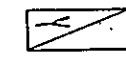
Granite, granodiorite complex (granodiorite predominant)
Granit, granodiorit (granodiorite predominant)



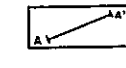
Quartz diorite, diorite complex (diorite predominant)
Kvartz diorit (diorite predominant)



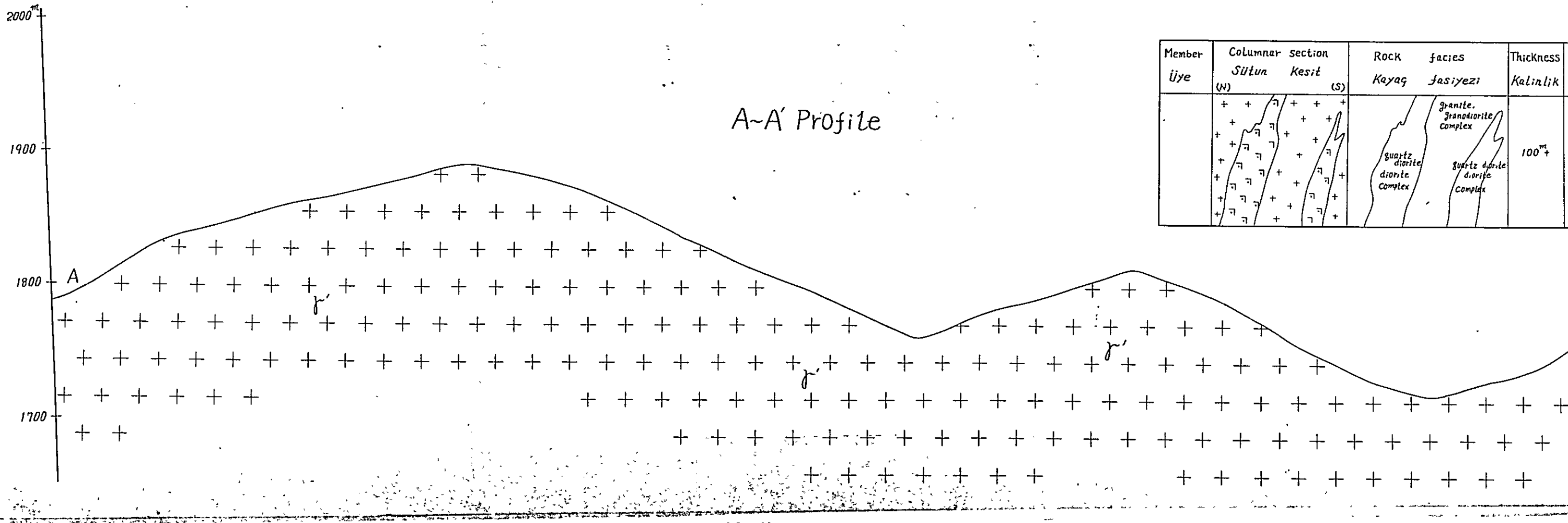
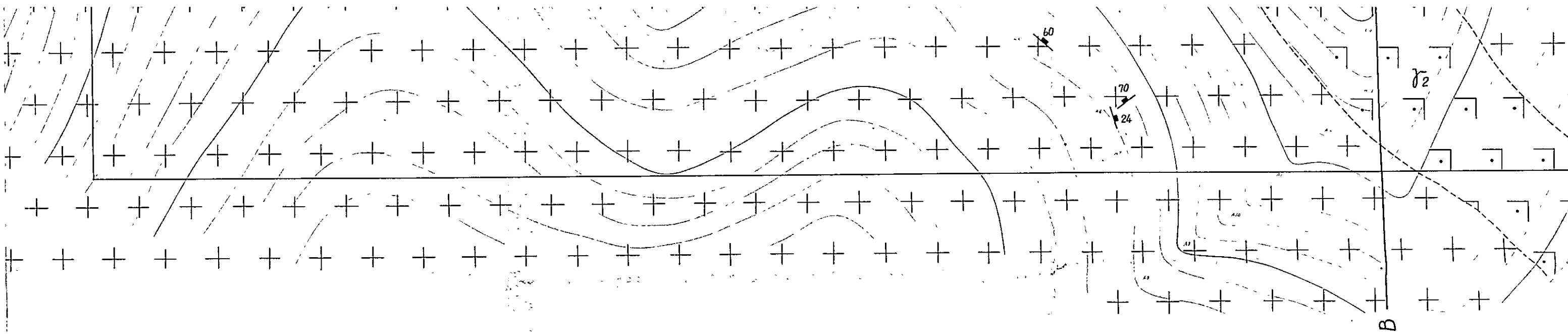
Joint
Kirik

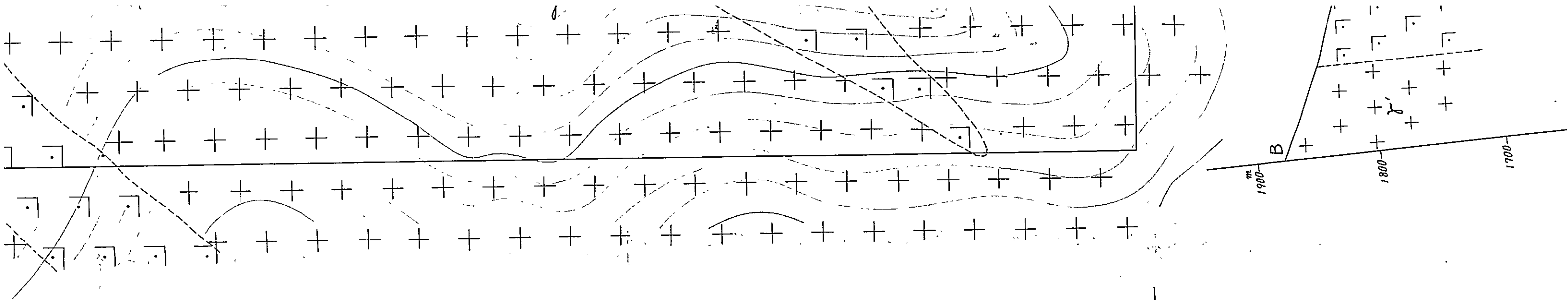


Mineralization veinlet/dissemination type
Mineralizasyon damar tip/disseminasyon tip

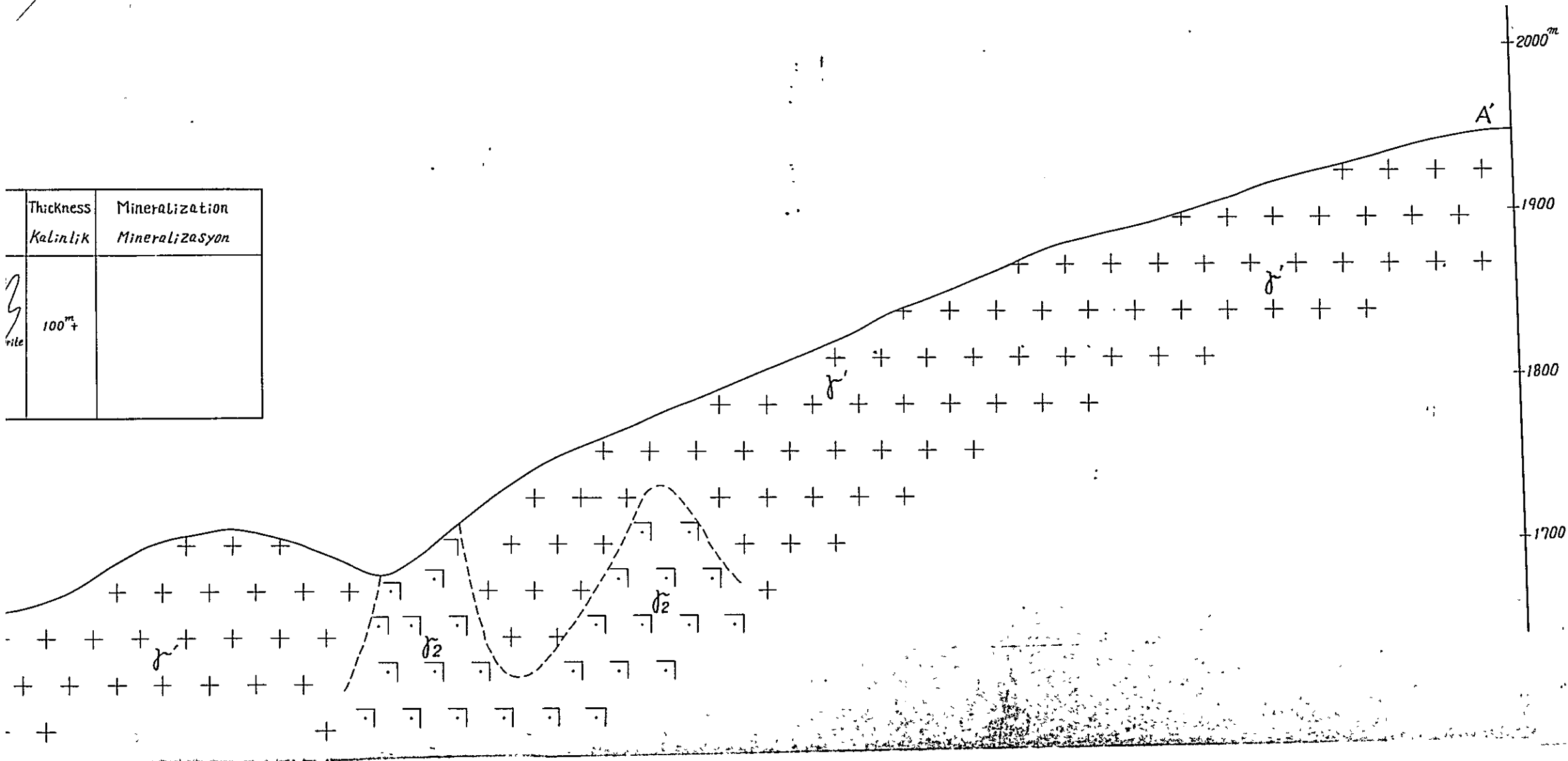


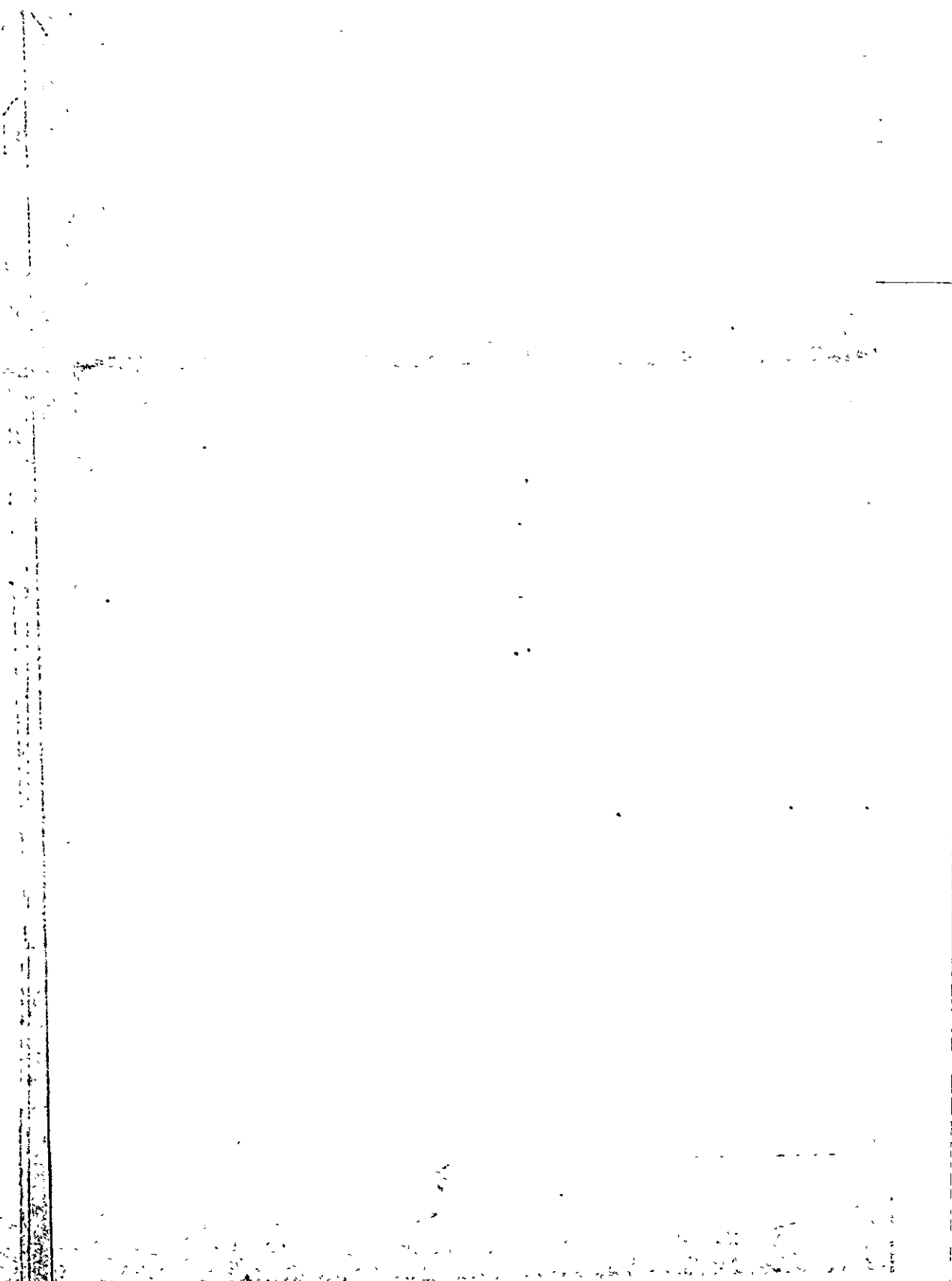
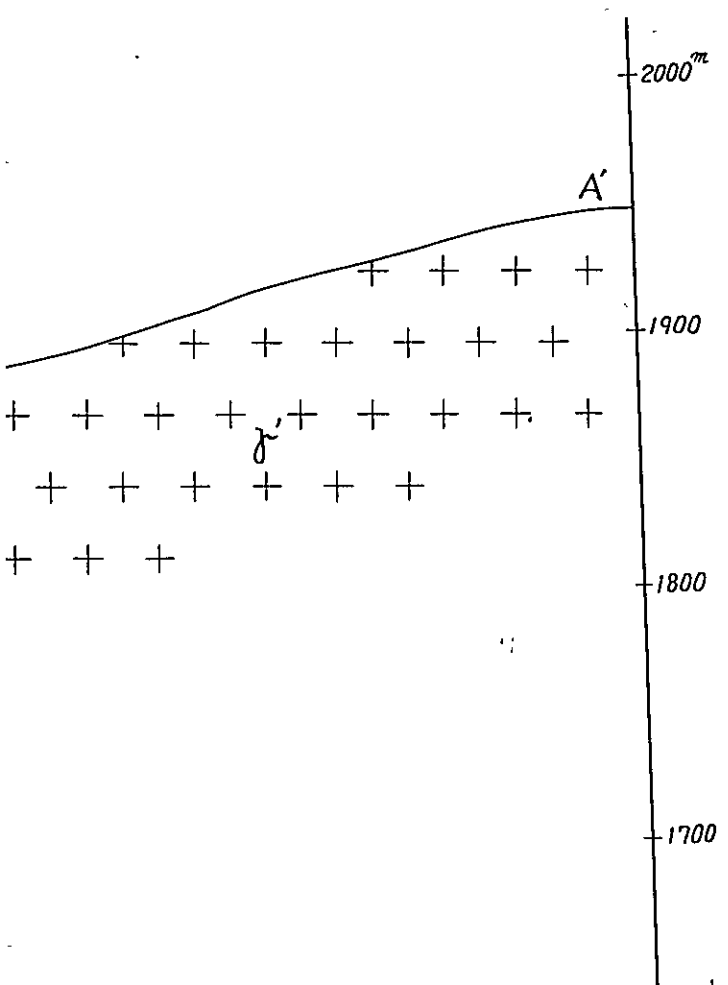
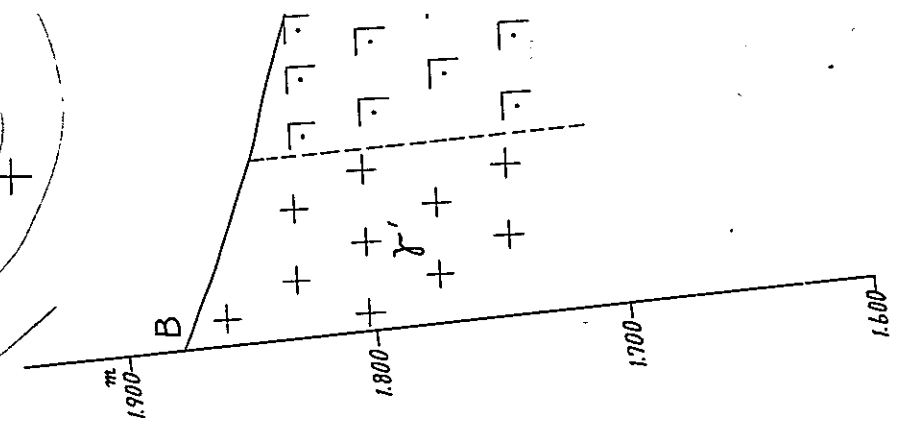
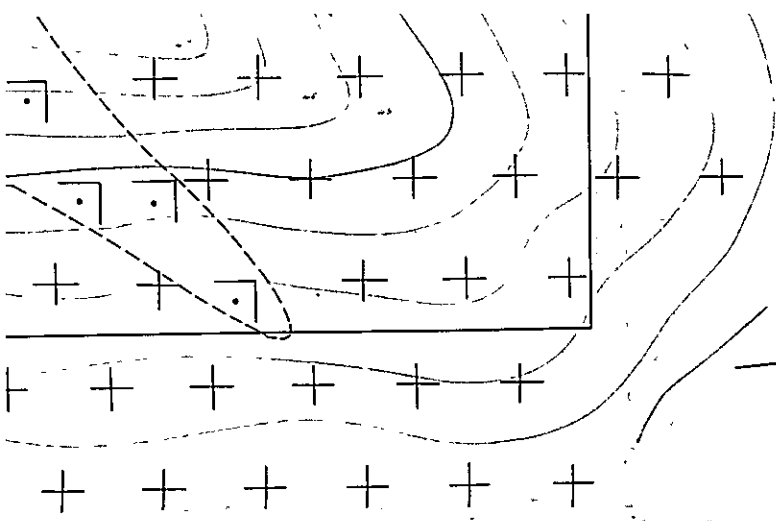
Geological profile line
Jeolojik kesit çizgisi

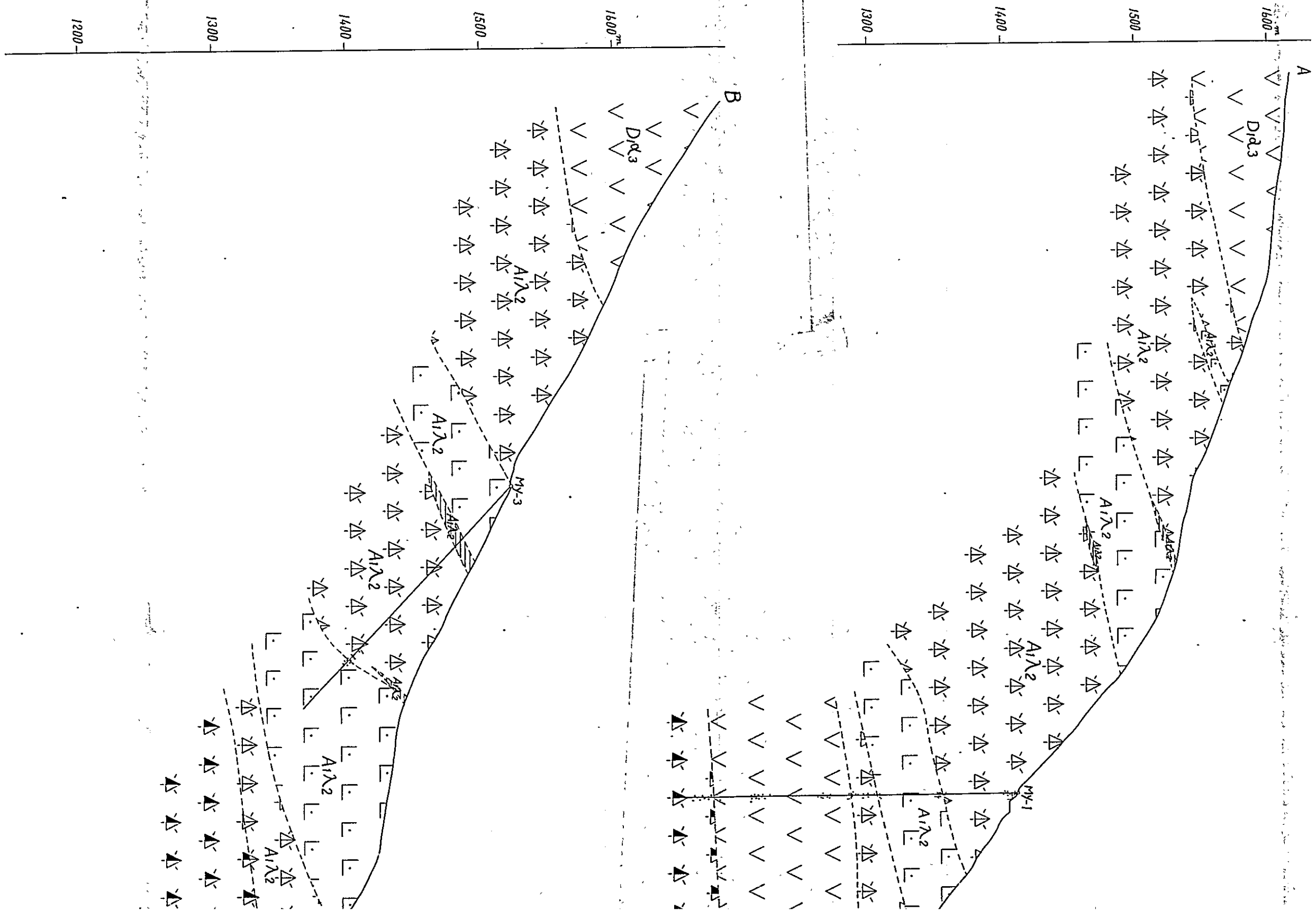




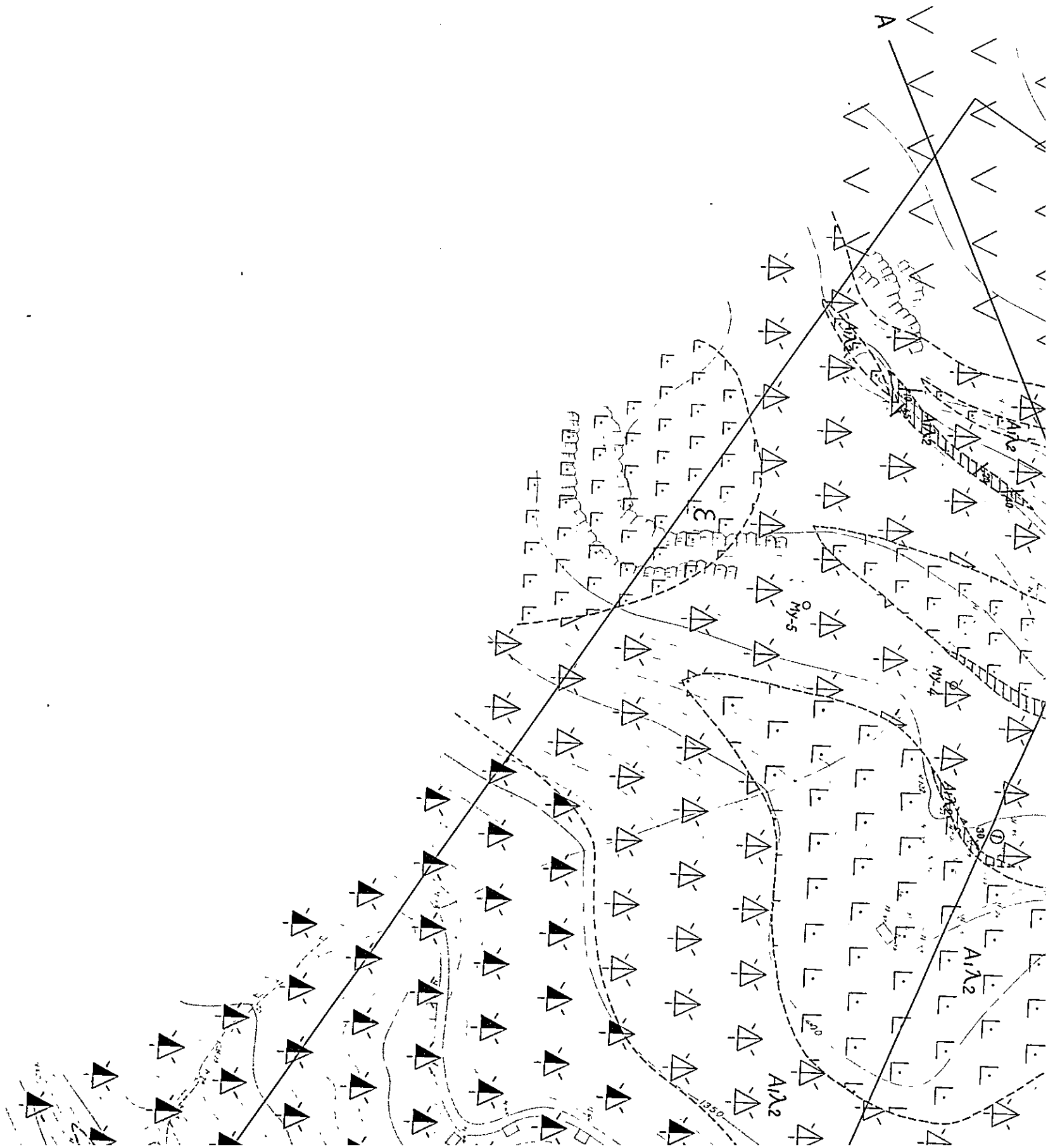
Thickness Kalınlık	Mineralization Mineralizasyon
100m ⁺	

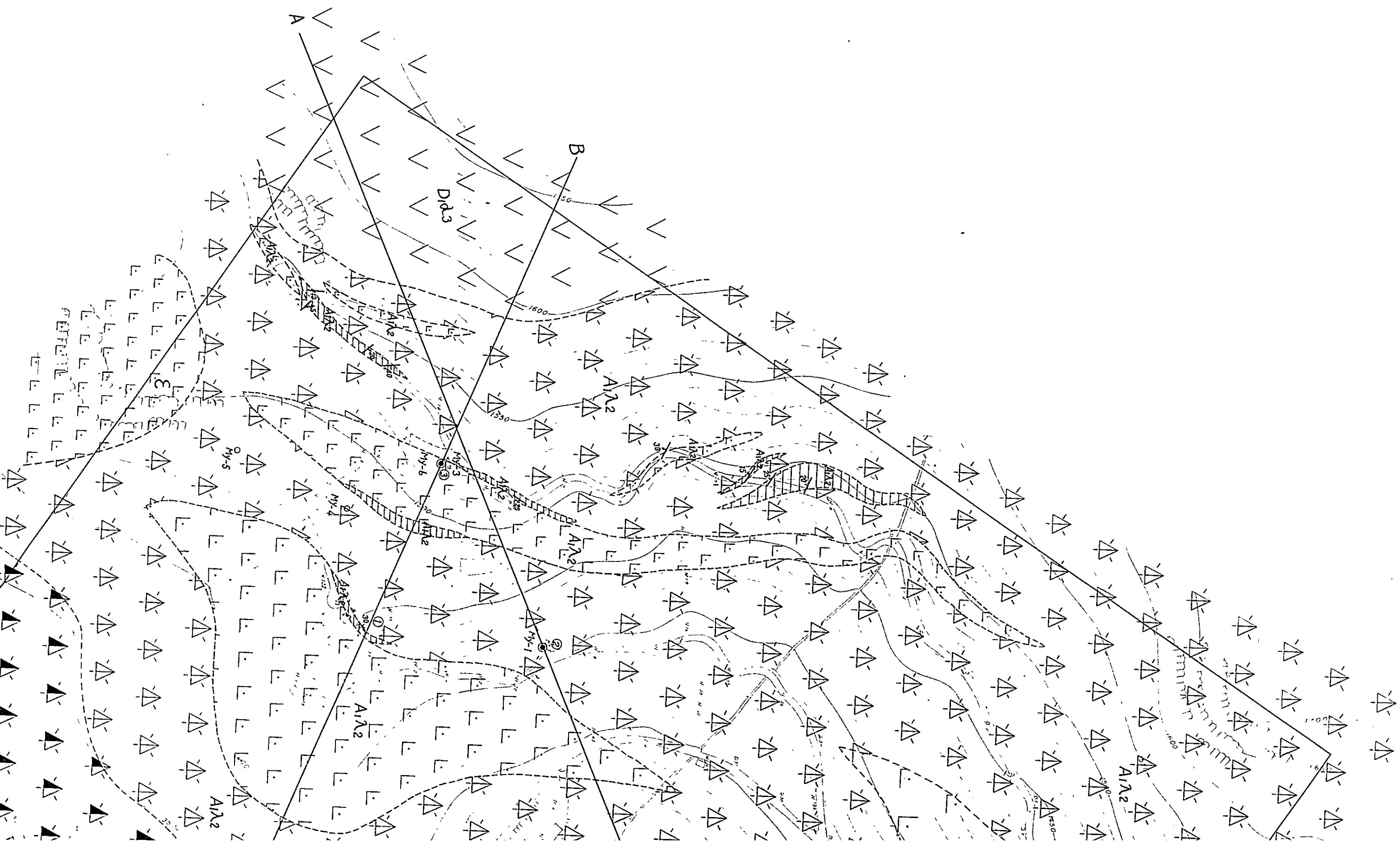






1600
A
0.2°



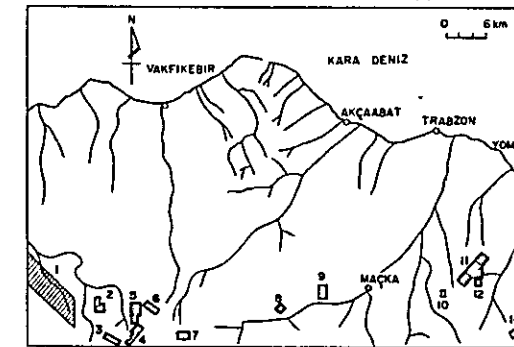


LEGEND
LEJAND

Geological age
Jeotajik yos
Paleogene
Paleosen
Neogen
Miyosen

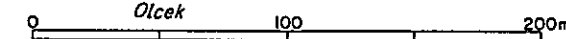
MINERAL RESEARCH AND EXPLORATION INSTITUTE
 GEOLOGICAL SURVEY
 OF
 TRABZON AREA , NORTHEASTERN TURKEY

PHASE III
 GEOLOGICAL MAP WITH GEOLOGICAL PROFILE,
 COLUMNAR SECTION AND FUTURE RECOMENDATION
 OF YENİ MAHALLE AREA
 YENİ MAHALLE SAHASININ JEOLojİ
 HARİTASI, JEOLojİ KESİTLERİ SÜTUN KESİTİ
 VE ÖNERİLER
 INDEX MAP



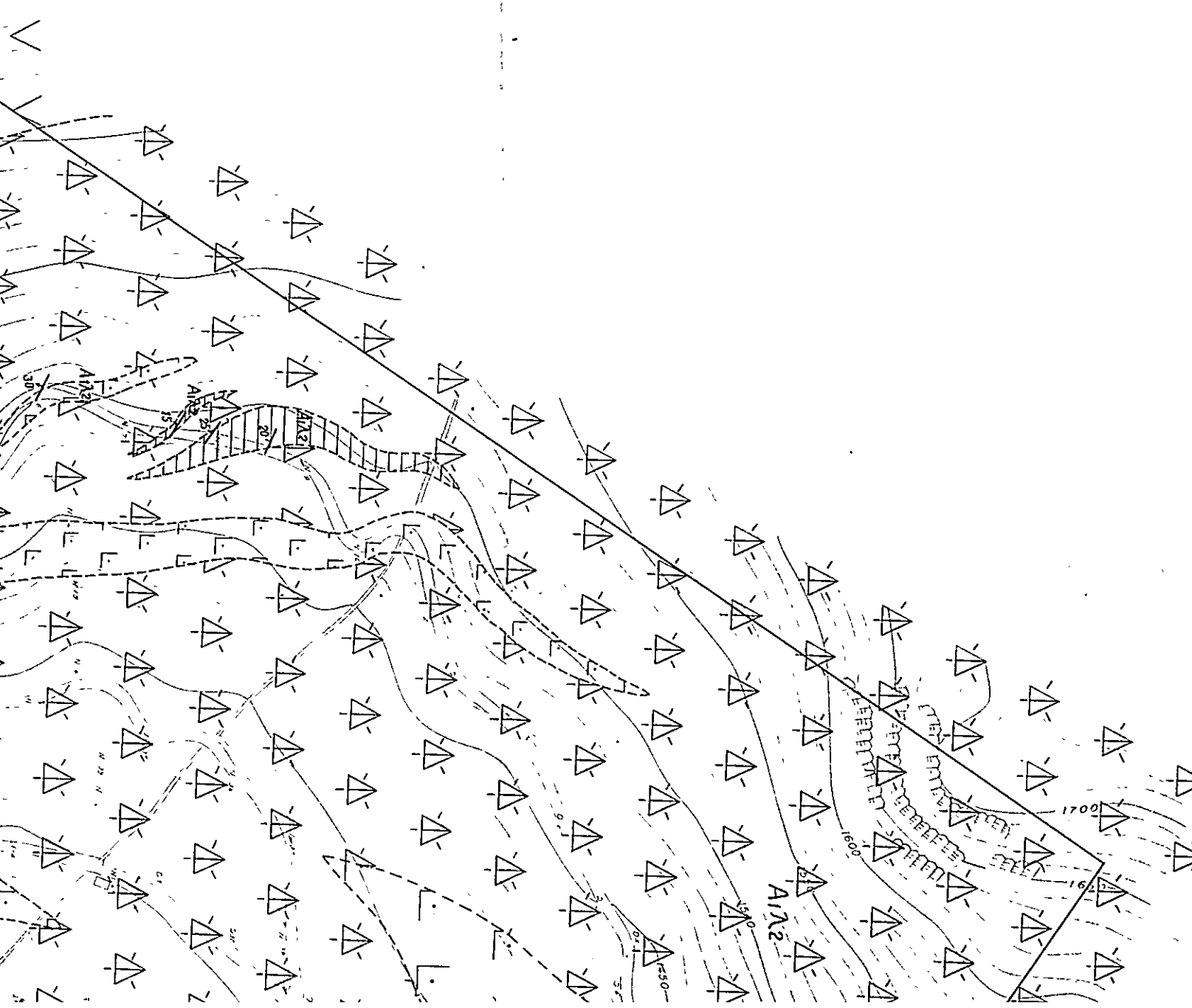
- 1 Kahraman Dere
- 2 Alaçadağ
- 3 Çengel Dere
- 4 Gölüalan
- 5 Ken mine
- 6 Ken Dere, Faldere
- 7 Akise Yayla
- 8 Yeni Mahalle
- 9 Salana
- 10 Kanl Tepe
- 11 Kızıldağ-Çoşmanlı
- 12 Tuzlak Mezraası
- 13 Ocak
- 14 Uzunlu

Scale 1 : 2,000



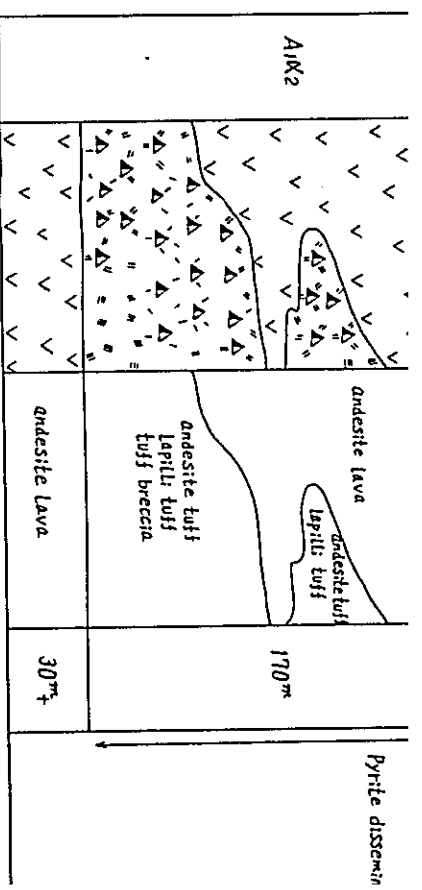
METAL MINING AGENCY OF JAPAN
 JAPAN INTERNATIONAL COOPERATION AGENCY
 FEBRUARY 1977

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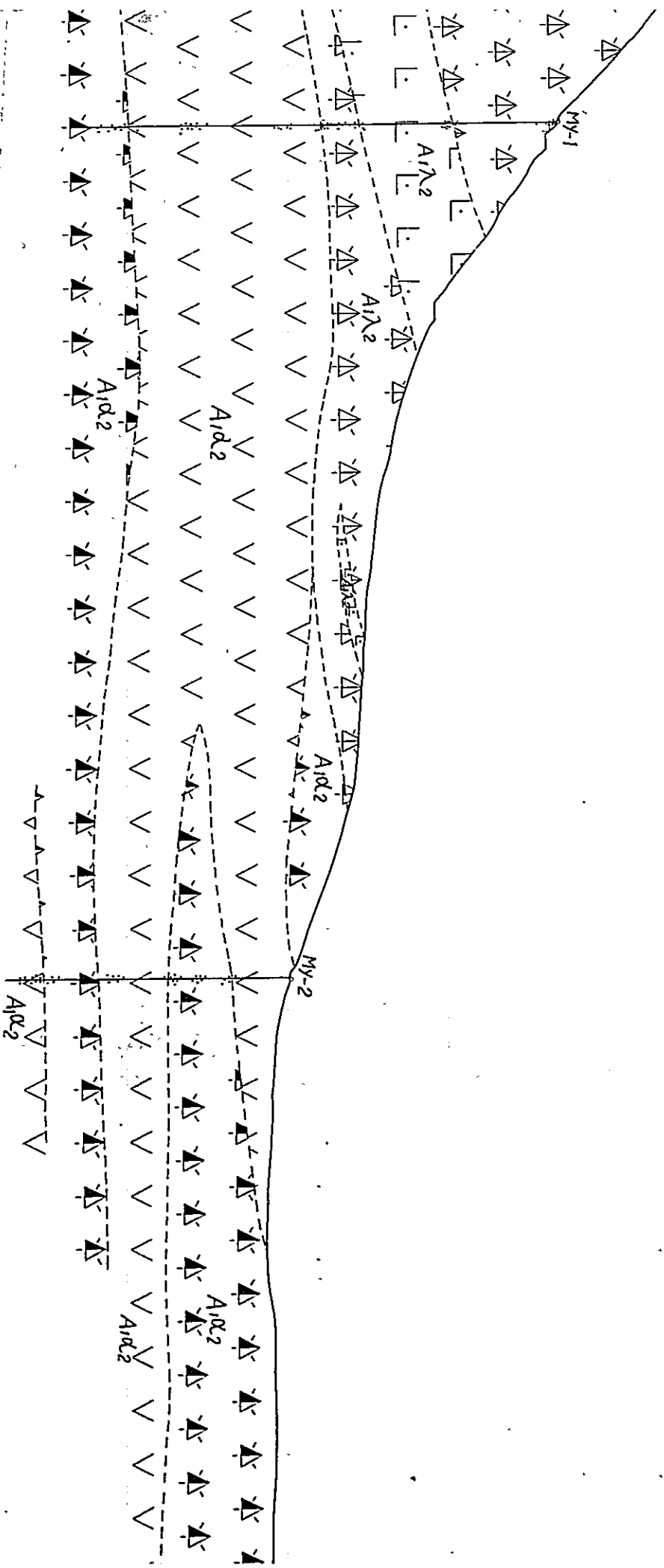


LEGEND
 LEJAND:

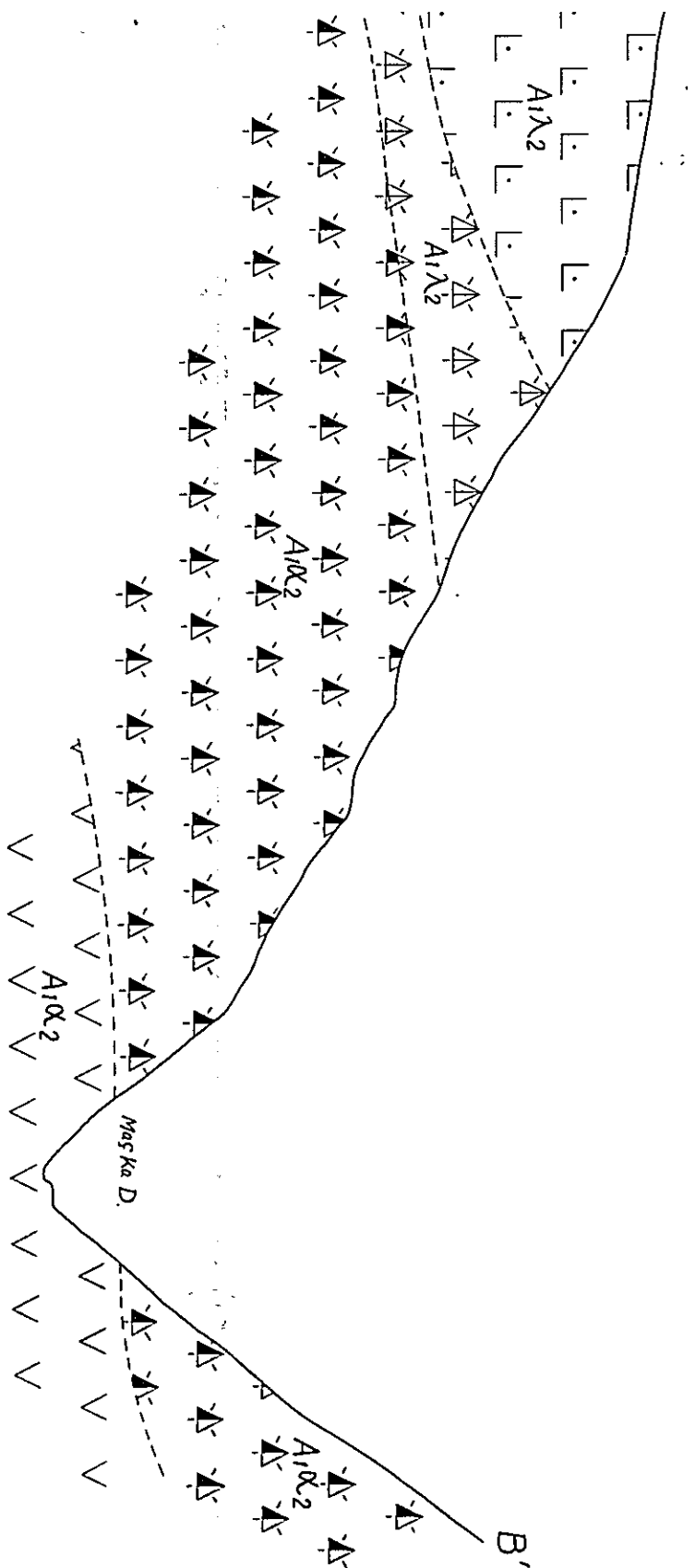
Geological age Jeolojik yaş	Formation Formasyon	Stratigraphical Stratigrafik		Lithology Litoloji
		Marks İsaretler	Symbol Sembol	
Paleogene Paleosen Neogene Miyosen	A ₃		A ₃ d	Andesite lava Andezit lavı
	A ₂		A ₂ d	Andesite pyroclastics Andezitik Piroklastikler
D ₁			D ₁ L ₄	Dacite lava Dasit lavı
				Dacite pyroclastics Dasit Piroklastikler
				Fine tuff & calcareous mudstone İnce tüf & kalkerli çamurtaşı
				Andesite lava Andezitik lav
D ₁			D ₁ d ₄	Andesite pyroclastics Andezitik Piroklastikler
				Dacite lava Dasit lavı
				Dacite pyroclastics

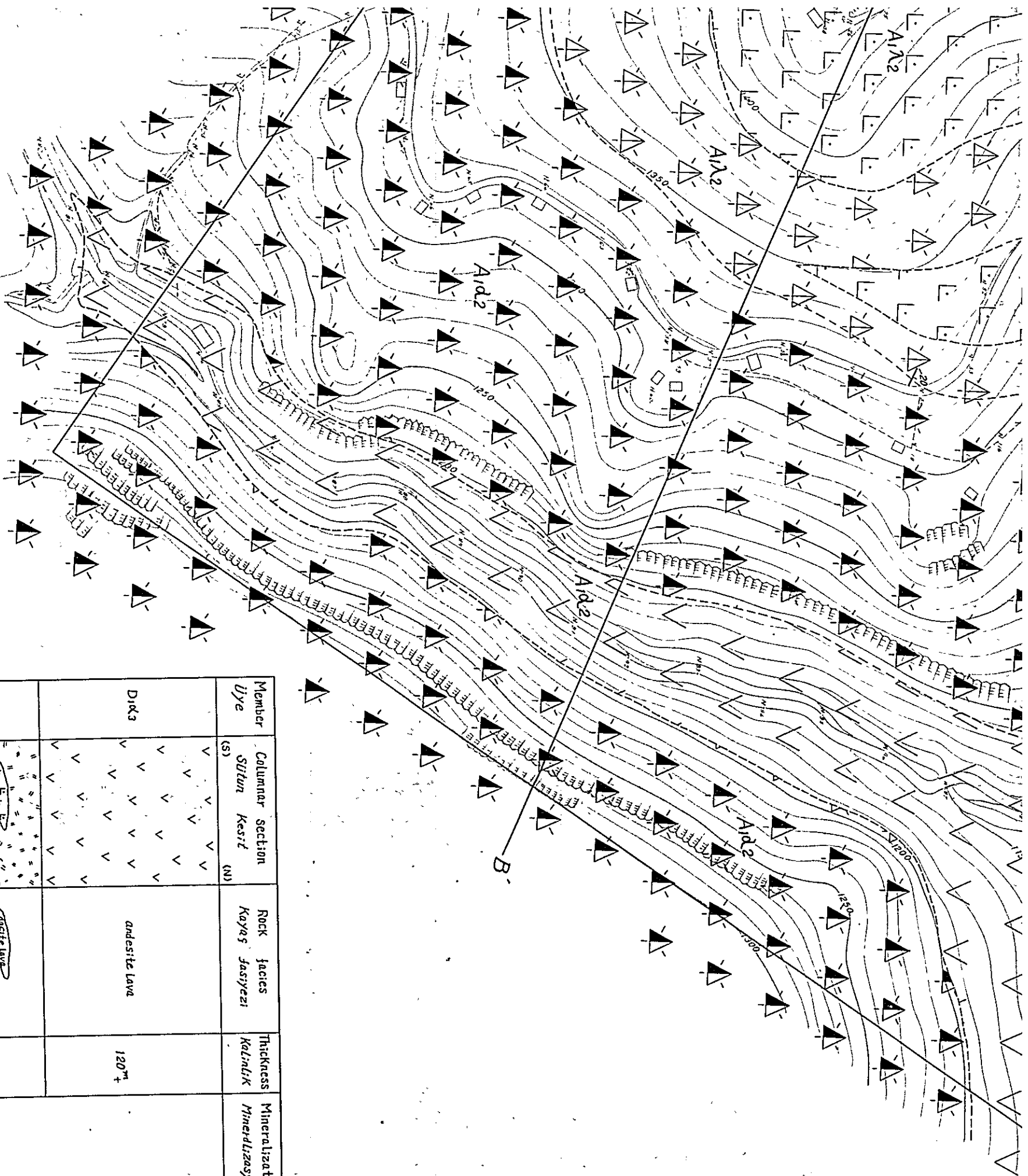


A~A' Profile

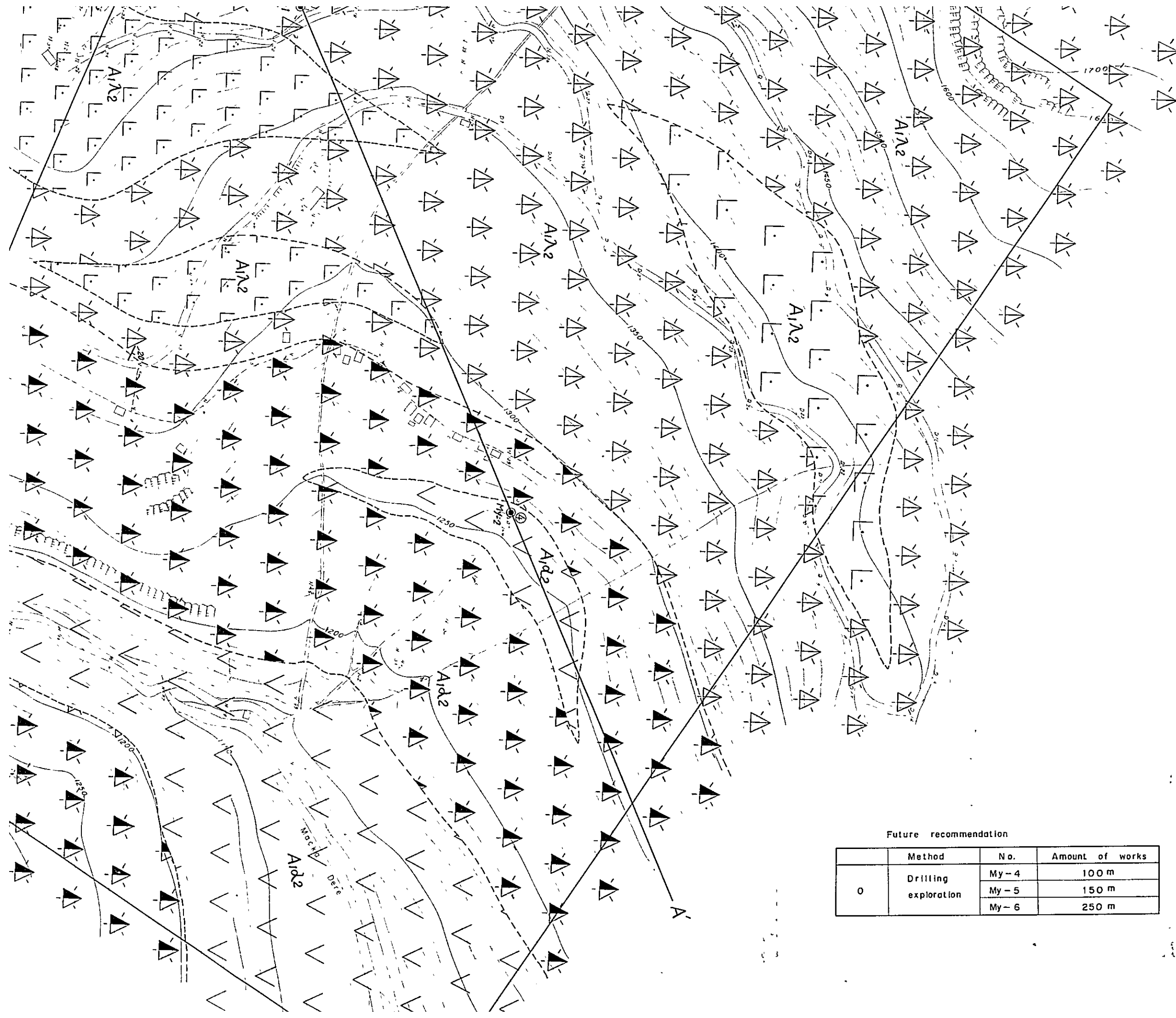


B~B' Profile





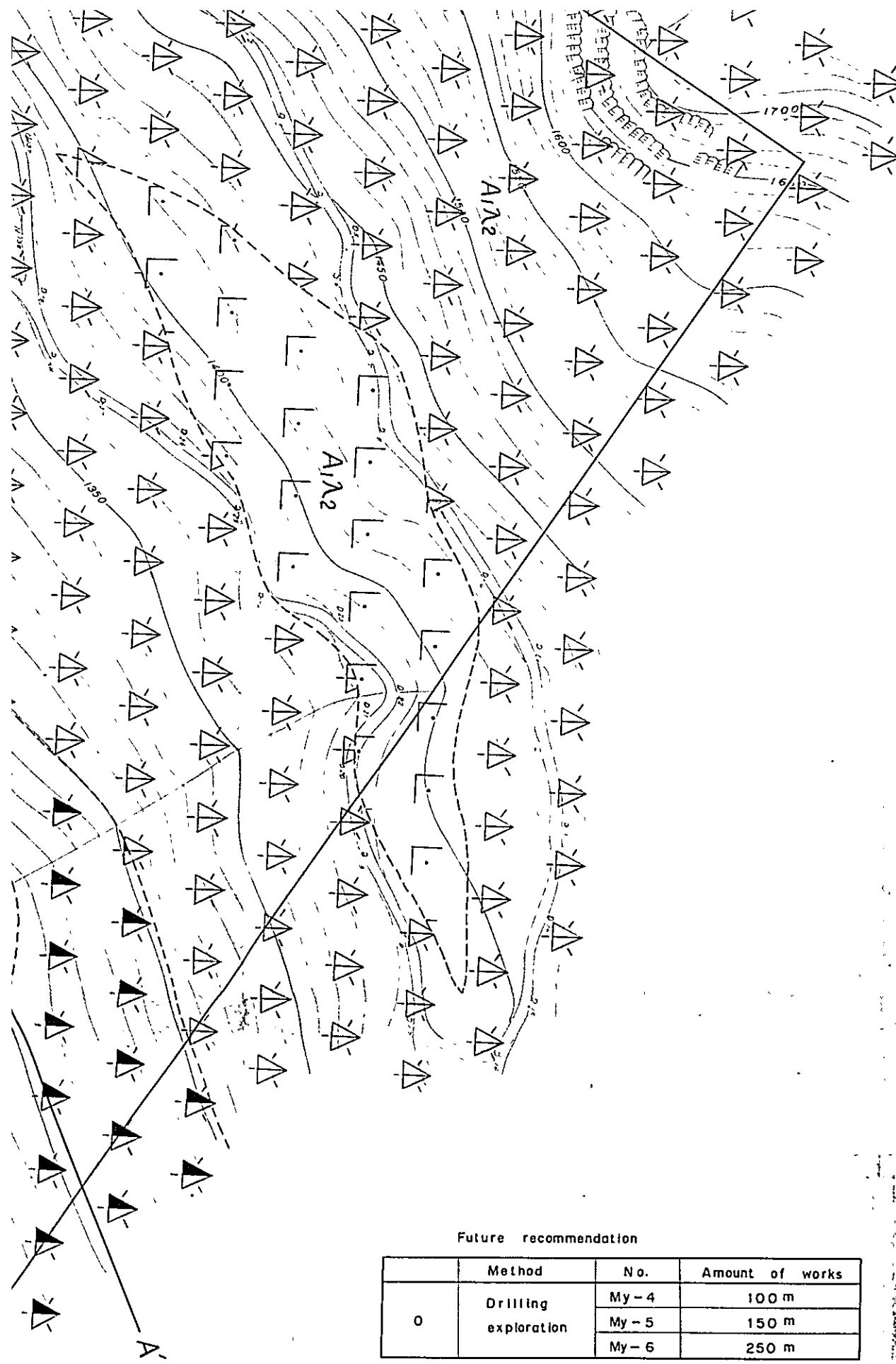
Member	Columnar section (s)	Rock facies	Thickness	Mineralization
D1d3		andesite lava	120m±	
A1A2		<ul style="list-style-type: none"> dactite lava andesite tuff lapilli tuff tuff breccia dactite lava dactite dyke dactite lava andesite tuff lapilli tuff tuff breccia andesite lava andesite tuff lapilli tuff 	350m±	Yeni Mahalle Pyrite dissemination
		andesite lava	170m±	
		andesite tuff lapilli tuff tuff breccia		
		andesite lava	30m±	



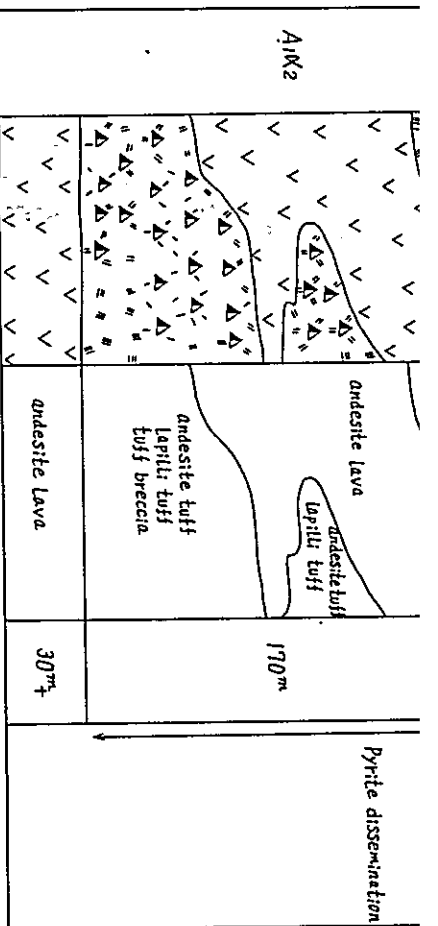
Future recommendation

	Method	No.	Amount of works
0	Drilling exploration	My-4	100 m
		My-5	150 m
		My-6	250 m

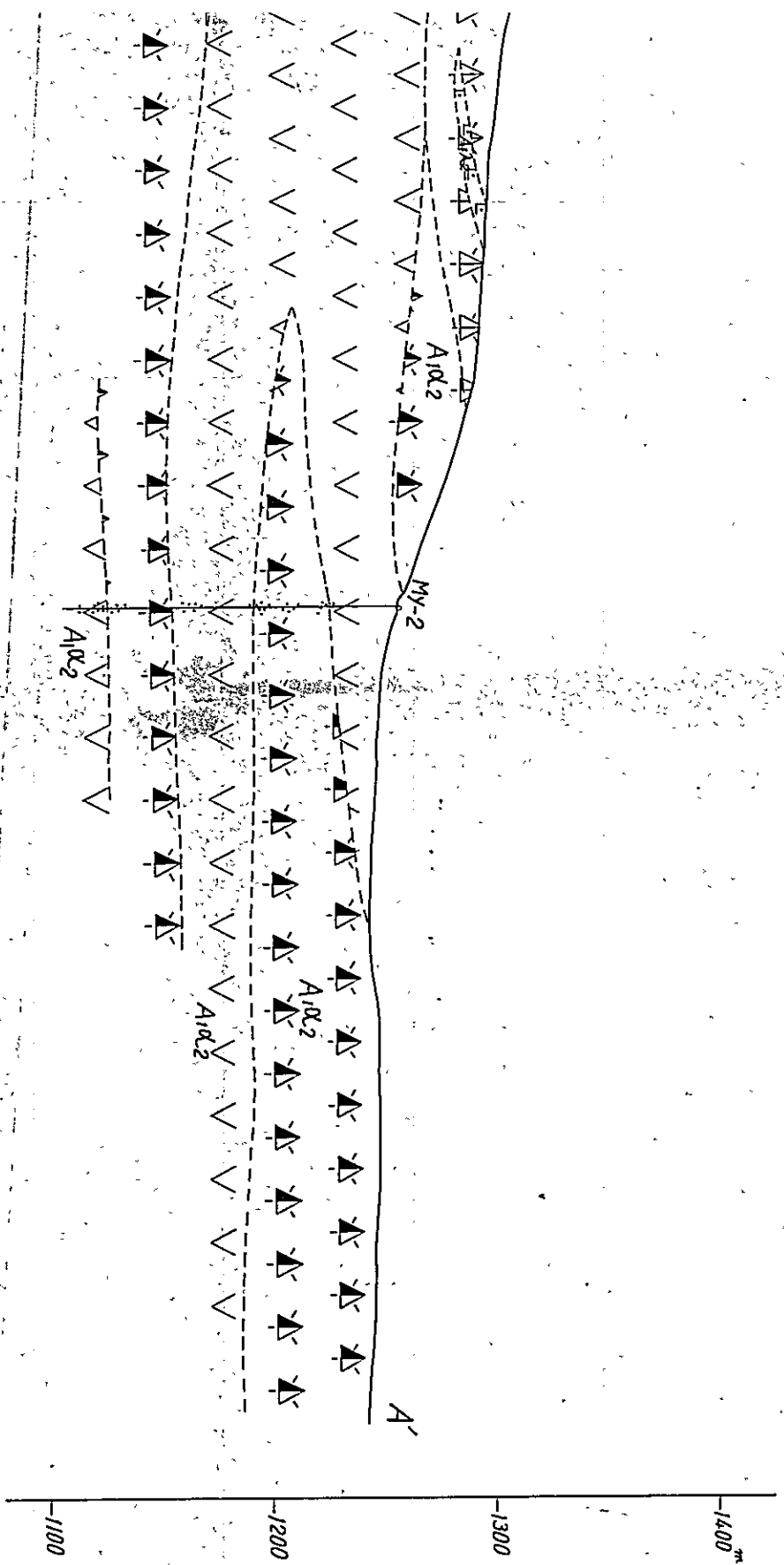
Geological Unit	Symbol	Unit Code	Lithology	Description
Upper Cretaceous Ust Kretase	D ₁	D ₁ λ ₄	Dacite Dazit Dacite Dazit Fine t luce ti	
		D ₁ α ₄	Andes Andez Andes Andez Fine t luce ti	
		D ₁ λ ₃	Dacite Dazit Dacite Dazit Basalt Bazalt Fine t luce ti	
	A ₁	D ₁ α ₃	Andes Andez Andes Andez Fine t luce ti	
		D ₁ kt	Limes Kireçli	
		A ₁ λ ₂	Dacite Dazit Dacite Dazit Fine t luce ti Limes Kireçli	
		A ₁ α ₂	Andes Andez Andes Andez Fine t luce ti	
A ₁ kt	Limes Kireçli			
Intrusive rocks Intruzifler	β	Basalt		
	α	Andes Andez		
	ε	Dacite Dazit		
	σ	Porphy Porfir		
	δσ ₂	Diorit Diorit		
	σ ₂	Quartz Kıvırcık		
	δ ₂ σ	Quartz Kıvırcık		
	δ ₂ σ	Quartz Kıvırcık		
Structural Features	30	Bedding Tabak		
	70	Fault Fay		
	40	Joint Kırık		
	20	Flow Akıntı		
	X	Anticline Antiklinal		
	X	Work Çalışma		
	X	Mineral Maden		
○	Massif Masaif			
○	Skarn Skarn			
○	Drill Sondaj			
A-A'	Geological Jeolojik			



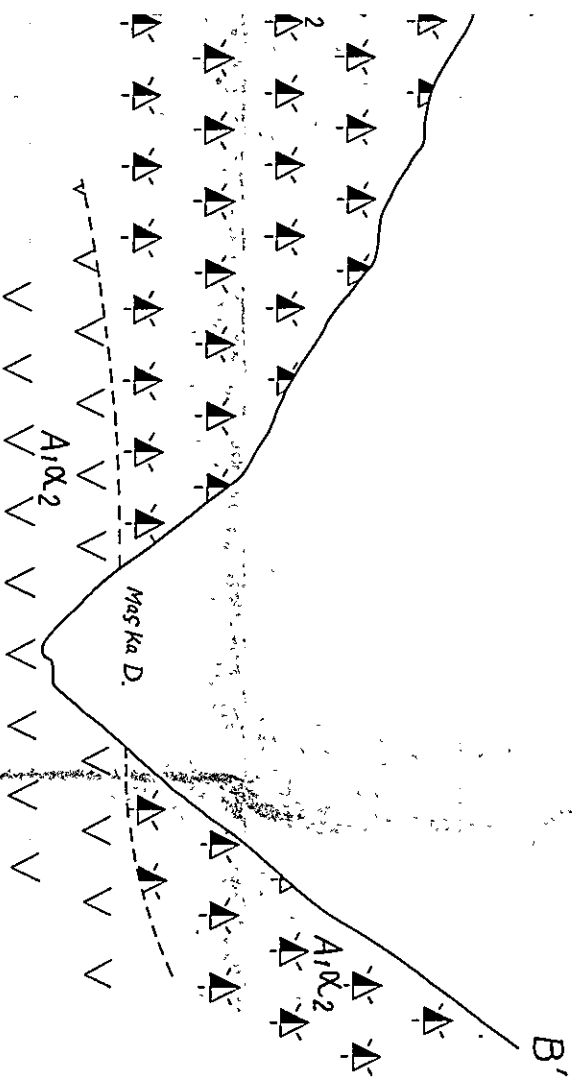
Myosen				
Upper Cretaceous Üst Kretase	A ₂		A ₂ α	Andesite pyroclastics Andezitik Piroklastikler
			D ₁ λ ₄	Dacite lava Dasit lavı
				Dacite pyroclastics Dasit Piroklastikler
				Fine tuff & calcareous mudstone İnce tuf & kalkerli çamurtaşı
			D ₁ α ₄	Andesite lava Andezitik lav
				Andesite pyroclastics Andezitik Piroklastikler
				Dacite lava Dasit lavı
				Dacite pyroclastics Dasit Piroklastikler
			D ₁ λ ₃	Basalt lava Bazalt lavı
				Fine tuff & calcareous mudstone İnce tuf & kalkerli çamurtaşı
		Andesite lava Andezitik lav		
		D ₁ α ₃	Andesite pyroclastics Andezitik Piroklastikler	
			Fine tuff & calcareous mudstone İnce tuf & kalkerli çamurtaşı	
			Limestone, marl. Kireçtaşı, marl	
			Dacite lava Dasit lavı	
		A ₁ λ ₂	Dacite pyroclastics Dasit Piroklastikler	
			Fine tuff & calcareous mudstone İnce tuf & kalkerli çamurtaşı	
			Limestone, marl. Kireçtaşı, marl.	
			Andesite lava Andezitik lav	
		A ₁ α ₂	Andesite pyroclastics Andezitik Piroklastikler	
			Fine tuff & calcareous mudstone İnce tuf & kalkerli çamurtaşı	
			Limestone, marl. Kireçtaşı, marl	
			Basalt Bazalt	
Intrusive rocks İntrüzifler		α	Andesite Andezit	
		ε	Dacite Dasit	
		σ	Porphyrite Porfir	
		δσ ₂	Diorite porphyrite Diorit porfir	
		δ ₂ σ	Quartz diorite Kuvars diorit	
		δ ₂ σ	Quartz diorite porphyrite Kuvars diorit porfir	
		δ ₂ σ	Quartz porphyry Kuvars porfiri	
			Bedding Tabaka	
		Fault Fay		
		Joint Kirik		
		Flow structure Akitilli yapı		
		Anticlinal/synclinal axis Antiklinal/senklinel eksen		
		Working mine/abandoned mine Çalışan maden/kapalı maden		
		Mineralization vein type/dissemination type Mineralizasyon damar tipi/disseminasyon tipi		
		Massive, bedded ore/veinlets Masif, tabakalı cevher/damarcıklar		
		Skarnized zone Skarn zonu		
		Drilling site Sondaj yer		
		Geological profile line Jeolojik kesit çizgisi		

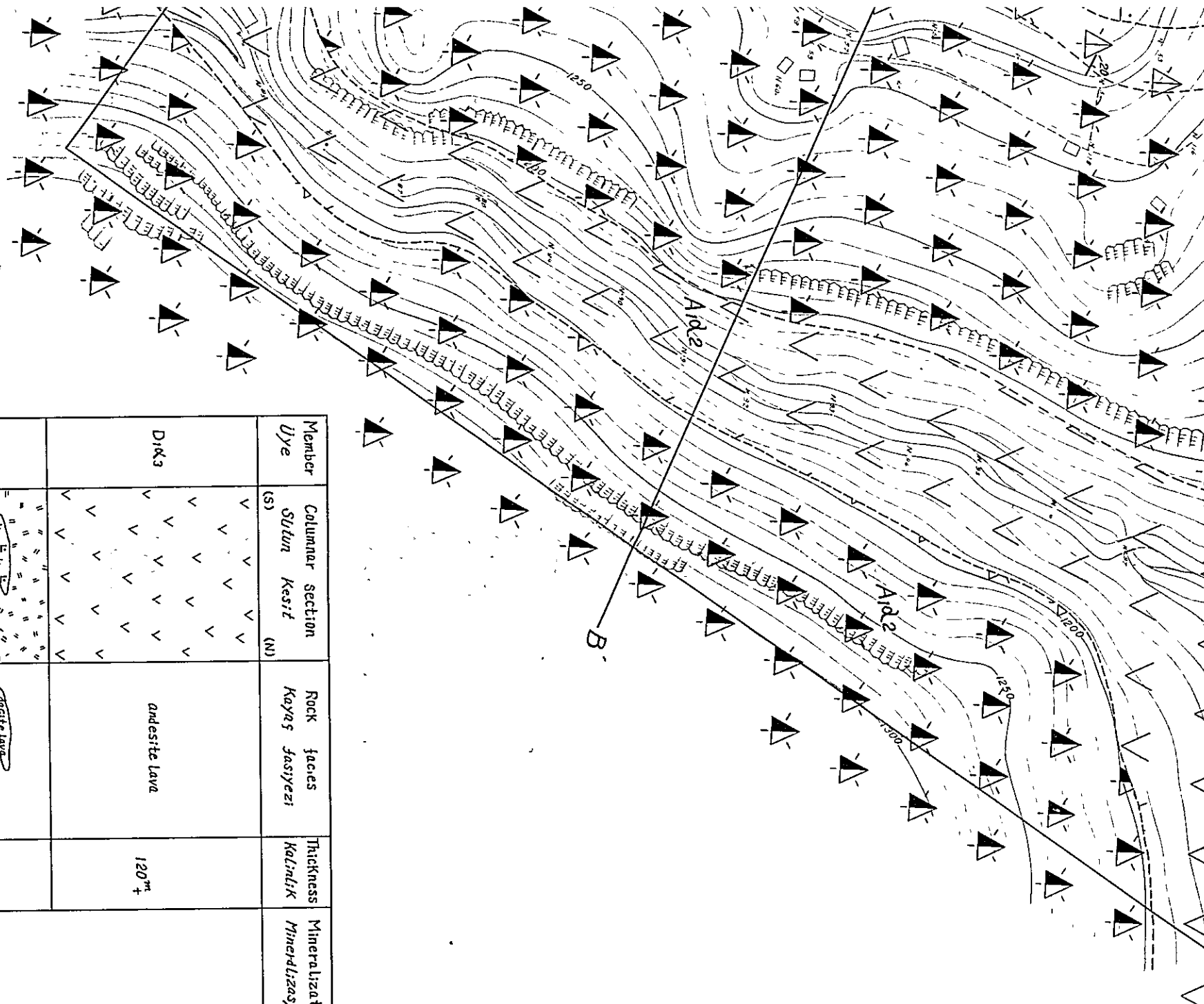


A Profile

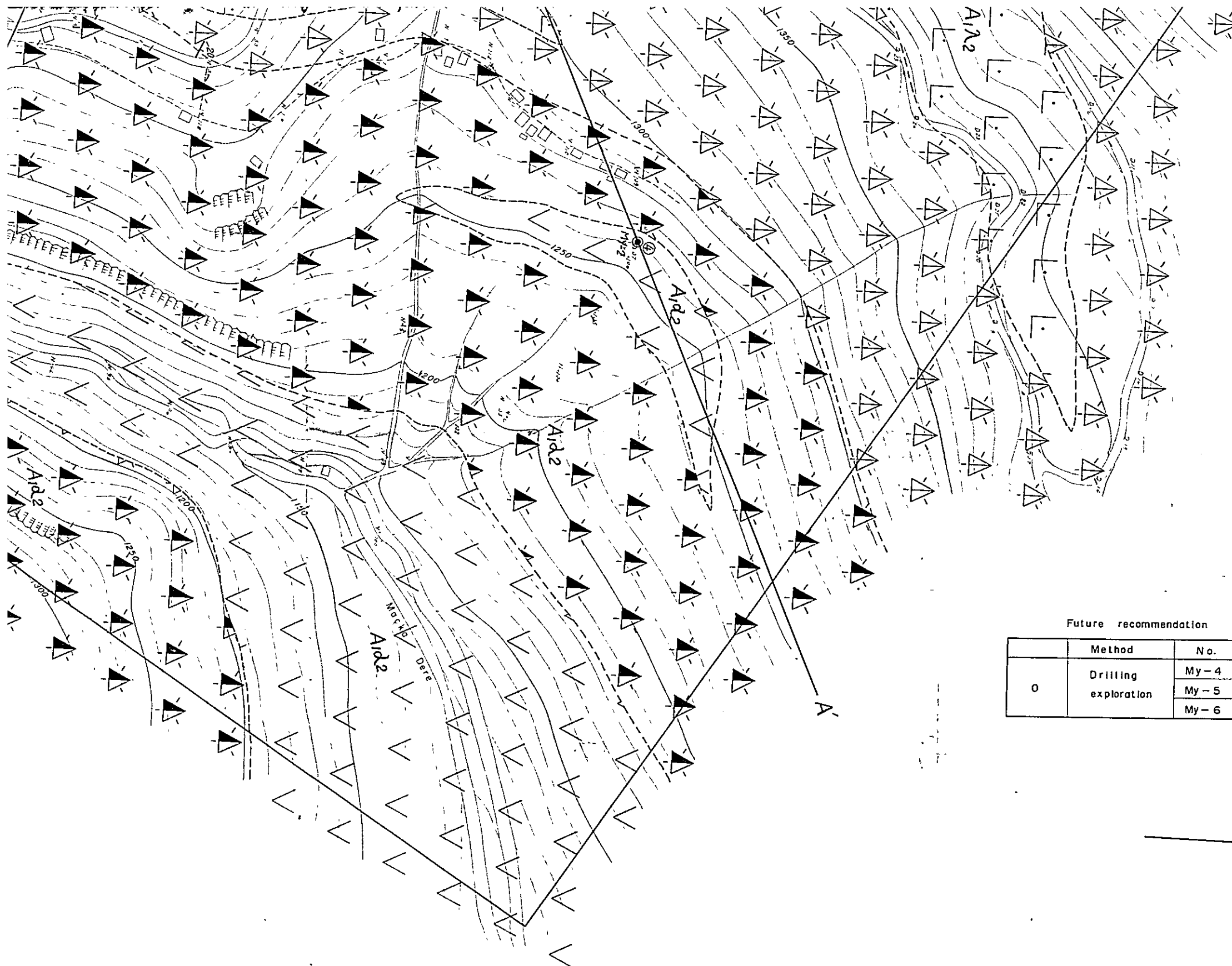


Profile



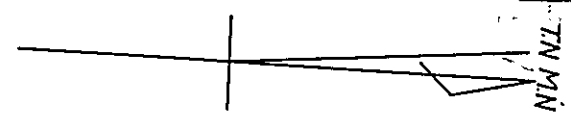


Member Uye	Columnar Section (S) Kesif (N)	Rock facies Kayas Jasyezi	Thickness Kalinlik	Mineralization Minerelizasyon
Dik3		andesite lava	120m ±	
A1A2		<p>andesite lava</p> <p>dacite lava</p> <p>dacite tuff, lapilli tuff, tuff breccia</p> <p>dacite lava</p> <p>dacite dyke</p> <p>dacite lava</p> <p>andesite tuff, lapilli tuff, tuff breccia</p> <p>andesite lava</p> <p>andesite tuff, lapilli tuff</p>	350m	Yeni Mahalle
A1A2		<p>andesite lava</p> <p>andesite tuff, lapilli tuff, tuff breccia</p>	170m	Pyrite dissemination
A1A2		andesite Lava	30m ±	

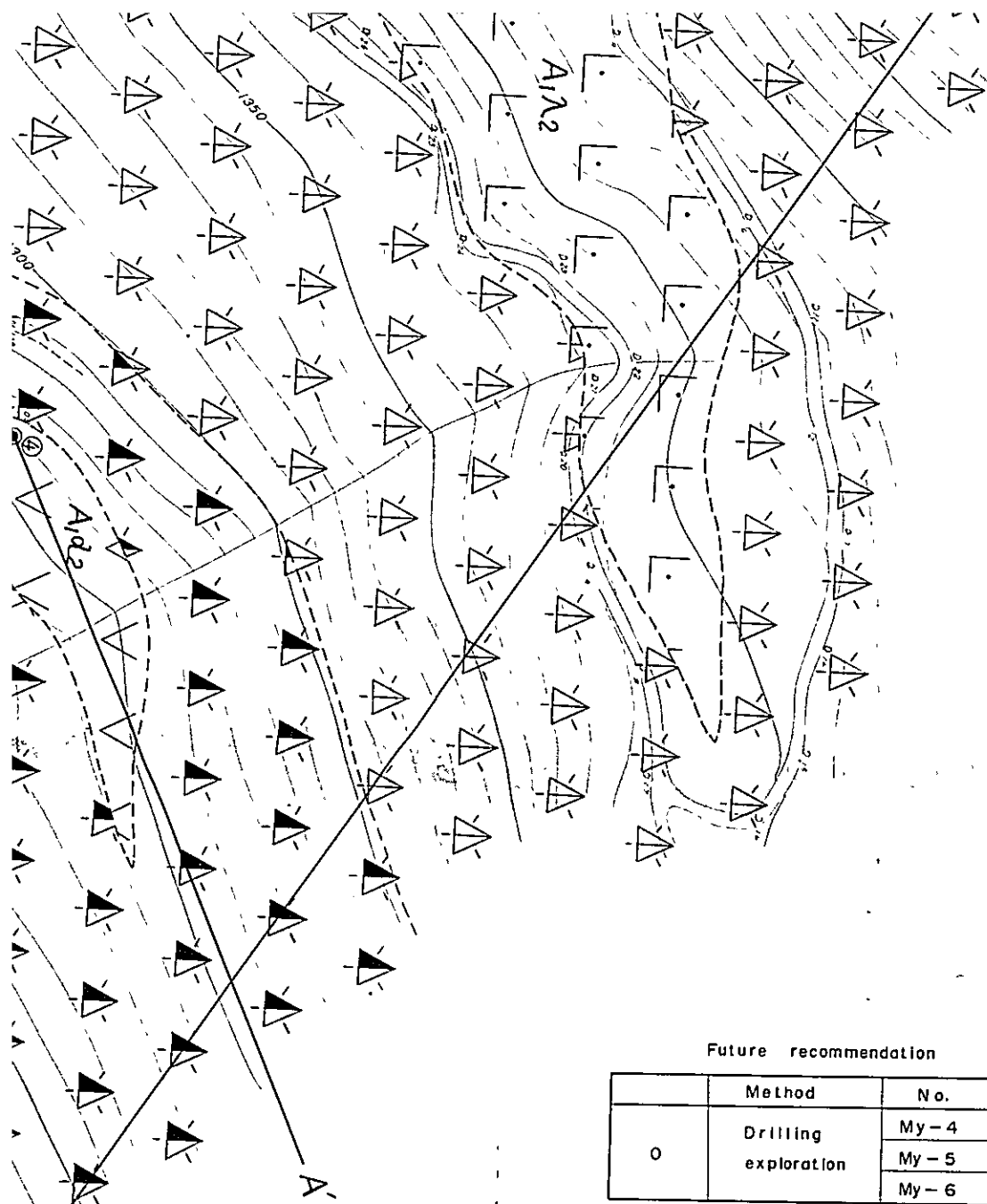


Future recommendation

	Method	No.	Amount of works
0	Drilling exploration	My - 4	100 m
		My - 5	150 m
		My - 6	250 m



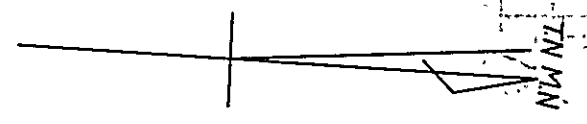
A ₁		D ₁ kt
		A ₁ λ ₂
		A ₁ α ₂
	A ₁ kt	
Intrusive rocks <i>Intruzifler</i>		β
		α ₁ kt
		ε
		σ
		δσ ₂
		σ ₂
		δ ₂ σ
		δ ₂ σ

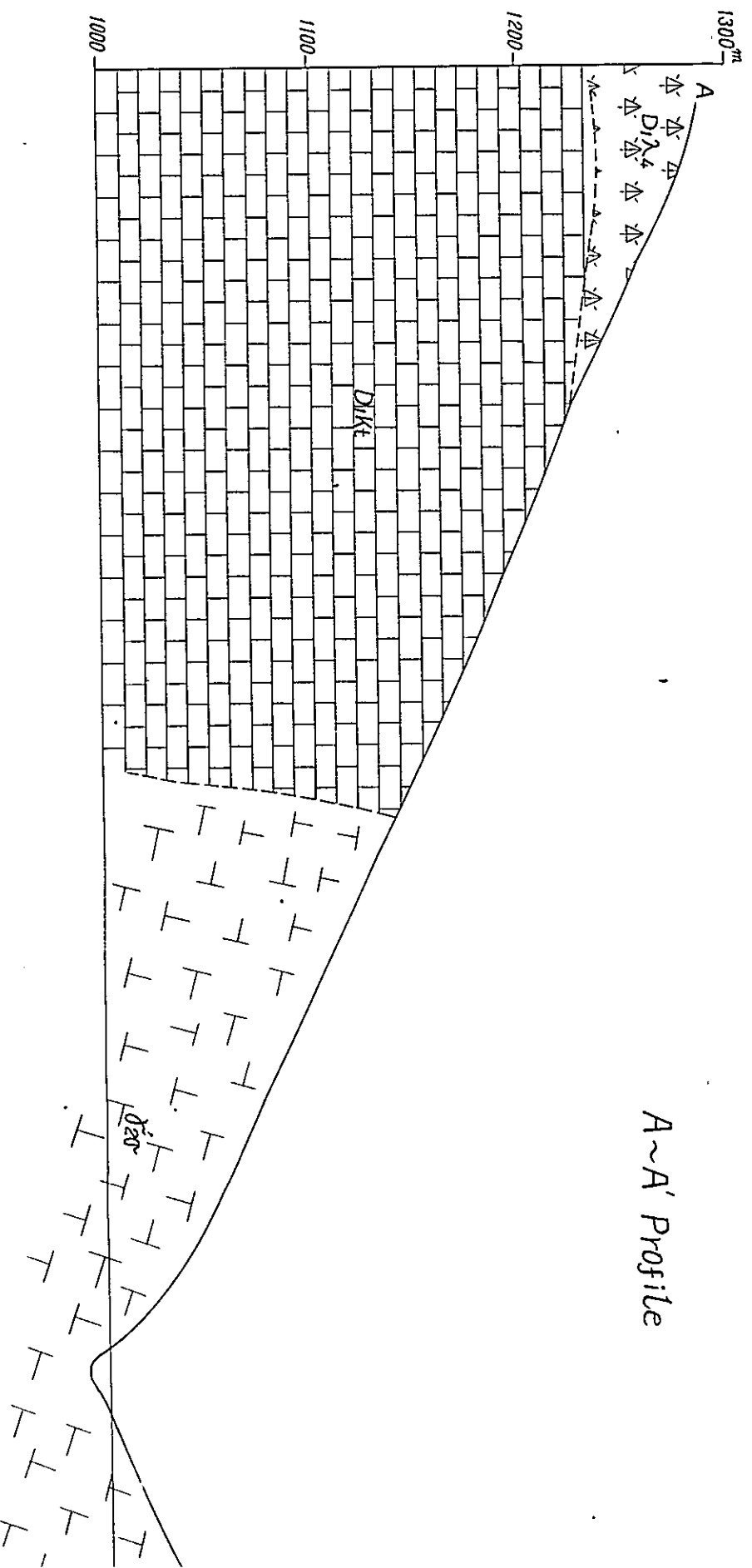
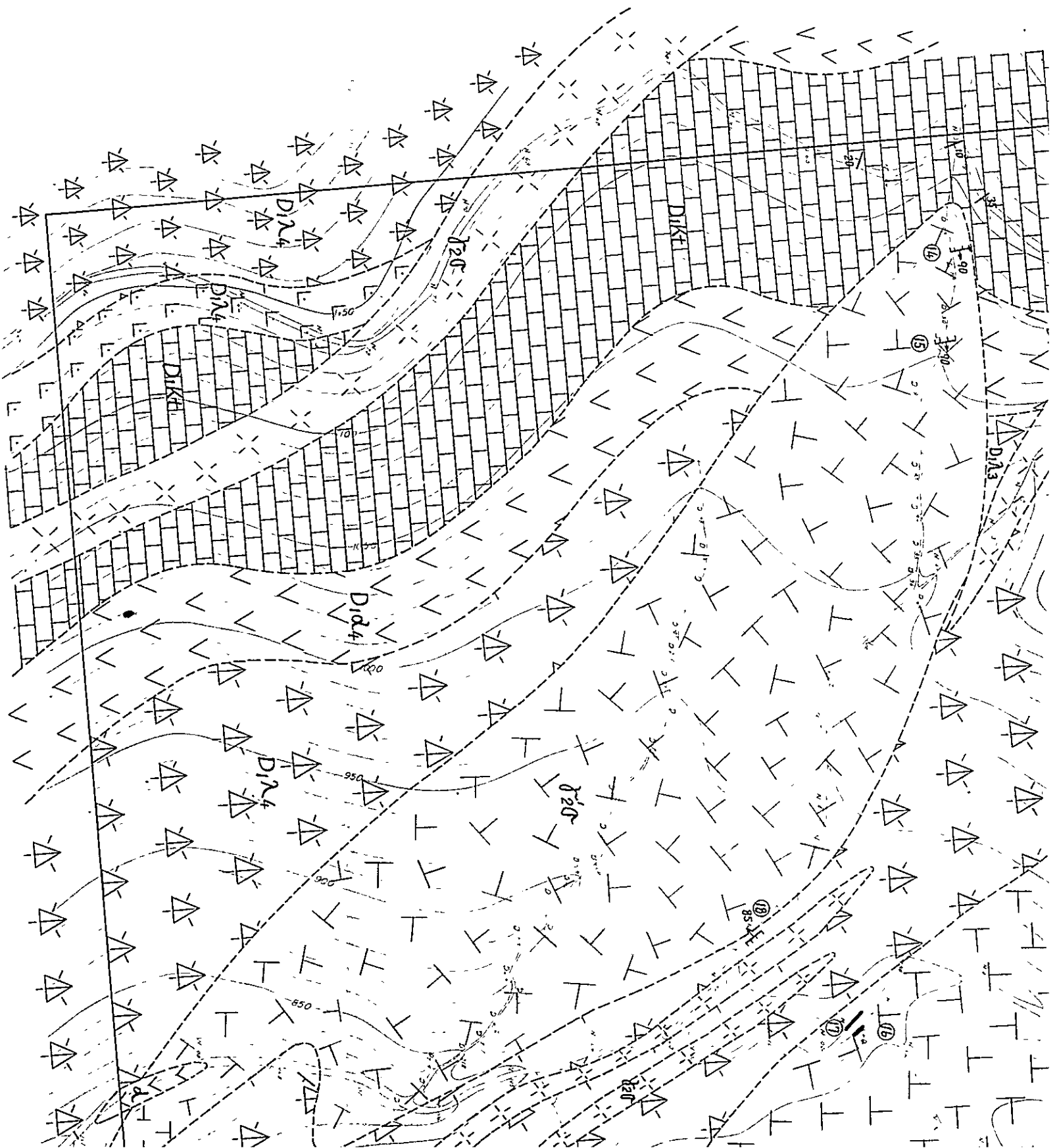


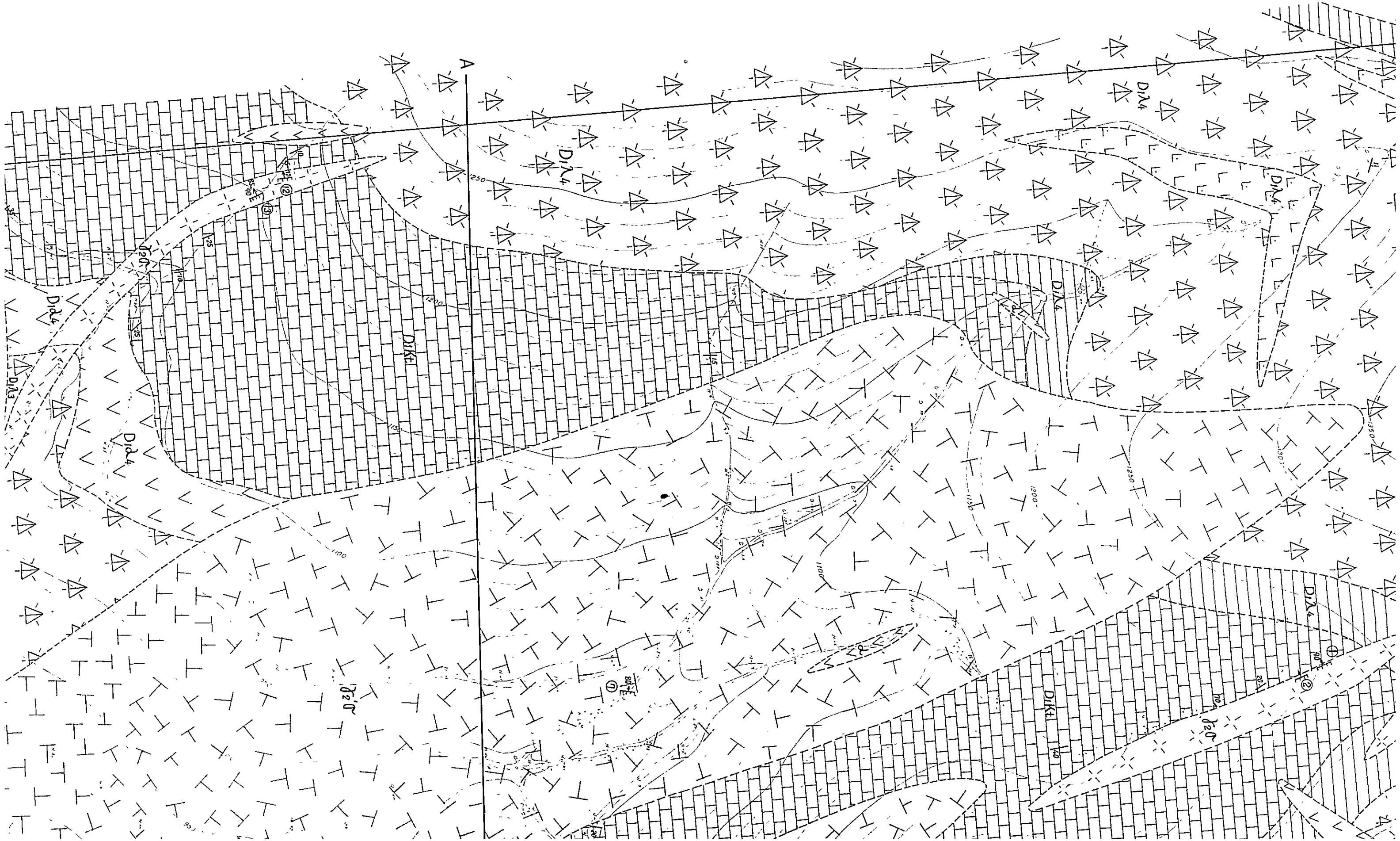
Future recommendation

	Method	No.	Amount of works
0	Drilling exploration	My-4	100 m
		My-5	150 m
		My-6	250 m

		D ₁ α ₃	Andezitik lav Andesite pyroclastics Andezitik Piroklastikler Fine tuff & calcareous mudstone İnce tuf & kalkerli çamurtaşı
		D ₁ kt	Limestone, marl. Kireçtaşı, marı
		A ₁ λ ₂	Dacite lava Dasıt lavi Dacite pyroclastics Dasıt Piroklastikler Fine tuff & calcareous mudstone İnce tuf & kalkerli çamurtaşı Limestone, marl. Kireçtaşı, marı
		A ₁ α ₂	Andesite lava Andezitik lav Andesite pyroclastics Andezitik Piroklastikler Fine tuff & calcareous mudstone İnce tuf & kalkerli çamurtaşı
Intrusive rocks İntrüziyifler		A ₁ kt	Limestone, marl. Kireçtaşı, marı
		β	Basalt Bazalt
		α	Andesite Andezit
		ε	Dacite Dasıt
		σ	Porphyrite Porfir
		δσ ₂	Diorite porphyrite Diorit porfir
		δ ₂ σ	Quartz diorite Kuars diorit
		δσ	Quartz diorite porphyrite Kuars diorit porfir
		δσ	Quartz porphyry Kuars porfiri
			Fault Fay
			Joint Kırık
			Flow structure Akıntılı yapı
			Anticlinal/synclinal axis Antiklinal/senkinal eksen
			Working mine/abandoned mine Çalışan maden/kapalı maden
			Mineralization, vein type/dissemination type Mineralizasyon damar tip/disseminasyon tip
			Massive, bedded ore/veinlets Masif, tabakalı cevher/damarcıklar
			Skarnized zone Skarn zonu
			Drilling site Sondaj yer
			Geological profile line Jeolojik kesit çizgisi







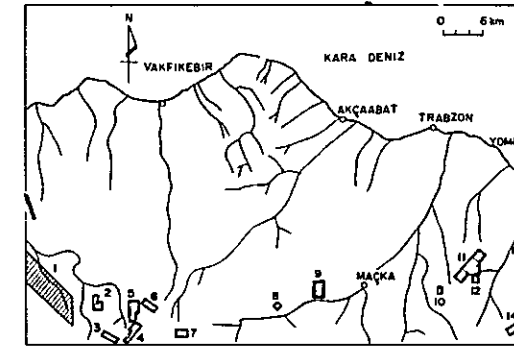
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 GEOLOGICAL SURVEY
 OF
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PHASE II

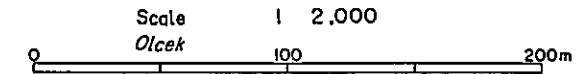
GEOLOGICAL MAP WITH GEOLOGICAL PROFILE
 AND COLUMNAR SECTION OF SALANA AREA

SALANA SAHASININ JEOLJİ
 HARITASI JEOLJİ KESİTLERİ VE
 SÜTUN KESİTİ

INDEX MAP

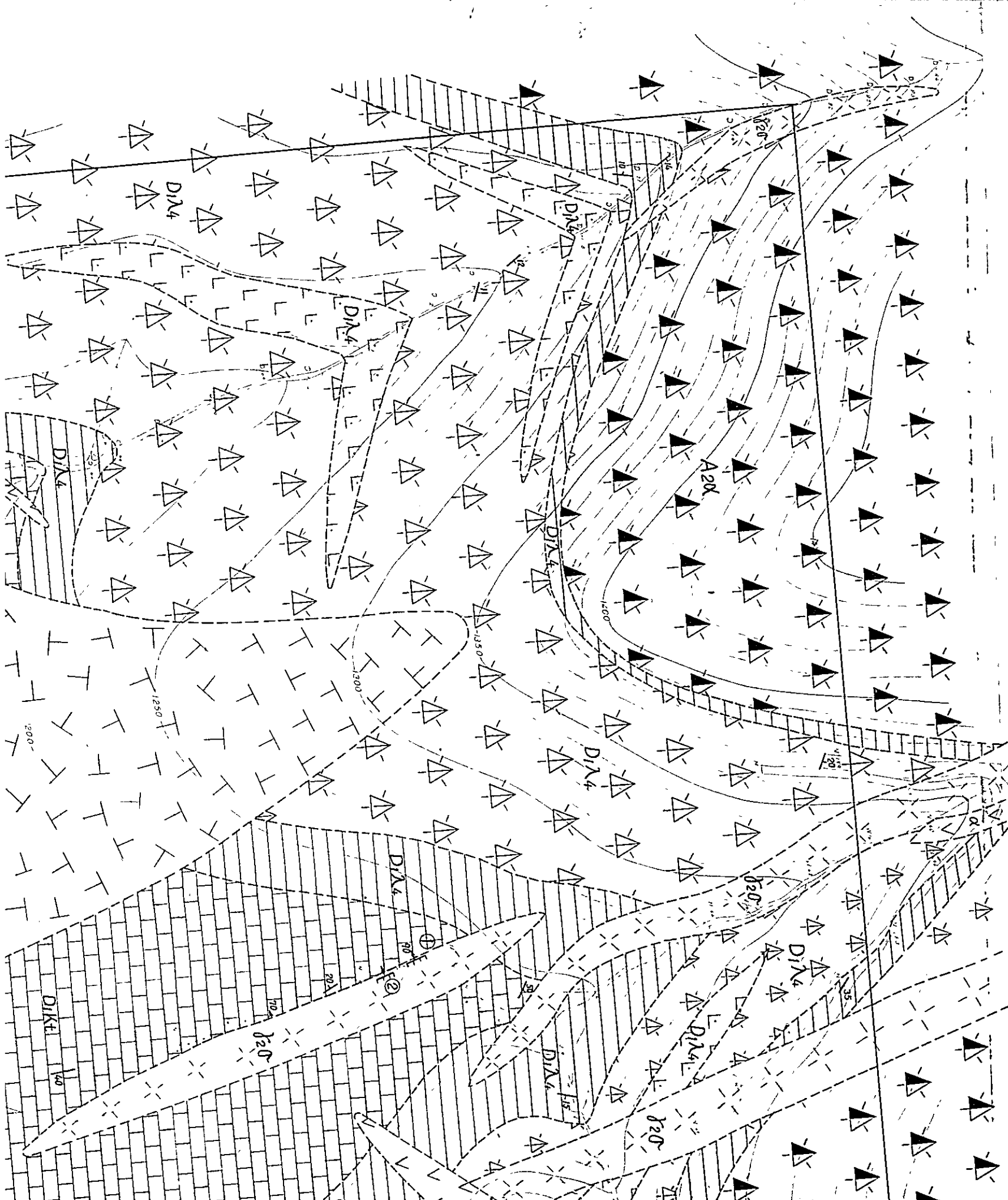


General geological survey area Detailed geological survey area



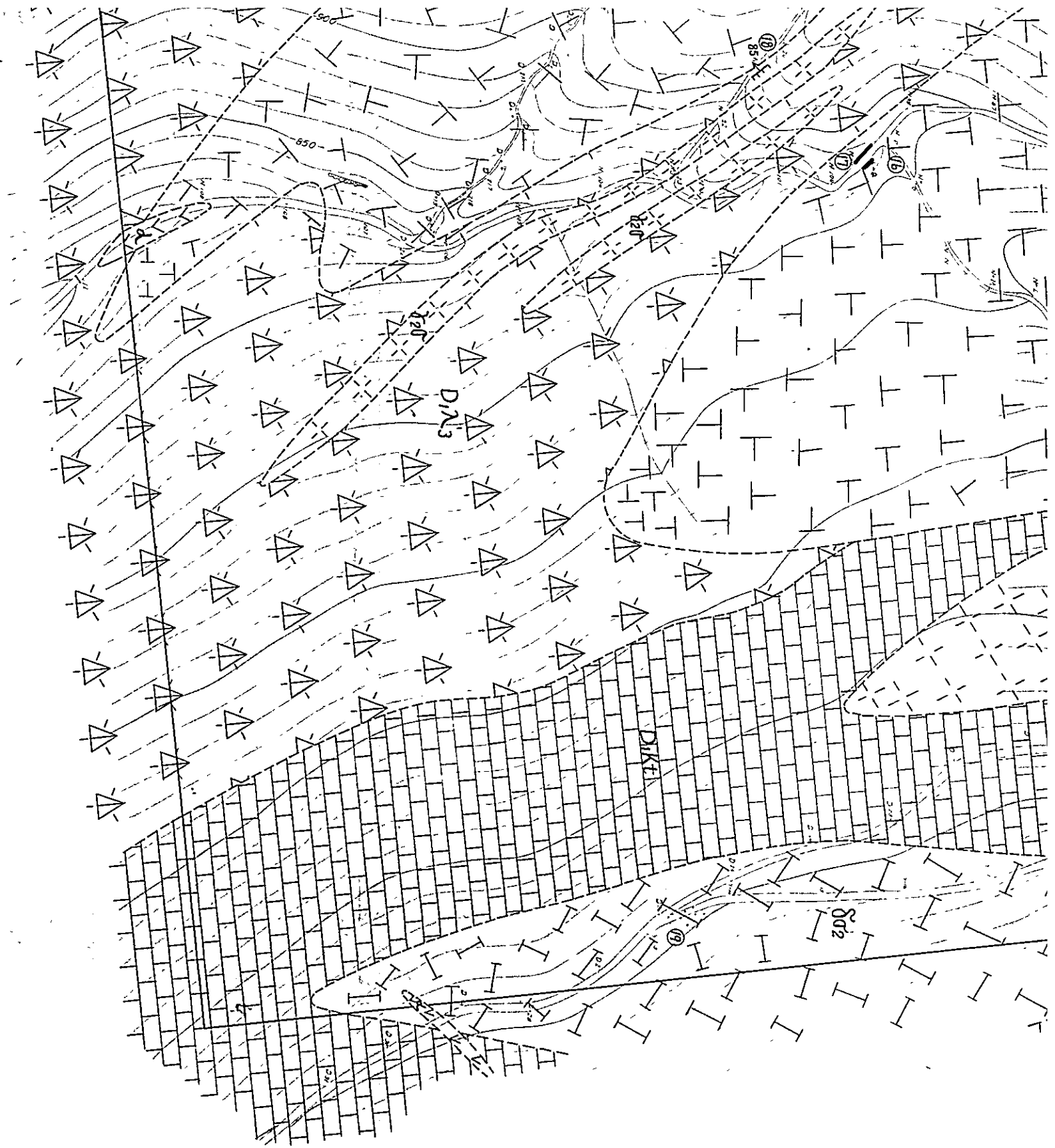
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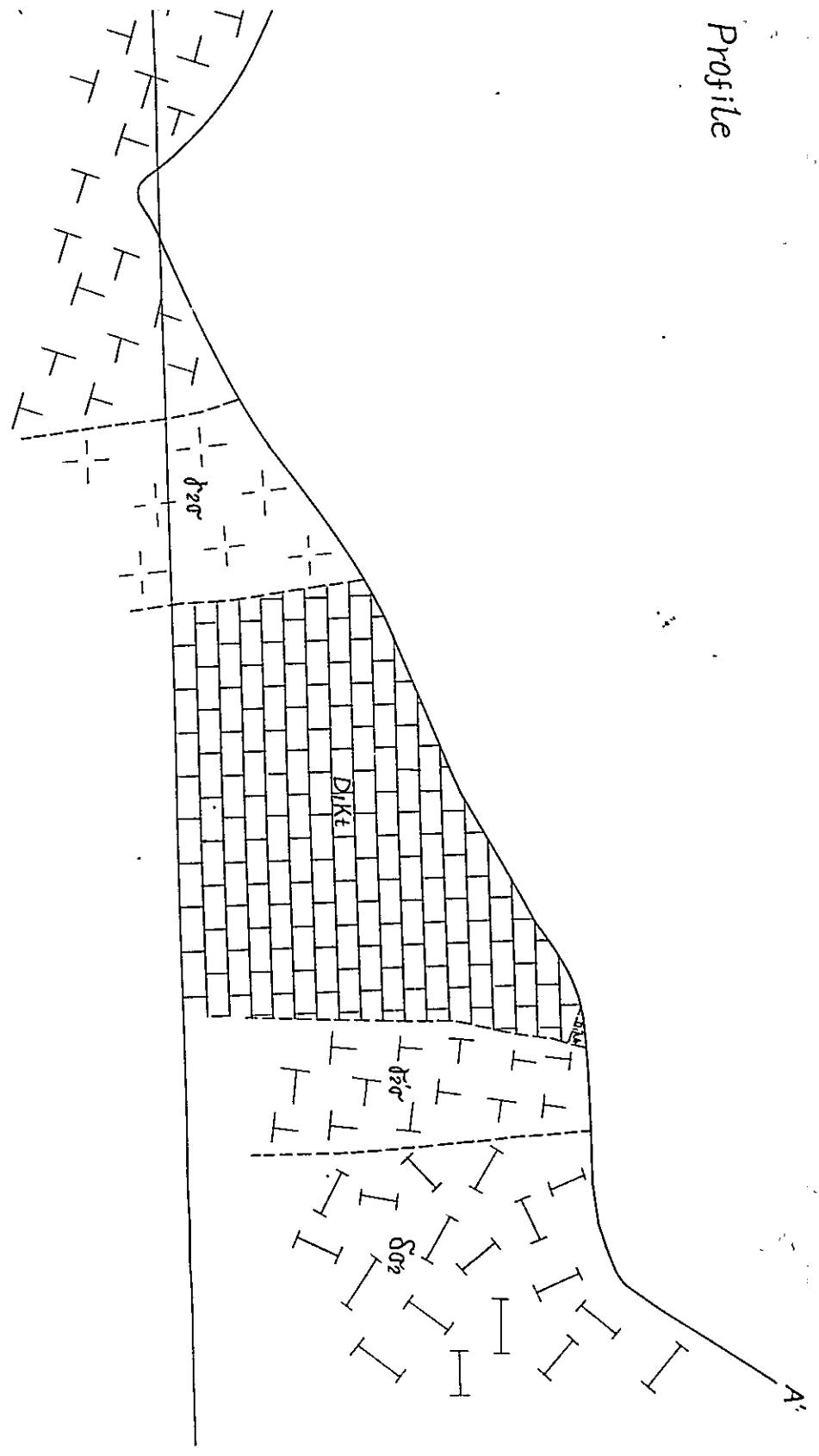


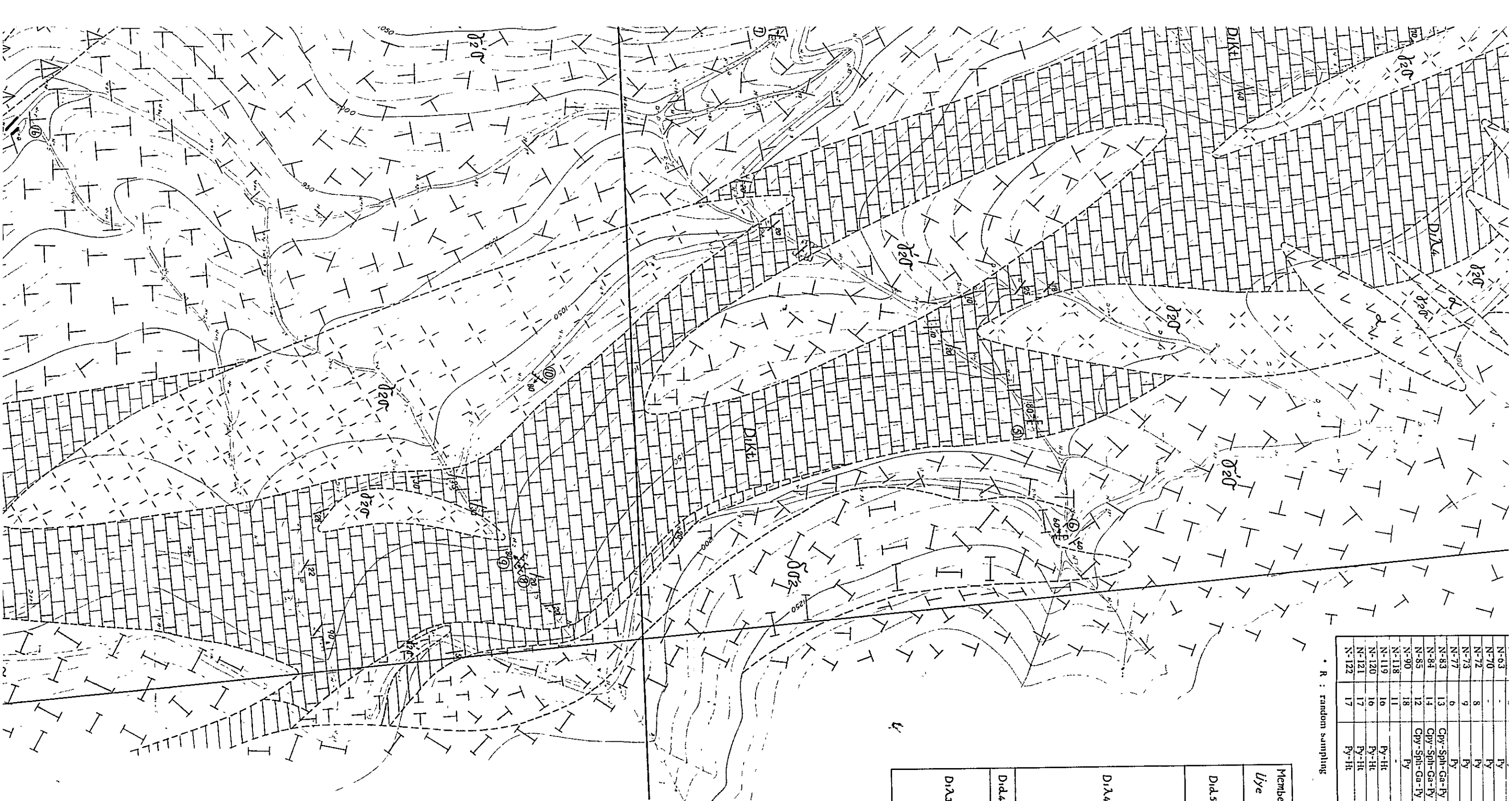
LEGEND
 LEJAND

Geological age Jeolojik yas	Formation Formasyon	Stratigraphical Stratigrafik		Lithology Litoloji
		Marks Isaretiler	Symbol Sembol	
Paleogene Paleosen Neogene Miyasen	A3		A3d	Andesite lava Andezit lavı
	A2		A2d	Andesite pyroclastics Andezitik Piroklastikler
			D1A4	Dacite lava Dazit lavı
				Dacite pyroclastics Dazit Piroklastikler
				Fine tuff & calcareous mudstone İnce tüf & kalkerli çamurtaşı



Profile

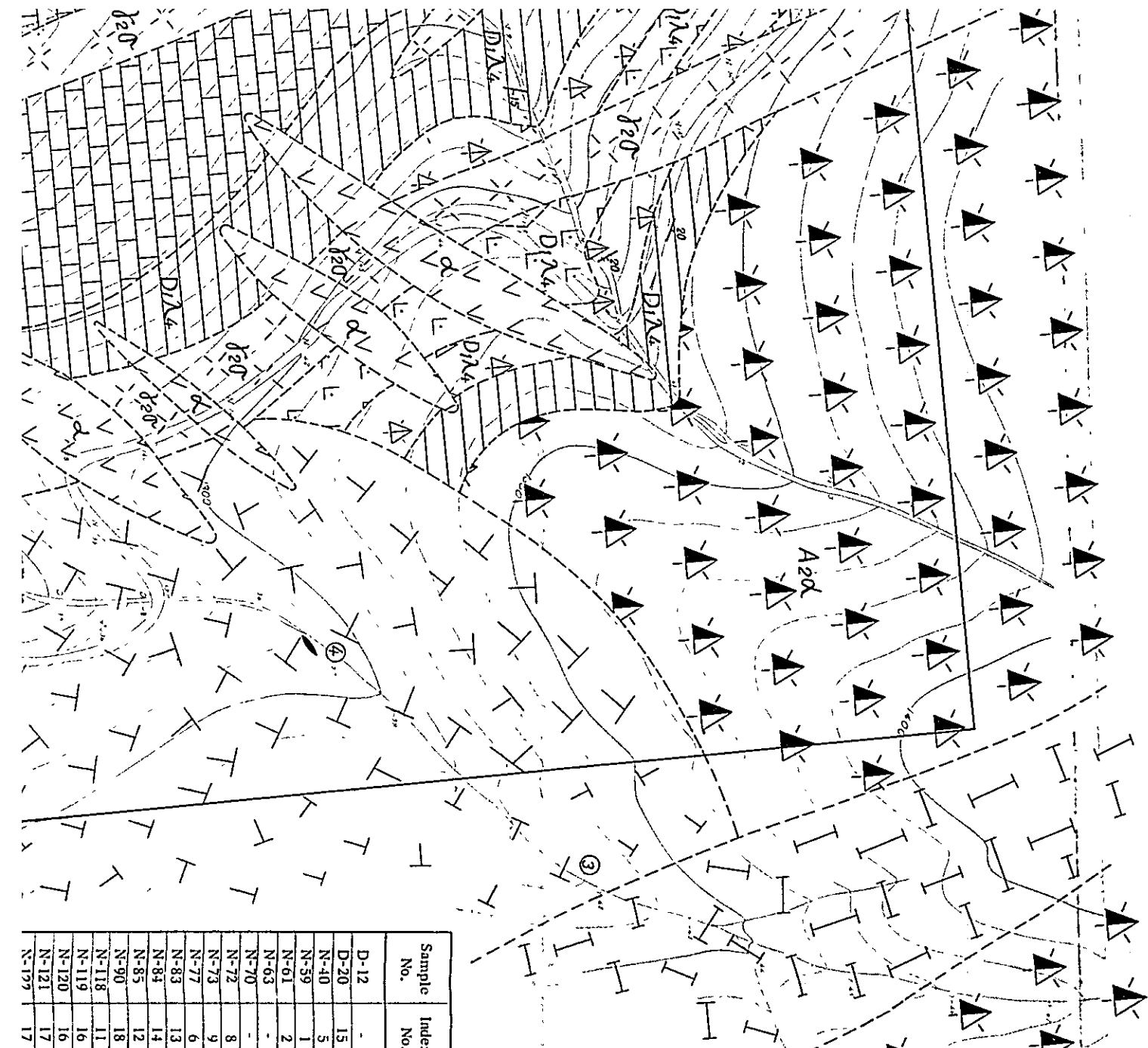




N-63	Py	veinlet		
N-70	Py	diss	60	
N-72	Py	vein	40	
N-73	Py	vein	20	
N-77	Py	vein	30	
N-83	Qpy-Sph-Ga-Py	vein	10	
N-84	Qpy-Sph-Ga-Py	vein	20	
N-85	Py	vein	120	
N-90	Py	vein	15	
N-118	Py-Ht	massive	80	
N-119	Py-Ht	massive		
N-120	Py-Ht	massive	170	
N-121	Py-Ht	massive		
N-122	Py-Ht	massive		170

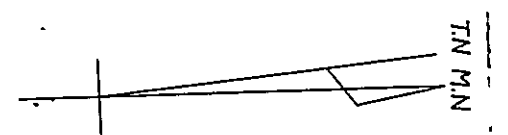
R : random sampling L : line cutting sampling G : gravel size

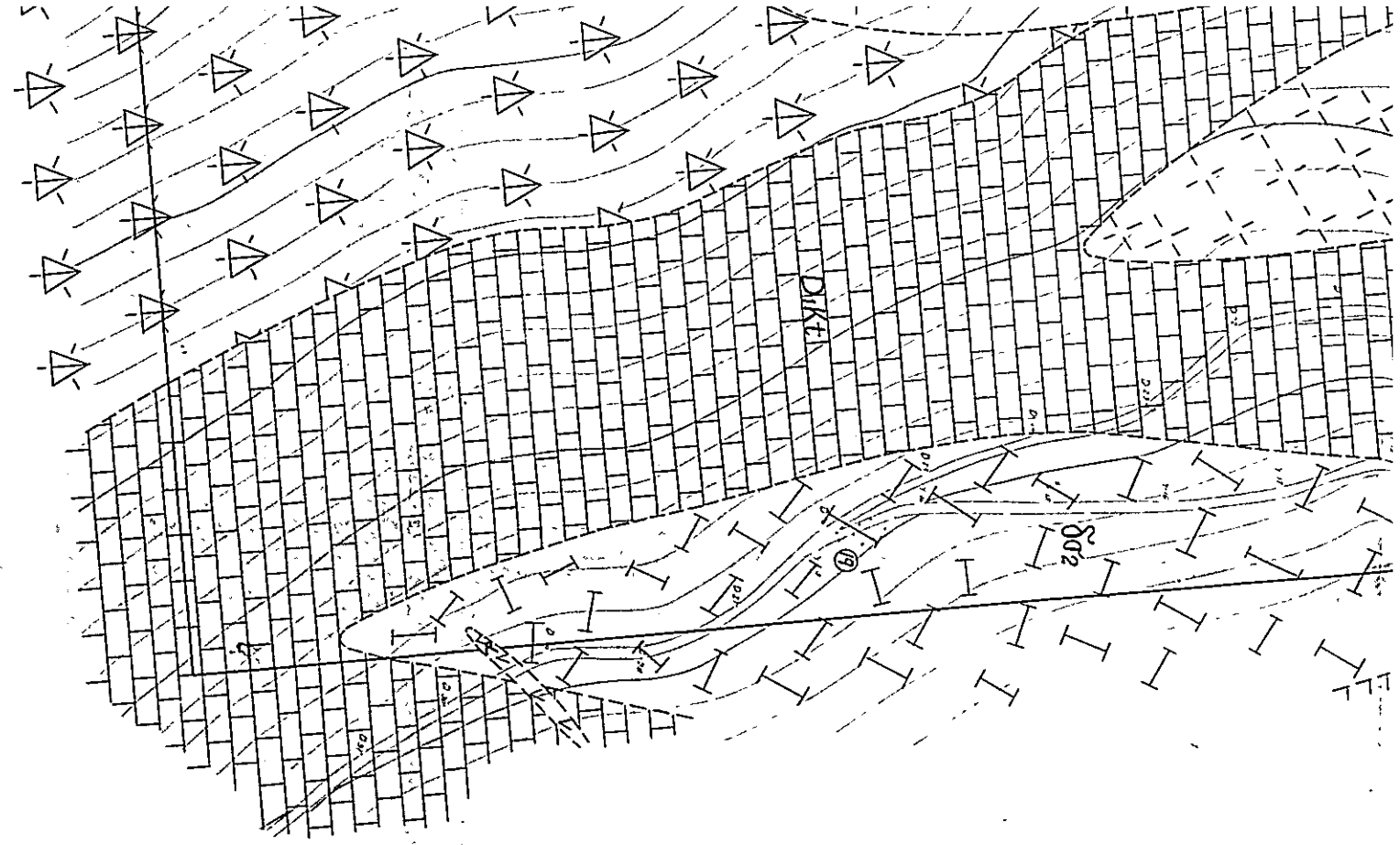
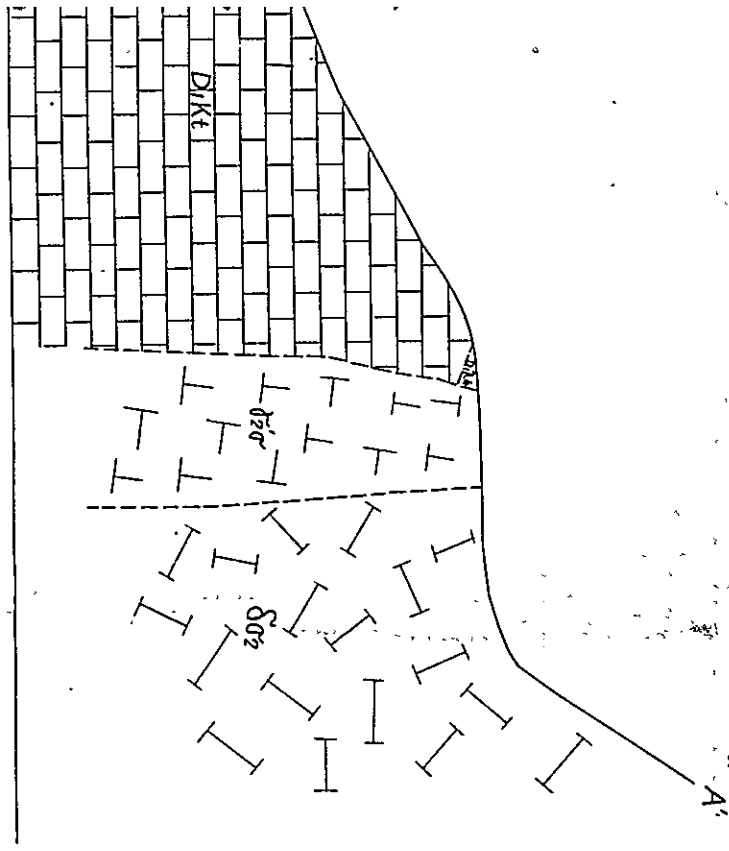
Member	Columnar Section	Rock facies
Dia5	(W) (E)	andesite tuff, lapilli, tuff breccia diorite porphyrite dyke quartz porphyrite quartz diorite andesite dyke pyroxene dactile lava
Dia4	(W) (E)	alternation of limestone, marl & fine tuff quartz porphyrite quartz porphyrite dactile tuff b
Dia4	(W) (E)	andesite lava quartz porphyrite
Dia3	(W) (E)	dactile tuff lapilli tuff tuff breccia quartz diorite porphyrite dyke

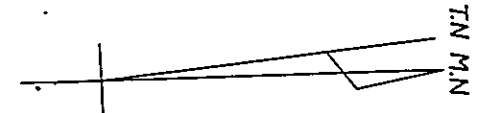
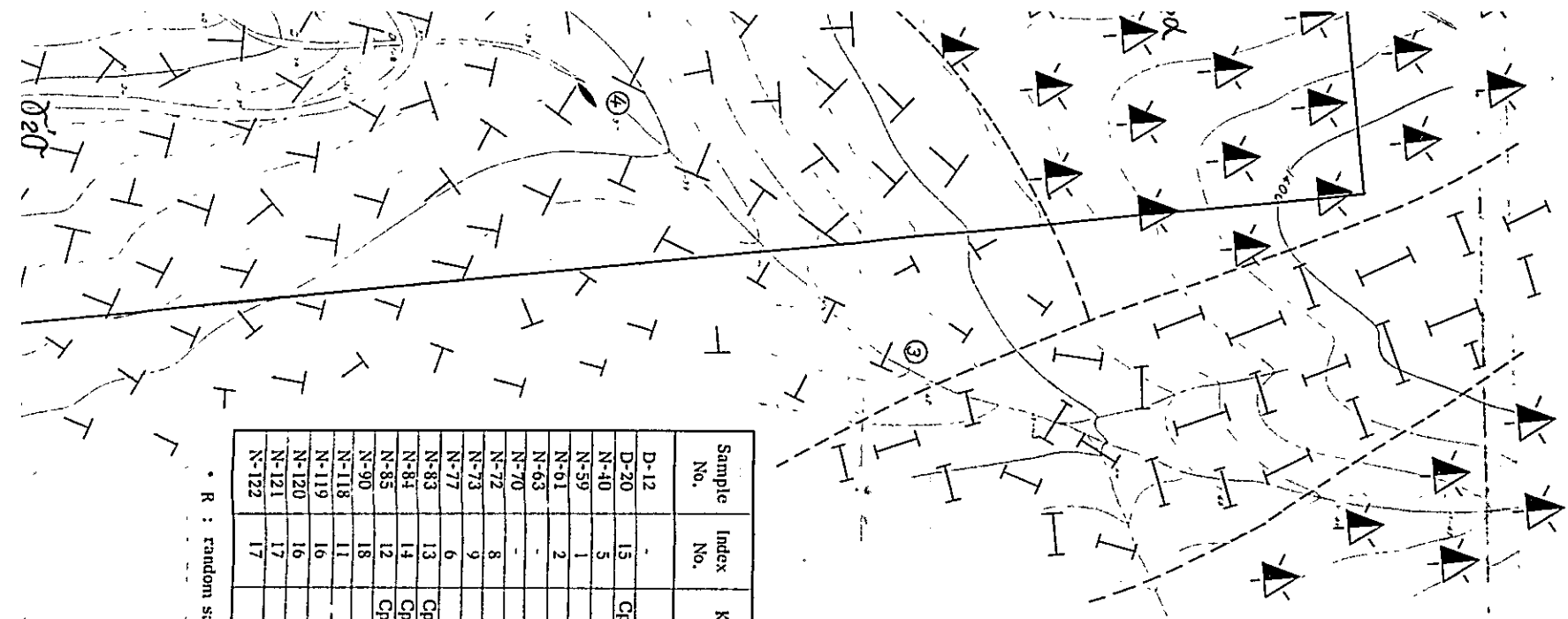


Paleosen Neogene Myosen	A3		A3d	Andesite lava Andezit lavı
				Upper Cretaceous Üst Kretase
D1		D1λ4	Dacite lava Dasit lavı Dacite pyroclastics Dasit Piroklastikler Fine tuff & calcareous mudstone İnce tuf & kalkerli çamurtaşı	
		D1α4	Andesite lava Andezitik lav Andesite pyroclastics Andezitik Proklastikler	
		D1λ3	Dacite lava Dasit lavı Dacite pyroclastics Dasit Piroklastikler Basalt lava Bazalt lavı Fine tuff & calcareous mudstone İnce tuf & kalkerli çamurtaşı	
D1		D1α3	Andesite lava Andezitik lav Andesite pyroclastics Andezitik Piroklastikler Fine tuff & calcareous mudstone İnce tuf & kalkerli çamurtaşı	
		D1kt	Limestone, marl. Kireçtaşı, marl	
		A1		
A1α2	Andesite lava Andezitik lav Andesite pyroclastics Andezitik Piroklastikler Fine tuff & calcareous mudstone İnce tuf & kalkerli çamurtaşı			
A1		A1kt	Limestone, marl. Kireçtaşı, marl	
		Intrusive rocks Intruzifler		
α	Andesite Andezit			
ε	Dacite Dasit			
σ	Porphyrite Porfir			
δσ2	Diorite porphyrite Diorit porfir			
δ2	Quartz diorite Kuvars diorit			
δ2σ	Quartz diorite porphyrite Kuvars diorit porfir			
δ2σ	Quartz porphyry Kuvars porfiri			
			Bedding Tabaka	
				Fault Fay
				Joint Kirik
				Flow structure Akıntılı yapı
				Anticlinal/synclinal, axis Antiklinal/senklinial eksen
				Working mine/abandoned mine Çalışan maden/kapalı maden
				Mineralization, vein type/dissemination type Mineralizasyon damar tip/disseminasyon tip
				Massive, bedded ore/veinlets Masif, tabakalı cevher/damarcıklar
				Skarnized zone Skarn zonu
				Drilling site Sondaj yer
				Geological profile line

Sample No.	Index No.	Kind of ore mineral	Mode of occurrence	Width or thickness (cm)	Sampling width (cm)
D-12	-	Py	disse		
D-20	15	Cpy-Ga-Py	veinlet		
N-40	5	Py	disse	20	
N-59	1	Py	veinlet	160	
N-61	2	Py	veinlet	40	
N-63	-	Py	veinlet		
N-70	-	Py	disse		
N-72	8	Py	vein	60	
N-73	9	Py	vein	40	
N-77	6	Py	vein	20	
N-83	13	Cpy-Sph-Ga-Py	vein	30	
N-84	14	Cpy-Sph-Ga-Py	vein	10	
N-85	12	Cpy-Sph-Ga-Py	vein	20	
N-90	18	Py	vein	120	
N-118	11	-	vein	15	
N-119	16	Py-Ht	massive	80	
N-120	16	Py-Ht	massive	-	
N-121	17	Py-Ht	massive	170	
N-179	17	Py-Ht	massive	170	





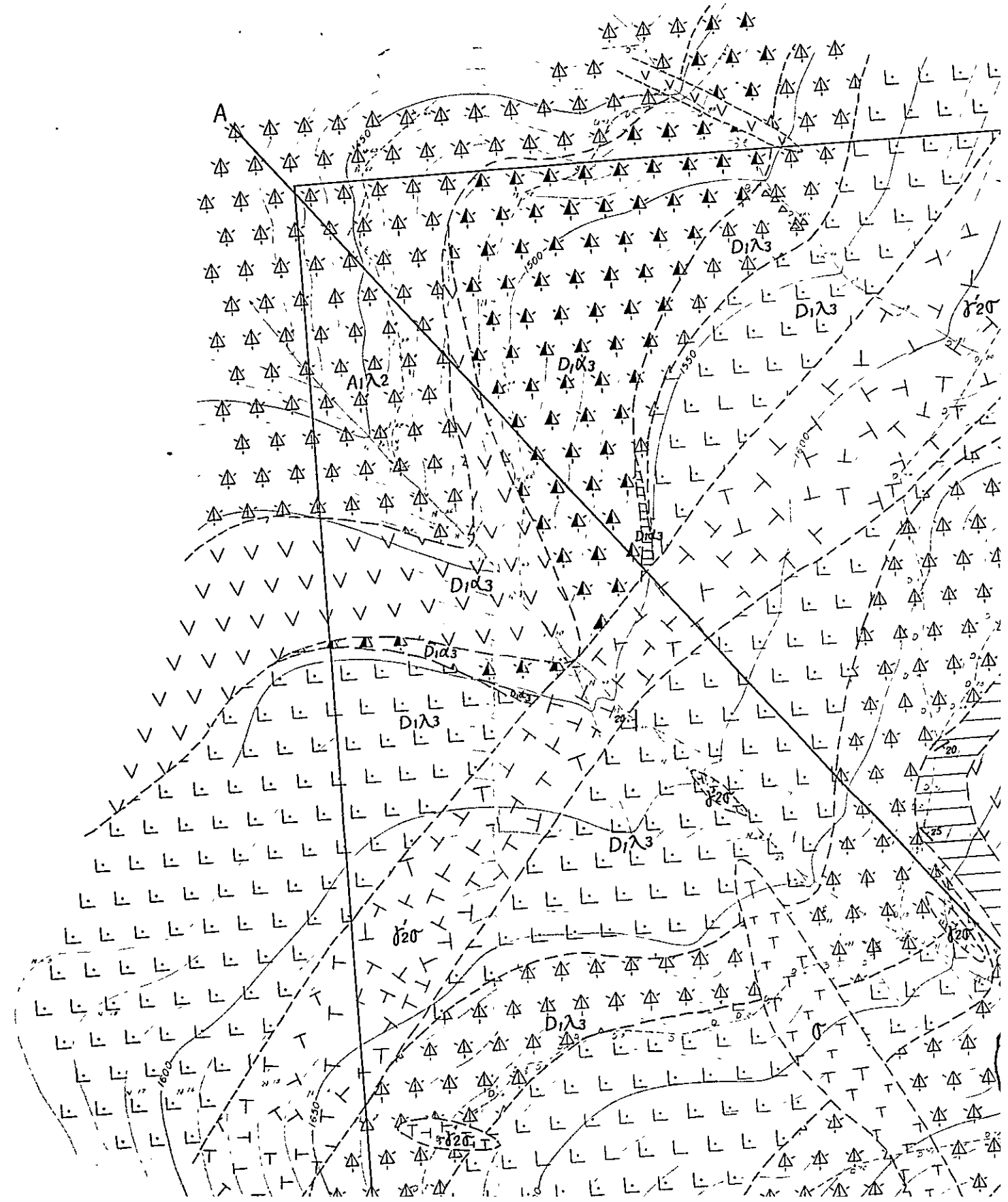


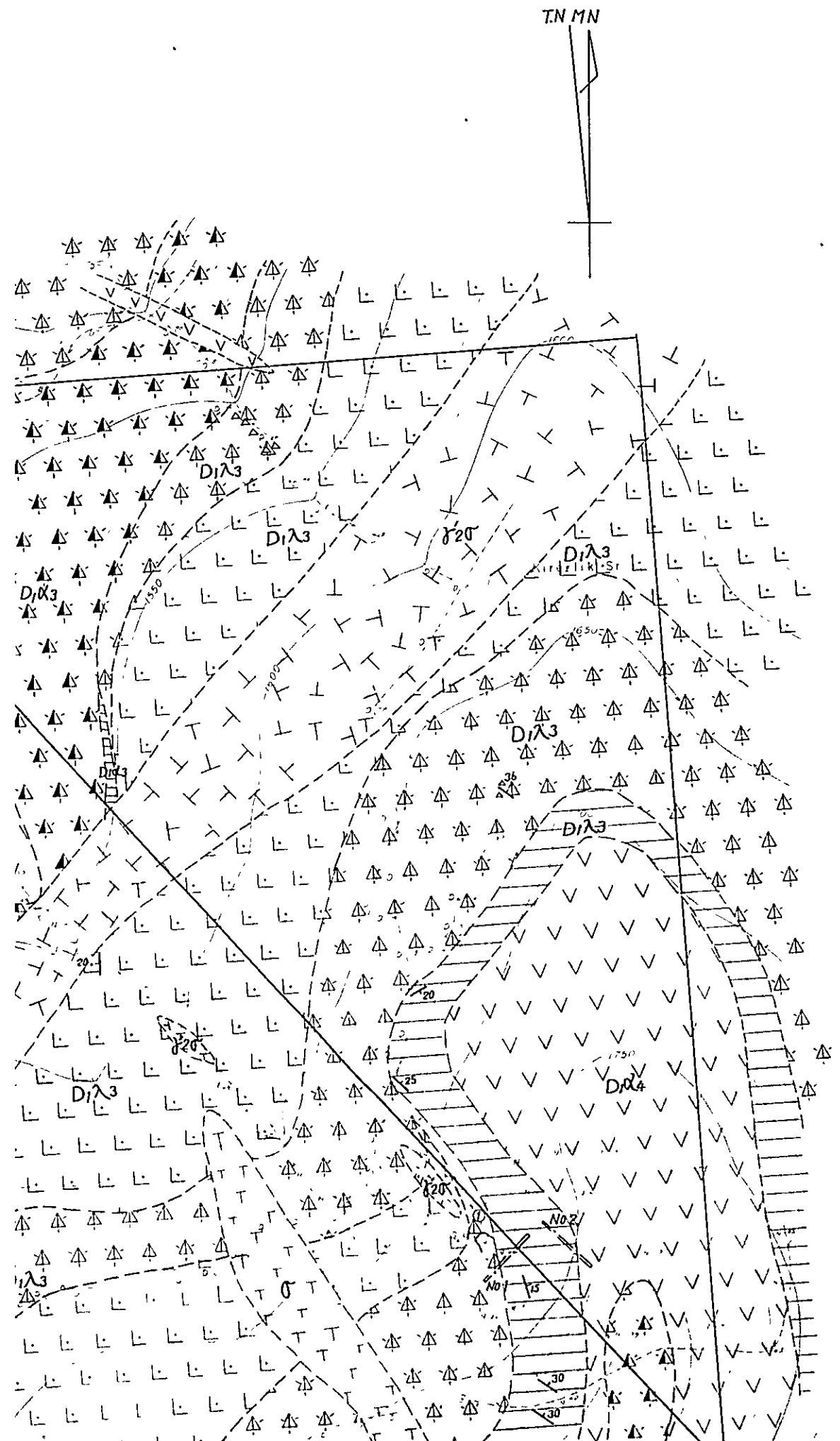
Sample No.	Index No.	Kind of ore mineral	Mode of occurrence	Width or thickness (cm)	Sampling width (cm)	Sampling method	Cu (%)	Pb (%)	Zn (%)
D-12	-	Py	disse				0.08	0.01	0.02
D-20	15	Gpy-Ga-Py	veinlet				3.38	5.41	0.09
N-40	5	Py	disse	20			0.06	tr	0.04
N-59	1	Py	veinlet	160			0.05	tr	0.02
N-61	2	Py	veinlet	40			0.01	0.03	0.01
N-63	-	Py	veinlet				0.01	tr	0.01
N-70	-	Py	disse				0.01	0.01	0.02
N-72	8	Py	vein	60		L	0.01	0.03	0.02
N-73	9	Py	vein	40		L	0.01	tr	tr
N-77	6	Py	vein	20		L	0.01	tr	tr
N-83	13	Gpy-Sph-Ga-Py	vein	30		L	0.01	tr	0.01
N-84	14	Gpy-Sph-Ga-Py	vein	10		L	0.60	0.36	0.12
N-85	12	Gpy-Sph-Ga-Py	vein	10		L	1.00	0.19	0.07
N-90	18	Py	vein	20		L	tr	0.10	0.01
N-118	11	-	vein	120		L	0.01	0.03	0.06
N-119	16	Py-Ht	massive	15		L	0.05	0.06	0.01
N-120	16	Py-Ht	massive	80		L	0.01	0.01	0.01
N-121	17	Py-Ht	massive	170		G	0.01	0.01	0.02
N-122	17	Py-Ht	massive	170		L	0.01	0.01	0.01

R : Random sampling L : Line cutting sampling G : Gravel sampling of high grade ore

Member	Columnar Section	Rock facies	Thickness	Mineralization
Uye	Stun Kesit	Kayac fasyesi	Kalinlik	Mineralizasyon
(W)	(E)	andesite tuff, lapilli tuff tuff breccia		

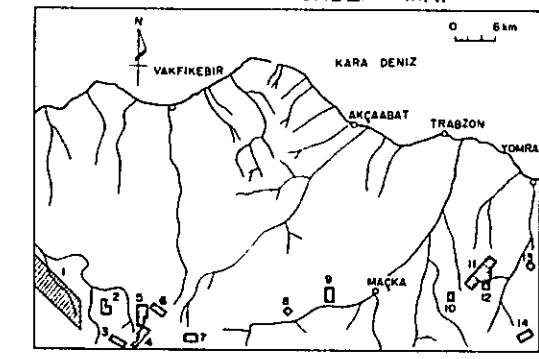
Unit	Symbol	Description
A ₁	DLKI	Kireç taşı, marl
	A ₁ λ ₂	Dacite lava Dasit lavı Dacite pyroclastics Dasit Piroklastikler Fine tuff & calcareous mudstone İnce tüf & kalkerli çamurtaşı Limestone, marl, Kireçtaşı, marl
	A ₁ α ₂	Andesite lava Andezitik lav Andesite pyroclastics Andezitik Piroklastikler Fine tuff & calcareous mudstone İnce tüf & kalkerli çamurtaşı
A ₁ kt	Limestone, marl. Kireçtaşı, marl	
Intrusive rocks Intruzifler	β	Basalt Bazalt
	α	Andesite Andezit
	ε	Dacite Dasit
	σ	Porphyrite Porfir
	δσ ₂	Diorite porphyrite Diorit porfir
	δ ₂	Quartz diorite Kuvars diorit
	δ ₂ σ	Quartz diorite porphyrite Kuvars diorit porfir
	δ ₂ σ	Quartz porphyry Kuvars porfiri
		Bedding Tabaka
		Fault Fay
	Joint Kirik	
	Flow structure Akıntılı yapı	
	Anticlinal/synclinal, axis Antiklinal/senkinal eksen	
	Working mine/abandoned mine Çalışan maden/kapalı maden	
	Mineralization, vein type/dissemination type Mineralizasyon damar tip/disseminasyon tip	
	Massive, bedded ore/veinlets Masif, tabakalı cevher/damarcıklar	
	Skarnized zone Skarn zonu	
	Drilling site Sondaj yer	
	Geological profile line Jeolojik kesit çizgisi	



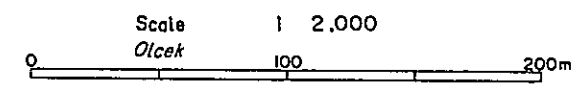


MINERAL RESEARCH AND EXPLORATION INSTITUTE
 GEOLOGICAL SURVEY
 OF
 TRABZON AREA, NORTHEASTERN TURKEY

PHASE III
 GEOLOGICAL MAP WITH GEOLOGICAL PROFILE,
 COLUMNAR SECTION AND FUTURE RECOMENDATION
 OF KANI TEPE AREA
 KANI TEPE SAHASININ JEOLoji
 HARITASI JEOLoji KESITLERI SÜTUN
 KESITI VE ÖNERİLER
 INDEX MAP



- 1 Kahraman Dere
- 2 Alaçadağ
- 3 Çeşel Dere
- 4 Gülüalan
- 5 Ken mine
- 6 Ken Dere, Fol Dere
- 7 Akise Yayla
- 8 Yeni Mahalle
- 9 Safana
- 10 Kani Tepe
- 11 Kızılağaç-Çağhanlı
- 12 Tuzlak Mezrası
- 13 Ocak
- 14 Uzunlu



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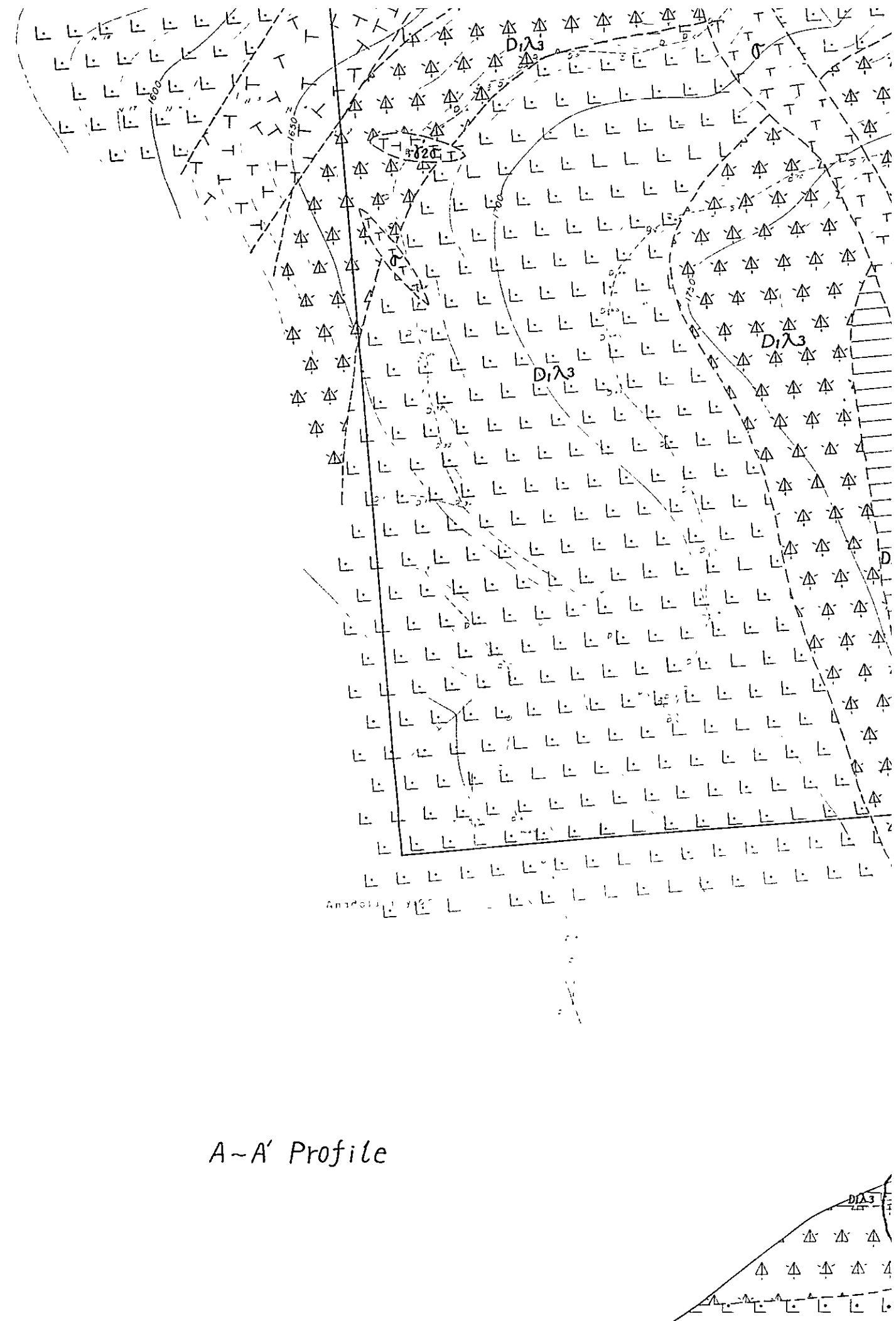
Future recommendation

Method	No	Amount of works (Length Width Depth)		
		Length	Width	Depth
Trenching	No 1	40m	2m	2.5m
	No 2	40m	2m	2.5m

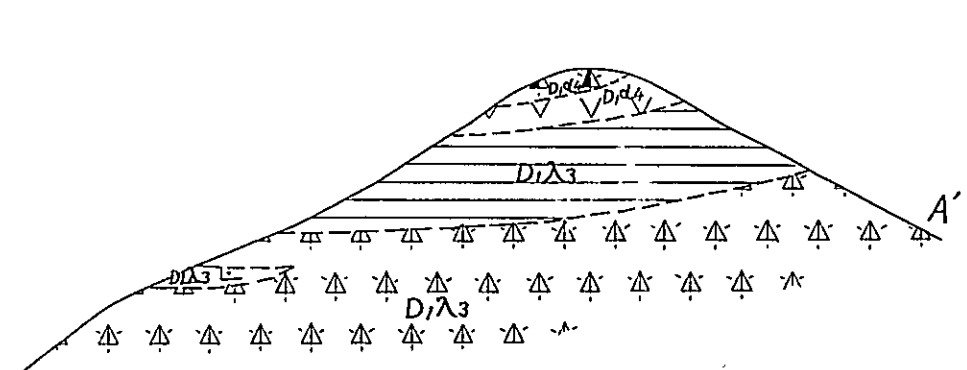
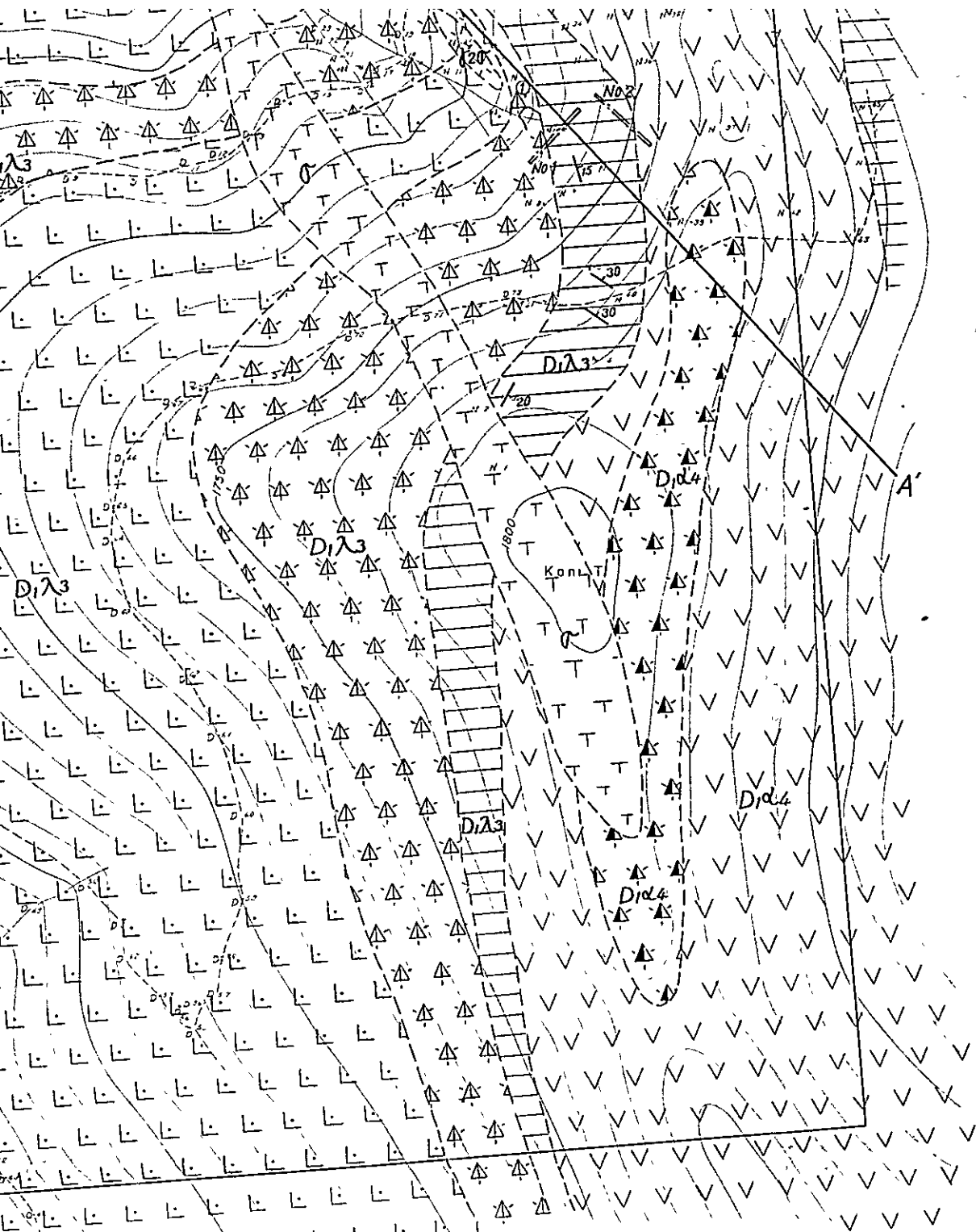
LEGEND
 LEJAND

Geological age Jeolojik yas	Formation Formasyon	Stratigraphical Stratigrafik		Lithology Litoloji
		Marks	Symbol	

Member Üye	Columnar section Sütun Kesit	Rock facies Kayaş fasiyezi	Thickness Kalınlık	Mineralization Mineralizasyon
D ₁ α ₄	(S) (W)	andesite lapilli tuff tuff breccia andesite lava	20m ⁺	Kani Tepe
D ₁ λ ₃		alternation of dacite fine tuff & mudstone	50m	
		porphyrite dyke quartz dacite porphyrite dyke	140m	
		dacite lava dacite tuff lapilli tuff tuff breccia quartz porphyry dyke porphyrite dyke		
	dacite lava mudstone, fine tuff	dacite tuff tuff breccia	60m	
D ₁ α ₃		andesite tuff lapilli tuff tuff breccia andesite lava	60m	
A ₁ λ ₂		andesite dyke dacite tuff lapilli tuff tuff breccia	60m ⁺	



A-A' Profile



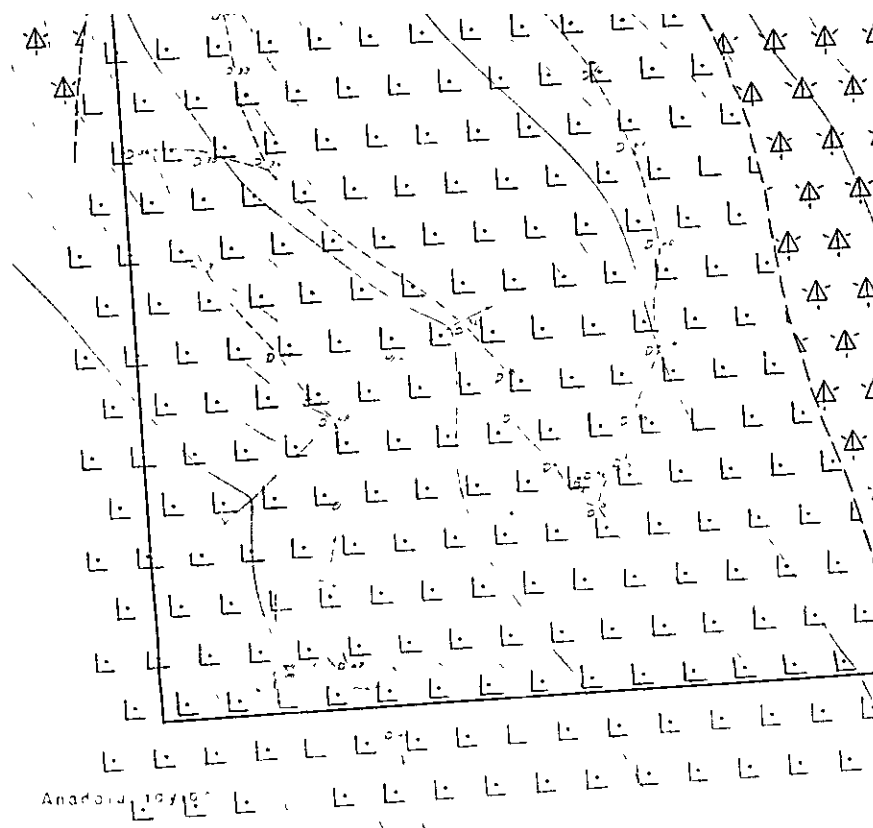
Method	No	Amount of works (Length Width · Depth)	
		No. 1	40m x 2m x 25m
Trenching	No 2	40m x 2m x 25m	

LEGEND
LEJAND

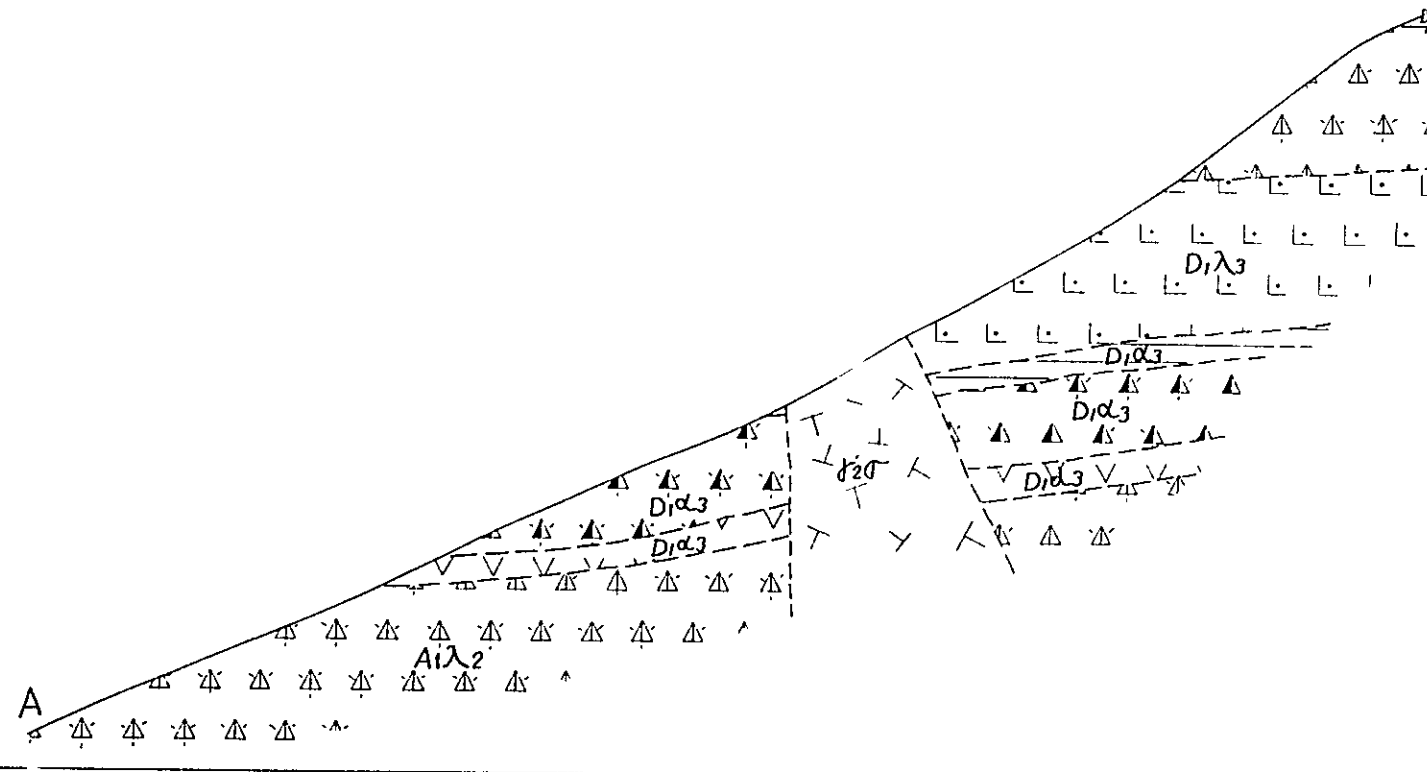
Geological age <i>Jeolojik yas</i>	Formation <i>Formasyon</i>	Stratigraphical <i>Stratigrafik</i>		Lithology <i>Litoloji</i>	
		Marks <i>Isaretler</i>	Symbol <i>Sembol</i>		
Paleogene <i>Paleosen</i> Neogene <i>Miyosen</i>	A3		A3α	Andesite lava <i>Andezit lavı</i>	
	A2		A2α	Andesite pyroclastics <i>Andezitik Piroklastikler</i>	
Upper Cretaceous <i>Üst Kretase</i>	D1		D1λ4	Dacite lava <i>Dasit lavı</i>	
				Dacite pyroclastics <i>Dasit Piroklastikler</i>	
				Fine tuff & calcareous mudstone <i>İnce tüf & kalkerli çamurtaşı</i>	
	D1		D1α4	Andesite lava <i>Andezitik lav</i>	
				Andesite pyroclastics <i>Andezitik Piroklastikler</i>	
				D1λ3	Dacite lava <i>Dasit lavı</i>
					Dacite pyroclastics <i>Dasit Piroklastikler</i>
	D1		D1α3	Basalt lava <i>Bazalt lavı</i>	
				Fine tuff & calcareous mudstone <i>İnce tüf & kalkerli çamurtaşı</i>	
	D1	D1kt		Limestone, marl. <i>Kireçtaşı, marı</i>	
Limestone, marl. <i>Kireçtaşı, marı</i>					
A1	A1λ2		Dacite lava <i>Dasit lavı</i>		
			Dacite pyroclastics <i>Dasit Piroklastikler</i>		
	A1	A1α2		Fine tuff & calcareous mudstone <i>İnce tüf & kalkerli çamurtaşı</i>	
				Limestone, marl. <i>Kireçtaşı, marı</i>	
A1	A1kt		Limestone, marl. <i>Kireçtaşı, marı</i>		
			Limestone, marl. <i>Kireçtaşı, marı</i>		
Intrusive rocks <i>Intruzifler</i>			β	Basalt <i>Bazalt</i>	
			α	Andesite <i>Andezit</i>	
			ε	Dacite <i>Dasit</i>	
			σ	Porphyrite <i>Porfir</i>	
			δσ2	Diorite porphyrite <i>Diorit porfir</i>	
			δ2	Quartz diorite <i>Kuvars diorit</i>	
			δ2σ	Quartz diorite porphyrite <i>Kuvars diorit porfir</i>	
			δ2σ	Quartz porphyry <i>Kuvars porfiri</i>	
			30	Bedding <i>Tabaka</i>	
			70	Fault <i>Fay</i>	

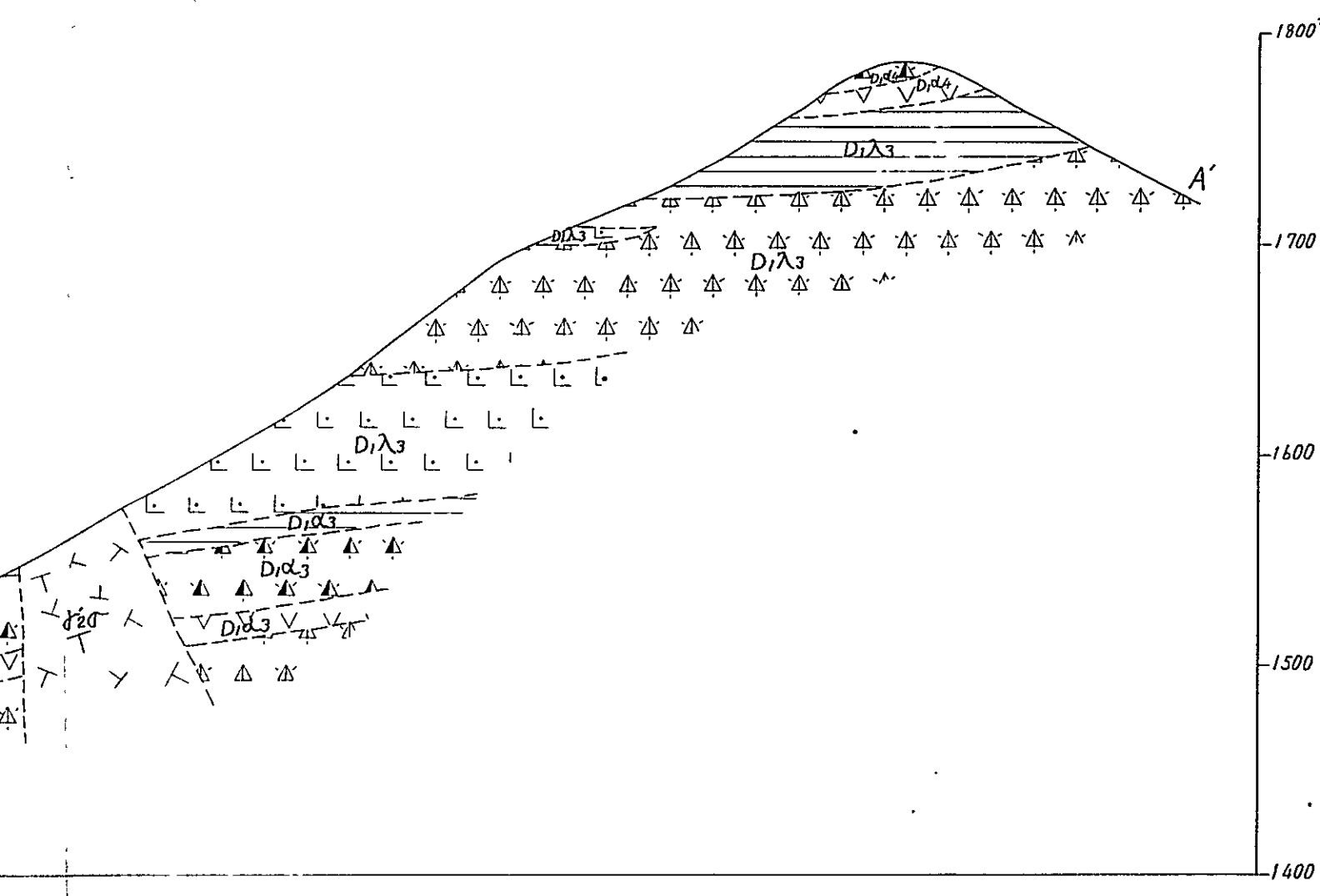
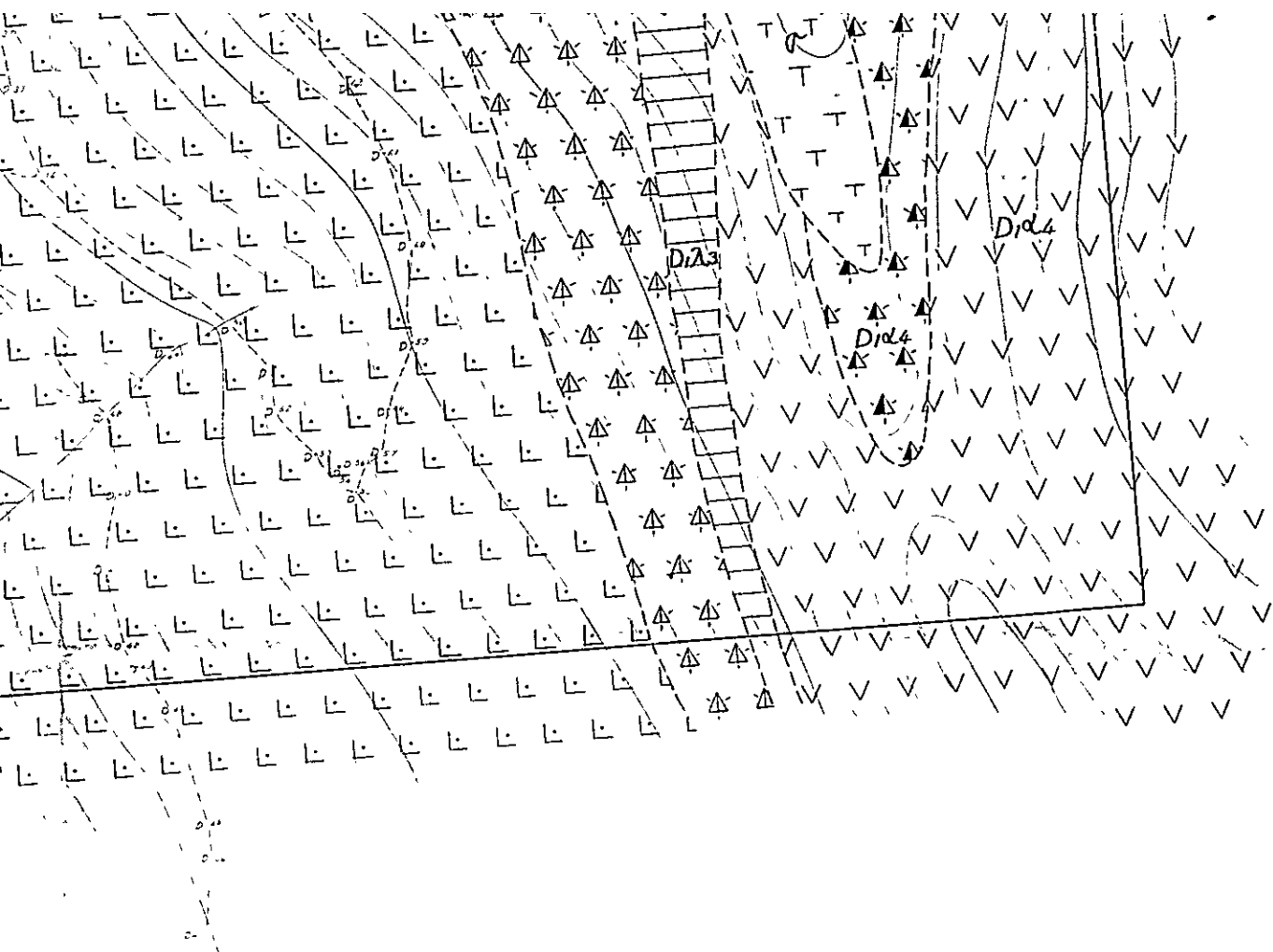
Member Üye	Columnar Section Sutun Kesit	Rock facies Kayaş fasıyezi	Thickness Kalınlık	Mineralization Mineralizasyon
	(S) (W)			
D ₁ α ₄		andesite lapilli tuff tuff breccia andesite lava	20m ⁺	Kani Tepe
D ₁ λ ₃		alternation of dacite fine tuff & mudstone Porphyrite dyke quartz diorite porphyrite dyke dacite lava dacite tuff lapilli tuff tuff breccia quartz porphyry dyke Porphyrite dyke dacite lava dacite tuff tuff breccia	50m ⁺	
		mudstone, fine tuff andesite tuff lapilli tuff tuff breccia andesite lava andesite dyke	140m ⁺	
D ₁ α ₃		andesite tuff lapilli tuff tuff breccia andesite lava	60m ⁺	
A ₁ λ ₂		andesite dyke dacite tuff lapilli tuff tuff breccia	60m ⁺	

Sample No.	Index No.	Kind of ore mineral	Cu (%)	Pb (%)	*Zn (%)
N-101	2	Malachite-Ga-Cpy	4.38	29.34	0.32

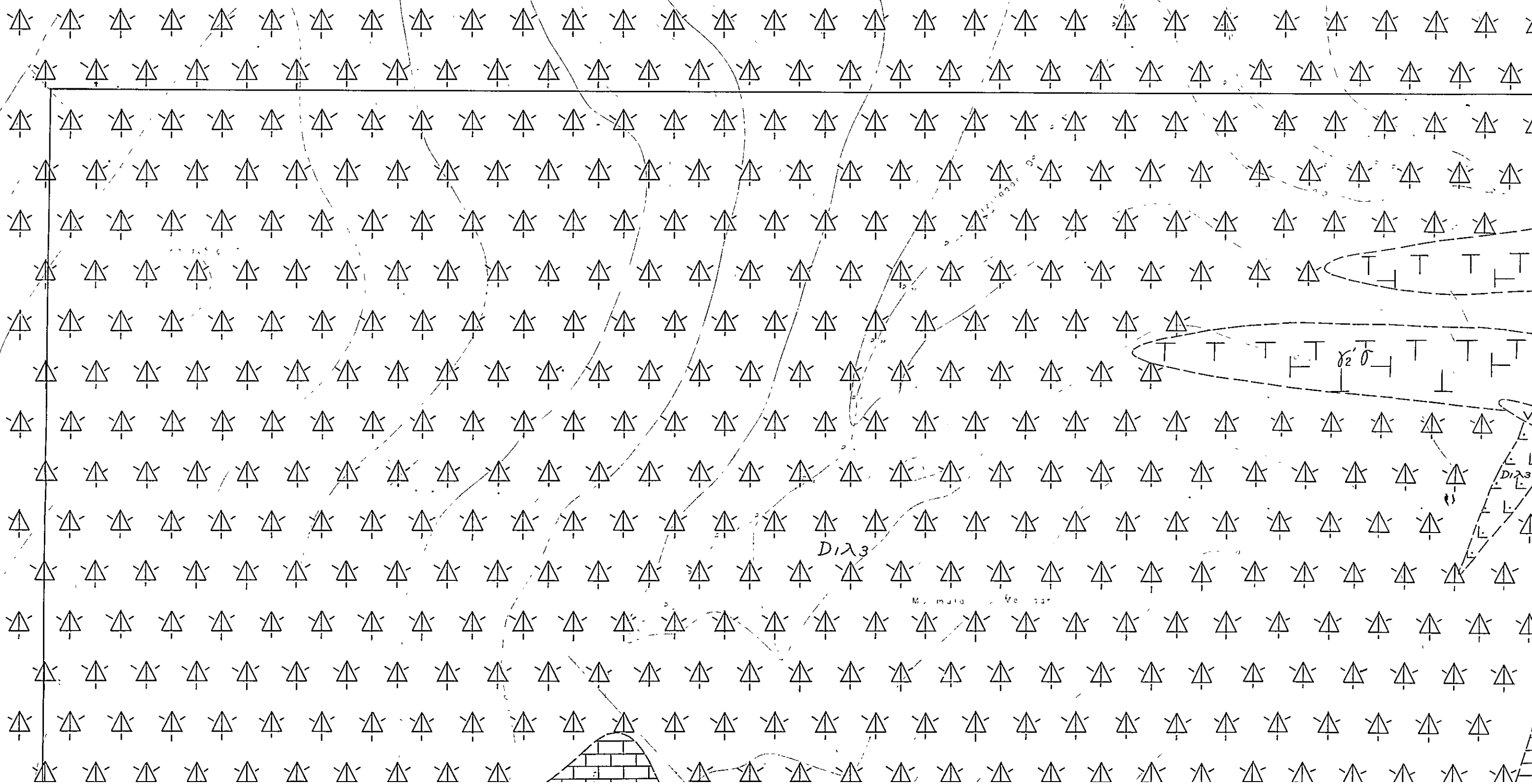


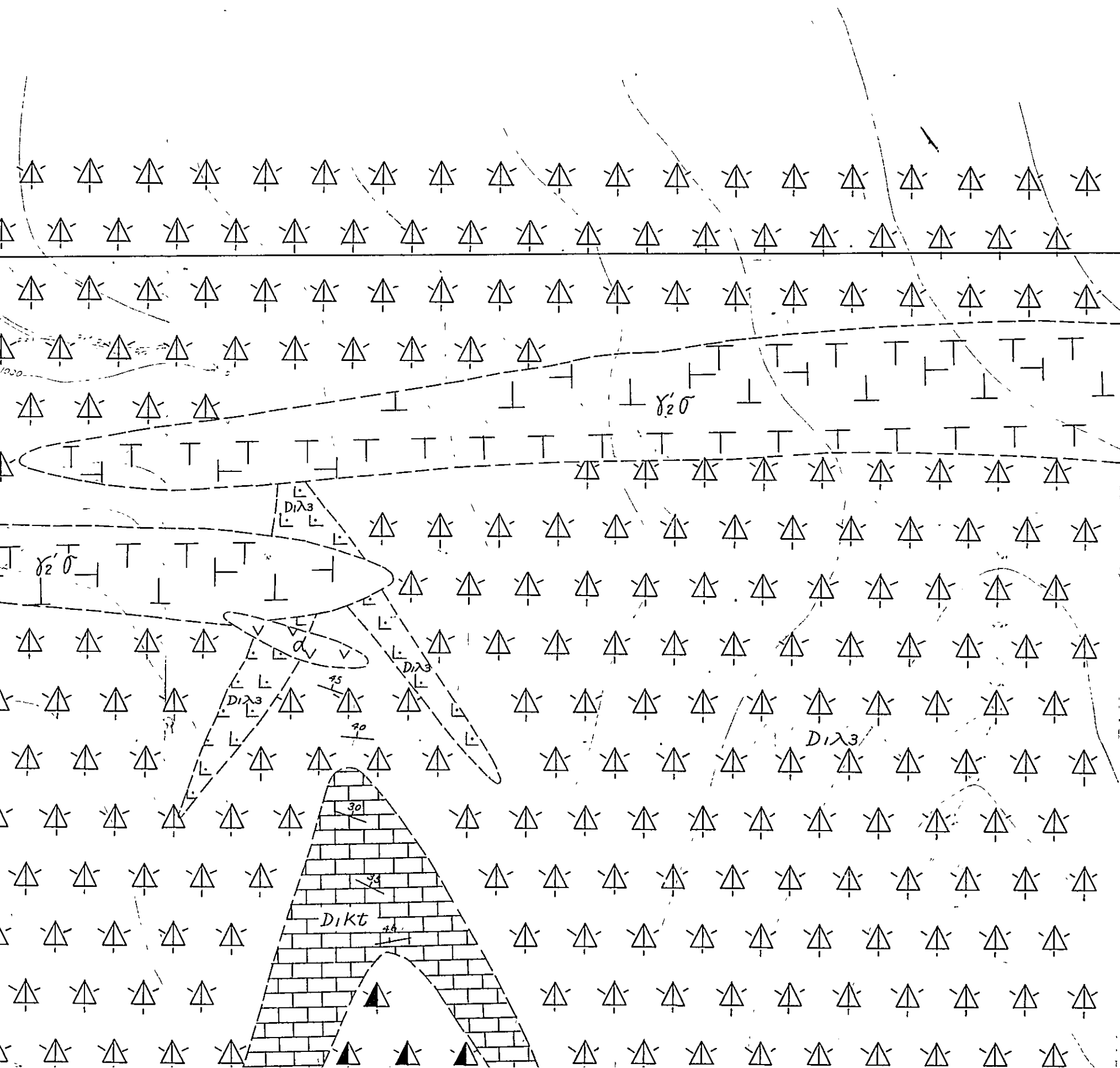
A-A' Profile





Upper Cretaceous Üst Kretase	D ₁	D ₁ α ₄	 Andezitik lav Andesite pyroclastics Andezitik Proklastikler	
		D ₁ λ ₃	 Dacite lava Dacite pyroclastics Dacite Piroklastikler	
			 Basalt lava Bazalt lavı Fine tuff & calcareous mudstone İnce tuf & kalkerli çamurtaşı	
			 Andesite lava Andezitik lav Andesite pyroclastics Andezitik Piroklastikler Fine tuff & calcareous mudstone İnce tuf & kalkerli çamurtaşı	
	D ₁ kt	 Limestone, marl. Kireçtaşı, marl.		
	A ₁	A ₁ λ ₂	 Dacite lava Dacite pyroclastics Dacite Piroklastikler Fine tuff & calcareous mudstone İnce tuf & kalkerli çamurtaşı Limestone, marl. Kireçtaşı, marl.	
			 Andesite lava Andezitik lav Andesite pyroclastics Andezitik Piroklastikler Fine tuff & calcareous mudstone İnce tuf & kalkerli çamurtaşı	
		A ₁ kt	 Limestone, marl. Kireçtaşı, marl.	
	Intrusive rocks Intruzifler		β	 Basalt Bazalt
			α	 Andesite Andezit
ε			 Dacite Dacit	
σ			 Porphyrite Porfirit	
δσ ₂			 Diorite porphyrite Diorit porfirit	
δ ₂			 Quartz diorite Kuvars diorit	
δ ₂ σ			 Quartz diorite porphyrite Kuvars diorit porfirit	
δ ₂ σ			 Quartz porphyry Kuvars porfiri	
		30	 Bedding Tabaka	
		70	 Fault Fay	
		40	 Joint Kırık	
		20	 Flow structure Akıntılı yapı	
		+	 Anticlinal/synclinal, axis Antiklinal/senkliyal eksen	
		x	 Working mine/abandoned mine Çalışan maden/kapalı maden	
		+	 Mineralization, vein type/dissemination type Mineralizasyon damar tip/disseminasyon tip	
		+	 Massive, bedded ore/veinlets Masif, tabakalı cevher/damarcıklar	
		+	 Skarnized zone Skarn zonu	
		+	 Drilling site Sondaj yer	
A-A'	 Geological profile line Jeolojik kesit çizgisi			





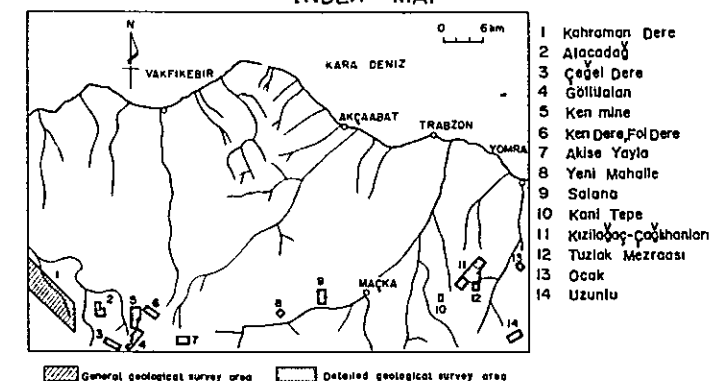
Kızılağaç area

Member Üye	Columnar section Sütün kesit (S)	Rock facies Kayaç fasiyezi	Thickness Kalınlık	Mineralization Mineralizasyon
D1α4		andesite tuff lapilli tuff tuff breccia	0 ^m ~ 50 ^m +	
D1λ3		andesite dyke diorite porphyry dyke quartz porphyry dyke mudstone dacite lava quartz porphyry dyke dacite tuff rapilli tuff tuff breccia dacite lava	400 ^m +	
		skarn type vein type		
D1α3		andesite tuff alteration of marl mudstone & fine tuff quartz porphyry dyke dacite dyke andesite lava andesite lava diorite porphyrite dyke quartz porphyry dyke andesite tuff lapilli tuff tuff breccia	400 ^m +	

MINERAL RESEARCH AND EXPLORATION INSTITUTE
GEOLOGICAL SURVEY
OF
TRABZON AREA, NORTHEASTERN TURKEY

PHASE III
GEOLOGICAL MAP WITH GEOLOGICAL PROFILE,
COLUMNAR SECTION AND FUTURE RECOMENDATION
OF KIZILAĞAÇ ÇAĞLIHANLARI AREA
KIZILAĞAÇ ÇAĞLIHANLARI SAHASININ
JEOLOJİ HARİTASI JEOLOJİ KESİTOLERİ SÜTUN
KESİTİ VE ÖNERİLER

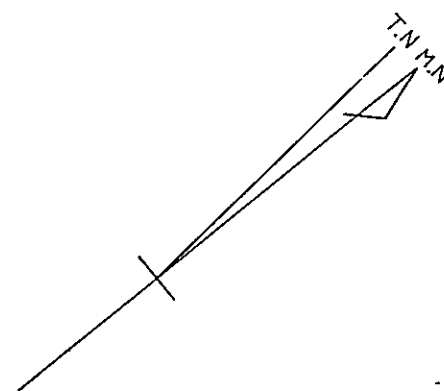
INDEX MAP



Scale 1:2,000
Olcek 100 200m

METAL MINING AGENCY OF JAPAN
JAPAN INTERNATIONAL COOPERATION AGENCY
FEBRUARY 1977

Prepared by Nikko Exploration & Development Co., Ltd

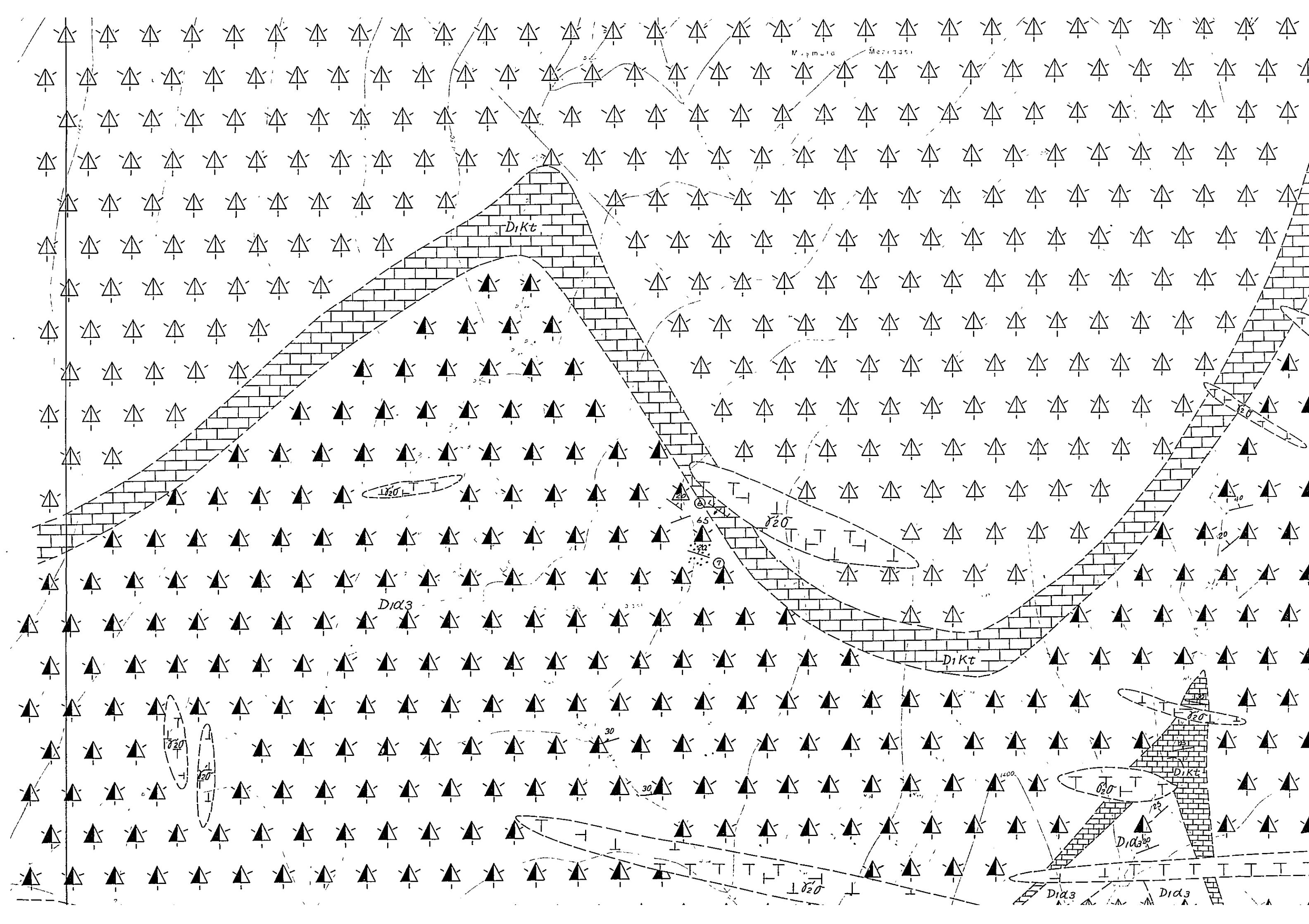


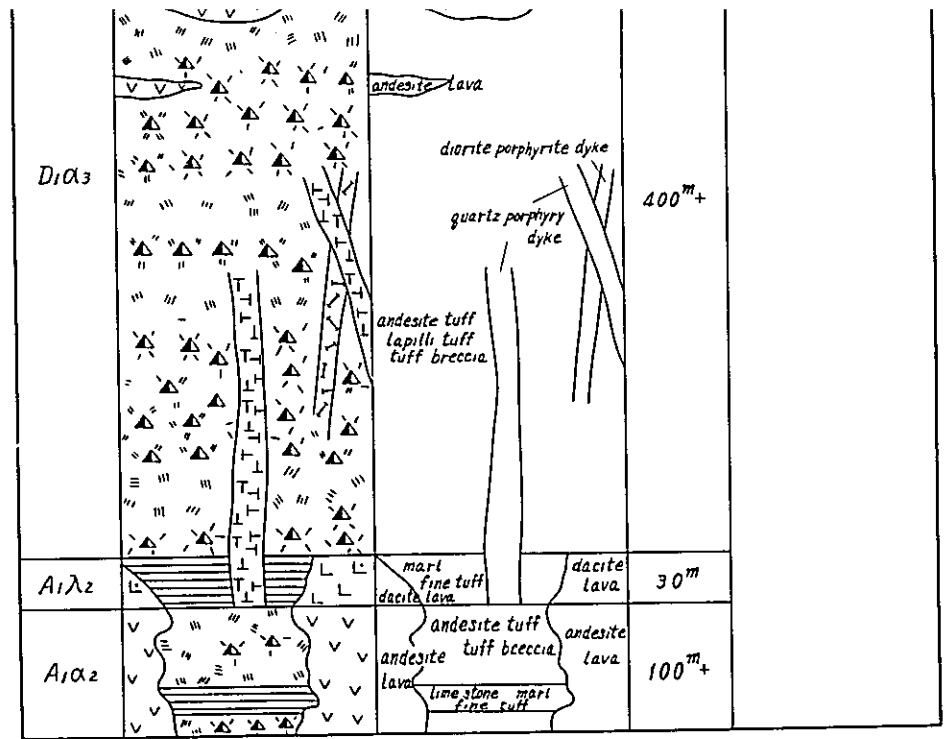
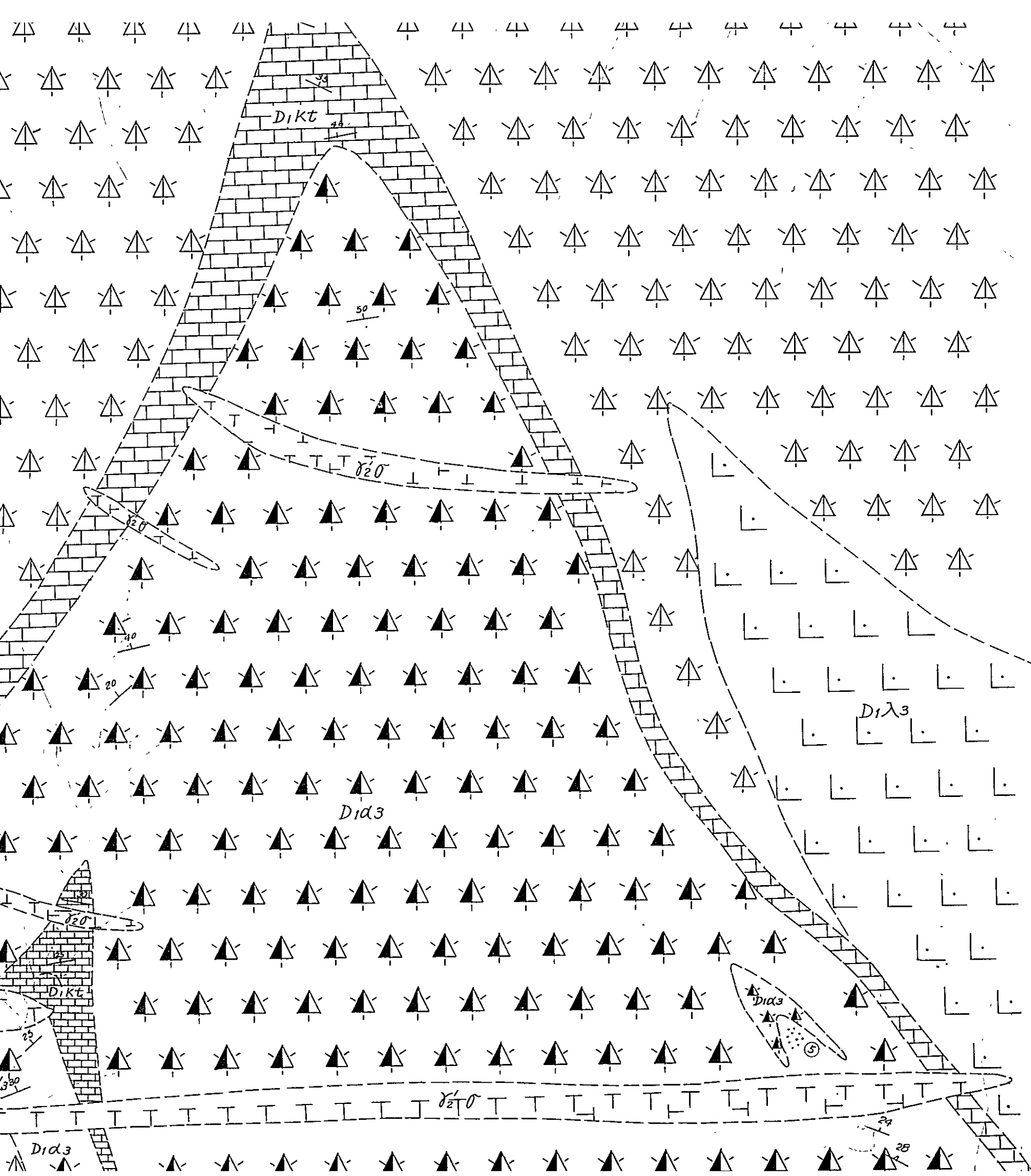
Kızılağaç area

Member Uye	Columnar section Sütun kesit (S)	Rock facies Kayaç fasiyezi	Thickness Kalınlık	Mineralization Mineralizasyon
D1α4		andesite tuff lapilli tuff tuff breccia	0 ^m ~50 ^m +	
D1λ3		andesite dyke diorite porphyry dyke quartz porphyry dyke mudstone dacite lava quartz porphyry dyke dacite tuff lapilli tuff tuff breccia dacite lava	400 ^m +	
D1α3		andesite tuff alternation of marl mudstone & fine tuff quartz porphyry dyke dacite dyke andesite lava		skarn type vein type
D1α3		andesite lava diorite porphyry dyke quartz porphyry dyke andesite tuff lapilli tuff tuff breccia	400 ^m +	

LEGEND
LEJAND

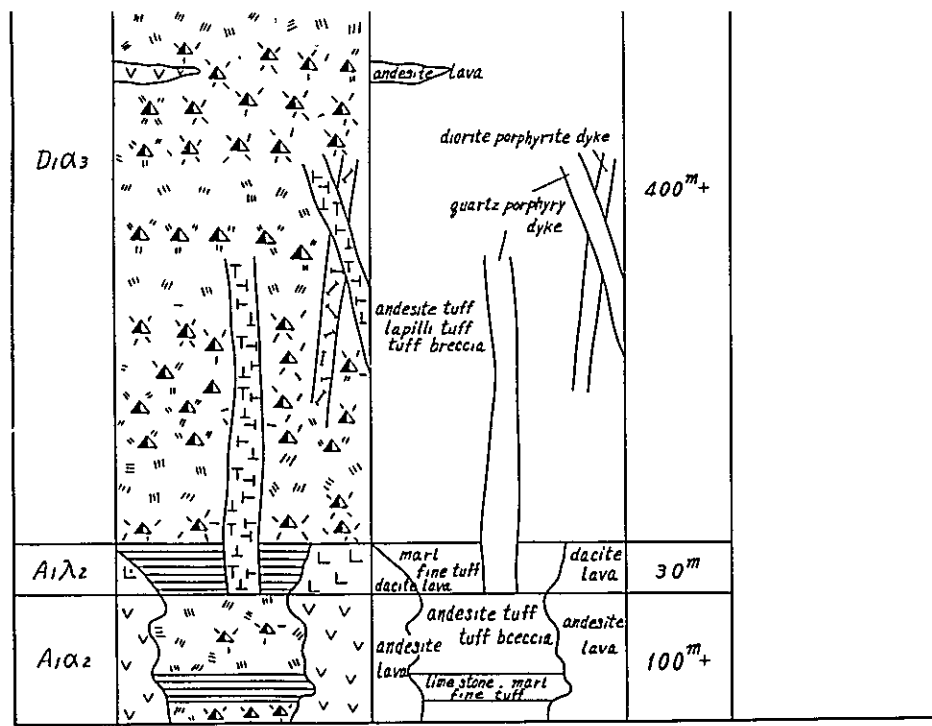
Geological age Jeolojik yaş	Formation Formasyon	Stratigraphical Stratigrafik		Lithology Litoloji
		Marks Isaretiler	Symbol Sembol	
Paleogene Paleosen ~ Neogene Miyosen	A3		A3α	Andesite lava Andezit lavı
	A2		A2α	Andesite pyroclastics Andezitik Piroklastikler
			D1λ4	Dacite lava Dazit lavı
				Dacite pyroclastics Dazit Piroklastikler
				Fine tuff & calcareous mudstone İnce tıf & kalkerli çamırtay
			D1α4	Andesite lava Andezitik lav
				Andesite pyroclastics Andezitik Piroklastikler
				Dacite lava Dazit lavı





Çaglıhanları area

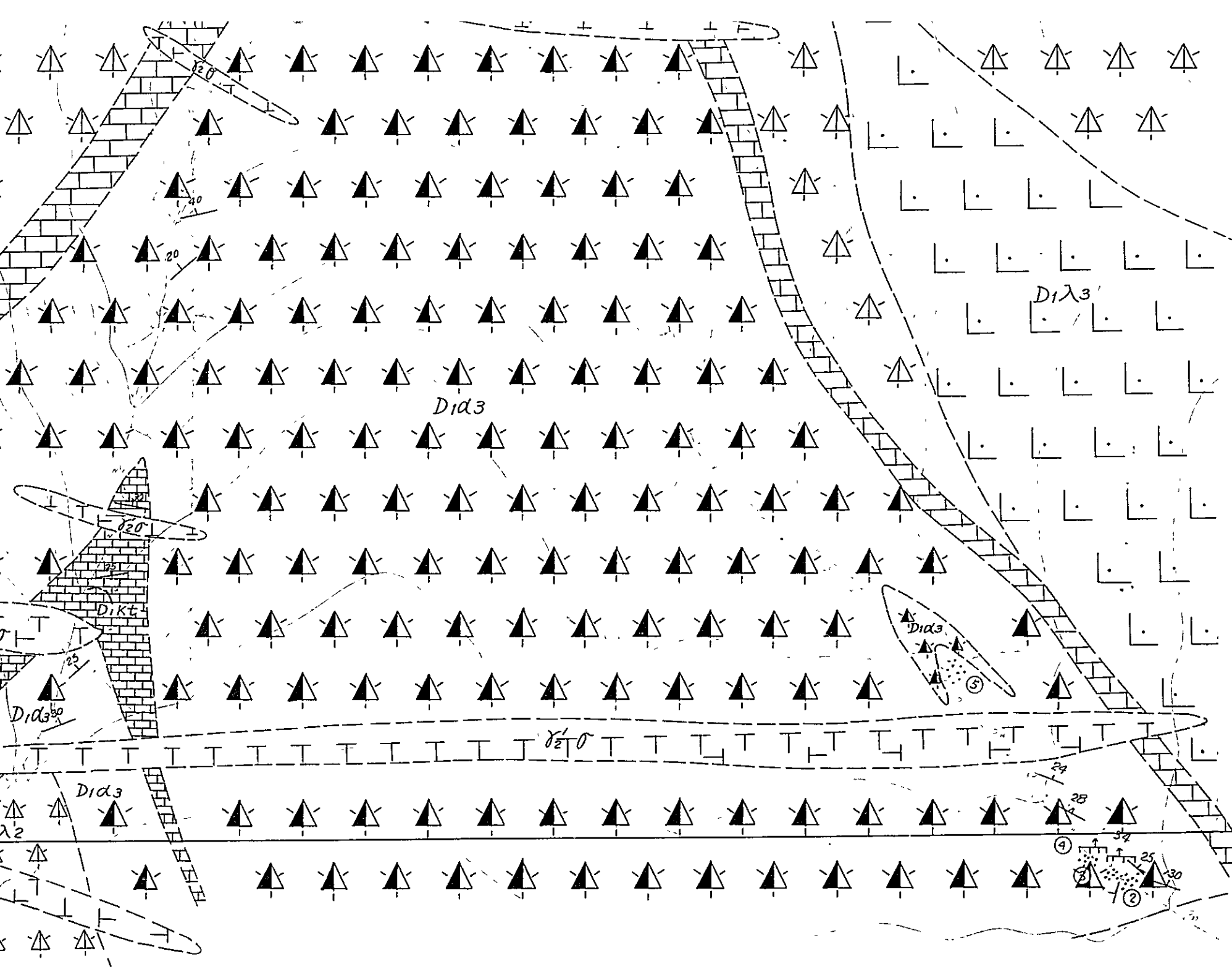
Member Üye	Columnar section Sütun kesit (N)	Rock facies Kayaç fasiyesi (S)	Thickness Kalınlık	Mineralization Mineralizasyon
D1α4		andesite tuff lapilli tuff	0 ^m -50 ^m +	
D1λ3		dacite tuff lapilli tuff tuff breccia quartz porphyry dyke diorite porphyrite dyke andesite dyke quartz porphyry dyke dacite lava dacite lava	300 ^m +	Pyrite dissemination in quartz porphyry
D1α3		marl, fine tuff mudstone	20 ^m	dissemination type vein type
D1α2		andesite lava andesite tuff lapilli tuff tuff breccia quartz porphyry dyke	220 ^m	dissemination type vein type
A1λ2		dacite lava dacite tuff lapilli tuff tuff breccia	50 ^m +	



Çağlıhanları area

Member Üye	Columnar section (N) (S)	Rock facies Kayaş fasiyezi	Thickness Kalınlık	Mineralization Mineralizasyon
D1α1		andesite tuff lapilli tuff	0~50m+	
D1λ3		dacite tuff lapilli tuff tuff breccia quartz porphyry dyke diorite porphyrite dyke andesite dyke quartz porphyry dyke dacite lava dacite lava	300m+	Pyrite dissemination in quartz porphyry
D1α3		marl fine tuff mudstone andesite lava andesite tuff, lapilli tuff tuff breccia quartz porphyry dyke	20m 220m	dissemination type vein type dissemination type vein type
A1λ2		dacite lava dacite tuff lapilli tuff tuff breccia	50m+	

Geological Period	Member	Symbol	Code	Description		
Paleosen Neogene Miyosen	A3	V V V	A3α	Andesite lava Andezit lavı		
	A2	Δ Δ Δ	A2α	Andesite pyroclastics Andezitik Proklastikler		
Upper Cretaceous Ust Kretase	D1	L L L	D1λ4	Dacite lava Dasit lavı Dacite pyroclastics Dasit Proklastikler Fine tuff & calcareous mudstone İnce tüf & kalkerli çamurtaşı		
		V V V	D1α4	Andesite lava Andezitik lav Andesite pyroclastics Andezitik Proklastikler		
		L L L	D1λ3	Dacite lava Dasit lavı Dacite pyroclastics Dasit Proklastikler Basalt lava Bazalt lavı Fine tuff & calcareous mudstone İnce tüf & kalkerli çamurtaşı		
		V V V	D1α3	Andesite lava Andezitik lav Andesite pyroclastics Andezitik Proklastikler Fine tuff & calcareous mudstone İnce tüf & kalkerli çamurtaşı		
	A1	D1kt	L L L	D1kt	Limestone, marl. Kireçtaşı, marl	
			V V V	A1λ2	Dacite lava Dasit lavı Dacite pyroclastics Dasit Proklastikler Fine tuff & calcareous mudstone İnce tüf & kalkerli çamurtaşı Limestone, marl Kireçtaşı, marl	
		Intrusive rocks Intruzifler	A1α2	V V V	A1α2	Andesite lava Andezitik lav Andesite pyroclastics Andezitik Proklastikler Fine tuff & calcareous mudstone İnce tüf & kalkerli çamurtaşı
				L L L	A1kt	Limestone, marl. Kireçtaşı, marl
				Δ Δ Δ	β	Basalt Bazalt
				V V V	α	Andesite Andezit
		L L L	ε	Dacite Dasit		
		T T T	σ	Porphyrite Porfirit		
		Δ Δ Δ	δσ2	Diorite porphyrite Diorit porfirit		
		Δ Δ Δ	δ2	Quartz diorite Kuvars diorit		
		X X X	δ2σ	Quartz diorite porphyrite Kuvars diorit porfirit		
		Δ Δ Δ	δ2σ	Quartz porphyry Kuvars porfiri		
		30		Bedding Tabaka		
		70		Fault Fay		
40		Joint Kirik				
20		Flow structure Akıntılı yapı				
X X X		Anticlinal/synclinal, axis Antiklinal/senklinel eksen				
X X X		Working mine/abandoned mine Çalışan maden/kapalı maden				
X X X		Mineralization vein type/dissemination type Mineralizasyon damar tipi/disseminasyon tipi				
X X X		Massive, bedded ore/veinlets Masif, tabakalı ceher/damarciklar				
X X X		Skarnized zone Skarn zonu				
•		Drilling site Sondaj yer				
A A'		Geological profile line Jeolojik kesit çizgisi				



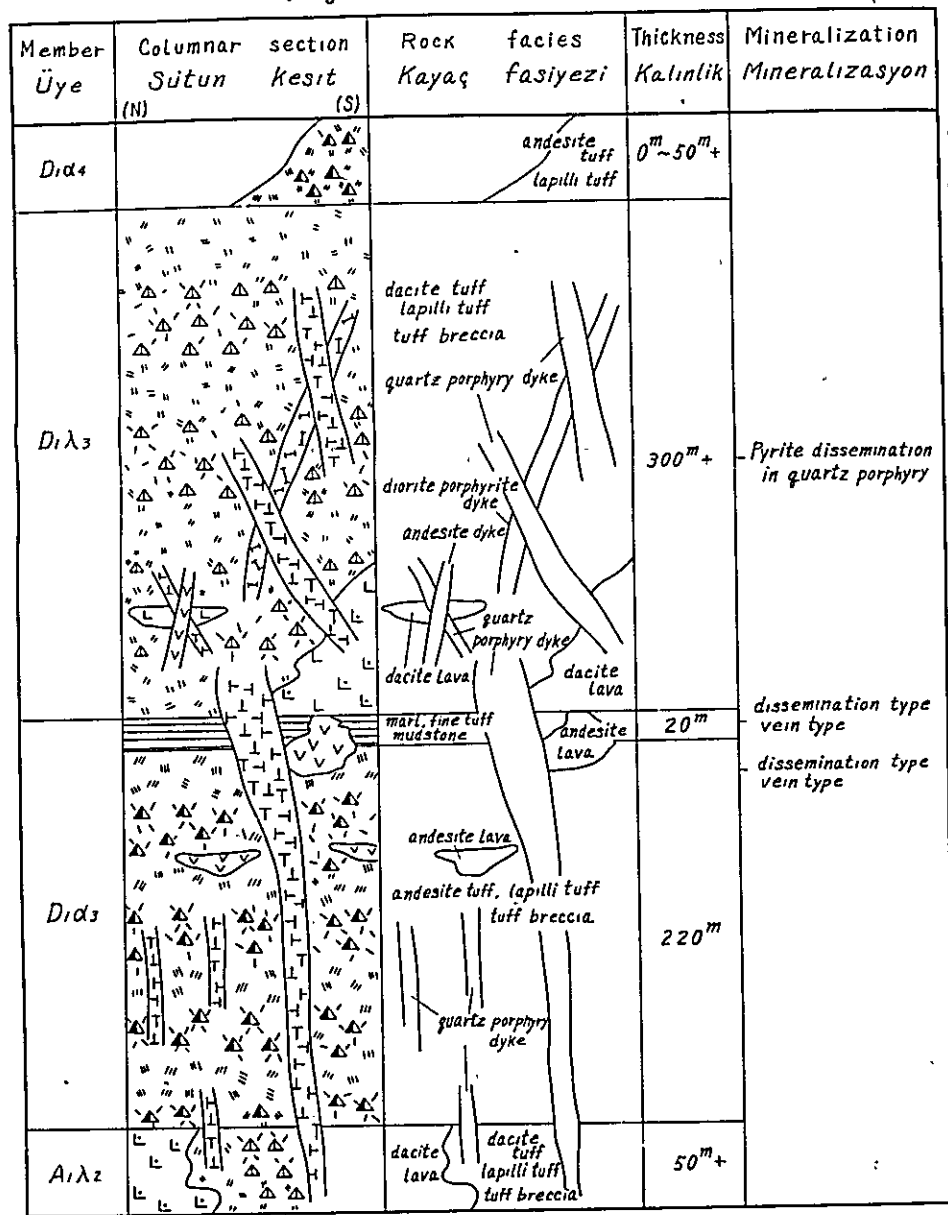
Çağlıhanları area

Member Üye	Columnar section (N) Sütun kesit (S)	Rock facies Kayaç fasiyezi	Thickness Kalınlık	Mineralization Mineralizasyon
D1d4		andesite tuff lapilli tuff	0 ^m -50 ^m +	
D1d3		dacite tuff lapilli tuff tuff breccia quartz porphyry dyke diortite porphyrite dyke andesite dyke quartz porphyry dyke dacite lava dacite lava	300 ^m +	Pyrite dissemination in quartz porphyry
D1d3		marl, fine tuff mudstone andesite lava	20 ^m	dissemination type vein type
D1d3		andesite lava andesite tuff, lapilli tuff tuff breccia quartz porphyry dyke	220 ^m	dissemination type vein type
A1d2		dacite lava dacite tuff lapilli tuff tuff breccia	50 ^m +	

Sample No.	Index No.	Kind of ore mineral	Mode of occurrence	Width or thickness	Cu (%)	Pb (%)	Zn (%)
D-60	2	Py	diss		0.18	tr	0.01
D-61	3	Cpy-(Ga-)Spy	vein	6	4.50	0.10	9.00
N-226	6	Py	vein	20	2.50	0.77	1.95
N-227	7	Cu-oxide	diss		3.50	0.03	0.03

R : random sampling L : line cutting sampling G : gravel sampling of high grade ore

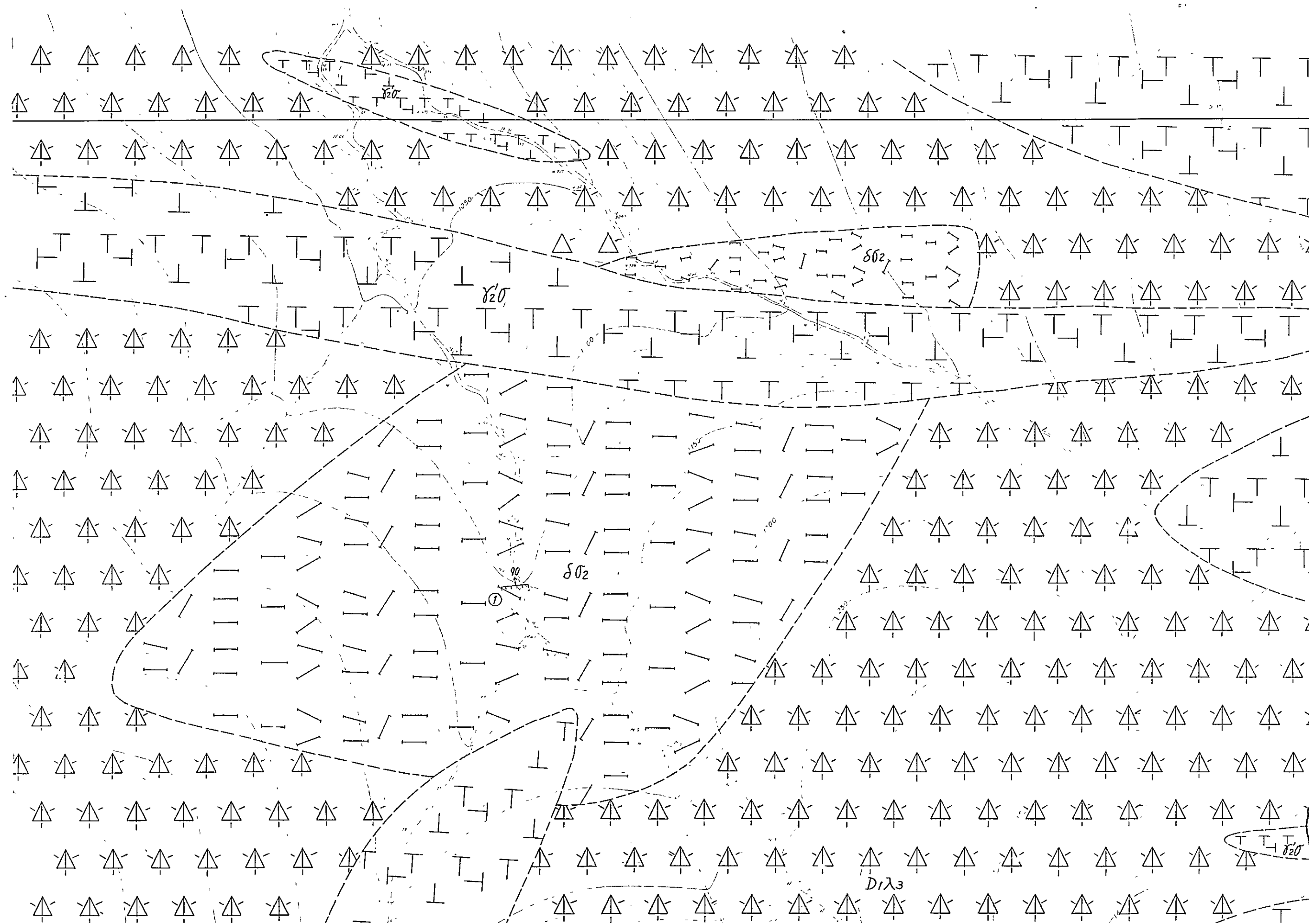
Çağlıhanlı area

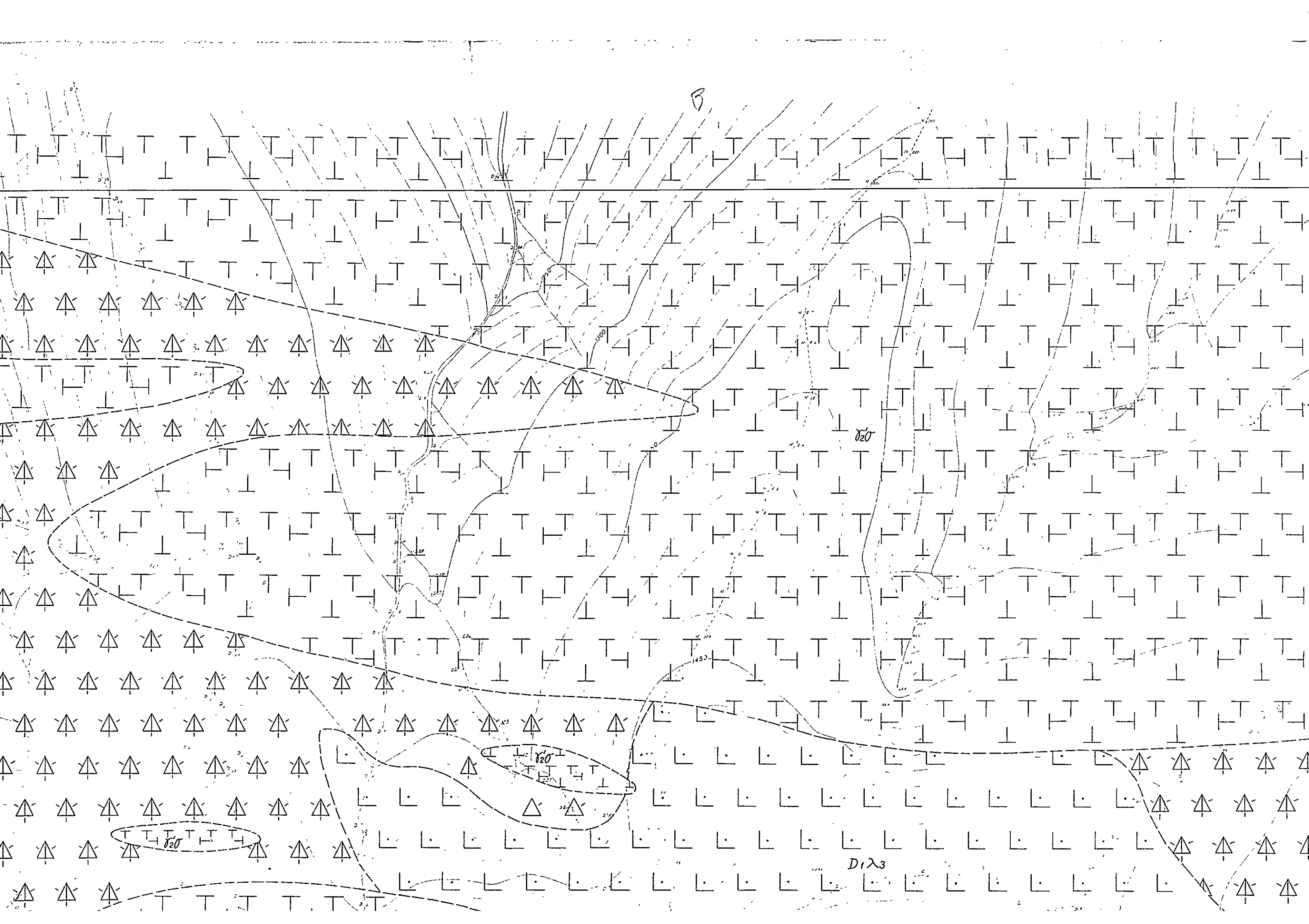


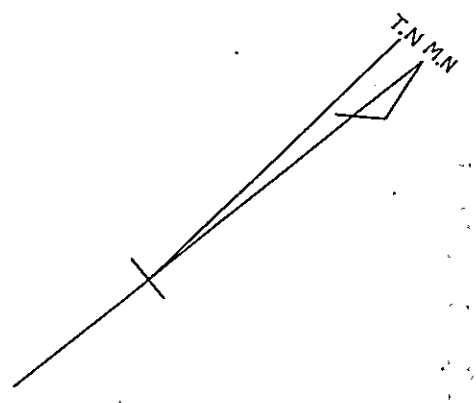
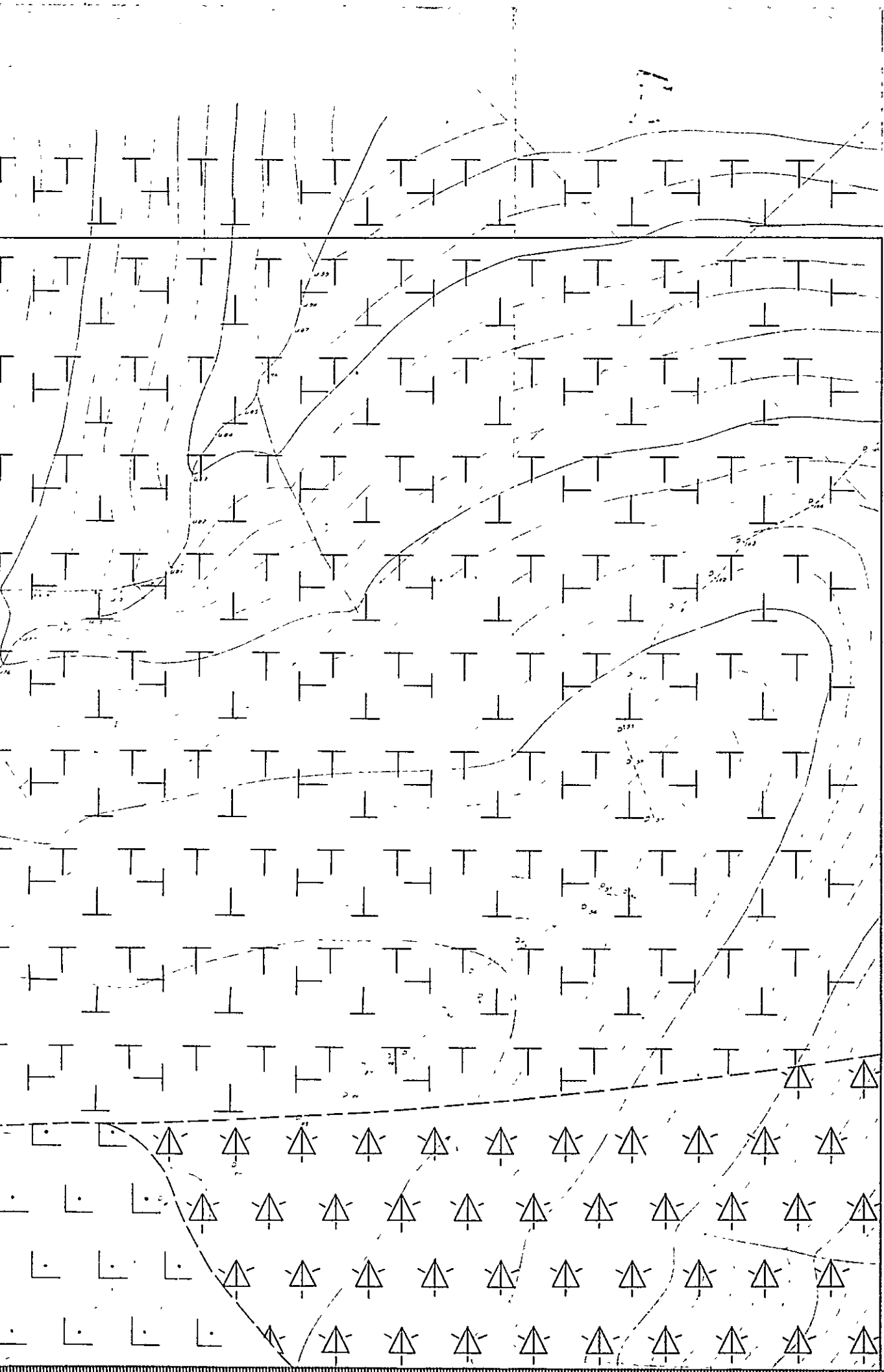
Sample No.	Index No.	Kind of ore mineral	Mode of occurrence	Width or thickness	Cu (%)	Pb (%)	Zn (%)
D-60	2	Py	diss		0.18	tr.	0.01
D-61	3	Cpy-(Ga-)Spy	vein	6	4.50	0.10	9.00
N-226	6	Py	vein	20	2.50	0.77	1.95
N-227	7	Cu-oxide	diss		3.50	0.03	0.03

* R : random sampling L : line cutting sampling G : gravel sampling of high grade ore

Member	Symbol	Description
A1	A1λ2	Fine tuff & calcareous mudstone İnce tuf & kalkerli çamurtaşı Limestone, marl. Kireçtaşı, marl
	A1α2	Andesite lava Andezitik lav Andesite pyroclastics Andezitik Proklastikler Fine tuff & calcareous mudstone İnce tuf & kalkerli çamurtaşı
	A1kt	Limestone, marl. Kireçtaşı, marl
	Intrusive rocks Intruzifler	β
α		Andesite Andezit
ε		Dacite Dazit
σ		Porphyrite Porfirit
δσ2		Diorite porphyrite Diyorit porfirit
δ2		Quartz diorite Kuvars diyorit
δ2σ		Quartz diorite porphyrite Kuvars diyorit porfirit
δ2σ'		Quartz porphyry Kuvars porfiri
	30	Bedding Tabaka
	70	Fault Fay
	40	Joint Kırık
	20	Flow structure Akıntılı yapı
	+	Anticlinal/synclinal, axis Antiklinal/senklinal eksen
	x	Working mine/abandoned mine Çalışan maden/kapalı maden
	•	Mineralization, vein type/dissemination type Mineralizasyon damar tip/dissemin tip
	▬	Massive, bedded ore/veinlets Masif, tabakalı cevher/damarcıklar
	■	Skarnized zone Skarn zonu
	⊙	Drilling site Sondaj yer
	A-A'	Geological profile line Jeolojik kesit çizgisi







Kızılağaç area

Member Üye	Columnar section Sutun kesit (N) (S)	Rock facies Kayaç fasiyezi	Thickness Kalınlık	Mineralization Mineralizasyon
D1A4		andesite tuff lapilli tuff tuff breccia	0~50m+	
D1A3		andesite dyke diorite porphyry dyke quartz porphyry dyke mudstone dacite lava quartz porphyry dyke dacite tuff lapilli tuff tuff breccia dacite lava	400m+	
		andesite tuff alternation of marl redstone & fine tuff quartz porphyry dyke dacite dyke andesite lava		skarn type vein type
D1A3		andesite lava diorite porphyry dyke quartz porphyry dyke andesite tuff lapilli tuff tuff breccia	400m+	

LEGEND
LEJAND

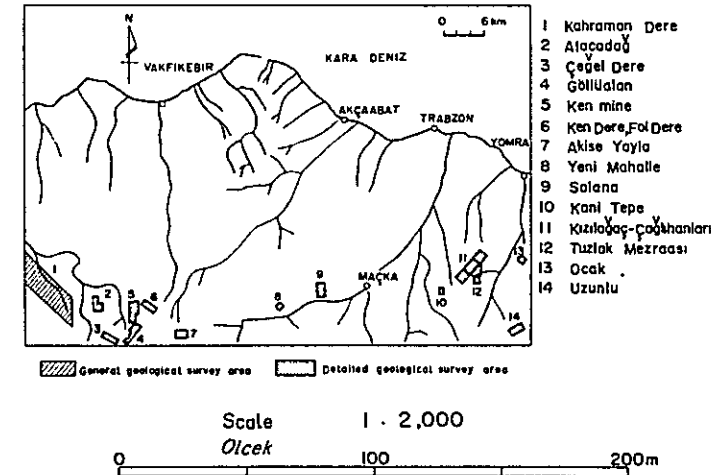
Geological age Jeolojik yaş	Formation Formasyon	Ma Isarı
Paleogene Paleosen ~ Neogen Miyosen	A3	
	A2	
Upper	D1	

MINE
TRA
GEOLOGICAL
COLUMNAR
OF
KIZI
JEOL
JAF
Prepara

MINERAL RESEARCH AND EXPLORATION INSTITUTE
 GEOLOGICAL SURVEY
 OF
 TRABZON AREA, NORTHEASTERN TURKEY

PHASE III
 GEOLOGICAL MAP WITH GEOLOGICAL PROFILE,
 COLUMNAR SECTION AND FUTURE RECOMENDATION
 OF KIZILAGAC ÇAĞLIHANLARI AREA
 KIZILAGAC ÇAĞLIHANLARI SAHASININ
 JEOLÖJİ HARITASI JEOLÖJİ KESİTLERİ SÜTUN
 KESİTİ VE ÖNERİLER

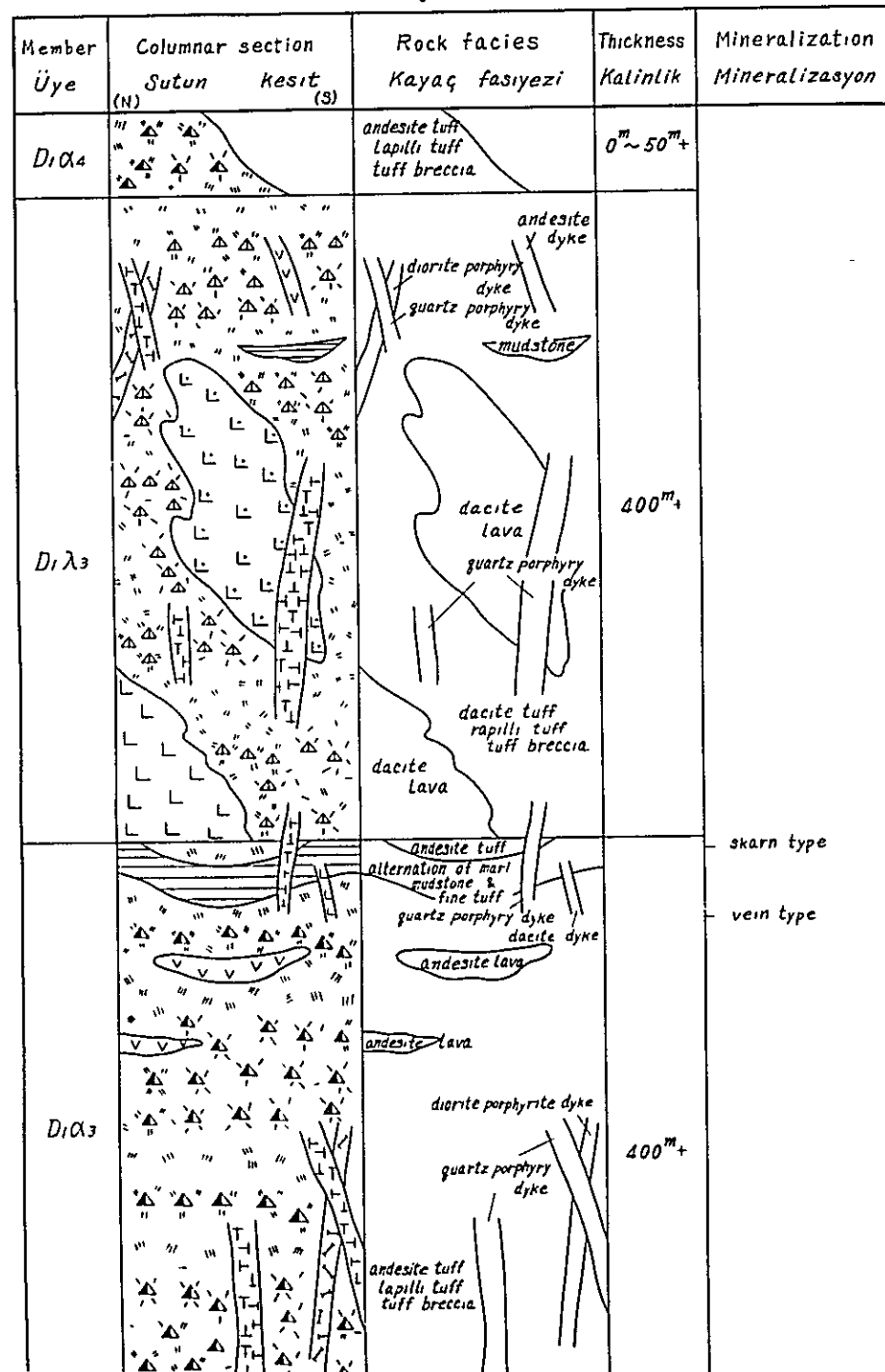
INDEX MAP



Scale 1 : 2,000
 Ölçek 100 200m
 METAL MINING AGENCY OF JAPAN
 JAPAN INTERNATIONAL COOPERATION AGENCY
 FEBRUARY 1977

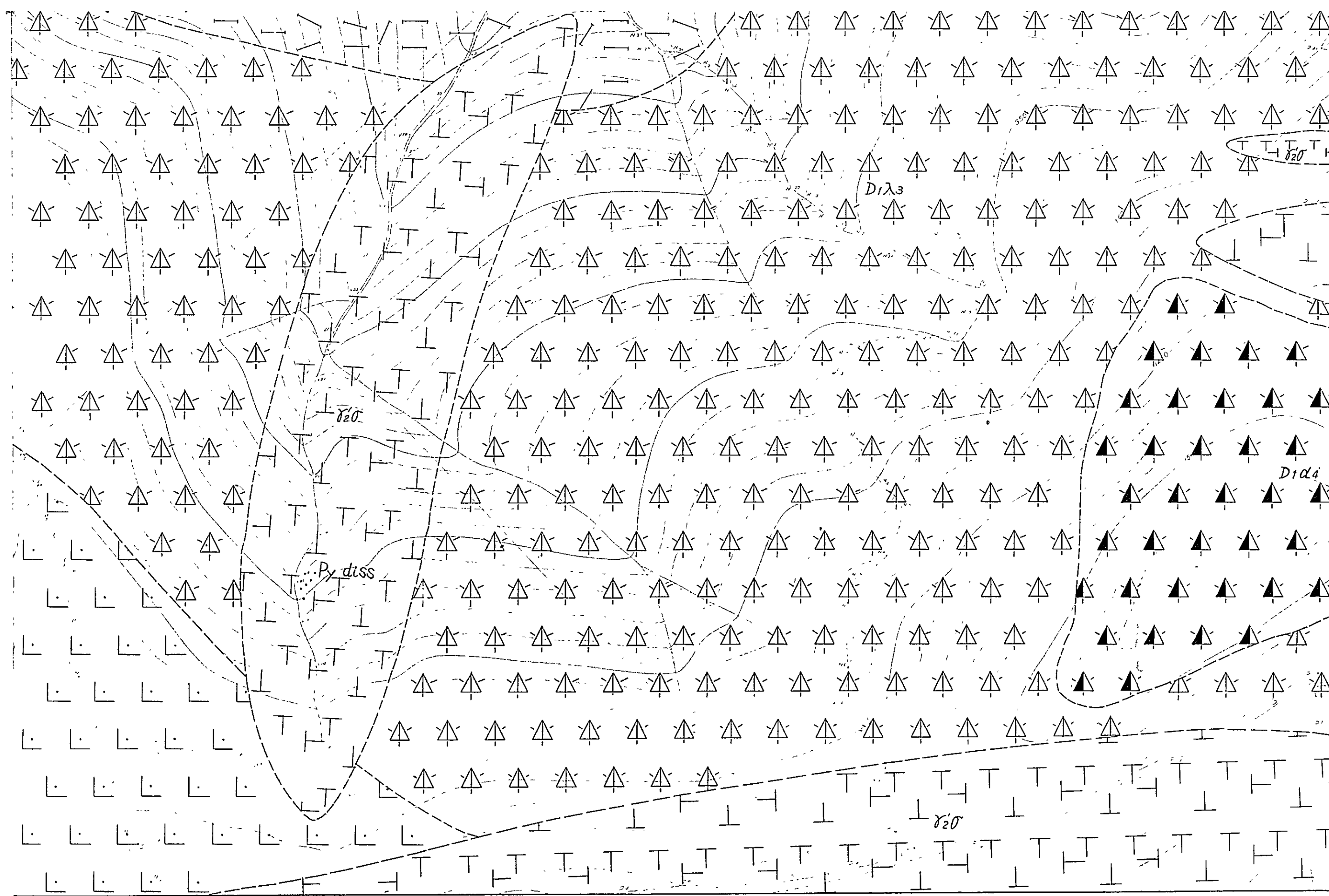
Prepared by Nikko Exploration & Development Co., Ltd.

Kızılağaç area



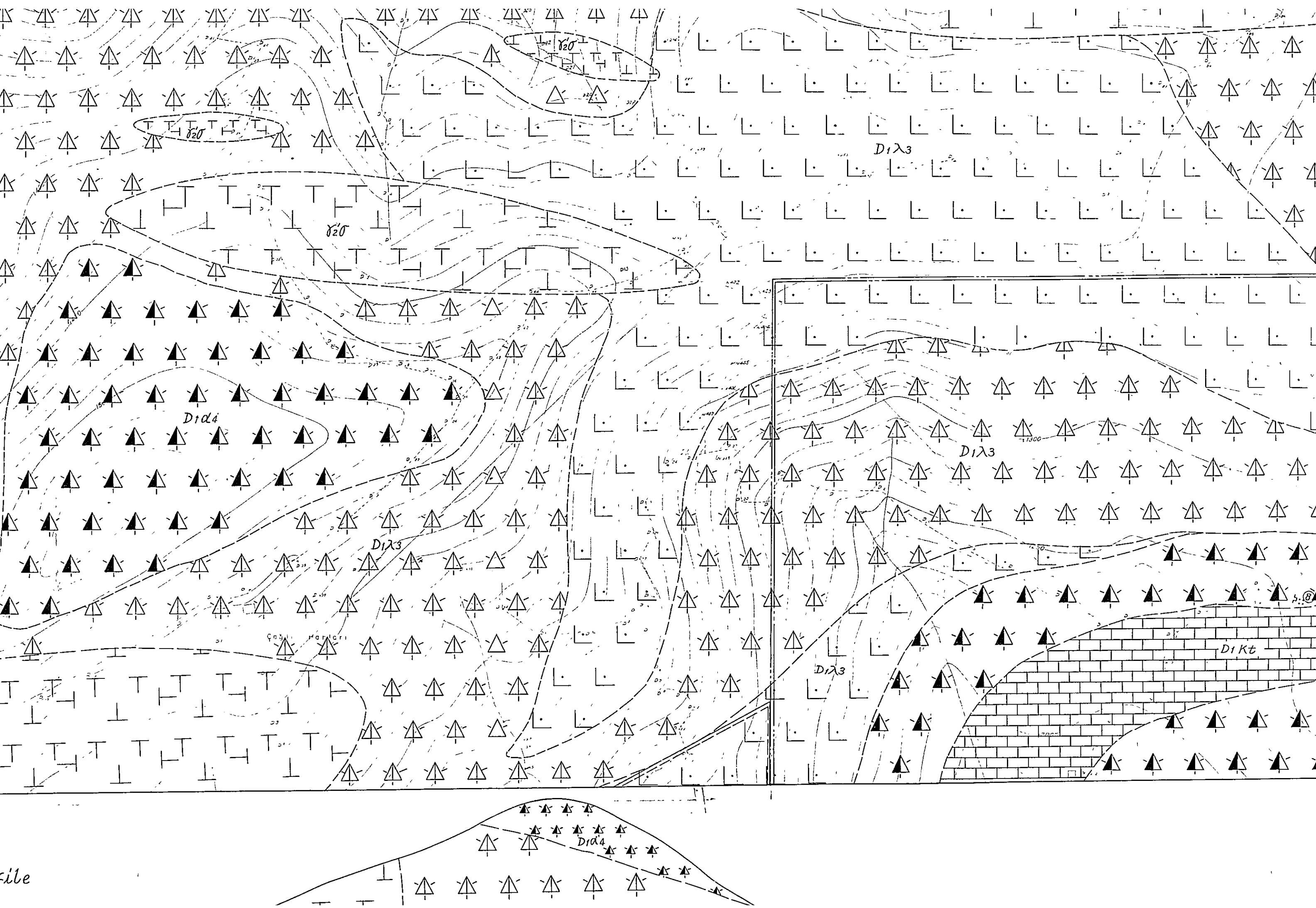
LEGEND
 LEJAND

Geological age Jeolojik yaş	Formation Formasyon	Stratigraphical Stratigrafik		Lithology Litoloji
		Marks Isaretiler	Symbol Sembol	
Paleogene Paleosen Neogene Miyosen	A ₃		A ₃ d	Andesite lava Andezit lavı
	A ₂		A ₂ d	Andesite pyroclastics Andezitik Piroklastikler
Upper Cretaceous	D ₁		D ₁ λ ₄	Dacite lava Dazit lavı
				Dacite pyroclastics Dazit Piroklastikler
		D ₁ α ₄	Fine tuff & calcareous mudstone İnce tıf & kalkerli çamırtası	
			Andesite lava Andezitik lav	
			Andesite pyroclastics Andezitik Piroklastikler	
D ₁ λ ₃		Dacite lava Dazit lavı		
	Dacite pyroclastics Dazit Piroklastikler			
	Basalt lava			

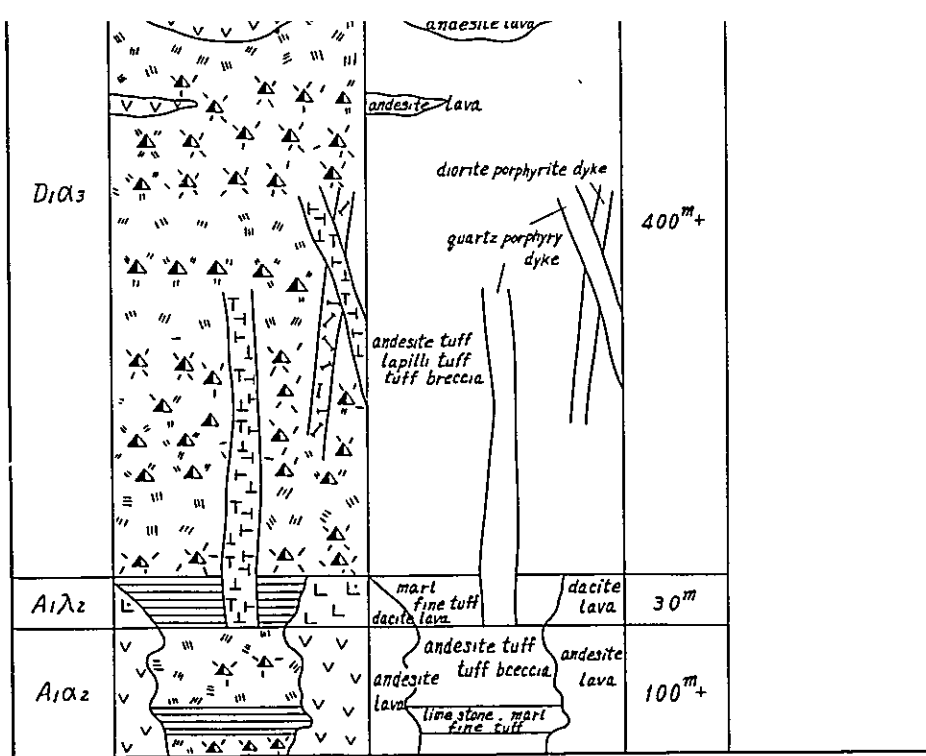
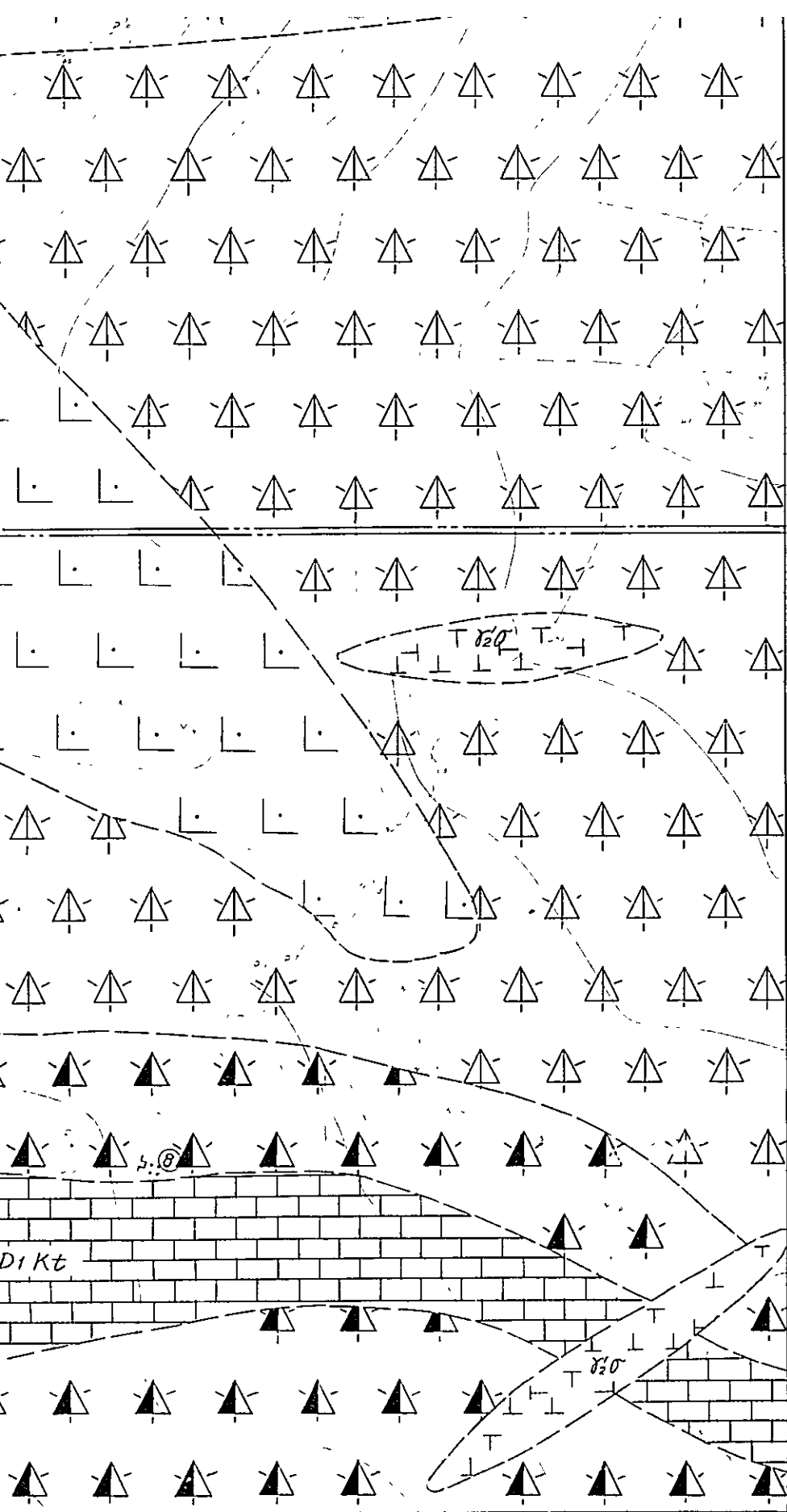


1500^m

A-A' profile



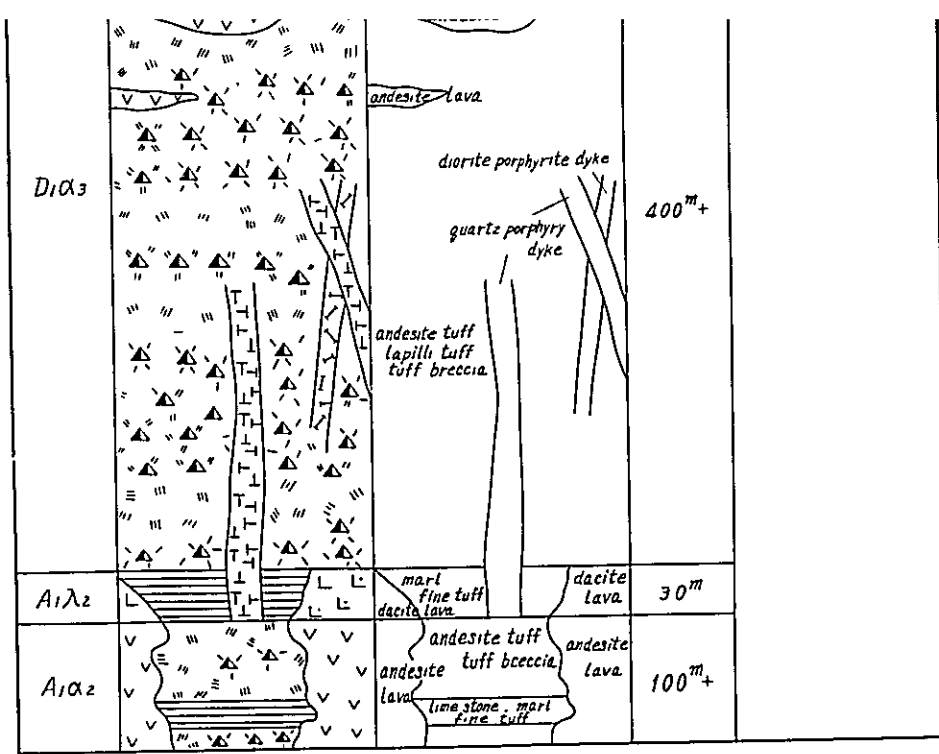
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Çağlıhanları area

Member Üye	Columnar section (N) / Sütun kesit (S)	Rock facies Kayaç fasiyezi	Thickness Kalınlık	Mineralization Mineralizasyon
D1α4		andesite tuff lapilli tuff	0-50m+	
D1λ3		dacite tuff lapilli tuff tuff breccia quartz porphyry dyke diorite porphyrite dyke andesite dyke quartz porphyry dyke dacite lava dacite lava	300m+	Pyrite dissemination in quartz porphyry
A1λ2		marl fine tuff mudstone	20m	dissemination type vein type
D1α3		andesite tuff lapilli tuff tuff breccia	220m	dissemination type vein type
A1λ2		dacite lava dacite tuff lapilli tuff tuff breccia	50m+	

Myosen	Member	Symbol	Member	Description	
Upper Cretaceous Üst Kretase	A2		A2α	Andesite pyroclastics Andezitik Piroklastikler	
	D1		D1λ4	Dacite lava Dazit lavası	
				Dacite pyroclastics Dazit Piroklastikler	
				Fine tuff & calcareous tuff İnce tüf & kalkerli tuff	
				Andesite lava Andezitik lavası	
	A1		A1α3	Andesite pyroclastics Andezitik Piroklastikler	
				Fine tuff & calcareous tuff İnce tüf & kalkerli tuff	
				Limestone, marl Kireçtaşı, marl	
				Dacite lava Dazit lavası	
	Intrusive rocks İntruzifler	A1		A1λ2	Dacite pyroclastics Dazit Piroklastikler
			Fine tuff & calcareous tuff İnce tüf & kalkerli tuff		
			Limestone, marl Kireçtaşı, marl		
			Andesite lava Andezitik lavası		
			Andesite pyroclastics Andezitik Piroklastikler		
			Fine tuff & calcareous tuff İnce tüf & kalkerli tuff		
			Limestone, marl Kireçtaşı, marl		
			Basalt		
			Andesite		
			Dacite		
	Porphyrite				
			β	Pyrite dissemination	
				δσ2	Diorite porphyrite
				σ2	Quartz diorite
				σ2σ	Quartz diorite porphyrite
				σ2σ	Quartz porphyry
				30	Bedding
				70	Fault
				40	Joint
				20	Flow structure
					Anticlinal/synclinal
		Working mine/abandoned			
		Mineralization vein			
		Massive, bedded ore			
		Skarnized zone			
		Drilling site			
		Geological profile line			



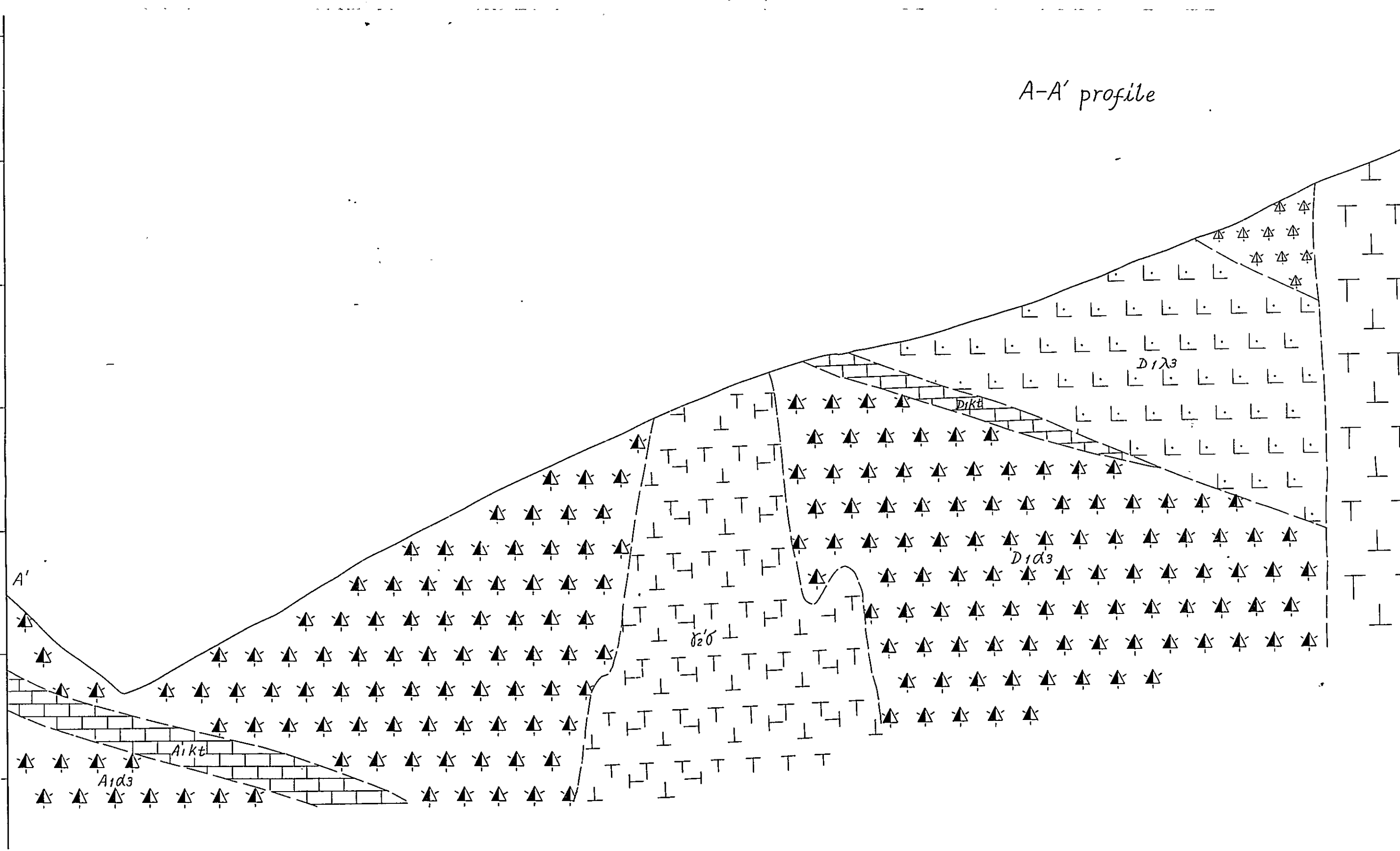
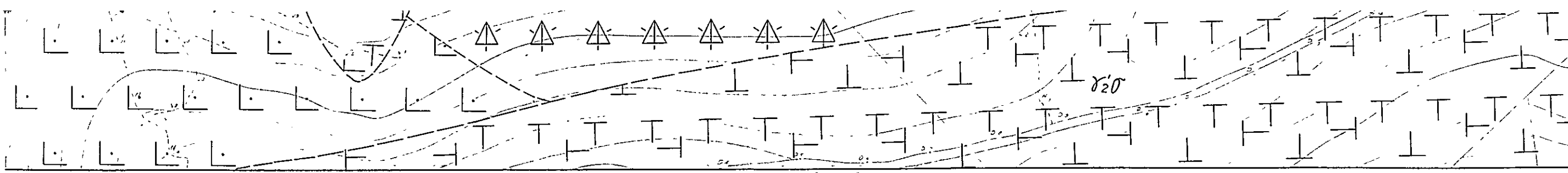
Çağlıhanlı area

Member Üye	Columnar section Sütun kesit (N)	Rock facies Kayaç fasiyezi (S)	Thickness Kalınlık	Mineralization Mineralizasyon
D1α4		andesite tuff lapilli tuff	0 ^m -50 ^m +	
D1λ3		dacite tuff lapilli tuff tuff breccia quartz porphyry dyke diorite porphyrite dyke andesite dyke dacite lava	300 ^m +	Pyrite dissemination in quartz porphyry
D1α3		marl fine tuff mudstone andesite lava andesite tuff lapilli tuff tuff breccia quartz porphyry dyke	20 ^m 220 ^m	dissemination type vein type dissemination type vein type
A1λ2		dacite lava dacite tuff lapilli tuff tuff breccia	50 ^m +	

Unit	Symbol	Thickness	Description	
Upper Cretaceous Üst Kretase	A2		Andesite pyroclastics Andezitik Piroklastikler	
	A2α		Dacite lava Dasıt lavı	
	D1	D1λ4		Dacite pyroclastics Dasıt Piroklastikler Fine tuff & calcareous mudstone İnce tuf & kalkerli çamurtaşı
		D1α4		Andesite lava Andezitik lav Andesite pyroclastics Andezitik Piroklastikler
	D1	D1λ3		Dacite lava Dasıt lavı Dacite pyroclastics Dasıt Piroklastikler Basalt lava Bazalt lavı Fine tuff & calcareous mudstone İnce tuf & kalkerli çamurtaşı
		D1α3		Andesite lava Andezitik lav Andesite pyroclastics Andezitik Piroklastikler Fine tuff & calcareous mudstone İnce tuf & kalkerli çamurtaşı
	D1	D1kt		Limestone, marl. Kireçtaşı, marı
		A1		Dacite lava Dasıt lavı Dacite pyroclastics Dasıt Piroklastikler Fine tuff & calcareous mudstone İnce tuf & kalkerli çamurtaşı Limestone, marl Kireçtaşı, marı
	A1	A1λ2		Dacite lava Dasıt lavı Dacite pyroclastics Dasıt Piroklastikler Fine tuff & calcareous mudstone İnce tuf & kalkerli çamurtaşı Limestone, marl Kireçtaşı, marı
		A1α2		Andesite lava Andezitik lav Andesite pyroclastics Andezitik Piroklastikler Fine tuff & calcareous mudstone İnce tuf & kalkerli çamurtaşı
A1	A1kt		Limestone, marl Kireçtaşı, marı	
	Intrusive rocks İntruzifler	β		Basalt Bazalt
α			Andesite Andezit	
ε			Dacite Dasıt	
σ			Porphyrite Porfirit	
δσ2			Diorite porphyrite Diorit porfirit	
δ2			Quartz diorite Kuvarlı diorit	
δ2σ			Quartz diorite porphyrite Kuvarlı diorit porfirit	
δ2σ			Quartz porphyry Kuvarlı porfirit	
Structural features		30		Bedding Tabaka
		70		Fault Iar
	40		Joint Kırık	
	20		Flow structure Akıntılı yapı	
	+		Anticlinal/synclinal, axis Antiklinal/senklinial eksen	
	X		Working mine/abandoned mine Çalışan maden/kapalı maden	
	+		Mineralization vein type/dissemination type Mineralizasyon damar tip/disseminasyon tip	
	+		Massive, bedded ore/veinlets Masif, tabakalı ceshler/damarcıklar	
	+		Skarnized zone Skarn zonu	
	+		Drilling site Sondaj yer	
A-A'		Geological profile line Jeolojik kesit çizgisi		

1500^m
1400
1300
1200
1100
1000
900

A-A' profile



A'

A1d3

Aikt

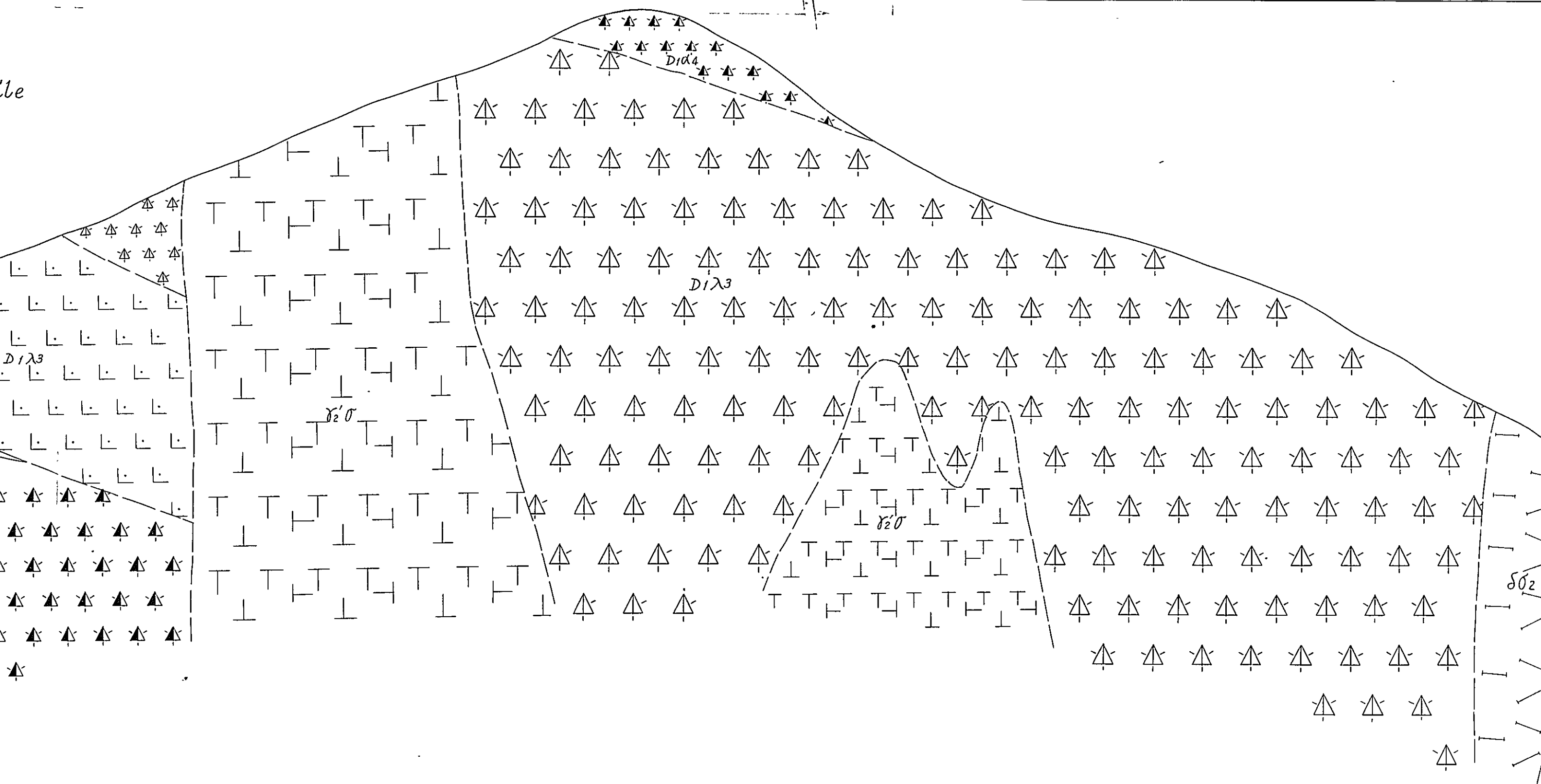
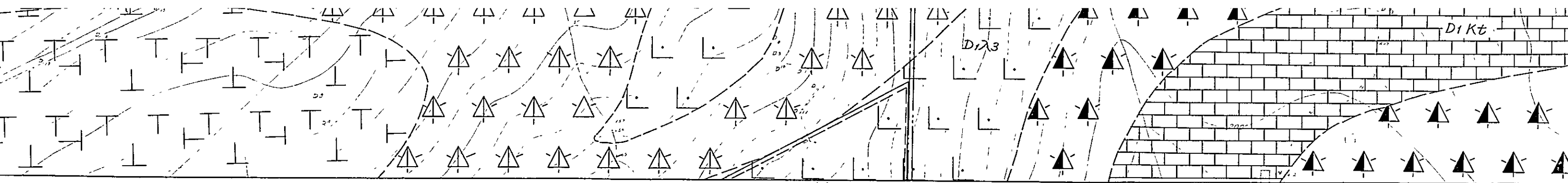
D20

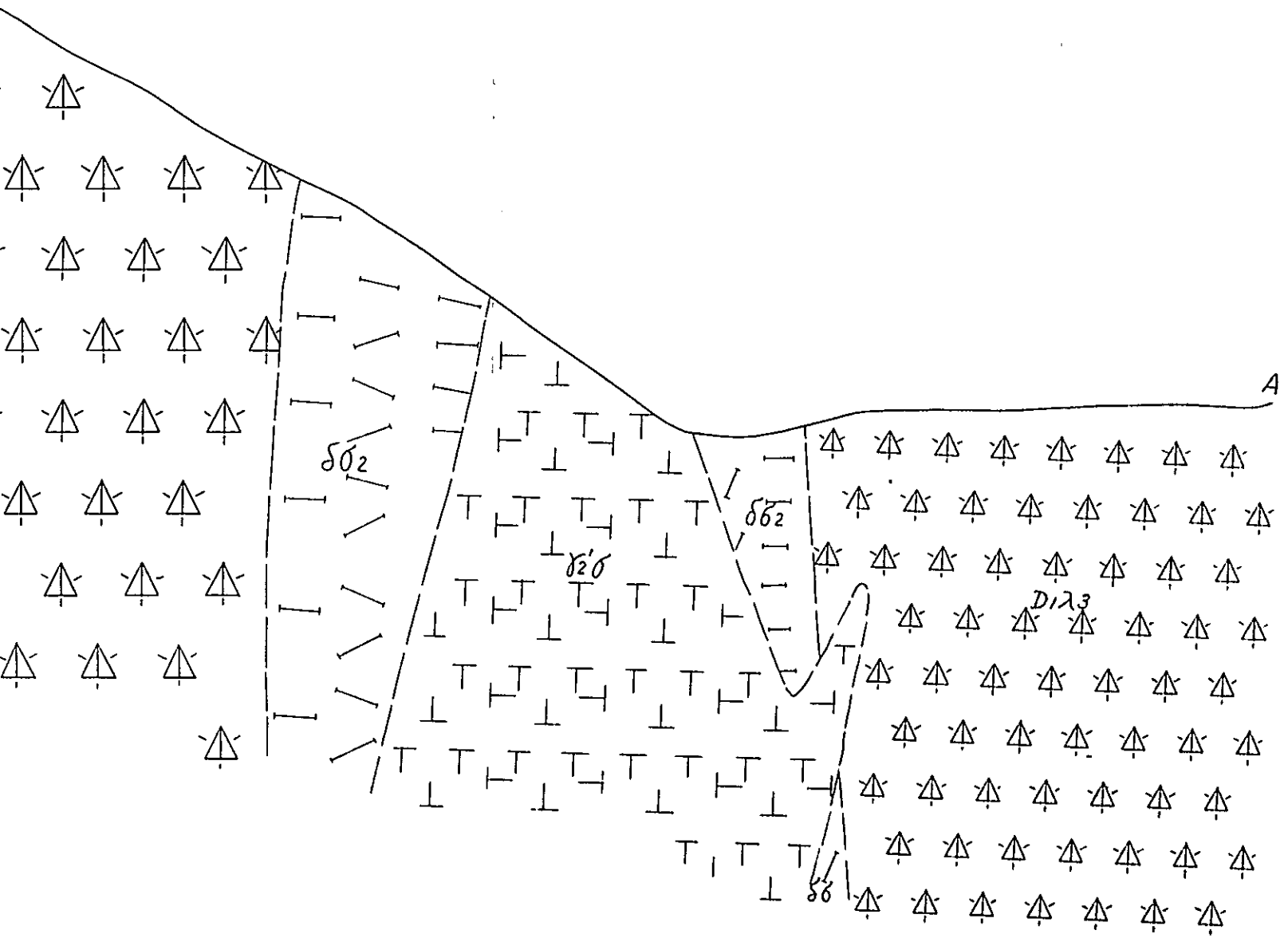
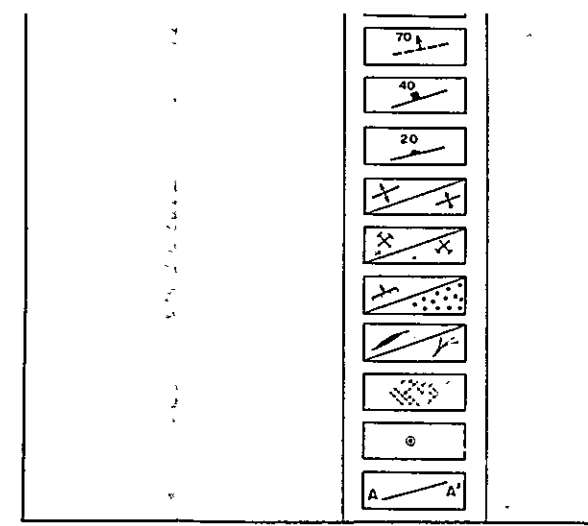
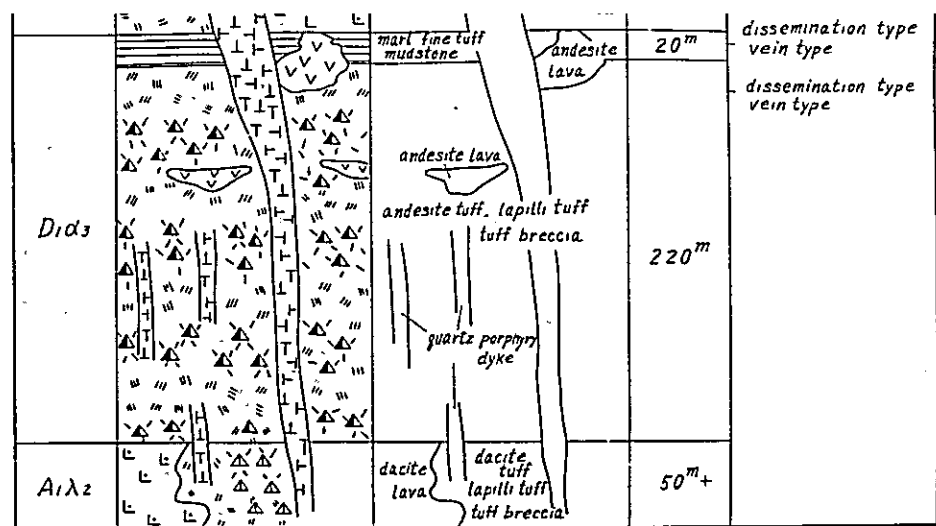
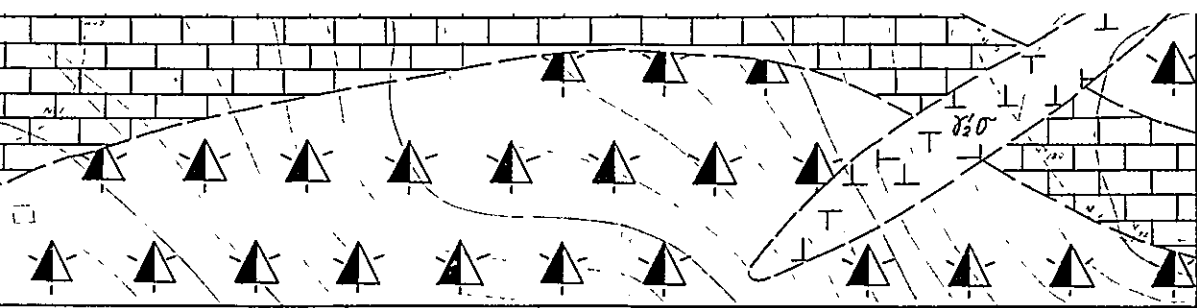
D1d3

D1k3

D1d3

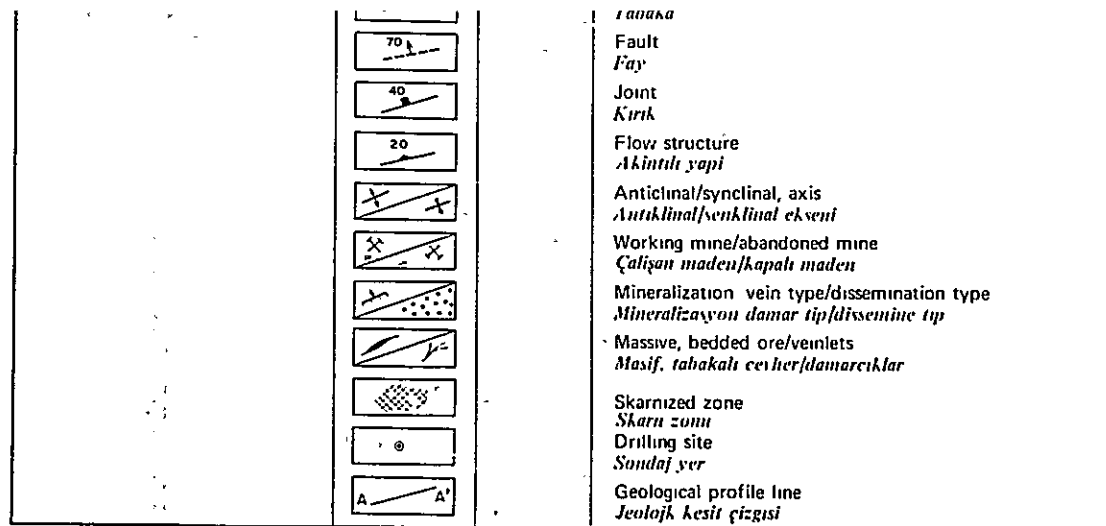
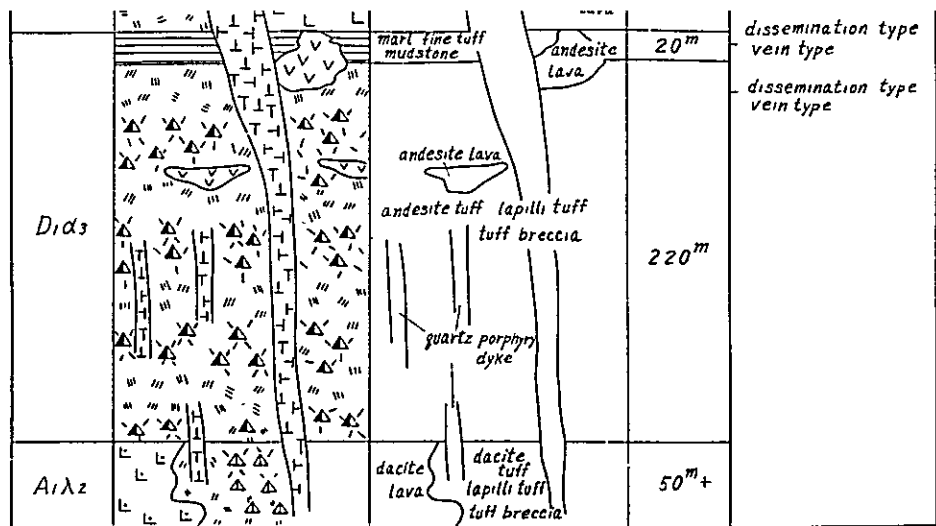
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Future recommend

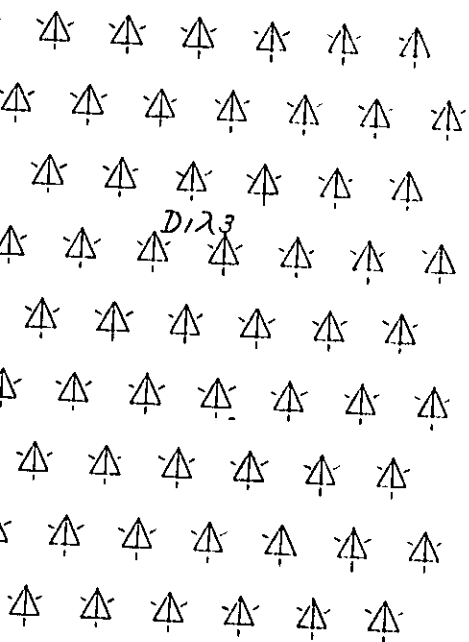
	Method
	Magnetic survey



Future recommendation

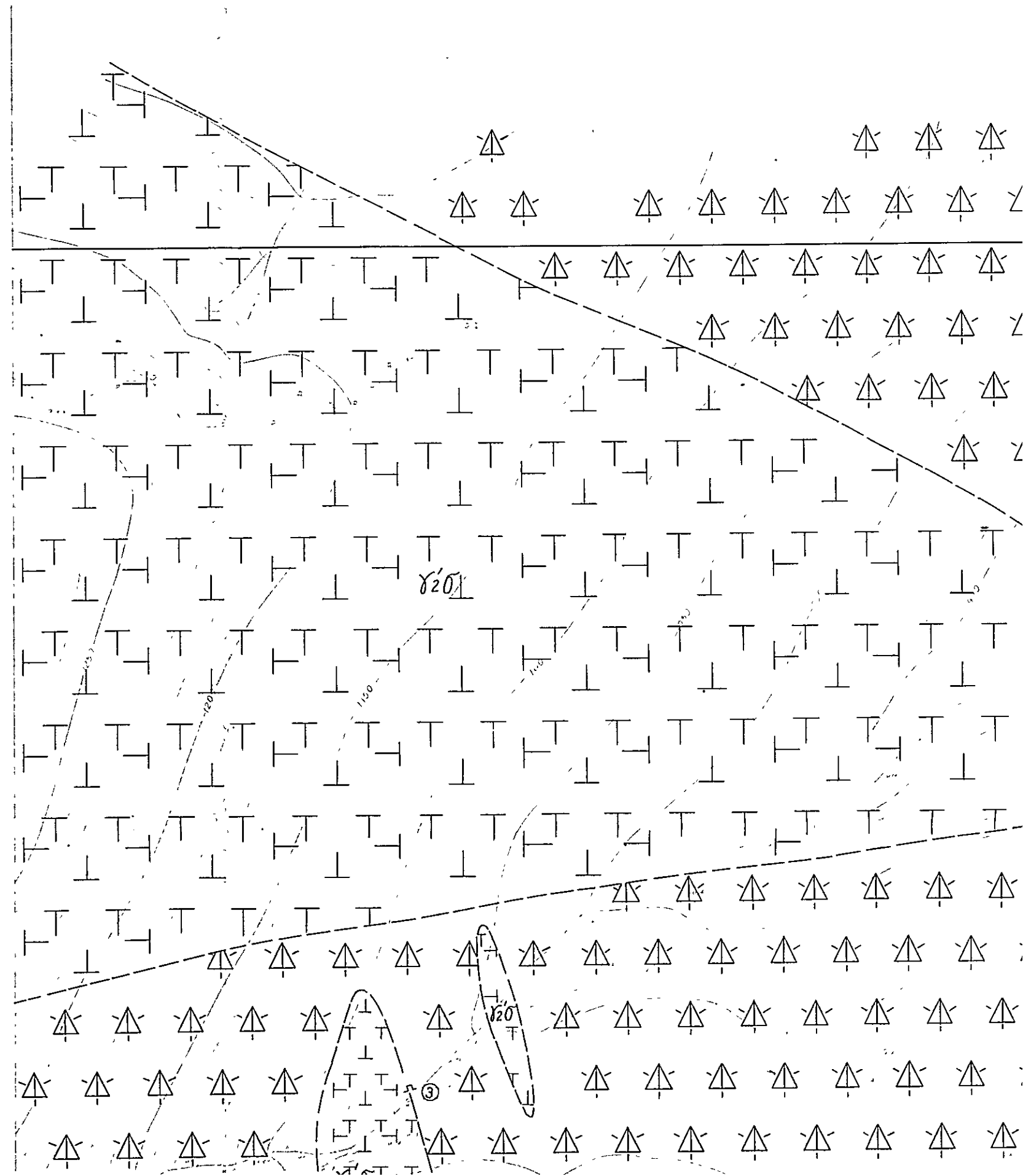
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	Magnetic survey	2	0.65km (1.3km x 0.5km)
		3	1.3125km (1.75km x 0.75km)

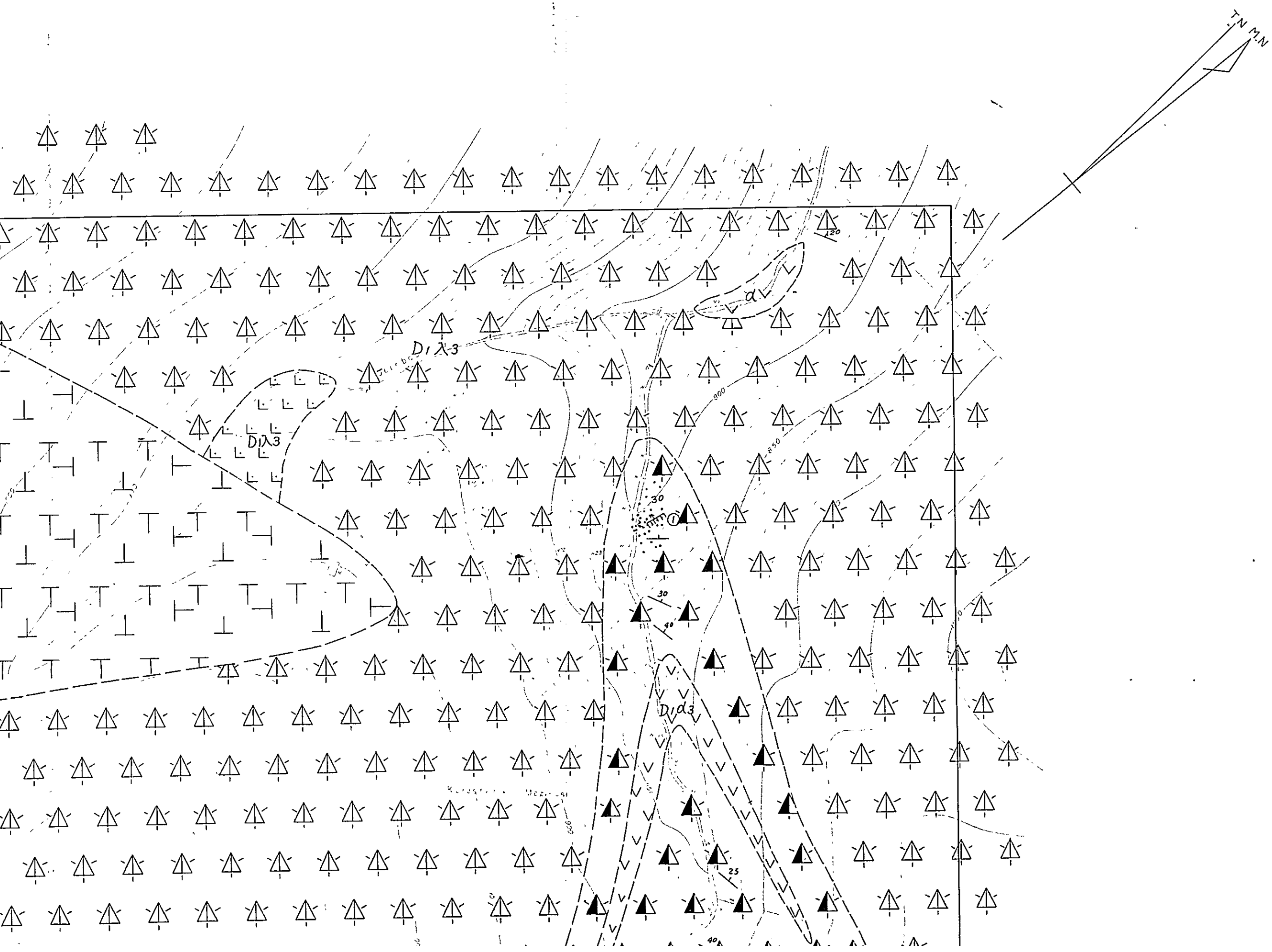
A



Kızılağaç area

Member Uye	Columnar section Sütun Kesit (N)	Rock facies Kayaç fasiyezi	Thickness Kalınlık	Mineralization Mineralizasyon
D1A4		andesite tuff lapilli tuff tuff breccia	0 ^m ~50 ^m +	
D1A3		andesite dyke diorite porphyry dyke quartz porphyry dyke mudstone dacite lava quartz porphyry dyke dacite tuff lapilli tuff tuff breccia dacite lava	400 ^m +	
		andesite tuff alternation of marl mudstone & fine tuff quartz porphyry dyke dacite dyke andesite lava		skarn type vein type
D1A3		andesite lava diorite porphyry dyke quartz porphyry dyke andesite tuff lapilli tuff tuff breccia	400 ^m +	

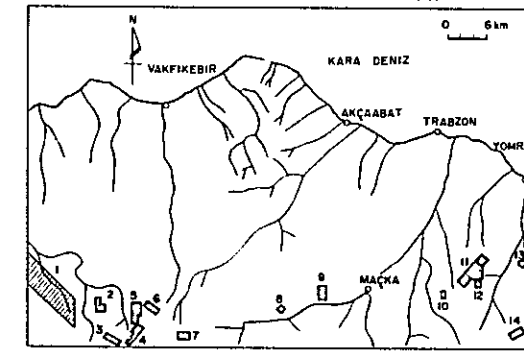




MINERAL RESEARCH AND EXPLORATION INSTITUTE
 GEOLOGICAL SURVEY
 OF
 TRABZON AREA , NORTHEASTERN TURKEY

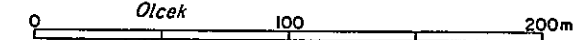
PHASE III
 GEOLOGICAL MAP WITH GEOLOGICAL PROFILE,
 COLUMNAR SECTION AND FUTURE RECOMENDATION
 OF KIZILAĞAÇ ÇAĞLIHANLARI AREA
 KIZILAĞAÇ ÇAĞLIHANLARI SAHASININ
 JEOLJİ HARİTASI JEOLJİ KESİTOLERİ SÜTUN
 KESİTİ VE ÖNERİLER

INDEX MAP



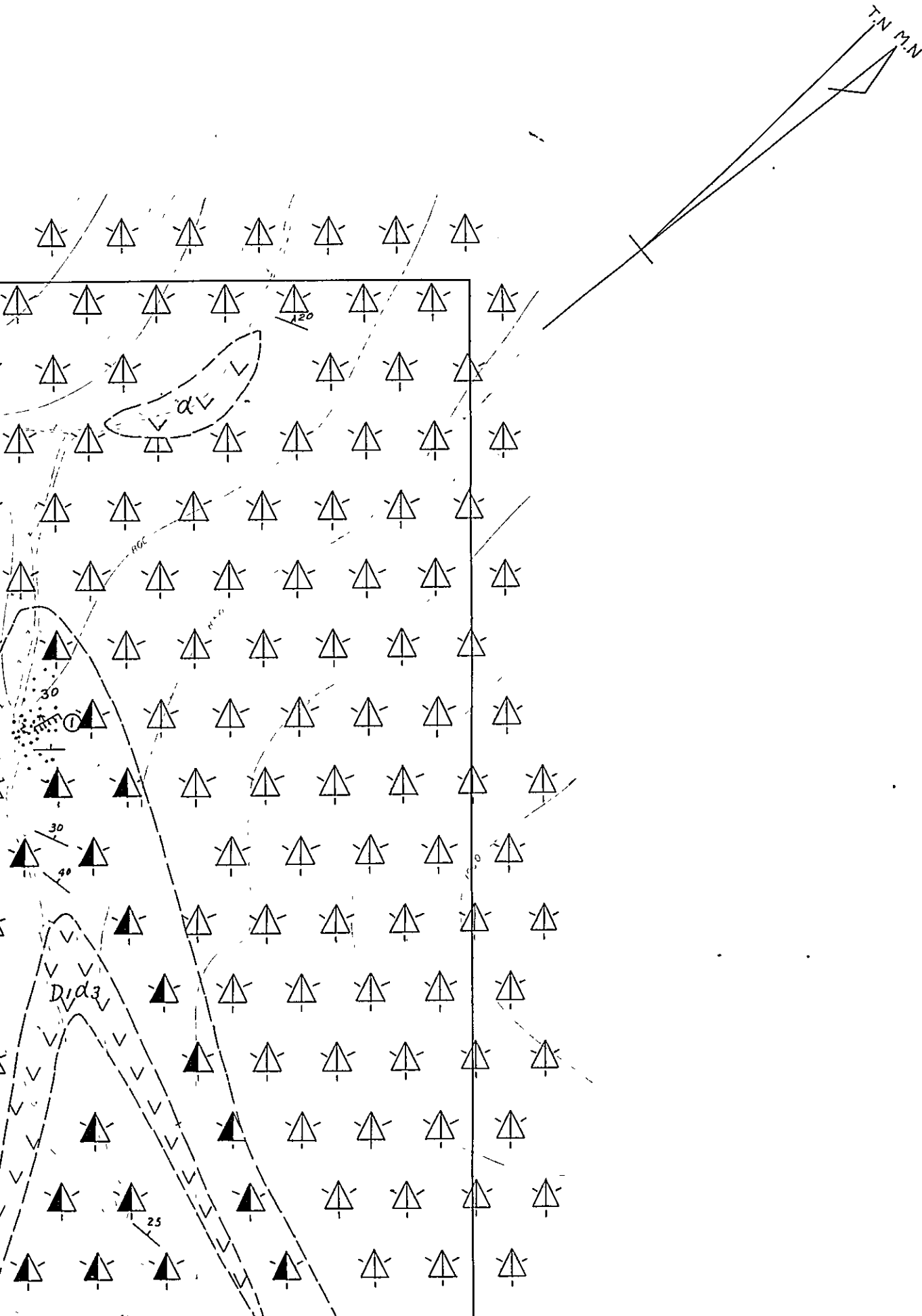
- 1 Kahraman Dere
- 2 Alaçadağ
- 3 Çeşel Dere
- 4 Gollüalan
- 5 Ken mine
- 6 Kın Dere, Fol Dere
- 7 Akise Yayla
- 8 Yeni Mahalle
- 9 Salona
- 10 Kanlı Tepe
- 11 Kızılağaç-Çoşhanlı
- 12 Tuzlak Mezraası
- 13 Ocak
- 14 Uzunlu

Scale 1 : 2,000



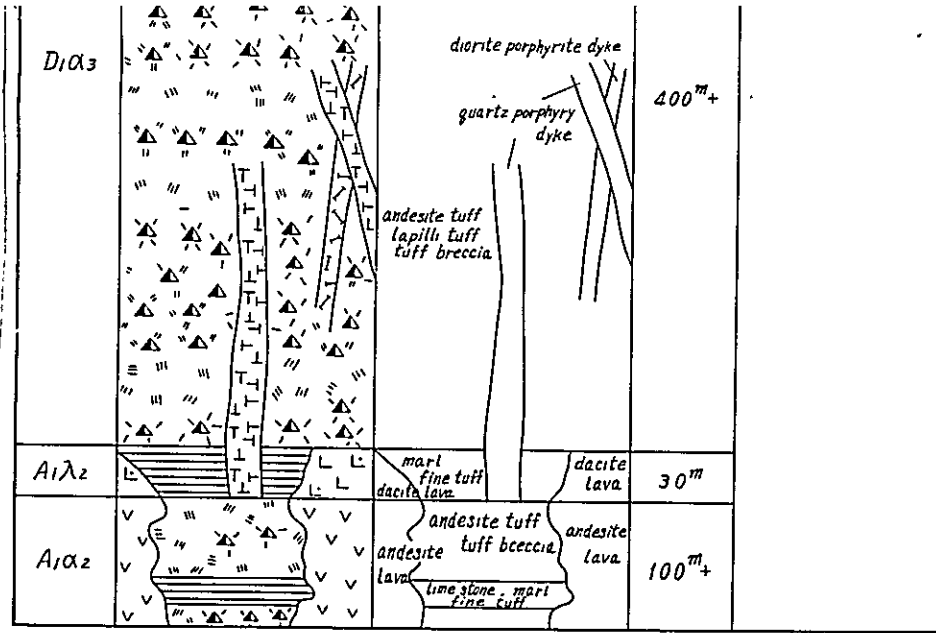
METAL MINING AGENCY OF JAPAN
 JAPAN INTERNATIONAL COOPERATION AGENCY
 FEBRUARY 1977

Prepared by Nikko Exploration & Development Co., Ltd.



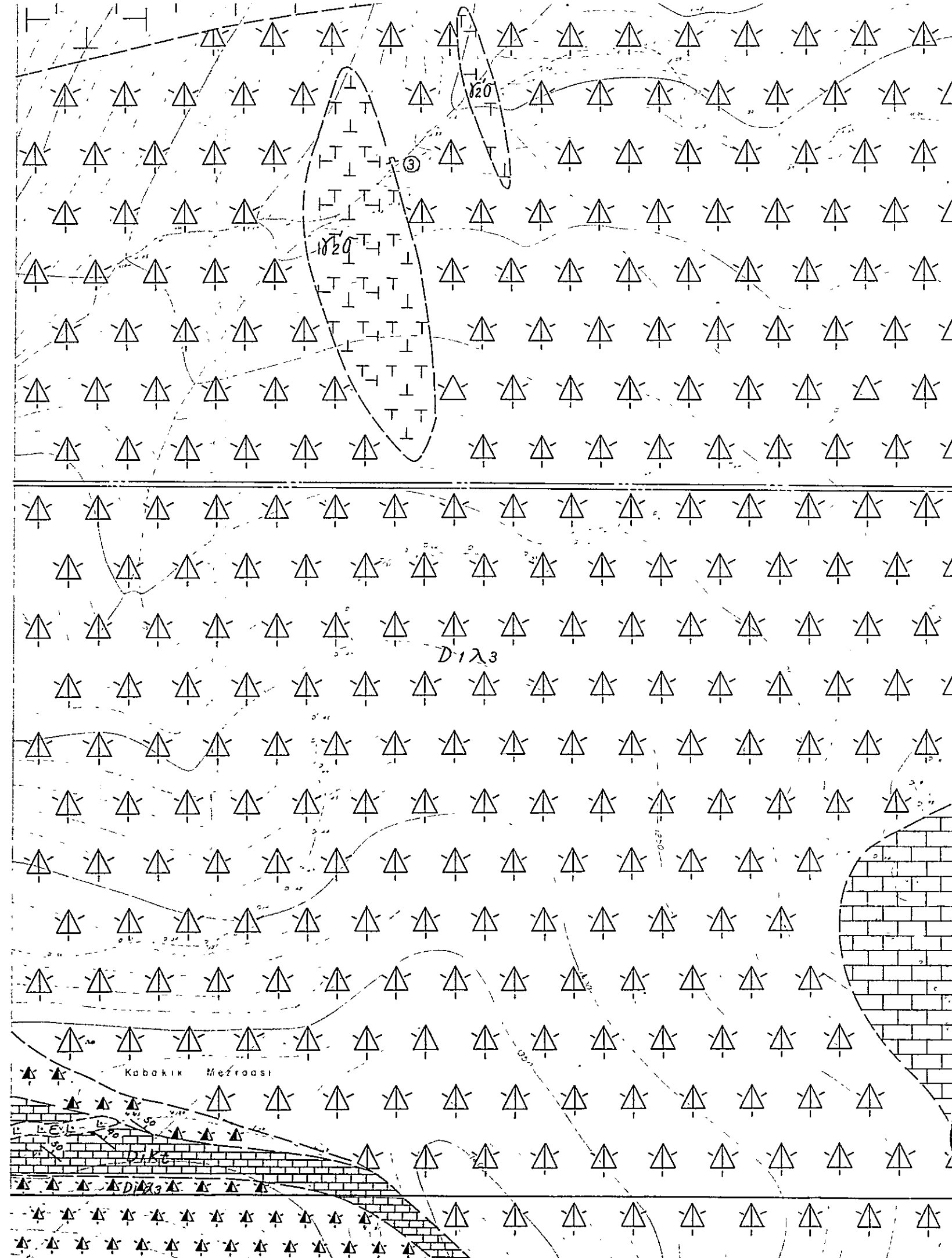
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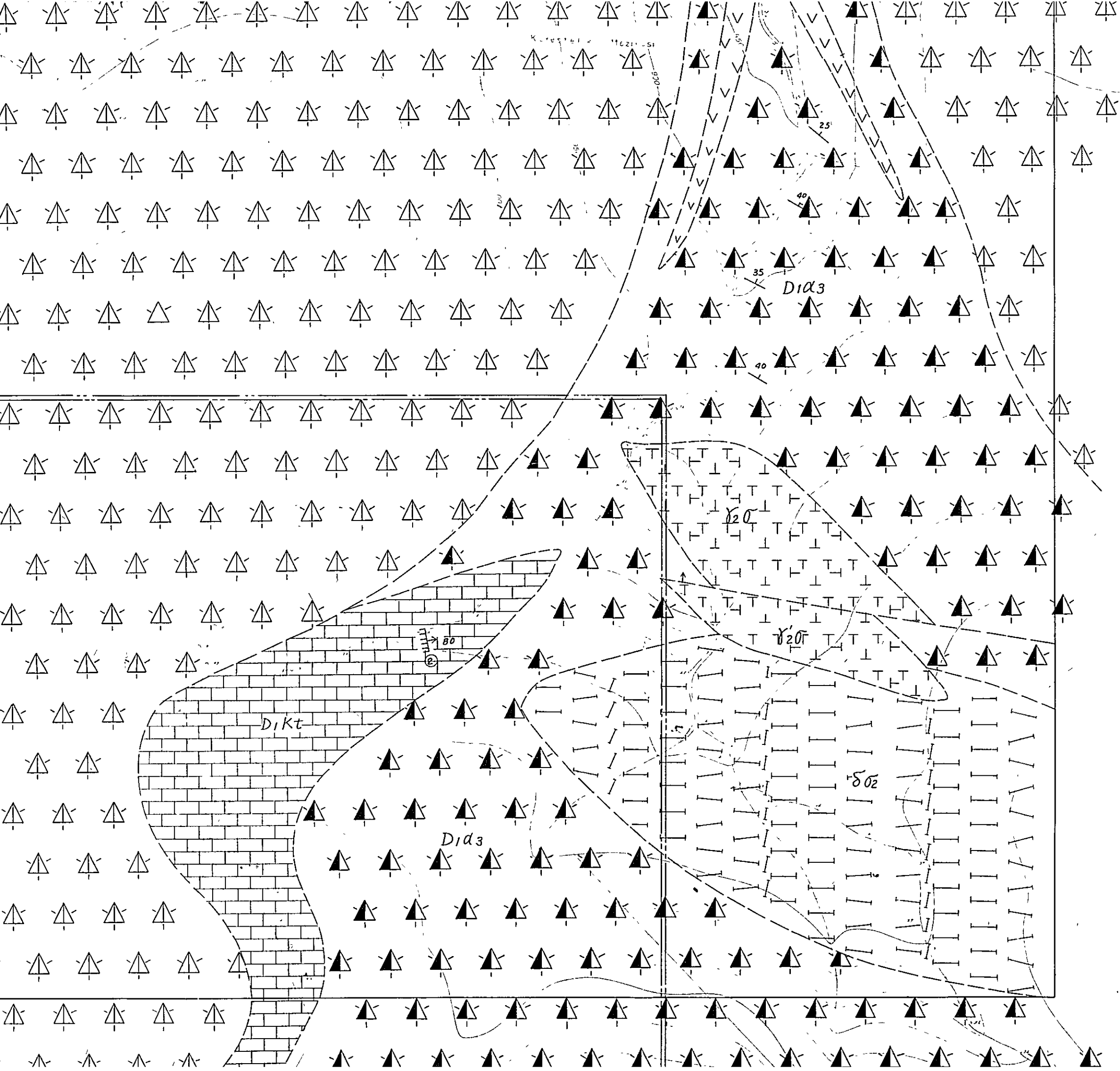
Geological age Jeolojik yaş	Formation Formasyon	Stratigraphical Stratigrafik		Lithology Litoloji
		Marks Isaretler	Symbol Sembol	
Paleogene Paleosen ~ Neogene Miyosen	A3		A3α	Andesite lava Andezit lavı
	A2		A2α	Andesite pyroclastics Andezitik Piroklastikler
			D1L4	Dacite lava Dazit lavı
				Dacite pyroclastics Dazit Piroklastikler
			D1d4	Fine tuff & calcareous mudstone İnce tift & kalkerli çamurlaş
				Andesite lava Andezitik lav
				Andesite pyroclastics Andezitik Piroklastikler



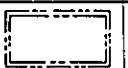
Çağlıhanlı area

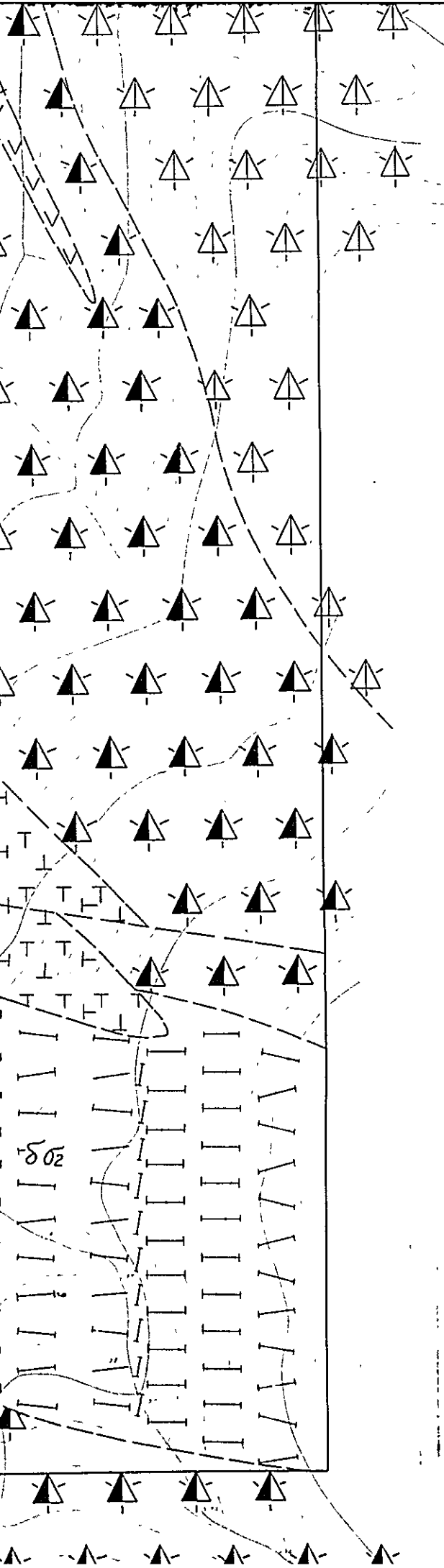
Member Üye	Columnar section Sütun Kesit (N)	Rock facies Kayaş fasiyezi (S)	Thickness Kalınlık	Mineralization Mineralizasyon
D1δ4		andesite tuff lapilli tuff	0m-50m+	
D1λ3		dacite tuff lapilli tuff tuff breccia quartz porphyry dyke diorite porphyrite dyke andesite dyke quartz porphyry dyke dacite lava dacite lava	300m+	Pyrite dissemination in quartz porphyry
		marl, fine tuff mudstone	20m	dissemination type vein type
D1δ3		andesite lava andesite tuff, lapilli tuff tuff breccia quartz porphyry dyke	220m	dissemination type vein type
A1λ2		dacite lava dacite tuff lapilli tuff tuff breccia	50m+	





Future recommendation

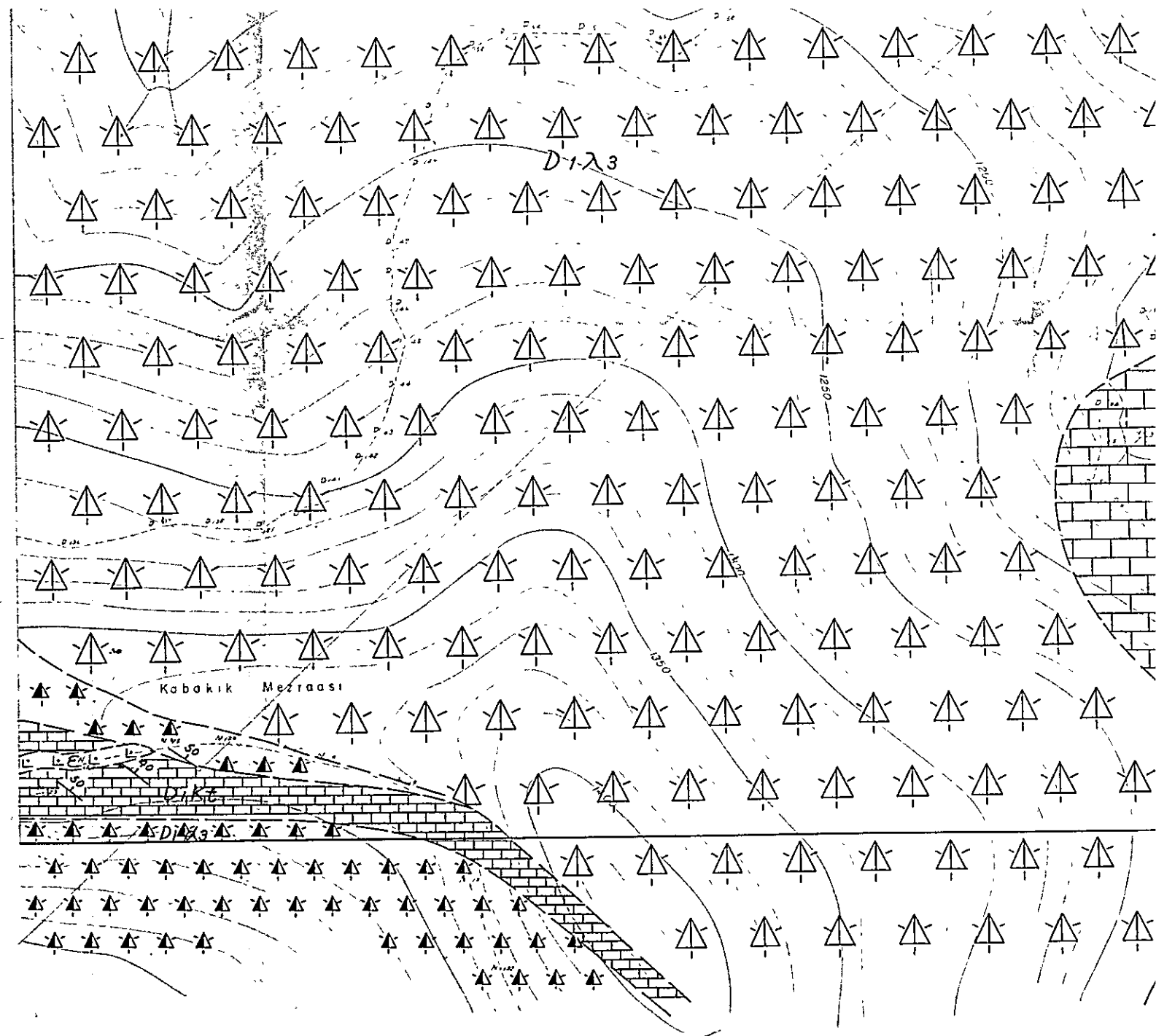
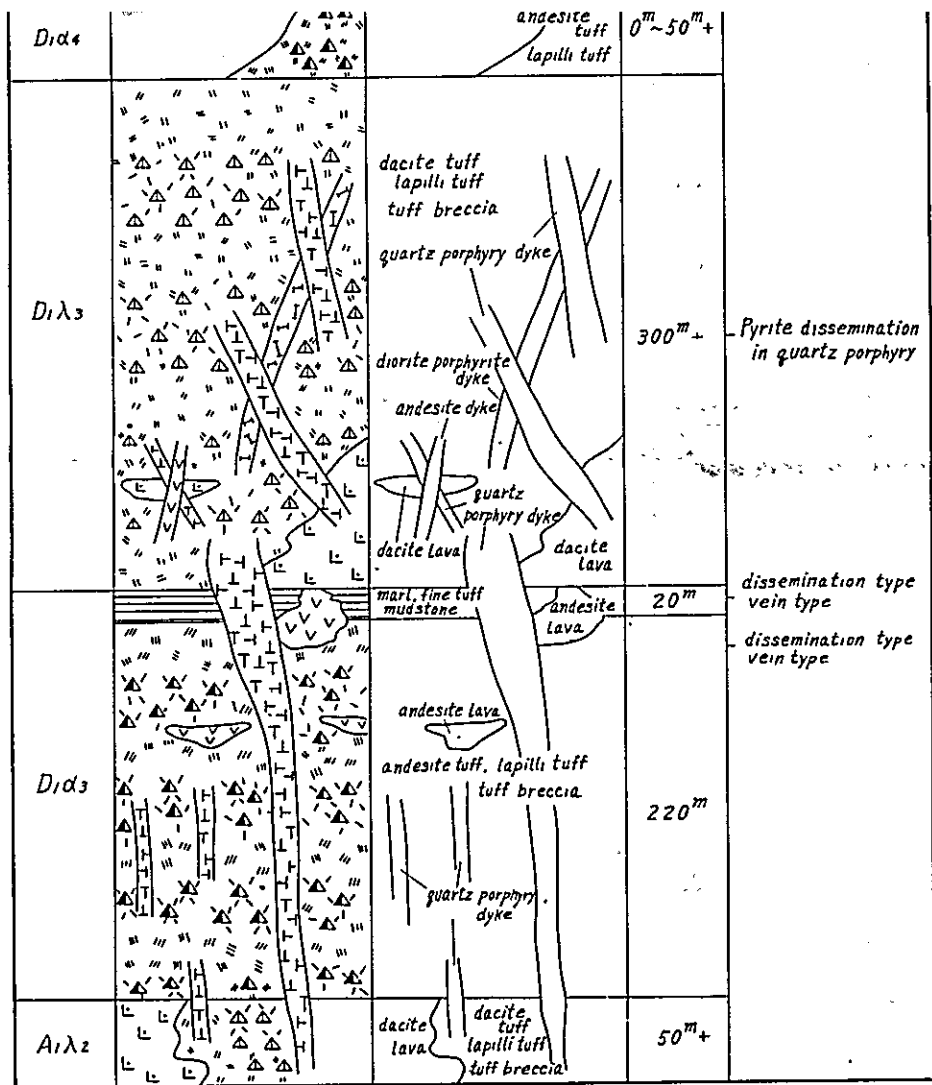
	Method	No	Amount of works
	Magnetic survey	3	1 3125 km (1 75km x 0 95 km)

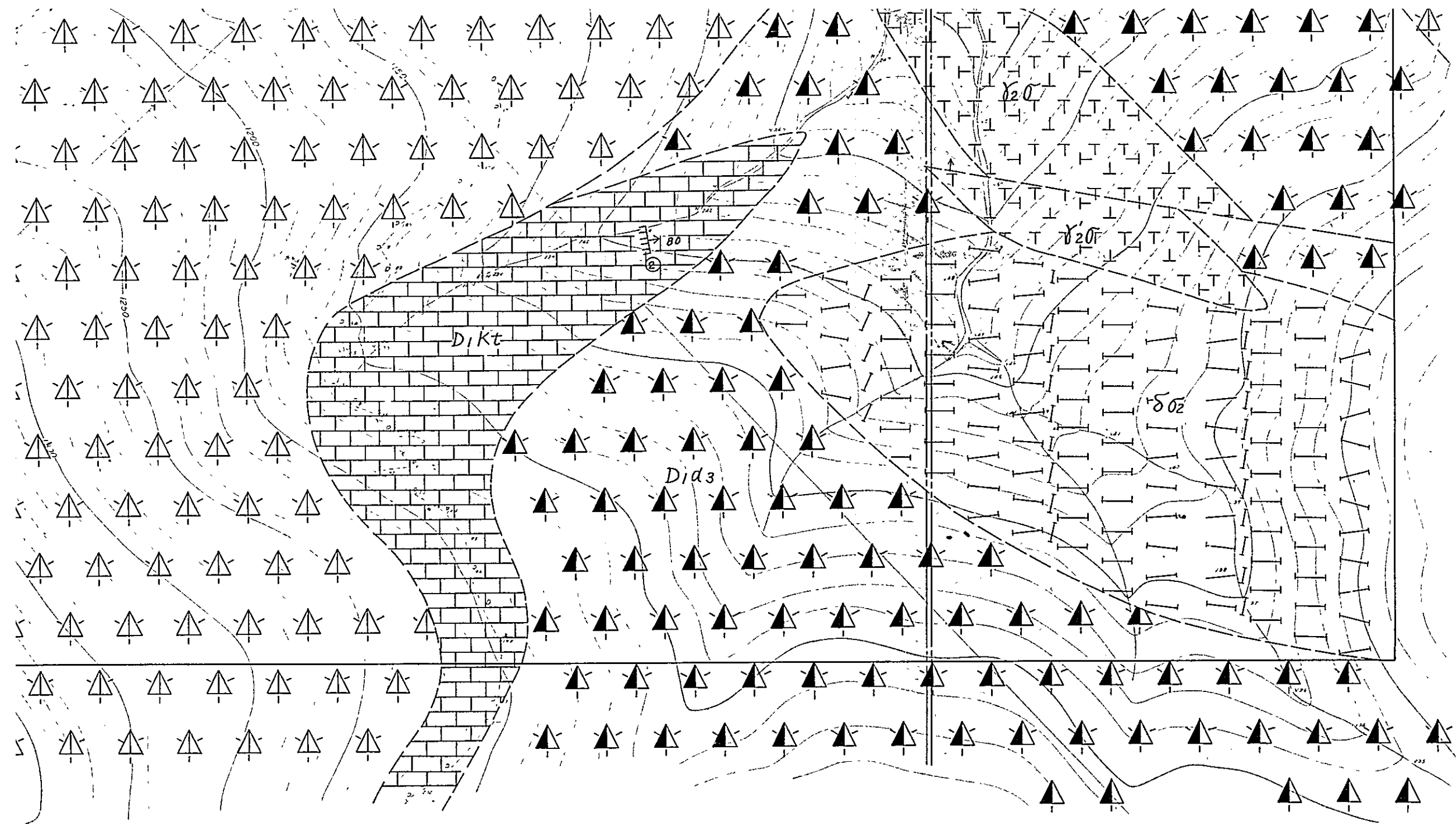


Future recommendation

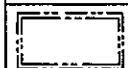
Method	No	Amount of works
Magnetic survey	3	1.3125 km (1.75km x 0.95 km)

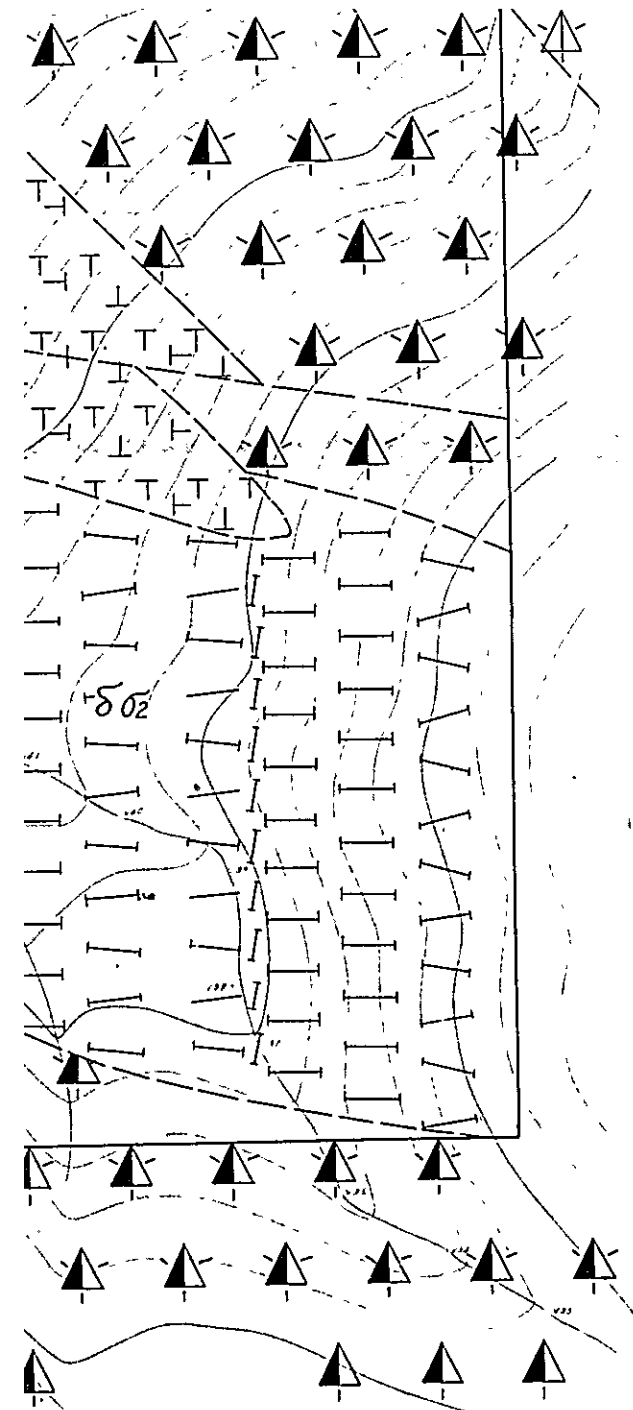
	Paleosen - Neogene - Miyosen			
	A ₃		A ₃ d	Andesite lava Andezit lavı
Upper Cretaceous Ust Kretase	A ₂		A ₂ d	Andesite pyroclastics Andezitik Piroklastikler
	D ₁		D ₁ λ ₄	Dacite lava Dazit lavı Dacite pyroclastics Dazit Piroklastikler Fine tuff & calcareous mudstone İnce tuf & kalkerli çamurtaşı
			D ₁ d ₄	Andesite lava Andezitik lav Andesite pyroclastics Andezitik Piroklastikler
			D ₁ λ ₃	Dacite lava Dazit lavı Dacite pyroclastics Dazit Piroklastikler Basalt lava Bazalt lavı Fine tuff & calcareous mudstone İnce tuf & kalkerli çamurtaşı
			D ₁ d ₃	Andesite lava Andezitik lav Andesite pyroclastics Andezitik Piroklastikler Fine tuff & calcareous mudstone İnce tuf & kalkerli çamurtaşı
			D ₁ kt	Limestone, marl Kireçtaşı, marı
		A ₁		A ₁ λ ₂
			A ₁ d ₂	Andesite lava Andezitik lav Andesite pyroclastics Andezitik Piroklastikler Fine tuff & calcareous mudstone İnce tuf & kalkerli çamurtaşı
			A ₁ kt	Limestone, marl Kireçtaşı, marı
	Intrusive rocks Intruzifler		β	Basalt Bazalt
		α	Andesite Andezit	
		ε	Dacite Dazit	
		σ	Porphyrite Porfir	
		δσ ₂	Diorite porphyrite Diorit porfir	
		σ ₂	Quartz diorite Kuvars diorit	
		δ ₂ σ	Quartz diorite porphyrite Kuvars diorit porfir	
		δ ₂ σ	Quartz porphyry Kuvars porfir	
			Bedding Tabaka	
			Fault Fay	
			Joint Kirik	
			Flow structure Akhutlu yapı	
			Anticlinal/synclinal, axis Antiklinal/senkinal eksen	
			Working mine/abandoned mine Çalışan maden/kapalı maden	
			Mineralization vein type/dissemination type Mineralizasyon damar tipi/disseminasyon tipi	
			Massive, bedded ore/veinlets Masif, tabakalı cevher/damarcıklar	
			Skarnized zone Skarn zonu	
			Drilling site Sondaj yer	
			Geological profile line Jeolojik kesit çizgisi	





Future recommendation

	Method	No	Amou
	Magnetic survey	3	1 (1.75)



Future recommendation

Method	No	Amount of works
Magnetic survey	3	1.3125 km (1.75km x 0.95 km)

A ₁		Limestone, marl. <i>Kireçtaşı, marl.</i>
		Andesite lava <i>Andezitik lav</i>
A ₁ α ₂		Andesite pyroclastics <i>Andezitik Piroklastikler</i>
		Fine tuff & calcareous mudstone <i>İnce tuf & kalkerli çamurtaşı</i>
Intrusive rocks <i>İntrüzifler</i>		Limestone, marl. <i>Kireçtaşı, marl.</i>
		Basalt <i>Bazalt</i>
		Andesite <i>Andezit</i>
		Dacite <i>Davıt</i>
		Porphyrite <i>Porfir</i>
		Diorite porphyrite <i>Diorit porfir</i>
		Quartz diorite <i>Kuvars diorit</i>
		Quartz diorite porphyrite <i>Kuvars diorit porfir</i>
		Quartz porphyry <i>Kuvars porfir</i>
		Quartz porphyry <i>Kuvars porfir</i>
		Bedding <i>Tabaka</i>
		Fault <i>Fay</i>
		Joint <i>Kirik</i>
		Flow structure <i>Akıntılı yapı</i>
		Anticlinal/synclinal, axis <i>Antiklinal/senklinel eksen</i>
		Working mine/abandoned mine <i>Çalışan maden/kapalı maden</i>
		Mineralization, vein type/dissemination type <i>Mineralizasyon damar tip/disseminasyon tip</i>
		Massive, bedded ore/veinlets <i>Masif, tabakalı cevher/damarcıklar</i>
		Skarnized zone <i>Skarn zonu</i>
		Drilling site <i>Sondaj yer</i>
		Geological profile line <i>Jeolojik kesit çizgisi</i>