

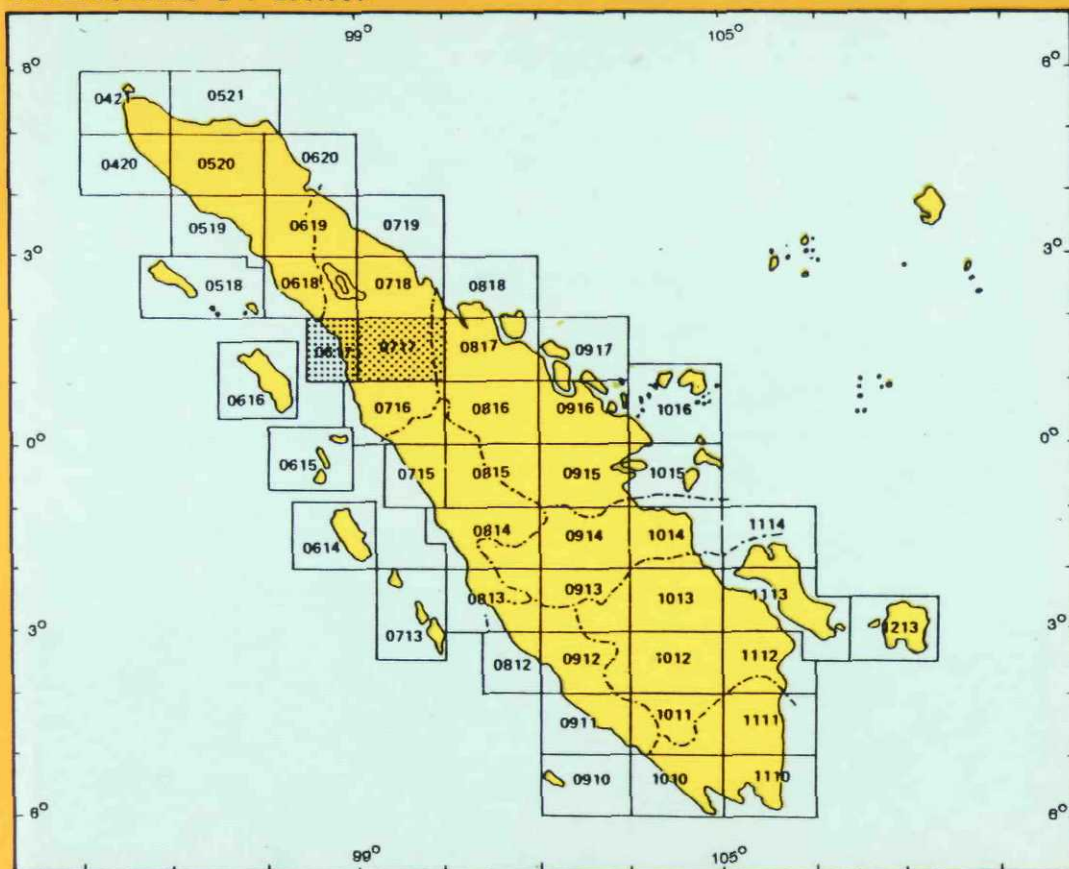
BUKU KETERANGAN PETA SATUAN LAHAN DAN TANAH LEMBAR SIBOLGA (0617) DAN PADANGSIDEMPUAN (0717) SUMATERA

**EXPLANATORY BOOKLET OF THE LAND UNIT AND SOIL MAP
OF THE SIBOLGA (0617) AND PADANGSIDEMPUAN (0717)
SHEETS, SUMATRA**

Oleh/By :

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Wahyu Supriatna dan/and Junus Dai.

SKALA/SCALE 1 : 250.000



**PROYEK PERENCANAAN DAN EVALUASI SUMBER DAYA LAHAN
PENGELOLAAN DATA BASE TANAH
PUSAT PENELITIAN TANAH DAN AGROKLIMAT
BADAN PENELITIAN DAN PENGEMBANGAN PERTANIAN**

**LAND RESOURCES EVALUATION AND PLANNING PROJECT
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CENTRE FOR SOIL AND AGROCLIMATE RESEARCH
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BUKU KETERANGAN

**PETA SATUAN LAHAN dan TANAH LEMBAR SIBOLGA (0617) DAN PADANGSIDEMPUAN (0717),
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*Explanatory booklet of the
LAND UNIT and SOIL map of the Sibolga (0617) and Padangsidempuan (0717)
Sheets, Sumatra*

Skala/Scale 1 : 250.000

Oleh/By:

**D. Subardja, Junus Dai, Kartiwa Djuanda, Yayat Hadian, Samdan CD, Yehu Mulyadi,
Wahyu Supriatna dan/and P. Buurman**

Buku Keterangan dan Peta Satuan Lahan dan Tanah yang menyertainya dihasilkan oleh Tim Pengelolaan Data Base Tanah dari Proyek Perencanaan dan Evaluasi Sumber Daya Lahan, program kerjasama teknis antara Pemerintah Republik Indonesia dan Bank Pembangunan Asia, dilaksanakan oleh Pusat Penelitian Tanah dan Agroklimat (Badan Penelitian dan Pengembangan Pertanian, Departemen Pertanian) dan dikoordinasikan oleh Badan Koordinasi Survei dan Pemetaan Nasional (BAKOSURTANAL). Survei dan pemetaan dilaksanakan oleh Pusat Penelitian Tanah dan Agroklimat bekerjasama dengan konsultan dari HASKONING Royal Dutch Consulting Engineers and Architects.

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**PUSAT PENELITIAN TANAH DAN AGROKLIMAT
BADAN PENELITIAN DAN PENGEMBANGAN PERTANIAN
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Buku keterangan ini adalah penjelasan dari Peta Satuan Lahan dan Tanah lembar Sibolga (0617) dan Padangsidempuan (0717), Sumatera, skala 1:250.000.

Legenda peta berisikan satuan lahan yang merupakan satuan geomorfik dan dibatasi dengan cara menginterpretasi foto udara, citra satelit dan citra Radar. Isi dari tiap satuan lahan diperiksa di lapangan dan kemudian dicatat. Hanya sebagian dari semua informasi ini disajikan dalam peta, sedangkan sebagian lagi diberikan secara ringkas dalam Buku Keterangan ini; informasi yang lebih lengkap dapat tersedia jika diminta.

Simbol peta menunjukkan grup fisiografi (huruf besar), tipe batuan (huruf kecil), dan pembagian lebih lanjut berdasarkan atas lereng dan tingkat torehan (pada daerah berlereng dan angkatan) atau berdasarkan lingkungan pengendapan/hidrologinya (pada daerah aluvial resen, gambut dan marin), serta adanya pengaruh manusia yang ditunjukkan oleh angka. Huruf kecil yang berada di muka kode grup fisiografi menunjukkan adanya tutupan dari bahan lain, seperti tutupan abu vulkan pada perbukitan dari batuan sedimen atau lapisan bahan organik tipis pada dataran aluvial.

Grup fisiografi tersebut adalah: Kubah Gambut, Aluvial, Marin, Teras Marin, Dataran Tuf Masam, Dataran, Tuf Masam Toba, Vulkan, Karst, Perbukitan, Pegunungan/Plato dan Aneka Bentuk. Grup Dataran Tuf Masam, Tuf Masam Toba, Vulkan, Kubah Gambut dan Karst pembagiannya didasarkan pada tipe batuan atau bahan induk dan morfologi yang spesifik yang erat hubungannya dengan sifat tanah yang spesifik. Grup yang lainnya sebagian besar hanya berdasarkan pada morfologi.

Untuk semua satuan lahan, data keadaan tanah dan hubungan tanah dengan bentang alam disajikan pada Uraian

This booklet is an explanation of the 1:250,000 scale Land Unit and Soil map of the Sibolga (0617) and Padangsidempuan (0717) mapsheet, Sumatera.

The legend of the map consists of land units, which are geomorphic units, delineated by interpretation of images such as aerial photographs, satellite imagery and Synthetic Aperture Radar. The contents of each of the units is checked in the field and recorded. Only part of this information can be represented in the map; the remainder is briefly documented in the present explanatory notes, and more complete information is available upon request.

Map symbols indicate physiographic group (capital letter), rock type (lower case letter), and subdivisions according to slope and dissection (in sloping and uplifted areas) or to sedimentary/hydrological environment and human influence (in recent alluvial, peat and marine areas), indicated with numbers. Lower case letters preceding the physiographic group code are used to indicate covers of material with differing composition, such as volcanic ash covers on hills of sedimentary rocks, or thin peat on alluvial plain units.

The physiographic groups are : Peat Domes, Alluvial, Marine, Marine Terrace, Acid Tuff Plains, Plains, Toba Acid Tuff, Volcanic, Karst, Hill, Mountain/Plateau and Miscellaneous Landforms. The Acid Tuff Plain, the Toba Acid Tuff, the Volcanic, the Peat Domes and the Karst group are based on rock type or parent material and specific morphology, with a close link to specific soil characteristics. The other groups are largely morphological.

For all land units, data on soils and soil/landscape relations are presented in the Land Unit Descriptions. These

Satuan Lahan. Uraian satuan lahan ini merupakan bagian terpenting dari Buku Keterangan ini sebab semua informasi yang diperlukan untuk mengevaluasi setiap satuan lahan untuk penggunaan tertentu disajikan disini.

Semua informasi geografik dapat diperoleh dalam format komputer (didigitasi). Semua data utama dari tanah (dari profil yang dianalisis) juga disimpan dalam komputer dan dapat tersedia bagi para pemakai yang memerlukan. Pada tahap selanjutnya, perangkat lunak untuk evaluasi lahan yang mempergunakan parameter-parameter yang ada pada diskripsi satuan lahan akan segera disediakan oleh Proyek Pengelolaan Data Base Tanah (PDBT).

Permintaan untuk penilaian Kesesuaian Lahan dari tiap satuan lahan untuk berbagai keperluan dapat diajukan ke Pusat Penelitian Tanah dan Agroklimat, Bogor.

descriptions form an essential part of the Explanatory Notes, because all information that is necessary to evaluate a land unit for specific uses is listed here.

All geographic information is available in computer (digitized) format. All primary soil information (analyzed profiles) is also computerized and can be made available to the user. At a later stage, land evaluation software which uses the parameters listed in the Land Unit Descriptions will be made available by the Soil Data Base Management Project (SDBM).

Requests for suitability ratings of the land units for various purposes can be submitted to the Centre for Soil and Agroclimate Research, Bogor.

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1. PENDAHULUAN

1.1. Latar belakang

Buku Keterangan dan Peta Satuan Lahan dan Tanah ini merupakan sebagian hasil akhir survei tanah tinjau Sumatera yang dilaksanakan untuk Proyek Perencanaan dan Evaluasi Sumber Daya Lahan dan diprakarsai tahun 1985 oleh Pemerintah Indonesia serta dibiayai oleh Bank Pembangunan Asia.

Pelaksanaan survei dilakukan antara bulan November 1987 dan February 1988 dan antara Desember 1988 dan Maret 1989 oleh Tim Survei Tanah dari Pusat Penelitian Tanah dan Agroklimat, sedangkan korelasinya dilakukan pada bulan Januari 1990.

1.2. Konsepsi legenda

Legenda untuk survei ini didasarkan pada pendekatan satuan lahan. Pendekatan ini dianggap paling sesuai untuk survei ini, sebab pada skala 1:250.000 dengan intensitas pengamatan lapangan yang kurang, semua batas satuan dapat ditarik dengan cara menginterpretasi citra. Legenda satuan lahan memungkinkan adanya pembatasan setiap satuan dengan sebarang ukuran yang masih dapat dipetakan (tergantung skala peta) dengan memanfaatkan nama-nama morfologi sederhana dan berulang. Pendekatan ini menunjang struktur hirarki dan merupakan sistem terbuka sehingga dapat diperbaharui sesuai dengan penerapannya di Indonesia; legenda ini tidak memuat parameter iklim (parameter iklim disimpan dalam data base terpisah dan dapat digabung dengan data base satuan lahan).

Selain dari itu, legenda satuan lahan ini erat hubungannya dengan legenda terdahulu di Indonesia mengenai bentuk lahan, sistem lahan dan satuan lahan (Desaunettes, 1977; RePPProT, 1985, 1988; Kips et al., 1981) tanpa keliru penggunaannya.

Satuan Lahan ini diberi batasan berupa lahan dengan satu atau lebih komponennya mempunyai ciri-ciri khusus dan merupakan satuan lingkungan dengan sembarang ukuran yang dapat dibatasi pada peta. Satuan terkecil yang masih

1. INTRODUCTION

1.1. Background

This explanatory booklet and the included maps are part of the final results of the reconnaissance soil survey of Sumatra, which was carried out for the Land Resources Evaluation and Planning Project (LREP), initiated in 1985 by the Government of the Republic of Indonesia and financed by the Asian Development Bank.

The sheet was surveyed between November 1987 and February 1988 and between December 1988 and March 1989, by teams of the Centre for Soil and Agroclimate Research. Map correlation was done in January 1990.

1.2. Legend concept

The legend for this survey is based on the land unit approach. This approach is considered most suitable for this survey, because at a scale of 1:250,000, with low-density field checks, all unit boundaries are obtained by image interpretation. The land unit legend allows the delineation of mappable units, of any size (depending on map scale), it makes use of morphological names which are simple and recurrent, it supports an hierarchical structure, it is an open system that can be amended for use anywhere in Indonesia, and it does not contain climatic parameters (the climatic parameters are stored in a separate data base which can be combined with the land unit data base).

Furthermore, the land unit legend is closely related to previous Indonesian land form, land system and land unit legends (Desaunettes, 1977; RePPProT, 1985, 1988; Kips et al., 1981) without being confusing.

A Land Unit is defined here as an area of land of which one or more attributes have special characteristics, and it refers to an environmental unit of any size that can be delineated. The smallest unit that can be

Satuan lahan dikelompokkan dalam grup-grup fisiografi dan kadang-kadang dibagi lagi kedalam sub-grup. Untuk informasi lebih lengkap, lihat Buurman & Balsem (1990) dan Balsem et al. (1989)

Pembagian lanjut grup Kubah Gambut dan Dataran adalah sebagai berikut.

		tipis <0,5m	
	air tawar	sedang 0,5-2m	
		tebal >2m	
	eutrofik		
		pasang surut/bagian tepi	
		kubah bergaram	Sda
Kubah Gambut		telah diolah	Sda
		air tawar	Sda
	oligotrofik		
		pasang surut/bagian tepi	
		kubah bergaram	Sda
		telah diolah	Sda

Subdivision of the Peat Domes and Plain groups :

		thin <0,5m	
	fresh water	medium 0,5-2m	
		thick >2m	
	eutrophic		
		tidal/saline fringes	
		of domes	ditto
Peat Domes		cultivated	ditto
		fresh water	ditto
	oligotrophic		
		tidal/saline fringes	
		of domes	ditto
		cultivated	ditto

	Bentuk wilayah	Penorehan	
		tanpa	
		sedikit	
	datar	sedang	
		sangat	
		ekstrim	
	datar - berombak	Sda	
	berombak	Sda	
Dataran--litologi	berombak - bergelombang	Sda	
	bergelombang	Sda	
	datar berbukit kecil	Sda	
	berombak berbukit kecil	Sda	
	bergelom.berbukit kecil	Sda	
	berbukit kecil	Sda	
	sisa erosi	Sda	

	Land form	Dissection	
		none	
		slight	
	flat	moderate	
		strong	
		extreme	
	flat to undulating	ditto	
	undulating	ditto	
Plain--lithology	undulating to rolling	ditto	
	rolling	ditto	
	flat with hillocks	ditto	
	undulating with hillocks	ditto	
	rolling with hillocks	ditto	
	hillocky	ditto	
	erosion remnants	ditto	

Struktur legenda disusun demikian rupa sehingga lanskap datar, melandai, tertoreh, bergunung, dan sebagainya dengan mudah dapat dipilih oleh komputer. Struktur ini langsung berkaitan dengan potensi lahan untuk pertanian.

The legend structure is such, that flat, sloping, dissected, mountainous landscapes, etc., are easily selected by computer. The structure is directly related to agricultural potential of the land.

2. METODOLOGI

2. METHODOLOGY

2.1. Peta dasar

2.1. Base maps

Peta dasar untuk keperluan pencetakan Peta Satuan Lahan dan Tanah disediakan oleh BAKOSURTANAL. Untuk lembar peta ini, peta dasar yang digunakan adalah digitasi liputan topografi hidrografi dan kontur lembar Sibolga (0617) dan Padangsidempuan (0717) yang dikeluarkan oleh BAKOSURTANAL, tahun 1989.

Base maps for the printed Land Unit and Soil map were provided by BAKOSURTANAL. For the present sheet, the base map consists of the digitized coverages of topography, hydrography, and contours of the map sheet Sibolga (0617) and Padangsidempuan (0717), made available by BAKOSURTANAL (1989).

2.2. Interpretasi citra

Survei tinjau ini sebagian besar didasarkan pada interpretasi citra dan batas-batas satuan sesungguhnya ditarik berdasarkan citra. Macam citra yang digunakan adalah sebagai berikut:

- citra Radar stereo STAR-1, 1988 (cetakan diapositif hitam putih).
- foto udara hitam/putih skala 1:100.000, Angkatan Udara Australia 1976.
- LANDSAT komposit warna (band 4-5-6) skala 1:250.000 tahun 1984/85 yang diperoleh dari LAPAN.

2.3. Survei dan data lapangan.

Pelaksanaan survei tinjau dapat dibagi dalam beberapa tahapan kerja:

1. Penelaahan data dan informasi dari peta dan laporan tersedia.
2. Interpretasi citra dan penetapan daerah kunci
3. Pengamatan lapangan dan pemasukan data ke komputer
4. Penyusunan satuan lahan dan pemasukan data ke komputer.
5. Analisis contoh tanah
6. Melengkapi uraian satuan lahan dengan data analisis.
7. Korelasi/verifikasi lapangan
8. Produksi peta akhir
9. Dijitasi peta dan pemrosesan data base lainnya.

Semua pengamatan di lapangan (pemboran dan profil) dicatat, diberi kode dan dimasukkan sesuai dengan prosedur standar PDBT, seperti diuraikan dalam Laporan Tehnis PDBT No.5 (Balsem et al., 1988). Kode ini terutama diadaptasi dari standard FAO dan USDA (FAO, 1977; SCS, 1978; Gallup, 1978).

Contoh tanah yang representatif dianalisis sifat-sifatnya seperti yang disajikan pada Tabel 2.

2.2. Image interpretation

The surveys are extensively based on image interpretation and virtually all unit boundaries are imagery-based. The following imagery was used:

- 1:250,000 STAR-1 stereo Radar imagery, 1988 (black/white diapositive prints).
- 1:100,000 scale black/white aerial photography, Australian Airforce, 1976.
- 1:250,000 LANDSAT colour composites (bands 4-5-6), 1984/85, obtained from LAPAN.

2.3. Field survey and field data

The implementation of the reconnaissance survey can be split up into a number of essential steps :

1. perusal of existing maps and reports
2. image interpretation and selection of sample/key areas
3. field observations and computer data entry
4. preliminary land unit descriptions and computer data entry
5. soil sample analyses
6. completion of land unit descriptions with analytical data
7. correlation/field verification
8. final map production
9. map digitizing and other data base operations.

All observations in the field (augerings and profile pits) were described, coded and entered according to standard SDBM procedures as described in SDBM Technical Report No.5 (Balsem et al., 1988). These codes are mainly adapted from standard FAO and USDA codes (FAO, 1977; SCS, 1978; Gallup, 1978).

Representative soils were analyzed for the properties listed in Table 2.

Tabel 2. Analisis tanah standar dan tambahan PDBT.

Analisis Standar

1. tekstur
2. karbon organik
3. KTK NH_4OAc pH 7
4. basa dapat ditukarkan dalam NH_4OAc
5. Al dalam KCl 1M
6. kerapatan lindak pF 2,5
7. kadar air pF 4,2
8. pH (H_2O , KCl, 1:2,5)
9. N total
10. K tersedia
11. P tersedia

Analisis tambahan

- untuk tanah vulkanik:
 - kemasaman terekstraksi dalam BaCl_2 -TEA (pH 8.2)
 - Al, Fe dan Si terekstraksi oksalat
 - mineralogi pasir
 - retensi fosfat
- untuk Oksisol:
 - mineralogi pasir
- untuk Spodosol:
 - Fe, Al, C terekstraksi pirofosfat
 - Fe, Al terekstraksi ditionit
- untuk endapan marin:
 - garam terlarut
 - kadar sulfur
 - kadar air lapangan (tanah belum matang)
- untuk tanah berkapur:
 - kadar karbonat
- untuk tanah Gambut:
 - kadar serat
 - kadar abu
 - kerapatan lindak

2.4. Uraian satuan lahan

Uraian satuan lahan berupa uraian umum yang dibuat untuk setiap satuan peta. Uraian yang dibuat ini merupakan generalisasi dari beberapa pengamatan. Atribut satuan lahan (lihat bab 5.2) digunakan untuk evaluasi lahan ybs. Struktur uraian satuan lahan didasarkan pada cara yang telah dipublikasikan oleh RePPProT (1988) dengan beberapa tambahan. Disamping pengamatan di lapangan dalam penyusunan uraian satuan lahan ini,

Table 2. Standard and additional SDBM soil analyses.

Standard Analyses

1. texture
2. organic Carbon
3. CEC NH_4OAc pH 7
4. exchangeable Bases in NH_4OAc
5. Al in 1 M KCl
6. bulk density at pF 2.5
7. water content at pF 4.2
8. pH (H_2O , KCl, 1:2.5)
9. total N
10. available K
11. available P

Additional Analyses

- for Volcanic soils:
 - extractable acidity in BaCl_2 -TEA (pH 8.2)
 - oxalate extractable Al, Fe and Si
 - sand mineralogy
 - phosphate retention
- for Oxisols:
 - sand mineralogy
- for Spodosols:
 - pyrophosphate extractable Fe, Al, C
 - dithionite extractable Fe, Al
- for marine deposits:
 - soluble salts
 - sulphur content
 - field moisture content (unripe soils)
- for calcareous soils:
 - carbonate content
- for peat soils:
 - fibre content
 - ash content
 - bulk density

2.4. Land unit description

Land Unit descriptions are general descriptions which are made for each of the mapping units. Such descriptions are generalizations of point observations. The land unit attributes (5.2) are used for land evaluation. The structure of the land unit descriptions is based on those published by RePPProT (1988) with amendments. In addition to the field observations, the following sources were

juga dipergunakan beberapa informasi lain terutama dari :

- RePPPProT, 1988: Review of Phase I Results, Sumatra.
- PPPG, 1982: Peta Geologi Lembar Sibolga dan Padangsidempuan, Sumatera, skala 1:250.000.
- Semua laporan survei yang tersedia dari daerah ybs. (Gambar 5).

2.5. Data Base dan Pengolahan Data.

Seperti disebutkan di atas, semua data lapangan dan analisis disimpan dalam data base. Data base yang utama ialah:

- pengamatan lapangan (pemboran dan penampang tanah).
- data analisis
- uraian satuan lahan

Data base pengamatan lapangan berisi semua parameter yang dapat diukur di lapangan dari setiap tempat pengamatan. Yang dideskripsi dan disimpan adalah nomor tempat/site, tempat, lereng, vegetasi/penggunaan lahan dan semua sifat-sifat tanah yang diukur di lapangan seperti struktur, porositas, tekstur, warna, dll. (lihat Laporan Teknis PDBT No 5a, Versi 1.1 - Balsem et al., 1988).

Data base analisis berisi semua hasil analisis kimia, fisika dan mineralogi serta semua data hasil perhitungan dari analisis ini yang biasanya dipergunakan untuk menilai kesuburan atau klasifikasi tanah (lihat Laporan Teknis No 7 - Buurman, 1990; Laporan Teknis No 17, Muslihat et al., 1989).

Pada data base pengamatan lapangan dan data base analisis, data dapat dikeluarkan dengan cara memanggil/menuliskan nomor pengamatan, nomor lembar peta, satuan pada legenda, administrasi (kabupaten atau propinsi) atau dengan yang lainnya yang ditentukan oleh koordinat geografik.

Data base uraian satuan lahan berisi uraian umum dari tiap satuan peta untuk seluruh Pulau Sumatera yang dikatalogkan menurut lembar peta.

used in the compilation of the land unit descriptions:

- RePPPProT, 1988: Review of Phase I Results, Sumatra
- GRDC, 1982: Geologic Map of the Sibolga and Padangsidempuan Quadrangle, Sumatra, Scale 1:250 000.
- All available survey reports for the area (Figure 5).

2.5. Data bases and data processing

As mentioned above, all field and analytical data are stored in computerized data bases. The main data bases are :

- field observations (auger and pit).
- analytical data
- land unit descriptions

The field observations data base contains all parameters that were measured in the field, for each of the observations sites. Described and stored are site number, location, slope, vegetation/landuse and all soil properties that are measured in the field, such as structure, porosity, texture, colour etc. (see Technical Report No 5, Version 1.1 - Balsem et al., 1988).

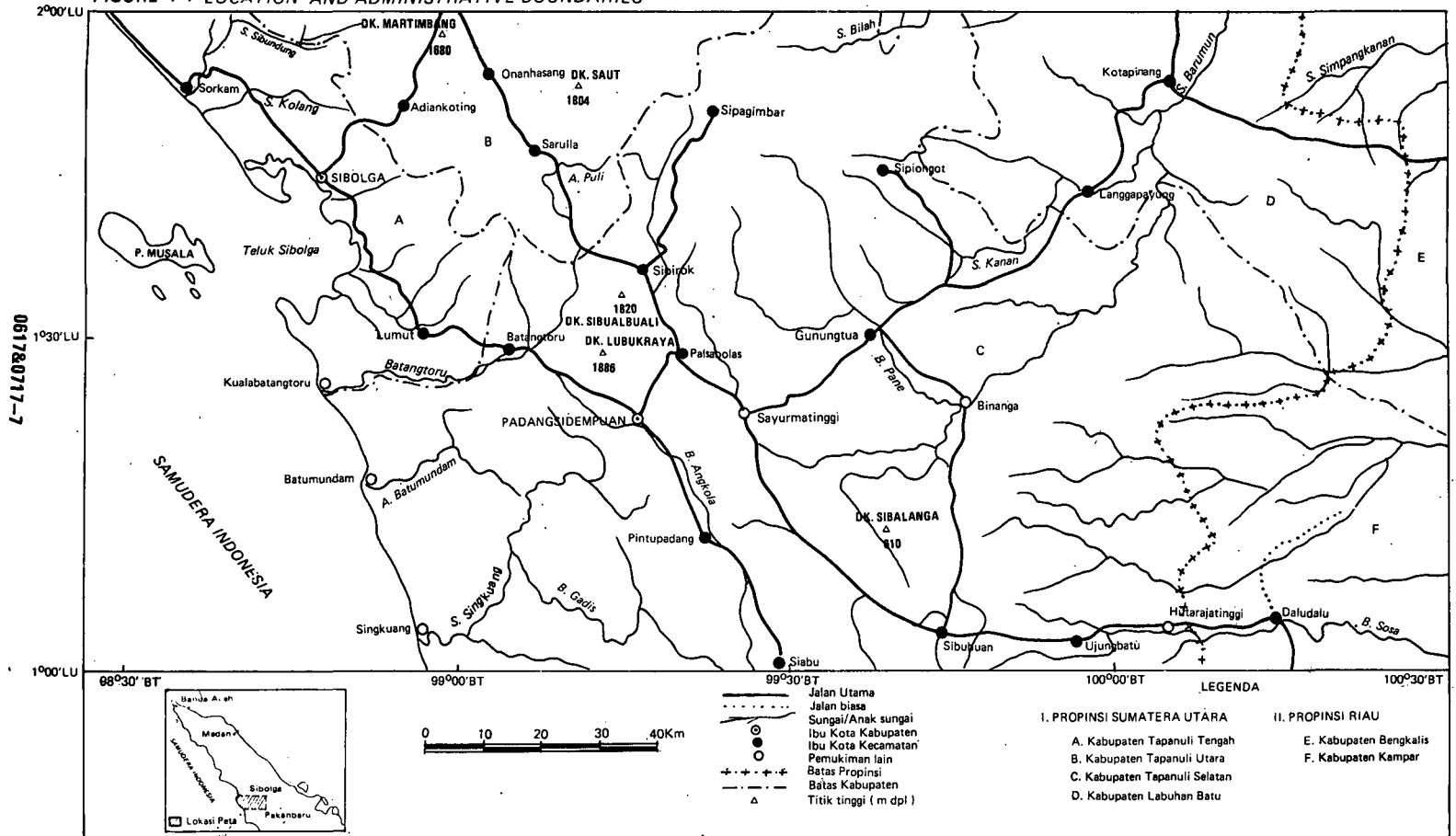
The analytical data base contains all results of chemical, physical and mineralogical analyses and all properties used for fertility appraisal or classification, that are calculated with these analyses (see Technical Report No 7 - Buurman, 1990; and Technical Report No 17 - Muslihat et al., 1989).

In both the field observations and in the analytical data base, data can be retrieved by observations number, map-sheet, legend unit, administrative area (province, kabupaten), and other areas defined by geographic coordinates.

The land unit description data base contains the general description of each mapping unit for the whole island of Sumatra, catalogued by mapsheet.

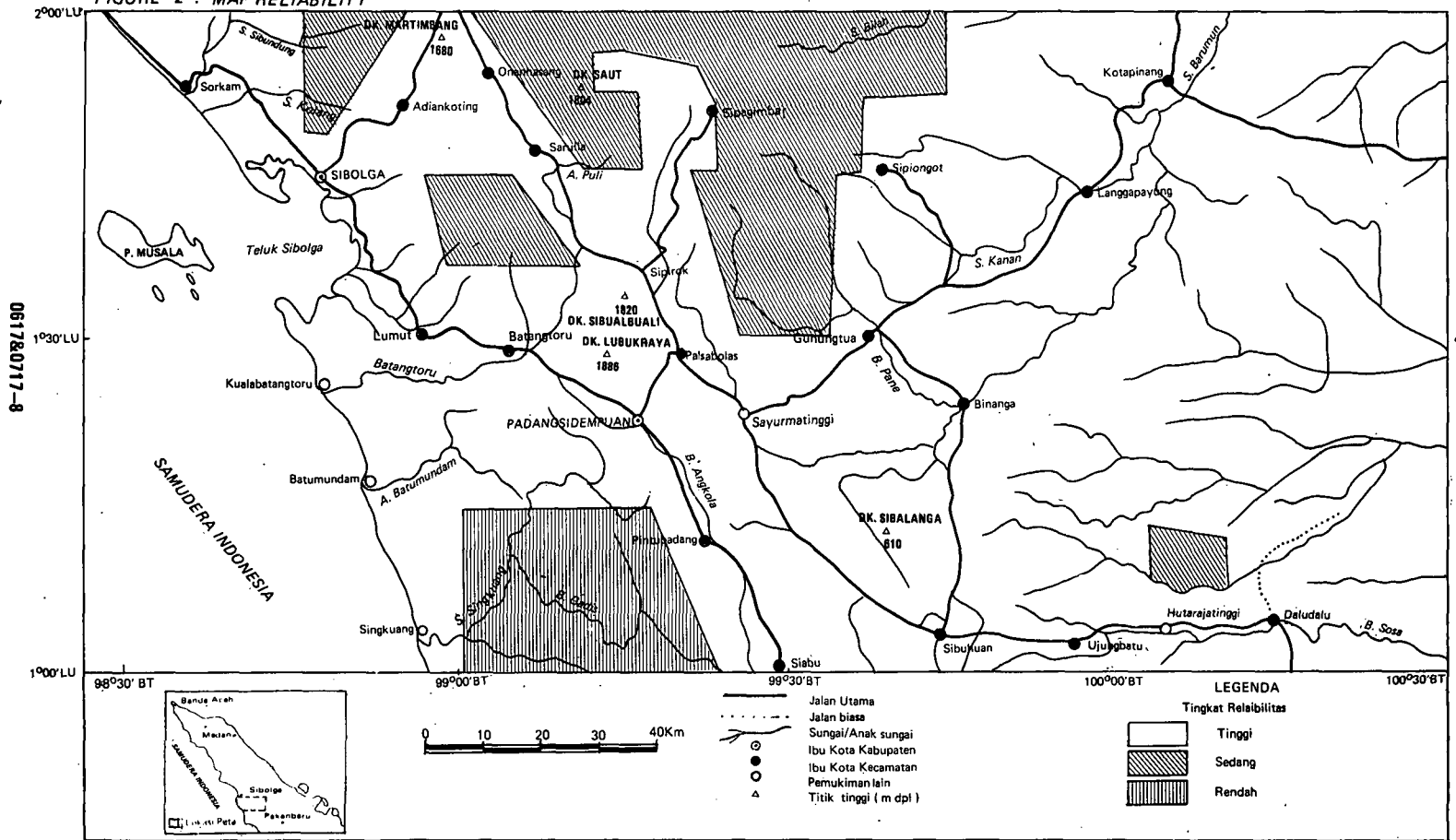
GAMBAR 1 : LOKASI PETA DAN BATAS ADMINISTRASI

FIGURE 1 : LOCATION AND ADMINISTRATIVE BOUNDARIES



GAMBAR 2 : RELIABILITAS PETA

FIGURE 2 : MAP RELIABILITY



Uraian umum berasal dari penyederhanaan semua pengamatan pada seluruh satuan peta, termasuk analisis laboratorium dari profil yang lain. Parameter yang disimpan berisi semua informasi yang diperlukan untuk penilaian evaluasi lahan (lihat Laporan Teknis No 13a -Balsem & Buurman, 1989). Uraian satuan lahan dari semua satuan peta yang terdapat dalam lembar peta ini disajikan pada Lampiran 2.

2.6. Reliabilitas peta

Reliabilitas dari peta tergantung pada beberapa faktor seperti: kerapatan pengamatan, keragaman tanah, kualitas dari citra penginderaan jauh, lokasi dari titik pengamatan atau daerah kunci, ketepatan dari batas tanah maupun batas satuan lahan, dan kualitas dari surveyor tanah. Tidak semua dari faktor-faktor ini dapat diukur dan karena itu harus diperkirakan.

Berdasarkan faktor-faktor tersebut diatas, terutama kerapatan pengamatan, maka dapat diperkirakan mengenai reliabilitas peta, dan untuk itu dibagi menjadi 3 klas (Gambar 2).

The general description is derived by generalizing information of all observations within the mapping unit, including laboratory analyses of separate profiles. The parameters stored contain all the information necessary for land evaluation procedures (see SDBM Technical Report No. 13, - Balsem & Buurman, 1989). The land unit descriptions of all mapping units relevant to the present sheet are listed in Appendix 2.

2.6. Map reliability

The reliability of a map depends on many such factors as observation density, soil homogeneity or complexity, quality of the remote sensing imagery, the location of sample/key areas, accuracy of land units and land unit boundaries, the quality of the soil surveyor. Not all of these can be measured and so they have to be estimated.

Based on the above factors, but mainly on observation density, three classes of map reliability have been established (Figure 2).

3. LOKASI DAERAH PETA DAN SUMBER INFORMASI

3.1. Lokasi dan Batas Administrasi

Secara geografik lembar peta Sibolga (0617) dan Padangsidempuan (0717) terletak antara $98^{\circ}16'20''$ dan $100^{\circ}30'$ Bujur Timur dan antara 01° dan 02° Lintang Utara (Gambar 1).

Secara administratif lembar peta sebagian besar termasuk kedalam Propinsi Sumatera Utara yang terdiri dari Kabupaten Tapanuli Utara, Tapanuli Tengah, Tapanuli Selatan dan Labuhan Batu, sedangkan sebagian kecil masuk Kabupaten Kampar dan Bengkalis, Propinsi Riau.

3.2. Sumber Informasi

Dalam pelaksanaan survei dan pemetaan tanah tingkat tinjau ini sumber informasi yang telah digunakan adalah peta topografi, peta geologi, foto udara, citra landsat, citra Radar serta beberapa peta dan laporan survei terdahulu sebagai nara sumber.

Selain peta topografi skala 1:250.000 (BAKOSURTANAL, 1986) digunakan pula peta topografi skala 1:50.000 (1975) yang diperoleh dari BAKOSURTANAL. Lembaran peta dan nomornya disajikan pada Tabel 3.

Tabel 3. Nomor dan Nama Lembaran Peta Topografi Skala 1:50.000

<u>Sibolga (0617)</u>	31 Daludalu
32 Sibolga	32 Pakantebih
34 Singkuang	33 Bk. Padanghutebaru
54/63 Sorkam	34 Kualamahato
61 Labuhanangin	41 Bulupayang
62 Sibolga	42 Sipirok
64 Adiankoting	43 Sarulla
<u>Padangsidempuan (0717)</u>	44 Sipagimbar
11 Sialangbaru	51 Gunungtua
12 Pintupadang	52 Langgapayang
13 Batangtoru	53 Sipiongot
14 Padangsidempuan	54 Hutagodang
21 Sibuhuan	61 Ujungbatujulu
22 Ujungbatu	62 Baganbatubaru
23 Aeksuhat	63 Kotapinang
24 Binanga	64 Bagansinembah

Peta geologi yang digunakan ialah Peta geologi skala 1:250.000 dari Pusat Penelitian dan Pengembangan Geologi Bandung lembar Padangsidempuan (0717) dan Sibolga (0617) tahun 1982.

Foto udara yang dipakai ialah foto udara hitam/putih skala 1:100.000 (Royal Australian Air Force, 1976) berkualitas rendah sampai sedang dengan tutupan awan lk. 10%. Ikhtisar jalur terbang dan nomor foto disajikan pada Gambar 3. Sumber informasi lain yang dipakai ialah dari Citra Landsat dan Radar seperti disajikan dalam Gambar 4.

Beberapa laporan survei tanah terdahulu beserta peta tanahnya telah ditelaah dalam pekerjaan kompilasi dan datanya yang memenuhi persyaratan digunakan untuk memperkuat data base tanah daerah yang bersangkutan. Gambar 5 menyajikan lokasi daerah survei, sedangkan judul laporan survei dicantumkan pada Daftar Pustaka.

4. KEADAAN UMUM FISIK DAERAH

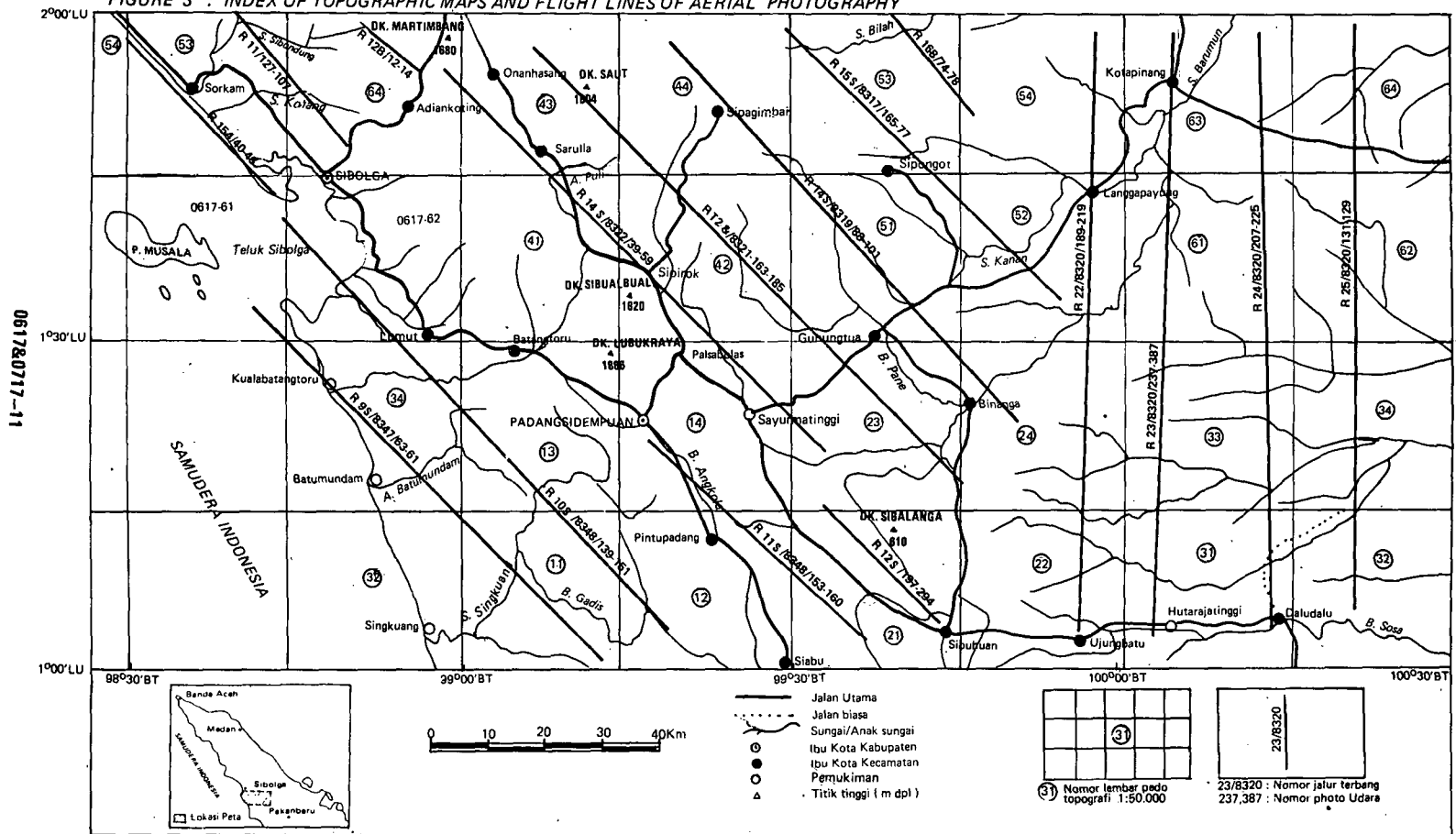
4.1. Geologi

Formasi geologi di daerah ini termasuk ke dalam Pretersier, Tersier dan Kuarter yang tersusun dari batuan sedimen, metasedimen/metamorf, intrusi dan batuan vulkanik (Gambar 6).

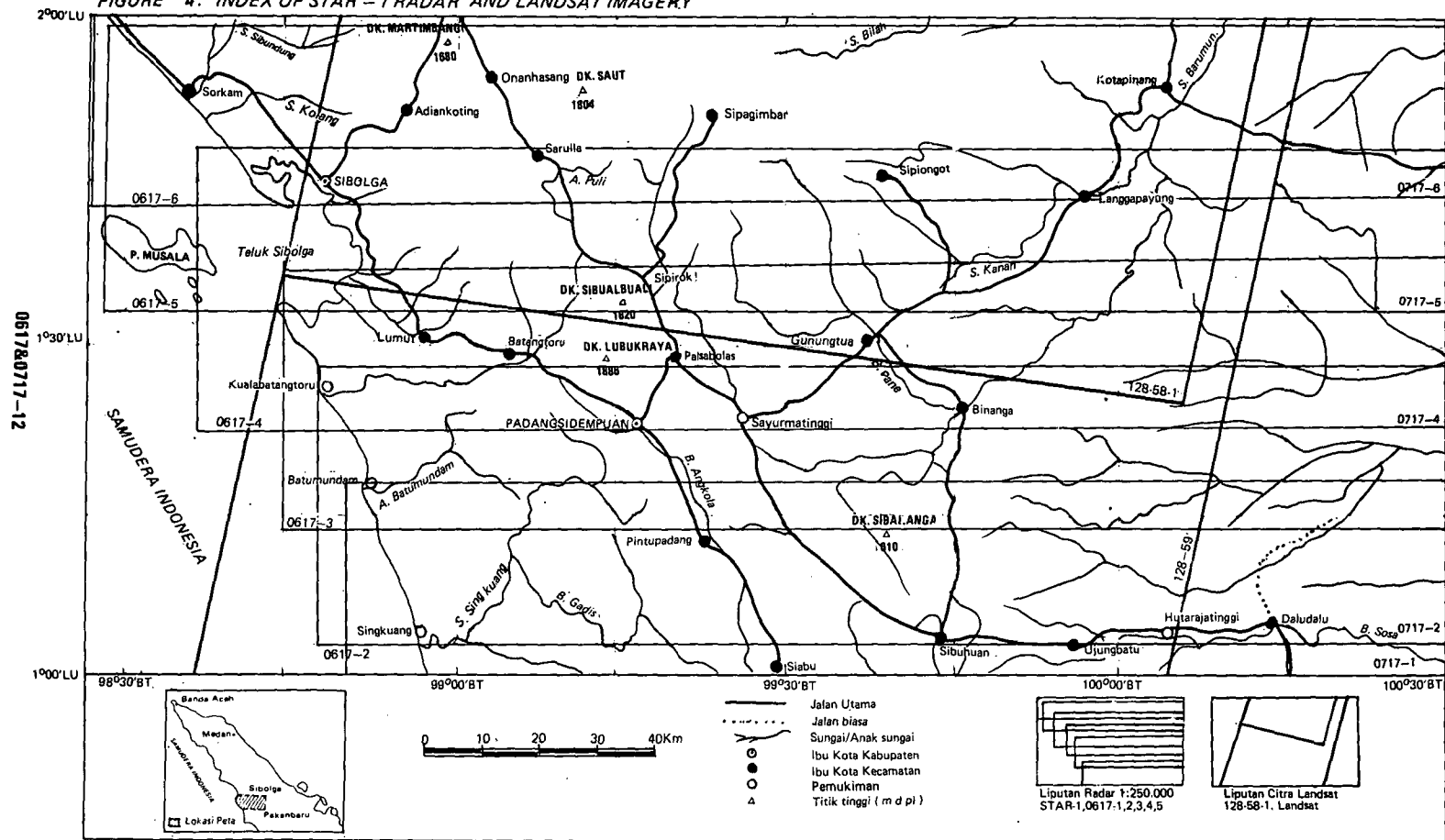
Pretersier

Batuan sedimen dan metasedimen/metamorf yang tergolong Pretersier di daerah ini terdiri dari: formasi Woyla (Mwu), formasi Tapanuli (Put), formasi Tapanuli anggota batugamping (Put1), formasi Kuantan (Puku), formasi Kuantan anggota batugamping (Pukul), formasi Kluet (Puk) dan formasi Pretersier tidak dibedakan (Mpu, Mpul) Formasi Woyla yang berumur Jura sampai Kapur bersusunan batuan vulkanik, skis hijau, metatuf, batugamping, batusabak dan pirit. Formasi Tapanuli yang berumur Permokarbon bersusunan metawake, konglomerat, metaarenit dan batusabak, sedangkan formasi Tapanuli anggota batugamping yang berumur Karbon bersusunan meta batugamping. Formasi Kuantan berumur Permokarbon bersusunan batusabak, metaarenitkuarsa,

FIGURE 3 : INDEX OF TOPOGRAPHIC MAPS AND FLIGHT LINES OF AERIAL PHOTOGRAPHY

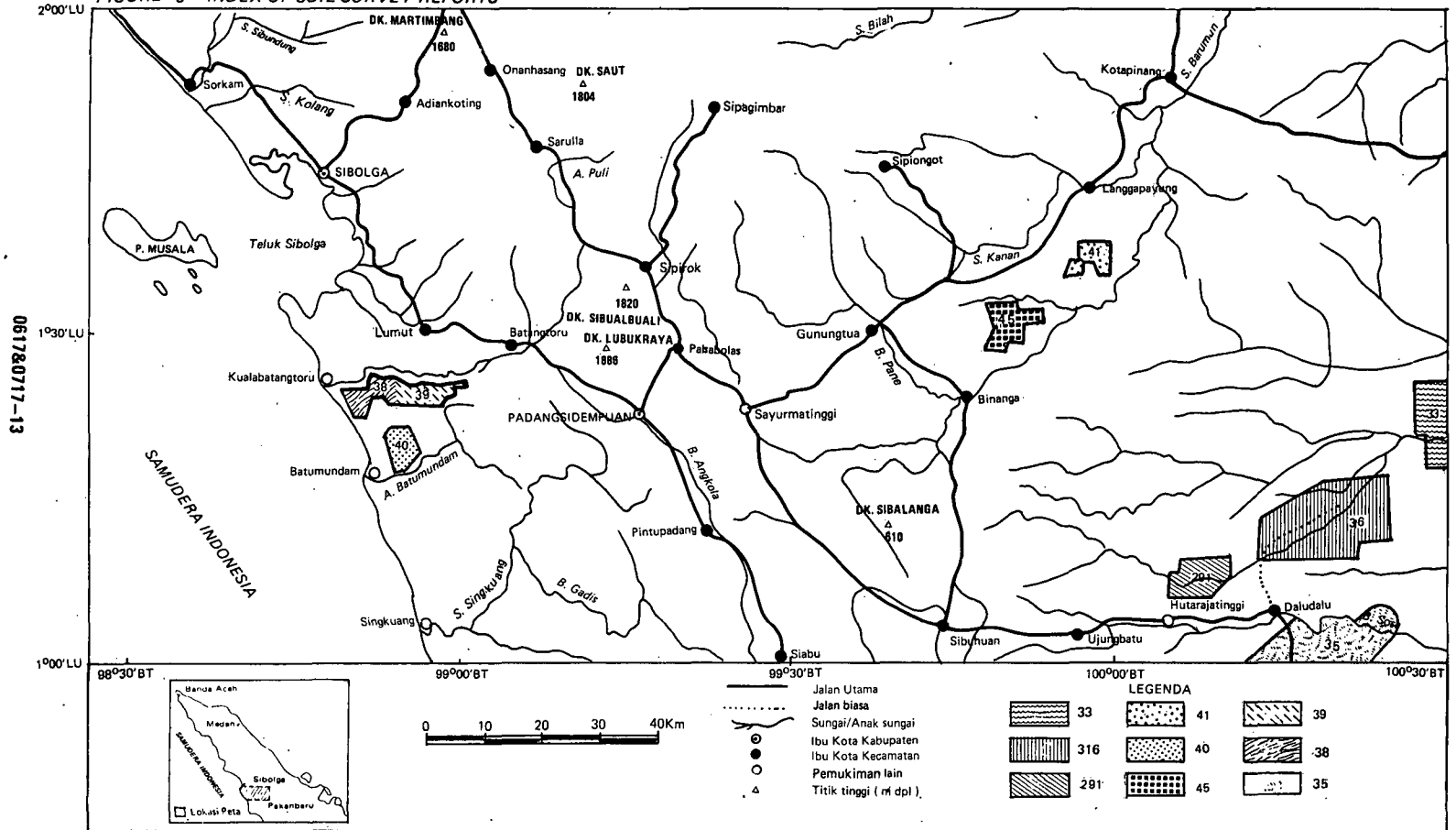


GAMBAR 4 : INDEKS CITRA RADAR STAR - 1 DAN LANDSAT
FIGURE 4 : INDEX OF STAR - 1 RADAR AND LANDSAT IMAGERY

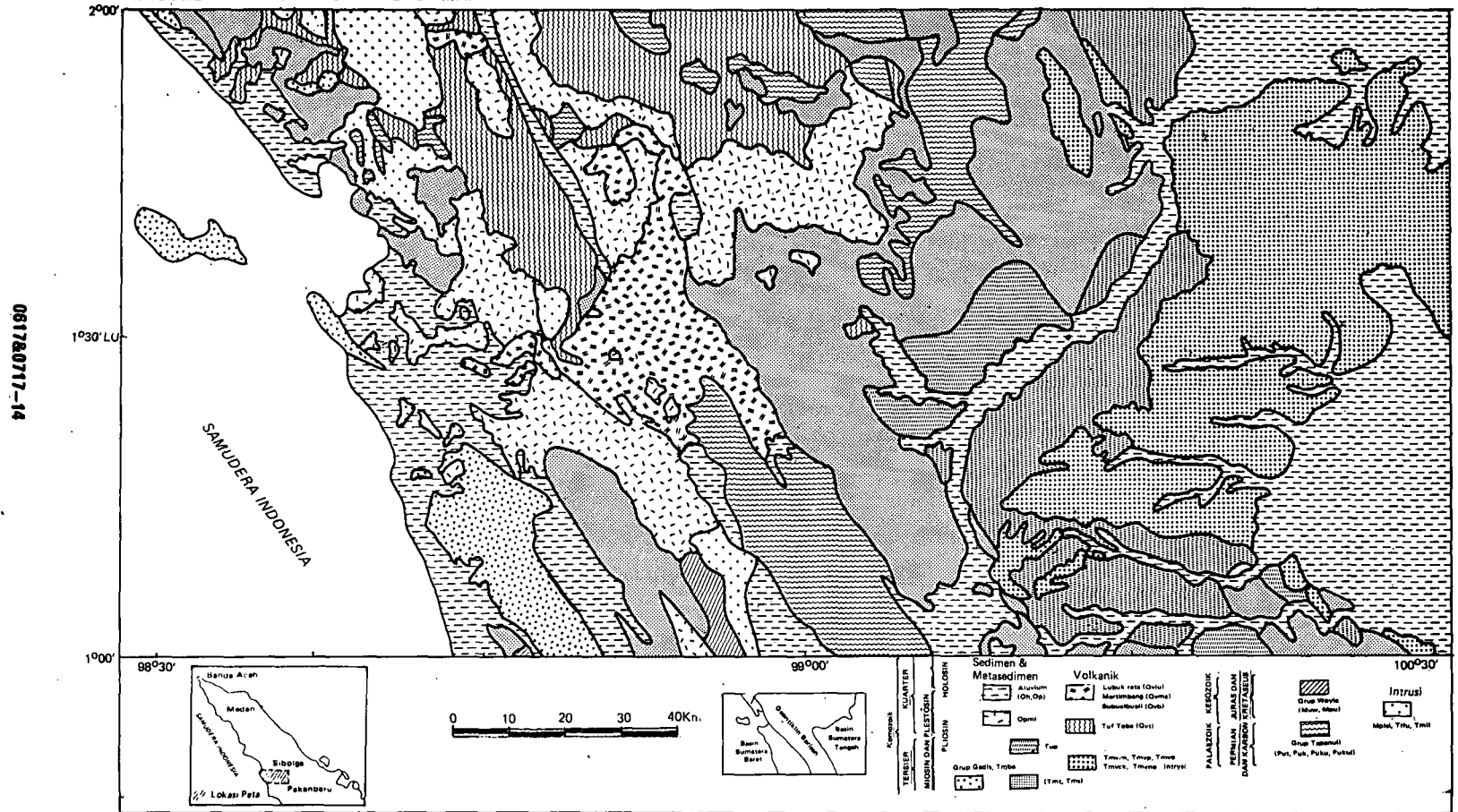


GAMBAR 5 : INDEKS LAPORAN SURVEI DAN PEMETAAN TANAH

FIGURE 5 : INDEX OF SOIL SURVEY REPORTS



GAMBAR 6 : PETA GEOLOGI BAGAN
FIGURE 6 : GEOLOGICAL SKETCH MAP



kuarsit dan wake; sedangkan formasi Kuantan anggota batugamping yang berumur Karbon bersusunan metabatugamping dan filit. Formasi Kluet yang berumur Permokarbon bersusunan metaarenit dan argillit seringkali hornfels. Formasi Pretersier tidak dibedakan berumur Karbon sampai Kapur bersusunan metavulkanik, batusabak dan batugamping. Semua formasi ini terdapat di bagian tengah, utara dan selatan peta dan setempat-setempat terdapat di sekitar Sibolga. Batuan intrusi yang tergolong Pretersier di daerah ini termasuk ke dalam formasi kompleks granit Sibolga yang berumur Perem, susunan batuanannya didominasi oleh granodiorit, granit dan diorit. Formasi ini terdapat di sekitar Sibolga dan meluas ke sebelah utara.

Tersier

Batuan sedimen dan metasedimen yang tergolong Tersier berumur Miosen Awal sampai Pleosen di daerah ini termasuk dalam: formasi Petani (Tup) dan Petani anggota Sayurimatinggi (Tups), kelompok Gadis dari formasi Barus (Tmba), Barus anggota Parlampungan (Tmbap) dan Barus anggota bawah (Tmbal) dan kelompok Kampar yang terdiri dari formasi Telisa (Tmt) dan Telisa anggota Sipupus (Tmts) serta formasi Sihapas (Tms) dan Sihapas anggota Kanan (Tmsk).

Formasi Petani tersusun atas batupasir berkarbon terbioturbasikan, batulanau dan serpih terdapat di sekitar Gunungtua ± 2 km sebelah kiri dan kanan S. Barumon, di sebelah utara S. Sosa dan di sekitar Kotapinang, sedangkan formasi Petani anggota Sayurimatinggi bersusunan batulumpur dan batulanau dengan rombakan bahan vulkanik.

Kelompok Gadis yang terdiri dari formasi Barus, formasi Barus anggota Parlampungan dan formasi Barus anggota Bawah (Tmba, Tmbap, Tmbal) bersusunan batupasir halus sampai kasar, batulanau dan batupasir pejal dan terdapat di sekitar S. Singkuang memanjang ke arah barat laut dan tenggara, setempat-setempat disekitar Sibolga dan di sebelah tenggara Siondop.

Kelompok Kampar dari formasi Telisa dan formasi Telisa anggota Sipupus bersusunan batulanau berkarbon sampai berkapur, batupasir lanauan dan serpih, napal berkapur dan berpasir dengan sedikit batugamping. Kelompok ini terdapat di sekitar Gunungtua ke arah Padangsidempuan dan Langgapayung. Formasi Sihapas dan Sihapas anggota Kanan (Tmsk), yang berumur Miosin Awal sampai Miosin Tengah bersusunan batupasirkuarsa, serpih berkarbon, batulanau dan konglomerat terdapat di sekitar Sibuhuan ke arah barat laut dan menyebar di sekitar Gunungtua dan Langgapayung.

Batuan vulkanik yang tergolong Tersier di daerah ini terdiri dari formasi Musala (Tmvm), formasi Pinapan (Tmvp), formasi Toru (Tmvo), formasi Angkola (Tmvak) dan formasi Nabilung (Tmvna) berumur Miosen Awal sampai Miosen Akhir. Formasi Musala bersusunan hornblende andesit dan aglomerat terdapat di P. Musala. Formasi Pinapan bersusunan andesit hyperbisal, lahar, aglomerat dan breksi terdapat di barat laut lembar peta Sibolga. Formasi Toru bersusunan andesit, aglomerat dan breksi terdapat di sekitar Sarulla. Formasi Angkola bersusunan andesit, aglomerat dan basalt terdapat di sekitar Padangsidempuan memanjang ke arah barat laut dan tenggara dan tersebar di dekat pantai Sibolga; formasi Nabilung bersusunan vulkanik intermedier dan aglomerat terdapat di sekitar Dolok Tampulonanjang.

Batuan intrusi yang tergolong Tersier bersusunan Eosen sampai Miosen Akhir di daerah ini terdiri dari kelompok Timbahan (Tmti), granodiorit Simatoir (Tmisi) dan granodiorit tidak dibedakan (Tmi), kompleks granit Uluhalanagodang (Tliu) serta formasi Sitaban (Tlis) dan granit Haporas (Tlih). Kelompok Timbahan mengandung hornblende granodiorit, mikrogranodiorit dan dioritoid, terdapat di sekitar Sayurimatinggi. Granodiorit Simatoir dan granodiorit tidak dibedakan bersusunan diorit dan subvulkanik. Formasi Sitaban mengandung mikrodiorit dan andesit porfirit. Granit Haporas bersusunan kuarsa feldspar porfir. Kompleks granit

Uluhanagodang yang berumur Kapur dan Eosen mengandung granodiorit, diorit dan granit terdapat menyebar di beberapa tempat.

Kuarter

Batuan sedimen yang tergolong Kuarter berumur Pleistosen sampai Holosen di daerah ini terdiri dari formasi Aluvium Muda (Qh), Aluvium Tua (Qp), formasi Sibolga (Qpsg) dan formasi Minas (Qpmi). Aluvium Muda mengandung lempung sungai dan pantai, lanau, pasir dan kerikil termasuk endapan kipas longoran tanah terban dan gambut terdapat pada jalur-jalur aliran sungai, pelembahan dan di daerah dataran sepanjang pantai. Formasi Aluvium Tua yang berumur Pleistosen sampai Holosen mengandung pasir, lanau dan lempung dan sedikit kerikil terdapat di sekitar pantai di belakang beting pada lembar Sibolga dan sekitar Rantaukasai pada lembar peta Padangsidempuan. Formasi Sibolga berumur Pleistosen tersusun atas pasir diatomea mengandung tuf dan batulanau dengan horison bentonit bertuf terdapat di daerah Sarulla di sekitar S. Toru. Formasi Minas yang berumur Pleistosen tersusun pasir, kerikil, lumpur dan lanau dengan horison tuf terdapat pada Lembar Padangsidempuan sebelah timur.

Batuan vulkanik yang tergolong Kuarter di daerah ini termasuk dalam formasi Lubukraya (Qplu, Qtvlu), formasi Martimbang (Qvma), formasi Sibualbuali (Qvb) dan Tuf Toba (Qvt) berumur Pleistosen sampai Holosen. Formasi Lubukraya tersusun tuf andesitik, batuan andesitik, lahar dan lava. Formasi Martimbang tersusun batuan andesitik hingga andesitik berasosiasi dengan lava. Formasi Sibualbuali tersusun ignimbrit riadasitik, kubah riolititan dan sedikit andesit letusan celah. Formasi Tuf Toba tersusun ignimbrit riadasitik terdapat di sudut barat sebelah utara lembar peta Padangsidempuan sedikit bersambung ke lembar peta Sibolga.

4.2. Fisiografi

Fisiografi di lembar peta Padangsidempuan (0717) dan Sibolga (0617) dapat dibedakan kedalam grup Kubah Gambut, Aluvial, Marin, Dataran, Tuf Toba Masam, Vulkan, Karst, Perbukitan, Pegunungan/plato, dan Aneka Bentuk (Gambar 7).

Grup Kubah Gambut (D)

Grup Kubah Gambut merupakan suatu daerah yang didominasi oleh endapan bahan organik dengan bentuk wilayah datar, lereng 0-2%. Grup ini merupakan daerah basah (wetland) dengan drainase sangat terhambat, terdapat di sebagian kecil rawa belakang dari pantai barat lembar Sibolga dan sedikit di bagian sudut sebelah timurlaut pada lembar Padangsidempuan. Ketinggian tempat 0-2m dpl. Di daerah survei dijumpai kubah gambut ombrogen yang bersifat oligotrofik. Berdasarkan sifat dan kedalamannya dapat dibedakan kedalam satuan lahan:

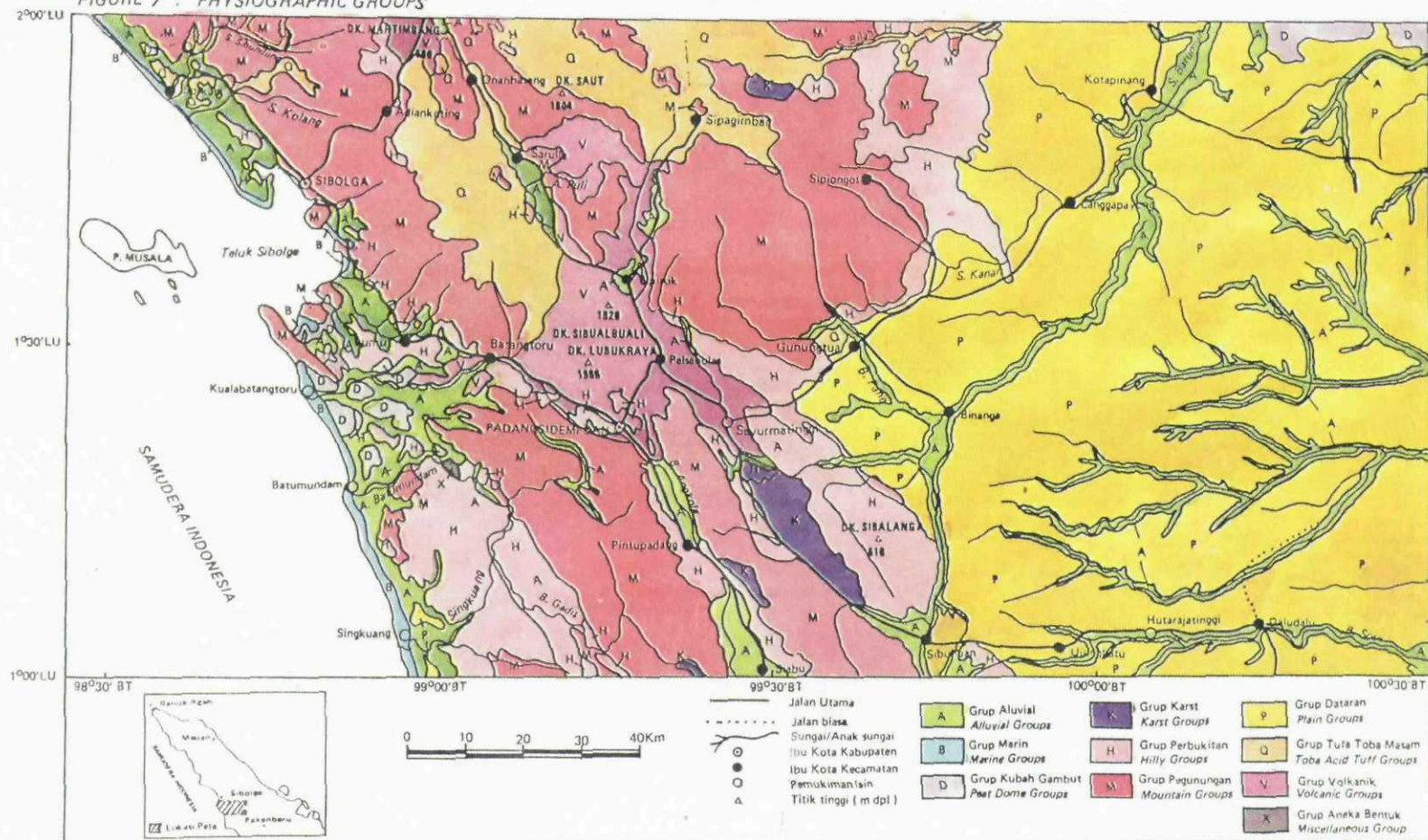
- D.2.1.2 Kubah gambut oligotrofik air tawar, kedalaman gambut <0,5 meter
- D.2.1.3 Kubah gambut oligotrofik air tawar, kedalaman gambut 0,5-2,0 meter

Grup Aluvial (A)

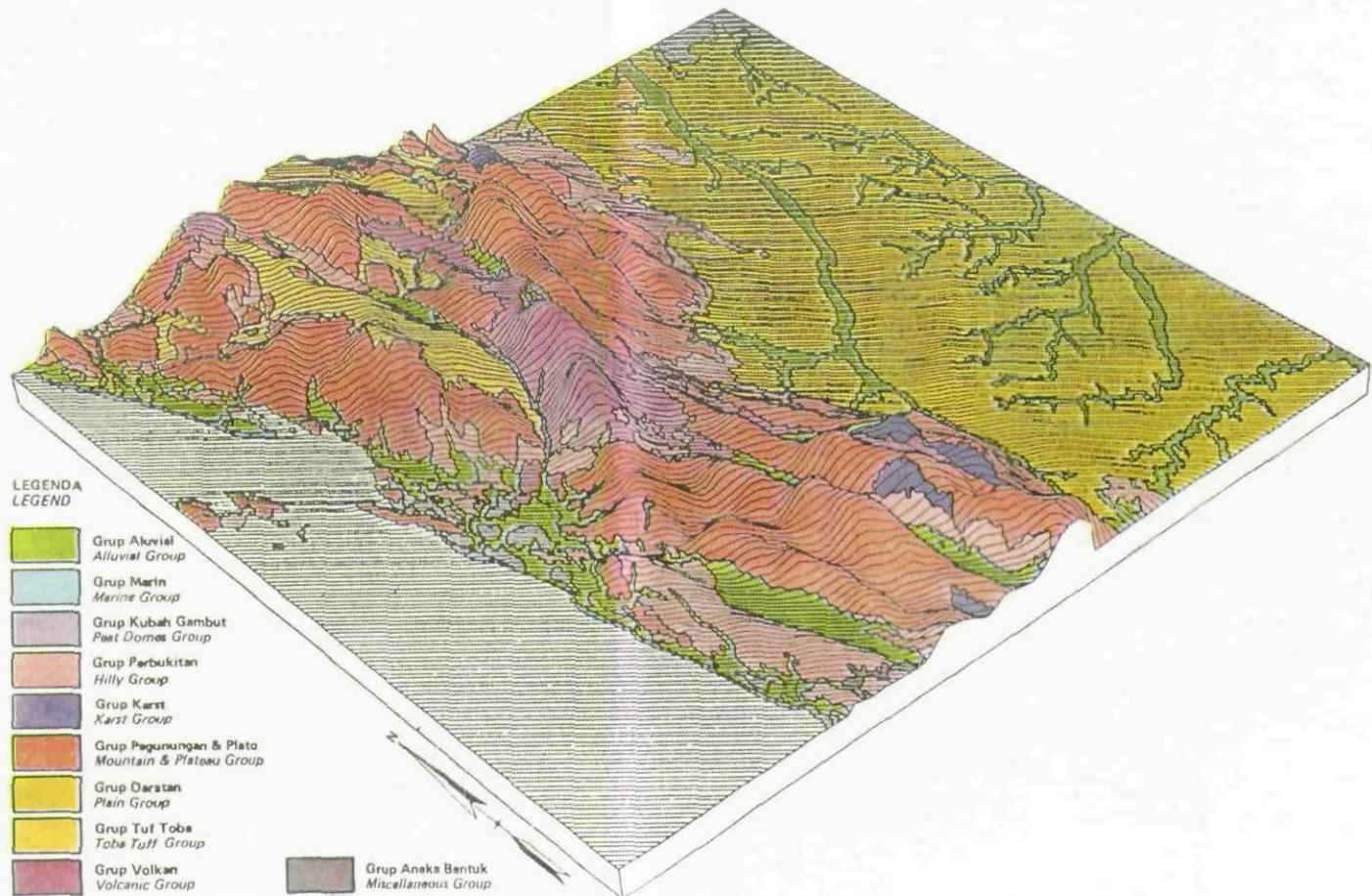
Grup aluvial merupakan bentukan landform masih muda, tidak terlipat serta terbentuk oleh aktivitas sungai. Grup aluvial pada lembar peta ini terdiri dari dataran aluvial peralihan ke grup Marin (B), dataran banjir dan sungai bermeander, pelembahan sempit, terbanan luas terisi endapan, kipas aluvial dan koluviyal, teras sungai dan dataran banjir sungai yang bercabang-cabang. Bentuk wilayah datar sampai berombak, berlereng 0-8%. Ketinggian tempat sangat bervariasi dari 2 sampai 400 m dpl.

Pada lembar ini grup aluvial terdapat di sepanjang jalur aliran sungai-sungai besar, pelembahan dan sebagian rawa belakang di sepanjang pantai

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GAMBAR 8 : BLOK DIAGRAM DAN GRUP FISIOGRAFI LEMBAR SIBOLGA DAN PADANG SIDEMPUAN
 FIGURE 8 : BLOCK DIAGRAM AND PHYSIOGRAPHIC GROUP OF THE SIBOLGA AND PADANG SIDEMPUAN SHEETS



Sibolga. Berdasarkan litologi, bentuk wilayah dan letak/posisinya dapat dibedakan kedalam satuan lahan:

- Au.1.1 Dataran aluvial peralihan ke marin, sedimen tidak dibedakan
- Au.1.2 Dataran banjir dari sungai yang bermeander, sedimen tidak dibedakan
- Au.1.3 Pelembahan sempit antar dataran tinggi, sedimen tidak dibedakan
- Au.1.4 Terbanan luas terisi, sedimen tidak dibedakan
- Aa.2.2 Kipas aluvial dan koluvial, tuf intermedier
- Au.2.2 Kipas aluvial dan koluvial, sedimen tidak dibedakan
- Au.4.1 Teras sungai, sedimen tidak dibedakan
- Au.5 Dataran banjir dari sungai yang bercabang-cabang, sedimen tidak dibedakan.

Pembagian selanjutnya didasarkan pada tingkat torehannya.

Grup Marin (B)

Grup Marin menempati dataran sepanjang pantai dengan lebar bervariasi antara 1 dan 3 km dan berasal dari endapan resen/subresen karena proses sedimentasi marin dan perimarin.

Semua sedimen marin diendapkan pada lingkungan bergaram atau payau dan tanah umumnya masih mengandung garam, terutama pada daerah yang masih muda dan mempunyai EC >2 ds/m.

Di sepanjang pantai Sibolga terdapat beting pasir datar dengan tanah yang umumnya bertekstur kasar. Ketinggian tempat 0-5 m dpl. Berdasarkan litologi, letak/posisinya dan proses pengendapannya, grup ini menurunkan satuan lahan:

- Bfq.1.1 Kompleks beting pantai berselang-seling dengan cekungan, sedimen halus dan kasar masam
- Bu.4.3 Dataran pasang surut sepanjang pantai bervegetasi bakau, sedimen tidak dibedakan.

Grup Teras Marin (T) dijumpai sangat sempit sekali penyebarannya dan menempati daerah lebih tinggi di belakang dataran aluvial pada ketinggian 30-50 m dpl., sebagai hasil pengangkatan yang berulang-ulang dalam waktu yang

lama. Teras marin terdapat di sebelah utara Sibolga dan daerah pesisir selatan antara Batumundam dan Singkuang. Grup Teras Marin dalam lembar peta ini digabung dengan Grup Aluvial.

Grup Dataran (P)

Grup ini umumnya mempunyai lereng seragam serta mengalami proses erosi dan geomorfik oleh pelipatan. Berdasarkan bentuk wilayah, dataran di lembar peta ini dibedakan:

- P*.1 - Dataran datar
- P*.2 - Dataran datar sampai berombak
- P*.3 - Dataran berombak
- P*.4 - Dataran berombak sampai bergelombang
- P*.5 - Dataran bergelombang
- P*.7 - Dataran berombak berbukit kecil
- P*.8 - Dataran bergelombang berbukit kecil
- P*.9 - Dataran berbukit kecil

Lereng umumnya 0-16%, kecuali pada perbukitan kecil lereng >16% dan dapat mencapai 25%. Ketinggian tempat 20-200 m dpl. Grup ini terbentuk dari batuan sedimen/ metasedimen berumur Tersier dan Kuarter. Berdasarkan tipe litologinya dapat dibedakan atas: batuan sedimen halus dan kasar masam (Pfq), batuan sedimen kasar masam (Pq), batuan sedimen halus masam (Pf), dan batuan sedimen halus masam tertutup tuf tuf masam (dPff).

Pembagian lebih lanjut didasarkan pada tingkat torehannya. Di lembar peta ini grup ini cukup luas penyebarannya dan terdapat di sebelah timur.

Grup Tuf Toba (Q)

Grup fisiografi ini terbentuk oleh adanya erupsi (ashflow) Toba dan menutupi daerah ini mulai dari ketinggian 100 sampai 1300m dpl. Pada lembar peta ini, erupsi Toba sebagian besar menutupi daerah sekitar Sarulla sebelah selatan ke arah barat dan sebelah utara ke arah timur, sebagian mengisi celah-celah antar perbukitan dan setempat-setempat dalam luasan yang relatif sempit terdapat di sekitar Gunung Tua.

Erupsi Toba didominasi oleh tuf Toba riadasitik. Pada lembar ini terdapat

pada dataran tinggi dan dataran rendah. Keadaan lereng sangat bervariasi dari 3% sampai 75%. Berdasarkan ketinggian (altitude) dan morfologi, Grup Tuf Toba dibedakan menjadi:

- Q*.1.1 - Dataran tinggi tuf Toba masam, plato, datar (lereng <3%)
- Q*.1.2 - Dataran tinggi tuf Toba masam, lereng atas, agak melandai (lereng 3-8%)
- Q*.1.3 - Dataran tinggi tuf Toba masam, lereng atas, melandai (lereng 8-16%)
- Q*.1.4 - Dataran tinggi tuf Toba masam, lembah luas terisi, agak melandai, berombak
- Q*.1.5 - Dataran tinggi tuf Toba masam, agak melandai, bergelombang
- Q*.1.6 - Dataran tinggi tuf Toba masam, melandai, berombak
- Q*.1.7 - Dataran tinggi tuf Toba masam, lembah luas terisi, melandai, bergelombang
- Q*.1.8 - Dataran tinggi tuf Toba masam, lembah sungai sempit terisi
- Q*.2.1 - Dataran rendah tuf Toba masam, agak melandai
- Q*.2.2 - Dataran rendah tuf Toba masam, datar
- Q*.2.3 - Dataran rendah tuf Toba masam, lembah sungai terisi

Pembagian lebih lanjut didasarkan pada tingkat torehannya.

Grup Vulkan (V)

Grup ini terbentuk karena aktivitas vulkanik (resen/subresen) berupa kerucut vulkan atau yang sudah tererosi, aliran lava, dan lahar. Di lembar peta ini hanya terdapat strato vulkan yang dijumpai di sekitar Sipirok (Dolok Sibual-buali) dari batuan vulkan dasitik, di sekitar Padangsidempuan (Dolok Lubuk Raya) dari vulkan andesitik dan di sekitar Tarutung (Dolok Martimbang) dari vulkan andesitik. Pembagian strato vulkan berdasarkan posisi/lerengnya dibedakan atas:

- V*.1.2 Lereng atas
- V*.1.3 Lereng tengah
- V*.1.4 Lereng bawah
- V*.1.6 Aliran lahar
- V*.1.7 Singkapan

Ketinggian tempat bervariasi dari 200 sampai 1860m dpl dan berlereng 15-80%. Pembagian lebih lanjut berdasarkan litologi dan tingkat torehan.

Grup Karst (K)

Grup Karst merupakan daerah yang didominasi oleh bahan berkapur atau batukapur dan secara umum keadaan morfologinya tidak teratur; biasanya dicirikan dengan adanya gua-gua dan batukapur keras dan berukuran kasar muncul di permukaan (rock outcrops). Solum tanah di daerah ini umumnya dangkal dan hanya terdapat pada kantung-kantung atau celah diantara batuan. Biasanya jenis tanah di daerah ini mempunyai pH yang tinggi karena pengaruh dari bahan induknya. Berdasarkan kemiringan lereng, grup ini dibagi menjadi:

- K*.3 Relief perbukitan dan bukit-bukit kecil
- K*.5 Pegunungan karst.

Pembagian selanjutnya berdasarkan tingkat torehan. Pada lembar peta ini grup karst terdapat di daerah antara Sosopan dan Sibuhuan, juga setempat-setempat muncul di bagian tengah, utara dan selatan.

Grup Perbukitan (H)

Grup Perbukitan merupakan daerah angkatan, lipatan atau patahan yang mengalami proses denudasi/erosi dengan perbedaan tinggi (amplitudo) 50-300 meter. Pada lembar peta ini dapat dibedakan:

- H*.1 - Perbukitan dengan pola random
- H*.2 - Lingur paralel memanjang dan lereng yang mengikuti struktur tektonik
- H*.3 - Relief perbukitan kompleks.

Lereng bervariasi dari 16 sampai 55%. Ketinggian tempat 50-350 m dpl. Litologinya bervariasi dari batuan sedimen/metasedimen, vulkan tua, batuan intrusi dan asosiasinya yang umumnya berumur Tersier dan Prater-sier. Satuan lahan dibedakan berdasarkan litologi Ha, Hq, Hf, Hg, Hfq, Hqk, Hu, Hy dan dHu. Pembagian lebih detail didasarkan pada kemiringan lereng dan tingkat torehan.

Grup Pegunungan/Plato (M)

Grup Pegunungan/Plato merupakan daerah angkatan, lipatan dan patahan yang mempunyai posisi lebih tinggi daripada perbukitan dengan perbedaan ketinggian (relief amplitudo) lebih dari 300 meter. Secara umum keadaan relief/lereng dapat dibedakan:

M*.2.2 - Pegunungan agak curam sampai sangat curam (25-75%)

M*.2.3 - Pegunungan sangat curam sekali (>75%).

Keadaan litologinya bervariasi dan terdiri dari batuan sedimen, metasedimen, batuan vulkan tua dan intrusi dan asosiasinya serta umumnya berumur Tersier sampai Pratersier. Ketinggian tempat bervariasi dari 300 sampai 2000 m dpl, berlereng curam sampai sangat curam sekali (25-85%).

Berdasarkan tipe litologi dibedakan dalam tuf intermedier (Ma), batuan sedimen halus dan kasar masam (Mfq), batuan sedimen kasar masam (Mq), batuan plutonik masam (Mg) dan batuan sedimen tidak dibedakan (Mu).

Pembagian selanjutnya didasarkan pada relief/lereng dan tingkat torehannya. Pada sebagian daerah pegunungan, intensitas pengamatan sangat kurang karena keadaan topografi dan lereng sangat curam sekali sehingga sulit untuk dijangkau.

Grup pegunungan pada lembar peta ini merupakan deretan pegunungan Bukit Barisan yang terdapat di sekitar Gunungtua, sebelah barat laut dan selatan lembar peta serta sekitar Siondop memanjang ke arah tenggara dan baratlaut sampai ke utara Sibolga.

Aneka Bentuk (X)

Aneka Bentuk tidak termasuk dalam grup fisiografi diatas serta tidak merupakan lahan untuk pertanian dan banyak dipengaruhi oleh aktivitas manusia seperti perkotaan/pemukiman penduduk, penimbunan limbah, daerah pertambangan atau berupa daerah yang diratakan, danau dan lembah dengan lereng curam. Pada umumnya Aneka Bentuk mempunyai luasan relatif sangat sempit dan terdiri dari:

- X.1 Daerah terjal
- X.2 Daerah pemukiman/kota
- X.3 Danau (X.3).

4.3. Hidrologi

Keadaan hidrologi secara umum di daerah lembar peta Padangsidempuan (0717) ditentukan oleh keadaan relief/lereng umum serta porositas bahan induk yang sangat bervariasi dalam komposisi, besar butir serta kemiringan lapisan-lapisannya. Keadaan litologi yang heterogen tersebut di atas menimbulkan kenampakan pola drainase yang sangat bervariasi. Secara umum daerah yang bersangkutan memiliki pola drainase dendritik pada wilayah dengan litologi yang homogen terutama di sekitar Gunungtua dan Binanga. Pola drainase paralel terdapat di sebelah tenggara Padangsidempuan, Dolok Mayang dan daerah lainnya. Pola drainase lain yang dapat dijumpai adalah radial di sekitar Lubukraya dan pola drainase karstik di wilayah Sosopan dan Tanjungbaru.

Di daerah sepanjang aliran sungai dan daerah dataran rendah serta wilayah-wilayah depresi, keadaan hidrologi masih dipengaruhi oleh arah lereng umum. Arah lereng umum yang dimaksud mengarah ke selatan dan baratdaya. Pola drainase di sepanjang aliran sungai, utama seperti Sungai Barumon, Batang Sosa dan Batang Gadis adalah meandering, sedangkan pada daerah dataran rendah dan wilayah depresi pola drainase yang dijumpai adalah subparalel.

Pada lembar Sibolga (0617) keadaan hidrologi dipengaruhi oleh lereng umum terutama pada bagian utara lembar peta, sedangkan bagian lain merupakan dataran dan depresi. Pola drainase yang dijumpai adalah meandering di sepanjang aliran sungai terutama Batang Toru, Aek Garoga, Aek Sibundung, Aek Kolang, Aek Rasau, Aek Sibalu, Aek Badiri, Aek Batumundam, Aek Siam dan Batang Gadis, sedangkan daerah lainnya secara umum berpola drainase paralel.

Intrusi air asin di Sibolga dan sepanjang pantai barat lainnya kurang begitu terasa, sebagian air bersifat tawar.

5. SATUAN LAHAN

5.1. Satuan lahan dan tanah

Pada setiap satuan lahan umumnya ditemukan lebih dari satu satuan tanah (pada tingkat Great Group), dan untuk memudahkan pembacaannya maka setiap satuan tanah yang dijumpai pada setiap satuan lahan ditentukan luas penyebarannya secara kualitatif, yaitu:

- *Sangat dominan*: apabila penyebarannya >75% dari luasan Satuan Lahan.
- *Dominan*: apabila penyebarannya antara 50-75% dari luasan Satuan Lahan.
- *Cukup*: apabila penyebarannya antara 25-50% dari luasan Satuan Lahan.
- *Sedikit*: apabila penyebarannya antara 10-25% dari luasan Satuan Lahan.
- *Sedikit sekali*: apabila penyebarannya <10% dari luasan Satuan Lahan.

Secara garis besar satuan lahan yang dijumpai pada lembar peta ini dapat dikelompokkan kedalam 10 grup, yaitu Kubah Gambut, Marin, Aluvial, Dataran, Perbukitan, Pegunungan, Volkan, Tuf Toba, Karst dan Aneka Bentuk (Gambar 6).

Dibawah ini akan diuraikan mengenai keadaan tanah yang dijumpai pada masing-masing grup fisiografi.

Tanah Grup Kubah Gambut (D)

Di daerah ini dijumpai kubah gambut oligotrofik air tawar. Ketebalan gambut 0,5-2,0 m, terbentuk di daerah yang relatif cekung dan tergenang sepanjang tahun. Dalam lingkungan demikian sisa tumbuhan sukar hancur dan menumpuk sebagai gambut dengan atau tanpa campuran endapan tanah mineral. Bentuk permukaan seperti kubah dengan bagian pinggir kedalamannya gambut <2m ke bagian tengah >2m. Bahan organik telah mengalami dekomposisi menjadi hemik dan saprik serta diperkirakan komposisi abunya tidak

kaya akan unsur-unsur hara (oligotrofik). Bahan mineral dibawah gambut umumnya miskin hara dan bertekstur kasar, sedangkan bahan halus dari sedimen marin umumnya lebih kaya tetapi mengandung pirit. Jenis tanah yang mendominasi satuan lahan ini adalah Tropohemists dan Troposaprists.

Penghambat utama di daerah ini adalah miskin unsur hara, ketebalan gambut dan genangan permanen.

Daerah ini secara umum untuk jangka pendek tidak mempunyai nilai untuk dikembangkan sebagai daerah pertanian, kecuali setempat-setempat di bagian pinggir dengan ketebalan gambut dangkal (<0,5m) dapat dijadikan sebagai area persawahan lebak, tetapi dalam luasan yang relatif sempit dan memerlukan pengendalian air yang baik.

Tanah Grup Marin (B)

Grup ini merupakan jalur-jalur beting pasir pantai dan cekungan antar beting (swales) dijumpai memanjang sejajar garis pantai barat. Cekungan umumnya tergenang/ berawa. Di jalur-jalur beting pasir pantai setempat-setempat dipotong oleh alur pasang surut (tidal creeks). Di wilayah dataran berlumpur (tidal flat) dijumpai tanah yang masih mentah dan berpotensi sulfat masam.

Bentuk lahan datar sampai datar agak cekung dan datar agak melandai.

Sepanjang beting pantai dijumpai jenis tanah Tropopsamments dan Tropoquents bertekstur kasar dan Hydraquents, belum mengalami perkembangan. Sedangkan di cekungan (swales) dijumpai Sulfaquents, bertekstur halus sampai sedang dan belum berkembang.

Penghambat utama daerah ini adalah genangan air laut, kemungkinan keracunan sulfat serta bahaya kekeringan di daerah beting pantai.

Dengan memperhatikan dan menjaga kelestarian habitat pantai, daerah ini dapat dijadikan daerah perikanan atau tambak. Dengan pengendalian air yang baik, setempat-setempat daerah pantai dapat digunakan sebagai daerah pesawahan dan khusus bagian beting

pantai dapat digunakan sebagai area pertanaman kelapa.

Tanah Grup Aluvial (A)

Tanah-tanah pada grup fisiografi ini berkembang dari bahan endapan halus dan kasar atau campuran keduanya. Tanah pada dataran aluvial peralihan ke dataran marin (A*.1.1) didominasi oleh Tropaepts yang berasosiasi dengan Tropaepts dan Tropohemists. Tanah-tanah pada dataran banjir dari sungai yang bermeander (A*.1.2) didominasi oleh Tropaepts dan Dystropepts yang berasosiasi dengan Tropofluvents. Sedangkan pada pelemahan sempit (A*.1.3) yang terdapat diantara satuan lahan lainnya didominasi oleh Tropaepts dan sedikit Fluvaquents.

Pada daerah terbanan luas terisi (sedimen aluvial) terbagi menjadi jalur sungai (A*.1.4.1) yang terbentuk dari bahan endapan kasar dan campuran didominasi Eutropepts dan Tropofluvents; dataran banjir dan rawa belakang (A*.1.4.2) didominasi tanah Tropaepts dan Tropaepts, sedangkan kipas aluvio-koluvial sepanjang lereng gunung patahan (A*.1.4.3) didominasi Tropaepts dan Eutropepts. Kipas aluvial dan koluvial (A*.2), teras sungai (A*.4) dan dataran banjir dari sungai yang bercabang-cabang (A*.5) didominasi oleh Eutropepts, Dystropepts dan Tropaepts dengan inklusi Fluvaquents dan Tropofluvents.

Secara umum tanah-tanah tersebut di atas cukup baik untuk pengembangan usaha pertanian karena kandungan unsur hara tanaman cukup tersedia, hanya beberapa kendala yang perlu diperhatikan pada tanah tertentu yaitu permukaan air tanah yang tinggi dan drainase terhambat serta bahaya banjir.

Tanah Grup Dataran (P)

Tanah-tanah di Dataran umumnya berkembang dari batuan sedimen halus dan kasar atau campurannya. Perbedaan utama tanah-tanah yang terbentuk umumnya karena pengaruh keadaan litologinya. Dataran dengan endapan halus (Pf) didominasi oleh

Hapludults dan Dystropepts yang berasosiasi dengan Tropaepts. Dataran dengan endapan kasar (Pq) didominasi Hapludox dan Tropohumods yang berasosiasi dengan Tropopsamments dan Tropaepts. Umumnya Tropohumods terdapat di bagian yang melandai ke arah sungai. Dataran dengan endapan halus dan kasar (Pfq) didominasi oleh Hapludox dan Kandudults.

Dataran dengan endapan halus bernapal (Pfk) didominasi oleh Eutropepts yang berasosiasi dengan Hapludalfs dan Tropaepts.

Di sekitar Gunungtua setempat-setempat terdapat endapan halus yang tertutup oleh Tuf Toba (dPf) yang didominasi oleh Hapludox, Kandudults, Dystropepts dan Hapludults. Penghambat utama pada tanah-tanah di wilayah dataran umumnya berupa tingkat kesuburan tanah rendah, sifat fisik tanah jelek, terutama pada tanah-tanah yang terbentuk dari bahan endapan kasar, potensi keracunan Al tinggi dan bahaya erosi di daerah berlereng.

Potensi dataran yang cukup baik untuk pengembangan pertanian harus dibarengi dengan usaha perbaikan kesuburan tanah dan konservasi di daerah berlereng.

Tanah Grup Perbukitan (H)

Tanah-tanah pada daerah perbukitan berkembang dari batuan plutonik masam dan intermedier, batuan sedimen dan metasedimen atau campurannya. Tanah-tanah yang umum dijumpai pada grup ini adalah Dystropepts, Humitropepts, Hapludults, Troporthents, dan Tropopsamments. Perbukitan dari bahan kasar (Hq) didominasi oleh Tropopsamments yang berasosiasi dengan Dystropepts. Tanah pada perbukitan dari bahan kasar berkapur (Hqk) didominasi oleh Troporthents yang berasosiasi dengan Eutropepts, sedangkan dari batuan sedimen campuran yang tertutup tuf masam dasitik (dHu) didominasi oleh Troporthents yang berasosiasi dengan Dystropepts dan Hapludults. Perbukitan dengan tuf intermedier (Ha) dan batuan plutonik masam (Hg) didominasi oleh Dystropepts yang

berasosiasi dengan Hapludults dan Humitropepts. Perbukitan dengan batuan metamorf tidak dibedakan (Hy) didominasi oleh Humitropepts yang berasosiasi dengan Dystropepts. Tanah-tanah pada perbukitan dari batuan sedimen halus masam (Hf), batuan sedimen halus dan kasar masam (Hfq) dan batuan sedimen tidak dibedakan (Hu) didominasi oleh Dystropepts dan Hapludults.

Secara umum tanah-tanah pada Grup Perbukitan kurang berpotensi untuk pengembangan pertanian. Kendala utama umumnya berupa topografi cukup terjal, kesuburan tanah rendah dan setempat-setempat sifat fisik tanah kurang baik (kedalaman efektif dangkal dan tekstur kasar).

Tanah Grup Pegunungan/Plato (M)

Grup pegunungan/plato terletak pada ketinggian 300-2000m dpl., berlereng curam sampai sangat curam sekali, dengan lereng berkisar antara 30% dan lebih dari 75%. Bagian tertinggi terletak di Dolok Tampulon Anjing (2000m dpl.).

Jenis tanah dominan di daerah ini adalah Dystropepts, Humitropepts, Hapludults dan Troprothents.

Pegunungan dari tuf intermedier (Ma) dengan vegetasi hutan primer didominasi oleh Hapludults yang berasosiasi dengan Haplohumults dan Troprothents. Pegunungan dengan batuan sedimen halus dan kasar didominasi oleh Dystropepts yang berasosiasi dengan Hapludults dan Humitropepts, sedangkan dari batuan kasar masam (Mq) didominasi oleh Troprothents yang berasosiasi dengan Dystropepts. Pegunungan dari batuan plutonik masam didominasi oleh Dystropepts dan Hapludults. Pegunungan dari batuan sedimen tidak dibedakan (Mu) didominasi oleh Dystropepts yang berasosiasi dengan Hapludults dan Troprothents. Paleudults dijumpai pada satuan lahan ini sebagai inklusi. Secara umum tanah bersolum dalam, tekstur sedang sampai halus dan drainase baik kecuali Troprothents bersolum sedang sampai dangkal, drainase agak cepat dan tekstur agak kasar sampai kasar.

Tingkat kesuburan tanah tergolong sedang sampai rendah.

Potensi tanah untuk pengembangan pertanian tergolong kurang baik dengan kendala utama berupa topografi/lereng curam sampai sangat curam, kesuburan tanah rendah, dan bahaya erosi.

Tanah Grup Volkan (V)

Grup ini terbentuk pada masa Kuartar berupa kerucut volkan muda.

Bahan vulkanik terdiri dari tuf dasitik dan andesitik serta setempat-setempat berupa lava dan lahar. Penyebaran grup ini terdapat disekitar Dolok Lubukraya, Batangtoru dan sebelah utara Padangsidempuan, pada ketinggian antara 200 dan 1887m dpl., lereng melandai sampai sangat curam, berkisar antara 15% sampai lebih dari 45%.

Lereng atas (V.1.2) dan tengah (V.1.3) didominasi oleh Dystrandepts yang berasosiasi dengan Humitropepts. Tanah umumnya sudah mengalami perkembangan, berpenampang dalam, tekstur halus sampai sedang, drainase agak cepat sampai sedang.

Pada lereng bawah (V.1.4) didominasi oleh Dystropepts dan Humitropepts. Tanah umumnya berpenampang dalam, tekstur halus sampai sedang dan drainase sedang. Daerah aliran lahar muda (V.1.6) didominasi oleh Dystrandepts dan Humitropepts, bersolum dalam, tekstur halus dan drainase sedang. Sedangkan pada daerah singkapan (V.1.7) didominasi oleh Troprothents yang berasosiasi dengan Dystropepts bersolum dangkal, tekstur sedang, dengan drainase agak cepat.

Penghambat utama di daerah ini adalah lereng cukup terjal dan sebagian besar peka terhadap erosi, sehingga diperlukan perlakuan konservasi tanah.

Tanah pada lereng bawah cukup potensial untuk pengembangan pertanian terutama tanaman hortikultura dan tanaman tahunan dataran tinggi. Sedangkan lereng atas dan tengah sebaiknya tetap dipertahankan sebagai hutan lindung.

Tanah Grup Tuf Toba (Q)

Grup Tuf Toba terdapat di sekitar Dolok Bongongan, Dolok Mayang, Tor

Pulan, Bangat, Ladang Pasir, Par-tuahan, Aek Nasia, Dolok Sidua-dua, Dolok Pancurnatolu, Sungai Puing, Payapining serta di sekitar Pagarahambiri, Hitetoras dan Aek Kanan yang terletak pada ketinggian 100 sampai 1300m dpl.

Tuf Toba dalam lembar peta ini ter-bagi menjadi: (a) Daerah dataran tinggi terdiri dari plato, lereng atas dan peralihan (Q.1) dan (b) Daerah dataran rendah terdiri dari lereng bawah, dataran, kaki lereng dan kipas (Q.2)

Daerah dataran tinggi Tuf Toba (Q.1) dijumpai pada ketinggian 500-1300m dpl. Tempat tertinggi terletak di sekitar Dolok Siduadua. Sebagian daerahnya terpotong sesar/patahan Sumatera memanjang arah tenggara-barat laut. Sepanjang garis sesar dapat dijumpai rangkaian bukit kecil memanjang. Jenis tanah dominan di daerah ini adalah Dystrandepts yang berasosiasi dengan Humitropepts. Tanah umumnya bersolum dalam, tekstur bervariasi dari halus sampai agak kasar, drainase baik sampai agak cepat.

Daerah dataran rendah Tuf Toba (Q.2) terletak pada ketinggian antara 100-400m dpl. dijumpai di sekitar Pagarahambiri dan Panonabonan, ber-lereng datar agak melandai (lereng 3-8%).

Jenis tanah yang dominan di daerah ini adalah Humitropepts dan Dystrandepts yang berasosiasi dengan Hapludults dan Tropaquepts. Tanah-tanah tersebut umumnya bersolum dalam, bertekstur halus sampai agak kasar dan berdrainase baik.

Penghambat utama umumnya berupa lereng curam, kesuburan tanah rendah, bahaya erosi dan kemungkinan keku-rangan air.

Daerah Tuf Toba merupakan daerah yang cukup berpotensi untuk pertanian terutama untuk pengembangan hortikul-tura serta tanaman pangan semusim. Pada tanah-tanah yang menempati daerah berlereng curam sampai sangat curam disarankan tetap dipertahankan sebagai hutan lindung.

Tanah Grup Karst (K)

Grup Karst dijumpai di sekitar Dolok Sibalanga, sebelah selatan Dolok Tin-jauan, sebelah utara Aek Badak, dan sebelah selatan Sigodang. Bentuk wilayah berbukit (Kc.3) sampai ber-gunung (Kc.5), setempat-setempat per-mukaannya terbuka tanpa vegetasi penutup.

Batukapur yang lebih resisten muncul dipermukaan sebagai singkapan dengan dinding yang sangat curam, lembah-lembah sempit dan dalam serta sering dijumpai guha-guha yang cukup dalam. Terletak pada ketinggian antara 400-1200m dpl, daerahnya sangat tertoreh sampai sangat tertoreh sekali dengan lereng antara 16 dan lebih dari 55%. Jenis tanah yang dominan di daerah ini adalah Eutropepts dan Tropor-thents yang berasosiasi dengan Kan-diudalfs.

Tanah berpenampang dangkal sampai sedang, tekstur halus, drainase baik, kesuburan tanah rendah sampai sedang. Daerah ini kurang berpotensi untuk pengembangan pertanian. Setempat-setempat dalam skala kecil masih memungkinkan untuk usaha perkebunan dan pertanian tanaman semusim. Walaupun demikian batukapurnya masih memungkinkan untuk diperniagakan.

Aneka Bentuk (X)

Grup ini merupakan bentukan spesifik di luar grup fisiografi yang ada, terbentuk sebagai akibat dari ak-tivitas manusia atau secara alami. Dalam lembar peta ini terdiri dari X.1 berupa lembah sungai terjal tererosi atau lereng terjal (escarpment), X.2 berupa perkotaan/pemukiman, dan X.3 berupa danau.

5.2. Isi dari uraian satuan lahan

Uraian satuan lahan merupakan pokok terpenting dalam buku penjelasan ini. Disajikan uraian dari 10 satuan lahan yang terdapat pada lembar peta Sibolga (0617) dan Padangsidempuan (0717), secara detail dan dalam bentuk/format yang baku.

Agar memudahkan untuk para pemakai, maka setiap Satuan Lahan yang ditemukan pada lembar peta ini diuraikan secara mendetil pada Lampiran 2.

Uraian itu antara lain meliputi :

- Luas dan penyebarannya pada tiap Propinsi yang diliput.
- Citra satelit, foto udara dan Radar yang meliput Satuan Lahan tsb.
- Bahan induk yang meliputi tingkat pelapukannya, litologinya dan formasi menurut peta Geologi.
- Sumber dan kualitas air
- Kemungkinan perikanan
- Bahaya banjir atau genangan
- Vegetasi dan penggunaan lahan
- Tingkat bahaya erosi (yang dipercepat)
- Satuan Tanah yang dijumpai (pada tingkat Great Grup)
- Sifat-sifat kimia dan morfologi penting dari tanah lapisan atas
- Ketinggian dari muka laut
- Bentuk profil Satuan Lahan tsb
- Pola drainase
- Lereng
- Distribusi lereng pada Satuan Lahan tersebut
- Perbedaan tinggi
- Bentuk wilayah
- Keadaan pelembahannya
- Pembagian lanjut dari Satuan Lahan (Faset)
- Fragmentasi lahan yang bisa diusahakan untuk pertanian, dan
- Tingkat relaibilitas dari unsur-unsur diatas.

Disamping itu disajikan pula penampang melintang dari tiap Satuan Lahan untuk memudahkan pemakai membayangkan keadaan Satuan Lahan tersebut.

Pada butir 23 Deskripsi Satuan Lahan (Lampiran 2) disajikan harkat berbagai sifat tanah terukur sbb.:

Texture (tekstur)

fine (halus) = liat berat, liat.liat berpasir, liat berdebu
 moderately fine (cukup halus) = lempung berliat, lempung, liat berdebu, lempung liat berpasir
 medium (sedang) = lempung, lempung berdebu, debu
 moderately coarse (cukup kasar) = lempung berpasir
 coarse (kasar) = pasir, pasir berlempung

Soil depth (kedalaman tanah)

		Mineral soil (tanah mineral)
very shallow	(sangat dangkal)	<10 cm
shallow	(dangkal)	11-25
moderately shallow	(cukup dangkal)	26-50
moderately deep	(cukup dalam)	51-75
deep	(dalam)	76-100
very deep	(sangat dalam)	101-150
extremely deep	(ekstrem dalam)	>150

		peat (gambut)
very shallow	(sangat dangkal)	<10 cm
shallow	(dangkal)	11-25
moderately shallow	(cukup dangkal)	26-50
moderately deep	(cukup dalam)	-
deep	(dalam)	51-75
very deep	(sangat dalam)	76-200
extremely deep	(ekstrem dalam)	>200

Exchangeable Potassium, CEC and Total Potassium

K dapat ditukar, KTK dan K total

(meq/100g or/atau cmol(+)/kg)(mg/100g)

		K	CEC	K-tot
very low	(sangat rendah)	<0.1	<5	<10
low	(rendah)	0.1-0.2	5-16	10-20
medium	(sedang)	0.3-0.5	17-24	21-40
high	(tinggi)	0.6-1.0	25-40	41-60
very high	(sangat tinggi)	>1.0	>40	>60

Phosphorus / Fosfor

		Available (ppm P_2O_5)			Total
		Tersedia			Total
		Bray-1	Bray-2	Olsen	HCl
very low	(sangat rendah)	<10	<3	<5	<10
low	(rendah)	10-15	3-7	5-11	10-20
medium	(sedang)	16-25	8-20	12-22	21-40
high	(tinggi)	26-35	>20	>22	41-60
very high	(sangat tinggi)	>35	-	-	>60

Soil reaction (pH) / Reaksi tanah		pH
extremely acid	(ekstrem masam)	<3.5
excessively acid	(eksesif masam)	3.5-4.5
very strongly acid	(sangat masam)	4.6-5.0
strongly acid	(kuat masam)	5.1-5.5
moderately acid	(cukup masam)	5.6-6.0
slightly acid	(agak masam)	6.1-6.5
neutral	(netral)	6.6-7.3
mildly alkaline	(agak alkalin)	7.4-7.8
moder. alkaline	(cukup alkalin)	7.9-8.4
strongly alkaline	(sangat alkalin)	8.5-9.0
very str.alkaline	(ekstrem alkalin)	>9.0

Aluminium saturation
Kejenuhan Aluminium

(% of/dari ECEC)

very low	(sangat rendah)	<20
low	(rendah)	20-40
medium	(sedang)	41-60
high	(tinggi)	61-80
very high	(sangat tinggi)	>80

Salinity (Group B & D)

Salinitas (Grup B & D)

(ECe, dS/m)

salt free	bebas garam	<3.9
very slightly saline	sangat sedikit bergaram	4.0-5.9
slightly saline	sedikit bergaram	6.0-7.9
moderately saline	cukup bergaram	8.0-16.0
saline	bergaram	>16.0

Acid sulphate potential (depth)

Potensi Sulfat Masam (kedalaman)

not relevant (tidak relevan): no potential

tak berpotensi

very shallow (sangat dangkal) <25 cm
(bahaya utama)

shallow (dangkal) 26-50

moderately shallow (cukup dangkal) 51-75

moderately deep (cukup dalam) 76-100

deep (dalam) 101-150

very deep (sangat dalam) >150 cm

(tanpa bahaya)

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Daftar Laporan

(Nomor adalah nomor laporan dalam file SUMREP)

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LAMPIRAN 1. DAFTAR SUSUNAN TIM SURVEI TANAH LEMBAR PETA INI
APPENDIX 1. LIST OF THE SOIL SURVEY TEAM FOR THIS MAPSHEET

1. Penanggungjawab dan Anggota Tim Survei

Penanggung jawab : Dr. Suryatna Effendi
PIU LREP Part II : Dr. M. Sudjadi
Pimbagpro PDBT : Ismangun, MSc
Koordinator : Dr. J. Sri Adiningsih
Ketua Tim : Ir. D. Subardja, MSc
Ketua Regu : - Kartiwa Djuanda
 - Yayat Hadian
 - Samdan Candradinata
 - Yehu Mulyadi
 - Ir. Nono Sutrisno
 - Ir. Lukman Hakim

Anggota Regu : - Wahyu Supriyatna
 - Enang Haris
 - Suhartono CH.
 - Jojon Suryono
 - Ir. Kurmen Sudarman
 - Ir. Sukristionubowo

2. Tenaga Daerah : - Aswan Hasibuan, SH
 - Ir. Bambang Maruto
 - Ir. Bakti Lubis
 - Bambang Bincar Harahap

3. Tim Evaluasi dan Korelasi : - Ir. H. Ahmad Hidayat, MSc
 - Junus Dai, MS
 - Drs Tom Balsem
 - Dr. P. Buurman

4. Tenaga Komputer dan Kartografi

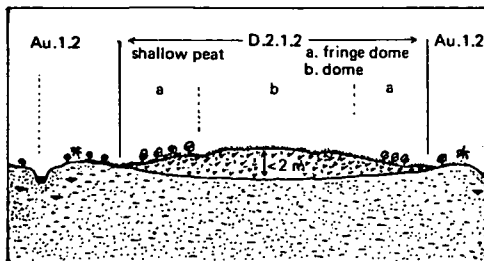
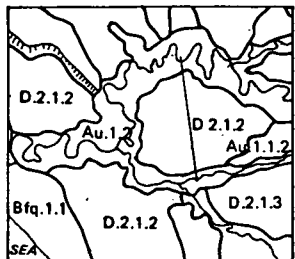
Tenaga Komputer : - Dra. Karmini Gandasasmita
 - R a s t a
 - Hery Sastramihardja

Kartografi : - Dra. B. Retno MW.
 - Sutrisno

LAMPIRAN 2. URAIAN SATUAN LAHAN
APPENDIX 2. LAND UNIT DESCRIPTIONS

MAP IMAGE :

CROSS SECTION :



1. LAND UNIT : D.2.1.2 Oligotrophic freshwater peat domes, organic sediment thickness 0.5-2.0 m, flat to slightly convex.

2. MAP SHEET : 0617 3. AREA : 185.8 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%

5. STATUS IDENTIFIERS : Updated by : SS Edit date: 30/10/89 Status : Final

7. SATELLITE SCENES : 128/59/08/08/85

8. AERIAL PHOTOGRAPHS : 1:100.000 10H / -044

9. RADAR : STAR-1/250/88/0617-

10. PARENT MATERIAL

11. ROCK OUTCROP : 0%

a. Weathering : Slight

b. Lithology : peat,

c. Formation : Qp

12. WATER a. Quality : Fresh

b. Source : Rain, Perennial river

13. FISHERIES : Swamp

14. RIVERS

a. Floodrisk water : High

c. Inundation : Permanent

b. Floodrisk sed.: None

15. VEGETATION/LAND USE : peat swamp forest

Area used : 0 %

16. ACCELERATED EROSION

a. Occurrence : None

b. Evidence : Not relevant

17. TERRAIN : Flat, slope < 3%, 0-50 m

18. PLAN/ Dominant: No pronounced highs/low

PROFILE Included:

19. RELIEF AMPLITUDE

a. Amplitude: Low

b. Variability : Low

20. ALTITUDE Minimum : 5 m

Maximum : 25 m

Range : 5 - 25 m

21. DRAINAGE a. Pattern: None

b. Density : Very low

24. VALLEY FLOOR Width : Very wide

25. FRAGMEN a. Valleys: Small blocks

b. Interfluves : None

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item | 10b | 12a | 14a | 14b | 19 | 20 | 21b | 22b | 22c | 22d1 | 22d2 | 22e1 | 23b | 23c | 23d | 23er | 24 | 25 |

rate : 1 | 1 | 2 | 2 | 1 | 2 | 2 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |

28. REPRESENTATIVE PROFILES:

not available

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	:	1a	1b	--	--
b. Description	:	Peat domes	Peat domes	--	--
c. % of Land Unit	:	100%	100%	X	X

SLOPES

d1. Steepness	:	< 3%	< 3%	--	--
d2. Slope length	:	> 500 m	201 - 500 m	--	--
d3. Slope curvature	:	Straight	Straight	--	--

SOILS

e1. USDA Class	:	troposaprista	trophemista		
e2. % Facet	:	60%	40%	X	X

23. SOIL CHARACTERISTICS

a. USDA Great Group	:	troposaprista	trophemista
---------------------	---	---------------	-------------

b. Texture:	topsoil:	Organic material	Organic material	--	--
	subsoil:	Organic material	Organic material	--	--
c. Depth:	peatsoil:	Very deep	Very deep	--	--
	mineralsoil:	--	--	--	--
d. Drainage	:	Very poorly drained	Very poorly drained	--	--

NUTRIENTS :

e. Exch. K:	topsoil:	--	--	--	--
	subsoil:	--	--	--	--
f. Total K2O:	topsoil:	--	--	--	--
	subsoil:	--	--	--	--
g. Avail. P:	method:	--	--	--	--
	topsoil:			--	--
	subsoil:			--	--
h. Total P:	topsoil:	--	--	--	--
	subsoil:	--	--	--	--

OTHERS :

i. CEC pH 7	topsoil:	--	--	--	--
	subsoil:	--	--	--	--
j. Reaction:	topsoil:	Excessively acid	Excessively acid	--	--
	subsoil:	Excessively acid	Excessively acid	--	--
k. Al sat.	topsoil:	--	--	--	--
	subsoil:	--	--	--	--
l. Al toxicity	:	--	--	--	--
m. Acid sulph. pot.	:	Not relevant	Not relevant	--	--
n. Salinity (ec)	:	--	--	--	--
o. Other toxicity	:	--	--	--	--
p. Root obstr. layer	:	--	--	--	--
q. Organic matter (%)	:	--	--	--	--
r. TEB (meq/100 g)	:	--	--	--	--

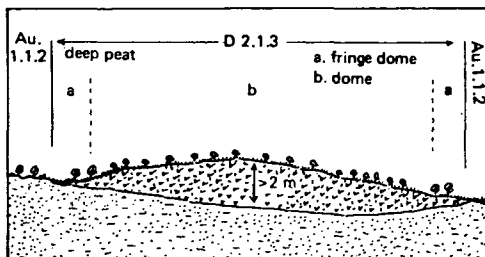
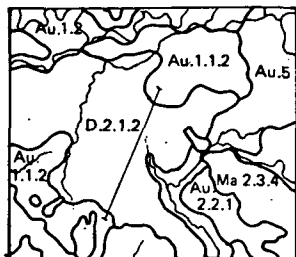
s. Total anal. profiles:	0	0	0	0
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f. LAB CHECK	:	No	No	--	--
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27. ADDITIONAL NOTES : The soil data are extrapolated from LU D.2.1.3

MAP IMAGE :

CROSS SECTION :



1. LAND UNIT : D.2.1.3 Oligotrophic freshwater peat domes, organic sediment thickness >2.0 m, flat to slightly convex.
2. MAP SHEET : 0717 3. AREA : 83.5 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 31/10/89 Status : Final
7. SATELLITE SCENES :
8. AERIAL PHOTOGRAPHS : 1:100.000 R25 /8320-155
9. RADAR : STAR-1/250/88/0717
10. PARENT MATERIAL 11. ROCK OUTCROP : 0%
- a. Weathering : Slight
- b. Lithology : peat, ,
- c. Formation : Qp ,
12. WATER a. Quality : Fresh
- b. Source : Rain, Perennial river
13. FISHERIES : Swamp
14. RIVERS
- a. Floodrisk water : None b. Floodrisk sed.: None
- c. Inundation : None
15. VEGETATION/LAND USE : peat swamp forest
- Area used : 0 %
16. ACCELERATED EROSION
- a. Occurrence : None b. Evidence : Not relevant
17. TERRAIN : Flat, slope < 3%, 0-50 m
18. PLAN/ Dominant: No pronounced highs/lows
- PROFILE Included:
19. RELIEF AMPLITUDE
- a. Amplitude: Very low b. Variability : Low
20. ALTITUDE Minimum : 10 m Maximum : 50 m
- Range : 10 - 50 m
21. DRAINAGE a. Pattern: None b. Density : Very low
24. VALLEY FLOOR Width : Very wide
25. FRAGMEN a. Valleys: Small blocks b. Interfluves : None

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item | 10b | 12a | 14a | 14b | 19 | 20 | 21b | 22b | 22c | 22d1 | 22d2 | 22e1 | 23b | 23c | 23d | 23er | 24 | 25 |

rate : 1 | 1 | 2 | 2 | 1 | 2 | 2 | 1 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 2 | 2 | 2 |

28. REPRESENTATIVE PROFILES:

not available

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	:	1a	1b	--	--
b. Description	:	Dome	Dome	--	--
c. % of Land Unit	:	100%	100%	%	%

SLOPES

d1. Steepness	:	< 3%	< 3%	--	--
d2. Slope length	:			--	--
d3. Slope curvature	:	Straight	Straight	--	--

SOILS

e1. USDA Class	:	tropohemists	troposaprists		
e2. % Facet	:	60%	40%	%	%

23. SOIL CHARACTERISTICS

a. USDA Great Group	:	tropohemists	troposaprists
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b. Texture:	topsoil:	Organic material	Organic material	--	--
	subsoil:	Organic material	Organic material	--	--
c. Depth:	peatsoil:	Very deep	Very deep	--	--
	mineralsoil:	--	--	--	--
d. Drainage	:	Very poorly drained	Very poorly drained	--	--

NUTRIENTS

e. Exch. K:	topsoil:	--	--	--	--
	subsoil:	--	--	--	--
f. Total K2O:	topsoil:	--	--	--	--
	subsoil:	--	--	--	--
g. Avail. P:	method:	--	--	--	--
	topsoil:	--	--	--	--
	subsoil:	--	--	--	--
h. Total P:	topsoil:	--	--	--	--
	subsoil:	--	--	--	--

OTHERS

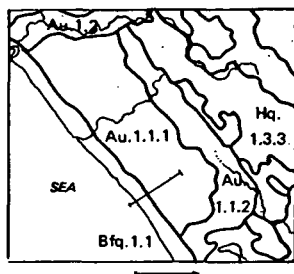
i. CEC pH 7	topsoil:	--	--	--	--
	subsoil:	--	--	--	--
j. Reaction:	topsoil:	Excessively acid	Excessively acid	--	--
	subsoil:	Excessively acid	Excessively acid	--	--
k. Al sat.	topsoil:	--	--	--	--
	subsoil:	--	--	--	--
l. Al toxicity	:	--	--	--	--
m. Acid sulph. pot.	:	Not relevant	Not relevant	--	--
n. Salinity (ec)	:	--	--	--	--
o. Other toxicity	:	--	--	--	--
p. Root obstr. layer	:	--	--	--	--
q. Organic matter (%)	:	--	--	--	--
r. TEB (meq/100 g)	:	--	--	--	--

s. Total anal. profiles:	0	0	0	0
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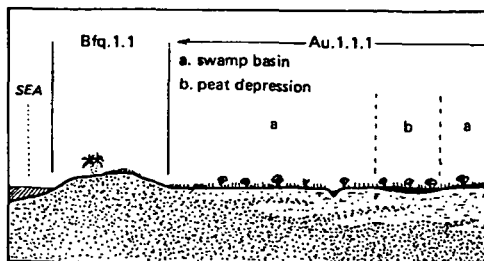
f. LAB CHECK	:	No	No	--	--
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27. ADDITIONAL NOTES :

MAP IMAGE :



CROSS SECTION :



open low vegetation, mostly permanently water logged

1. LAND UNIT : Au.1.1.1 Alluvial plain transition to marine, undifferentiated sediments, swamps with open low vegetation, flat (slopes <3%)
2. MAP SHEET : 0617 3. AREA : 135.2 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 31/10/89 Status : Final
7. SATELLITE SCENES : 128/58/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000
9. RADAR : STAR-1/250/88/0617-
10. PARENT MATERIAL
11. ROCK OUTCROP : 0%
- a. Weathering : Slight
- b. Lithology : clay, sand,
- c. Formation : Qh
12. WATER a. Quality : Fresh
- b. Source : Perennial river,
13. FISHERIES : River
14. RIVERS
- a. Floodrisk water : High
- b. Floodrisk sed.: Low
- c. Inundation : Permanent
15. VEGETATION/LAND USE : , swamp, irrigated wetland rice
- Area used : 50 %
16. ACCELERATED EROSION
- a. Occurrence : None
- b. Evidence : Not relevant
17. TERRAIN : Flat, slope < 3%, 0-50 m
18. PLAN/ Dominant: No pronounced highs/lows
- PROFILE Included:
19. RELIEF AMPLITUDE
- a. Amplitude: Very low
- b. Variability : Low
20. ALTITUDE Minimum : 5 m
- Maximum : 30 m
- Range : 10 - 15 m
21. DRAINAGE a. Pattern: None
- b. Density : Very low
24. VALLEY FLOOR Width : Wide
25. FRAGMEN a. Valleys: Large blocks
- b. Interfluves : None

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item | 10b | 12a | 14a | 14b | 19 | 20 | 21b | 22b | 22c | 22d1 | 22d2 | 22e1 | 23b | 23c | 23d | 23er | 24 | 25 |

rate : 2 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |

28. REPRESENTATIVE PROFILES:

not available

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	: 1a	1b	1c	--
b. Description	: Back swamp	Back swamp	Back swamp	--
c. % of Land Unit	: 100%	100%	100%	2

SLOPES

d1. Steepness	: < 3%	< 3%	< 3%	--
d2. Slope length	: 201 - 500 m	201 - 500 m	101 - 200 m	--
d3. Slope curvature	: Concave	Concave	Concave	--

SOILS

e1. USDA Class	: tropaquents	tropohemists	tropaquepts	
e2. % Facet	: 55%	30%	15%	2

23. SOIL CHARACTERISTICS

a. USDA Great Group	: tropaquents	tropohemists	tropaquepts	
b. Texture:	topsoil: Organic material	Organic material	Medium	--
	subsoil: Moderately coarse	Organic material	Fine	--
c. Depth:	peatsoil: --	--	--	--
	mineralsoil: Moderately deep	Deep	Very deep	--
d. Drainage	: Imperfectly drained	Very poorly drained	Very poorly drained	--

NUTRIENTS

e. Exch. K:	topsoil: --	--	--	--
	subsoil: --	--	--	--
f. Total K2O:	topsoil: --	--	--	--
	subsoil: --	--	--	--
g. Avail. P:	method: --	--	--	--
	topsoil: --	--	--	--
	subsoil: --	--	--	--
h. Total P:	topsoil: --	--	--	--
	subsoil: --	--	--	--

OTHERS

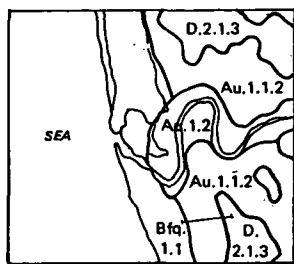
i. CEC pH 7	topsoil: --	--	--	--
	subsoil: --	--	--	--
j. Reaction:	topsoil: Moderately acid	Strong acid	Strong acid	--
	subsoil: Strong acid	Strong acid	Strong acid	--
k. Al sat.	topsoil: --	--	--	--
	subsoil: --	--	--	--
l. Al toxicity	: --	--	--	--
m. Acid sulph. pot.	: Not relevant	Not relevant	Not relevant	--
n. Salinity (ec)	: Salt free	Salt free	--	--
o. Other toxicity	: --	--	--	--
p. Root obstr. layer	: --	--	--	--
q. Organic matter (%)	: --	--	--	--
r. TEB (meq/100 g)	: --	--	--	--

s. Total anal. profiles:	0	0	0	0
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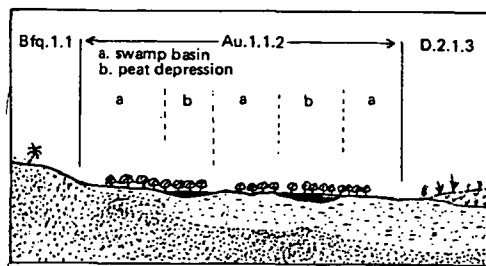
f. LAB CHECK	: No	No	No	--
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27. ADDITIONAL NOTES

MAP IMAGE :



CROSS SECTION :



mixed trees vegetation, mostly permanently water logged

1. LAND UNIT : Au.1.1.2 Alluvial plain transition to marine, undifferentiated sediments, swamps with mixed vegetation, flat (slopes <3%)
2. MAP SHEET : 0617
3. AREA : 297.1 km²
4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 31/10/89 Status : Final
7. SATELLITE SCENES : 128/59/08/08/85, 127/58/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000 9S /8347-63 , 135S/8323-193
9. RADAR : STAR-1/250/88/0617
10. PARENT MATERIAL
11. ROCK OUTCROP : 0%
- a. Weathering : Slight
- b. Lithology : clay, sand,
- c. Formation : Qh ,
12. WATER a. Quality : Fresh
- b. Source : Perennial river,
13. FISHERIES : River
14. RIVERS
- a. Floodrisk water : Medium
- b. Floodrisk sed.: Low
- c. Inundation : Permanent
15. VEGETATION/LAND USE : , swamp, wetland rice
- Area used : 40 %
16. ACCELERATED EROSION
- a. Occurrence : None
- b. Evidence : Not relevant
17. TERRAIN : Flat, slope < 3%, 0-50 m
18. PLAN/ Dominant: No pronounced highs/ lows
- PROFILE Included:
19. RELIEF AMPLITUDE
- a. Amplitude: Low
- b. Variability : Low
20. ALTITUDE Minimum : 5 m
- Maximum : 20 m
- Range : 10 - 15 m
21. DRAINAGE a. Pattern: None
- b. Density : Very low
24. VALLEY FLOOR Width : Very wide
25. FRAGMEN a. Valleys: Large blocks
- b. Interfluvies : None

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item	10b	12a	14a	14b	19	20	21b	22b	22c	22d1	22d2	22e1	23b	23c	23d	23er	24	25
------	-----	-----	-----	-----	----	----	-----	-----	-----	------	------	------	-----	-----	-----	------	----	----

rate	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	2	2
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28. REPRESENTATIVE PROFILES:

eqt/ / /89/YH/0617/34/ /115/

eqt/ / /89/YH/0617/34/ /117/

igt/ / /87/TB/0617/63/ /077/

het/ / /89/YM/0617/62/ /113/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	:	1a	1b	1c	--
b. Description	:	Back swamps	Backswamps	Backswamps	--
c. % of Land Unit	:	100%	100%	100%	%

SLOPES

d1. Steepness	:	< 3%	< 3%	< 3%	--
d2. Slope length	:	> 500 m	201 - 500 m	50 - 100 m	--
d3. Slope curvature	:	Concave	Concave	Straight	--

SOILS

e1. USDA Class	:	tropaquents	trophemists	tropaquepts	
e2. % Facet	:	60%	25%	15%	%

23. SOIL CHARACTERISTICS

a. USDA Great Group	:	tropaquents	trophemists	tropaquepts	
b. Texture:					
topsoil:	Fine	Organic material	Coarse	--	
subsoil:	Moderately fine	Moderately fine	Coarse	--	
c. Depth:					
peatsoil:	--	--	--	--	
mineralsoil:	Very deep	Very deep	Very deep	--	
d. Drainage	:	Very poorly drained	Very poorly drained	Very poorly drained	--

NUTRIENTS :

e. Exch. K:					
topsoil:	Medium	--	Very low	--	
subsoil:	High	--	Very low	--	
f. Total K2O:					
topsoil:	High	--	Very low	--	
subsoil:	Very high	--	Very low	--	
g. Avail. P:					
method:	Bray I	--	Bray I	--	
topsoil:	Medium	--	Very low	--	
subsoil:	Very low	--	Very low	--	
h. Total P:					
topsoil:	High	--	Very low	--	
subsoil:	High	--	Very low	--	

OTHERS :

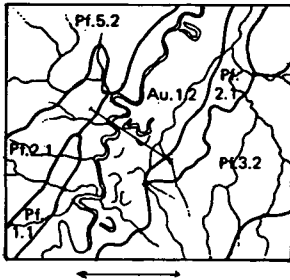
i. CEC pH 7					
topsoil:	Medium	--	Very low	--	
subsoil:	High	--	Very low	--	
j. Reaction:					
topsoil:	Excessively acid	--	Excessively acid	--	
subsoil:	Excessively acid	--	Excessively acid	--	
k. Al sat.					
topsoil:	None, very low	--	Medium	--	
subsoil:	Low	--	Very high	--	
l. Al toxicity	:	No	Yes	--	
m. Acid sulph. pot.	:	Not relevant	Not relevant	--	
n. Salinity (ec)	:	Salt free	Salt free	--	
o. Other toxicity	:	--	--	--	
p. Root obstr. layer	:	--	--	--	
q. Organic matter (%)	:	8.3	1.6	--	
r. TEB (meq/100 g)	:	10.5	0.9	--	

s. Total anal. profiles:	2	0	1	0
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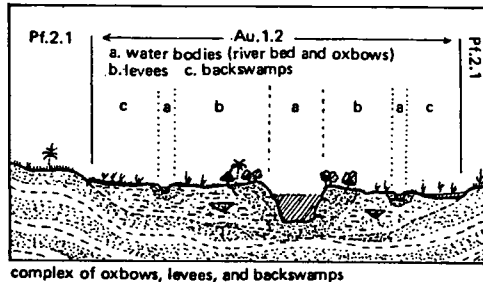
f. LAB CHECK	:	Yes	Yes	No	--
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27. ADDITIONAL NOTES :

MAP IMAGE :



CROSS SECTION :



1. LAND UNIT : Au.1.2 Flood plain of meandering river, undifferentiated sediments, flat (slopes <3%)
2. MAP SHEET : 0717 3. AREA : 1141.5 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 70%, Riau 30%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 31/10/89 Status : Final
7. SATELLITE SCENES : 128/58/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000 145 /8319-87 , 24 /8320-223
9. RADAR : STAR-1/250/88/0717-
10. PARENT MATERIAL
 - a. Weathering : Slight
 - b. Lithology : clay, ,
 - c. Formation : Qh ,
11. ROCK OUTCROP : 0%
12. WATER
 - a. Quality : Fresh
 - b. Source : Rain, Perennial river
13. FISHERIES : River
14. RIVERS
 - a. Floodrisk water : High
 - b. Floodrisk sed.: Low
 - c. Inundation : Seasonal
15. VEGETATION/LAND USE : , bush, scrub, rainfed wetland rice
Area used : 40 %
16. ACCELERATED EROSION
 - a. Occurrence : Localised
 - b. Evidence : Various
17. TERRAIN : Flat, slope < 3%, 0-50 m
18. PLAN/ Dominant: No pronounced highs/low
PROFILE Included:
19. RELIEF AMPLITUDE
 - a. Amplitude: Very low
 - b. Variability : Low
20. ALTITUDE Minimum : 20 m Maximum : 100 m
Range : 20 - .50 m
21. DRAINAGE a. Pattern: Meandering b. Density : Low
24. VALLEY FLOOR Width : Wide
25. FRAGMEN a. Valleys: Medium blocks b. Interfluves : Small blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item	10b	12a	14a	14b	19	20	21b	22b	22c	22d1	22d2	22e1	23b	23c	23d	23er	24	25
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rate	1	1	1	1	1	1	2	2	2	1	1	1	1	1	1	1	2	2
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28. REPRESENTATIVE PROFILES:

iqf/	/	/88/JH/0717/63/	/125/	iqf/	/	/88/MR/0717/63/	/116/
iqf/	/	/88/YH/0717/62/	/013/	iqf/	/	/88/YH/0717/62/	/022/
iqf/	/	/88/YH/0717/34/	/040/	iqf/	/	/89/YM/0617/13/	/071/
ity/	/	/88/JH/0717/63/	/132/	ity/	/	/88/KR/0717/31/	/007/
evt/	/	/88/KR/0717/22/	/037/	evt/	/	/80/KL/0717/32/	/003/
evt/	/	/88/YM/0717/61/	/034/				

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	: 1	2	3	--
b. Description	: Back swamp	Levees	Transitions	--
c. % of Land Unit	: 60%	30%	10%	X

SLOPES

d1. Steepness	: 3 - 8%	< 3%	< 3%	--
d2. Slope length	: 201 - 500 m	50 - 100 m	50 - 100 m	--
d3. Slope curvature	: Concave	Convex	Straight	--

SOILS

e1. USDA Class	: tropaquepts	dystropepts	tropofluvents	
e2. % Facet	: 100%	100%	100%	X

23. SOIL CHARACTERISTICS

a. USDA Great Group	: tropaquepts	dystropepts	tropofluvents	
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b. Texture:	topsoil: Moderately coarse	Moderately coarse	Medium	--
	subsoil: Moderately coarse	Moderately coarse	Medium	--
c. Depth:	peatsoil: --	--	--	--
	mineralsoil: Deep	Extremely deep	Very deep	--
d. Drainage	: Poorly drained	Well drained	Moderately well	--

NUTRIENTS :

e. Exch. K:	topsoil: Low	Medium	Low	--
	subsoil: Low	Low	Low	--
f. Total K2O:	topsoil: Low	Medium	Medium	--
	subsoil: Very low	Low	Medium	--
g. Avail. P:	method: Bray I	Bray I	Bray I	--
	topsoil: Low	Medium	Low	--
	subsoil: Low	Very low	Very low	--
h. Total P:	topsoil: Low	Low	High	--
	subsoil: Very low	Very low	High	--

OTHERS :

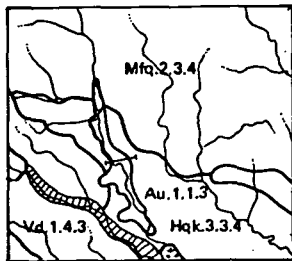
i. CEC pH 7	topsoil: Low	Very low	Low	--
	subsoil: Low	Low	Low	--
j. Reaction:	topsoil: Excessively acid	Excessively acid	Strong acid	--
	subsoil: Very strong acid	Excessively acid	Slightly acid	--
k. Al sat.	topsoil: Low	Low	None, very low	--
	subsoil: Low	Very high	None, very low	--
l. Al toxicity	: No	Yes	No	--
m. Acid sulph. pot.	: Not relevant	Not relevant	Not relevant	--
n. Salinity (ec)	: Salt free	Salt free	Salt free	--
o. Other toxicity	: --	--	--	--
p. Root obstr. layer	: --	--	--	--
q. Organic matter (X)	: 4.3	4.1	2.5	--
r. TEB (meq/100 g)	: 2.0	0.8	5.4	--

s. Total anal. profiles:	6	2	3	0
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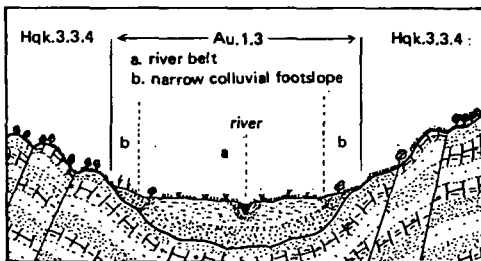
f. LAB CHECK	: Yes	Yes	Yes	--
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27. ADDITIONAL NOTES :

MAP IMAGE :



CROSS SECTION :



1. LAND UNIT : Au.1.3 Narrow valley bottom within upland, undifferentiated sediments, flat (slopes <3%).
2. MAP SHEET : 0717 3. AREA : 112.3 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 31/10/89 Status : Final
7. SATELLITE SCENES : 128/59/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000 14S /8323-41
9. RADAR : STAR-1/250/88/0717-
10. PARENT MATERIAL
- a. Weathering : Slight
- b. Lithology : clay, sand,
- c. Formation : Qh
12. WATER a. Quality : Fresh
- b. Source : Perennial river,
13. FISHERIES : River
14. RIVERS
- a. Floodrisk water : Medium
- b. Floodrisk sed.: Medium
- c. Inundation : Seasonal
15. VEGETATION/LAND USE : .. bush, scrub, alang-alang, rainfed wetland rice
- Area used : 40 %
16. ACCELERATED EROSION
- a. Occurrence : None
- b. Evidence : Not relevant
17. TERRAIN : Flat, slope < 3%, 0-50 m
18. PLAN/ Dominant: No pronounced highs/lows
- PROFILE Included:
19. RELIEF AMPLITUDE
- a. Amplitude: Very low
- b. Variability : Low
20. ALTITUDE Minimum : 200 m
- Maximum : 400 m
- Range : 250 - 300 m
21. DRAINAGE a. Pattern: Sinuous
- b. Density : Low
24. VALLEY FLOOR Width : Wide
25. FRAGMEN a. Valleys: Medium blocks
- b. Interfluves : None

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item | 10b | 12a | 14a | 14b | 19 | 20 | 21b | 22b | 22c | 22d1 | 22d2 | 22e1 | 23b | 23c | 23d | 23er | 24 | 25 |

rate : 1 | 1 | 2 | 2 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 |

28. REPRESENTATIVE PROFILES:

igt/ / /89/LH/0717/42/ /118/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	:	1a	1b	--	--
b. Description	:	Valley floor	Valley floor	--	--
c. % of Land Unit	:	100%	100%	%	%

SLOPES

d1. Steepness	:	< 3%	< 3%	--	--
d2. Slope length	:	> 500 m	101 - 200 m	--	--
d3. Slope curvature	:	Straight	Complex	--	--

SOILS

e1. USDA Class	:	tropaquepts	fluvaquents		
e2. % Facet	:	80%	20%	%	%

23. SOIL CHARACTERISTICS

a. USDA Great Group	:	tropaquepts	fluvaquents
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b. Texture:	topsoil:	Moderately fine	Moderately fine	--	--
	subsoil:	Moderately fine	Moderately coarse	--	--
c. Depth:	peatsoil:	--	--	--	--
	mineralsoil:	Very deep	Very deep	--	--
d. Drainage	:	Poorly drained	Imperfectly drained	--	--

NUTRIENTS :

e. Exch. K:	topsoil:	Low	--	--	--
	subsoil:	Medium	--	--	--
f. Total K ₂ O:	topsoil:	High	--	--	--
	subsoil:	High	--	--	--
g. Avail. P:	method:	Bray I	--	--	--
	topsoil:	Very low	--	--	--
	subsoil:	Very low	--	--	--
h. Total P:	topsoil:	Low	--	--	--
	subsoil:	Very low	--	--	--

OTHERS :

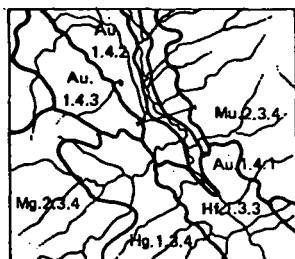
i. CEC pH 7	topsoil:	Low	--	--	--
	subsoil:	Low	--	--	--
j. Reaction:	topsoil:	Strong acid	--	--	--
	subsoil:	Strong acid	--	--	--
k. Al sat.	topsoil:	None, very low	--	--	--
	subsoil:	None, very low	--	--	--
l. Al toxicity	:	No	--	--	--
m. Acid sulph. pot.	:	Not relevant	Not relevant	--	--
n. Salinity (ec)	:	Salt free	Salt free	--	--
o. Other toxicity	:	--	--	--	--
p. Root obstr. layer	:	--	--	--	--
q. Organic matter (%)	:	1.6	--	--	--
r. TEB (meq/100.g)	:	9.0	--	--	--

s. Total anal. profiles:	1	0	0	0
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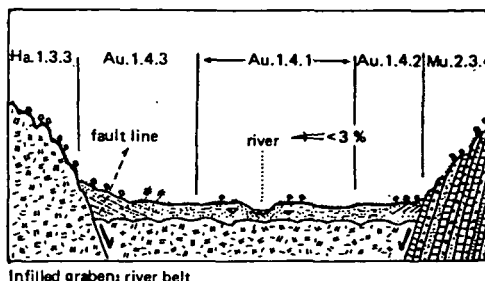
f. LAB CHECK	:	Yes	No	--	--
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27. ADDITIONAL NOTES :

MAP IMAGE :



CROSS SECTION :



1. LAND UNIT : Au.1.4.1 Broad infilled graben, undifferentiated sediments, riverbelt, flat to undulating (slopes <8%)
2. MAP SHEET : 0717 3. AREA : 69.8 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 31/10/89 Status : Final
7. SATELLITE SCENES : 128/59/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000 11S /8348-155
9. RADAR : STAR-1/250/88/0717-
10. PARENT MATERIAL
 - a. Weathering : Slight
 - b. Lithology : clay, sand,
 - c. Formation : Qh
11. ROCK OUTCROP : 0%
12. WATER
 - a. Quality : Fresh
 - b. Source : Rain, Perennial river
13. FISHERIES : River
14. RIVERS
 - a. Floodrisk water : Medium
 - b. Floodrisk sed.: Medium
 - c. Inundation : Seasonal
15. VEGETATION/LAND USE : , bush, scrub, alang-alang, mixed gardens of fruit trees, irrigated wetland rice, towns, village
Area used : 60 %
16. ACCELERATED EROSION
 - a. Occurrence : Localised
 - b. Evidence : Various
17. TERRAIN : Undulating 3-8%, 0-50 m
18. PLAN/ Dominant: No pronounced highs/low
PROFILE Included:
19. RELIEF AMPLITUDE
 - a. Amplitude: Very low
 - b. Variability : Low
20. ALTITUDE Minimum : 40 m Maximum : 500 m
Range : 100 - 500 m
21. DRAINAGE a. Pattern: Meandering b. Density : Low
24. VALLEY FLOOR Width : Wide
25. FRAGMEN a. Valleys: Small blocks b. Interfluvies : Medium blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item	10b	12a	14a	14b	19	20	21b	22b	22c	22d1	22d2	22e1	23b	23c	23d	23er	24	25
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rate	1	1	1	1	1	1	2	2	2	1	1	1	1	1	1	1	2	2
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28. REPRESENTATIVE PROFILES:

ite/ / /89/LH/0717/14/ /145/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	: 1a	1b	2	--
b. Description	: Levees	Levees	Depression	--
c. % of Land Unit	: 85%	85%	15%	X

SLOPES

d1. Steepness	: 3 - 8%	< 3%	< 3%	--
d2. Slope length	: 201 - 500 m	201 - 500 m	50 - 100 m	--
d3. Slope curvature	: Straight	Straight	Straight	--

SOILS

e1. USDA Class	: eutropepts	tropofluvents	tropaquepts	
e2. % Facet	: 60%	40%	100%	X

23. SOIL CHARACTERISTICS

a. USDA Great Group	: eutropepts	tropofluvents	tropaquepts	
b. Texture:				
topsoil:	Fine	Coarse	Fine	--
subsoil:	Fine	Moderately coarse	Fine	--
c. Depth:				
peatsoil:	--	--	--	--
mineralsoil:	Very deep	Shallow	Very deep	--
d. Drainage	: Moderately well	Moderately well	Poorly drained	--

NUTRIENTS

e. Exch. K:				
topsoil:	Very low	--	--	--
subsoil:	Low	--	--	--
f. Total K2O:				
topsoil:	Very high	--	--	--
subsoil:	Very high	--	--	--
g. Avail. P:				
method:	Bray I	--	--	--
topsoil:	Low	--	--	--
subsoil:	Very low	--	--	--
h. Total P:				
topsoil:	High	--	--	--
subsoil:	High	--	--	--

OTHERS

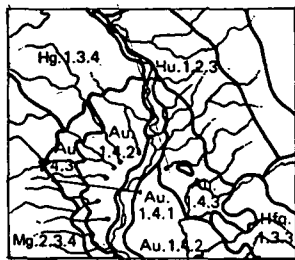
i. CEC pH 7				
topsoil:	High	--	--	--
subsoil:	High	--	--	--
j. Reaction:				
topsoil:	Strong acid	Strong acid	Slightly acid	--
subsoil:	Moderately acid	Slightly acid	Neutral	--
k. Al sat.				
topsoil:	--	--	--	--
subsoil:	--	--	--	--
l. Al toxicity	: --	--	--	--
m. Acid sulph. pot.	: Not relevant	Not relevant	Not relevant	--
n. Salinity (ec)	: Salt free	Salt free	Salt free	--
o. Other toxicity	: --	--	--	--
p. Root obstr. layer	: --	--	--	--
q. Organic matter (%)	: 2.1	--	--	--
r. TEB (meq/100 g)	: 12.7	--	--	--

s. Total anal. profiles:	1	0	0	0
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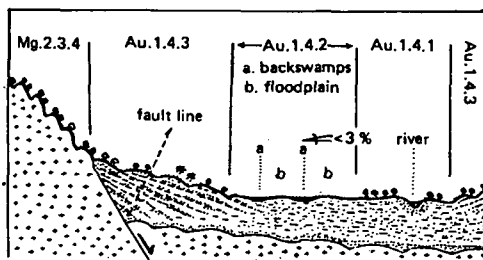
f. LAB CHECK	: Yes	No	No	--
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27. ADDITIONAL NOTES : The soil data of Tropofluvents and Trophaquepts are Extrapolated
from Land Unit Au.1.4.2

MAP IMAGE :



CROSS SECTION :



Infilled graben; flood plain and backswamps

1. LAND UNIT : Au.1.4.2 Broad infilled graben, undifferentiated sediments, flood plain and backswamps, flat (slopes <3%)
2. MAP SHEET : 0717 3. AREA : 288.8 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 31/10/89 Status : Final
7. SATELLITE SCENES : 128/58/08/08/85, 128/59/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000 14S /8323-51 , 11S /8348-155
9. RADAR : STAR-1/250/88/0717-
10. PARENT MATERIAL
11. ROCK OUTCROP : 0%
- a. Weathering : Slight
- b. Lithology : clay, sand,
- c. Formation : Qh
12. WATER a. Quality : Fresh
- b. Source : Rain, Perennial river
13. FISHERIES : River
14. RIVERS
- a. Floodrisk water : Medium
- b. Floodrisk sed.: Low
- c. Inundation : Seasonal
15. VEGETATION/LAND USE : , bush, scrub, irrigated wetland rice
- Area used : 80 %
16. ACCELERATED EROSION
- a. Occurrence : None
- b. Evidence : Not relevant
17. TERRAIN : Flat, slope < 3%, 0-50 m
18. PLAN/ Dominant: No pronounced highs/lows
- PROFILE Included:
19. RELIEF AMPLITUDE
- a. Amplitude: Very low
- b. Variability : Low
20. ALTITUDE Minimum : 50 m
- Maximum : 500 m
- Range : 100 - 500 m
21. DRAINAGE a. Pattern: Meandering
- b. Density : Moderate
24. VALLEY FLOOR Width : Very wide
25. FRAGMEN a. Valleys: Large blocks
- b. Interfluves : None

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item | 10b | 12a | 14a | 14b | 19 | 20 | 21b | 22b | 22c | 22d1 | 22d2 | 22e1 | 23b | 23c | 23d | 23er | 24 | 25 |

rate : 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 2 | 2 |

28. REPRESENTATIVE PROFILES:

eqv/ / /89/LH/0717/41/ /080/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	: 1	2a	2b	--
b. Description	: Floodplains	Backswamps	Backswamps	--
c. % of Land Unit	: 60%	40%	40%	2

SLOPES

d1. Steepness	: < 3%	< 3%	8 - 16%	--
d2. Slope length	: > 500 m	50 - 100 m	50 - 100 m	--
d3. Slope curvature	: Straight	Straight	Straight	--

SOILS

e1. USDA Class	: tropaquepts	tropaquents	fluvaquents	
e2. % Facet	: 100%	70%	30%	2

23. SOIL CHARACTERISTICS

a. USDA Great Group	: tropaquepts	tropaquents	fluvaquents	
b. Texture:				
topsoil:	Fine	Moderately fine	Coarse	--
subsoil:	Fine	Moderately fine	Medium	--
c. Depth:				
peatsoil:	--	--	--	--
mineralsoil:	Very deep	Very deep	Very deep	--
d. Drainage	: Poorly drained	Poorly drained	Imperfectly drained	--

NUTRIENTS

e. Exch. K:				
topsoil:	--	--	Medium	--
subsoil:	--	--	Medium	--
f. Total K2O:				
topsoil:	--	--	Very high	--
subsoil:	--	--	Very high	--
g. Avail. P:				
method:	--	--	Bray I	--
topsoil:			Very low	--
subsoil:			Low	--
h. Total P:				
topsoil:	--	--	Low	--
subsoil:	--	--	Medium	--

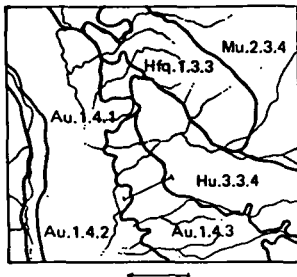
OTHERS

i. CEC pH 7				
topsoil:	--	--	Low	--
subsoil:	--	--	Medium	--
j. Reaction:				
topsoil:	Slightly acid	Slightly acid	Strong acid	--
subsoil:	Neutral	Neutral	Strong acid	--
k. Al sat.				
topsoil:	--	--	None, very low	--
subsoil:	--	--	--	--
l. Al toxicity	: --	--	No	--
m. Acid sulph. pot.	: Not relevant	Not relevant	Not relevant	--
n. Salinity (ec)	: Salt free	Salt free	Salt free	--
o. Other toxicity	: --	--	--	--
p. Root obstr. layer	: --	--	--	--
q. Organic matter (%)	: --	--	0.7	--
r. TEB (meq/100 g)	: --	--	0.6	--

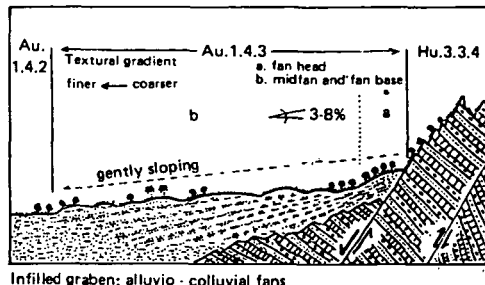
s. Total anal. profiles:	0	0	1	0
f. LAB CHECK	: No	No	Yes	--

27. ADDITIONAL NOTES :

MAP IMAGE :



CROSS SECTION :



1. LAND UNIT : Au.1.4.3 Broad infilled graben, undifferentiated sediments, alluvial/colluvial fan
2. MAP SHEET : 0717 3. AREA : 55.7 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 31/10/89 Status : Final
7. SATELLITE SCENES : 128/58/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000 14S /8323-51 , 11S /8348-155
9. RADAR : STAR-1/250/88/0717-
10. PARENT MATERIAL 11. ROCK OUTCROP : 0%
- a. Weathering : Slight
- b. Lithology : clay, sand,
- c. Formation : Qh
12. WATER a. Quality : Fresh
- b. Source : Rain, Perennial river
13. FISHERIES : River
14. RIVERS
- a. Floodrisk water : Low b. Floodrisk sed.: Low
- c. Inundation : None
15. VEGETATION/LAND USE : , bush, scrub, rainfed wetland rice, irrigated wetland rice
- Area used : 50 %
16. ACCELERATED EROSION
- a. Occurrence : Localised b. Evidence : Various
17. TERRAIN : Flat to undulating (0-8%)
18. PLAN/ Dominant: Not elongated and parallel < 40% of area flat-topped
- PROFILE Included:
19. RELIEF AMPLITUDE
- a. Amplitude: Low b. Variability : Low
20. ALTITUDE Minimum : 150 m Maximum : 500 m
- Range : 200 - 500 m
21. DRAINAGE a. Pattern: Parallel b. Density : Moderately high
24. VALLEY FLOOR Width : Wide
25. FRAGMEN a. Valleys: Medium blocks b. Interfluves : Small blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item | 10b | 12a | 14a | 14b | 19 | 20 | 21b | 22b | 22c | 22d1 | 22d2 | 22e1 | 23b | 23c | 23d | 23er | 24 | 25 |

rate : 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |

28. REPRESENTATIVE PROFILES:

ite/ / /89/LH/0717/14/ /145/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	:	1	2	--	--
b. Description	:	Flat plains	Upper fan surface	--	--
c. % of Land Unit	:	70%	30%	%	%

SLOPES

d1. Steepness	:	< 3%	3 - 8%	--	--
d2. Slope length	:	201 - 500 m	50 - 100 m	--	--
d3. Slope curvature	:	Concave	Undulating	--	--

SOILS

e1. USDA Class	:	tropaquepts	eutropepts		
e2. % Facet	:	100%	100%	%	%

23. SOIL CHARACTERISTICS

a. USDA Great Group	:	tropaquepts	eutropepts
---------------------	---	-------------	------------

b. Texture:	topsoil:	Fine	Fine	--	--
	subsoil:	Fine	Fine	--	--
c. Depth:	peatsoil:	--	--	--	--
	mineralsoil:	Very deep	Very deep	--	--
d. Drainage	:	Very poorly drained	Well drained	--	--

NUTRIENTS

e. Exch. K:	topsoil:	--	Very low	--	--
	subsoil:	--	Low	--	--
f. Total K2O:	topsoil:	--	Very high	--	--
	subsoil:	--	Very high	--	--
g. Avail. P:	method:	--	Bray I	--	--
	topsoil:	--	Low	--	--
	subsoil:	--	Very low	--	--
h. Total P:	topsoil:	--	High	--	--
	subsoil:	--	High	--	--

OTHERS

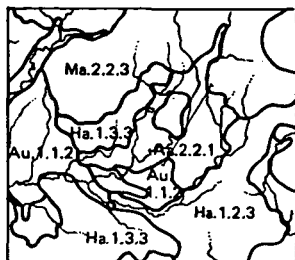
i. CEC pH 7	topsoil:	--	High	--	--
	subsoil:	--	High	--	--
j. Reaction:	topsoil:	--	Strong acid	--	--
	subsoil:	--	Moderately acid	--	--
k. Al sat.	topsoil:	--	--	--	--
	subsoil:	--	--	--	--
l. Al toxicity	:	--	--	--	--
m. Acid sulph. pot.	:	Not relevant	Not relevant	--	--
n. Salinity (ec)	:	Salt free	Salt free	--	--
o. Other toxicity	:	--	--	--	--
p. Root obstr. layer	:	--	--	--	--
q. Organic matter (%)	:	--	2.1	--	--
r. TEB (meq/100 g)	:	--	12.7	--	--

s. Total anal. profiles:	0	1	0	0
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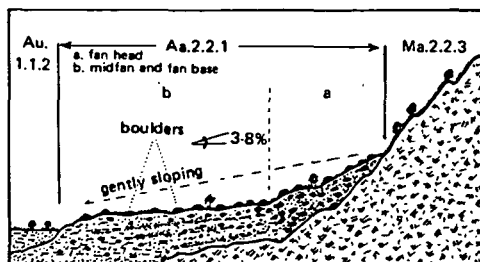
f. LAB CHECK	:	No	Yes	--	--
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27. ADDITIONAL NOTES : The soil data Eutropepts are extrapolated from LU Au.1.4.1

MAP IMAGE :



CROSS SECTION :



alluvio-colluvial fans of older volcanic rocks, undulating relief

1. LAND UNIT : Aa.2.2.1 Alluvial and colluvial fan, intermediate tuffs, undulating (slopes 3-8%), slightly dissected

2. MAP SHEET : 0617 3. AREA : 13.2 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%

5. STATUS IDENTIFIERS : Updated by : SS Edit date: 31/10/89 Status : Final

7. SATELLITE SCENES : 128/58/08/08/85

8. AERIAL PHOTOGRAPHS : 1:100.000

9. RADAR : STAR-1/250/88/0717-

10. PARENT MATERIAL

11. ROCK OUTCROP : 5%

a. Weathering : Slight

b. Lithology : andesitic tuffs, ,

c. Formation : Qf

12. WATER a. Quality : Fresh

b. Source : Rain, Perennial river

13. FISHERIES : None

14. RIVERS

a. Floodrisk water : None

b. Floodrisk sed.: Low

c. Inundation : None

15. VEGETATION/LAND USE : , bush, scrub, alang-alang, mixed gardens of fruit trees, rainfed wetland rice

Area used : 70 %

16. ACCELERATED EROSION

a. Occurrence : Localised

b. Evidence : Various

17. TERRAIN : Undulating 3-8%, 0-50 m

18. PLAN/ Dominant: Elongated and parallel > 60% of area flat-topped

PROFILE Included:

19. RELIEF AMPLITUDE

a. Amplitude: Low

b. Variability : Medium

20. ALTITUDE Minimum : 25 m

Maximum : 50 m

Range : 30 - 40 m

21. DRAINAGE a. Pattern: Parallel

b. Density : Low

24. VALLEY FLOOR Width : Very wide

25. FRAGMEN a. Valleys: Large blocks

b. Interfluves : Small blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item | 10b | 12a | 14a | 14b | 19 | 20 | 21b | 22b | 22c | 22d1 | 22d2 | 22e1 | 23b | 23c | 23d | 23er | 24 | 25 |

rate : 2 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |

28. REPRESENTATIVE PROFILES:

not available

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	:	1	2	--	--
b. Description	:	Depression	Interfluves	--	--
c. % of Land Unit	:	70%	30%	?	?

SLOPES

d1. Steepness	:	< 3%	3 - 8%	--	--
d2. Slope length	:	101 - 200 m	50 - 100 m	--	--
d3. Slope curvature	:	Straight	Convex	--	--

SOILS

e1. USDA Class	:	tropaquepts	dystropepts		
e2. % Facet	:	100%	100%	?	?

23. SOIL CHARACTERISTICS

a. USDA Great Group	:	tropaquepts	dystropepts
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b. Texture:	topsoil:	Moderately fine	Fine	--	--
	subsoil:	Fine	Fine	--	--
c. Depth:	peatsoil:	--	--	--	--
	mineralsoil:	Moderately deep	Moderately shallow	--	--
d. Drainage	:	Poorly drained	Well drained	--	--

NUTRIENTS :

e. Exch. K:	topsoil:	--	--	--	--
	subsoil:	--	--	--	--
f. Total K2O:	topsoil:	--	--	--	--
	subsoil:	--	--	--	--
g. Avail. P:	method:	--	--	--	--
	topsoil:	--	--	--	--
	subsoil:	--	--	--	--
h. Total P:	topsoil:	--	--	--	--
	subsoil:	--	--	--	--

OTHERS :

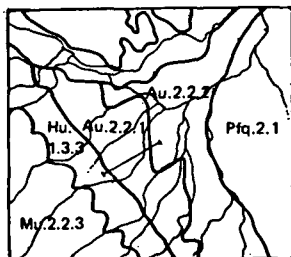
i. CEC pH 7	topsoil:	--	--	--	--
	subsoil:	--	--	--	--
j. Reaction:	topsoil:	Strong acid	Moderately acid	--	--
	subsoil:	Strong acid	Moderately acid	--	--
k. Al sat.	topsoil:	--	--	--	--
	subsoil:	--	--	--	--
l. Al toxicity	:	--	--	--	--
m. Acid sulph. pot.	:	Not relevant	Not relevant	--	--
n. Salinity (ec)	:	Salt free	Salt free	--	--
o. Other toxicity	:	--	--	--	--
p. Root obstr. layer	:	--	39 cm	--	--
q. Organic matter (%)	:	--	--	--	--
r. TEB (meq/100 g)	:	--	--	--	--

s. Total anal. profiles:	0	0	0	0
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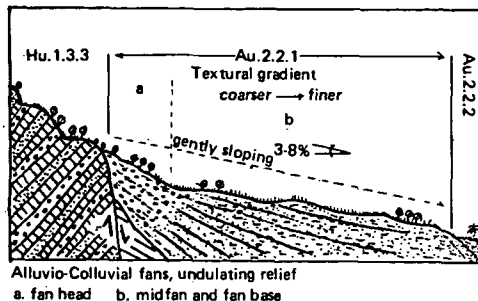
f. LAB CHECK	:	No	No	--	--
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27. ADDITIONAL NOTES :

MAP IMAGE :



CROSS SECTION :



1. LAND UNIT : Au.2.2.1 Alluvial and colluvial fans, undifferentiated sediments, undulating (slopes 3-8%), slightly dissected

2. MAP SHEET : 0717 3. AREA : 135.7 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%

5. STATUS IDENTIFIERS : Updated by : SS Edit date: 31/10/89 Status : Final

7. SATELLITE SCENES : 128/59/08/08/85

8. AERIAL PHOTOGRAPHS : 1:100.000 12S /8348-197

9. RADAR : STAR-1/250/88/0717-

10. PARENT MATERIAL

11. ROCK OUTCROP : 0%

a. Weathering : Slight

b. Lithology : clay, sand,

c. Formation : Qh

12. WATER a. Quality : Fresh

b. Source : Perennial river,

13. FISHERIES : River

14. RIVERS

a. Floodrisk water : Low

b. Floodrisk sed.: Low

c. Inundation : Seasonal

15. VEGETATION/LAND USE : , alang-alang, upland crops

Area used : 20 %

16. ACCELERATED EROSION

a. Occurrence : Localised

b. Evidence : Various

17. TERRAIN : Flat to undulating (0-8%)

18. FLAN/ Dominant: Not elongated and parallel < 40% of area flat-topped

PROFILE Included:

19. RELIEF AMPLITUDE

a. Amplitude: Low

b. Variability : Medium

20. ALTITUDE Minimum : 150 m

Maximum : 200 m

Range : 150 - 175 m

21. DRAINAGE a. Pattern: Parallel

b. Density : Moderate

24. VALLEY FLOOR Width : Wide

25. FRAGMEN a. Valleys: Small blocks

b. Interfluves : Medium blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item | 10b | 12a | 14a | 14b | 19 | 20 | 21b | 22b | 22c | 22d1 | 22d2 | 22e1 | 23b | 23c | 23d | 23er | 24 | 25 |

rate : 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 |

28. REPRESENTATIVE PROFILES:

ity/ / /88/SS/0717/21/ /062/ 1qt/ / /89/LH/0717/42/ /098/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	:	1	2	--	--
b. Description	:	Interfluves	Depressions	--	--
c. % of Land Unit	:	80%	20%	X	X

SLOPES

d1. Steepness	:	3 - 8%	< 3%	--	--
d2. Slope length	:	201 - 500 m	50 - 100 m	--	--
d3. Slope curvature	:	Convex	Concave	--	--

SOILS

e1. USDA Class	:	dystropepts	tropaquepts		
e2. % Facet	:	100%	100%	X	X

23. SOIL CHARACTERISTICS

a. USDA Great Group	:	dystropepts	tropaquepts		
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b. Texture:	topsoil:	Moderately fine	Moderately fine	--	--
	subsoil:	Moderately fine	Moderately fine	--	--
c. Depth:	peatsoil:	--	--	--	--
	mineralsoil:	Very deep	Deep	--	--
d. Drainage	:	Well drained	Very poorly drained	--	--

NUTRIENTS :

e. Exch. K:	topsoil:	Low	High	--	--
	subsoil:	Very low	Medium	--	--
f. Total K2O:	topsoil:	Low	Very high	--	--
	subsoil:	Low	High	--	--
g. Avail. P:	method:	Bray I	Bray I	--	--
	topsoil:	Medium	Low	--	--
	subsoil:	Very low	Very low	--	--
h. Total P:	topsoil:	Medium	High	--	--
	subsoil:	Medium	Medium	--	--

OTHERS :

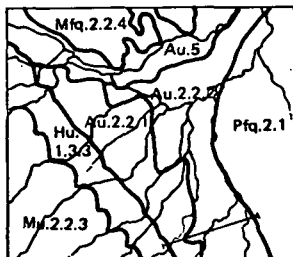
i. CEC pH 7	topsoil:	Low	Low	--	--
	subsoil:	Low	Low	--	--
j. Reaction:	topsoil:	Excessively acid	Excessively acid	--	--
	subsoil:	Excessively acid	Very strong acid	--	--
k. Al sat.	topsoil:	High	None, very low	--	--
	subsoil:	High	Low	--	--
l. Al toxicity	:	No	No	--	--
m. Acid sulph. pot.	:	Not relevant	Not relevant	--	--
n. Salinity (ec)	:	Salt free	Salt free	--	--
o. Other toxicity	:	--	--	--	--
p. Root obstr. layer	:	--	100 cm	--	--
q. Organic matter (%)	:	3.5	4.7	--	--
r. TEB (meq/100 g)	:	0.5	6.2	--	--

s. Total anal. profiles:	1	1	0	0
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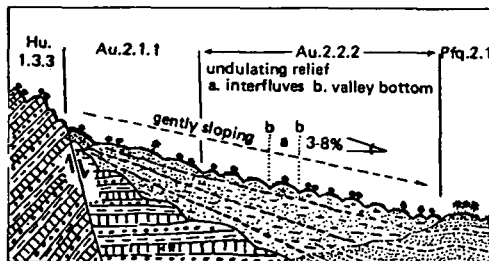
f. LAB CHECK	:	Yes	Yes	--	--
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27. ADDITIONAL NOTES :

MAP IMAGE :



CROSS SECTION :



1. LAND UNIT : Au.2.2.2 Alluvial and colluvial fans, undifferentiated sediments, undulating (slopes 3-8%), moderately dissected
2. MAP SHEET : 0717 3. AREA : 48.8 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 31/10/89. Status : Final
7. SATELLITE SCENES : 128/59/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000 10S /8348-145
9. RADAR : STAR-1/250/88/0717-
10. PARENT MATERIAL
 - a. Weathering : Slight
 - b. Lithology : clay, sand,
 - c. Formation : Qh , Qf
11. ROCK OUTCROP : 0%
12. WATER
 - a. Quality : Fresh
 - b. Source : Perennial river,
13. FISHERIES : River
14. RIVERS
 - a. Floodrisk water : Low
 - b. Floodrisk sed.: Low
 - c. Inundation : Seasonal
15. VEGETATION/LAND USE : , bush, scrub, alang-alang, upland crops
Area used : 25 %
16. ACCELERATED EROSION
 - a. Occurrence : Localised
 - b. Evidence : Various
17. TERRAIN : Flat to undulating (0-8%)
18. PLAN/ Dominant: Not elongated and parallel < 40% of area flat-topped
PROFILE Included:
19. RELIEF AMPLITUDE
 - a. Amplitude: Low
 - b. Variability : Low
20. ALTITUDE Minimum : 150 m
Range : 150 ~ 175 m
Maximum : 200 m
21. DRAINAGE a. Pattern: Parallel
b. Density : Moderate
24. VALLEY FLOOR Width : Narrow
25. FRAGMEN a. Valleys: Small blocks
b. Interfluvial : Medium blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item | 10b | 12a | 14a | 14b | 19 | 20 | 21b | 22b | 22c | 22d1 | 22d2 | 22e1 | 23b | 23c | 23d | 23er | 24 | 25 |

rate : 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 2 | 2 | 2 |

28. REPRESENTATIVE PROFILES:

ity/ / /88/SS/0717/21/ /062/

igt/ / /89/LH/0717/42/ /098/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	:	1	2	--	--
b. Description	:	Interfluves	Valley bottoms	--	--
c. % of Land Unit	:	80%	20%	%	%

SLOPES

d1. Steepness	:	3 - 8%	< 3%	--	--
d2. Slope length	:	201 - 500 m	50 - 100 m	--	--
d3. Slope curvature	:	Convex	Straight	--	--

SOILS

e1. USDA Class	:	dystropepts	tropaquepts		
e2. % Facet	:	100%	100%	%	%

23. SOIL CHARACTERISTICS

a. USDA Great Group	:	dystropepts	tropaquepts		
---------------------	---	-------------	-------------	--	--

b. Texture:	topsoil:	Moderately fine	Moderately fine	--	--
	subsoil:	Moderately fine	Moderately fine	--	--
c. Depth:	peatsoil:	--	--	--	--
	mineralsoil:	Very deep	Deep	--	--
d. Drainage	:	Well drained	Very poorly drained	--	--

NUTRIENTS :

e. Exch. K:	topsoil:	Low	High	--	--
	subsoil:	Very low	Medium	--	--
f. Total K2O:	topsoil:	Low	Very high	--	--
	subsoil:	Low	High	--	--
g. Avail P:	method:	Bray I	Bray I	--	--
	topsoil:	Medium	Low	--	--
	subsoil:	Very low	Very low	--	--
h. Total P:	topsoil:	Medium	High	--	--
	subsoil:	Medium	Medium	--	--

OTHERS :

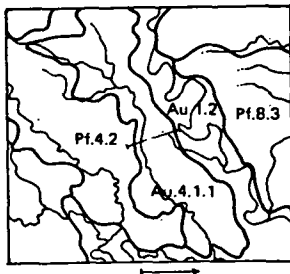
i. CEC pH 7	topsoil:	Low	Low	--	--
	subsoil:	Low	Low	--	--
j. Reaction:	topsoil:	Excessively acid	Excessively acid	--	--
	subsoil:	Excessively acid	Very strong acid	--	--
k. Al sat.	topsoil:	High	None, very low	--	--
	subsoil:	High	Low	--	--
l. Al toxicity	:	No	No	--	--
m. Acid sulph. pot.	:	Not relevant	Not relevant	--	--
n. Salinity (ec)	:	Salt free	Salt free	--	--
o. Other toxicity	:	--	--	--	--
p. Root obstr. layer	:	--	100 cm	--	--
q. Organic matter (%)	:	3.5	4.7	--	--
r. TEB (meq/100 g)	:	0.5	6.2	--	--

s. Total anal. profiles:	1	1	0	0
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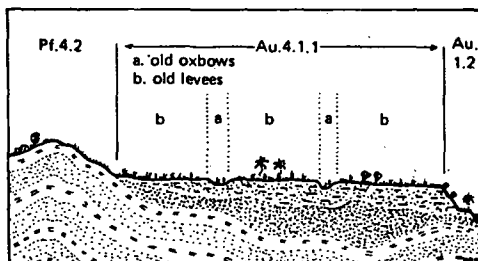
f. LAB CHECK	:	Yes	Yes	--	--
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27. ADDITIONAL NOTES : The soil data of Dystropepts and Tropaquepts are extrapolated from
Land Unit Au.2.2.1

MAP IMAGE :



CROSS SECTION :



1. LAND UNIT : Au.4.1.1 River terraces, undifferentiated sediments, flat (slopes <3%), slightly dissected
2. MAP SHEET : 0717 3. AREA : 46.1 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 31/10/89 Status : Final
7. SATELLITE SCENES : 128/58/08/08/85, 128/59/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000 23 /8218-211, T2 /8323-185
9. RADAR : STAR-1/250/88/0717-2/4
10. PARENT MATERIAL
 - a. Weathering : Partial
 - b. Lithology : clay, sand,
 - c. Formation : Qh
11. ROCK OUTCROP : 0%
12. WATER
 - a. Quality : Fresh
 - b. Source : Rain, Perennial river
13. FISHERIES : River
14. RIVERS
 - a. Floodrisk water : Low
 - b. Floodrisk sed.: Low
 - c. Inundation : Seasonal
15. VEGETATION/LAND USE : , bush, scrub, upland crops, mixed gardens of fruit trees, rainfed wetland rice
Area used : 80 %
16. ACCELERATED EROSION
 - a. Occurrence : Localised
 - b. Evidence : Various
17. TERRAIN : Flat, slope < 3%, 0-50 m
18. PLAN/ Dominant: No pronounced highs/lows
PROFILE Included:
19. RELIEF AMPLITUDE
 - a. Amplitude: Low
 - b. Variability : Low
20. ALTITUDE Minimum : 50 m
Range : 50 - 100 m
Maximum : 100 m
21. DRAINAGE a. Pattern: Parallel
b. Density : Low
24. VALLEY FLOOR Width : Moderate
25. FRAGMEN a. Valleys: Medium blocks
b. Interfluves : Medium blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item	10b	12a	14a	14b	19	20	21b	22b	22c	22d1	22d2	22e1	23b	23c	23d	23er	24	25
------	-----	-----	-----	-----	----	----	-----	-----	-----	------	------	------	-----	-----	-----	------	----	----

rate	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	1	2	2
------	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

28. REPRESENTATIVE PROFILES:

ite/ / /89/KR/0717/23/ /073/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	: 1a	1b	--	--
b. Description	: Terraces (dry land)	Terraces (wet land)	--	--
c. % of Land Unit	: 100%	100%	%	%

SLOPES

d1. Steepness	: < 3%	< 3%	--	--
d2. Slope length	: 201 - 500 m	201 - 500 m	--	--
d3. Slope curvature	: Straight	Straight	--	--

SOILS

e1. USDA Class	: eutropepts	tropaquepts		
e2. % Facet	: 80%	20%	%	%

23. SOIL CHARACTERISTICS

a. USDA Great Group	: eutropepts	tropaquepts		
b. Texture:				
topsoil:	Coarse	Moderately coarse	--	--
subsoil:	Moderately coarse	Fine	--	--
c. Depth:				
peatsoil:	--	--	--	--
mineralsoil:	Very deep	Very deep	--	--
d. Drainage	: Well drained	Poorly drained	--	--

NUTRIENTS :

e. Exch. K:				
topsoil:	Low	--	--	--
subsoil:	Medium	--	--	--
f. Total K2O:				
topsoil:	Very high	--	--	--
subsoil:	Very high	--	--	--
g. Avail. P:				
method:	Bray I	--	--	--
topsoil:	Very low	--	--	--
subsoil:	Very low	--	--	--
h. Total P:				
topsoil:	Very low	--	--	--
subsoil:	Very low	--	--	--

OTHERS :

i. CEC pH 7				
topsoil:	Very low	--	--	--
subsoil:	Low	--	--	--
j. Reaction:				
topsoil:	Strong acid	Neutral	--	--
subsoil:	Moderately acid	Slightly acid	--	--
k. Al sat.				
topsoil:	None, very low	--	--	--
subsoil:	None, very low	--	--	--
l. Al toxicity	: No	--	--	--
m. Acid sulph. pot.	: Not relevant	Not relevant	--	--
n. Salinity (ec)	: Salt free	Salt free	--	--
o. Other toxicity	: --	--	--	--
p. Root obstr. layer	: --	--	--	--
q. Organic matter (%)	: 1.4	--	--	--
r. TEB (meq/100 g)	: 2.8	--	--	--

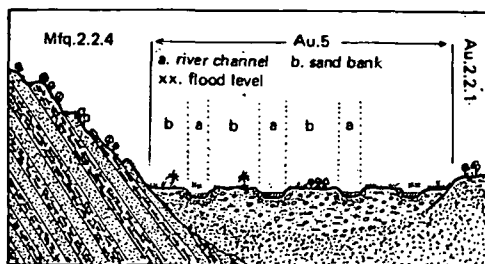
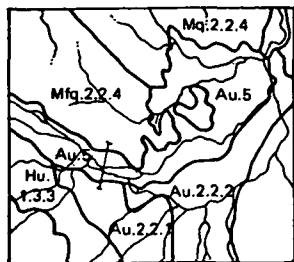
s. Total anal. profiles:	1	0	0	0
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f. LAB CHECK	: Yes	No	--	--
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27. ADDITIONAL NOTES :

MAP IMAGE :

CROSS SECTION :



1. LAND UNIT : Au.5 Flood plain of braider river, undifferentiated sediments, (undifferentiated)
2. MAP SHEET : 0717 3. AREA : 64.4 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 31/10/89 Status : Final
7. SATELLITE SCENES : 128/59/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000 10S /8348-145, 12S /8348-197
9. RADAR : STAR-1/250/88/0717-
10. PARENT MATERIAL 11. ROCK OUTCROP : 2%
- a. Weathering : Slight
- b. Lithology : sand, clay,
- c. Formation : Qh
12. WATER a. Quality : Fresh
- b. Source : Perennial river,
13. FISHERIES : River
14. RIVERS a. Floodrisk water : High b. Floodrisk sed.: High
- c. Inundation : Seasonal
15. VEGETATION/LAND USE : , bush, scrub, swamp, upland crops, wetland rice
- Area used : 10 %
16. ACCELERATED EROSION b. Evidence : Not relevant
- a. Occurrence : None
17. TERRAIN : Flat, slope < 3%, 0-50 m
18. PLAN/ Dominant: No pronounced highs/lows
- PROFILE Included:
19. RELIEF AMPLITUDE b. Variability : Medium
- a. Amplitude: Very low Maximum : 200 m
20. ALTITUDE Minimum : 10 m
- Range : 10 - 200 m
21. DRAINAGE a. Pattern: Braided b. Density : Very low
24. VALLEY-FLOOR Width : Wide
25. FRAGMEN a. Valleys: Large blocks b. Interfluves : None

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item	10b	12a	14a	14b	19	20	21b	22b	22c	22d1	22d2	22e1	23b	23c	23d	23er	24	25
------	-----	-----	-----	-----	----	----	-----	-----	-----	------	------	------	-----	-----	-----	------	----	----

rate	1	1	2	2	2	2	2	2	2	1	2	2	2	2	2	2	1	2	3
------	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

28. REPRESENTATIVE PROFILES:

igt/	/	/89/YM/0717/13/	/066/
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22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	: 1a	1b	1c	--
b. Description	: Flood plains	Flood plains	Flood plains	--
c. % of Land Unit	: 100%	100%	100%	%

SLOPES

d1. Steepness	: < 3%	< 3%	< 3%	--
d2. Slope length	: > 500 m	> 500 m	> 500 m	--
d3. Slope curvature	: Straight	Straight	Straight	--

SOILS

e1. USDA Class	: tropaquepts	fluvaquents	tropofluvents	
e2. % Facet	: 60%	25%	15%	%

23. SOIL CHARACTERISTICS

a. USDA Great Group	: tropaquepts	fluvaquents	tropofluvents	
b. Texture:				
topsoil:	Fine	Moderately fine	Coarse	--
subsoil:	Fine	Moderately fine	Coarse	--
c. Depth:				
peatsoil:	--	--	--	--
mineralsoil:	Very deep	Very deep	Deep	--
d. Drainage	: Poorly drained	Imperfectly drained	Somewhat excessively	--

NUTRIENTS :

e. Exch. K:				
topsoil:	Medium	--	--	--
subsoil:	Very low	--	--	--
f. Total K2O:				
topsoil:	Medium	--	--	--
subsoil:	Very low	--	--	--
g. Avail. P:				
method:	Bray I	--	--	--
topsoil:	Very low	--	--	--
subsoil:	Very low	--	--	--
h. Total P:				
topsoil:	Medium	--	--	--
subsoil:	Low	--	--	--

OTHERS :

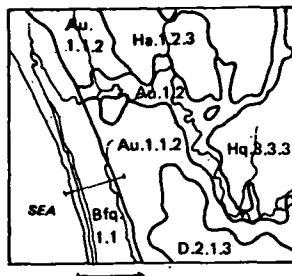
i. CEC pH 7				
topsoil:	High	--	--	--
subsoil:	High	--	--	--
j. Reaction:				
topsoil:	Excessively acid	--	--	--
subsoil:	Very strong acid	--	--	--
k. Al sat.				
topsoil:	--	--	--	--
subsoil:	--	--	--	--
l. Al toxicity	: --	--	--	--
m. Acid sulph. pot.	: Not relevant	Not relevant	Not relevant	--
n. Salinity (ec)	: Salt free	Salt free	Salt free	--
o. Other toxicity	: --	--	--	--
p. Root obstr. layer	: --	--	60 cm	--
q. Organic matter (%)	: 16.6	--	--	--
r. TEB (meq/100 g)	: 3.9	--	--	--

a. Total anal. profiles:	1	0	0	0
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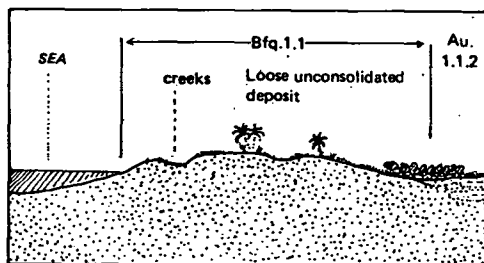
f. LAB CHECK	: Yes	No	No	--
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27. ADDITIONAL NOTES :

MAP IMAGE :



CROSS SECTION :



1. LAND UNIT : Bfq.1.1 Complex of young beach ridges and swales, fine and coarse felsic sediments
2. MAP SHEET : 0617 3. AREA : 107.0 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 31/10/89 Status : Final
7. SATELLITE SCENES : 128/58/08/08/85, 128/59/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000 10S /8348-151, 9S /8348-61
9. RADAR : STAR-1/250/88/0617-
10. PARENT MATERIAL
 - a. Weathering : Slight
 - b. Lithology : sand, clay,
 - c. Formation : Qh
11. ROCK OUTCROP : 0%
12. WATER
 - a. Quality : Saline
 - b. Source : Rain, Perennial river
13. FISHERIES : Sea
14. RIVERS
 - a. Floodrisk water : None
 - b. Floodrisk sed.: None
 - c. Inundation : Not known
15. VEGETATION/LAND USE : coastal forest on beaches, rubber
Area used : 20 %
16. ACCELERATED EROSION
 - a. Occurrence : Localised
 - b. Evidence : Various
17. TERRAIN : Flat, slope < 3%, 0-50 m
18. PLAN/PROFILE
 - Dominant: No pronounced highs/lows
 - Included:
19. RELIEF AMPLITUDE
 - a. Amplitude: Very low
 - b. Variability : Low
20. ALTITUDE
 - Minimum : 0 m
 - Maximum : 5 m
 - Range : 3 - 5 m
21. DRAINAGE
 - a. Pattern: Parallel
 - b. Density : Very low
24. VALLEY FLOOR Width : Moderate
25. FRAGMEN
 - a. Valleys: Small blocks
 - b. Interfluves : Medium blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item	10b	12a	14a	14b	19	20	21b	22b	22c	22d1	22d2	22e1	23b	23c	23d	23er	24	25
------	-----	-----	-----	-----	----	----	-----	-----	-----	------	------	------	-----	-----	-----	------	----	----

rate	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2
------	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

28. REPRESENTATIVE PROFILES:

not available

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	:	1	2	--	--
b. Description	:	Beach ridges	Swales	--	--
c. % of Land Unit	:	70%	30%	X	X

SLOPES

d1. Steepness	:	< 3%	< 3%	--	--
d2. Slope length	:	> 500 m	101 - 200 m	--	--
d3. Slope curvature	:	Convex	Concave	--	--

SOILS

e1. USDA Class	:	tropopsamments	tropaquents		
e2. % Facet	:	100%	100%	X	X

23. SOIL CHARACTERISTICS

a. USDA Great Group	:	tropopsamments	tropaquepts
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b. Texture:	topsoil:	Coarse	Moderately coarse	--	--
	subsoil:	Coarse	Moderately coarse	--	--
c. Depth:	peatsoil:	--	--	--	--
	mineralsoil:	Very deep	Very deep	--	--
d. Drainage	:	Somewhat excessively	Very poorly drained	--	--

NUTRIENTS

e. Exch. K:	topsoil:	--	--	--	--
	subsoil:	--	--	--	--
f. Total K2O:	topsoil:	--	--	--	--
	subsoil:	--	--	--	--
g. Avail. P:	method:	--	--	--	--
	topsoil:	--	--	--	--
	subsoil:	--	--	--	--
h. Total P:	topsoil:	--	--	--	--
	subsoil:	--	--	--	--

OTHERS

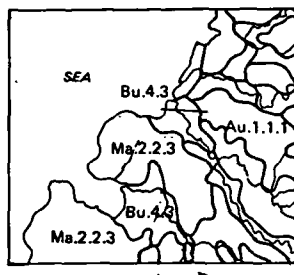
i. CEC pH 7	topsoil:	--	--	--	--
	subsoil:	--	--	--	--
j. Reaction:	topsoil:	Slightly acid	--	--	--
	subsoil:	Slightly acid	--	--	--
k. Al sat.	topsoil:	--	--	--	--
	subsoil:	--	--	--	--
l. Al toxicity	:	--	--	--	--
m. Acid sulph. pot.	:	Not relevant	Not relevant	--	--
n. Salinity (ec)	:	--	--	--	--
o. Other toxicity	:	--	--	--	--
p. Root obstr. layer	:	--	--	--	--
q. Organic matter (%)	:	--	--	--	--
r. TEB (meq/100 g)	:	--	--	--	--

s. Total anal. profiles:	0	0	0	0
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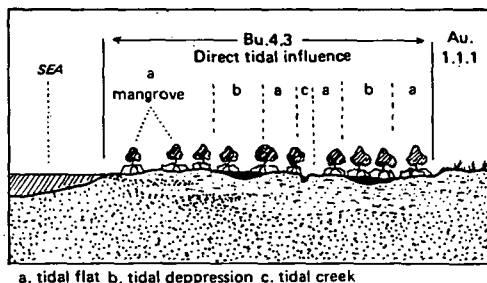
f. LAB CHECK	:	No	No	--	--
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27. ADDITIONAL NOTES :

MAP IMAGE :



CROSS SECTION :



1. LAND UNIT : Bu.4.3 Tidal flats along shore with mangrove vegetation, undifferentiated sediments, flat (slopes <3%)
2. MAP SHEET : 0617 3. AREA : 25.1 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 31/10/89 Status : Final
7. SATELLITE SCENES :
8. AERIAL PHOTOGRAPHS : 1:100.000
9. RADAR : STAR-1/250/88/0617-
10. PARENT MATERIAL
 - a. Weathering : Slight
 - b. Lithology : clay,
 - c. Formation : Qp
11. ROCK OUTCROP : 0%
12. WATER
 - a. Quality : Saline
 - b. Source : Rain, Perennial river
13. FISHERIES : Sea
14. RIVERS
 - a. Floodrisk water : High
 - b. Floodrisk sed.: High
 - c. Inundation : Permanent
15. VEGETATION/LAND USE : mangrove forest

Area used : 0 %
16. ACCELERATED EROSION
 - a. Occurrence : None
 - b. Evidence : Not relevant
17. TERRAIN : Flat, slope < 3%, 0-50 m
18. PLAN/ Dominant: No pronounced highs/lows
- PROFILE Included:
19. RELIEF AMPLITUDE
 - a. Amplitude: Very low
 - b. Variability : Low
20. ALTITUDE Minimum : 0 m

Range : 1 - 4 m

Maximum : 5 m
21. DRAINAGE a. Pattern: None

b. Density : Very low
24. VALLEY FLOOR Width : Wide
25. FRAGMEN a. Valleys: None

b. Interfluves : None

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item	10b	12a	14a	14b	19	20	21b	22b	22c	22d1	22d2	22e1	23b	23c	23d	23er	24	25
rate	1	1	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2

28. REPRESENTATIVE PROFILES:

not available

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	:	1a	1b	--	--
b. Description	:	Mudflat	Mudflat	--	--
c. % of Land Unit	:	100%	100%	X	X

SLOPES

d1. Steepness	:	< 3%	< 3%	--	--
d2. Slope length	:	> 500 m	> 500 m	--	--
d3. Slope curvature	:	Straight	Straight	--	--

SOILS

e1. USDA Class	:	hydraquents	sulfaquents		
e2. % Facet	:	70%	30%	X	X

23. SOIL CHARACTERISTICS

a. USDA Great Group	:	hydraquents	sulfaquents
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b. Texture:	topsoil:	Fine	Fine	--	--
	subsoil:	Fine	Fine	--	--
c. Depth:	peatsoil:	--	Very deep	--	--
	mineralsoil:	Very deep	Deep	--	--
d. Drainage	:	Very poorly drained	Very poorly drained	--	--

NUTRIENTS

e. Exch. K:	topsoil:	--	--	--	--
	subsoil:	--	--	--	--
f. Total K2O:	topsoil:	--	--	--	--
	subsoil:	--	--	--	--
g. Avail. P:	method:	--	--	--	--
	topsoil:	--	--	--	--
	subsoil:	--	--	--	--
h. Total P:	topsoil:	--	--	--	--
	subsoil:	--	--	--	--

OTHERS

i. CEC pH 7	topsoil:	--	--	--	--
	subsoil:	--	--	--	--
j. Reaction:	topsoil:	--	--	--	--
	subsoil:	--	--	--	--
k. Al sat.	topsoil:	--	--	--	--
	subsoil:	--	--	--	--
l. Al toxicity	:	--	--	--	--
m. Acid sulph. pot.	:	Not relevant	Not relevant	--	--
n. Salinity (ec)	:	Very slightly	Saline	--	--
o. Other toxicity	:	--	--	--	--
p. Root obetr. layer	:	--	--	--	--
q. Organic matter (%)	:	--	--	--	--
r. TEB (meq/100 g)	:	--	--	--	--

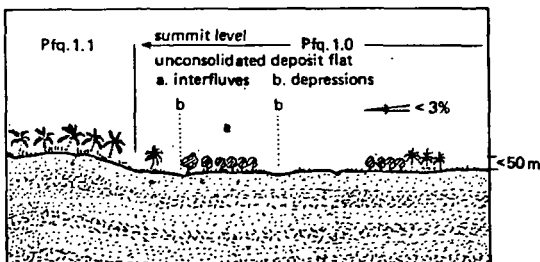
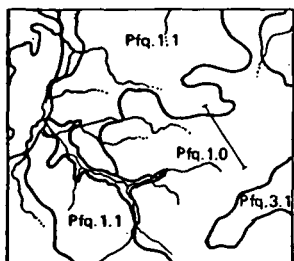
s. Total anal. profiles:	0	0	0	0
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f. LAB CHECK	:	No	No	--	--
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27. ADDITIONAL NOTES : The soil data are extrapolated from Sidikalang sheet (0618)

MAP IMAGE ::

CROSS SECTION :



1. LAND UNIT : Pfq.1.0 Plains, fine and coarse felsic sedimentary rocks, flat (slopes <3%) not dissected
2. MAP SHEET : 0717 3. AREA : 314.5 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 70%, Riau 30%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 01/11/89 Status : Final
7. SATELLITE SCENES : 128/59/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000 22 /8319-201, 25 /8320-151
9. RADAR : STAR-1/250/88/0717-
10. PARENT MATERIAL 11. ROCK OUTCROP : 0%
- a. Weathering : Partial
- b. Lithology : sand, clay,
- c. Formation : Qpml , Tup
12. WATER a. Quality : Fresh
- b. Source : Rain, Perennial river
13. FISHERIES : River
14. RIVERS a. Floodrisk water : None b. Floodrisk sed.: None
- c. Inundation : None
15. VEGETATION/LAND USE : secondary forest, grazing land, alang-alang, rainfed wetland rice, rubber, oil palm
- Area used : 80 %
16. ACCELERATED EROSION b. Evidence : Gulleys
- a. Occurrence : Localised
17. TERRAIN : Flat, slope < 3%, 0-50 m
18. PLAN/ Dominant: No pronounced highs/lows
- PROFILE Included:
19. RELIEF AMPLITUDE b. Variability : Low
- a. Amplitude: Very low
20. ALTITUDE Minimum : 32 m Maximum : 50 m
- Range : 40 - 50 m
21. DRAINAGE a. Pattern: None b. Density : Very low
24. VALLEY FLOOR Width : Moderate
25. FRAGMEN a. Valleys: Medium blocks b. Interfluvial : Large blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item | 10b | 12a | 14a | 14b | 19 | 20 | 21b | 22b | 22c | 22d1 | 22d2 | 22e1 | 23b | 23c | 23d | 23er | 24 | 25 |

rate : 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

28. REPRESENTATIVE PROFILES:

/89/SS/0717/22/ /108/

igt/ /

/81/BH/0717/34/ /009/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	:	1	2	--	--
b. Description	:	Interfluves	Depressions	--	--
c. % of Land Unit	:	60%	40%	%	%

SLOPES

d1. Steepness	:	< 3%	< 3%	--	--
d2. Slope length	:	> 500 m	101 - 200 m	--	--
d3. Slope curvature	:	Straight	Concave	--	--

SOILS

e1. USDA Class	:	hapludox	tropaquepts		
e2. % Facet	:	100%	100%	0%	%

23. SOIL CHARACTERISTICS

a. USDA Great Group	:	hapludox	tropaquepts
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b. Texture:	topsoil:	Moderately fine	Moderately coarse	--	--
	subsoil:	Moderately fine	Moderately coarse	--	--

c. Depth:	peatsoil:	--	--	--	--
	mineralsoil:	Very deep	Deep	--	--

d. Drainage	:	Well drained	Poorly drained	--	--
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NUTRIENTS :

e. Exch. K:	topsoil:	Medium	Low	--	--
	subsoil:	Very low	Low	--	--

f. Total K2O:	topsoil:	Medium	Very low	--	--
	subsoil:	Very low	Very low	--	--

g. Avail. P:	method:	Bray I	Bray I	--	--
	topsoil:	Medium	Very low	--	--
	subsoil:	Very low	Very low	--	--

h. Total P:	topsoil:	Medium	Very low	--	--
	subsoil:	Very low	Very low	--	--

OTHERS :

i. CEC pH 7	topsoil:	Very high	Low	--	--
	subsoil:	Low	Low	--	--

j. Reaction:	topsoil:	Excessively acid	Strong acid	--	--
	subsoil:	Excessively acid	Strong acid	--	--

k. Al sat.	topsoil:	Medium	--	--	--
	subsoil:	High	--	--	--

l. Al toxicity	:	No	--	--	--
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m. Acid sulph. pot.	:	Not relevant	Not relevant	--	--
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n. Salinity (ec)	:	Salt free	Salt free	--	--
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o. Other toxicity	:	--	--	--	--
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p. Root obstr. layer	:	--	--	--	--
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q. Organic matter (%)	:	8.4	3.4	--	--
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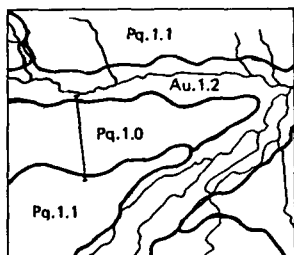
r. TEB (meq/100 g)	:	4.7	0.8	--	--
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s. Total anal. profiles:	1	1	0	0
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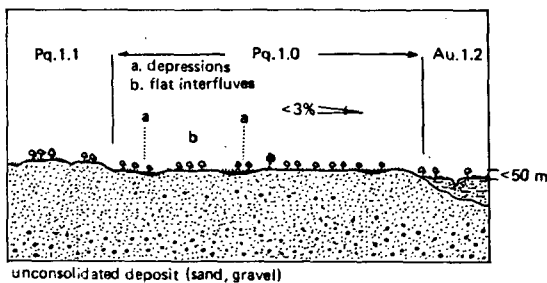
f. LAB CHECK	:	Yes	Yes	--	--
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27. ADDITIONAL NOTES :

MAP IMAGE :



CROSS SECTION :



1. LAND UNIT : Pq.1.0 Plains, coarse felsic sedimentary rocks, flat (slopes <3%), not dissected
2. MAP SHEET : 0717
3. AREA : 142.7 km²
4. OCCURRENCE by PROVINCE: Riau 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 01/11/89 Status : Final
7. SATELLITE SCENES : 127/59/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000 24 /8320-209
9. RADAR : STAR-1/250/88/0717-1/5
10. PARENT MATERIAL
 - a. Weathering : Partial
 - b. Lithology : sand,
 - c. Formation : Qp
11. ROCK OUTCROP : 0%
12. WATER
 - a. Quality : Fresh
 - b. Source : Rain, Perennial river
13. FISHERIES : River
14. RIVERS
 - a. Floodrisk water : Low
 - b. Floodrisk sed.: None
 - c. Inundation : Seasonal
15. VEGETATION/LAND USE : secondary forest, mixed gardens of fruit trees
Area used : 40 %
16. ACCELERATED EROSION
 - a. Occurrence : None
 - b. Evidence : Not relevant
17. TERRAIN : Flat, slope < 3%, 0-50 m
18. PLAN/ Dominant: No pronounced highs/lows
PROFILE Included:
19. RELIEF AMPLITUDE
 - a. Amplitude: Very low
 - b. Variability : Low
20. ALTITUDE Minimum : 20 m
Range : 30 - 40 m
Maximum : 50 m
21. DRAINAGE a. Pattern: Parallel
24. VALLEY FLOOR Width : Moderate
25. FRAGMEN a. Valleys: Medium blocks
b. Interfluvial : Large blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item	10b	12a	14a	14b	19	20	21b	22b	22c	22d1	22d2	22e1	23b	23c	23d	23er	24	25
------	-----	-----	-----	-----	----	----	-----	-----	-----	------	------	------	-----	-----	-----	------	----	----

rate	1	1	2	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1
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28. REPRESENTATIVE PROFILES:

odh/	/	/88/YM/0717/64/	/004/	igt/	/	/81/NS/0717/34/	/005/
sht/	/	/89/KR/0717/32/	/027/	est/	/	/88/SS/0717/32/	/023/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	: 1a	1b	1c	2
b. Description	: Interfluves	Interfluves	Interfluves	Depressions
c. % of Land Unit	: 75%	75%	75%	25%

SLOPES

d1. Steepness	: < 3%	< 3%	< 3%	< 3%
d2. Slope length	: 201 - 500 m	201 - 500 m	201 - 500 m	50 - 100 m
d3. Slope curvature	: Straight	Straight	Straight	Concave

SOILS

e1. USDA Class	: tropohumods	hapludox	tropopsamments	tropaquepts
e2. % Facet	: 60%	25%	15%	100%

23. SOIL CHARACTERISTICS

a. USDA Great Group	: tropohumods	hapludox	tropopsamments	tropaquepts
b. Texture:	topsoil: Moderately fine	Coarse	Coarse	Medium
	subsoil: Medium	Moderately coarse	Coarse	Medium
c. Depth:	peatsoil: --	--	--	--
	mineralsoil: Deep	Very deep	Very deep	Deep
d. Drainage	: Moderately well	Moderately well	Moderately well	Poorly drained

NUTRIENTS :

e. Exch. K:	topsoil: Very low	Very low	Very low	Low
	subsoil: Very low	Very low	Very low	Low
f. Total K2O:	topsoil: Very low	Very low	Very low	Very low
	subsoil: Very low	Very low	Very low	Very low
g. Avail. P:	method: Bray I	Bray I	Bray I	Bray I
	topsoil: Very high	Very low	Low	Very low
	subsoil: Very low	Very low	Very low	Low
h. Total P:	topsoil: Very high	Very low	Low	Low
	subsoil: Very low	Very low	Very low	Low

OTHERS :

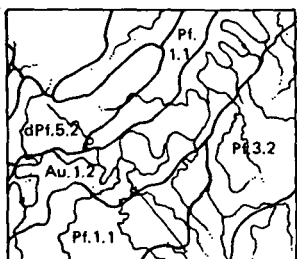
i. CEC pH 7	topsoil: Low	Very low	Low	Medium
	subsoil: Very low	Very low	Very low	Medium
j. Reaction:	topsoil: Very strong acid	Excessively acid	Very strong acid	Very strong acid
	subsoil: Very strong acid	Excessively acid	Strong acid	Very strong acid
k. Al sat.	topsoil: --	Medium	--	--
	subsoil: --	High	--	--
l. Al toxicity	: --	No	--	--
m. Acid sulph. pot.	: Not relevant	Not relevant	Not relevant	Not relevant
n. Salinity (ec)	: Salt free	Salt free	Salt free	Salt free
o. Other toxicity	: --	--	--	--
p. Root obstr. layer	: --	--	--	--
q. Organic matter (%)	: 5.4	2.7	6.6	5.4
r. TEB (meq/100 g)	: 11.0	0.7	0.5	1.0

s. Total anal. profiles:	1	1	1	1
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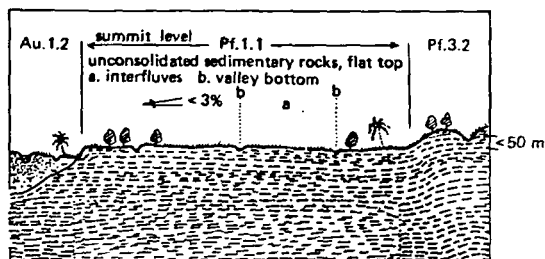
f. LAB CHECK	: Yes	Yes	Yes	Yes
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27. ADDITIONAL NOTES : The soil data of Tropohumods, Tropaquepts and Tropopsamments are extrapolated from Land Unit Pg.1.1

MAP IMAGE :



CROSS SECTION :



1. LAND UNIT : Pf.1.1 Plains, fine felsic sedimentary rocks, flat (slopes <3%), slightly dissected
2. MAP SHEET : 0717 3. AREA : 149.0 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 31/10/89 Status : Final
7. SATELLITE SCENES : 128/59/08/08/85, 128/58/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000 155 /8319-177, 145 /8319-85
9. RADAR : STAR-1/250/88/0717-
10. PARENT MATERIAL
11. ROCK OUTCROP : 0%
- a. Weathering : Partial
- b. Lithology : clay, claystone,
- c. Formation : Tmt ,
12. WATER a. Quality : Fresh
- b. Source : Rain, Perennial river
13. FISHERIES : River
14. RIVERS
- a. Floodrisk water : Low
- b. Floodrisk sed.: Low
- c. Inundation : Seasonal
15. VEGETATION/LAND USE : , bush, scrub, savanna, upland crops, rainfed wetland rice
- Area used : 50 %
16. ACCELERATED EROSION
- a. Occurrence : None
- b. Evidence : Not relevant
17. TERRAIN : Flat, slope < 3%, 0-50 m
18. PLAN/ Dominant: No pronounced highs/low
- PROFILE Included:
19. RELIEF AMPLITUDE
- a. Amplitude: Very low
- b. Variability : Low
20. ALTITUDE Minimum : 50 m
- Maximum : 60 m
- Range : 55 - 60 m
21. DRAINAGE a. Pattern: Dendritic
- b. Density : Low
24. VALLEY FLOOR Width : Narrow
25. FRAGMEN a. Valleys: Small blocks
- b. Interfluvies : Large blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item | 10b | 12a | 14a | 14b | 19 | 20 | 21b | 22b | 22c | 22d1 | 22d2 | 22e1 | 23b | 23c | 23d | 23er | 24 | 25 |

rate : 2 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 2 | 2 |

28. REPRESENTATIVE PROFILES:

ity/ / /88/CD/0717/24/ /017/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	:	1	2	--	--
b. Description	:	Interfluvies	Depressions	--	--
c. % of Land Unit	:	65%	35%	X	X

SLOPES

d1. Steepness	:	< 3%	< 3%	--	--
d2. Slope length	:	101 - 200 m	50 - 100 m	--	--
d3. Slope curvature	:	Straight	Concave	--	--

SOILS

e1. USDA Class	:	dystropepts	tropaquepts		
e2. % Facet	:	100%	100%	X	X

23. SOIL CHARACTERISTICS

a. USDA Great Group	:	dystropepts	tropaquepts		
b. Texture:					
topsoil:	Moderately coarse	Medium	--	--	
subsoil:	Moderately fine	Moderately coarse	--	--	
c. Depth:					
peatsoil:	--	--	--	--	
mineralsoil:	Deep	Deep	--	--	
d. Drainage	:	Well drained	Very poorly drained	--	--

NUTRIENTS :

e. Exch. K:					
topsoil:	Low	--	--	--	
subsoil:	Very low	--	--	--	
f. Total K2O:					
topsoil:	Very low	--	--	--	
subsoil:	Very low	--	--	--	
g. Avail. P:					
method:	Bray I	--	--	--	
topsoil:	Very low	--	--	--	
subsoil:	Very low	--	--	--	
h. Total P:					
topsoil:	Very low	--	--	--	
subsoil:	Very low	--	--	--	

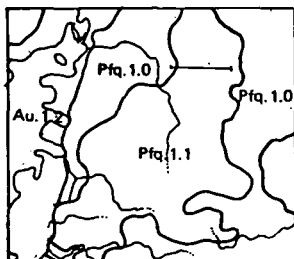
OTHERS :

i. CEC pH 7					
topsoil:	High	--	--	--	
subsoil:	Medium	--	--	--	
j. Reaction:					
topsoil:	Excessively acid	Strong acid	--	--	
subsoil:	Very strong acid	Strong acid	--	--	
k. Al sat.					
topsoil:	High	--	--	--	
subsoil:	High	--	--	--	
l. Al toxicity	:	No	--	--	
m. Acid sulph. pot.	:	Not relevant	Not relevant	--	--
n. Salinity (ec)	:	Salt free	Salt free	--	--
o. Other toxicity	:	--	--	--	--
p. Root obstr. layer	:	78 cm	--	--	--
q. Organic matter (%)	:	3.1	--	--	--
r. TEB (meq/100 g)	:	1.0	--	--	--

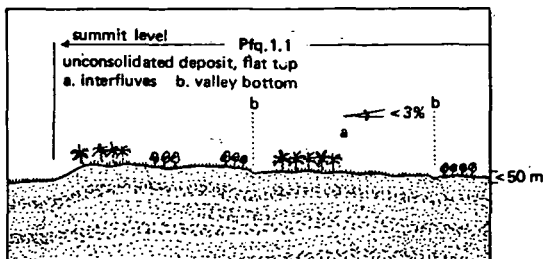
s. Total anal. profiles:	1	0	0	0
f. LAB CHECK	:	Yes	No	--

27. ADDITIONAL NOTES :

MAP IMAGE :



CROSS SECTION :



1. LAND UNIT : Pfq.1.1 Plains, fine and coarse felsic sedimentary rocks, flat (slopes <3%), slightly dissected
2. MAP SHEET : 0717 3. AREA : 239.4 km² 4. OCCURRENCE by PROVINCE: Riau 60%, Sumatera Utara 40%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 01/11/89 Status : Final
7. SATELLITE SCENES : 128/59/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000 22 /8319-119
9. RADAR : STAR-1/250/88/0717-
10. PARENT MATERIAL
11. ROCK OUTCROP : 0%
- a. Weathering : Partial
- b. Lithology : claystone; sandstone,
- c. Formation : Qpmi
12. WATER a. Quality : Fresh
- b. Source : Rain, Perennial river
13. FISHERIES : River
14. RIVERS
- a. Floodrisk water : None
- b. Floodrisk sed.: None
- c. Inundation : None
15. VEGETATION/LAND USE : , grazing land, alang-alang, rainfed wetland rice, rubber
- Area used : 90 %
16. ACCELERATED EROSION
- a. Occurrence : None
- b. Evidence : Landslips
17. TERRAIN : Flat, slope < 3%, 0-50 m
18. PLAN/ Dominant: No pronounced highs/lows
- PROFILE Included:
19. RELIEF AMPLITUDE
- a. Amplitude: Very low
- b. Variability : Low
20. ALTITUDE Minimum : 100 m
- Maximum : 115 m
- Range : 100 - 115 m
21. DRAINAGE a. Pattern: Dendritic
- b. Density : Low
24. VALLEY FLOOR Width : Wide
25. FRAGMEN a. Valleys: Medium blocks
- b. Interfluvies : Large blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item	10b	12a	14a	14b	19	20	21b	22b	22c	22d1	22d2	22e1	23b	23c	23d	23er	24	25
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rate	1	1	1	1	2	2	2	2	2	1	1	1	1	1	1	1	1	1
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28. REPRESENTATIVE PROFILES:

igt/	/	/81/NS/0717/34/	/010/
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odh/	/	/88/JH/0717/54/	/137/
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odh/	/	/88/JH/0717/54/	/139/
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22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	:	1	2	--	--
b. Description	:	Interfluves	Depression	--	--
c. % of Land Unit	:	60%	40%	X	X

SLOPES

d1. Steepness	:	< 3%	< 3%	--	--
d2. Slope length	:	201 - 500 m	50 - 100 m	--	--
d3. Slope curvature	:	Straight	Concave	--	--

SOILS

e1. USDA Class	:	hapludox	tropaquepts		
e2. % Facet	:	100%	100%	X	X

23. SOIL CHARACTERISTICS

a. USDA Great Group	:	hapludox	tropaquepts		
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b. Texture:	topsoil:	Coarse	Coarse	--	--
	subsoil:	Coarse	Coarse	--	--
c. Depth:	peatsoil:	--	--	--	--
	mineralsoil:	Very deep	Deep	--	--
d. Drainage	:	Well drained	Poorly drained	--	--

NUTRIENTS :

e. Exch. K:	topsoil:	Very low	Low	--	--
	subsoil:	Very low	Low	--	--
f. Total K2O:	topsoil:	Very low	Very low	--	--
	subsoil:	Very low	Very low	--	--
g. Avail. P:	method:	Bray I	Bray I	--	--
	topsoil:	Very low	Low	--	--
	subsoil:	Very low	Low	--	--
h. Total P:	topsoil:	Very low	Very low	--	--
	subsoil:	Very low	Very low	--	--

OTHERS :

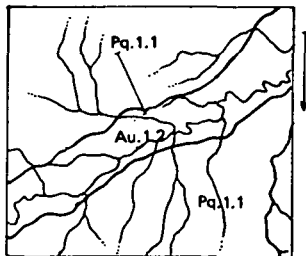
i. CEC pH 7	topsoil:	Very low	Medium	--	--
	subsoil:	Very low	Low	--	--
j. Reaction:	topsoil:	Excessively acid	Strong acid	--	--
	subsoil:	Excessively acid	Strong acid	--	--
k. Al sat.	topsoil:	Medium	--	--	--
	subsoil:	Medium	--	--	--
l. Al toxicity	:	No	--	--	--
m. Acid sulph. pot.	:	Not relevant	Not relevant	--	--
n. Salinity (ec)	:	Salt free	Salt free	--	--
o. Other toxicity	:	--	--	--	--
p. Root obstr. layer	:	--	--	--	--
q. Organic matter (%)	:	3.2	5.2	--	--
r. TEB (meq/100 g)	:	0.8	0.8	--	--

s. Total anal. profiles:	2	1	0	0
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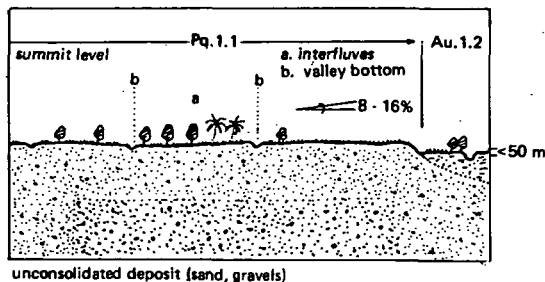
f. LAB CHECK	:	Yes	Yes	--	--
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27. ADDITIONAL NOTES :

MAP IMAGE :



CROSS SECTION :



1. LAND UNIT : Pq.1.1 Plains, coarse felsic sedimentary rocks, flat (slopes <3%), slightly dissected
2. MAP SHEET : 0717 3. AREA : 757.1 km² 4. OCCURRENCE by PROVINCE: Riau 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 01/11/89 Status : Final
7. SATELLITE SCENES : 128/59/08/08/85, 127/59/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000 25 /8320-163, 24 /8320-209
9. RADAR : STAR-1/250/88/0717-2/3
10. PARENT MATERIAL
11. ROCK OUTCROP : 0%
- a. Weathering : Partial
- b. Lithology : sand, ,
- c. Formation : Qp ,
12. WATER a. Quality : Fresh
- b. Source : Rain, Perennial river
13. FISHERIES : River
14. RIVERS
- a. Floodrisk water : Low b. Floodrisk sed.: Low
- c. Inundation : Seasonal
15. VEGETATION/LAND USE : secondary forest, bush, scrub, shifting cultivation, upland crops
- Area used : 30 %
16. ACCELERATED EROSION
- a. Occurrence : None b. Evidence : Not relevant
17. TERRAIN : Flat, slope < 3%, 0-50 m
18. PLAN/ Dominant: No pronounced highs/lows
- PROFILE Included:
19. RELIEF AMPLITUDE
- a. Amplitude: Very low b. Variability : Low
20. ALTITUDE Minimum : 60 m Maximum : 80 m
- Range : 65 - 75 m
21. DRAINAGE a. Pattern: Parallel b. Density : Low
24. VALLEY FLOOR Width : Moderate
25. FRAGMEN a. Valleys: Medium blocks b. Interfluvies : Large blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item | 10b | 12a | 14a | 14b | 19 | 20 | 21b | 22b | 22c | 22d1 | 22d2 | 22e1 | 23b | 23c | 23d | 23er | 24 | 25 |

rate : 1 | 1 | 1 | 1 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

28. REPRESENTATIVE PROFILES:

sht/	/	/89/KR/0717/32/	/027/	odh/	/	/88/YH/0717/34/	/048/
odh/	/	/88/KR/0717/32/	/022/	igt/	/	/81/NS/0717/34/	/005/
est/	/	/88/SS/0717/32/	/023/				

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	: 1a	1b	1c	2
b. Description	: Interfluves	Interfluves	Interfluves	Depressions
c. % of Land Unit	: 75%	75%	75%	25%

SLOPES

d1. Steepness	: < 3%	< 3%	< 3%	< 3%
d2. Slope length	: 201 - 500 m	201 - 500 m	201 - 500 m	50 - 100 m
d3. Slope curvature	: Straight	Straight	Straight	Concave

SOILS

e1. USDA Class	: tropohumods	hapludox	tropopsamments	tropaquepts
e2. % Facet	: 60%	25%	15%	100%

23. SOIL CHARACTERISTICS

a. USDA Great Group	: tropohumods	hapludox	tropopsamments	tropaquepts
b. Texture:	topsoil: Moderately fine	Coarse	Coarse	Medium
	subsoil: Medium	Moderately coarse	Coarse	Medium
c. Depth:	peatsoil: --	--	--	--
	mineralsoil: Deep	Very deep	Deep	Deep
d. Drainage	: Moderately well	Moderately well	Moderately well	Poorly drained

NUTRIENTS

e. Exch. K:	topsoil: Very low	Very low	Very low	Low
	subsoil: Very low	Very low	Very low	Low
f. Total K2O:	topsoil: Very low	Very low	Very low	Very low
	subsoil: Very low	Very low	Very low	Very low
g. Avail. P:	method: Bray I	Bray I	Bray I	Bray I
	topsoil: Very high	Very low	Low	Very low
	subsoil: Very low	Very low	Very low	Low
h. Total P:	topsoil: Very high	Very low	Low	Low
	subsoil: Very low	Very low	Very low	Medium

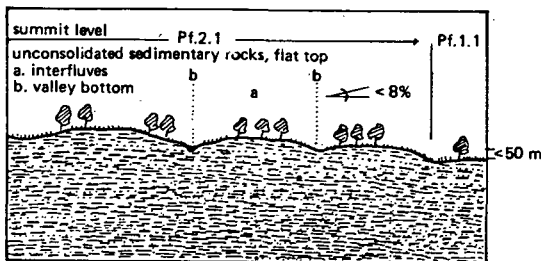
OTHERS

i. CEC pH 7	topsoil: Low	High	Low	Medium
	subsoil: Very low	Low	Very low	Medium
j. Reaction:	topsoil: Very strong acid	Excessively acid	Very strong acid	Very strong acid
	subsoil: Very strong acid	Excessively acid	Very strong acid	Very strong acid
k. Al sat.	topsoil: High	Medium	--	--
	subsoil: Medium	Medium	--	--
l. Al toxicity	: No	No	--	--
m. Acid sulph. pot.	: Not relevant	Not relevant	Not relevant	Not relevant
n. Salinity (ec)	: Salt free	Salt free	Salt free	Salt free
o. Other toxicity	: --	--	--	--
p. Root obstr. layer	: --	--	85 cm	--
q. Organic matter (%)	: 5.4	1.3	6.6	5.4
r. TEB (meq/100 g)	: 11.0	2.7	0.5	1.0

s. Total anal. profiles:	1	2	1	1
f. LAB CHECK	: Yes	Yes	Yes	Yes

27. ADDITIONAL NOTES :

CROSS SECTION :



1. LAND UNIT : Pf.2.1
Plains, fine felsic sedimentary rocks, flat to undulating (slopes <8%), slightly dissected
2. MAP SHEET : 0717 3. AREA : 103.8 km2 4. OCCURRENCE by PROVINCE: Sumatera Utara 60%, Riau 40%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 31/10/89 Status : Final
7. SATELLITE SCENES : 128/58/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000 155 /8319-177, 22 /8319-213
9. RADAR : STAR-1/250/88/0717-
10. PARENT MATERIAL 11. ROCK OUTCROP : 0%
- a. Weathering : Partial
- b. Lithology : clay, claystone,
- c. Formation : Tup , Tmt
12. WATER a. Quality : Fresh
- b. Source : Rain, Perennial river
13. FISHERIES : River
14. RIVERS
- a. Floodrisk water : None b. Floodrisk sed.: None
- c. Inundation : None
15. VEGETATION/LAND USE : , bush, scrub, alang-alang, oil palm
- Area used : 60 %
16. ACCELERATED EROSION
- a. Occurrence : Localised b. Evidence : Various
17. TERRAIN : Flat to undulating (0-8%)
18. PLAN/ Dominant: No pronounced highs/low
- PROFILE Included:
19. RELIEF AMPLITUDE
- a. Amplitude: Low b. Variability : Low
20. ALTITUDE Minimum : 50 m Maximum : 75 m
- Range : 50 - 60 m
21. DRAINAGE a. Pattern: Dendritic b. Density : Low
24. VALLEY FLOOR Width : Narrow
25. FRAGMEN a. Valleys: Small blocks b. Interfluves : Large blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item	10b	12a	14a	14b	19	20	21b	22b	22c	22d1	22d2	22e1	23b	23c	23d	23er	24	25
------	-----	-----	-----	-----	----	----	-----	-----	-----	------	------	------	-----	-----	-----	------	----	----

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rate : 1 | 1 | 2 | 2 | 2 | 2 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 2 | 1 |
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28. REPRESENTATIVE PROFILES:

ity/ / /88/CD/0717/24/ /017/ uda/ / /88/KR/0717/31/ /004/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	:	1a	1b	2	--
b. Description	:	Interfluves	Interfluves	Valley bottoms	--
c. % of Land Unit	:	80%	80%	20%	X

SLOPES

d1. Steepness	:	3 - 8%	3 - 8%	< 3%	--
d2. Slope length	:	101 - 200 m	101 - 200 m	< 50 m	--
d3. Slope curvature	:	Straight	Straight	Concave	--

SOILS

e1. USDA Class	:	dystropepts	hapludults	tropaquepts	
e2. % Facet	:	60%	40%	100%	X

23. SOIL CHARACTERISTICS

a. USDA Great Group	:	dystropepts	hapludults	tropaquepts	
---------------------	---	-------------	------------	-------------	--

b. Texture:	topsoil:	Moderately coarse	Moderately fine	Medium	--
	subsoil:	Moderately fine	Moderately fine	Moderately coarse	--
c. Depth:	peatsoil:	--	--	--	--
	mineralsoil:	Deep	Extremely deep	Deep	--
d. Drainage	:	Imperfectly drained	Well drained	Very poorly drained	--

NUTRIENTS :

e. Exch. K:	topsoil:	Low	High	--	--
	subsoil:	Very low	Low	--	--
f. Total K2O:	topsoil:	Very low	Very high	--	--
	subsoil:	Very low	Low	--	--
g. Avail. P:	method:	Bray I	Bray I	--	--
	topsoil:	Very low	Medium	--	--
	subsoil:	Very low	Very low	--	--
h. Total P:	topsoil:	Very low	Medium	--	--
	subsoil:	Very low	Low	--	--

OTHERS :

i. CEC pH 7	topsoil:	Low	Medium	--	--
	subsoil:	Very low	Low	--	--
j. Reaction:	topsoil:	Excessively acid	Very strong acid	Strong acid	--
	subsoil:	Very strong acid	Very strong acid	Strong acid	--
k. Al sat.	topsoil:	High	None, very low	--	--
	subsoil:	High	High	--	--
l. Al toxicity	:	--	--	--	--
m. Acid sulph. pot.	:	Not relevant	Not relevant	Not relevant	--
n. Salinity (ec)	:	Salt free	Salt free	Salt free	--
o. Other toxicity	:	--	--	--	--
p. Root obstr. layer	:	--	--	--	--
q. Organic matter (%)	:	3.1	4.4	--	--
r. TEB (meq/100 g)	:	0.8	7.4	--	--

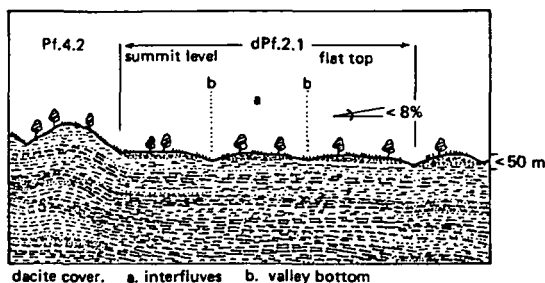
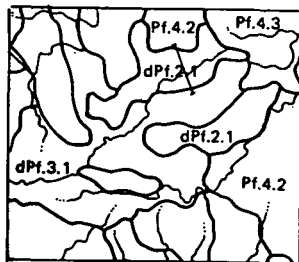
s. Total anal. profiles:	1	1	0	0
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f. LAB CHECK	:	Yes	Yes	No	--
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27. ADDITIONAL NOTES : The soil data of Dystropepts & Tropaquepts are extrapolated from
LU Pf.1.1 and the data of Hapludults are from LU Pf.3.1

MAP IMAGE :

CROSS SECTION :



1. LAND UNIT : dPf.2.1 Plains, fine felsic sedimentary rocks, flat to undulating (slopes <8%), covered with acid tuffs, slightly dissected

2. MAP SHEET : 0717 3. AREA : 16.5 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%

5. STATUS IDENTIFIERS : Updated by : SS Edit date: 05/09/90 Status : Final

7. SATELLITE SCENES : 128/58/08/08/85

8. AERIAL PHOTOGRAPHS : 1:100.000 22 /8319-213

9. RADAR : STAR-1/250/88/0717-4

10. PARENT MATERIAL

11. ROCK OUTCROP : 0%

a. Weathering : Partial

b. Lithology : clay, liparite,

c. Formation : Tmt

12. WATER

a. Quality : Fresh

b. Source : Rain, Perennial river

13. FISHERIES : Not known

14. RIVERS

a. Floodrisk water : None

b. Floodrisk sed.: None

c. Inundation : Not relevant

15. VEGETATION/LAND USE : , bush, scrub, alang-alang, upland crops, mixed gardens of fruit trees, rainfed wetland rice

Area used : 80 %

16. ACCELERATED EROSION

a. Occurrence : Localised

b. Evidence : Various

17. TERRAIN : Flat to undulating (0-8%)

18. PLAN/ Dominant: Not elongated and random 40-60% of area crested/peaked

PROFILE Included:

19. RELIEF AMPLITUDE

a. Amplitude: Low

b. Variability : Medium

20. ALTITUDE Minimum : 50 m

Maximum : 75 m

Range : 55 - 60 m

21. DRAINAGE a. Pattern: Dendritic

b. Density : Low

24. VALLEY FLOOR Width : Narrow

25. FRAGMEN a. Valleys: Medium blocks

b. Interfluves : Large blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item | 10b | 12a | 14a | 14b | 19 | 20 | 21b | 22b | 22c | 22d1 | 22d2 | 22e1 | 23b | 23c | 23d | 23er | 24 | 25 |

rate : 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 2 | 2 |

28. REPRESENTATIVE PROFILES:

odh/ / /89/SS/0717/22/ /112/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	:	1	2	--	--
b. Description	:	Interfluves	Valley bottoms	--	--
c. % of Land Unit	:	85%	15%	X	X

SLOPES

d1. Steepness	:	0 - 8%	< 3%	--	--
d2. Slope length	:	101 - 200 m	50 - 100 m	--	--
d3. Slope curvature	:	Straight	Concave	--	--

SOILS

e1. USDA Class	:	hapludults	tropaquepts		
e2. % Facet	:	100%	100%	X	X

23. SOIL CHARACTERISTICS

a. USDA Great Group	:	hapludults	tropaquepts		
b. Texture:					
topsoil:	Fine	Moderately coarse	--	--	
subsoil:	Fine	Moderately fine	--	--	
c. Depth:					
peatsoil:	--	--	--	--	
mineralsoil:	Deep	Moderately deep	--	--	
d. Drainage	:	Well drained	Poorly drained	--	--

NUTRIENTS

e. Exch. K:					
topsoil:	Medium	--	--	--	
subsoil:	Medium	--	--	--	
f. Total K2O:					
topsoil:	Medium	--	--	--	
subsoil:	Medium	--	--	--	
g. Avail. P:					
method:	Bray I	--	--	--	
topsoil:	Very low	--	--	--	
subsoil:	Very low	--	--	--	
h. Total P:					
topsoil:	Very low	--	--	--	
subsoil:	Very low	--	--	--	

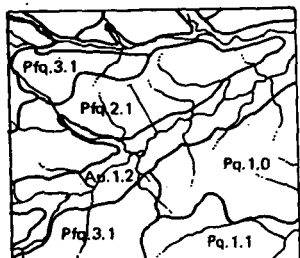
OTHERS

i. CEC pH 7					
topsoil:	Medium	--	--	--	
subsoil:	High	--	--	--	
j. Reaction:					
topsoil:	Very strong acid	--	--	--	
subsoil:	Very strong acid	--	--	--	
k. Al sat.					
topsoil:	Medium	--	--	--	
subsoil:	High	--	--	--	
l. Al toxicity	:	No	--	--	
m. Acid sulph. pot.	:	Not relevant	Not relevant	--	--
n. Salinity (ec)	:	Salt free	Salt free	--	--
o. Other toxicity	:	--	--	--	--
p. Root obstr. layer	:	--	--	--	--
q. Organic matter (%)	:	2.3	--	--	--
r. TEB (meq/100 g)	:	9.7	--	--	--

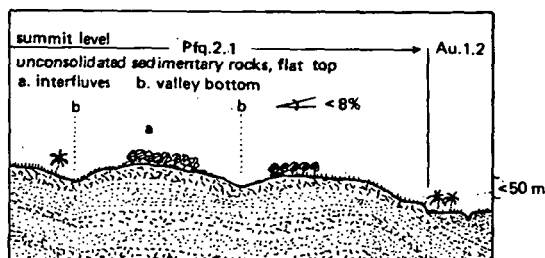
a. Total anal. profiles:	1	0	0	0	
f. LAB CHECK	:	Yes	No	--	--

27. ADDITIONAL NOTES : The soil data of Hapludults are extrapolated from dPf.5.2

MAP IMAGE :



CROSS SECTION :



1. LAND UNIT : Pfq.2.1 Plains, fine and coarse felsic sedimentary rocks, flat to undulating (slopes <8%), slightly dissected
2. MAP SHEET : 0717 3. AREA : 195.3 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 30%, Riau 70%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 01/11/89 Status : Final
7. SATELLITE SCENES : 128/59/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000 25 /8320-153, 25 /8320-152, 12S /8320-105
9. RADAR : STAR-1/250/88/0717-
10. PARENT MATERIAL 11. ROCK OUTCROP : 0%
- a. Weathering : Partial
- b. Lithology : claystone, sandstone,
- c. Formation : Qpmi
12. WATER a. Quality : Fresh
- b. Source : Rain, Perennial river
13. FISHERIES : River
14. RIVERS
- a. Floodrisk water : None b. Floodrisk sed.: None
- c. Inundation : None
15. VEGETATION/LAND USE : logged forest, bush, scrub, grazing land, alang-alang, rainfed wetland rice, rubber
- Area used : 60 %
16. ACCELERATED EROSION
- a. Occurrence : Localised b. Evidence : Various
17. TERRAIN : Flat to undulating (0-8%)
18. PLAN/ PROFILE Dominant: Not elongated and random > 60% of area flat-topped
- PROFILE Included:
19. RELIEF AMPLITUDE
- a. Amplitude: Very low b. Variability : Low
20. ALTITUDE Minimum : 50 m Maximum : 125 m
- Range : 75 - 90 m
21. DRAINAGE a. Pattern: Dendritic b. Density : Low
24. VALLEY FLOOR Width : Narrow
25. FRAGMEN a. Valleys: Medium blocks b. Interfluvial : Large blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item	10b	12a	14a	14b	19	20	21b	22b	22c	22d1	22d2	22e1	23b	23c	23d	23er	24	25
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rate	1	1	1	1	2	2	2	2	2	1	1	1	1	1	1	1	1	1
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28. REPRESENTATIVE PROFILES:

odh/	/	/89/SS/0717/22/	/112/	udk/	/	/89/KR/0717/32/	/069/
odh/	/	/88/YH/0717/64/	/001/				

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	:	1a	1b	2	--
b. Description	:	Interfluves	Interfluves	Valley bottoms	--
c. % of Land Unit	:	85%	85%	15%	1

SLOPES

d1. Steepness	:	0 - 8%	0 - 8%	< 3%	--
d2. Slope length	:	101 - 200 m	101 - 200 m	50 - 100 m	--
d3. Slope curvature	:	Straight	Straight	Concave	--

SOILS

e1. USDA Class	:	hapludox	kandiudults	tropaquepts	
e2. % Facet	:	60%	40%	100%	1

23. SOIL CHARACTERISTICS

a. USDA Great Group	:	hapludox	kandiudults	tropaquepts	
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b. Texture:	topsoil:	Moderately fine	Moderately coarse	Coarse	--
	subsoil:	Moderately fine	Moderately fine	Coarse	--
c. Depth:	peatsoil:	--	--	--	--
	mineralsoil:	Very deep	Very deep	Deep	--
d. Drainage	:	Well drained	Well drained	--	--

NUTRIENTS :

e. Exch. K:	topsoil:	Low	Very low	--	--
	subsoil:	Very low	Very low	--	--
f. Total K2O:	topsoil:	Low	Very low	--	--
	subsoil:	Low	Very low	--	--
g. Avail. P:	method:	Bray I	Bray I	--	--
	topsoil:	Very low	Low	--	--
	subsoil:	Very low	Very low	--	--
h. Total P:	topsoil:	Low	Low	--	--
	subsoil:	Very low	Very low	--	--

OTHERS :

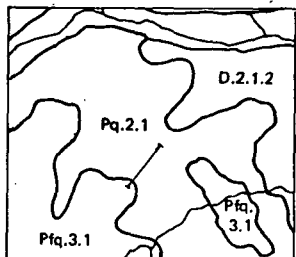
i. CEC pH 7	topsoil:	Low	Low	--	--
	subsoil:	Low	Very low	--	--
j. Reaction:	topsoil:	Excessively acid	Strong acid	Strong acid	--
	subsoil:	Excessively acid	Very strong acid	Strong acid	--
k. Al sat.	topsoil:	Low	Low	--	--
	subsoil:	High	High	--	--
l. Al toxicity	:	No	No	--	--
m. Acid sulph. pot.	:	Not relevant	Not relevant	Not relevant	--
n. Salinity (ec)	:	Salt free	Salt free	Salt free	--
o. Other toxicity	:	--	--	--	--
p. Root obstr. layer	:	--	149 cm	--	--
q. Organic matter (%)	:	5.3	4.0	--	--
r. TEB (meq/100 g)	:	1.3	1.8	--	--

s. Total anal. profiles:	1	2	0	0
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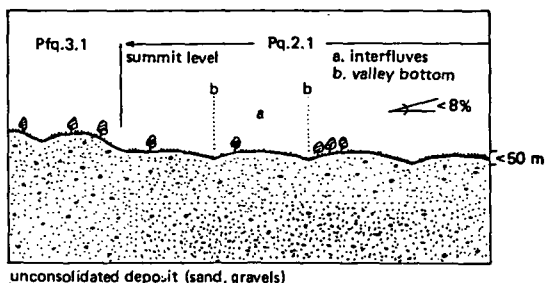
f. LAB CHECK	:	Yes	Yes	No	--
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27. ADDITIONAL NOTES :

MAP IMAGE :



CROSS SECTION :



1. LAND UNIT : Pq.2.1 Plains, coarse felsic sedimentary rocks, flat to undulating (slopes <8%), slightly dissected
2. MAP SHEET : 0717 3. AREA : 178.3 km² 4. OCCURRENCE by PROVINCE: Riau 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 01/11/89 Status : Final
7. SATELLITE SCENES : 128/59/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000 24 /8320-211
9. RADAR : STAR-1/250/88/0717-3-5
10. PARENT MATERIAL 11. ROCK OUTCROP : 0%
- a. Weathering : Partial
- b. Lithology : sand, ,
- c. Formation : Qp ,
12. WATER a. Quality : Fresh
- b. Source : Rain, Perennial river
13. FISHERIES : River
14. RIVERS
- a. Floodrisk water : None
- b. Floodrisk sed.: None
15. VEGETATION/LAND USE : , bush, scrub, rainfed wetland rice
- Area used : 30 %
16. ACCELERATED EROSION
- a. Occurrence : Localised
- b. Evidence : Various
17. TERRAIN : Flat to undulating (0-8%)
18. PLAN/ Dominant: No pronounced highs/lows
- PROFILE Included:
19. RELIEF AMPLITUDE
- a. Amplitude: Very low
- b. Variability : Low
20. ALTITUDE Minimum : 50 m
- Maximum : 75 m
- Range : 60 - 70 m
21. DRAINAGE a. Pattern: Dendritic
24. VALLEY FLOOR Width : Narrow
25. FRAGMEN a. Valleys: Small blocks
- b. Interfluvies : Large blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item | 10b | 12a | 14a | 14b | 19 | 20 | 21b | 22b | 22c | 22d1 | 22d2 | 22e1 | 23b | 23c | 23d | 23er | 24 | 25 |

rate : 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

28. REPRESENTATIVE PROFILES:

odh/ / /89/KR/0717/34/ /025/

odh/ / /89/JH/0717/54/ /135/

sht/ / /89/KR/0717/32/ /027/

est/ / /88/SS/0717/32/ /023/

odh/ / /88/JH/0717/54/ /140/

odh/ / /87/KR/0717/54/ /088/

odh/ / /88/YH/0717/34/ /050/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	: 1a	1b	1c	2
b. Description	: Interfluves	Interfluves	Interfluves	Depressions
c. % of Land Unit	: 85%	85%	85%	15%

SLOPES

d1. Steepness	: 0 - 8%	0 - 8%	0 - 8%	< 3%
d2. Slope length	: 101 - 200 m	101 - 200 m	101 - 200 m	50 - 100 m
d3. Slope curvature	: Straight	Straight	Convex	Concave

SOILS

e1. USDA Class	: tropohumods	hapludox	tropopsamments	tropaquepts
e2. % Facet	: 60%	30%	10%	100%

23. SOIL CHARACTERISTICS

a. USDA Great Group	: tropohumods	hapludox	tropopsamments	tropaquepts
b. Texture:	topsoil: Moderately coarse	Moderately coarse	Coarse	Medium
	subsoil: Moderately coarse	Moderately coarse	Coarse	Medium
c. Depth:	peatsoil: --	--	--	--
	mineralsoil: Moderately deep	Very deep	Deep	Deep
d. Drainage	: Moderately well	Well drained	Moderately well	Poorly drained

NUTRIENTS

e. Exch. K:	topsoil: Very low	Medium	Very low	--
	subsoil: Very low	Very low	Very low	--
f. Total K2O:	topsoil: Very low	Medium	Very low	--
	subsoil: Very low	Very low	Very low	--
g. Avail. P:	method: Bray I	Bray I	Bray I	--
	topsoil: Very low	Very high	Low	
	subsoil: Very low	Very low	Very low	
h. Total P:	topsoil: High	Low	Low	--
	subsoil: Very low	Very low	Very low	--

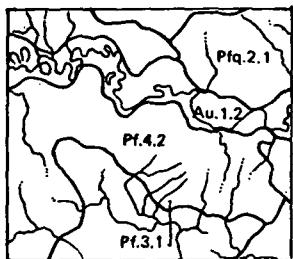
OTHERS

i. CEC pH 7	topsoil: High	Very high	Low	--
	subsoil: Medium	Low	Very low	--
j. Reaction:	topsoil: Excessively acid	Excessively acid	Very strong acid	Very strong acid
	subsoil: Very strong acid	Excessively acid	Very strong acid	Very strong acid
k. Al sat.	topsoil: High	Medium	--	--
	subsoil: Medium	High	--	--
l. Al toxicity	: No	No	--	--
m. Acid sulph. pot.	: Not relevant	Not relevant	Not relevant	Not relevant
n. Salinity (ec)	: Salt free	Salt free	Salt free	Salt free
o. Other toxicity	: --	--	--	--
p. Root obstr. layer	: 74 cm	--	85 cm	--
q. Organic matter (%)	: 12.6	6.3	6.6	--
r. TEB (meq/100 g)	: 1.2	2.3	0.5	--

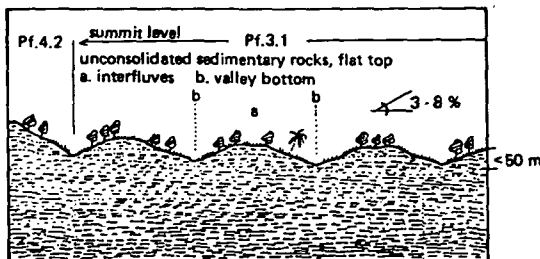
s. Total anal. profiles:	1	5	1	0
f. LAB CHECK	: Yes	Yes	Yes	No

27. ADDITIONAL NOTES : The soil data of Tropohumods and Tropopsamments are extrapolated from Pg.1.1

MAP IMAGE :



CROSS SECTION :



1. LAND UNIT : Pf.3.1 Plains, fine felsic sedimentary rocks, undulating (slopes 3-8%), slightly dissected
2. MAP SHEET : 0717 3. AREA : 130.5 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 90%, Riau 10%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 31/10/89 Status : Final
7. SATELLITE SCENES : 128/59/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000 145 /8319-85 , 145 /8319-79
9. RADAR : STAR-1/250/88/0717-
10. PARENT MATERIAL
 - a. Weathering : Partial
 - b. Lithology : claystone, ,
 - c. Formation : Tup ,
11. ROCK OUTCROP : 0%
12. WATER
 - a. Quality : Fresh
 - b. Source : Rain, Perennial river
13. FISHERIES : River
14. RIVERS
 - a. Floodrisk water : None
 - b. Floodrisk sed.: None
 - c. Inundation : None
15. VEGETATION/LAND USE : , bush, scrub, alang-alang, upland crops, oil palm, rubber
Area used : 60 %
16. ACCELERATED EROSION
 - a. Occurrence : Localised
 - b. Evidence : Gulleys
17. TERRAIN : Undulating 3-8%, 0-50 m
18. PLAN/ Dominant: Elongated and random > 60% of area flat-topped
PROFILE Included:
19. RELIEF AMPLITUDE
 - a. Amplitude: Medium
 - b. Variability : Low
20. ALTITUDE Minimum : 65 m
Range : 70 - 80 m
Maximum : 80 m
21. DRAINAGE a. Pattern: Dendritic
b. Density : Low
24. VALLEY FLOOR Width : Narrow
25. FRAGMEN a. Valleys: Small blocks
b. Interfluvial : Large blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item	10b	12a	14a	14b	19	20	21b	22b	22c	22d1	22d2	22e1	23b	23c	23d	23er	24	25
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rate	1	1	1	2	1	2	1	2	1	1	2	1	1	1	1	1	1	1
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28. REPRESENTATIVE PROFILES:

uda/	/	/88/KR/0717/31/	/004/	igt/	/	/89/SS/0717/32/	/070/
ity/	/	/89/SS/0717/32/	/071/				

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	: 1a	1b	2	--
b. Description	: Interfluves	Interfluves	Valley bottoms	--
c. % of Land Unit	: 85%	85%	15%	0%

SLOPES

d1. Steepness	: 3 - 8%	3 - 8%	< 3%	--
d2. Slope length	: 101 - 200 m	101 - 200 m	< 50 m	--
d3. Slope curvature	: Convex	Convex	Concave	--

SOILS

e1. USDA Class	: hapludults	dystropepts	tropaquepts	
e2. % Facet	: 60%	40%	100%	0%

23. SOIL CHARACTERISTICS

a. USDA Great Group	: hapludults	dystropepts	tropaquepts	
b. Texture: topsoil:	Moderately fine	Moderately fine	Medium	--
subsoil:	Fine	Moderately coarse	Medium	--
c. Depth: peatsoil:	--	--	--	--
mineralsoil:	Deep	Very deep	Very deep	--
d. Drainage	: Well drained	Moderately well	Poorly drained	--

NUTRIENTS :

e. Exch. K:	topsoil: Medium	Low	Very low	--
	subsoil: Low	Low	Low	--
f. Total K2O:	topsoil: Medium	Medium	Low	--
	subsoil: Low	Medium	Low	--
g. Avail. P:	method: Bray I	Bray I	Bray I	--
	topsoil: Low	Low	Very low	--
	subsoil: Very low	Very low	Very low	--
h. Total P:	topsoil: Medium	Medium	Medium	--
	subsoil: Very low	Very low	Low	--

OTHERS :

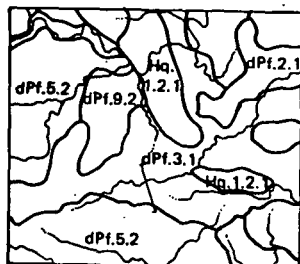
i. CEC pH 7	topsoil: Very high	Very high	Very high	--
	subsoil: High	Very high	Very high	--
j. Reaction:	topsoil: Very strong acid	Very strong acid	Moderately acid	--
	subsoil: Very strong acid	Excessively acid	Very strong acid	--
k. Al sat.	topsoil: Low	Medium	None, very low	--
	subsoil: Very high	Very high	High	--
l. Al toxicity	: Yes	Yes	Yes	--
m. Acid sulph. pot.	: Not relevant	Not relevant	Not relevant	--
n. Salinity (ec)	: Salt free	Salt free	Salt free	--
o. Other toxicity	: --	--	--	--
p. Root obstr. layer	: 99 cm	120 cm	80 cm	--
q. Organic matter (%)	: 3.5	4.4	4.4	--
r. TEB (meq/100 g)	: 13.5	9.8	7.4	--

s. Total anal. profiles:	1	1	1	0
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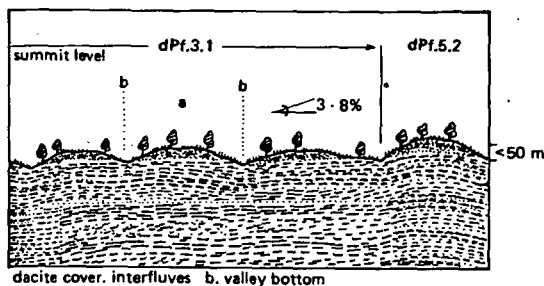
f. LAB CHECK	: Yes	Yes	Yes	--
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27. ADDITIONAL NOTES :

MAP IMAGE :



CROSS SECTION :



1. LAND UNIT : dPf.3.1 Plains, fine felsic sedimentary rocks, undulating (slopes 3-8%), covered with acid tuffs, slightly dissected
2. MAP SHEET : 0717 3. AREA : 96.6 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 05/09/90 Status : Final
7. SATELLITE SCENES : 128/58/08/08/85
8. AERIAL PHOTOGRAPHS. : 1:100.000
9. RADAR : STAR-1/250/88/0717-4
10. PARENT MATERIAL 11. ROCK OUTCROP : 2%
- a. Weathering : Partial
- b. Lithology : clay, liparite,
- c. Formation : Tmt
12. WATER a. Quality : Fresh
- b. Source : Rain, Perennial river
13. FISHERIES : None
14. RIVERS a. Floodrisk water : None b. Floodrisk sed.: None
- c. Inundation : Not relevant
15. VEGETATION/LAND USE : , bush, scrub, alang-alang, upland crops, mixed gardens of fruit trees, rainfed wetland rice
- Area used : 80 %
16. ACCELERATED EROSION a. Occurrence : Localised b. Evidence : Various
17. TERRAIN : Undulating 3-8%, 0-50 m
18. PLAN/ Dominant: Not elongated and random 40-60% of area crested/peaked
- PROFILE Included:
19. RELIEF AMPLITUDE a. Amplitude: Medium b. Variability : Medium
20. ALTITUDE Minimum : 50 m Maximum : 75 m
- Range : 60 - 65 m
21. DRAINAGE a. Pattern: Dendritic b. Density : Low
24. VALLEY FLOOR Width : Narrow
25. FRAGMEN a. Valleys: Medium blocks b. Interfluvies : Large blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item	10b	12a	14a	14b	19	20	21b	22b	22c	22d1	22d2	22e1	23b	23c	23d	23er	24	25
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rate	1	1	1	1	1	1	1	2	2	2	2	1	1	1	1	1	2	2
------	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

28. REPRESENTATIVE PROFILES:

uda/ / /88/LH/0717/52/ /048/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	:	1	2	--	--
b. Description	:	Interfluves	Valley bottoms	--	--
c. % of Land Unit	:	85%	15%	X	X

SLOPES

d1. Steepness	:	3 - 8%	< 3%	--	--
d2. Slope length	:	101 - 200 m	50 - 100 m	--	--
d3. Slope curvature	:	Straight	Concave	--	--

SOILS

e1. USDA Class	:	hapludults	tropaquepts		
e2. % Facet	:	100%	100%	X	X

23. SOIL CHARACTERISTICS

a. USDA Great Group	:	hapludults	tropaquepts		
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b. Texture:	topsoil:	Fine	Fine	--	--
	subsoil:	Fine	Fine	--	--
c. Depth:	peatsoil:	--	--	--	--
	mineralsoil:	Deep	Moderately deep	--	--
d. Drainage	:	Well drained	Poorly drained	--	--

NUTRIENTS :

e. Exch. K:	topsoil:	Medium	--	--	--
	subsoil:	Medium	--	--	--
f. Total K2O:	topsoil:	Medium	--	--	--
	subsoil:	Medium	--	--	--
g. Avail. P:	method:	Bray I	--	--	--
	topsoil:	Very low	--	--	--
	subsoil:	Very low	--	--	--
h. Total P:	topsoil:	Very low	--	--	--
	subsoil:	Very low	--	--	--

OTHERS :

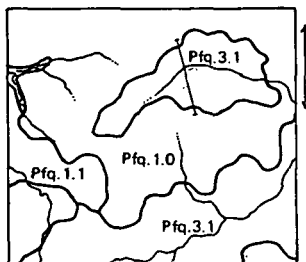
i. CEC pH 7	topsoil:	Medium	--	--	--
	subsoil:	High	--	--	--
j. Reaction:	topsoil:	Very strong acid	--	--	--
	subsoil:	Very strong acid	--	--	--
k. Al sat.	topsoil:	Medium	--	--	--
	subsoil:	High	--	--	--
l. Al toxicity	:	Yes	--	--	--
m. Acid sulph. pot.	:	Not relevant	Not relevant	--	--
n. Salinity (ec)	:	Salt free	Salt free	--	--
o. Other toxicity	:	--	--	--	--
p. Root obstr. layer	:	--	--	--	--
q. Organic matter (%)	:	2.3	--	--	--
r. TEB (meq/100 g)	:	9.7	--	--	--

s. Total anal. profiles:	1	0	0	0
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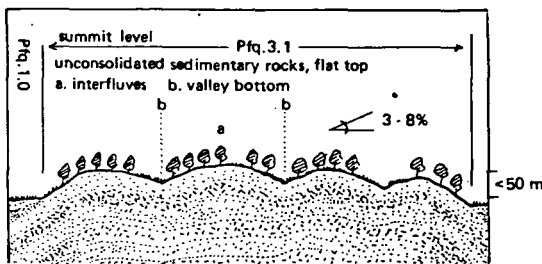
f. LAB CHECK	:	Yes	No	--	--
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27. ADDITIONAL NOTES : The soil data of Hapludults and Tropaquepts are extrapolated from dPf.5.2

MAP IMAGE :



CROSS SECTION :



1. LAND UNIT : Pfq.3.1 Plains, fine and coarse felsic sedimentary rocks, undulating (slopes 3-8%), slightly dissected
2. MAP SHEET : 0717 3. AREA : 508.9 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 50%, Riau 50%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 01/11/89 Status : Final
7. SATELLITE SCENES : 128/59/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000 25 /8320-159, 25 /8320-163, 2 /8323-179
9. RADAR : STAR-1/250/88/0717-05
10. PARENT MATERIAL 11. ROCK OUTCROP : 0%
- a. Weathering : Partial
- b. Lithology : claystone, sandstone,
- c. Formation : Qpml
12. WATER a. Quality : Fresh
- b. Source : Rain, Perennial river
13. FISHERIES : River
14. RIVERS
- a. Floodrisk water : None b. Floodrisk sed.: None
- c. Inundation : None
15. VEGETATION/LAND USE : moist primary lowland forest, rainfed wetland rice, oil palm
- Area used : 50 %
16. ACCELERATED EROSION
- a. Occurrence : Localised b. Evidence : Various
17. TERRAIN : Undulating 3-8%, 0-50 m
18. PLAN/ Dominant: Not elongated and random > 60% of area flat-topped
- PROFILE Included:
19. RELIEF AMPLITUDE
- a. Amplitude: Low b. Variability : Low
20. ALTITUDE Minimum : 75 m Maximum : 100 m
- Range : 80 - 90 m
21. DRAINAGE a. Pattern: Dendritic b. Density : Low
24. VALLEY FLOOR Width : Narrow
25. FRAGMEN a. Valleys: Small blocks b. Interfluvies : Large blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item	10b	12a	14a	14b	19	20	21b	22b	22c	22d1	22d2	22e1	23b	23c	23d	23er	24	25
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rate	1	1	1	1	2	2	2	2	2	1	1	1	1	1	1	1	1	1
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28. REPRESENTATIVE PROFILES:

odh/	/	/88/YH/0717/64/	/007/	udk/	/	/88/JH/0717/63/	/115/
udk/	/	/88/YH/0717/62/	/029/	udk/	/	/88/YM/0717/64/	/086/
odh/	/	/89/YH/0717/62/	/035/				

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	: 1a	1b	2	--
b. Description	: Interfluves	Interfluves	Valley bottoms	--
c. % of Land Unit	: 90%	90%	10%	X

SLOPES

d1. Steepness	: 3 - 8%	3 - 8%	< 3%	--
d2. Slope length	: 101 - 200 m	101 - 200 m	50 - 100 m	--
d3. Slope curvature	: Convex	Convex	Concave	--

SOILS

e1. USDA Class	: kandiodults	hapludox	tropaquepts	
e2. % Facet	: 60%	40%	100%	X

23. SOIL CHARACTERISTICS

a. USDA Great Group	: kandiodults	hapludox	tropaquepts	
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b. Texture:	topsoil: Moderately fine	Moderately fine	Coarse	--
	subsoil: Moderately fine	Moderately fine	Coarse	--
c. Depth:	peatsoil: --	--	--	--
	mineralsoil: Very deep	Very deep	Deep	--
d. Drainage	: Well drained	Well drained	Poorly drained	--

NUTRIENTS :

e. Exch. K:	topsoil: High	Very low	Low	--
	subsoil: Low	Very low	Low	--
f. Total K2O:	topsoil: Very high	Very low	Very low	--
	subsoil: Low	Very low	Very low	--
g. Avail. P:	method: Bray I	Bray I	Bray I	--
	topsoil: Very high	Very low	Low	--
	subsoil: Very low	Very low	Low	--
h. Total P:	topsoil: Medium	Very low	Very low	--
	subsoil: Very low	Very low	Very low	--

OTHERS :

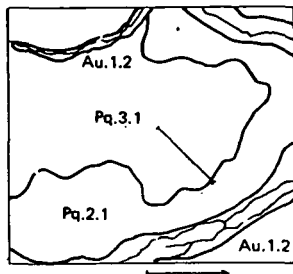
i. CEC pH 7	topsoil: Low	Very low	Medium	--
	subsoil: Very low	Very low	Low	--
j. Reaction:	topsoil: Very strong acid	Excessively acid	Strong acid	--
	subsoil: Excessively acid	Excessively acid	Strong acid	--
k. Al sat.	topsoil: None, very low	High	--	--
	subsoil: Medium	High	--	--
l. Al toxicity	: No	No	--	--
m. Acid sulph. pot.	: Not relevant	Not relevant	Not relevant	--
n. Salinity (ec)	: Salt free	Salt free	--	--
o. Other toxicity	: --	--	--	--
p. Root obstr. layer	: --	--	--	--
q. Organic matter (%)	: 6.6	1.9	5.2	--
r. TEB (meq/100 g)	: 6.9	1.1	0.8	--

s. Total anal. profiles:	1	4	1	0
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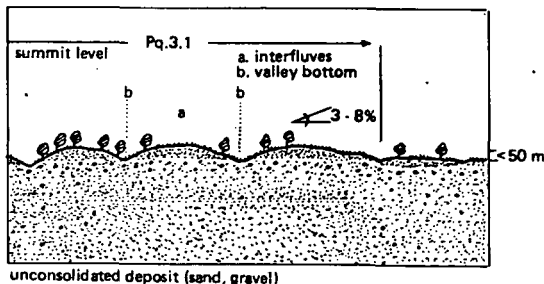
f. LAB CHECK	: Yes	Yes	Yes	--
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27. ADDITIONAL NOTES : The soil data of Tropaquepts are extrapolated from Pfq.1.1

MAP IMAGE :



CROSS SECTION :



1. LAND UNIT : Pq.3.1 Plains, coarse felsic sedimentary rocks, undulating (slopes 3-8%), slightly dissected

2. MAP SHEET : 0717 3. AREA : 152.3 km² 4. OCCURRENCE by PROVINCE: Riau 100%
 5. STATUS IDENTIFIERS : Updated by : SS Edit date: 01/11/89 Status : Final
 7. SATELLITE SCENES : 128/59/08/08/85
 8. AERIAL PHOTOGRAPHS : 1:100.000 24 /8320-211
 9. RADAR : STAR-1/250/88/0717-5

10. PARENT MATERIAL

a. Weathering : Partial
 b. Lithology : sand, sandstone,
 c. Formation : Qp

11. ROCK OUTCROP : 0%

12. WATER a. Quality : Fresh
 b. Source : Rain, Perennial river

13. FISHERIES : River

14. RIVERS

a. Floodrisk water : None
 c. Inundation : None

b. Floodrisk sed.: None

15. VEGETATION/LAND USE : , bush, scrub, upland crops, rubber
 Area used : 30 %

16. ACCELERATED EROSION

a. Occurrence : Localised

b. Evidence : Various

17. TERRAIN : Undulating 3-8%, 0-50 m

18. PLAN/ Dominant: Not elongated and random > 60% of area flat-topped

PROFILE Included:

19. RELIEF AMPLITUDE

a. Amplitude: Low

b. Variability : Low

20. ALTITUDE Minimum : 35 m

Maximum : 65 m

Range : 40 - 60 m

21. DRAINAGE a. Pattern: Dendritic

b. Density : Low

24. VALLEY FLOOR Width : Narrow

25. FRAGMEN a. Valleys: Small blocks

b. Interfluvies : Large blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item | 10b | 12a | 14a | 14b | 19 | 20 | 21b | 22b | 22c | 22d1 | 22d2 | 22e1 | 23b | 23c | 23d | 23er | 24 | 25 |

rate : 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 1 | 2 | 2 | 1 | 1 | 1 | 1 | 2 | 2 |

28. REPRESENTATIVE PROFILES:

odh/ / /89/KR/0717/32/ /019/

igt/ / /81/NS/0717/34/ /005/

est/ / /88/SS/0717/32/ /023/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	: 1a	1b	2	--
b. Description	: Interfluves	Interfluves	Valley bottoms	--
c. % of Land Unit	: 70%	70%	30%	X

SLOPES

d1. Steepness	: 3 - 8%	3 - 8%	< 3%	--
d2. Slope length	: 101 - 200 m	101 - 200 m	50 - 100 m	--
d3. Slope curvature	: Convex	Convex	Concave	--

SOILS

e1. USDA Class	: hapludox	tropopsamments	tropaquepts	
e2. % Facet	: 70%	30%	100%	X

23. SOIL CHARACTERISTICS

a. USDA Great Group	: hapludox	tropopsamments	tropaquepts	
b. Texture:	topsoil: Moderately coarse	Coarse	Medium	--
	subsoil: Moderately coarse	Coarse	Medium	--
c. Depth:	peatsoil: --	--	--	--
	mineralsoil: Very deep	Deep	Deep	--
d. Drainage	: Well drained	Moderately well	Poorly drained	--

NUTRIENTS :

e. Exch. K:	topsoil: Medium	Very low	Low	--
	subsoil: Very low	Very low	Low	--
f. Total K2O:	topsoil: Medium	Very low	Very low	--
	subsoil: Very low	Very low	Very low	--
g. Avail. P:	method: Bray I	Bray I	Bray I	--
	topsoil: Very high	Low	Very low	--
	subsoil: Very low	Very low	Low	--
h. Total P:	topsoil: Low	Low	Low	--
	subsoil: Very low	Very low	Low	--

OTHERS :

i. CEC pH 7	topsoil: Very high	Low	Medium	--
	subsoil: Low	Very low	Medium	--
j. Reaction:	topsoil: Excessively acid	Very strong acid	Very strong acid	--
	subsoil: Excessively acid	Very strong acid	Very strong acid	--
k. Al sat.	topsoil: Medium	--	--	--
	subsoil: High	--	--	--
l. Al toxicity	: No	--	--	--
m. Acid sulph. pot.	: Not relevant	Not relevant	Not relevant	--
n. Salinity (ec)	: Salt free	Salt free	Salt free	--
o. Other toxicity	: --	--	--	--
p. Root obstr. layer	: --	85 cm	--	--
q. Organic matter (%)	: 6.3	6.6	5.4	--
r. TEB (meq/100 g)	: 2.3	0.5	1.0	--

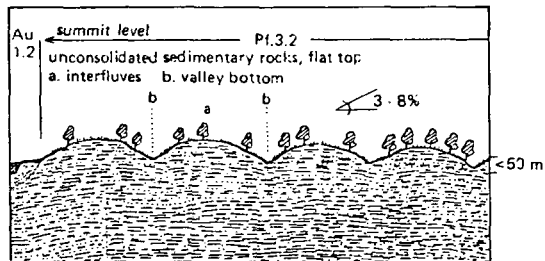
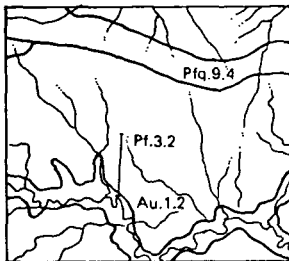
s. Total anal. profiles:	1	1	1	0
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f. LAB CHECK	: Yes	Yes	Yes	--
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27. ADDITIONAL NOTES : The soil data of Tropaquepts and Tropopsamments are extrapolated
from Pg.1.1

MAP IMAGE :

CROSS SECTION :



1. LAND UNIT : Pf.3.2 Plains, fine felsic sedimentary rocks, undulating (slopes 3-8%), moderately dissected
2. MAP SHEET : 0717 3. AREA : 232.6 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 80%, Riau 20%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 31/10/89 Status : Final
7. SATELLITE SCENES : 128/59/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000 25 /8320-169
9. RADAR : STAR-1/250/88/0717-
10. PARENT MATERIAL
11. ROCK OUTCROP : 0%
- a. Weathering : Partial
- b. Lithology : clay, claystone,
- c. Formation : Tmt
12. WATER a. Quality : Fresh
- b. Source : Rain, Perennial river
13. FISHERIES : River
14. RIVERS
- a. Floodrisk water : None
- b. Floodrisk sed.: None
- c. Inundation : None
15. VEGETATION/LAND USE : , bush, scrub, swamp, alang-alang, oil palm, rubber
- Area used : 60 %
16. ACCELERATED EROSION
- a. Occurrence : Localised
- b. Evidence : Various
17. TERRAIN : Undulating 3-8%, 0-50 m
18. PLAN/ Dominant: Elongated and random 40-60% of area flat-topped
- PROFILE Included:
19. RELIEF AMPLITUDE
- a. Amplitude: Medium
- b. Variability : Low
20. ALTITUDE Minimum : 70 m
- Maximum : 110 m
- Range : 75 - 100 m
21. DRAINAGE a. Pattern: Dendritic
- b. Density : Moderate
24. VALLEY FLOOR Width : Narrow
25. FRAGMEN a. Valleys: Small blocks
- b. Interfluvial : Large blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item | 10b | 12a | 14a | 14b | 19 | 20 | 21b | 22b | 22c | 22d1 | 22d2 | 22e1 | 23b | 23c | 23d | 23er | 24 | 25 |

rate : 2 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 2 | 2 |

28. REPRESENTATIVE PROFILES:

ity/ / /80/KL/0717/32/ /002/

ity/ / /88/YH/0717/32/ /059/

uda/ / /88/KR/0717/31/ /004/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	: 1a	1b	2	--
b. Description	: Interfluveses	Interfluves	Valley bottoms	--
c. % of Land Unit	: 85%	85%	15%	%

SLOPES

d1. Steepness	: 3 - 8%	3 - 8%	< 3%	--
d2. Slope length	: 101 - 200 m	101 - 200 m	< 50 m	--
d3. Slope curvature	: Convex	Convex	Concave	--

SOILS

e1. USDA Class	: hapludults	dystropepts	tropaquepts	
e2. % Facet	: 60%	40%	100%	%

23. SOIL CHARACTERISTICS

a. USDA Great Group	: hapludults	dystropepts	tropaquepts	
b. Texture:				
topsoil:	Moderately fine	Coarse	Fine	--
subsoil:	Fine	Coarse	Fine	--
c. Depth:				
peatsoil:	--	--	--	--
mineralsoil:	Deep	Very deep	Very deep	--
d. Drainage	: Well drained	Somewhat excessively	Imperfectly drained	--

NUTRIENTS :

e. Exch. K:				
topsoil:	Medium	Medium	--	--
subsoil:	Low	Low	--	--
f. Total K2O:				
topsoil:	Medium	Medium	--	--
subsoil:	Low	Low	--	--
g. Avail. P:				
method:	Bray I	Bray I	--	--
topsoil:	Low	Very high	--	--
subsoil:	Very low	Very low	--	--
h. Total P:				
topsoil:	Medium	High	--	--
subsoil:	Very low	Very low	--	--

OTHERS :

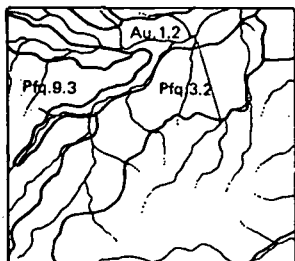
i. CEC pH 7				
topsoil:	Very high	Low	--	--
subsoil:	High	Very low	--	--
j. Reaction:				
topsoil:	Very strong acid	Neutral	--	--
subsoil:	Very strong acid	Moderately acid	--	--
k. Al sat.				
topsoil:	Low	None, very low	--	--
subsoil:	Very high	None, very low	--	--
l. Al toxicity	: Yes	No	--	--
m. Acid sulph. pot.	: Not relevant	Not relevant	Not relevant	--
n. Salinity (ec)	: Salt free	Salt free	--	--
o. Other toxicity	: --	--	--	--
p. Root obstr. layer	: 99 cm	--	--	--
q. Organic matter (%)	: 3.5	5.8	--	--
r. TEB (meq/100 g)	: 13.5	3.8	--	--

s. Total anal. profiles:	1	2	0	0
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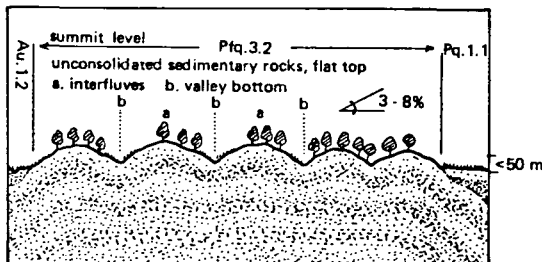
f. LAB CHECK	: Yes	Yes	No	--
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27. ADDITIONAL NOTES : The soil data of Hapludults are extrapolated from LU Pf.3.1

MAP IMAGE :



CROSS SECTION :



1. LAND UNIT : Pfq.3.2 Plains, fine and coarse felsic sedimentary rocks, undulating (slopes 3-8%), moderately dissected
2. MAP SHEET : 0717 3. AREA : 21.4 km² 4. OCCURRENCE by PROVINCE: Riau 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 01/11/89 Status : Final
7. SATELLITE SCENES : 128/58/08/08/85, 128/59/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000 R24 /8320-223
9. RADAR : STAR-1/250/88/0717-5
10. PARENT MATERIAL
11. ROCK OUTCROP : 0%
- a. Weathering : Partial
- b. Lithology : claystone, sandstone,
- c. Formation : Qpmi ,
12. WATER a. Quality : Fresh
- b. Source : Rain, Perennial river
13. FISHERIES : River
14. RIVERS
- a. Floodrisk water : None
- b. Floodrisk sed.: None
- c. Inundation : None
15. VEGETATION/LAND USE : , bush, scrub, rainfed wetland rice, oil palm
- Area used : 60 %
16. ACCELERATED EROSION
- a. Occurrence : Localised
- b. Evidence : Various
17. TERRAIN : Undulating 3-8%, 0-50 m
18. PLAN/ Dominant: Not elongated and random 40-60% of area flat-topped
- PROFILE Included:
19. RELIEF AMPLITUDE
- a. Amplitude: Low
- b. Variability : Low
20. ALTITUDE Minimum : 50 m
- Maximum : 75 m
- Range : 60 - 75 m
21. DRAINAGE a. Pattern: Dendritic
- b. Density : Moderate
24. VALLEY FLOOR Width : Narrow
25. FRAGMEN a. Valleys: Small blocks
- b. Interfluvies : Large blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item	10b	12a	14a	14b	19	20	21b	22b	22c	22d1	22d2	22e1	23b	23c	23d	23er	24	25
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rate	1	1	1	1	2	2	2	2	2	2	2	1	1	1	1	1	2	2
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28. REPRESENTATIVE PROFILES:

odh/ / /88/YH/0717/64/ /007/

igt/ / /81/NS/0717/34/ /010/

udk/ / /88/YH/0717/62/ /029/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	: 1a	1b	2	--
b. Description	: Interfluves	Interfluves	Valley bottoms	--
c. % of Land Unit	: 90%	90%	10%	%

SLOPES

d1. Steepness	: 3 - 8%	3 - 8%	< 3%	--
d2. Slope length	: 101 - 200 m	101 - 200 m	< 50 m	--
d3. Slope curvature	: Convex	Convex	Concave	--

SOILS

e1. USDA Class	: kandiodults	hapludox	tropaquepts	
e2. % Facet	: 60%	40%	100%	%

23. SOIL CHARACTERISTICS

a. USDA Great Group	: kandiodults	hapludox	tropaquepts	
b. Texture:	topsoil: Moderately fine	Moderately fine	Coarse	--
	subsoil: Moderately fine	Moderately fine	Coarse	--
c. Depth:	peatsoil: --	--	--	--
	mineralsoil: Deep	Very deep	Deep	--
d. Drainage	: Well drained	Well drained	Poorly drained	--

NUTRIENTS :

e. Exch. K:	topsoil: High	Very low	Low	--
	subsoil: Low	Very low	Low	--
f. Total K2O:	topsoil: Very high	Very low	Very low	--
	subsoil: Low	Very low	Very low	--
g. Avail. P:	method: Bray I	Bray I	Bray I	--
	topsoil: Very high	Very low	Low	--
	subsoil: Very low	Very low	Low	--
h. Total P:	topsoil: Medium	Very low	Very low	--
	subsoil: Very low	Very low	Very low	--

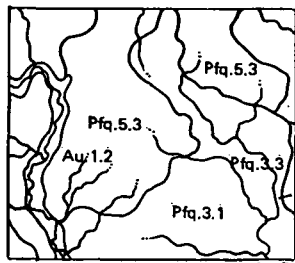
OTHERS :

i. CEC pH 7	topsoil: Low	Very low	Medium	--
	subsoil: Very low	Very low	Low	--
j. Reaction:	topsoil: Very strong acid	Excessively acid	Strong acid	--
	subsoil: Excessively acid	Excessively acid	Strong acid	--
k. Al sat.	topsoil: None, very low	High	--	--
	subsoil: Medium	High	--	--
l. Al toxicity	: --	--	--	--
m. Acid sulph. pot.	: Not relevant	Not relevant	Not relevant	--
n. Salinity (ec)	: Salt free	Salt free	Salt free	--
o. Other toxicity	: --	--	--	--
p. Root obstr. layer	: --	--	--	--
q. Organic matter (%)	: 6.6	1.9	5.2	--
r. TEB (meq/100 g)	: 6.9	1.1	0.8	--

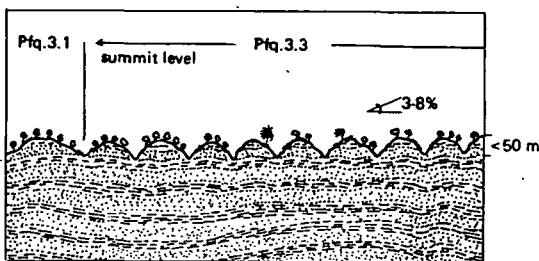
s. Total anal. profiles:	1	1	1	0
t. LAB CHECK	: Yes	Yes	Yes	--

27. ADDITIONAL NOTES : The soil data of Tropaquepts are extrapolated from Pfq.1.1
The data of Kandiodults and Hapludox are extrapolated from Pfq.3.1

MAP IMAGE :



CROSS SECTION :



1. LAND UNIT : Pfq.3.3 Plains, fine and coarse felsic sedimentary rocks, undulating (slopes 3-8%), strongly dissected

2. MAP SHEET : 0717 3. AREA : 1.0 km2 4. OCCURRENCE by PROVINCE: Riau 100%

5. STATUS IDENTIFIERS : Updated by : SS Edit date: 31/10/89 Status : Final

7. SATELLITE SCENES : 128/58/08/08/85

8. AERIAL PHOTOGRAPHS : 1:100.000 R24 /8320-223

9. RADAR : STAR-1/250/88/0717-5

10. PARENT MATERIAL

a. Weathering : Partial

b. Lithology : clay, sand,

c. Formation : Qpmi ,

12. WATER a. Quality : Fresh

b. Source : Rain, Perennial river

13. FISHERIES : River

14. RIVERS

a. Floodrisk water : None

c. Inundation : None

11. ROCK OUTCROP : 0%

b. Floodrisk sed.: None

15. VEGETATION/LAND USE : , upland crops

Area used : 60 %

16. ACCELERATED EROSION

a. Occurrence : Localised

b. Evidence : Various

17. TERRAIN : Undulating 3-8%, 0-50 m

18. PLAN/ Dominant: Not elongated and random > 60% of area crested/peaked

PROFILE Included:

19. RELIEF AMPLITUDE

a. Amplitude: Low

b. Variability : Low

20. ALTITUDE Minimum : 50 m

Maximum : 75 m

Range : 60 - 75 m

21. DRAINAGE a. Pattern: Dendritic

b. Density : Moderate

24. VALLEY FLOOR Width : Narrow

25. FRAGMEN a. Valleys: Small blocks

b. Interfluves : Large blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item | 10b | 12a | 14a | 14b | 19 | 20 | 21b | 22b | 22c | 22d1 | 22d2 | 22e1 | 23b | 23c | 23d | 23er | 24 | 25 |

rate : 1 | 1 | 2 | 2 | 1 | 2 | 2 | 1 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 2 | 1 |

28. REPRESENTATIVE PROFILES:

udk/ / /88/YH/0717/62/ /029/

odh/ / /88/YH/0717/64/ /007/

igt/ / /81/NS/0717/34/ /010/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	: 1a	1b	2	--
b. Description	: Interfluves	Interfluves	Valley bottoms	--
c. % of Land Unit	: 90%	90%	10%	%

SLOPES

d1. Steepness	: 3 - 8%	3 - 8%	< 3%	--
d2. Slope length	: 101 - 200 m	101 - 200 m	< 50 m	--
d3. Slope curvature	: Convex	Straight	Concave	--

SOILS

e1. USDA Class	: kandiodults	hapludox	tropaquepts	
e2. % Facet	: 60%	40%	100%	%

23. SOIL CHARACTERISTICS

a. USDA Great Group	: kandiodults	hapludox	tropaquepts	
b. Texture:				
topsoil:	Moderately fine	Moderately fine	Coarse	--
subsoil:	Moderately fine	Moderately fine	Coarse	--
c. Depth:				
peatsoil:	--	--	--	--
mineralsoil:	Very deep	Very deep	Deep	--
d. Drainage	: Well drained	Well drained	Poorly drained	--

NUTRIENTS :

e. Exch. K:				
topsoil:	High	Very low	Low	--
subsoil:	Low	Very low	Low	--
f. Total K2O:				
topsoil:	Very high	Very low	Very low	--
subsoil:	Low	Very low	Very low	--
g. Avail. P:				
method:	Bray I	Bray I	Bray I	--
topsoil:	Very high	Very low	Low	--
subsoil:	Very low	Very low	Low	--
h. Total P:				
topsoil:	Medium	Very low	Very low	--
subsoil:	Very low	Very low	Very low	--

OTHERS :

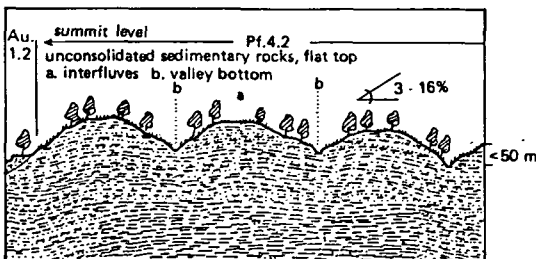
i. CEC pH 7				
topsoil:	Low	Very low	Medium	--
subsoil:	Very low	Very low	Low	--
j. Reaction:				
topsoil:	Very strong acid	Excessively acid	Strong acid	--
subsoil:	Excessively acid	Excessively acid	Strong acid	--
k. Al sat.				
topsoil:	None, very low	High	--	--
subsoil:	Medium	High	--	--
l. Al toxicity	: --	--	--	--
m. Acid sulph. pot.	: Not relevant	Not relevant	Not relevant	--
n. Salinity (ec)	: Salt free	Salt free	Salt free	--
o. Other toxicity	: --	--	--	--
p. Root obstr. layer	: --	--	--	--
q. Organic matter (%)	: 6.6	1.9	5.2	--
r. TEB (meq/100 g)	: 6.9	1.1	0.8	--

s. Total anal. profiles:	1	1	1	0
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f. LAB CHECK	: Yes	Yes	Yes	--
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27. ADDITIONAL NOTES : The soil data of Tropaquepts are extrapolated from Pfq.1.1
The data of Kandiodults and Hapludox are extrapolated from Pfq.3.1

CROSS SECTION :



1. LAND UNIT : Pf.4.2
Plains, fine felsic sedimentary rocks, undulating to rolling (slopes 3-16%),
moderately dissected
2. MAP SHEET : 0717 3. AREA : 595.3 km2 4. OCCURRENCE by PROVINCE: Sumatera Utara 90%, Riau 10%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 31/10/89 Status : Final
6. SATELLITE SCENES : 128/58/08/08/85, 128/59/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000 155 /8319-177, 145 /8319-79 , 23 /8320-287
9. RADAR : STAR-1/250/88/0717-
10. PARENT MATERIAL
- a. Weathering : Partial
- b. Lithology : claystone,
- c. Formation : Tup , Tmt
11. ROCK OUTCROP : 0%
12. WATER a. Quality : Fresh
- b. Source : Rain, Perennial river
13. FISHERIES : River
14. RIVERS
- a. Floodrisk water : None
- b. Floodrisk sed.: None
- c. Inundation : None
15. VEGETATION/LAND USE : , bush, scrub, savanna, grazing land, alang-alang, upland crops, wetland rice, oil palm
- Area used : 80 %
16. ACCELERATED EROSION
- a. Occurrence : Common
- b. Evidence : Various
17. TERRAIN : Undulating to rolling (3-16%)
18. PLAN/ Dominant: Not elongated and random > 60% of area flat-topped
- PROFILE Included:
19. RELIEF AMPLITUDE
- a. Amplitude: Medium
- b. Variability : Medium
20. ALTITUDE Minimum : 75 m
- Maximum : 120 m
- Range : 80 - 100 m
21. DRAINAGE a. Pattern: Dendritic
- b. Density : Moderate
24. VALLEY FLOOR Width : Narrow
25. FRAGMEN a. Valleys: Small blocks
- b. Interfluves : Large blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item	10b	12a	14a	14b	19	20	21b	22b	22c	22d1	22d2	22e1	23b	23c	23d	23er	24	25
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rate : 1.. | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 2 | 2 |
```

28. REPRESENTATIVE PROFILES:

uda/	/	/88/SS/0717/31/	/018/	uda/	/	/84/ER/0717/63/	/002/
uda/	/	/88/JH/0717/63/	/127/	ity/	/	/80/KL/0717/32/	/021/
uda/	/	/88/KR/0717/22/	/014/	uda/	/	/88/SS/0717/31/	/008/
igt/	/	/88/LH/0717/52/	/034/	uda/	/	/88/YH/0717/61/	/060/
ity/	/	/80/KL/0717/32/	/019/	uda/	/	/80/KL/0717/32/	/012/
ity/	/	/80/KL/0717/32/	/029/				

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	: 1a	1b	2	--
b. Description	: Interfluves	Interfluves	Valley floor	--
c. % of Land Unit	: 85%	85%	15%	2

SLOPES

d1. Steepness	: 3 - 16%	3 - 16%	< 3%	--
d2. Slope length	: 101 - 200 m	101 - 200 m	< 50 m	--
d3. Slope curvature	: Convex	Convex	Concave	--

SOILS

e1. USDA Class	: hapludults	dystropepts	tropaquepts	
e2. % Facet	: 60%	40%	100%	2

23. SOIL CHARACTERISTICS

a. USDA Great Group	: hapludults	dystropepts	tropaquepts	
b. Texture:	topsoil: Moderately fine	Fine	Fine	--
	subsoil: Fine	Fine	Fine	--
c. Depth:	peatsoil: --	--	--	--
	mineralsoil: Deep	Very deep	Very deep	--
d. Drainage	: Well drained	Moderately well	Poorly drained	--

NUTRIENTS :

e. Exch. K:	topsoil: Low	Low	Medium	--
	subsoil: Very low	Medium	Medium	--
f. Total K2O:	topsoil: Low	Very high	Medium	--
	subsoil: Very low	Medium	Medium	--
g. Avail. P:	method: Bray I	Bray I	Bray I	--
	topsoil: Very low	Very low	Very low	--
	subsoil: Very low	Very low	Very low	--
h. Total P:	topsoil: Very low	Low	Low	--
	subsoil: Very low	Medium	Very low	--

OTHERS :

i. CEC pH 7	topsoil: High	High	Very high	--
	subsoil: High	High	Very high	--
j. Reaction:	topsoil: Excessively acid	Very strong acid	Moderately acid	--
	subsoil: Excessively acid	Very strong acid	Neutral	--
k. Al sat.	topsoil: High	None, very low	--	--
	subsoil: Very high	None, very low	--	--
l. Al toxicity	: Yes	No	--	--
m. Acid sulph. pot.	: Not relevant	Not relevant	Not relevant	--
n. Salinity (ec)	: Salt free	Salt free	Salt free	--
o. Other toxicity	: --	--	--	--
p. Root obstr. layer	: 93 cm	--	--	--
q. Organic matter (%)	: 2.7	0.7	11.5	--
r. TEB (meq/100 g)	: 1.6	18.7	40.5	--

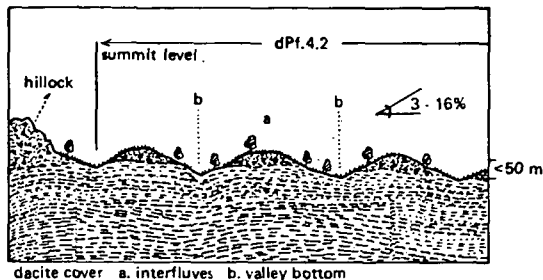
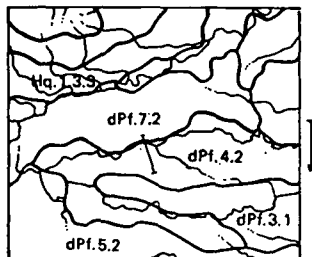
s. Total anal. profiles:	8	3	1	0
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f. LAB CHECK	: Yes	Yes	Yes	--
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27. ADDITIONAL NOTES : Elevated areas have Fe and Mn concretion

MAP IMAGE :

CROSS SECTION :



1. LAND UNIT : dPf.4.2
Plains, fine felsic sedimentary rocks, undulating to rolling (slopes 3-16%), covered with acid tuffs, moderately dissected
2. MAP SHEET : 0717 3. AREA : 47.3 km2 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 05/09/90 Status : Final
7. SATELLITE SCENES : 128/58/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000
9. RADAR : STAR-1/250/88/0717-4
10. PARENT MATERIAL
11. ROCK OUTCROP : 2%
- a. Weathering : Partial
- b. Lithology : clay, liparite,
- c. Formation : Tmt
12. WATER a. Quality : Fresh
- b. Source : Rain, Perennial river
13. FISHERIES : Not known
14. RIVERS
- a. Floodrisk water : None
- b. Floodrisk sed.: None
- c. Inundation : Not relevant
15. VEGETATION/LAND USE : , bush, scrub, alang-alang, upland crops, mixed gardens of fruit trees, rainfed wetland rice
- Area used : 60 %
16. ACCELERATED EROSION
- a. Occurrence : Localised
- b. Evidence : Various
17. TERRAIN : Undulating to rolling (3-16%)
18. PLAN/ Dominant: Not elongated and random > 60% of area crested/peaked
- PROFILE Included:
19. RELIEF AMPLITUDE
- a. Amplitude: Medium
- b. Variability : Medium
20. ALTITUDE Minimum : 60 m
- Maximum : 80 m
- Range : 65 - 70 m
21. DRAINAGE a. Pattern: Dendritic
- b. Density : Moderate
24. VALLEY FLOOR Width : Narrow
25. FRAGMEN a. Valleys: Medium blocks
- b. Interfluves : Large blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item	10b	12a	14a	14b	19	20	21b	22b	22c	22d1	22d2	22e1	23b	23c	23d	23er	24	25
------	-----	-----	-----	-----	----	----	-----	-----	-----	------	------	------	-----	-----	-----	------	----	----

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rate : 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 2 | 2 |
```

28. REPRESENTATIVE PROFILES:

odk/ / /88/YH/0717/51/ /073/ uda/ / /88/LH/0717/52/ /048/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	:	1a	1b	2	--
b. Description	:	Interfluves	Interfluves	Valley bottoms	--
c. % of Land Unit	:	85%	85%	15%	X

SLOPES

d1. Steepness	:	3 - 16%	3 - 8%	< 3%	--
d2. Slope length	:	101 - 200 m	101 - 200 m	50 - 100 m	--
d3. Slope curvature	:	Straight	Convex	Concave	--

SOILS

e1. USDA Class	:	hapludults	kandiudox	tropaquepts	
e2. % Facet	:	50%	40%	100%	X

23. SOIL CHARACTERISTICS

a. USDA Great Group	:	hapludults	kandiudox	tropaquepts	
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b. Texture:	topsoil:	Fine	Fine	Fine	--
	subsoil:	Fine	Fine	Fine	--
c. Depth:	peatsoil:	--	--	--	--
	mineralsoil:	Deep	Deep	Very deep	--
d. Drainage	:	Well drained	Well drained	Poorly drained	--

NUTRIENTS :

e. Exch. K:	topsoil:	Medium	Low	--	--
	subsoil:	Medium	Very low	--	--
f. Total K2O:	topsoil:	Medium	Low	--	--
	subsoil:	Medium	Very low	--	--
g. Avail. P:	method:	Bray I	Bray I	--	--
	topsoil:	Very low	Very low	--	--
	subsoil:	Very low	Very low	--	--
h. Total P:	topsoil:	Very low	Very low	--	--
	subsoil:	Very low	Very low	--	--

OTHERS :

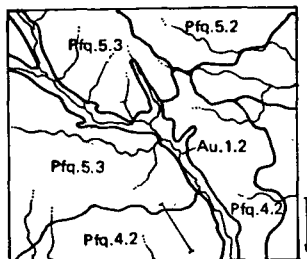
i. CEC pH 7	topsoil:	Medium	Low	--	--
	subsoil:	High	Low	--	--
j. Reaction:	topsoil:	Very strong acid	Excessively acid	--	--
	subsoil:	Very strong acid	Very strong acid	--	--
k. Al sat.	topsoil:	Medium	High	--	--
	subsoil:	High	Very high	--	--
l. Al toxicity	:	Yes	Yes	--	--
m. Acid sulph. pot.	:	Not relevant	Not relevant	Not relevant	--
n. Salinity (ec)	:	Salt free	Salt free	Salt free	--
o. Other toxicity	:	--	--	--	--
p. Root obstr. layer	:	--	--	--	--
q. Organic matter (%)	:	2.3	1.3	--	--
r. TEB (meq/100 g)	:	9.7	0.5	--	--

s. Total anal. profiles:	1	1	0	0
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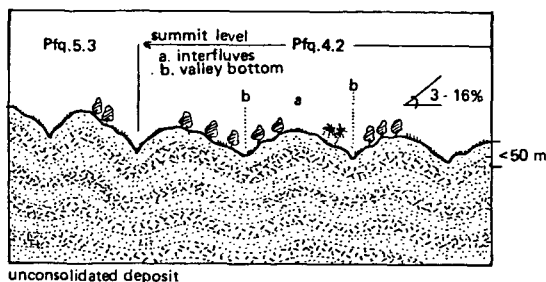
f. LAB CHECK	:	Yes	Yes	No	--
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27. ADDITIONAL NOTES : The soil data of Hapludults and Tropaquepts are extrapolated from dPf.5.2

MAP IMAGE :



CROSS SECTION :



1. LAND UNIT : Pfq.4.2 Plains, fine and coarse felsic sedimentary rocks, undulating to rolling (slopes 3-16%), moderately dissected
2. MAP SHEET : 0717 3. AREA : 94.0 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara : 80%, Riau : 20%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 01/11/89 Status : Final
7. SATELLITE SCENES : 128/59/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000 26 /8320-105, 24 /8320-205
9. RADAR : STAR-1/250/88/0717-
10. PARENT MATERIAL 11. ROCK OUTCROP : 0%
- a. Weathering : Partial
- b. Lithology : claystone, sandstone,
- c. Formation : Qpmi , Tmt
12. WATER a. Quality : Fresh
- b. Source : Rain, Perennial river
13. FISHERIES : River
14. RIVERS a. Floodrisk water : None b. Floodrisk sed.: None
- c. Inundation : None
15. VEGETATION/LAND USE : , bush, scrub, upland crops
- Area used : 30 %
16. ACCELERATED EROSION a. Occurrence : Localised b. Evidence : Various
17. TERRAIN : Undulating to rolling (3-16%)
18. PLAN/ Dominant: Not elongated and random > 60% of area flat-topped
- PROFILE Included:
19. RELIEF AMPLITUDE a. Amplitude: Low b. Variability : Medium
20. ALTITUDE Minimum : 65 m Maximum : 100 m
- Range : 70 - 85 m
21. DRAINAGE a. Pattern: Dendritic b. Density : Moderate
24. VALLEY FLOOR Width : Narrow
25. FRAGMEN a. Valleys: Small blocks b. Interfluvies : Large blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item | 10b | 12a | 14a | 14b | 19 | 20 | 21b | 22b | 22c | 22d1 | 22d2 | 22e1 | 23b | 23c | 23d | 23er | 24 | 25 |

rate : 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 1 |

28. REPRESENTATIVE PROFILES:

udk/ / /87/KR/0717/63/ /068/ udk/ / /87/KR/0717/63/ /071/

igt/ / /81/NS/0717/34/ /010/ odh/ / /88/LH/0717/33/ /003/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	:	1a	1b	2	--
b. Description	:	Interfluves	Interfluves	Valley bottoms	--
c. % of Land Unit	:	90%	90%	10%	x

SLOPES

d1. Steepness	:	3 - 16%	3 - 16%	< 3%	--
d2. Slope length	:	101 - 200 m	101 - 200 m	< 50 m	--
d3. Slope curvature	:	Convex	Convex	Concave	--

SOILS

e1. USDA Class	:	kandiudults	hapludox	tropaquepts	
e2. % Facet	:	60%	40%	100%	x

23. SOIL CHARACTERISTICS

a. USDA Great Group	:	kandiudults	hapludox	tropaquepts	
---------------------	---	-------------	----------	-------------	--

b. Texture:	topsoil:	Moderately coarse	Moderately fine	Coarse	--
	subsoil:	Moderately fine	Fine	Coarse	--
c. Depth:	peatsoil:	--	--	--	--
	mineralsoil:	Extremely deep	Very deep	Deep	--
d. Drainage	:	Well drained	Well drained	Poorly drained	--

NUTRIENTS

e. Exch. K:	topsoil:	Very low	Low	Low	--
	subsoil:	Very low	Very low	Low	--
f. Total K2O:	topsoil:	Very low	Medium	Very low	--
	subsoil:	Very low	Very low	Very low	--
g. Avail. P:	method:	Bray I	Bray I	Bray I	--
	topsoil:	Very low	Very low	Low	--
	subsoil:	Very low	Very low	Low	--
h. Total P:	topsoil:	Very low	Very low	Very low	--
	subsoil:	Very low	Very low	Very low	--

OTHERS

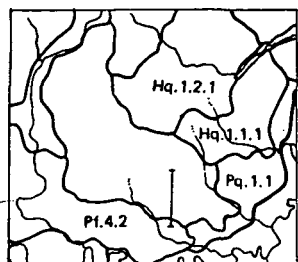
i. CEC pH 7	topsoil:	Low	Low	Medium	--
	subsoil:	Low	Very low	Low	--
j. Reaction:	topsoil:	Excessively acid	Excessively acid	Strong acid	--
	subsoil:	Very strong acid	Excessively acid	Strong acid	--
k. Al sat.	topsoil:	High	High	--	--
	subsoil:	High	High	--	--
l. Al toxicity	:	No	Yes	--	--
m. Acid sulph. pot.	:	Not relevant	Not relevant	Not relevant	--
n. Salinity (ec)	:	Salt free	Salt free	Salt free	--
o. Other toxicity	:	--	--	--	--
p. Root obstr. layer	:	176 cm	--	--	--
q. Organic matter (%)	:	2.9	3.3	5.2	--
r. TEB (meq/100 g)	:	0.7	1.4	0.8	--

s. Total anal. profiles:	2	1	1	0
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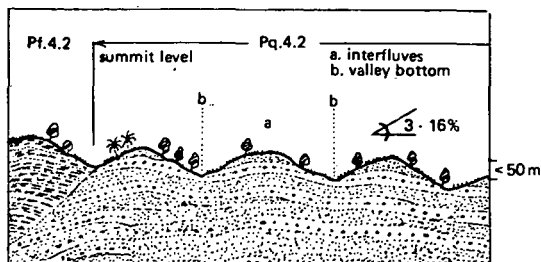
f. LAB CHECK	:	Yes	Yes	Yes	--
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27. ADDITIONAL NOTES : The soil data of Tropaquepts are extrapolated from Pfq.1.1
The data of Hapludox are extrapolated from Pfq.5.2

MAP IMAGE :



CROSS SECTION :



Older sedimentary rocks (sand stone)

1. LAND UNIT : Pq.4.2 Plains, coarse felsic sedimentary rocks, undulating to rolling (slopes 3-16%), moderately dissected
2. MAP SHEET : 0717 3. AREA : 29.1 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 01/11/89 Status : Final
7. SATELLITE SCENES : 128/59/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000 24 / 8320-211
9. RADAR : STAR-1/250/88/0717-5
10. PARENT MATERIAL 11. ROCK OUTCROP : 0%
- a. Weathering : Partial
- b. Lithology : sandstone, ,
- c. Formation : Tmsk ,
12. WATER a. Quality : Fresh
- b. Source : Rain, Perennial river
13. FISHERIES : River
14. RIVERS
- a. Floodrisk water : None b. Floodrisk sed.: None
- c. Inundation : None
15. VEGETATION/LAND USE : secondary forest, bush, scrub, rubber
- Area used : 20 %
16. ACCELERATED EROSION
- a. Occurrence : Localised b. Evidence : Various
17. TERRAIN : Undulating to rolling (3-16%)
18. PLAN/ Dominant: Not elongated and random > 60% of area flat-topped
- PROFILE Included:
18. RELIEF AMPLITUDE
- a. Amplitude: Medium b. Variability : Low
20. ALTITUDE Minimum : 75 m Maximum : 100 m
- Range : 80 - 85 m
21. DRAINAGE a. Pattern: Dendritic b. Density : Moderate
24. VALLEY FLOOR Width : Narrow
25. FRAGMEN a. Valleys: Small blocks b. Interfluvies : Medium blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item	10b	12a	14a	14b	19	20	21b	22b	22c	22d1	22d2	22e1	23b	23c	23d	23er	24	25
------	-----	-----	-----	-----	----	----	-----	-----	-----	------	------	------	-----	-----	-----	------	----	----

rate	1	1	1	1	2	2	2	2	2	1	2	1	1	1	1	1	1	1
------	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

28. REPRESENTATIVE PROFILES:

odh/	/	/88/KR/0717/34/	/025/	est/	/	/88/SS/0717/32/	/023/
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22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	: 1a	1b	2	--
b. Description	: Interfluves	Interfluves	Valley bottoms	--
c. % of Land Unit	: 85%	85%	15%	1

SLOPES

d1. Steepness	: 3 - 16%	3 - 8%	< 3%	--
d2. Slope length	: 201 - 500 m	201 - 500 m	50 - 100 m	--
d3. Slope curvature	: Straight	Convex	Concave	--

SOILS

e1. USDA Class	: hapludox	tropopsamments	tropaquepts	
e2. % Facet	: 60%	40%	100%	1

23. SOIL CHARACTERISTICS

a. USDA Great Group	: hapludox	tropopsamments	tropaquepts	
b. Texture:	topsoil: Moderately fine	Coarse	Fine	--
	subsoil: Fine	Coarse	Fine	--
c. Depth:	peatsoil: --	--	--	--
	mineralsoil: Extremely deep	Deep	Deep	--
d. Drainage	: Well drained	Moderately well	Poorly drained	--

NUTRIENTS

e. Exch. K:	topsoil: Low	Very low	--	--
	subsoil: Very low	Very low	--	--
f. Total K2O:	topsoil: Very low	Very low	--	--
	subsoil: Very low	Very low	--	--
g. Avail. P:	method: Bray I	Bray I	--	--
	topsoil: Medium	Low	--	--
	subsoil: Very low	Very low	--	--
h. Total P:	topsoil: Very low	Low	--	--
	subsoil: Very low	Very low	--	--

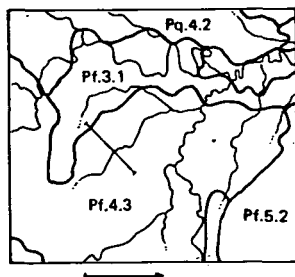
OTHERS

i. CEC pH 7	topsoil: High	Medium	--	--
	subsoil: Low	Medium	--	--
j. Reaction:	topsoil: Excessively acid	Very strong acid	Very strong acid	--
	subsoil: Excessively acid	Very strong acid	Very strong acid	--
k. Al sat.	topsoil: --	--	--	--
	subsoil: --	--	--	--
l. Al toxicity	: --	--	--	--
m. Acid sulph. pot.	: Not relevant	Not relevant	Not relevant	--
n. Salinity (ec)	: Salt free	Salt free	Salt free	--
o. Other toxicity	: --	--	--	--
p. Root obstr. layer	: --	85 cm	--	--
q. Organic matter (%)	: 4.7	8.6	--	--
r. TEB (meq/100 g)	: 1.4	0.5	--	--

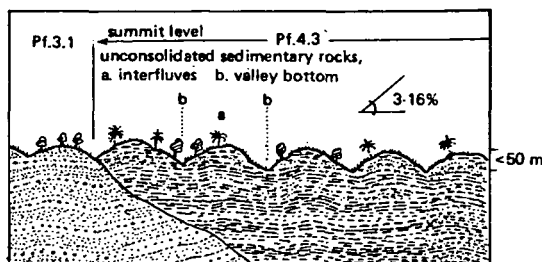
s. Total anal. profiles:	1	1	0	0
f. LAB CHECK	: Yes	Yes	No	--

27. ADDITIONAL NOTES : The soil data of Hapludox are extrapolated from Pq.2.1 and
The data of Tropopsamments are from Pq.1.1

MAP IMAGE :



CROSS SECTION :



1. LAND UNIT : Pf.4.3 Plains, fine felsic sedimentary rocks, undulating to rolling (slopes 3-16%), strongly dissected

2. MAP SHEET : 0717 3. AREA : 94.0 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%

5. STATUS IDENTIFIERS : Updated by : SS Edit date: 31/10/89 Status : Final

7. SATELLITE SCENES : 128/58/08/08/85

8. AERIAL PHOTOGRAPHS : 1:100.000 22 /8319-213, 155 /8319-175

9. RADAR : STAR-1/250/88/0717-

10. PARENT MATERIAL

11. ROCK OUTCROP : 0%

a. Weathering : Partial

b. Lithology : claystone, ,

c. Formation : Tmt

12. WATER a. Quality : Fresh

b. Source : Rain, Perennial river

13. FISHERIES : River

14. RIVERS

a. Floodrisk water : None

b. Floodrisk sed.: None

c. Inundation : None

15. VEGETATION/LAND USE : , bush, scrub, grazing land

Area used : 30 %

16. ACCELERATED EROSION

a. Occurrence : Localised

b. Evidence : Gulleys

17. TERRAIN : Undulating to rolling (3-16%)

18. PLAN/ Dominant: Not elongated and random 40-60% of area flat-topped

PROFILE Included:

19. RELIEF AMPLITUDE

Mapsheet : 0717

08/12/90

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	: 1a	1b	2	--
b. Description	: Interfluves	Interfluves	ge blocks	

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item	10b	12a	14a	14b	19	20	21b	22b	22c	22d1	22d2	22e1	23b	23c	23d	23er	24	25
------	-----	-----	-----	-----	----	----	-----	-----	-----	------	------	------	-----	-----	-----	------	----	----

rate	: 1	1	1	1	2	2	2	2	2	2	2	1	1	1	1	2	2	2
------	-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

28. REPRESENTATIVE PROFILES:

not available

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	: 1a	1b	2	--
b. Description	: Interfluves	Interfluves	Valley bottoms	--
c. % of Land Unit	: 90%	90%	10%	X

SLOPES

d1. Steepness	: 3 - 16%	3 - 16%	< 3%	--
d2. Slope length	: 101 - 200 m	101 - 200 m	< 50 m	--
d3. Slope curvature	: Convex	Convex	Concave	--

SOILS

e1. USDA Class	: hapludults	dystropepts	tropaquepts	
e2. % Facet	: 60%	40%	100%	X

23. SOIL CHARACTERISTICS

a. USDA Great Group	: hapludults	dystropepts	tropaquepts	
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b. Texture:	topsoil: Moderately fine	Fine	Fine	--
	subsoil: Fine	Fine	Fine	--
c. Depth:	peatsoil: --	--	--	--
	mineralsoil: Deep	Moderately deep	Very deep	--
d. Drainage	: Moderately well	Imperfectly drained	Poorly drained	--

NUTRIENTS :

e. Exch. K:	topsoil: --	--	--	--
	subsoil: --	--	--	--
f. Total K2O:	topsoil: --	--	--	--
	subsoil: --	--	--	--
g. Avail. P:	method: --	--	--	--
	topsoil: --	--	--	--
	subsoil: --	--	--	--
h. Total P:	topsoil: --	--	--	--
	subsoil: --	--	--	--

OTHERS :

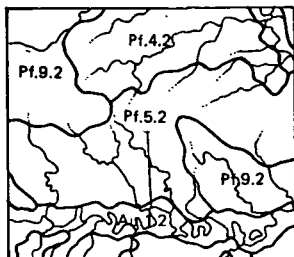
i. CEC pH 7	topsoil: --	--	--	--
	subsoil: --	--	--	--
j. Reaction:	topsoil: Strong acid	Strong acid	Moderately acid	--
	subsoil: Very strong acid	Very strong acid	Neutral	--
k. Al sat.	topsoil: --	--	--	--
	subsoil: --	--	--	--
l. Al toxicity	: --	--	--	--
m. Acid sulph. pot.	: Not relevant	Not relevant	Not relevant	--
n. Salinity (ec)	: Salt free	Salt free	Salt free	--
o. Other toxicity	: --	--	--	--
p. Root obstr. layer	: 97 cm	--	--	--
q. Organic matter (%)	: --	--	--	--
r. TEB (meq/100 g)	: --	--	--	--

s. Total anal. profiles:	0	0	0	0
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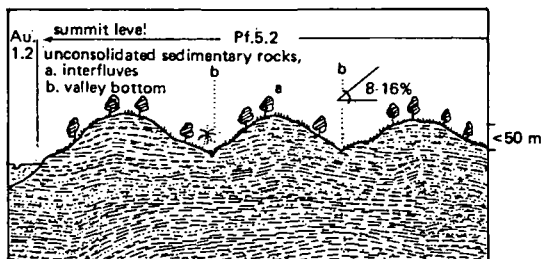
f. LAB CHECK	: No	No	No	--
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27. ADDITIONAL NOTES :

MAP IMAGE :



CROSS SECTION :



1. LAND UNIT : Pf.5.2 Plains, fine felsic sedimentary rocks, rolling (slopes 8-16%), moderately dissected
2. MAP SHEET : 0717 3. AREA : 335.9 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 95%, Riau 5%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 31/10/89 Status : Final
7. SATELLITE SCENES : 128/59/08/08/85, 128/58/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000
9. RADAR : STAR-1/250/88/0717-
10. PARENT MATERIAL
11. ROCK OUTCROP : 0%
- a. Weathering : Partial
- b. Lithology : claystone, ,
- c. Formation : Tup ,
12. WATER a. Quality : Fresh
- b. Source : Rain, Perennial river
13. FISHERIES : River
14. RIVERS
- a. Floodrisk water : None
- b. Floodrisk sed.: None
- c. Inundation : None
15. VEGETATION/LAND USE : , bush, scrub, grazing land, upland crops
- Area used : 40 %
16. ACCELERATED EROSION
- a. Occurrence : Localised
- b. Evidence : Various
17. TERRAIN : Rolling 8-16%, 0-50 m
18. PLAN/ Dominant: Not elongated and random > 60% of area crested/peaked
- PROFILE Included:
19. RELIEF AMPLITUDE
- a. Amplitude: Medium
- b. Variability : Low
20. ALTITUDE Minimum : 65 m
- Maximum : 100 m
- Range : 75 - 90 m
21. DRAINAGE a. Pattern: Dendritic
- b. Density : Moderate
24. VALLEY FLOOR Width : Narrow
25. FRAGMEN a. Valleys: Small blocks
- b. Interfluvies : Medium blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item | 10b | 12a | 14a | 14b | 19 | 20 | 21b | 22b | 22c | 22d1 | 22d2 | 22e1 | 23b | 23c | 23d | 23er | 24 | 25 |

rate : 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 2 | 2 |

28. REPRESENTATIVE PROFILES:

uda/ / /88/SS/0717/31/ /002/

uda/ / /88/KR/0717/31/ /001/

uda/ / /89/SS/0717/22/ /105/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	: 1a	1b	2	--
b. Description	: Interfluves	Interfluves	Valley bottoms	--
c. % of Land Unit	: 85%	85%	15%	X

SLOPES

d1. Steepness	: 8 - 16%	8 - 16%	< 3%	--
d2. Slope length	: 101 - 200 m	101 - 200 m	< 50 m	--
d3. Slope curvature	: Convex	Convex	Concave	--

SOILS

e1. USDA Class	: hapludults	dystropepts	tropaquepts	
e2. % Facet	: 60%	40%	100%	X

23. SOIL CHARACTERISTICS

a. USDA Great Group	: hapludults	dystropepts	tropaquepts	
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b. Texture:	topsoil: Moderately coarse	Fine	Fine	--
	subsoil: Fine	Fine	Fine	--
c. Depth:	peatsoil: --	--	--	--
	mineralsoil: Very deep	Moderately deep	Very deep	--
d. Drainage	: Well drained	Imperfectly drained	Poorly drained	--

NUTRIENTS :

e. Exch. K:	topsoil: Low	--	--	--
	subsoil: Very low	--	--	--
f. Total K2O:	topsoil: Low	--	--	--
	subsoil: Very low	--	--	--
g. Avail. P:	method: Bray I	--	--	--
	topsoil: Medium	--	--	--
	subsoil: Very low	--	--	--
h. Total P:	topsoil: Low	--	--	--
	subsoil: Very low	--	--	--

OTHERS :

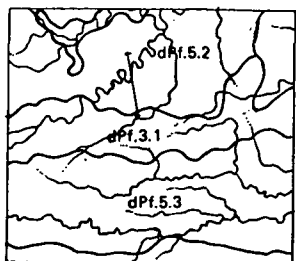
i. CEC pH 7	topsoil: Low	--	--	--
	subsoil: Low	--	--	--
j. Reaction:	topsoil: Very strong acid	Strong acid	Moderately acid	--
	subsoil: Very strong acid	Very strong acid	Neutral	--
k. Al sat.	topsoil: None, very low	--	--	--
	subsoil: Medium	--	--	--
l. Al toxicity	: Yes	--	--	--
m. Acid sulph. pot.	: Not relevant	Not relevant	Not relevant	--
n. Salinity (ec)	: Salt free	Salt free	Salt free	--
o. Other toxicity	: --	--	--	--
p. Root obstr. layer	: --	--	--	--
q. Organic matter (%)	: 5.1	--	--	--
r. TEB (meq/100 g)	: 2.2	--	--	--

s. Total anal. profiles:	3	0	0	0
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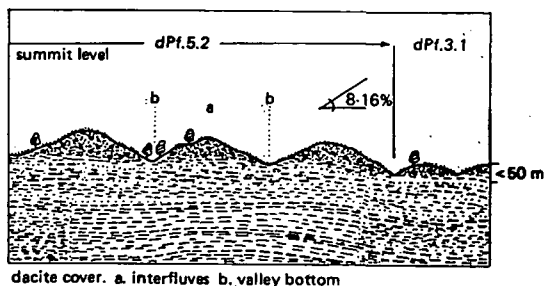
f. LAB CHECK	: Yes	No	No	--
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27. ADDITIONAL NOTES : The soil data of Dystropepts & Trophaquepts are extrapolated from Land Unit Pf.4.3

MAP IMAGE :



CROSS SECTION :



1. LAND UNIT : dPf.5.2 Plains, fine felsic sedimentary rocks, rolling (slopes 8-16%), covered with acid tuffs, moderately dissected
2. MAP SHEET : 0717 3. AREA : 173.3 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 05/09/90 Status : Final
7. SATELLITE SCENES : 128/58/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000
9. RADAR : STAR-1/250/88/0717-4
10. PARENT MATERIAL 11. ROCK OUTCROP : 2%
- a. Weathering : Partial
- b. Lithology : clay, liparite,
- c. Formation : Tmt
12. WATER a. Quality : Fresh
- b. Source : Rain, Perennial river
13. FISHERIES : Not known
14. RIVERS
- a. Floodrisk water : None b. Floodrisk sed.: None
- c. Inundation : Not relevant
15. VEGETATION/LAND USE : , bush, scrub, alang-alang, upland crops, rainfed wetland rice
- Area used : 60 %
16. ACCELERATED EROSION
- a. Occurrence : Localised b. Evidence : Various
17. TERRAIN : Rolling 8-16%, 0-50 m
18. PLAN/ Dominant: Not elongated and random > 60% of area crested/peaked
- PROFILE Included:
19. RELIEF AMPLITUDE
- a. Amplitude: Medium b. Variability : Medium
20. ALTITUDE Minimum : 75 m Maximum : 100 m
- Range : 80 - 90 m
21. DRAINAGE a. Pattern: Dendritic b. Density : Moderate
24. VALLEY FLOOR Width : Narrow
25. FRAGMEN a. Valleys: Small blocks b. Interfluvies : Medium blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item | 10b | 12a | 14a | 14b | 19 | 20 | 21b | 22b | 22c | 22d1 | 22d2 | 22e1 | 23b | 23c | 23d | 23er | 24 | 25 |

rate : 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 |

28. REPRESENTATIVE PROFILES:

udk/ / /88/LH/0717/52/ /057/

udk/ / /88/CD/0717/52/ /062/

uda/ / /88/LH/0717/52/ /048/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	: 1a	1b	2	--
b. Description	: Interfluves	Interfluves	Valley bottoms	--
c. % of Land Unit	: 90%	90%	10%	x

SLOPES

d1. Steepness	: 8 - 16%	8 - 16%	< 3%	--
d2. Slope length	: 101 - 200 m	101 - 200 m	< 50 m	--
d3. Slope curvature	: Convex	Convex	Concave	--

SOILS

e1. USDA Class	: kandiodults	hapludults	tropaquepts	
e2. % Facet	: 60%	40%	100%	x

23. SOIL CHARACTERISTICS

a. USDA Great Group	: kandiodults	hapludults	tropaquepts	
b. Texture:				
topsoil:	Moderately fine	Fine	Fine	--
subsoil:	Fine	Fine	Fine	--
c. Depth:				
peatsoil:	--	--	--	--
mineralsoil:	Deep	Deep	Very deep	--
d. Drainage	: Well drained	Well drained	Poorly drained	--

NUTRIENTS :

e. Exch. K:				
topsoil:	Low	Medium	--	--
subsoil:	Low	Medium	--	--
f. Total K2O:				
topsoil:	Very low	Medium	--	--
subsoil:	Very low	Medium	--	--
g. Avail. P:				
method:	Bray I	Bray I	--	--
topsoil:	Very low	Very low	--	--
subsoil:	Very low	Very low	--	--
h. Total P:				
topsoil:	Very low	Very low	--	--
subsoil:	Very low	Very low	--	--

OTHERS :

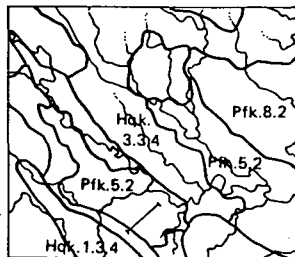
i. CEC pH 7				
topsoil:	Low	Medium	--	--
subsoil:	Very low	High	--	--
j. Reaction:				
topsoil:	Excessively acid	Very strong acid	--	--
subsoil:	Excessively acid	Very strong acid	--	--
k. Al sat.				
topsoil:	High	Medium	--	--
subsoil:	Very high	High	--	--
l. Al toxicity	: No	Yes	--	--
m. Acid sulph. pot.	: Not relevant	Not relevant	Not relevant	--
n. Salinity (ec)	: Salt free	Salt free	Salt free	--
o. Other toxicity	: --	--	--	--
p. Root obstr. layer	: --	--	--	--
q. Organic matter (%)	: 2.6	2.3	--	--
r. TEB (meq/100 g)	: 0.8	9.7	--	--

s. Total anal. profiles:	2	1	0	0
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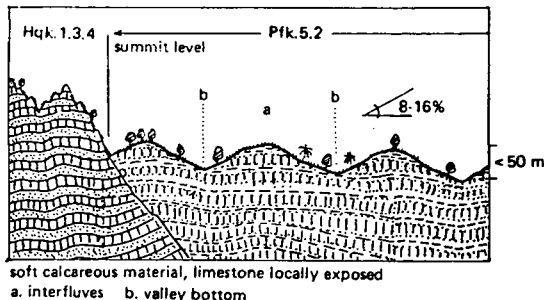
f. LAB CHECK	: Yes	Yes	No	--
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27. ADDITIONAL NOTES :

MAP IMAGE :



CROSS SECTION :



1. LAND UNIT : Pfk.5.2 Plains, fine felsic sedimentary and soft calcareous rocks, rolling (slopes 8-16%), moderately dissected
2. MAP SHEET : 0717 3. AREA : 64.9 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 01/11/89 Status : Final
7. SATELLITE SCENES : 128/59/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000 2 /8323-181
9. RADAR : STAR-1/250/88/0717-
10. PARENT MATERIAL 11. ROCK OUTCROP : 0%
- a. Weathering : Partial
- b. Lithology : marly clay, ,
- c. Formation : Tmts , Tmt
12. WATER a. Quality : Fresh
- b. Source : Rain, Perennial river
13. FISHERIES : River
14. RIVERS
- a. Floodrisk water : None b. Floodrisk sed.: None
- c. Inundation : None
15. VEGETATION/LAND USE : , bush, scrub, grazing land, rainfed wetland rice
- Area used : 90 %
16. ACCELERATED EROSION
- a. Occurrence : Common b. Evidence : Various
17. TERRAIN : Rolling 8-16%, 0-50 m
18. PLAN/ Dominant: Not elongated and random 40-60% of area flat-topped
- PROFILE Included:
19. RELIEF AMPLITUDE
- a. Amplitude: Low b. Variability : Medium
20. ALTITUDE Minimum : 75 m Maximum : 100 m
- Range : 80 - 90 m
21. DRAINAGE a. Pattern: Dendritic b. Density : Moderate
24. VALLEY FLOOR Width : Very narrow
25. FRAGMEN a. Valleys: Small blocks b. Interfluvies : Large blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item | 10b | 12a | 14a | 14b | 19 | 20 | 21b | 22b | 22c | 22d1 | 22d2 | 22e1 | 23b | 23c | 23d | 23er | 24 | 25 |

rate : 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 2 | 2 |

28. REPRESENTATIVE PROFILES:

ada/ / /89/KR/0717/23/ /077/

ite/ / /88/CD/0717/23/ /074/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	:	1a	1b	2	--
b. Description	:	Interfluves	Interfluves	Valley bottoms	--
c. % of Land Unit	:	90%	90%	10%	%

SLOPES

d1. Steepness	:	8 - 16%	8 - 16%	< 3%	--
d2. Slope length	:	101 - 200 m	101 - 200 m	< 50 m	--
d3. Slope curvature	:	Convex	Convex	Concave	--

SOILS

e1. USDA Class	:	eutropepts	hapludalfs	tropaquepts	
e2. % Facet	:	60%	40%	100%	%

23. SOIL CHARACTERISTICS

a. USDA Great Group	:	eutropepts	hapludalfs	tropaquepts	
b. Texture:					
topsoil:	Fine	Fine	Fine	--	
subsoil:	Fine	Fine	Fine	--	
c. Depth:					
peatsoil:	--	--	--	--	
mineralsoil:	Very deep	Very deep	Very deep	--	
d. Drainage	:	Well drained	Well drained	Very poorly drained	--

NUTRIENTS :

e. Exch. K:					
topsoil:	Medium	Low	--	--	
subsoil:	Medium	Medium	--	--	
f. Total K2O:					
topsoil:	High	Low	--	--	
subsoil:	High	Medium	--	--	
g. Avail. P:					
method:	Bray I	Olsen	--	--	
topsoil:	Very low	Low	--	--	
subsoil:	Very low	Very low	--	--	
h. Total P:					
topsoil:	High	Low	--	--	
subsoil:	High	Very low	--	--	

OTHERS :

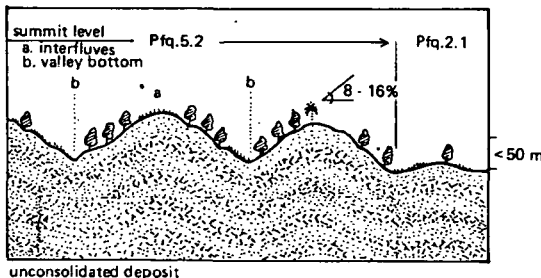
i. CEC pH 7					
topsoil:	High	High	--	--	
subsoil:	High	Very high	--	--	
j. Reaction:					
topsoil:	Neutral	Very strong acid	Slightly alkaline	--	
subsoil:	Neutral	Very strong acid	Slightly alkaline	--	
k. Al sat.					
topsoil:	--	--	--	--	
subsoil:	--	--	--	--	
l. Al toxicity	:	--	--	--	
m. Acid sulph. pot.	:	Not relevant	Not relevant	Not relevant	--
n. Salinity (ec)	:	Salt free	Salt free	Salt free	--
o. Other toxicity	:	--	--	--	--
p. Root obstr. layer	:	--	--	--	--
q. Organic matter (%)	:	3.5	6.1	--	--
r. TEB (meq/100 g)	:	29.0	13.2	--	--

s. Total anal. profiles:	1	1	0	0
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f. LAB CHECK	:	Yes	Yes	No	--
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27. ADDITIONAL NOTES : The soil data of Eutropepts are extrapolated from Pfk.8.2

CROSS SECTION :



1. LAND UNIT : Pfq.5.2 Plains, fine and coarse felsic sedimentary rocks, rolling (slopes 8-16%), moderately dissected
2. MAP SHEET : 0717 3. AREA : 493.8 km2 4. OCCURRENCE by PROVINCE: Sumatera Utara 70%, Riau 30%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 01/11/89 Status : Final
7. SATELLITE SCENES : 128/59/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100,000 23 /8320-279, 25 /8320-157
9. RADAR : STAR-1/250/88/0717-
10. PARENT MATERIAL
- a. Weathering : Partial
- b. Lithology : claystone, sandstone,
- c. Formation : Qpmi ,
11. ROCK OUTCROP : 0%
12. WATER a. Quality : Fresh
- b. Source : Rain, Perennial river
13. FISHERIES : River
14. RIVERS
- a. Floodrisk water : None
- b. Floodrisk sed.: None
- c. Inundation : None
15. VEGETATION/LAND USE : logged forest, rubber, oil palm
- Area used : 40 %
16. ACCELERATED EROSION
- a. Occurrence : Common
- b. Evidence : Various
17. TERRAIN : Rolling 8-16%, 0-50 m
18. PLAN/ Dominant: Not elongated and random > 60% of area crested/peaked
- PROFILE Included:
19. RELIEF AMPLITUDE
- a. Amplitude: Low
- b. Variability : Medium
20. ALTIITUDE Minimum : 65 m
- Maximum : 100 m
- Range : 70 - 90 m
21. DRAINAGE a. Pattern: Dendritic
- b. Density : Moderate
24. VALLEY FLOOR Width : Very narrow
25. FRAGMEN a. Valleys: Small blocks
- b. Interfluves : Medium blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item	10b	12a	14a	14b	19	20	21b	22b	22c	22d1	22d2	22e1	23b	23c	23d	23er	24	25
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rate : 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 2 | 1 |
```

28. REPRESENTATIVE PROFILES:

udk/	/	/88/YH/0717/62/	/051/	odh/	/	/88/CD/0717/33/	/013/
odh/	/	/88/LH/0717/33/	/003/	udk/	/	/88/JH/0717/64/	/112/
udk/	/	/88/JH/0717/63/	/119/	udk/	/	/88/JH/0717/63/	/124/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	: 1a	1b	2	--
b. Description	: Interfluves	Interfluves	Valley floor	--
c. % of Land Unit	: 90%	90%	10%	1

SLOPES

d1. Steepness	: 8 - 16%	3 - 8%	< 3%	--
d2. Slope length	: 101 - 200 m	101 - 200 m	< 50 m	--
d3. Slope curvature	: Convex	Convex	Concave	--

SOILS

e1. USDA Class	: kandiodults	hapludox	tropaquepts	
e2. % Facet	: 70%	30%	100%	1

23. SOIL CHARACTERISTICS

a. USDA Great Group	: kandiodults	hapludox	tropaquepts	
b. Texture:				
topsoil:	Moderately coarse	Moderately fine	Medium	--
subsoil:	Moderately fine	Fine	Fine	--
c. Depth:				
peatsoil:	--	--	--	--
mineralsoil:	Very deep	Very deep	Deep	--
d. Drainage	: Well drained	Well drained	Poorly drained	--

NUTRIENTS :

e. Exch. K:				
topsoil:	Medium	Low	--	--
subsoil:	Low	Very low	--	--
f. Total K2O:				
topsoil:	Medium	Very low	--	--
subsoil:	Low	Very low	--	--
g. Avail. P:				
method:	Bray I	Bray I	--	--
topsoil:	Medium	Very low	--	--
subsoil:	Medium	Very low	--	--
h. Total P:				
topsoil:	Low	Very low	--	--
subsoil:	Very low	Very low	--	--

OTHERS :

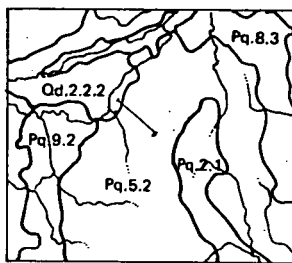
i. CEC pH 7				
topsoil:	Low	Low	--	--
subsoil:	Very low	Very low	--	--
j. Reaction:				
topsoil:	Very strong acid	Excessively acid	Excessively acid	--
subsoil:	Excessively acid	Excessively acid	Very strong acid	--
k. Al sat.				
topsoil:	None, very low	High	--	--
subsoil:	High	High	--	--
l. Al toxicity	: No	Yes	--	--
m. Acid sulph. pot.	: Not relevant	Not relevant	Not relevant	--
n. Salinity (ec)	: Salt free	Salt free	Salt free	--
o. Other toxicity	: --	--	--	--
p. Root obstr. layer	: --	--	--	--
q. Organic matter (%)	: 2.9	3.3	--	--
r. TEB (meq/100 g)	: 2.5	1.4	--	--

s. Total anal. profiles:	4	2	0	0
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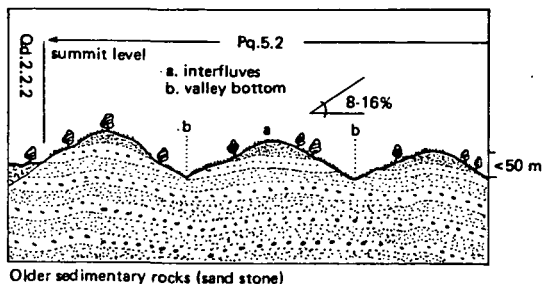
f. LAB CHECK	: Yes	Yes	No	--
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27. ADDITIONAL NOTES :

MAP IMAGE :



CROSS SECTION :



1. LAND UNIT : Pq.5.2 Plains, coarse felsic sedimentary rocks, rolling (slopes 8-16%), moderately dissected

2. MAP SHEET : 0717 3. AREA : 84.7 km² 4. OCCURRENCE by PROVINCE: Sumatra Utara 100%

5. STATUS IDENTIFIERS : Updated by : SS Edit date: 01/11/89 Status : Final

7. SATELLITE SCENES :

8. AERIAL PHOTOGRAPHS : 1:100.000 23 /8218-219, 23 /8218-215

9. RADAR : STAR-1/250/88/0717-5

10. PARENT MATERIAL

11. ROCK OUTCROP : 0%

a. Weathering : Partial

b. Lithology : sand, sandstone,

c. Formation : Qp , Tmsk

12. WATER

a. Quality : Fresh

b. Source : Rain, Perennial river

13. FISHERIES

: River

14. RIVERS

a. Floodrisk water : None

b. Floodrisk sed.: None

c. Inundation : None

15. VEGETATION/LAND USE : logged forest, secondary forest, bush, scrub, rubber

Area used : 20 %

16. ACCELERATED EROSION

a. Occurrence : Localised

b. Evidence : Various

17. TERRAIN : Rolling 8-16%, 0-50 m

18. PLAN/ Dominant: Not elongated and random > 60% of area crested/peaked

PROFILE Included:

19. RELIEF AMPLITUDE

a. Amplitude: Medium

b. Variability : Low

20. ALTITUDE Minimum : 50 m

Maximum : 100 m

Range : 60 - 80 m

21. DRAINAGE a. Pattern: Dendritic

b. Density : Moderate

24. VALLEY FLOOR Width : Narrow

25. FRAGMEN a. Valleys: Small blocks

b. Interfluvies : Medium blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item | 10b | 12a | 14a | 14b | 19 | 20 | 21b | 22b | 22c | 22d1 | 22d2 | 22e1 | 23b | 23c | 23d | 23er | 24 | 25 |

rate : 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

28. REPRESENTATIVE PROFILES:

igt/ / /88/MR/0717/54/ /110/

est/ / /88/SS/0717/32/ /023/

est/ / /88/MR/0717/54/ /108/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	:	1a	1b	2	--
b. Description	:	Interfluves	Interfluves	Valley bottoms	--
c. % of Land Unit	:	90%	90%	10%	%

SLOPES

d1. Steepness	:	8 - 16%	8 - 16%	< 3%	--
d2. Slope length	:	101 - 200 m	101 - 200 m	< 50 m	--
d3. Slope curvature	:	Convex	Convex	Concave	--

SOILS

e1. USDA Class	:	hapludox	tropopsamments	tropaquepts	
e2. % Facet	:	60%	40%	100%	%

23. SOIL CHARACTERISTICS

a. USDA Great Group	:	hapludox	tropopsamments	tropaquepts	
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b. Texture:	topsoil:	Coarse	Coarse	Coarse	--
	subsoil:	Coarse	Coarse	Coarse	--
c. Depth:	peatsoil:	--	--	--	--
	mineralsoil:	Very deep	Deep	Very deep	--
d. Drainage	:	Somewhat excessively	Moderately well	Imperfectly drained	--

NUTRIENTS :

e. Exch. K:	topsoil:	Very low	Very low	Very low	--
	subsoil:	Very low	Very low	Very low	--
f. Total K2O:	topsoil:	Very low	Very low	Very low	--
	subsoil:	Very low	Very low	Very low	--
g. Avail. P:	method:	Bray I	Bray I	Bray I	--
	topsoil:	High	Low	Low	--
	subsoil:	Medium	Very low	Medium	--
h. Total P:	topsoil:	Very low	Low	Very low	--
	subsoil:	Very low	Very low	Very low	--

OTHERS :

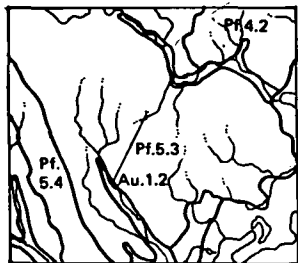
i. CEC pH 7	topsoil:	Very low	Medium	Very high	--
	subsoil:	Very low	Medium	Very high	--
j. Reaction:	topsoil:	Excessively acid	Very strong acid	Strong acid	--
	subsoil:	Very strong acid	Very strong acid	Strong acid	--
k. Al sat.	topsoil:	High	--	Low	--
	subsoil:	Medium	--	Low	--
l. Al toxicity	:	No	--	No	--
m. Acid sulph. pot.	:	Not relevant	Not relevant	Not relevant	--
n. Salinity (ec)	:	Salt free	Salt free	Salt free	--
o. Other toxicity	:	--	--	--	--
p. Root obstr. layer	:	--	85 cm	110 cm	--
q. Organic matter (%)	:	2.0	6.6	3.0	--
r. TEB (meq/100 g)	:	0.4	0.5	0.7	--

s. Total anal. profiles:	1	1	1	0
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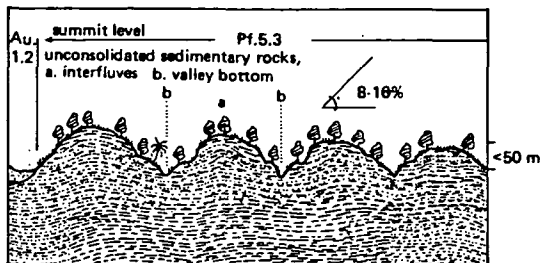
f. LAB CHECK	:	Yes	Yes	Yes	--
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27. ADDITIONAL NOTES : The soil data of Tropopsamments are extrapolated from Pg.1.1

MAP IMAGE :



CROSS SECTION :



1. LAND UNIT : Pf.5.3 Plains, fine felsic sedimentary rocks, rolling (slopes 8-16%), strongly dissected
2. MAP SHEET : 0717 3. AREA : 327.6 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 31/10/89 Status : Final
7. SATELLITE SCENES : 128/58/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000
9. RADAR : STAR-1/250/88/0717-
10. PARENT MATERIAL 11. ROCK OUTCROP : 0%
- a. Weathering : Partial
- b. Lithology : claystone, .
- c. Formation : Tmt , Tup
12. WATER a. Quality : Fresh
- b. Source : Rain, Perennial river
13. FISHERIES : River
14. RIVERS
- a. Floodrisk water : None b. Floodrisk sed.: None
- c. Inundation : None
15. VEGETATION/LAND USE : , bush, scrub, grazing land, coconut
- Area used : 30 %
16. ACCELERATED EROSION
- a. Occurrence : Localised b. Evidence : Various
17. TERRAIN : Rolling 8-16%, 0-50 m
18. PLAN/ Dominant: Not elongated and random > 60% of area crested/peaked
- PROFILE Included:
19. RELIEF AMPLITUDE
- a. Amplitude: Medium b. Variability : Low
20. ALTITUDE Minimum : 65 m Maximum : 100 m
- Range : 70 - 90 m
21. DRAINAGE a. Pattern: Dendritic b. Density : Moderately high
24. VALLEY FLOOR Width : Very narrow
25. FRAGMEN a. Valleys: Small blocks b. Interfluvies : Medium blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item | 10b | 12a | 14a | 14b | 19 | 20 | 21b | 22b | 22c | 22d1 | 22d2 | 22e1 | 23b | 23c | 23d | 23er | 24 | 25 |

rate : 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 2 | 2 |

28. REPRESENTATIVE PROFILES:

uda/ / /88/JH/0717/63/ /133/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	: 1a	1b	2	--
b. Description	: Interfluves	Interfluves	Valley bottoms	--
c. % of Land Unit	: 90%	90%	10%	X

SLOPES

d1. Steepness	: 8 - 16%	8 - 16%	< 3%	--
d2. Slope length	: 50 - 100 m	101 - 200 m	< 50 m	--
d3. Slope curvature	: Concave	Convex	Concave	--

SOILS

e1. USDA Class	: hapludults	dystropepts	tropaquepts	
e2. % Facet	: 65%	35%	100%	X

23. SOIL CHARACTERISTICS

a. USDA Great Group	: hapludults	dystropepts	tropaquepts	
b. Texture:				
topsoil:	Moderately fine	Fine	Fine	--
subsoil:	Fine	Fine	Fine	--
c. Depth:				
peatsoil:	--	--	--	--
mineralsoil:	Very deep	Very deep	Very deep	--
d. Drainage	: Well drained	Well drained	Poorly drained	--

NUTRIENTS :

e. Exch. K:				
topsoil:	Very low	--	--	--
subsoil:	Very low	--	--	--
f. Total K2O:				
topsoil:	Very low	--	--	--
subsoil:	Very low	--	--	--
g. Avail. P:				
method:	Bray I	--	--	--
topsoil:	Very low	--	--	--
subsoil:	Very low	--	--	--
h. Total P:				
topsoil:	Low	--	--	--
subsoil:	Low	--	--	--

OTHERS :

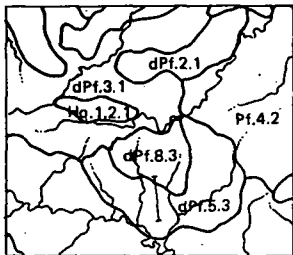
i. CEC pH 7				
topsoil:	Very low	--	--	--
subsoil:	Very low	--	--	--
j. Reaction:				
topsoil:	Very strong acid	Excessively acid	Moderately acid	--
subsoil:	Very strong acid	Excessively acid	Neutral	--
k. Al sat.				
topsoil:	Medium	--	--	--
subsoil:	Medium	--	--	--
l. Al toxicity	: No	--	--	--
m. Acid sulph. pot.	: Not relevant	Not relevant	Not relevant	--
n. Salinity (ec)	: Salt free	Salt free	Salt free	--
o. Other toxicity	: --	--	--	--
p. Root obstr. layer	: --	--	--	--
q. Organic matter (%)	: 0.4	--	--	--
r. TEB (meq/100 g)	: 0.6	--	--	--

s. Total anal. profiles:	1	0	0	0
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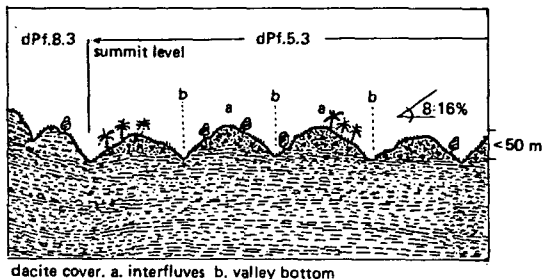
f. LAB CHECK	: Yes	No	No	--
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27. ADDITIONAL NOTES :

MAP IMAGE :



CROSS SECTION :



1. LAND UNIT : dPf.5.3 Plains, fine felsic sedimentary rocks, rolling (slopes 8-16%), covered with acid tuffs, strongly dissected
2. MAP SHEET : 0717 3. AREA : 14.4 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 06/09/90 Status : Final
7. SATELLITE SCENES : 128/58/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000
9. RADAR : STAR-1/250/88/0717-4
10. PARENT MATERIAL 11. ROCK OUTCROP : 2%
- a. Weathering : Partial
- b. Lithology : clay, liparite,
- c. Formation : Tmt
12. WATER a. Quality : Fresh
- b. Source : Rain, Perennial river
13. FISHERIES : Not known
14. RIVERS a. Floodrisk water : None b. Floodrisk sed.: None
- c. Inundation : Not relevant
15. VEGETATION/LAND USE : , bush, scrub, alang-alang, upland crops, rainfed wetland rice
- Area used : 60 %
16. ACCELERATED EROSION b. Evidence : Various
- a. Occurrence : Localised
17. TERRAIN : Rolling 8-16%, 0-50 m
18. PLAN/ Dominant: Not elongated and random > 60% of area crested/peaked
- PROFILE Included:
19. RELIEF AMPLITUDE b. Variability : Medium
- a. Amplitude: Medium Maximum : 100 m
20. ALTITUDE Minimum : 75 m
- Range : 75 - 80 m
21. DRAINAGE a. Pattern: Dendritic b. Density : Moderately high
24. VALLEY FLOOR Width : Very narrow
25. FRAGMEN a. Valleys: Small blocks b. Interfluves : Medium blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item	10b	12a	14a	14b	19	20	21b	22b	22c	22d1	22d2	22e1	23b	23c	23d	23er	24	25
------	-----	-----	-----	-----	----	----	-----	-----	-----	------	------	------	-----	-----	-----	------	----	----

rate	1	1	1	1	1	1	2	2	2	2	2	2	1	1	1	1	1	2	2
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28. REPRESENTATIVE PROFILES:

odk/	/	/88/YH/0717/51/	/073/	udk/	/	/88/LH/0717/52/	/057/
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22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	: 1a	1b	2	--
b. Description	: Interfluves	Interfluves	Valley bottoms	--
c. % of Land Unit	: 90%	90%	10%	%

SLOPES

d1. Steepness	: 8 - 16%	8 - 16%	< 3%	--
d2. Slope length	: 201 - 500 m	201 - 500 m	< 50 m	--
d3. Slope curvature	: Convex	Convex	Concave	--

SOILS

e1. USDA Class	: kandiudults	kandiudox	tropaquepts	
e2. % Facet	: 60%	40%	100%	%

23. SOIL CHARACTERISTICS

a. USDA Great Group	: kandiudults	kandiudox	tropaquepts	
b. Texture:	topsoil: Moderately fine	Fine	Fine	--
	subsoil: Fine	Fine	Fine	--
c. Depth:	peatsoil: --	--	--	--
	mineralsoil: Deep	Deep	Very deep	--
d. Drainage	: Well drained	Well drained	Poorly drained	--

NUTRIENTS

e. Exch. K:	topsoil: Low	Low	--	--
	subsoil: Low	Very low	--	--
f. Total K2O:	topsoil: Very low	Low	--	--
	subsoil: Very low	Very low	--	--
g. Avail. P:	method: Bray I	Bray I	--	--
	topsoil: Very low	Very low	--	--
	subsoil: Very low	Very low	--	--
h. Total P:	topsoil: Very low	Very low	--	--
	subsoil: Very low	Very low	--	--

OTHERS

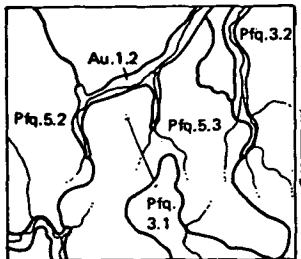
i. CEC pH 7	topsoil: Low	Low	--	--
	subsoil: Very low	Low	--	--
j. Reaction:	topsoil: Excessively acid	Excessively acid	--	--
	subsoil: Excessively acid	Very strong acid	--	--
k. Al sat.	topsoil: High	High	--	--
	subsoil: Very high	Very high	--	--
l. Al toxicity	: Yes	Yes	--	--
m. Acid sulph. pot.	: Not relevant	Not relevant	Not relevant	--
n. Salinity (ec)	: Salt free	Salt free	Salt free	--
o. Other toxicity	: --	--	--	--
p. Root obstr. layer	: --	--	--	--
q. Organic matter (%)	: 2.6	1.3	--	--
r. TEB (meq/100 g)	: 0.6	0.5	--	--

s. Total anal. profiles:	1	1	0	0
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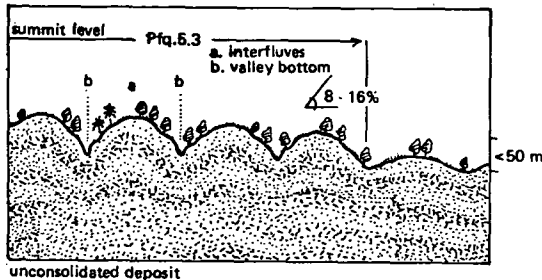
f. LAB CHECK	: Yes	Yes	No	--
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27. ADDITIONAL NOTES : The soil data of Kandiudox are extrapolated from dPf.4.2 and the data of Kandiudults and Tropaquepts are extrapolated from dPf.5.2

MAP IMAGE :



CROSS SECTION :



1. LAND UNIT : Pfq.5.3 Plains, fine and coarse felsic sedimentary rocks, rolling (slopes 8-16%), strongly dissected
2. MAP SHEET : 0717 3. AREA : 598.1 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 80%, Riau 20%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 01/11/89 Status : Final
7. SATELLITE SCENES : 128/59/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000 25 /8320-157, 23 /8320-273, 25 /8320-153
9. RADAR : STAR-1/250/88/0717-
10. PARENT MATERIAL 11. ROCK OUTCROP : 0%
- a. Weathering : Partial
- b. Lithology : claystone, sandstone,
- c. Formation : Qpmi ,
12. WATER a. Quality : Fresh
- b. Source : Rain, Perennial river
13. FISHERIES : River
14. RIVERS
- a. Floodrisk water : None b. Floodrisk sed.: None
- c. Inundation : None
15. VEGETATION/LAND USE : , shifting cultivation, rubber, oil palm
- Area used : 80 %
16. ACCELERATED EROSION
- a. Occurrence : Common b. Evidence : Various
17. TERRAIN : Rolling 8-16%, 0-50 m
18. PLAN/ Dominant: Not elongated and random > 60% of area crested/peaked
- PROFILE Included:
19. RELIEF AMPLITUDE
- a. Amplitude: Medium b. Variability : Medium
20. ALTITUDE Minimum : 100 m Maximum : 160 m
- Range : 100 - 135 m
21. DRAINAGE a. Pattern: Dendritic b. Density : Moderately high
24. VALLEY FLOOR Width : Very narrow
25. FRAGMEN a. Valleys: Small blocks b. Interfluvies : Medium blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item	10b	12a	14a	14b	19	20	21b	22b	22c	22d1	22d2	22e1	23b	23c	23d	23er	24	25
------	-----	-----	-----	-----	----	----	-----	-----	-----	------	------	------	-----	-----	-----	------	----	----

rate	1	1	1	1	2	2	2	2	2	2	2	2	1	1	1	1	2	2
------	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

28. REPRESENTATIVE PROFILES:

odh/	/	/88/YH/0717/62/	/009/	udk/	/	/88/YH/0717/62/	/019/
udk/	/	/88/YH/0717/62/	/052/	odh/	/	/89/YM/0717/64/	/002/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	:	1a	1b	2	--
b. Description	:	Interfluves	Interfluves	Valley floor	--
c. % of Land Unit	:	90%	90%	10%	%

SLOPES

d1. Steepness	:	8 - 16%	8 - 16%	< 3%	--
d2. Slope length	:	101 - 200 m	101 - 200 m	< 50 m	--
d3. Slope curvature	:	Convex	Convex	Concave	--

SOILS

e1. USDA Class	:	kandiudults	hapludox	tropaquepts	
e2. % Facet	:	70%	30%	100%	%

23. SOIL CHARACTERISTICS

a. USDA Great Group	:	kandiudults	hapludox	tropaquepts	
---------------------	---	-------------	----------	-------------	--

b. Texture:	topsoil:	Moderately fine	Moderately fine	Medium	--
	subsoil:	Moderately fine	Moderately fine	Fine	--
c. Depth:	peatsoil:	--	--	--	--
	mineralsoil:	Very deep	Deep	Deep	--
d. Drainage	:	Well drained	Well drained	Poorly drained	--

NUTRIENTS :

e. Exch. K:	topsoil:	Low	Very low	--	--
	subsoil:	Very low	Very low	--	--
f. Total K2O:	topsoil:	Very low	Very low	--	--
	subsoil:	Very low	Very low	--	--
g. Avail. P:	method:	Bray I	Bray I	--	--
	topsoil:	Very high	High	--	--
	subsoil:	Low	Very low	--	--
h. Total P:	topsoil:	Medium	Low	--	--
	subsoil:	Very low	Very low	--	--

OTHERS :

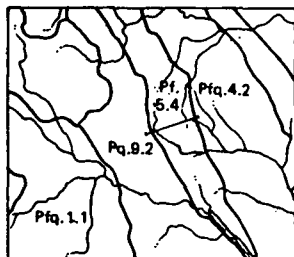
i. CEC pH 7	topsoil:	Medium	Low	--	--
	subsoil:	Low	Low	--	--
j. Reaction:	topsoil:	Very strong acid	Excessively acid	Excessively acid	--
	subsoil:	Very strong acid	Excessively acid	Very strong acid	--
k. Al sat.	topsoil:	Low	Low	--	--
	subsoil:	Medium	Medium	--	--
l. Al toxicity	:	No	No	--	--
m. Acid sulph. pot.	:	Not relevant	Not relevant	Not relevant	--
n. Salinity (ec)	:	Salt free	Salt free	Salt free	--
o. Other toxicity	:	--	--	--	--
p. Root obstr. layer	:	--	--	--	--
q. Organic matter (%)	:	3.2	4.0	--	--
r. TEB (meq/100 g)	:	3.0	2.6	--	--

s. Total anal. profiles:	2	2	0	0
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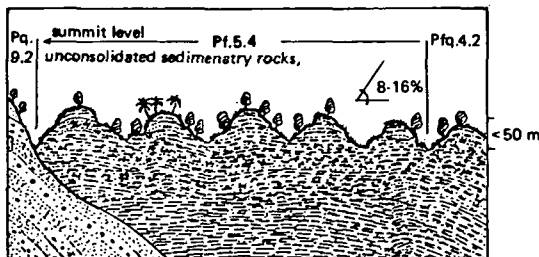
t. LAB CHECK	:	Yes	Yes	Yes	--
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27. ADDITIONAL NOTES : The soil data of Tropaquepts are extrapolated from Pfq.5.2

MAP IMAGE :



CROSS SECTION :



1. LAND UNIT : Pf.5.4 Plains, fine felsic sedimentary rocks, rolling (slopes 8-16%), extremely dissected
2. MAP SHEET : 0717 3. AREA : 37.8 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 31/10/89 Status : Final
7. SATELLITE SCENES : 128/58/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000
9. RADAR : STAR-1/250/88/0717-
10. PARENT MATERIAL 11. ROCK OUTCROP : 0%
- a. Weathering : Partial
- b. Lithology : claystone, ,
- c. Formation : Tmt
12. WATER a. Quality : Fresh
- b. Source : Rain, Perennial river
13. FISHERIES : River
14. RIVERS
- a. Floodrisk water : None b. Floodrisk sed.: None
- c. Inundation : None
15. VEGETATION/LAND USE : , bush, scrub
- Area used : 0 %
16. ACCELERATED EROSION
- a. Occurrence : Localised b. Evidence : Various
17. TERRAIN : Rolling 8-16%, 0-50 m
18. PLAN/ Dominant: Not elongated and random > 60% of area crested/peaked
- PROFILE Included:
19. RELIEF AMPLITUDE
- a. Amplitude: Medium b. Variability : Low
20. ALTITUDE Minimum : 50 m Maximum : 150 m
- Range : 75 - 120 m
21. DRAINAGE a. Pattern: Dendritic b. Density : High
24. VALLEY FLOOR Width : Very narrow
25. FRAGMEN a. Valleys: Small blocks b. Interfluves : Medium blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item	10b	12a	14a	14b	19	20	21b	22b	22c	22d1	22d2	22e1	23b	23c	23d	23er	24	25
------	-----	-----	-----	-----	----	----	-----	-----	-----	------	------	------	-----	-----	-----	------	----	----

rate	1	1	1	1	2	2	2	2	2	2	2	2	1	1	1	1	1	2	2
------	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

28. REPRESENTATIVE PROFILES:

uda/ / /88/ /JB07/63/ /133/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	: 1a	1b	--	--
b. Description	: Interfluves	Interfluves	--	--
c. % of Land Unit	: 100%	100%	%	%

SLOPES

d1. Steepness	: 3 - 16%	8 - 16%	--	--
d2. Slope length	: 101 - 200 m	101 - 200 m	--	--
d3. Slope curvature	: Convex	Convex	--	--

SOILS

e1. USDA Class	: hapludults	dystropepts		
e2. % Facet	: 60%	40%	%	%

23. SOIL CHARACTERISTICS

a. USDA Great Group	: hapludults	dystropepts		
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b. Texture:	topsoil:	Moderately fine	Fine	--	--
	subsoil:	Fine	Fine	--	--
c. Depth:	peatsoil:	--	--	--	--
	mineralsoil:	Very deep	Very deep	--	--
d. Drainage	: Well drained	Well drained	--	--	--

NUTRIENTS

e. Exch. K:	topsoil:	Very low	--	--	--
	subsoil:	Very low	--	--	--
f. Total K2O:	topsoil:	Very low	--	--	--
	subsoil:	Very low	--	--	--
g. Avail. P:	method:	Bray I	--	--	--
	topsoil:	Very low	--	--	--
	subsoil:	Very low	--	--	--
h. Total P:	topsoil:	Low	--	--	--
	subsoil:	Low	--	--	--

OTHERS

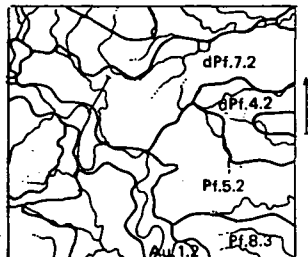
i. CEC pH 7	topsoil:	Very low	--	--	--
	subsoil:	Very low	--	--	--
j. Reaction:	topsoil:	Very strong acid	Excessively acid	--	--
	subsoil:	Very strong acid	Excessively acid	--	--
k. Al sat.	topsoil:	Medium	--	--	--
	subsoil:	Medium	--	--	--
l. Al toxicity	: No	--	--	--	--
m. Acid sulph. pot.	: Not relevant	Not relevant	--	--	--
n. Salinity (ec)	: Salt free	Salt free	--	--	--
o. Other toxicity	: --	--	--	--	--
p. Root obstr. layer	: --	--	--	--	--
q. Organic matter (%)	: 0.4	--	--	--	--
r. TEB (meq/100 g)	: 0.6	--	--	--	--

s. Total anal. profiles:	1	0	0	0
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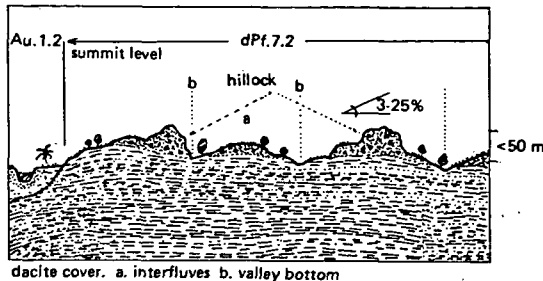
f. LAB CHECK	: Yes	No	--	--
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27. ADDITIONAL NOTES : The soil data are Extrapolated from Pf.5.3

MAP IMAGE :



CROSS SECTION :



1. LAND UNIT : dPf.7.2 Plains, fine felsic sedimentary rocks, undulating with hillocks, covered with acid tuffs, moderately dissected
2. MAP SHEET : 0717 3. AREA : 37.0 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 06/09/90 Status : Final
7. SATELLITE SCENES : 128/58/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100,000
9. RADAR : STAR-1/250/88/0717-4
10. PARENT MATERIAL 11. ROCK OUTCROP : 5%
- a. Weathering : Partial
- b. Lithology : clay, liparite,
- c. Formation : Tmt
12. WATER a. Quality : Fresh
- b. Source : Rain, Perennial river
13. FISHERIES : Not known
14. RIVERS a. Floodrisk water : None b. Floodrisk sed.: None
- c. Inundation : Not relevant
15. VEGETATION/LAND USE : , bush, scrub, alang-alang, upland crops, rubber
- Area used : 60 %
16. ACCELERATED EROSION b. Evidence : Various
- a. Occurrence : Localised
17. TERRAIN : Hillocky >16%, 0-50 m
18. PLAN/ Dominant: Not elongated and random > 60% of area crested/peaked
- PROFILE Included:
19. RELIEF AMPLITUDE b. Variability : Medium
- a. Amplitude: Medium Maximum : 125 m
20. ALTITUDE Minimum : 60 m
- Range : 75 - 100 m
21. DRAINAGE a. Pattern: Dendritic b. Density : Moderate
24. VALLEY FLOOR Width : Very narrow
25. FRAGMEN a. Valleys: None b. Interfluvies : Medium blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item | 10b | 12a | 14a | 14b | 19 | 20 | 21b | 22b | 22c | 22d1 | 22d2 | 22e1 | 23b | 23c | 23d | 23er | 24 | 25 |

rate : 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 2 | 2 |

28. REPRESENTATIVE PROFILES:

ity/ / /88/YH/0717/61/ /063/

eot/ / /88/SS/0717/21/ /059/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	: 1a	1b	2	--
b. Description	: Interfluves	Interfluves	Valley bottoms	--
c. % of Land Unit	: 90%	90%	10%	X

SLOPES

d1. Steepness	: 8 - 25%	8 - 25%	< 3%	--
d2. Slope length	: 201 - 500 m	201 - 500 m	< 50 m	--
d3. Slope curvature	: Convex	Convex	Concave	--

SOILS

e1. USDA Class	: dystropepts	troporthents	tropaquepts	
e2. % Facet	: 60%	40%	100%	X

23. SOIL CHARACTERISTICS

a. USDA Great Group	: dystropepts	troporthents	tropaquepts	
b. Texture:				
topsoil:	Moderately fine	Moderately fine	Fine	--
subsoil:	Medium	Moderately fine	Fine	--
c. Depth:				
peatsoil:	--	--	--	--
mineralsoil:	Deep	Moderately shallow	Very deep	--
d. Drainage	: Well drained	Excessively drained	Poorly drained	--

NUTRIENTS :

e. Exch. K:				
topsoil:	Low	Low	--	--
subsoil:	Low	Low	--	--
f. Total K2O:				
topsoil:	Very low	Low	--	--
subsoil:	Very low	Low	--	--
g. Avail. P:				
method:	Bray I	Bray I	--	--
topsoil:	Very low	Medium	--	--
subsoil:	Very low	Very low	--	--
h. Total P:				
topsoil:	Very low	Very low	--	--
subsoil:	Very low	Very low	--	--

OTHERS :

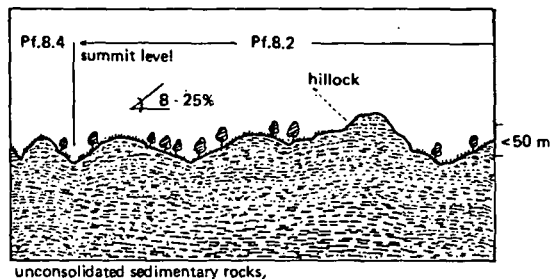
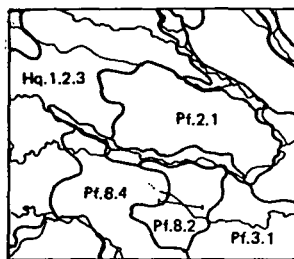
i. CEC pH 7				
topsoil:	Low	Low	--	--
subsoil:	Low	Low	--	--
j. Reaction:				
topsoil:	Strong acid	Excessively acid	--	--
subsoil:	Strong acid	Excessively acid	--	--
k. Al sat.				
topsoil:	High	High	--	--
subsoil:	High	Very high	--	--
l. Al toxicity	: Yes	Yes	--	--
m. Acid sulph. pot.	: Not relevant	Not relevant	Not relevant	--
n. Salinity (ec)	: Salt free	Salt free	Salt free	--
o. Other toxicity	: --	--	--	--
p. Root obstr. layer	: --	35 cm	--	--
q. Organic matter (%)	: 2.2	5.9	--	--
r. TEB (meq/100 g)	: 0.6	0.9	--	--

s. Total anal. profiles:	1	1	0	0
f. LAB CHECK	: Yes	Yes	No	--

27. ADDITIONAL NOTES : The soil data of Tropaquepts are extrapolated from dPf.5.2 and
The data of Troporthents are from Hu.1.3.3

MAP IMAGE :

CROSS SECTION :



1. LAND UNIT : Pf.8.2 Plains, fine felsic sedimentary rocks, rolling with hillocks, moderately dissected
2. MAP SHEET : 0717 3. AREA : 13.0 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 31/10/89 Status : Final
7. SATELLITE SCENES : 128/58/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000
9. RADAR : STAR-1/250/88/0717-
10. PARENT MATERIAL 11. ROCK OUTCROP : 0%
- a. Weathering : Partial
- b. Lithology : claystone,
- c. Formation : Tmt
12. WATER a. Quality : Fresh
- b. Source : Rain, Perennial river
13. FISHERIES : River
14. RIVERS
- a. Floodrisk water : None b. Floodrisk sed.: None
- c. Inundation : None
15. VEGETATION/LAND USE : , bush, scrub, grazing land, oil palm
- Area used : 40 %
16. ACCELERATED EROSION
- a. Occurrence : Localised b. Evidence : Various
17. TERRAIN : Rolling to hillocky
18. PLAN/ Dominant: Not elongated and random > 60% of area crested/peaked
- PROFILE Included:
19. RELIEF AMPLITUDE
- a. Amplitude: Medium b. Variability : Medium
20. ALTITUDE Minimum : 100 m Maximum : 150 m
- Range : 110 - 140 m
21. DRAINAGE a. Pattern: Dendritic b. Density : Moderate
24. VALLEY FLOOR Width : Very narrow
25. FRAGMEN a. Valleys: None b. Interfluves : Medium blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item | 10b | 12a | 14a | 14b | 19 | 20 | 21b | 22b | 22c | 22d1 | 22d2 | 22e1 | 23b | 23c | 23d | 23er | 24 | 25 |

rate : 2 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 2 | 2 |

28. REPRESENTATIVE PROFILES:

ity/ / /88/CD/0717/24/ /021/

uda/ / /89/CD/0717/21/ /076/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	:	1a	1b	--	--
b. Description	:	Interfluves	Interfluves	--	--
c. % of Land Unit	:	100%	100%	%	%

SLOPES

d1. Steepness	:	16 - 25%	16 - 25%	--	--
d2. Slope length	:	201 - 500 m	201 - 500 m	--	--
d3. Slope curvature	:	Convex	Convex	--	--

SOILS

e1. USDA Class	:	dystropepts	hapludults		
e2. % Facet	:	60%	40%	%	%

23. SOIL CHARACTERISTICS

a. USDA Great Group	:	dystropepts	hapludults		
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b. Texture:	topsoil:	Moderately fine	Fine	--	--
	subsoil:	Moderately fine	Fine	--	--
c. Depth:	peatsoil:	--	--	--	--
	mineralsoil:	Very deep	Very deep	--	--
d. Drainage	:	Well drained	Well drained	--	--

NUTRIENTS :

a. Exch. K:	topsoil:	Low	Medium	--	--
	subsoil:	Low	Medium	--	--
f. Total K2O:	topsoil:	Low	High	--	--
	subsoil:	Low	Medium	--	--
g. Avail. P:	method:	Bray I	Bray I	--	--
	topsoil:	Very low	Very low	--	--
	subsoil:	Very low	Very low	--	--
h. Total P:	topsoil:	Low	Very low	--	--
	subsoil:	Low	Low	--	--

OTHERS :

i. CEC pH 7	topsoil:	Low	Very high	--	--
	subsoil:	Low	Very high	--	--
j. Reaction:	topsoil:	Very strong acid	Strong acid	--	--
	subsoil:	Very strong acid	Strong acid	--	--
k. Al sat.	topsoil:	Medium	Medium	--	--
	subsoil:	High	High	--	--
l. Al toxicity	:	--	--	--	--
m. Acid sulph. pot.	:	Not relevant	Not relevant	--	--
n. Salinity (ec)	:	Salt free	Salt free	--	--
o. Other toxicity	:	--	--	--	--
p. Root obstr. layer	:	--	120 cm	--	--
q. Organic matter (%)	:	2.0	2.6	--	--
r. TEB (meq/100 g)	:	1.9	13.7	--	--

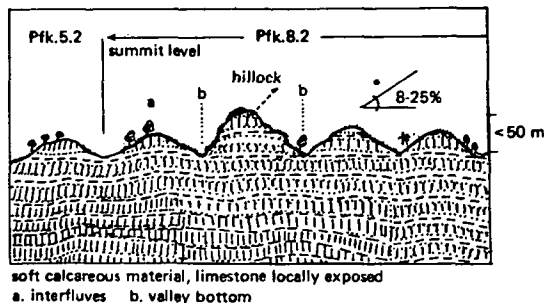
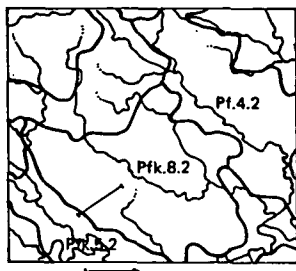
s. Total anal. profiles:	1	1	0	0
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f. LAB CHECK	:	Yes	Yes	--	--
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27. ADDITIONAL NOTES : The soil data are extrapolated from Pf.8.3

MAP IMAGE :

CROSS SECTION :



1. LAND UNIT : Pfk.8.2 Plains, fine felsic sedimentary and soft calcareous rocks, rolling with hillocks, moderately dissected
2. MAP SHEET : 0717 3. AREA : 34.4 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 01/11/89 Status : Final
7. SATELLITE SCENES : 128/58/08/08/85, 128/59/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000 145 /8319-89 , 2 /2832-179
9. RADAR : STAR-1/250/88/0717-
10. PARENT MATERIAL
 - a. Weathering : Partial
 - b. Lithology : marly clay, ,
 - c. Formation : Tmt ,
11. ROCK OUTCROP : 0%
12. WATER
 - a. Quality : Fresh
 - b. Source : Rain, Perennial river
13. FISHERIES : River
14. RIVERS
 - a. Floodrisk water : None
 - b. Floodrisk sed.: None
 - c. Inundation : None
15. VEGETATION/LAND USE : , bush, scrub, alang-alang, grazing land
Area used : 60 %
16. ACCELERATED EROSION
 - a. Occurrence : Extensive
 - b. Evidence : Gulleys
17. TERRAIN : Hillocky >16%, 0-50 m
18. PLAN/ Dominant: Not elongated and random < 40% of area flat-topped
PROFILE Included:
19. RELIEF AMPLITUDE
 - a. Amplitude: Medium
 - b. Variability : Medium
20. ALTITUDE Minimum : 75 m Maximum : 150 m
Range : 90 - 140 m
21. DRAINAGE a. Pattern: Dendritic b. Density : Moderate
24. VALLEY FLOOR Width : Very narrow
25. FRAGMEN a. Valleys: None b. Interfluvies : Medium blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item | 10b | 12a | 14a | 14b | 19 | 20 | 21b | 22b | 22c | 22d1 | 22d2 | 22e1 | 23b | 23c | 23d | 23er | 24 | 25 |

rate : 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 |

28. REPRESENTATIVE PROFILES:

ite/ / /89/CD/0717/24/ /074/ ada/ / /89/KR/0717/23/ /080/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	1a	1b	1c	
b. Description	Interfluves	Interfluves	Interfluves	--
c. % of Land Unit	100%	100%	100%	%

SLOPES

d1. Steepness	16 - 25%	16 - 25%	16 - 25%	--
d2. Slope length	101 - 200 m	101 - 200 m	101 - 200 m	--
d3. Slope curvature	Convex	Convex	Convex	--

SOILS

e1. USDA Class	troporthents	eutropepts	hapludalfs	
e2. % Facet	60%	25%	15%	%

23. SOIL CHARACTERISTICS

a. USDA Great Group	troporthents	eutropepts	hapludalfs	
b. Texture:				
topsoil:	Fine	Fine	Fine	--
subsoil:	Medium	Fine	Fine	--
c. Depth:				
peatsoil:	--	--	--	--
mineralsoil:	Very shallow	Very deep	Moderately deep	--
d. Drainage	Somewhat excessively	Moderately well	Moderately well	--

NUTRIENTS

e. Exch. K:				
topsoil:	--	Medium	Medium	--
subsoil:	--	Medium	Low	--
f. Total K2O:				
topsoil:	--	High	--	--
subsoil:	--	High	--	--
g. Avail. P:				
method:	--	Bray I	--	--
topsoil:	--	Very low	--	--
subsoil:	--	Very low	--	--
h. Total P:				
topsoil:	--	High	Low	--
subsoil:	--	High	Very low	--

OTHERS

i. CEC pH 7				
topsoil:	--	High	Very high	--
subsoil:	--	High	High	--
j. Reaction:				
topsoil:	Neutral	Neutral	Slightly acid	--
subsoil:	Very strong acid	Neutral	Neutral	--
k. Al sat.				
topsoil:	--	--	--	--
subsoil:	--	--	--	--
l. Al toxicity	--	--	--	--
m. Acid sulph. pot.	Not relevant	Not relevant	Not relevant	--
n. Salinity (ec)	Salt free	Salt free	Salt free	--
o. Other toxicity	--	--	--	--
p. Root obstr. layer	50 cm	--	--	--
q. Organic matter (%)	--	3.5	9.7	--
r. TEB (meq/100 g)	--	29.0	44.1	--

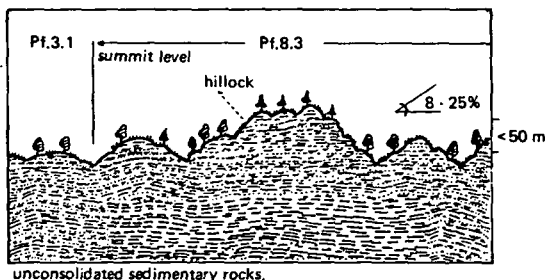
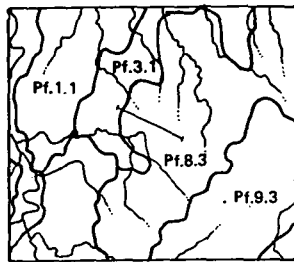
s. Total anal. profiles:	0	1	1	0
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f. LAB CHECK	No	Yes	Yes	--
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27. ADDITIONAL NOTES :

MAP IMAGE :

CROSS SECTION :



1. LAND UNIT : Pf.8.3 Plains, fine felsic sedimentary rocks, rolling with hillocks, strongly dissected
2. MAP SHEET : 0717 3. AREA : 218.8 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 31/10/89 Status : Final
7. SATELLITE SCENES : 128/58/08/08/85, 128/59/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000
9. RADAR : STAR-1/250/88/0717-
10. PARENT MATERIAL 11. ROCK OUTCROP : 0%
- a. Weathering : Partial
- b. Lithology : claystone, ,
- c. Formation : Tup ,
12. WATER a. Quality : Fresh
- b. Source : Rain, Perennial river
13. FISHERIES : River
14. RIVERS
- a. Floodrisk water : None
- c. Inundation : None
15. VEGETATION/LAND USE : , bush, scrub, rubber
- Area used : 20 %
16. ACCELERATED EROSION
- a. Occurrence : Common
- b. Evidence : Various
17. TERRAIN : Hillocky >16%, 0-50 m
18. PLAN/ Dominant: Not elongated and random > 60% of area crested/peaked
- PROFILE Included:
19. RELIEF AMPLITUDE
- a. Amplitude: Medium
- b. Variability : Medium
20. ALTITUDE Minimum : 100 m
- Range : 110 - 140 m
21. DRAINAGE a. Pattern: Dendritic
24. VALLEY FLOOR Width : Very narrow
25. FRAGMEN a. Valleys: None
- b. Interfluves : Medium blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item	10b	12a	14a	14b	19	20	21b	22b	22c	22d1	22d2	22e1	23b	23c	23d	23er	24	25
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rate	1	1	1	1	2	2	2	2	2	2	2	1	1	1	1	1	2	2
------	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

28. REPRESENTATIVE PROFILES:

uda/	/	/89/CD/0717/24/	/076/	ity/	/	/89/LH/0717/24/	/017/
uda/	/	/88/CD/0717/24/	/019/	uda/	/	/88/YM/0717/52/	/046/
ity/	/	/88/CD/0717/24/	/021/				

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	:	1a	1b	--	--
b. Description	:	Interfluves	Interfluves	--	--
c. % of Land Unit	:	100%	100%	0%	%

SLOPES

d1. Steepness	:	16 - 25%	16 - 25%	--	--
d2. Slope length	:	201 - 500 m	201 - 500 m	--	--
d3. Slope curvature	:	Convex	Convex	--	--

SOILS

e1. USDA Class	:	dystropepts	hapludults		
e2. % Facet	:	60%	40%	0%	%

23. SOIL CHARACTERISTICS

a. USDA Great Group	:	dystropepts	hapludults
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b. Texture:	topsoil:	Moderately fine	Fine	--	--
	subsoil:	Moderately fine	Fine	--	--
c. Depth:	peatsoil:	--	--	--	--
	mineralsoil:	Very deep	Deep	--	--
d. Drainage	:	Well drained	Well drained	--	--

NUTRIENTS

e. Exch. K:	topsoil:	Low	Medium	--	--
	subsoil:	Low	Medium	--	--
f. Total K2O:	topsoil:	Low	Medium	--	--
	subsoil:	Low	High	--	--
g. Avail. P:	method:	Bray I	Bray I	--	--
	topsoil:	Very low	Very low	--	--
	subsoil:	Very low	Very low	--	--
h. Total P:	topsoil:	Low	Low	--	--
	subsoil:	Low	Very low	--	--

OTHERS

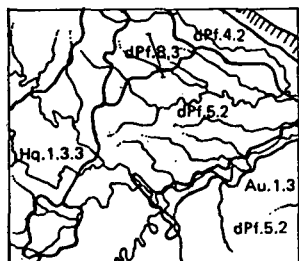
i. CEC pH 7	topsoil:	Low	Medium	--	--
	subsoil:	Low	High	--	--
j. Reaction:	topsoil:	Very strong acid	Very strong acid	--	--
	subsoil:	Very strong acid	Strong acid	--	--
k. Al sat.	topsoil:	Medium	Medium	--	--
	subsoil:	High	Medium	--	--
l. Al toxicity	:	Yes	Yes	--	--
m. Acid sulph. pot.	:	Not relevant	Not relevant	--	--
n. Salinity (ec)	:	Salt free	Salt free	--	--
o. Other toxicity	:	--	--	--	--
p. Root obstr. layer	:	--	--	--	--
q. Organic matter (%)	:	2.0	3.2	--	--
r. TEB (meq/100 g)	:	3.9	13.6	--	--

s. Total anal. profiles:	2	3	0	0
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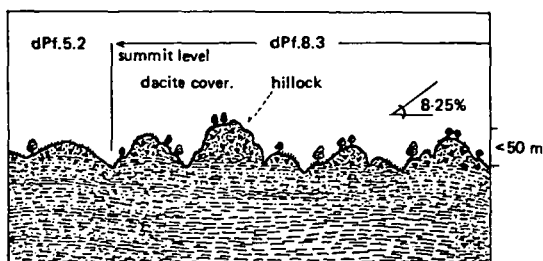
f. LAB CHECK	:	Yes	Yes	--	--
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27. ADDITIONAL NOTES :

MAP IMAGE :



CROSS SECTION :



1. LAND UNIT : dPf.8.3 Plains, fine felsic sedimentary rocks, rolling with hillocks, covered with acid tuffs, strongly dissected
2. MAP SHEET : 0717 3. AREA : 10.9 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 06/09/90 Status : Final
7. SATELLITE SCENES : 128/58/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000
9. RADAR : STAR-1/250/88/0717-4
10. PARENT MATERIAL 11. ROCK OUTCROP : 10%
- a. Weathering : Partial
- b. Lithology : clay, liparite,
- c. Formation : Tmt
12. WATER a. Quality : Fresh
- b. Source : Rain, Perennial river
13. FISHERIES : Not known
14. RIVERS a. Floodrisk water : None b. Floodrisk sed.: None
- c. Inundation : Not relevant
15. VEGETATION/LAND USE : , bush, scrub, alang-alang, upland crops, rainfed wetland rice
- Area used : 50 %
16. ACCELERATED EROSION a. Occurrence : Localised b. Evidence : Various
17. TERRAIN : Hillocky >16%, 0-50 m
18. PLAN/ Dominant: Not elongated and random > 60% of area crested/peaked
- PROFILE Included:
19. RELIEF AMPLITUDE a. Amplitude: High b. Variability : Medium
20. ALTITUDE Minimum : 75 m Maximum : 150 m
- Range : 100 - 125 m
21. DRAINAGE a. Pattern: Dendritic b. Density : Moderately high
24. VALLEY FLOOR Width : Very narrow
25. FRAGMEN a. Valleys: None b. Interfluves : Medium blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item | 10b | 12a | 14a | 14b | 19 | 20 | 21b | 22b | 22c | 22d1 | 22d2 | 22e1 | 23b | 23c | 23d | 23er | 24 | 25 |

rate : 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 2 | 2 |

28. REPRESENTATIVE PROFILES:

eot/ / /88/SS/0717/21/ /059/

ity/ / /88/YH/0717/51/ /063/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	:	1a	1b	--	--
b. Description	:	Interfluves	Interfluves	--	--
c. % of Land Unit	:	100%	100%	X	X

SLOPES

d1. Steepness	:	16 - 25%	16 - 25%	--	--
d2. Slope length	:	201 - 500 m	201 - 500 m	--	--
d3. Slope curvature	:	Convex	Convex	--	--

SOILS

e1. USDA Class	:	troporthents	dystropepts		
e2. % Facet	:	60%	40%	X	X

23. SOIL CHARACTERISTICS

a. USDA Great Group	:	troporthents	dystropepts		
b. Texture:					
topsoil:	Moderately fine	Moderately fine	--	--	
subsoil:	Moderately fine	Medium	--	--	
c. Depth:					
peatsoil:	--	--	--	--	
mineralsoil:	Moderately shallow	Deep	--	--	
d. Drainage	:	Excessively drained	Well drained	--	--

NUTRIENTS :

e. Exch. K:					
topsoil:	Low	Low	--	--	
subsoil:	Low	Low	--	--	
f. Total K2O:					
topsoil:	Low	Very low	--	--	
subsoil:	Low	Very low	--	--	
g. Avail. P:					
method:	Bray I	Bray I	--	--	
topsoil:	Medium	Very low	--	--	
subsoil:	Very low	Very low	--	--	
h. Total P:					
topsoil:	Very low	Very low	--	--	
subsoil:	Very low	Very low	--	--	

OTHERS :

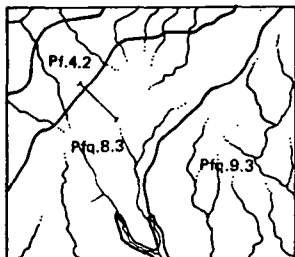
i. CEC pH 7				
topsoil:	Low	Low	--	--
subsoil:	Low	Low	--	--
j. Reaction:				
topsoil:	Excessively acid	Strong acid	--	--
subsoil:	Excessively acid	Strong acid	--	--
k. Al sat.				
topsoil:	High	High	--	--
subsoil:	Very high	High	--	--
l. Al toxicity	:	Yes	--	--
m. Acid sulph. pot.	:	Not relevant	--	--
n. Salinity (ec)	:	Salt free	--	--
o. Other toxicity	:	--	--	--
p. Root obstr. layer	:	35 cm	--	--
q. Organic matter (%)	:	5.9	--	--
r. TEB (meq/100 g)	:	0.8	--	--

s. Total anal. profiles:	1	1	0	0
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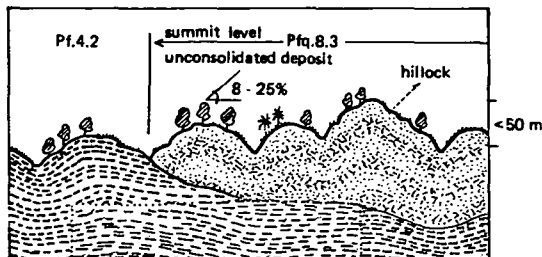
f. LAB CHECK	:	Yes	Yes	--	--
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27. ADDITIONAL NOTES : The soil data of Dystropepts are extrapolated from dPf.7.2 and
The data of Troporthents are from Hu.1.3.3

MAP IMAGE :



CROSS SECTION :



1. LAND UNIT : Pfq.8.3 Plains, fine and coarse felsic sedimentary rocks, rolling with hillocks, strongly dissected
2. MAP SHEET : 0717 3. AREA : 127.5 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 01/11/89 Status : Final
7. SATELLITE SCENES : 128/58/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000 23 /8320-277
9. RADAR : STAR-1/250/88/0717-
10. PARENT MATERIAL 11. ROCK OUTCROP : 0%
- a. Weathering : Partial
- b. Lithology : claystone, sandstone,
- c. Formation : Qpmi ,
12. WATER a. Quality : Fresh
- b. Source : Rain, Perennial river
13. FISHERIES : River
14. RIVERS
- a. Floodrisk water : None b. Floodrisk sed.: None
- c. Inundation : None
15. VEGETATION/LAND USE : secondary forest, bush, scrub, rubber
- Area used : 20 %
16. ACCELERATED EROSION
- a. Occurrence : Common b. Evidence : Various
17. TERRAIN : Hillocky >16%, 0-50 m
18. PLAN/ Dominant: Not elongated and random > 50% of area crested/peaked
- PROFILE Included:
19. RELIEF AMPLITUDE
- a. Amplitude: Medium b. Variability : Medium
20. ALTITUDE Minimum : 75 m Maximum : 155 m
- Range : 100 - 150 m
21. DRAINAGE a. Pattern: Dendritic b. Density : Moderately high
24. VALLEY FLOOR Width : Very narrow
25. FRAGMEN a. Valleys: None b. Interfluves : Medium blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item | 10b | 12a | 14a | 14b | 19 | 20 | 21b | 22b | 22c | 22d1 | 22d2 | 22e1 | 23b | 23c | 23d | 23er | 24 | 25 |

rate : 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 1 |

28. REPRESENTATIVE PROFILES:

udk/ / /89/LH/0717/33/ /004/

odh/ /

/88/CD/0717/33/ /005/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	:	1a	1b	--	--
b. Description	:	Interfluves	Interfluves	--	--
c. % of Land Unit	:	100%	100%	%	%

SLOPES

d1. Steepness	:	8 - 25%	8 - 25%	--	--
d2. Slope length	:	201 - 500 m	201 - 500 m	--	--
d3. Slope curvature	:	Convex	Convex	--	--

SOILS

e1. USDA Class	:	hapludox	kandiudults		
e2. % Facet	:	60%	40%	%	%

23. SOIL CHARACTERISTICS

a. USDA Great Group	:	hapludox	kandiudults		
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b. Texture:	topsoil:	Moderately fine	Moderately fine	--	--
	subsoil:	Moderately fine	Moderately fine	--	--
c. Depth:	peatsoil:	--	--	--	--
	mineralsoil:	Very deep	Very deep	--	--
d. Drainage	:	Well drained	Well drained	--	--

NUTRIENTS

e. Exch. K:	topsoil:	Very low	Low	--	--
	subsoil:	Very low	Very low	--	--
f. Total K2O:	topsoil:	Very low	Very low	--	--
	subsoil:	Very low	Very low	--	--
g. Avail. P:	method:	Bray I	Bray I	--	--
	topsoil:	Very low	Low	--	--
	subsoil:	Very low	Very low	--	--
h. Total P:	topsoil:	Very low	Very low	--	--
	subsoil:	Very low	Very low	--	--

OTHERS

i. CEC pH 7	topsoil:	High	High	--	--
	subsoil:	Low	Low	--	--
j. Reaction:	topsoil:	Excessively acid	Excessively acid	--	--
	subsoil:	Excessively acid	Very strong acid	--	--
k. Al sat.	topsoil:	High	High	--	--
	subsoil:	High	High	--	--
l. Al toxicity	:	No	Yes	--	--
m. Acid sulph. pot.	:	Not relevant	Not relevant	--	--
n. Salinity (ec)	:	Salt free	Salt free	--	--
o. Other toxicity	:	--	--	--	--
p. Root obstr. layer	:	--	--	--	--
q. Organic matter (%)	:	3.3	4.8	--	--
r. TEB (meq/100 g)	:	0.9	1.0	--	--

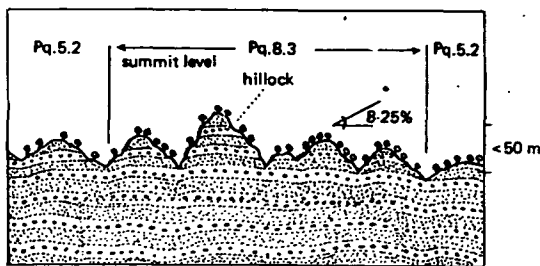
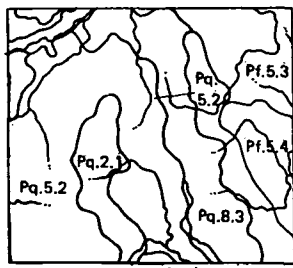
a. Total anal. profiles:	1	1	0	0
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f. LAB CHECK	:	Yes	Yes	--	--
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27. ADDITIONAL NOTES : The soil data are extrapolated from Pfq.9.2

MAP IMAGE :

CROSS SECTION :



1. LAND UNIT : Pq.8.3 Plains, coarse felsic sedimentary rocks, rolling with hillocks, strongly dissected
2. MAP SHEET : 0717 3. AREA : 21.6 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 01/11/89 Status : Final
7. SATELLITE SCENES : 128/58/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000 23 /8218-217
9. RADAR : STAR-1/250/88/0717-5
10. PARENT MATERIAL 11. ROCK OUTCROP : 0%
- a. Weathering : Partial
- b. Lithology : sandstone, ,
- c. Formation : Tmsk ,
12. WATER a. Quality : Fresh
- b. Source : Rain, Perennial river
13. FISHERIES : River
14. RIVERS o
- a. Floodrisk water : None b. Floodrisk sed.: None
- c. Inundation : None
15. VEGETATION/LAND USE : secondary forest, alang-alang, rubber
- Area used : 15 %
16. ACCELERATED EROSION
- a. Occurrence : Common b. Evidence : Various
17. TERRAIN : Hillocky >16%, 0-50 m
18. PLAN/ Dominant: Not elongated and random > 60% of area crested/peaked
- PROFILE Included:
19. RELIEF AMPLITUDE
- a. Amplitude: Medium b. Variability : Medium
20. ALTITUDE Minimum : 100 m Maximum : 200 m
- Range : 120 - 175 m
21. DRAINAGE a. Pattern: Dendritic b. Density : Moderately high
24. VALLEY FLOOR Width : Very narrow
25. FRAGMEN a. Valleys: None b. Interfluves : Medium blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item | 10b | 12a | 14a | 14b | 19 | 20 | 21b | 22b | 22c | 22d1 | 22d2 | 22e1 | 23b | 23c | 23d | 23er | 24 | 25 |

rate : 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 2 | 2 |

28. REPRESENTATIVE PROFILES:

est/ / /88/SS/0717/32/ /023/ odh/ / /88/MR/0717/54/ /108/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	:	1a	1b	--	--
b. Description	:	Interfluves	Interfluves	--	--
c. % of Land Unit	:	100%	100%	%	%

SLOPES

d1. Steepness	:	16 - 25%	16 - 25%	--	--
d2. Slope length	:	201 - 500 m	201 - 500 m	--	--
d3. Slope curvature	:	Convex	Convex	--	--

SOILS

e1. USDA Class	:	tropopsamments	hapludox		
e2. % Facet	:	60%	40%	%	%

23. SOIL CHARACTERISTICS

a. USDA Great Group	:	tropopsamments	hapludox
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b. Texture:	topsoil:	Coarse	Coarse	--	--
	subsoil:	Coarse	Coarse	--	--
c. Depth:	peatsoil:	--	--	--	--
	mineralsoil:	Deep	Very deep	--	--
d. Drainage	:	Moderately well	Somewhat excessively	--	--

NUTRIENTS :

e. Exch. K:	topsoil:	Very low	Very low	--	--
	subsoil:	Very low	Very low	--	--
f. Total K2O:	topsoil:	Very low	Very low	--	--
	subsoil:	Very low	Very low	--	--
g. Avail. P:	method:	Bray I	Bray I	--	--
	topsoil:	Low	High	--	--
	subsoil:	Very low	Medium	--	--
h. Total P:	topsoil:	Low	Very low	--	--
	subsoil:	Very low	Very low	--	--

OTHERS :

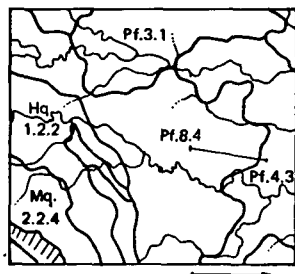
i. CEC pH 7	topsoil:	Medium	Very low	--	--
	subsoil:	Medium	Very low	--	--
j. Reaction:	topsoil:	Very strong acid	Excessively acid	--	--
	subsoil:	Very strong acid	Very strong acid	--	--
k. Al sat.	topsoil:	--	High	--	--
	subsoil:	--	Medium	--	--
l. Al toxicity	:	--	No	--	--
m. Acid sulph. pot.	:	Not relevant	Not relevant	--	--
n. Salinity (ec)	:	--	Salt free	--	--
o. Other toxicity	:	--	--	--	--
p. Root obstr. layer	:	85 cm	--	--	--
q. Organic matter (%)	:	6.6	2.0	--	--
r. TEB (meq/100 g)	:	0.5	0.4	--	--

s. Total anal. profiles:	1	1	0	0
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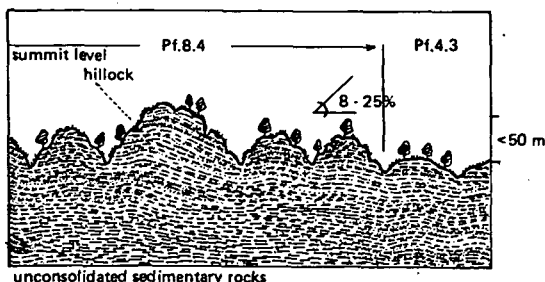
f. LAB CHECK	:	Yes	Yes	--	--
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27. ADDITIONAL NOTES : The soil data of Hapludox are extrapolated from Pg.5.2 and Tropopsamments are from Pg.1.1

MAP IMAGE :



CROSS SECTION :



1. LAND UNIT : Pf.8.4 Plains, fine felsic sedimentary rocks, rolling with hillocks, extremely dissected
2. MAP SHEET : 0717 3. AREA : 52.1 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 31/10/89 Status : Final
7. SATELLITE SCENES : 128/58/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000
9. RADAR : STAR-1/250/88/0717-
10. PARENT MATERIAL
 - a. Weathering : Partial
 - b. Lithology : claystone, ,
 - c. Formation : Tmt ,
11. ROCK OUTCROP : 0%
12. WATER
 - a. Quality : Fresh
 - b. Source : Rain, Perennial river
13. FISHERIES : River
14. RIVERS
 - a. Floodrisk water : None
 - b. Floodrisk sed.: None
 - c. Inundation : None
15. VEGETATION/LAND USE : , bush, scrub, coconut, rubber

Area used : 20 %
16. ACCELERATED EROSION
 - a. Occurrence : Localised
 - b. Evidence : Various
17. TERRAIN : Hillocky >16%, 0-50 m
18. PLAN/ Dominant: Not elongated and random > 60% of area crested/peaked .
- PROFILE Included:
19. RELIEF AMPLITUDE
 - a. Amplitude: Medium
 - b. Variability : Medium
20. ALTITUDE Minimum : 100 m

Range : 120 - 150 m
21. DRAINAGE a. Pattern: Dendritic
24. VALLEY FLOOR Width : Very narrow
25. FRAGMEN
 - a. Valleys: None
 - b. Interfluves : Small blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item | 10b | 12a | 14a | 14b | 19 | 20 | 21b | 22b | 22c | 22d1 | 22d2 | 22e1 | 23b | 23c | 23d | 23er | 24 | 25 |

rate : 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 2 | 2 |

28. REPRESENTATIVE PROFILES:

uda/ / /89/LB/0717/52/ /044/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	:	1a	1b	--	--
b. Description	:	Interfluves	Interfluves	--	--
c. % of Land Unit	:	100%	100%	%	%

SLOPES

d1. Steepness	:	16 - 25%	8 - 16%	--	--
d2. Slope length	:	101 - 200 m	101 - 200 m	--	--
d3. Slope curvature	:	Convex	Convex	--	--

SOILS

e1. USDA Class	:	dystropepts.	hapludults		
e2. % Facet	:	65%	35%	%	%

23. SOIL CHARACTERISTICS

a. USDA Great Group	:	dystropepts	hapludults
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b. Texture:	topsoil:	Moderately coarse	Moderately fine	--	--
	subsoil:	Moderately fine	Moderately coarse	--	--
c. Depth:	peatsoil:	--	--	--	--
	mineralsoil:	Very deep	Very deep	--	--
d. Drainage	:	Somewhat excessively	Well drained	--	--

NUTRIENTS :

e. Exch. K:	topsoil:	--	Very low	--	--
	subsoil:	--	Very low	--	--
f. Total K2O:	topsoil:	--	Very low	--	--
	subsoil:	--	Low	--	--
g. Avail. P:	method:	--	Bray I	--	--
	topsoil:	--	Very low	--	--
	subsoil:	--	Very low	--	--
h. Total P:	topsoil:	--	Very low	--	--
	subsoil:	--	Very low	--	--

OTHERS :

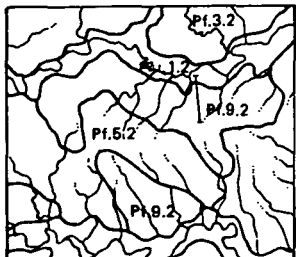
i. CEC pH 7	topsoil:	--	Low	--	--
	subsoil:	--	Very low	--	--
j. Reaction:	topsoil:	Very strong acid	Excessively acid	--	--
	subsoil:	Very strong acid	Excessively acid	--	--
k. Al sat.	topsoil:	--	Medium	--	--
	subsoil:	--	Medium	--	--
l. Al toxicity	:	--	No	--	--
m. Acid sulph. pot.	:	Not relevant	Not relevant	--	--
n. Salinity (ec)	:	Salt free	Salt free	--	--
o. Other toxicity	:	--	--	--	--
p. Root obstr. layer	:	--	--	--	--
q. Organic matter (%)	:	--	2.4	--	--
r. YEB (meq/100 g)	:	--	1.0	--	--

s. Total anal. profiles:	0	1	0	0
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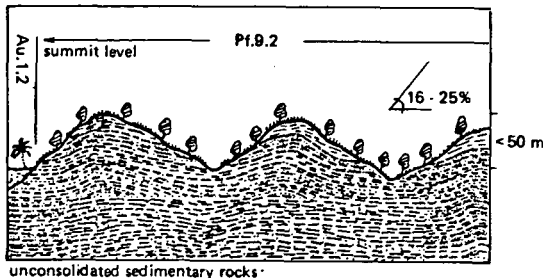
f. LAB CHECK	:	No	Yes	--	--
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27. ADDITIONAL NOTES :

MAP IMAGE :



CROSS SECTION :



1. LAND UNIT : Pf.9.2 Plains, fine felsic sedimentary rocks, hillocky (slopes >16%), moderately dissected
2. MAP SHEET : 0717 3. AREA : 267.8 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 31/10/89 Status : Final
7. SATELLITE SCENES : 128/59/08/08/85, 128/58/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000 12S /8348-197
9. RADAR : STAR-1/250/88/0717-
10. PARENT MATERIAL
11. ROCK OUTCROP : 0%
- a. Weathering : Partial
- b. Lithology : claystone, ,
- c. Formation : Tup ,
12. WATER a. Quality : Fresh
- b. Source : Rain, Perennial river
13. FISHERIES : River
14. RIVERS
- a. Floodrisk water : None
- b. Floodrisk sed.: None
- c. Inundation : None
15. VEGETATION/LAND USE : , bush, scrub, rubber
- Area used : 20 %
16. ACCELERATED EROSION
- a. Occurrence : Common
- b. Evidence : Various
17. TERRAIN : Hillocky >16%, 0-50 m
18. PLAN/ Dominant: Not elongated and random > 60% of area crested/peaked
- PROFILE Included:
19. RELIEF AMPLITUDE
- a. Amplitude: Medium
- b. Variability : Medium
20. ALTITUDE Minimum : 125 m
- Maximum : 200 m
- Range : 150 - 200 m
21. DRAINAGE a. Pattern: Dendritic
- b. Density : Moderate
24. VALLEY FLOOR Width : Very narrow
25. FRAGMEN a. Valleys: None
- b. Interfluves : Small blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item | 10b | 12a | 14a | 14b | 19 | 20 | 21b | 22b | 22c | 22d1 | 22d2 | 22e1 | 23b | 23c | 23d | 23er | 24 | 25 |

rate : 2 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 2 | 2 |

28. REPRESENTATIVE PROFILES:

ity/ / /88/CD/0717/24/ /021/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	:	1a	1b	--	--
b. Description	:	Interfluves	Interfluves	--	--
c. % of Land Unit	:	100%	100%	X	X

SLOPES

d1. Steepness	:	16 - 25%	16 - 25%	--	--
d2. Slope length	:	101 - 200 m	50 - 100 m	--	--
d3. Slope curvature	:	Convex	Concave	--	--

SOILS

e1. USDA Class	:	dystropepts	hapludults		
e2. % Facet	:	60%	40%	X	X

23. SOIL CHARACTERISTICS

a. USDA Great Group	:	dystropepts	hapludults		
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b. Texture:	topsoil:	Moderately fine	Moderately fine	--	--
	subsoil:	Fine	Fine	--	--
c. Depth:	pestsoil:	Shallow	--	--	--
	mineralsoil:	Very deep	Very deep	--	--
d. Drainage	:	Well drained	Well drained	--	--

NUTRIENTS :

e. Exch. K:	topsoil:	Low	--	--	--
	subsoil:	Low	--	--	--
f. Total K2O:	topsoil:	Low	--	--	--
	subsoil:	Low	--	--	--
g. Avail. P:	method:	Bray I	--	--	--
	topsoil:	Very low	--	--	--
	subsoil:	Very low	--	--	--
h. Total P:	topsoil:	Low	--	--	--
	subsoil:	Low	--	--	--

OTHERS :

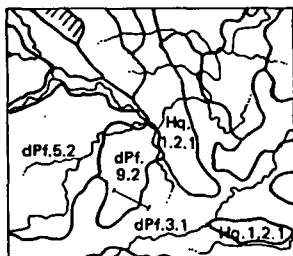
i. CEC pH 7	topsoil:	Low	--	--	--
	subsoil:	Low	--	--	--
j. Reaction:	topsoil:	Very strong acid	Very strong acid	--	--
	subsoil:	Very strong acid	Very strong acid	--	--
k. Al sat.	topsoil:	Medium	--	--	--
	subsoil:	High	--	--	--
l. Al toxicity	:	Yes	--	--	--
m. Acid sulph. pot.	:	Not relevant	Not relevant	--	--
n. Salinity (ec)	:	Salt free	Salt free	--	--
o. Other toxicity	:	--	--	--	--
p. Root obstr. layer	:	--	--	--	--
q. Organic matter (%)	:	2.0	--	--	--
r. TEB (meq/100 g)	:	3.9	--	--	--

s. Total anal. profiles:	1	0	0	0
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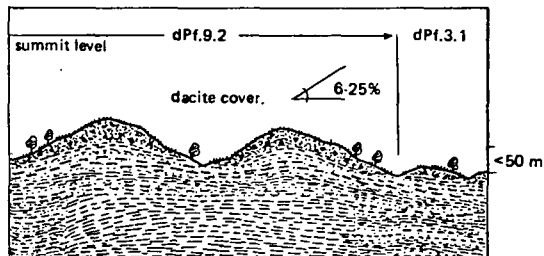
f. LAB CHECK	:	Yes	No	--	--
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27. ADDITIONAL NOTES : The soil data of Dystropept are extrapolated from Pf.8.3

MAP IMAGE :



CROSS SECTION :



1. LAND UNIT : dPf.9.2 Plains, fine felsic sedimentary rocks, hillocky (slopes >16%), covered with acid tuffs, moderately dissected
2. MAP SHEET : 0717 3. AREA : 6.8 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 06/09/90 Status : Final
7. SATELLITE SCENES : 128/58/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000
9. RADAR : STAR-1/250/88/0717-4
10. PARENT MATERIAL
11. ROCK OUTCROP : 10%
 - a. Weathering : Partial
 - b. Lithology : clay, liparite,
 - c. Formation : Tmt
12. WATER
 - a. Quality : Fresh
 - b. Source : Rain, Perennial river
13. FISHERIES : Not known
14. RIVERS
 - a. Floodrisk water : None
 - b. Floodrisk sed.: None
 - c. Inundation : Not relevant
15. VEGETATION/LAND USE : , bush, scrub, alang-alang, upland crops, rubber
Area used : 50 %
16. ACCELERATED EROSION
 - a. Occurrence : Localised
 - b. Evidence : Various
17. TERRAIN : Hillocky >16%, 0-50 m
18. PLAN/ Dominant: Not elongated and random > 60% of area crested/peaked
PROFILE Included:
19. RELIEF AMPLITUDE
 - a. Amplitude: High
 - b. Variability : Medium
20. ALTITUDE Minimum : 100 m
Range : 125 - 150 m
Maximum : 200 m
21. DRAINAGE a. Pattern: Dendritic b. Density : Moderate
24. VALLEY FLOOR Width : Very narrow
25. FRAGMEN a. Valleys: None b. Interfluves : Medium blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item | 10b | 12a | 14a | 14b | 19 | 20 | 21b | 22b | 22c | 22d1 | 22d2 | 22e1 | 23b | 23c | 23d | 23er | 24 | 25 |

rate : 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 2 | 2 |

28. REPRESENTATIVE PROFILES:

eot/ / /88/SS/0717/21/ /05b/ ity/ / /88/YH/0717/51/ /063/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	:	1a	1b	--	--
b. Description	:	Interfluves	Interfluves	--	--
c. % of Land Unit	:	100%	100%	X	X

SLOPES

d1. Steepness	:	16 - 25%	16 - 25%	--	--
d2. Slope length	:	201 - 500 m	201 - 500 m	--	--
d3. Slope curvature	:	Convex	Convex	--	--

SOILS

e1. USDA Class	:	troporhents	dystropepts		
e2. % Facet	:	60%	40%	X	X

23. SOIL CHARACTERISTICS

a. USDA Great Group	:	troporhents	dystropepts
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b. Texture:	topsoil:	Moderately fine	Moderately fine	--	--
	subsoil:	Moderately fine	Medium	--	--
c. Depth:	peatsoil:	--	--	--	--
	mineralsoil:	Moderately shallow	Deep	--	--
d. Drainage	:	Excessively drained	Well drained	--	--

NUTRIENTS

e. Exch. K:	topsoil:	Low	Low	--	--
	subsoil:	Low	Low	--	--
f. Total K2O:	topsoil:	Low	Very low	--	--
	subsoil:	Low	Very low	--	--
g. Avail. P:	method:	Bray I	Bray I	--	--
	topsoil:	Medium	Very low	--	--
	subsoil:	Very low	Very low	--	--
h. Total P:	topsoil:	Very low	Very low	--	--
	subsoil:	Very low	Very low	--	--

OTHERS

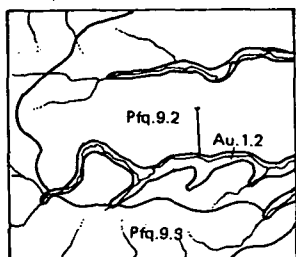
i. CEC pH 7	topsoil:	Low	Low	--	--
	subsoil:	Low	Low	--	--
j. Reaction:	topsoil:	Excessively acid	Strong acid	--	--
	subsoil:	Excessively acid	Strong acid	--	--
k. Al sat.	topsoil:	High	High	--	--
	subsoil:	Very high	High	--	--
l. Al toxicity	:	Yes	Yes	--	--
m. Acid sulph. pot.	:	Not relevant	Not relevant	--	--
n. Salinity (ec)	:	Salt free	Salt free	--	--
o. Other toxicity	:	--	--	--	--
p. Root obstr. layer	:	35 cm	--	--	--
q. Organic matter (%)	:	5.9	2.2	--	--
r. TEB (meq/100 g)	:	0.9	0.6	--	--

s. Total anal. profiles:	1	1	0	0
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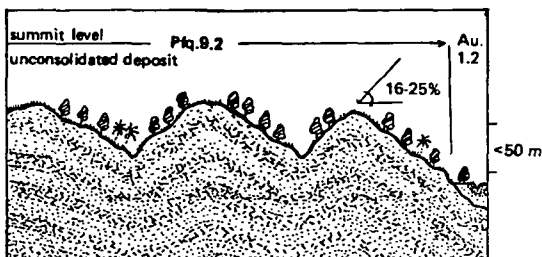
f. LAB CHECK	:	Yes	Yes	--	--
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27. ADDITIONAL NOTES : The soil data of Dystropepts are extrapolated from dPf.7.2 and
The data of Troporhents are from Hu.1.3.3

MAP IMAGE :



CROSS SECTION :



1. LAND UNIT : Pfq.9.2 Plains, fine and coarse felsic sedimentary rocks, hillocky (slopes >16%), moderately dissected
2. MAP SHEET : 0717 3. AREA : 270.2 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 01/11/89 Status : Final
7. SATELLITE SCENES :
8. AERIAL PHOTOGRAPHS : 1:100.000 R23 /2828-277
9. RADAR : STAR-1/250/88/0717-
10. PARENT MATERIAL
11. ROCK OUTCROP : 0%
- a. Weathering : Partial
- b. Lithology : claystone, sandstone,
- c. Formation : Qpmi ,
12. WATER a. Quality : Fresh
- b. Source : Rain, Perennial river
13. FISHERIES : River
14. RIVERS
- a. Floodrisk water : None
- b. Floodrisk sed.: None
- c. Inundation : None
15. VEGETATION/LAND USE : secondary forest, bush, scrub, rubber
- Area used : 10 %
16. ACCELERATED EROSION
- a. Occurrence : Common
- b. Evidence : Various
17. TERRAIN : Hillocky >16%, 0-50 m
18. PLAN/ Dominant: Not elongated and random > 60% of area crested/peaked
- PROFILE Included:
19. RELIEF AMPLITUDE
- a. Amplitude: Medium
- b. Variability : Medium
20. ALTITUDE Minimum : 50 m
- Maximum : 150 m
- Range : 75 - 140 m
21. DRAINAGE a. Pattern: Dendritic
- b. Density : Moderate
24. VALLEY FLOOR Width : Very narrow
25. FRAGMEN a. Valleys: None
- b. Interfluves : Small blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item	10b	12a	14a	14b	19	20	21b	22b	22c	22d1	22d2	22e1	23b	23c	23d	23er	24	25
rate	1	1	1	1	2	2	2	2	2	1	2	1	1	1	1	1	2	2

28. REPRESENTATIVE PROFILES:

udk/ / /89/LB/0717/33/ /004/ odh/ / /89/CD/0717/33/ /005/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	:	1a	1b	--	--
b. Description	:	Interfluves	Interfluves	--	--
c. % of Land Unit	:	100%	100%	X	X

SLOPES

d1. Steepness	:	16 - 25%	16 - 25%	--	--
d2. Slope length	:	201 - 500 m	201 - 500 m	--	--
d3. Slope curvature	:	Convex	Straight	--	--

SOILS

e1. USDA Class	:	hapludox	kandiudults		
e2. % Facet	:	80%	20%	X	X

23. SOIL CHARACTERISTICS

a. USDA Great Group	:	hapludox	kandiudults
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b. Texture:	topsoil:	Moderately fine	Moderately fine	--	--
	subsoil:	Moderately fine	Moderately fine	--	--
c. Depth:	peatsoil:	--	--	--	--
	mineralsoil:	Very deep	Very deep	--	--
d. Drainage	:	Well drained	Well drained	--	--

NUTRIENTS :

e. Exch. K:	topsoil:	Very low	Low	--	--
	subsoil:	Very low	Very low	--	--
f. Total K2O:	topsoil:	Very low	Very low	--	--
	subsoil:	Very low	Very low	--	--
g. Avail. P:	method:	Bray I	Bray I	--	--
	topsoil:	Very low	Low	--	--
	subsoil:	Very low	Very low	--	--
h. Total P:	topsoil:	Very low	Very low	--	--
	subsoil:	Very low	Very low	--	--

OTHERS :

i. CEC pH 7	topsoil:	High	High	--	--
	subsoil:	Low	Low	--	--
j. Reaction:	topsoil:	Excessively acid	Excessively acid	--	--
	subsoil:	Excessively acid	Very strong acid	--	--
k. Al sat.	topsoil:	High	High	--	--
	subsoil:	High	High	--	--
l. Al toxicity	:	No	Yes	--	--
m. Acid sulph. pot.	:	Not relevant	Not relevant	--	--
n. Salinity (ec)	:	Salt free	Salt free	--	--
o. Other toxicity	:	--	--	--	--
p. Root obstr. layer	:	--	--	--	--
q. Organic matter (%)	:	3.3	4.8	--	--
r. TEB (meq/100 g)	:	0.9	1.0	--	--

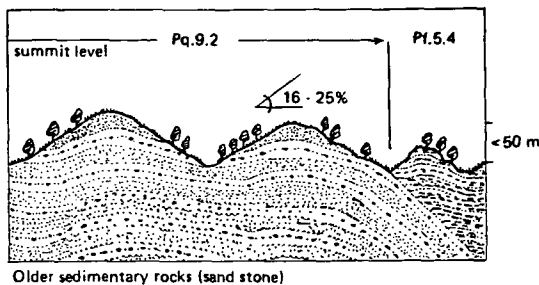
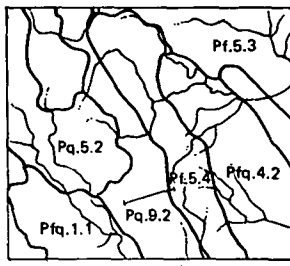
s. Total anal. profiles:	1	1	0	0
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f. LAB CHECK	:	Yes	Yes	--	--
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27. ADDITIONAL NOTES :

MAP IMAGE :

CROSS SECTION :



1. LAND UNIT : Pq.9.2 Plains, coarse felsic sedimentary rocks, hillocky (slopes >16%), moderately dissected
2. MAP SHEET : 0717 3. AREA : 78.4 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 01/11/89 Status : Final
7. SATELLITE SCENES : 128/58/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000 23 /8218-217, 23 /8218-219
9. RADAR : STAR-1/250/88/0717-5
10. PARENT MATERIAL 11. ROCK OUTCROP : 0%
- a. Weathering : Partial
- b. Lithology : sandstone, ,
- c. Formation : Tmsk ,
12. WATER a. Quality : Fresh
- b. Source : Rain, Perennial river
13. FISHERIES : Not known
14. RIVERS
- a. Floodrisk water : None b. Floodrisk sed.: None
- c. Inundation : None
15. VEGETATION/LAND USE : secondary forest
- Area used : 0 %
16. ACCELERATED EROSION
- a. Occurrence : Common b. Evidence : Various
17. TERRAIN : Hillocky >16%, 0-50 m
18. PLAN/ Dominant: Not elongated and random > 60% of area crested/peaked
- PROFILE Included:
19. RELIEF AMPLITUDE
- a. Amplitude: Medium b. Variability : Medium
20. ALTITUDE Minimum : 100 m Maximum : 200 m
- Range : 120 - 180 m
21. DRAINAGE a. Pattern: Dendritic b. Density : Moderate
24. VALLEY FLOOR Width : Very narrow
25. FRAGMEN a. Valleys: None b. Interfluves : None

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item | 10b | 12a | 14a | 14b | 19 | 20 | 21b | 22b | 22c | 22d1 | 22d2 | 22e1 | 23b | 23c | 23d | 23er | 24 | 25 |

rate : 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 2 | 2 |

28. REPRESENTATIVE PROFILES:

est/ / /88/SS/0717/32/ /023/ odh/ / /88/JB/0717/54/ /142/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	: 1a	1b	--	--
b. Description	: Interfluves	Interfluves	--	--
c. % of Land Unit	: 100%	100%	X	X

SLOPES

d1. Steepness	: 16 - 25%	16 - 25%	--	--
d2. Slope length	: 101 - 200 m	101 - 200 m	--	--
d3. Slope curvature	: Convex	Convex	--	--

SOILS

e1. USDA Class	: tropopsamments	hapludox		
e2. % Facet	: 80%	20%	X	X

23. SOIL CHARACTERISTICS

a. USDA Great Group	: tropopsamments	hapludox		
---------------------	------------------	----------	--	--

b. Texture:	topsoil: Coarse	Coarse	--	--
	subsoil: Coarse	Coarse	--	--
c. Depth:	peatsoil: --	--	--	--
	mineralsoil: Deep	Extremely deep	--	--
d. Drainage	: Moderately well	Well drained	--	--

NUTRIENTS

e. Exch. K:	topsoil: Very low	Low	--	--
	subsoil: Very low	Very low	--	--
f. Total K2O:	topsoil: Very low	Very low	--	--
	subsoil: Very low	Very low	--	--
g. Avail. P:	method: Bray I	Bray I	--	--
	topsoil: Low	High	--	--
	subsoil: Very low	Low	--	--
h. Total P:	topsoil: Low	Low	--	--
	subsoil: Very low	Low	--	--

OTHERS

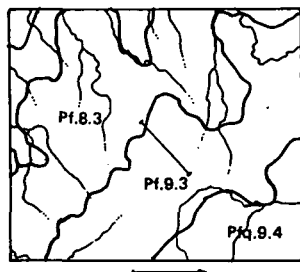
i. CEC pH 7	topsoil: Medium	Very low	--	--
	subsoil: Medium	Very low	--	--
j. Reaction:	topsoil: Very strong acid	Excessively acid	--	--
	subsoil: Very strong acid	Excessively acid	--	--
k. Al sat.	topsoil: --	High	--	--
	subsoil: --	Medium	--	--
l. Al toxicity	: --	No	--	--
m. Acid sulph. pot.	: Not relevant	Not relevant	--	--
n. Salinity (ec)	: Salt free	Salt free	--	--
o. Other toxicity	: --	--	--	--
p. Root obstr. layer	: 85 cm	--	--	--
q. Organic matter (%)	: 6.6	1.9	--	--
r. TEB (meq/100 g)	: 0.5	0.7	--	--

s. Total anal. profiles:	1	1	0	0
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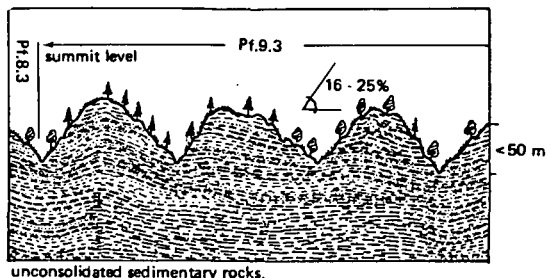
f. LAB CHECK	: Yes	Yes	--	--
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27. ADDITIONAL NOTES : The soil data of Tropopsamments are extrapolated from Pg.1.1

MAP IMAGE :



CROSS SECTION :



1. LAND UNIT : Pf.9.3 Plains, fine felsic sedimentary rocks, hillocky (slopes >16%), strongly dissected
2. MAP SHEET : 0717 3. AREA : 135.2 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 31/10/89 Status : Final
7. SATELLITE SCENES : 128/59/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000
9. RADAR : STAR-1/250/88/0717-
10. PARENT MATERIAL
11. ROCK OUTCROP : 0%
- a. Weathering : Partial
- b. Lithology : claystone, ,
- c. Formation : Tup ,
12. WATER a. Quality : Fresh
- b. Source : Rain, Perennial river
13. FISHERIES : River
14. RIVERS
- a. Floodrisk water : None
- b. Floodrisk sed.: None
- c. Inundation : None
15. VEGETATION/LAND USE : , bush, scrub, mixed gardens of fruit trees
- Area used : 30 %
16. ACCELERATED EROSION
- a. Occurrence : Localised
- b. Evidence : Various
17. TERRAIN : Hillocky >16%, 0-50 m
18. PLAN/ Dominant: Not elongated and random > 60% of area crested/peaked
- PROFILE Included:
19. RELIEF AMPLITUDE
- a. Amplitude: Medium
- b. Variability : Medium
20. ALTITUDE Minimum : 100 m
- Maximum : 175 m
- Range : 120 - 160 m
21. DRAINAGE a. Pattern: Dendritic
- b. Density : Moderately high
24. VALLEY FLOOR Width : Very narrow
25. FRAGMEN a. Valleys: None
- b. Interfluves : Small blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item | 10b | 12a | 14a | 14b | 19 | 20 | 21b | 22b | 22c | 22d1 | 22d2 | 22e1 | 23b | 23c | 23d | 23er | 24 | 25 |

rate : 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 2 | 2 |

28. REPRESENTATIVE PROFILES:

ity/ / /88/CD/0717/24/ /021/ uda/ / /89/LH/0717/52/ /044/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	:	1a	1b	--	--
b. Description	:	Interfluves	Interfluves	--	--
c. % of Land Unit	:	100%	100%	%	%

SLOPES

d1. Steepness	:	16 - 25%	16 - 25%	--	--
d2. Slope length	:	101 - 200 m	101 - 200 m	--	--
d3. Slope curvature	:	Convex	Convex	--	--

SOILS

e1. USDA Class	:	dystropepts	hapludults		
e2. % Facet	:	60%	40%	%	%

23. SOIL CHARACTERISTICS

a. USDA Great Group	:	dystropepts	hapludults		
---------------------	---	-------------	------------	--	--

b. Texture:	topsoil:	Moderately fine	Moderately fine	--	--
	subsoil:	Moderately fine	Moderately coarse	--	--
c. Depth:	peatsoil:	--	--	--	--
	mineralsoil:	Very deep	Very deep	--	--
d. Drainage	:	Well drained	Well drained	--	--

NUTRIENTS :

e. Exch. K:	topsoil:	Low	Very low	--	--
	subsoil:	Low	Very low	--	--
f. Total K2O:	topsoil:	Low	Very low	--	--
	subsoil:	Low	Low	--	--
g. Avail. P:	method:	Bray I	Bray I	--	--
	topsoil:	Very low	Very low	--	--
	subsoil:	Very low	Very low	--	--
h. Total P:	topsoil:	Low	Very low	--	--
	subsoil:	Low	Very low	--	--

OTHERS :

i. CEC pH 7	topsoil:	Low	Low	--	--
	subsoil:	Low	Very low	--	--
j. Reaction:	topsoil:	Very strong acid	Excessively acid	--	--
	subsoil:	Very strong acid	Excessively acid	--	--
k. Al sat.	topsoil:	Medium	Medium	--	--
	subsoil:	High	Medium	--	--
l. Al toxicity	:	Yes	No	--	--
m. Acid sulph. pot.	:	Not relevant	Not relevant	--	--
n. Salinity (ec)	:	Salt free	Salt free	--	--
o. Other toxicity	:	--	--	--	--
p. Root obstr. layer	:	--	--	--	--
q. Organic matter (%)	:	2.0	2.4	--	--
r. TEB (meq/100 g)	:	1.9	1.0	--	--

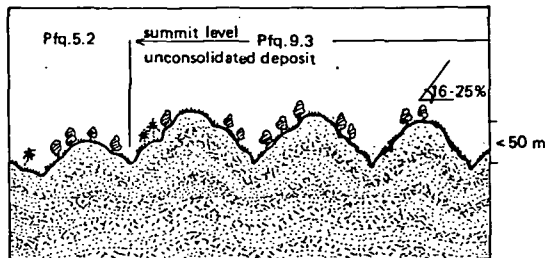
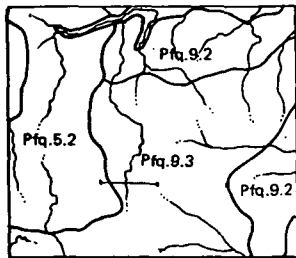
s. Total anal. profiles:	1	1	0	0
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f. LAB CHECK	:	Yes	Yes	--	--
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27. ADDITIONAL NOTES : The soil data are extrapolated from Pf.8.3 & Pf.8.4

MAP IMAGE :

CROSS SECTION :



1. LAND UNIT : Pfq.9.3 Plains, fine and coarse felsic sedimentary rocks, hilly (slopes >16%), strongly dissected
2. MAP SHEET : 0717 3. AREA : 413.1 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 01/11/89 Status : Final
7. SATELLITE SCENES : 128/58/08/08/85, 128/59/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000 23 /8320-279, 23 /8320-279, 23 /8320-277
9. RADAR : STAR-1/250/88/0717-
10. PARENT MATERIAL 11. ROCK OUTCROP : 0%
- a. Weathering : Partial
- b. Lithology : claystone, sandstone,
- c. Formation : Qpmi
12. WATER a. Quality : Fresh
- b. Source : Rain, Perennial river
13. FISHERIES : River
14. RIVERS
- a. Floodrisk water : None b. Floodrisk sed.: None
- c. Inundation : None
15. VEGETATION/LAND USE : secondary forest, rubber
- Area used : 10 %
16. ACCELERATED EROSION
- a. Occurrence : Common b. Evidence : Various
17. TERRAIN : Hilly >16%, 0-50 m
18. PLAN/ Dominant: Not elongated and random > 60% of area crested/peaked
- PROFILE Included:
19. RELIEF AMPLITUDE
- a. Amplitude: Medium b. Variability : Medium
20. ALTITUDE Minimum : 175 m Maximum : 210 m
- Range : 190 - 200 m
21. DRAINAGE a. Pattern: Dendritic b. Density : Moderately high
24. VALLEY FLOOR Width : Very narrow
25. FRAGMEN a. Valleys: None b. Interfluves : Small blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item | 10b | 12a | 14a | 14b | 19 | 20 | 21b | 22b | 22c | 22d1 | 22d2 | 22e1 | 23b | 23c | 23d | 23er | 24 | 25 |

rate : 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 2 |

28. REPRESENTATIVE PROFILES:

udk/ / /88/CD/0717/33/ /008/

odh/ /

/88/CD/0717/33/ /005/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	:	1a	1b	--	--
b. Description	:	Interfluves	Interfluves	--	--
c. % of Land Unit	:	100%	100%	0%	%

SLOPES

d1. Steepness	:	16 - 25%	16 - 25%	--	--
d2. Slope length	:	201 - 500 m	201 - 500 m	--	--
d3. Slope curvature	:	Convex	Convex	--	--

SOILS

e1. USDA Class	:	hapludox	kandiudults		
e2. % Facet	:	80%	20%	0%	%

23. SOIL CHARACTERISTICS

a. USDA Great Group	:	hapludox	kandiudults		
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b. Texture:	topsoil:	Moderately fine	Moderately fine	--	--
	subsoil:	Moderately fine	Moderately fine	--	--
c. Depth:	peatsoil:	--	--	--	--
	mineralsoil:	Very deep	Very deep	--	--
d. Drainage	:	Well drained	Moderately well	--	--

NUTRIENTS

e. Exch. K:	topsoil:	Very low	Low	--	--
	subsoil:	Very low	Very low	--	--
f. Total K2O:	topsoil:	Very low	Very low	--	--
	subsoil:	Very low	Very low	--	--
g. Avail. P:	method:	Bray I	Bray I	--	--
	topsoil:	Very low	Very low	--	--
	subsoil:	Very low	Very low	--	--
h. Total P:	topsoil:	Very low	Very low	--	--
	subsoil:	Very low	Very low	--	--

OTHERS

i. CEC pH 7	topsoil:	High	Low	--	--
	subsoil:	Low	Very low	--	--
j. Reaction:	topsoil:	Excessively acid	Excessively acid	--	--
	subsoil:	Excessively acid	Very strong acid	--	--
k. Al sat.	topsoil:	High	High	--	--
	subsoil:	High	High	--	--
l. Al toxicity	:	No	No	--	--
m. Acid sulph. pot.	:	Not relevant	Not relevant	--	--
n. Salinity (ec)	:	Salt free	Salt free	--	--
o. Other toxicity	:	--	--	--	--
p. Root obstr. layer	:	--	--	--	--
q. Organic matter (%)	:	3.3	6.2	--	--
r. TEB (meq/100 g)	:	0.9	0.8	--	--

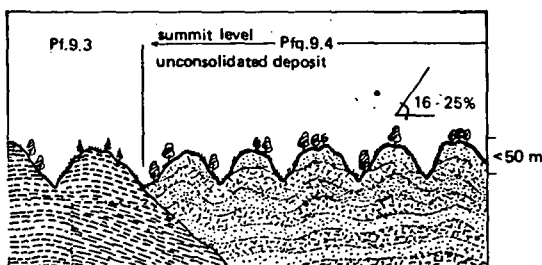
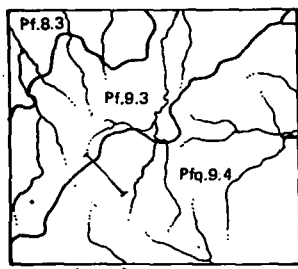
a. Total anal. profiles:	1	1	0	0
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f. LAB CHECK	:	Yes	Yes	--	--
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27. ADDITIONAL NOTES : The soil data of Hapludox are extrapolated from Pfq.9.2

MAP IMAGE :

CROSS SECTION :



1. LAND UNIT : Pfq.9.4 Plains, fine and coarse felsic sedimentary rocks, hillocky (slopes >16%), extremely dissected
2. MAP, SHEET : 0717 3. AREA : 198.9 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 01/11/89 Status : Final
7. SATELLITE SCENES : 128/59/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000 23 /8320-279, 14S /8319-85
9. RADAR : STAR-1/250/88/0717-
10. PARENT MATERIAL 11. ROCK OUTCROP : 0%
- a. Weathering : Partial
- b. Lithology : claystone, sandstone,
- c. Formation : Qpmi
12. WATER a. Quality : Fresh
- b. Source : Rain, Perennial river
13. FISHERIES : River
14. RIVERS
- a. Floodrisk water : None
- b. Floodrisk sed.: None
- c. Inundation : None
15. VEGETATION/LAND USE : logged forest, secondary forest
- Area used : 0 %
16. ACCELERATED EROSION
- a. Occurrence : Common b. Evidence : Various
17. TERRAIN : Hillocky >16%, 0-50 m
18. PLAN/ Dominant: Not elongated and random > 60% of area crested/peaked
- PROFILE Included:
19. RELIEF AMPLITUDE
- a. Amplitude: Medium b. Variability : Medium
20. ALTITUDE Minimum : 100 m Maximum : 220 m
- Range : 120 - 200 m
21. DRAINAGE a. Pattern: Dendritic b. Density : High
24. VALLEY FLOOR Width : Very narrow
25. FRAGMEN a. Valleys: None b. Interfluves : None

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item	10b	12a	14a	14b	19	20	21b	22b	22c	22d1	22d2	22e1	23b	23c	23d	23er	24	25
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rate	1	1	1	1	2	2	2	2	2	2	2	2	1	1	1	1	1	2	2
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28. REPRESENTATIVE PROFILES:

odh/ / /89/CD/0717/24/ /024/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	:	1a	1b	--	--
b. Description	:	Interfluves	Interfluves	--	--
c. % of Land Unit	:	100%	100%	%	%

SLOPES

d1. Steepness	:	16 - 25%	16 - 25%	--	--
d2. Slope length	:	201 - 500 m	201 - 500 m	--	--
d3. Slope curvature	:	Convex	Convex	--	--

SOILS

e1. USDA Class	:	hapludox	kandiudults		
e2. % Facet	:	80%	20%	%	%

23. SOIL CHARACTERISTICS

a. USDA Great Group	:	hapludox	kandiudults
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b. Texture:	topsoil:	Moderately fine	Moderately fine	--	--
	subsoil:	Moderately fine	Moderately fine	--	--
c. Depth:	peatsoil:	--	--	--	--
	mineralsoil:	Very deep	Very deep	--	--
d. Drainage	:	Well drained	Well drained	--	--

NUTRIENTS :

e. Exch. K:	topsoil:	Low	--	--	--
	subsoil:	Very low	--	--	--
f. Total K2O:	topsoil:	Very low	--	--	--
	subsoil:	Very low	--	--	--
g. Avail. P:	method:	Bray I	--	--	--
	topsoil:	Very low	--	--	--
	subsoil:	Very low	--	--	--
h. Total P:	topsoil:	Very low	--	--	--
	subsoil:	Very low	--	--	--

OTHERS :

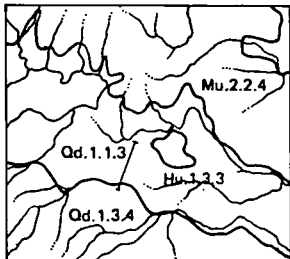
i. CEC pH 7	topsoil:	Medium	--	--	--
	subsoil:	Low	--	--	--
j. Reaction:	topsoil:	Excessively acid	Excessively acid	--	--
	subsoil:	Excessively acid	Very strong acid	--	--
k. Al sat.	topsoil:	High	--	--	--
	subsoil:	High	--	--	--
l. Al toxicity	:	No	--	--	--
m. Acid sulph. pot.	:	Not relevant	Not relevant	--	--
n. Salinity (ec)	:	Salt free	Salt free	--	--
o. Other toxicity	:	--	--	--	--
p. Root obstr. layer	:	--	--	--	--
q. Organic matter (%)	:	4.4	--	--	--
r. TEB (meq/100 g)	:	0.7	--	--	--

s. Total anal. profiles:	1	0	0	0
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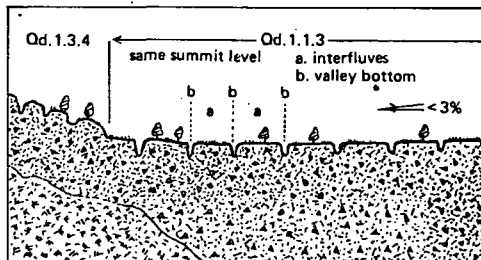
f. LAB CHECK	:	Yes	No	--	--
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27. ADDITIONAL NOTES :

MAP IMAGE :



CROSS SECTION :



1. LAND UNIT : Qd.1.1.3 Toba acid tuff highlands, acid tuffs, plateau, flat (slopes <3%), strongly dissected
2. MAP SHEET : 0717 3. AREA : 235.0 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 06/11/89 Status : Final
7. SATELLITE SCENES : 128/58/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000
9. RADAR : STAR-1/250/88/0717-
10. PARENT MATERIAL 11. ROCK OUTCROP : 0%
- a. Weathering : Partial
- b. Lithology : dacite, ,
- c. Formation : Qvt ,
12. WATER a. Quality : Fresh
- b. Source : Rain, Perennial river
13. FISHERIES : River
14. RIVERS
- a. Floodrisk water : None b. Floodrisk sed.: None
- c. Inundation : None
15. VEGETATION/LAND USE : secondary forest, bush, scrub, upland crops
- Area used : 10 %
16. ACCELERATED EROSION
- a. Occurrence : Localised b. Evidence Various
17. TERRAIN : Flat, slope < 3%, 0-50 m
18. PLAN/ Dominant: Not elongated and random 40-60% of area flat-topped
- PROFILE Included: Elongated and random 40-60% of area flat-topped
19. RELIEF AMPLITUDE
- a. Amplitude: Low b. Variability : Low
20. ALTITUDE Minimum :1000 m Maximum :1279 m
- Range :1100 - 1250 m
21. DRAINAGE a. Pattern: Dendritic b. Density : Moderately high
24. VALLEY FLOOR Width : Very narrow
25. FRAGMEN a. Valleys: None b. Interfluvies : Small blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item	10b	12a	14a	14b	19	20	21b	22b	22c	22d1	22d2	22e1	23b	23c	23d	23er	24	25
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rate	1	2	1	1	2	2	1	2	2	2		1	1	2	1	1	2	2
------	---	---	---	---	---	---	---	---	---	---	--	---	---	---	---	---	---	---

28. REPRESENTATIVE PROFILES:

iny/	/	/87/MR/0618/32/	/026/	ith/	/	/89/YM/0717/51/	/050/
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22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	: 1a	1a	--	--
b. Description	: Interfluves	Interfluves	--	--
c. % of Land Unit	: 100%	100%	X	X

SLOPES

d1. Steepness	: < 3%	< 3%	--	--
d2. Slope length	: > 500 m	> 500 m	--	--
d3. Slope curvature	: Straight	Straight	--	--

SOILS

e1. USDA Class	: dystrandepts	humitropepts		
e2. % Facet	: 80%	20%	X	X

23. SOIL CHARACTERISTICS

a. USDA Great Group	: dystrandepts	humitropepts		
b. Texture:				
topsoil:	Fine	Fine	--	--
subsoil:	Moderately fine	Fine	--	--
c. Depth:				
peatsoil:	--	--	--	--
mineralsoil:	Extremely deep	Moderately deep	--	--
d. Drainage	: Well drained	Well drained	--	--

NUTRIENTS

e. Exch. K:				
topsoil:	Very low	Medium	--	--
subsoil:	Very low	Medium	--	--
f. Total K2O:				
topsoil:	High	Very low	--	--
subsoil:	High	Medium	--	--
g. Avail. P:				
method:	Bray I	Bray I	--	--
topsoil:	Very low	Low	--	--
subsoil:	Very low	Very low	--	--
h. Total P:				
topsoil:	Very low	Very low	--	--
subsoil:	Very low	High	--	--

OTHERS

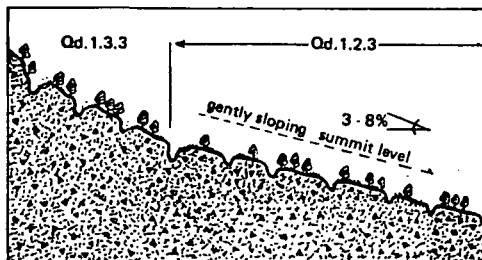
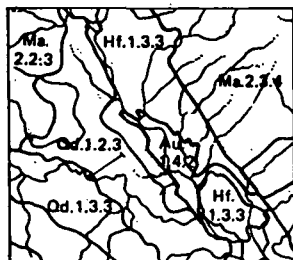
i. CEC pH 7				
topsoil:	Low	Very low	--	--
subsoil:	Low	Very high	--	--
j. Reaction:				
topsoil:	Very strong acid	Very strong acid	--	--
subsoil:	Strong acid	Very strong acid	--	--
k. Al sat.				
topsoil:	High	Low	--	--
subsoil:	High	Medium	--	--
l. Al toxicity	: Yes	No	--	--
m. Acid sulph. pot.	: Not relevant	Not relevant	--	--
n. Salinity (ec)	: Salt free	Salt free	--	--
o. Other toxicity	: --	--	--	--
p. Root obstr. layer	: 195 cm	--	--	--
q. Organic matter (%)	: 1.6	9.7	--	--
r. TEB (meq/100 g)	: 1.1	18.9	--	--

s. Total anal. profiles:	2	1	0	0
f. LAB CHECK	: Yes	Yes	--	--

27. ADDITIONAL NOTES : The soil data of Dystrandepts are extrapolated from Qd.1.1.3,
0618 sheet and the data of Humitropept are from Qd.2.3.4

MAP IMAGE :

CROSS SECTION :



1. LAND UNIT : Qd.1.2.3 Toba acid tuff highlands, acid tuffs, upper slopes with gently sloping summit level (slopes 3-8%), strongly dissected
2. MAP SHEET : 0717 3. AREA : 59.2 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 06/11/89 Status : Final
7. SATELLITE SCENES : 128/58/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000 T2 /8323-163, 14S /8319-87
9. RADAR : STAR-1/250/88/0717-5
10. PARENT MATERIAL 11. ROCK OUTCROP : 0%
- a. Weathering : Partial
- b. Lithology : dacite, ,
- c. Formation : Qvt ,
12. WATER a. Quality : Fresh
- b. Source : Rain, Perennial river
13. FISHERIES : River
14. RIVERS
- a. Floodrisk water : None b. Floodrisk sed.: None
- c. Inundation : None
15. VEGETATION/LAND USE : moist primary submontane forest, bush, scrub, upland crops
- Area used : 25 %
16. ACCELERATED EROSION
- a. Occurrence : Common b. Evidence : Various
17. TERRAIN : Undulating 3-8%, 0-50 m
18. FLAN/ Dominant: Not elongated and random 40-60% of area flat-topped
- PROFILE Included:
19. RELIEF AMPLITUDE
- a. Amplitude: Medium b. Variability : Medium
20. ALTITUDE Minimum : 800 m Maximum : 1200 m
- Range : 900 - 1100 m
21. DRAINAGE a. Pattern: Dendritic b. Density : Moderately high
24. VALLEY FLOOR Width : Very narrow
25. FRAGMEN a. Valleys: Small blocks b. Interfluves : Medium blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item | 10b | 12a | 14a | 14b | 19 | 20 | 21b | 22b | 22c | 22d1 | 22d2 | 22e1 | 23b | 23c | 23d | 23er | 24 | 25 |

rate : 1 | 2 | 1 | 1 | 2 | 2 | 2 | 3 | 3 | 2 | 2 | 1 | 1 | 1 | 2 | 1 | 2 | 2 |

28. REPRESENTATIVE PROFILES:

iny/ / /87/MD/0618/34/ /030/

ith/ / /89/YM/0717/51/ /050/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	: 1a	1b	--	--
b. Description	: Interfluves	Interfluves	--	--
c. % of Land Unit	: 100%	100%	X	X

SLOPES

d1. Steepness	: 3 - 8%	0 - 8%	--	--
d2. Slope length	: > 500 m	> 500 m	--	--
d3. Slope curvature	: Straight	Straight	--	--

SOILS

e1. USDA Class	: dystrandepts	humitropepts		
e2. % Facet	: 80%	20%	X	X

23. SOIL CHARACTERISTICS

a. USDA Great Group	: dystrandepts	humitropepts		
b. Texture:	topsoil: Moderately coarse	Fine	--	--
	subsoil: Coarse	Fine	--	--
c. Depth:	peatsoil: --	--	--	--
	mineralsoil: Very deep	Moderately deep	--	--
d. Drainage	: Well drained	Well drained	--	--

NUTRIENTS :

e. Exch. K:	topsoil: Medium	Medium	--	--
	subsoil: Low	Medium	--	--
f. Total K2O:	topsoil: Very high	Very low	--	--
	subsoil: Very high	Medium	--	--
g. Avail. P:	method: Bray I	Bray I	--	--
	topsoil: High	Low	--	--
	subsoil: High	Very low	--	--
h. Total P:	topsoil: Low	Very low	--	--
	subsoil: Low	High	--	--

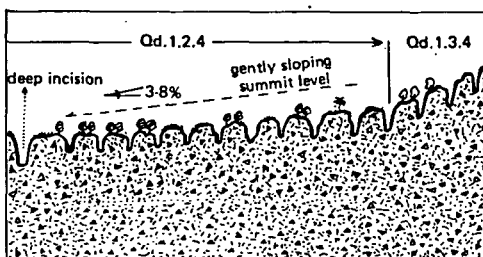
OTHERS :

i. CEC pH 7	topsoil: Low	Very low	--	--
	subsoil: Very low	Very high	--	--
j. Reaction:	topsoil: Strong acid	Very strong acid	--	--
	subsoil: Strong acid	Very strong acid	--	--
k. Al sat.	topsoil: None, very low	Low	--	--
	subsoil: None, very low	Medium	--	--
l. Al toxicity	: No	No	--	--
m. Acid sulph. pot.	: Not relevant	Not relevant	--	--
n. Salinity (ec)	: Salt free	Salt free	--	--
o. Other toxicity	: --	--	--	--
p. Root obstr. layer	: 110 cm	--	--	--
q. Organic matter (%)	: 2.1	9.7	--	--
r. TEB (meq/100 g)	: 2.5	18.9	--	--

s. Total anal. profiles:	1	1	0	0
f. LAB CHECK	: Yes	Yes	--	--

27. ADDITIONAL NOTES : The soil data of Dystrandepts are extrapolated from Qd.1.2.3,
0618 sheet and the data of Humitropepts are from Qd.2.3.4

CROSS SECTION :



1. LAND UNIT : Qd.1.2.4 Toba acid tuff highlands, acid tuffs, upper slopes with gently sloping summit level (slopes 3-8%), extremely dissected
2. MAP SHEET : 0717 3. AREA : 290.0 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 06/11/89 Status : Final
7. SATELLITE SCENES : 128/58/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000
9. RADAR : STAR-1/250/88/0717-4
10. PARENT MATERIAL
- a. Weathering : Partial
- b. Lithology : dacite, ,
- c. Formation : Qvt ,
11. ROCK OUTCROP : 0%
12. WATER
- a. Quality : Fresh
- b. Source : Rain, Perennial river
13. FISHERIES : River
14. RIVERS
- a. Floodrisk water : None
- b. Floodrisk sed.: None
- c. Inundation : None
15. VEGETATION/LAND USE : moist primary submontane forest, bush, scrub, upland crops
- Area used : 20 %
16. ACCELERATED EROSION
- a. Occurrence : Extensive
- b. Evidence : Gulleys
17. TERRAIN : Undulating 3-8%, 0-50 m
18. FLAN/ Dominant: Not elongated and random 40-60% of area flat-topped
- PROFILE Included:
19. RELIEF AMPLITUDE
- a. Amplitude: Medium
- b. Variability : Medium
20. ALTITUDE Minimum : 800 m
- Maximum : 935 m
- Range : 825 - 900 m
21. DRAINAGE a. Pattern: Dendritic
- b. Density : High
24. VALLEY FLOOR Width : Very narrow
25. FRAGMEN a. Valleys: Small blocks
- b. Interfluves : Small blocks

item	10b	12a	14a	14b	19	20	21b	22b	22c	22d1	22d2	22e1	23b	23c	23d	23e1	24	25
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rate : 1 | 2 | 1 | 1 | 2 | 2 | 2 | 3 | 3 | 2 | 2 | 1 | 1 | 1 | 2 | 1 | 2 | 2 |
```

iny/ / /87/MD/0618/34/ /030/ ith/ / /89/YM/0717/51/ /050/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	: 1a	1b	--	--
b. Description	: Interfluves	Interfluves	--	--
c. % of Land Unit	: 100%	100%	X	X

SLOPES

d1. Steepness	: 3 - 8%	3 - 8%	--	--
d2. Slope length	: > 500 m	> 500 m	--	--
d3. Slope curvature	: Straight	Straight	--	--

SOILS

e1. USDA Class	: dystrandepts	humitropepts		
e2. % Facet	: 80%	20%	X	X

23. SOIL CHARACTERISTICS

a. USDA Great Group	: dystrandepts	humitropepts		
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b. Texture:	topsoil:	Moderately coarse	Fine	--	--
	subsoil:	Coarse	Fine	--	--
c. Depth:	peatsoil:	--	--	--	--
	mineralsoil:	Very deep	Moderately deep	--	--
d. Drainage	: Well drained	Well drained	--	--	--

NUTRIENTS :

e. Exch. K:	topsoil:	Medium	Medium	--	--
	subsoil:	Low	Medium	--	--
f. Total K2O:	topsoil:	Very low	Very low	--	--
	subsoil:	Very low	Medium	--	--
g. Avail. P:	method:	Bray I	Bray I	--	--
	topsoil:	High	Low	--	--
	subsoil:	High	Very low	--	--
h. Total P:	topsoil:	Low	Very low	--	--
	subsoil:	Low	High	--	--

OTHERS :

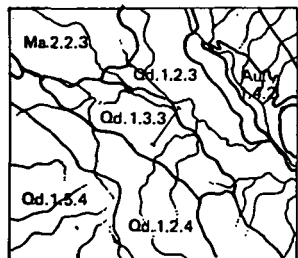
i. CEC pH 7	topsoil:	Low	Very low	--	--
	subsoil:	Very low	Very high	--	--
j. Reaction:	topsoil:	Moderately acid	Very strong acid	--	--
	subsoil:	Moderately acid	Very strong acid	--	--
k. Al sat.	topsoil:	None, very low	Low	--	--
	subsoil:	None, very low	Medium	--	--
l. Al toxicity	: No	No	--	--	--
m. Acid sulph. pot.	: Not relevant	Not relevant	--	--	--
n. Salinity (ec)	: Salt free	Salt free	--	--	--
o. Other toxicity	: --	--	--	--	--
p. Root obstr. layer	: 110 cm	--	--	--	--
q. Organic matter (%)	: 2.1	9.7	--	--	--
r. TEB (meq/100 g)	: 2.5	18.9	--	--	--

s. Total anal. profiles:	1	1	0	0
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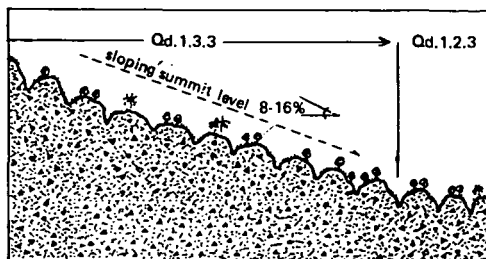
f. LAB CHECK	: Yes	Yes	--	--
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27. ADDITIONAL NOTES : The soil data of Dystrandepts are extrapolated from Qd.1.2.4, sheet 0618 and the data of Humitropepts are from Qd.2.3.4

MAP IMAGE :



CROSS SECTION :



1. LAND UNIT : Qd.1.3.3 Toba acid tuff highlands, acid tuffs, upper slopes with sloping summit level
(slopes 8-16%), strongly dissected
2. MAP SHEET : 0617 3. AREA : 65.7 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 06/11/89 Status : Final
7. SATELLITE SCENES : 128/88/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000
9. RADAR : STAR-1/250/88/0617-5
10. PARENT MATERIAL 11. ROCK OUTCROP : 0%
- a. Weathering : Partial
- b. Lithology : dacite, ,
- c. Formation : Qvt ,
12. WATER a. Quality : Fresh
- b. Source : Rain, Perennial river
13. FISHERIES : None
14. RIVERS
- a. Floodrisk water : None b. Floodrisk sed.: None
- c. Inundation : None
15. VEGETATION/LAND USE : , bush, scrub, upland crops
- Area used : 20 %
16. ACCELERATED EROSION
- a. Occurrence : Common b. Evidence : Gulleys
17. TERRAIN : Rolling 8-16%, 0-50 m
18. PLAN/ Dominant: Not elongated and random 40-60% of area flat-topped
- PROFILE Included: Not elongated and random > 60% of area flat-topped
19. RELIEF AMPLITUDE
- a. Amplitude: Medium b. Variability : Medium
20. ALTITUDE Minimum :1000 m Maximum :1200 m
- Range :1050 - 1150 m
21. DRAINAGE a. Pattern: Dendritic b. Density : Moderately high
24. VALLEY FLOOR Width : Very narrow
25. FRAGMEN a. Valleys: None b. Interfluves : Small blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item	10b	12a	14a	14b	19	20	21b	22b	22c	22d1	22d2	22e1	23b	23c	23d	23er	24	25
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rate	1	2	1	1	2	2	2	3	3	2	2	1	1	2	1	1	2	3
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28. REPRESENTATIVE PROFILES:

iny/	/	/87/MD/0618/64/	/008/	ith/	/	/89/YM/0717/51/	/050/
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22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	:	1a	1b	--	--
b. Description	:	Interfluves	Interfluves	--	--
c. % of Land Unit	:	100%	100%	X	X

SLOPES

d1. Steepness	:	8 - 16%	8 - 16%	--	--
d2. Slope length	:	201 - 500 m	201 - 500 m	--	--
d3. Slope curvature	:	Straight	Straight	--	--

SOILS

e1. USDA Class	:	dystrandepts	humitropepts		
e2. % Facet	:	80%	20%	X	X

23. SOIL CHARACTERISTICS

a. USDA Great Group	:	dystrandepts	humitropepts		
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b. Texture:	topsoil:	Moderately fine	Fine	--	--
	subsoil:	Moderately fine	Fine	--	--
c. Depth:	peatsoil:	--	--	--	--
	mineralsoil:	Very deep	Moderately deep	--	--
d. Drainage	:	Well drained	Well drained	--	--

NUTRIENTS :

e. Exch. K:	topsoil:	Low	Medium	--	--
	subsoil:	Very low	Medium	--	--
f. Total K2O:	topsoil:	High	Very low	--	--
	subsoil:	Very high	Medium	--	--
g. Avail. P:	method:	Bray I	Bray I	--	--
	topsoil:	Very low	Low	--	--
	subsoil:	Very low	Very low	--	--
h. Total P:	topsoil:	Low	Very low	--	--
	subsoil:	Very low	High	--	--

OTHERS :

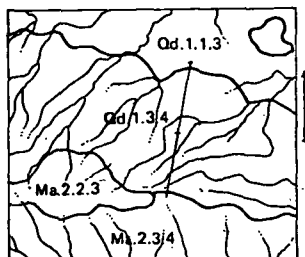
i. CEC pH 7	topsoil:	High	Very low	--	--
	subsoil:	Low	Very high	--	--
j. Reaction:	topsoil:	Very strong acid	Very strong acid	--	--
	subsoil:	Very strong acid	Very strong acid	--	--
k. Al sat.	topsoil:	Very high	Low	--	--
	subsoil:	Very high	Medium	--	--
l. Al toxicity	:	Yes	No	--	--
m. Acid sulph. pot.	:	Not relevant	Not relevant	--	--
n. Salinity (ec)	:	Salt free	Salt free	--	--
o. Other toxicity	:	--	--	--	--
p. Root obstr. layer	:	120 cm	--	--	--
q. Organic matter (%)	:	6.6	9.7	--	--
r. TEB (meq/100 g)	:	0.3	18.9	--	--

s. Total anal. profiles:	1	1	0	0
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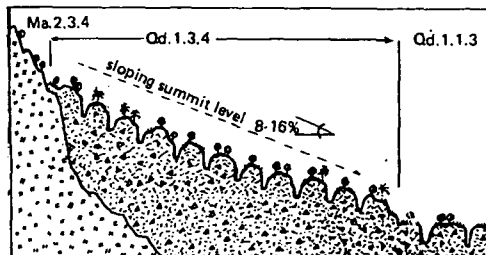
f. LAB CHECK	:	Yes	Yes	--	--
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27. ADDITIONAL NOTES : The soil data of Dystrandepts are extrapolated from 0618 sheet
and the data of Humitropepts are from Qd.2.3.4

MAP IMAGE :



CROSS SECTION :



1. LAND UNIT : Qd.1.3.4 Toba acid tuff highlands, acid tuffs, upper slopes with sloping summit level (slopes 8-16%), extremely dissected
2. MAP SHEET : 0717 3. AREA : 333.0 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 06/11/89 Status : Final
7. SATELLITE SCENES : 128/58/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000 T2 /8323-165, 14S /8319-101
9. RADAR : STAR-1/250/88/0717-5
10. PARENT MATERIAL 11. ROCK OUTCROP : 0%
- a. Weathering : Partial
- b. Lithology : dacite, ,
- c. Formation : Qvt ,
12. WATER a. Quality : Fresh
- b. Source : Rain, Perennial river
13. FISHERIES : None
14. RIVERS a. Floodrisk water : None b. Floodrisk sed.: None
- c. Inundation : None
15. VEGETATION/LAND USE : , bush, scrub, upland crops
- Area used : 20 %
16. ACCELERATED EROSION b. Evidence : Gulleys
- a. Occurrence : Extensive
17. TERRAIN : Rolling 8-16%, 0-50 m
18. FLAN/ Dominant: Not elongated and random 40-60% of area flat-topped
- PROFILE Included:
19. RELIEF AMPLITUDE b. Variability : Medium
- a. Amplitude: Medium Maximum : 1400 m
20. ALTITUDE Minimum : 800 m
- Range : 900 - 1200 m
21. DRAINAGE a. Pattern: Dendritic b. Density : Moderately high
24. VALLEY FLOOR Width : Very narrow
25. FRAGMEN a. Valleys: None b. Interfluves : Small blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item | 10b | 12a | 14a | 14b | 19 | 20 | 21b | 22b | 22c | 22d1 | 22d2 | 22e1 | 23b | 23c | 23d | 23er | 24 | 25 |

rate | 1 | 2 | 1 | 1 | 2 | 2 | 2 | 3 | 3 | 2 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 3 |

28. REPRESENTATIVE PROFILES:

iny/ / /87/MD/0618/64/ /008/ ith/ / /89/YM/0717/51/ /050/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	: 1a	1b	--	--
b. Description	: Interfluves	Interfluves	--	--
c. % of Land Unit	: 100%	100%	%	%

SLOPES

d1. Steepness	: 8 - 16%	8 - 16%	--	--
d2. Slope length	: > 500 m	> 500 m	--	--
d3. Slope curvature	: Straight	Straight	--	--

SOILS

e1. USDA Class	: dystrandepts	humitropepts		
e2. % Facet	: 80%	20%	%	%

23. SOIL CHARACTERISTICS

a. USDA Great Group	: dystrandepts	humitropepts		
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b. Texture:	topsoil:	Moderately fine	Fine	--	--
	subsoil:	Moderately fine	Fine	--	--
c. Depth:	peatsoil:	--	--	--	--
	mineralsoil:	Very deep	Moderately deep	--	--
d. Drainage	: Well drained	Well drained	--	--	--

NUTRIENTS

e. Exch. K:	topsoil:	Low	Medium	--	--
	subsoil:	Very low	Medium	--	--
f. Total K2O:	topsoil:	High	Very low	--	--
	subsoil:	Very high	Medium	--	--
g. Avail. P:	method:	Bray I	Bray I	--	--
	topsoil:	Very low	Low	--	--
	subsoil:	Very low	Very low	--	--
h. Total P:	topsoil:	Low	Very low	--	--
	subsoil:	Very low	High	--	--

OTHERS

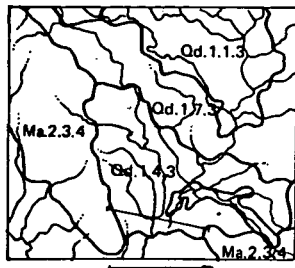
i. CEC pH 7	topsoil:	High	Very low	--	--
	subsoil:	Low	Very high	--	--
j. Reaction:	topsoil:	Very strong acid	Very strong acid	--	--
	subsoil:	Very strong acid	Very strong acid	--	--
k. Al sat.	topsoil:	Very high	Low	--	--
	subsoil:	Very high	Medium	--	--
l. Al toxicity	: Yes	No	--	--	--
m. Acid sulph. pot.	: Not-relevant	Not relevant	--	--	--
n. Salinity (ec)	: Salt free	Salt free	--	--	--
o. Other toxicity	: --	--	--	--	--
p. Root obstr. layer	: 120 cm	--	--	--	--
q. Organic matter (%)	: 6.6	9.7	--	--	--
r. TEB (meq/100 g)	: 0.3	18.9	--	--	--

s. Total anal. profiles:	1	1	0	0
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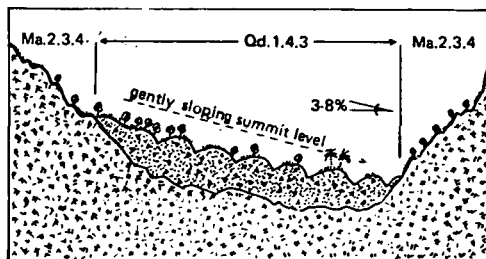
f. LAB CHECK	: Yes	Yes	--	--
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27. ADDITIONAL NOTES : The soil data of Dystrandepts are extrapolated from 0618 sheet and the data of Humitropepts are from Qd.2.3.4

MAP IMAGE :



CROSS SECTION :



1. LAND UNIT : Qd.1.4.3 Toba acid tuff highlands, acid tuffs, broad, gently sloping valley fills with undulating relief (slopes 3-8%), strongly dissected
2. MAP SHEET : 0717 3. AREA : 28.1 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara, 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 06/11/89 Status : Final
7. SATELLITE SCENES : 128/58/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000 14S /8323-57 , T2 /8323-169
9. RADAR : STAR-1/250/88/0717-
10. PARENT MATERIAL 11. ROCK OUTCROP : 0%
- a. Weathering : Partial
- b. Lithology : dacite, ,
- c. Formation : Qvt ,
12. WATER a. Quality : Fresh
- b. Source : Rain, Perennial river
13. FISHERIES : River
14. RIVERS
- a. Floodrisk water : None
- b. Floodrisk sed.: None
- c. Inundation : None
15. VEGETATION/LAND USE : , bush, scrub, alang-alang, rubber
- Area used : 15 %
16. ACCELERATED EROSION
- a. Occurrence : Common
- b. Evidence : Various
17. TERRAIN : Undulating 3-8%, 0-50 m
18. PLAN/ Dominant: Not elongated and random 40-60% of area flat-topped
- PROFILE Included:
19. RELIEF AMPLITUDE
- a. Amplitude: Medium
- b. Variability : Medium
20. ALTITUDE Minimum : 400 m
- Maximum : 600 m
- Range : 450 - 550 m
21. DRAINAGE a. Pattern: Dendritic
- b. Density : Moderate
24. VALLEY FLOOR Width : Narrow
25. FRAGMEN a. Valleys: Small blocks
- b. Interfluves : Medium blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item	10b	12a	14a	14b	19	20	21b	22b	22c	22d1	22d2	22e1	23b	23c	23d	23er	24	25
rate	1	1	2	2	2	2	2	2	2	2	2	1	1	1	1	1	2	3

28. REPRESENTATIVE PROFILES:

ith/ / /89/YM/0717/51/ /050/ iny/ / /87/MD/0618/64/ /008/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	: 1a	1b	--	--
b. Description	: Interfluves	Interfluves	--	--
c. % of Land Unit	: 100%	100%	X	X

SLOPES

d1. Steepness	: 0 - 8%	3 - 8%	--	--
d2. Slope length	: 201 - 500 m	201 - 500 m	--	--
d3. Slope curvature	: Convex	Convex	--	--

SOILS

e1. USDA Class	: dystrandepts	humitropepts		
e2. % Facet	: 60%	35%	X	X

23. SOIL CHARACTERISTICS

a. USDA Great Group	: dystrandepts	humitropepts		
b. Texture:	topsoil: Moderately fine	Fine	--	--
	subsoil: Moderately fine	Fine	--	--
c. Depth:	peatsoil: --	--	--	--
	mineralsoil: Very deep	Moderately deep	--	--
d. Drainage	: Well drained	Well drained	--	--

NUTRIENTS

e. Exch. K:	topsoil: Low	Medium	--	--
	subsoil: Very low	Medium	--	--
f. Total K2O:	topsoil: High	Very low	--	--
	subsoil: Very high	Medium	--	--
g. Avail. P:	method: Bray I	Bray I	--	--
	topsoil: Very low	Low	--	--
	subsoil: Very low	Very low	--	--
h. Total P:	topsoil: Low	Very low	--	--
	subsoil: Very low	High	--	--

OTHERS

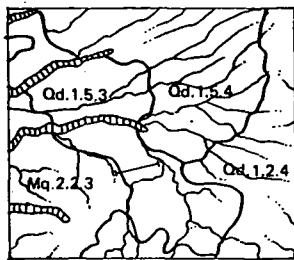
i. CEC pH 7	topsoil: High	Very low	--	--
	subsoil: Low	Very high	--	--
j. Reaction:	topsoil: Very strong acid	Very strong acid	--	--
	subsoil: Very strong acid	Very strong acid	--	--
k. Al sat.	topsoil: Very high	Low	--	--
	subsoil: Very high	Medium	--	--
l. Al toxicity	: Yes	No	--	--
m. Acid sulph. pot.	: Not relevant	Not relevant	--	--
n. Salinity (ec)	: Salt free	Salt free	--	--
o. Other toxicity	: --	--	--	--
p. Root obstr. layer	: 120 cm	--	--	--
q. Organic matter (%)	: 6.6	9.7	--	--
r. YEB (meq/100 g)	: 0.3	8.9	--	--

s. Total anal. profiles:	1	1	0	0
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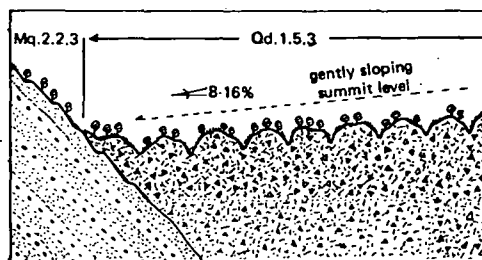
f. LAB CHECK	: Yes	Yes	--	--
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27. ADDITIONAL NOTES : The soil data of Dystrandepts are extrapolated from 0618 sheet
and the data of Humitropepts are from Qd.2.3.4

MAP IMAGE :



CROSS SECTION :



1. LAND UNIT : Qd.1.5.3 Toba acid tuff highlands, acid tuffs, broad, gently sloping valley fills with rolling relief (slopes 8-16%), strongly dissected
2. MAP SHEET : 0717 3. AREA : 33.8 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 06/11/89 Status : Final
7. SATELLITE SCENES : 128/58/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000 T2 /8323-167
9. RADAR : STAR-1/250/88/0717-5
10. PARENT MATERIAL 11. ROCK OUTCROP : 0%
- a. Weathering : Partial
- b. Lithology : dacite, ,
- c. Formation : Qvt ,
12. WATER a. Quality : Fresh
- b. Source : Rain, Perennial river
13. FISHERIES : None
14. RIVERS a. Floodrisk water : None b. Floodrisk sed.: None
- c. Inundation : None
15. VEGETATION/LAND USE : , bush, scrub, alang-alang, horticultural crops, upland crops
- Area used : 30 %
16. ACCELERATED EROSION b. Evidence : Various
- a. Occurrence : Common
17. TERRAIN : Rolling 8-16%, 0-50 m
18. PLAN/ Dominant: Not elongated and parallel < 40% of area flat-topped
- PROFILE Included:
19. RELIEF AMPLITUDE b. Variability : Low
- a. Amplitude: Low
20. ALTITUDE Minimum : 700 m Maximum : 900 m
- Range : 750 - 800 m
21. DRAINAGE a. Pattern: Parallel b. Density : Moderately high
24. VALLEY FLOOR Width : Narrow
25. FRAGMEN a. Valleys: Small blocks b. Interfluves : Medium blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item | 10b | 12a | 14a | 14b | 19 | 20 | 21b | 22b | 22c | 22d1 | 22d2 | 22e1 | 23b | 23c | 23d | 23er | 24 | 25 |

rate : 2 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 3 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 2 | 3 |

28. REPRESENTATIVE PROFILES:

iny/ / /87/JH/0617/64/ /103/ ith/ / /89/YM/0717/51/ /050/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	:	1a	1b	--	--
b. Description	:	Interfluves	Interfluves	--	--
c. % of Land Unit	:	100%	100%	X	X

SLOPES

d1. Steepness	:	8 - 16%	8 - 16%	--	--
d2. Slope length	:	201 - 500 m	201 - 500 m	--	--
d3. Slope curvature	:	Convex	Convex	--	--

SOILS

e1. USDA Class	:	dystrandepts	humitropepts		
e2. % Facet	:	80%	20%	X	X

23. SOIL CHARACTERISTICS

a. USDA Great Group	:	dystrandepts	humitropepts		
---------------------	---	--------------	--------------	--	--

b. Texture:	topsoil:	Fine	Fine	--	--
	subsoil:	Fine	Fine	--	--
c. Depth:	peatsoil:	--	--	--	--
	mineralsoil:	Deep	Moderately deep	--	--
d. Drainage	:	Well drained	Moderately well	--	--

NUTRIENTS :

e. Exch. K:	topsoil:	Low	Medium	--	--
	subsoil:	Very low	Medium	--	--
f. Total K2O:	topsoil:	Very high	Very low	--	--
	subsoil:	Very high	Medium	--	--
g. Avail. P:	method:	Bray I	Bray I	--	--
	topsoil:	Very low	Low	--	--
	subsoil:	Very low	Very low	--	--
h. Total P:	topsoil:	Very low	Very low	--	--
	subsoil:	Very low	High	--	--

OTHERS :

i. CEC pH 7	topsoil:	Medium	Very low	--	--
	subsoil:	Medium	Very high	--	--
j. Reaction:	topsoil:	Strong acid	Very strong acid	--	--
	subsoil:	Strong acid	Very strong acid	--	--
k. Al sat.	topsoil:	Medium	Low	--	--
	subsoil:	None, very low	Medium	--	--
l. Al toxicity	:	No	No	--	--
m. Acid sulph. pot.	:	Not relevant	Not relevant	--	--
n. Salinity (ec)	:	Salt free	Salt free	--	--
o. Other toxicity	:	--	--	--	--
p. Root obstr. layer	:	92 cm	--	--	--
q. Organic matter (%)	:	9.6	9.7	--	--
r. TEB (meq/100 g)	:	0.7	18.9	--	--

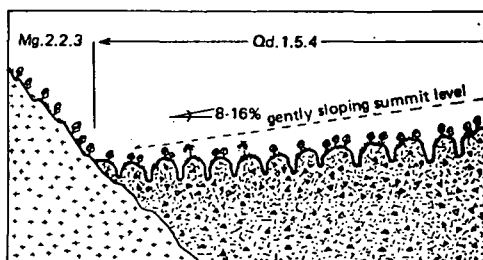
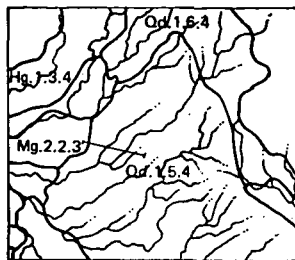
s. Total anal. profiles:	1	1	0	0
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f. LAB CHECK	:	Yes	Yes	--	--
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27. ADDITIONAL NOTES : The soil data of Humitropepts are extrapolated from Qd.2.3.4
and the data of Dystrandepts are from Qd.1.6.4

MAP IMAGE :

CROSS SECTION :



1. LAND UNIT : Qd.1.5.4 Toba acid tuff highlands, acid tuffs, broad, gently sloping valley fills with rolling relief (slopes 8-16%), extremely dissected
2. MAP SHEET : 0617 3. AREA : 178.2 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 06/11/89 Status : Final
7. SATELLITE SCENES : 128/58/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000
9. RADAR : STAR-1/250/88/0617-5
10. PARENT MATERIAL 11. ROCK OUTCROP : 0%
- a. Weathering : Partial
- b. Lithology : dacite, ,
- c. Formation : Qvt
12. WATER a. Quality : None
- b. Source : Rain, Perennial river
13. FISHERIES : None
14. RIVERS
- a. Floodrisk water : None b. Floodrisk sed.: None
- c. Inundation : None
15. VEGETATION/LAND USE : , bush, scrub, alang-alang, irrigated wetland rice
- Area used : 30 %
16. ACCELERATED EROSION
- a. Occurrence : Extensive b. Evidence : Gulleys
17. TERRAIN : Rolling 8-16%, 0-50 m
18. PLAN/ Dominant: Not elongated and parallel > 60% of area crested/peaked
- PROFILE Included:
19. RELIEF AMPLITUDE
- a. Amplitude: Low b. Variability : Medium
20. ALTITUDE Minimum : 600 m Maximum : 940 m
- Range : 700 - 800 m
21. DRAINAGE a. Pattern: Parallel b. Density : Moderately high
24. VALLEY FLOOR Width : Narrow
25. FRAGMEN a. Valleys: Small blocks b. Interfluves : Small blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item	10b	12a	14a	14b	19	20	21b	22b	22c	22d1	22d2	22e1	23b	23c	23d	23er	24	25
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rate	1	1	1	1	2	2	2	2	2	2	2	1	1	1	1	1	2	2
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28. REPRESENTATIVE PROFILES:

iny/	/	/87/JB/0617/64/	/103/	ith/	/	/89/YM/0717/51/	/050/
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22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	: 1a	1b	--	--
b. Description	: Interfluves	Interfluves	--	--
c. % of Land Unit	: 100%	100%	X	X

SLOPES

d1. Steepness	: 8 - 16%	8 - 16%	--	--
d2. Slope length	: > 500 m	> 500 m	--	--
d3. Slope curvature	: Straight	Straight	--	--

SOILS

e1. USDA Class	: dystrandepts	humitropepts		
e2. % Facet	: 60%	40%	X	X

23. SOIL CHARACTERISTICS

a. USDA Great Group	: dystrandepts	humitropepts		
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b. Texture:	topsoil:	Fine	Fine	--	--
	subsoil:	Fine	Fine	--	--
c. Depth:	peatsoil:	--	--	--	--
	mineralsoil:	Deep	Moderately deep	--	--
d. Drainage	: Well drained	Well drained	--	--	--

NUTRIENTS :

e. Exch. K:	topsoil:	Low	Medium	--	--
	subsoil:	Very low	Medium	--	--
f. Total K2O:	topsoil:	Very high	Very low	--	--
	subsoil:	Very high	Medium	--	--
g. Avail. P:	method:	Bray I	Bray I	--	--
	topsoil:	Very low	Low	--	--
	subsoil:	Very low	Very low	--	--
h. Total P:	topsoil:	Very low	Very low	--	--
	subsoil:	Very low	High	--	--

OTHERS :

i. CEC pH 7	topsoil:	Medium	Very low	--	--
	subsoil:	Medium	Very high	--	--
j. Reaction:	topsoil:	Strong acid	Very strong acid	--	--
	subsoil:	Strong acid	Very strong acid	--	--
k. Al sat.	topsoil:	Medium	Low	--	--
	subsoil:	None, very low	Medium	--	--
l. Al toxicity	: No	No	--	--	--
m. Acid sulph. pot.	: Not relevant	Not relevant	--	--	--
n. Salinity (ec)	: Salt free	Salt free	--	--	--
o. Other toxicity	: --	--	--	--	--
p. Root obstr. layer	: 92 cm	--	--	--	--
q. Organic matter (%)	: 9.6	9.7	--	--	--
r. TEB (meq/100 g)	: 0.7	18.9	--	--	--

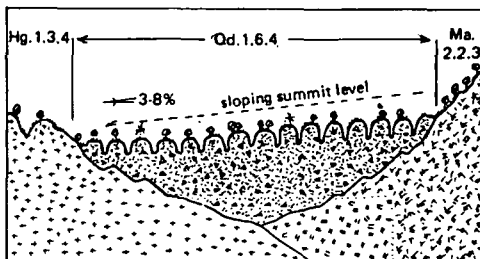
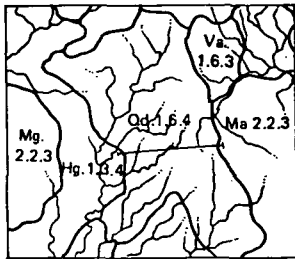
s. Total anal. profiles:	1	1	0	0
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f. LAB CHECK	: Yes	Yes	--	--
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27. ADDITIONAL NOTES : The soil data of Humitropepts are extrapolated from Qd.2.3.4
and the data of Dystrandepts are from Qd.1.6.4

MAP IMAGE :

CROSS SECTION :



1. LAND UNIT : Qd.1.6.4 Toba acid tuff highlands, acid tuffs, broad, sloping valley fills with undulating relief (slopes 3-8%), extremely dissected
2. MAP SHEET : 0617 3. AREA : 77.6 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 06/11/89 Status : Final
7. SATELLITE SCENES : 128/58/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000
9. RADAR : STAR-1/250/88/0617-5
10. PARENT MATERIAL
 - a. Weathering : Partial
 - b. Lithology : dacite, ,
 - c. Formation : Qvt ,
11. ROCK OUTCROP : 0%
12. WATER
 - a. Quality : Fresh
 - b. Source : Rain, Perennial river
13. FISHERIES : None
14. RIVERS
 - a. Floodrisk water : None
 - b. Floodrisk sed.: None
 - c. Inundation : None
15. VEGETATION/LAND USE : , bush, scrub, alang-alang
Area used : 0 %
16. ACCELERATED EROSION
 - a. Occurrence : Common
 - b. Evidence : Gulleys
17. TERRAIN : Undulating 3-8%, 0-50 m
18. PLAN/PROFILE
 - Dominant: Not elongated and parallel > 60% of area crested/peaked
 - Included:
19. RELIEF AMPLITUDE
 - a. Amplitude: Medium
 - b. Variability : Medium
20. ALTITUDE
 - Minimum : 500 m
 - Maximum : 1000 m
 - Range : 600 - 850 m
21. DRAINAGE
 - a. Pattern: Parallel
 - b. Density : High
24. VALLEY FLOOR Width : Very narrow
25. FRAGMEN
 - a. Valleys: None
 - b. Interfluves : Small blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item	10b	12a	14a	14b	19	20	21b	22b	22c	22d1	22d2	22e1	23b	23c	23d	23er	24	25
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rate	1	1	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	2	2
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28. REPRESENTATIVE PROFILES:

iny/	/	/87/JH/0617/64/	/103/	ith/	/	/89/YM/0717/51/	/050/
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22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	: 1a	1b	--	--
b. Description	: Interfluves	Interfluves	--	--
c. % of Land Unit	: 100%	100%	2	2

SLOPES

d1. Steepness	: 3 - 8%	3 - 8%	--	--
d2. Slope length	: 101 - 200 m	101 - 200 m	--	--
d3. Slope curvature	: Convex	Convex	--	--

SOILS

e1. USDA Class	: dystrandepts	humitropepts		
e2. % Facet	: 60%	40%	2	2

23. SOIL CHARACTERISTICS

a. USDA Great Group	: dystrandepts	humitropepts		
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b. Texture:	topsoil: Fine	Fine	--	--
	subsoil: Fine	Fine	--	--
c. Depth:	peatsoil: --	--	--	--
	mineralsoil: Deep	Moderately deep	--	--
d. Drainage	: Well drained	Moderately well	--	--

NUTRIENTS :

e. Exch. K:	topsoil: Low	Medium	--	--
	subsoil: Very low	Medium	--	--
f. Total K2O:	topsoil: Very high	Very low	--	--
	subsoil: Very high	Medium	--	--
g. Avail. P:	method: Bray I	Bray. I	--	--
	topsoil: Very low	Low	--	--
	subsoil: Very low	Very low	--	--
h. Total P:	topsoil: Very low	Very low	--	--
	subsoil: Very low	High	--	--

OTHERS :

i. CEC pH 7	topsoil: Medium	Very low	--	--
	subsoil: Medium	Very high	--	--
j. Reaction:	topsoil: Strong acid	Very strong acid	--	--
	subsoil: Strong acid	Very strong acid	--	--
k. Al sat.	topsoil: Medium	Medium	--	--
	subsoil: None, very low	Low	--	--
l. Al toxicity	: No	No	--	--
m. Acid sulph. pot.	: Not relevant	Not relevant	--	--
n. Salinity (ec)	: Salt free	Salt free	--	--
o. Other toxicity	: --	--	--	--
p. Root obstr. layer	: 92 cm	--	--	--
q. Organic matter (%)	: 9.6	9.7	--	--
r. TEB (meq/100 g)	: 0.7	18.9	--	--

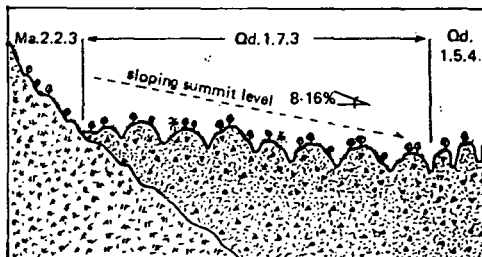
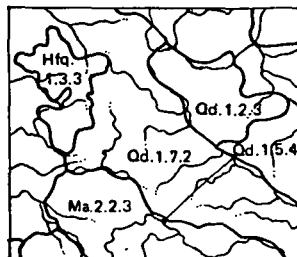
s. Total anal. profiles:	1	1	0	0
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f. LAB CHECK	: Yes	Yes	--	--
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27. ADDITIONAL NOTES : The soil data of Humitropepts are extrapolated from Qd.2.3.4

MAP IMAGE :

CROSS SECTION :



1. LAND UNIT : Qd.1.7.3 Toba acid tuff highlands, acid tuffs, broad, sloping valley fills with rolling relief (slopes 8-16%), strongly dissected
2. MAP SHEET : 0617 3. AREA : 123.9 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 06/11/89 Status : Final
7. SATELLITE SCENES : 128/58/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000 14S /8323-51, T2 /8323-167
9. RADAR : STAR-1/250/88/0617-
10. PARENT MATERIAL 11. ROCK OUTCROP : 0%
- a. Weathering : Partial
- b. Lithology : dacite, ,
- c. Formation : Qvt ,
12. WATER a. Quality : Fresh
- b. Source : Rain, Perennial river
13. FISHERIES : None
14. RIVERS a. Floodrisk water : None b. Floodrisk sed.: None
- c. Inundation : None
15. VEGETATION/LAND USE : secondary forest, bush, scrub, alang-alang, upland crops
- Area used : 20 %
16. ACCELERATED EROSION a. Occurrence : Common b. Evidence : Various
17. TERRAIN : Rolling 8-16%, 0-50 m
18. PLAN/ Dominant: Not elongated and random > 60% of area crested/peaked
- PROFILE Included:
19. RELIEF AMPLITUDE a. Amplitude: Medium b. Variability : Medium
20. ALTITUDE Minimum : 750 m Maximum : 1150 m
- Range : 800 - 1100 m
21. DRAINAGE a. Pattern: Dendritic b. Density : Moderately high
24. VALLEY FLOOR Width : Very narrow
25. FRAGMEN a. Valleys: None b. Interfluves : Medium blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item	10b	12a	14a	14b	19	20	21b	22b	22c	22d1	22d2	22e1	23b	23c	23d	23er	24	25
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rate	1	1	2	2	2	2	2	2	2	2	2	1	1	1	1	1	2	2
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28. REPRESENTATIVE PROFILES:

iny/	/	/87/KR/0618/22/	/040/	ith/	/	/89/YM/0717/51/	/050/
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22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	: 1a	1b	--	--
b. Description	: Interfluves	Interfluves	--	--
c. % of Land Unit	: 100%	100%	1	1

SLOPES

d1. Steepness	: 8 - 16%	8 - 16%	--	--
d2. Slope length	: 101 - 200 m	101 - 200 m	--	--
d3. Slope curvature	: Convex	Convex	--	--

SOILS

e1. USDA Class	: dystrandepts	humitropepts		
e2. % Facet	: 80%	20%	1	1

23. SOIL CHARACTERISTICS

a. USDA Great Group	: dystrandepts	humitropepts		
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b. Texture:	topsoil:	Moderately fine	Fine	--	--
	subsoil:	Moderately fine	Fine	--	--
c. Depth:	peatsoil:	--	--	--	--
	mineralsoil:	Very deep	Moderately deep	--	--
d. Drainage	:	Moderately well	Moderately well	--	--

NUTRIENTS :

e. Exch. K:	topsoil:	Very low	Medium	--	--
	subsoil:	Very low	Medium	--	--
f. Total K2O:	topsoil:	Medium	Very low	--	--
	subsoil:	Medium	Medium	--	--
g. Avail. P:	method:	Bray I	Bray I	--	--
	topsoil:	Very low	Low	--	--
	subsoil:	Very low	Very low	--	--
h. Total P:	topsoil:	Very low	Very low	--	--
	subsoil:	Very low	High	--	--

OTHERS :

i. CEC pH 7	topsoil:	Low	Very low	--	--
	subsoil:	Low	Very high	--	--
j. Reaction:	topsoil:	Strong acid	Very strong acid	--	--
	subsoil:	Strong acid	Very strong acid	--	--
k. Al sat.	topsoil:	Medium	Low	--	--
	subsoil:	High	Medium	--	--
l. Al toxicity	:	No	No	--	--
m. Acid sulph. pot.	:	Not relevant	Not relevant	--	--
n. Salinity (ec)	:	Salt free	Salt free	--	--
o. Other toxicity	:	--	--	--	--
p. Root obstr. layer	:	--	--	--	--
q. Organic matter (%)	:	1.7	9.7	--	--
r. TEB (meq/100 g)	:	0.6	18.9	--	--

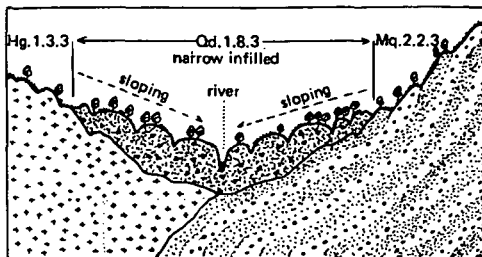
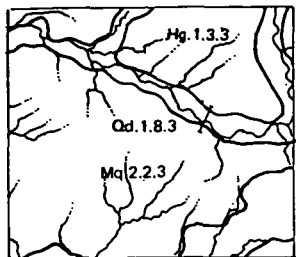
s. Total anal. profiles:	1	1	0	0
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t. LAB CHECK	: Yes	Yes	--	--
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27. ADDITIONAL NOTES : The soil data of Dystrandepts are extrapolated from 0618 sheet
and the data of Humitropepts are from Qd.2.3.4

MAP IMAGE :

CROSS SECTION :



1. LAND UNIT : Qd.1.8.3 Toba acid tuff highlands, acid tuffs, narrow infilled river valleys, strongly dissected
2. MAP SHEET : 0617 3. AREA : 33.0 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 06/11/89 Status : Final
7. SATELLITE SCENES : 128/58/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100,000 14S /8323-51
9. RADAR : STAR-1/250/88/0617-5
10. PARENT MATERIAL 11. ROCK OUTCROP : 0%
- a. Weathering : Partial
- b. Lithology : dacite, ,
- c. Formation : Qvt
12. WATER a. Quality : Fresh
- b. Source : Rain, Perennial river
13. FISHERIES : None
14. RIVERS a. Floodrisk water : None b. Floodrisk sed.: None
- c. Inundation : None
15. VEGETATION/LAND USE : moist primary lowland forest, bush, scrub, alang-alang, rubber
- Area used : 20 %
16. ACCELERATED EROSION a. Occurrence : Localised b. Evidence : Various
17. TERRAIN : Rolling 8-16%, 0-50 m
18. PLAN/ Dominant: Not elongated and random > 60% of area crested/peaked
- PROFILE Included:
19. RELIEF AMPLITUDE a. Amplitude: Medium b. Variability : Medium
20. ALTITUDE Minimum : 500 m Maximum : 700 m
- Range : 500 - 650 m
21. DRAINAGE a. Pattern: Dendritic b. Density : Moderate
24. VALLEY FLOOR Width : Very narrow
25. FRAGMEN a. Valleys: None b. Interfluves : Small blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item | 10b | 12a | 14a | 14b | 19 | 20 | 21b | 22b | 22c | 22d1 | 22d2 | 22e1 | 23b | 23c | 23d | 23er | 24 | 25 |

rate : 2 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 2 | 2 |

28. REPRESENTATIVE PROFILES:

ity/ / /89/LH/0717/14/ /115/

ith/ / /89/YM/0717/51/ /050/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	: 1a	1b	--	--
b. Description	: Interfluves	Interfluves	--	--
c. % of Land Unit	: 100%	100%	X	X

SLOPES

d1. Steepness	: 8 - 16%	8 - 16%	--	--
d2. Slope length	: 101 - 200 m	101 - 200 m	--	--
d3. Slope curvature	: Convex	Convex	--	--

SOILS

e1. USDA Class	: dystropepts	humitropepts		
e2. % Facet	: 60%	40%	X	X

23. SOIL CHARACTERISTICS

a. USDA Great Group	: dystropepts	humitropepts		
---------------------	---------------	--------------	--	--

b. Texture:	topsoil: Fine	Fine	--	--
	subsoil: Fine	Fine	--	--
c. Depth:	peatsoil: --	--	--	--
	mineralsoil: Very deep	Moderately deep	--	--
d. Drainage	: Well drained	Moderately well	--	--

NUTRIENTS :

e. Exch. K:	topsoil: High	Medium	--	--
	subsoil: Medium	Medium	--	--
f. Total K2O:	topsoil: Very high	Very low	--	--
	subsoil: Very high	Medium	--	--
g. Avail. P:	method: Bray I	Bray I	--	--
	topsoil: Very low	Low	--	--
	subsoil: Very low	Very low	--	--
h. Total P:	topsoil: Low	Very low	--	--
	subsoil: Very low	High	--	--

OTHERS :

i. CEC pH 7	topsoil: Low	Very low	--	--
	subsoil: Low	Very high	--	--
j. Reaction:	topsoil: Very strong acid	Very strong acid	--	--
	subsoil: Very strong acid	Very strong acid	--	--
k. Al sat.	topsoil: None, very low	Low	--	--
	subsoil: None, very low	Medium	--	--
l. Al toxicity	: No	No	--	--
m. Acid sulph. pot.	: Not relevant	Not relevant	--	--
n. Salinity (ec)	: Salt free	Salt free	--	--
o. Other toxicity	: --	--	--	--
p. Root obstr. layer	: --	--	--	--
q. Organic matter (%)	: 1.4	9.7	--	--
r. TEB (meq/100 g)	: 5.8	18.9	--	--

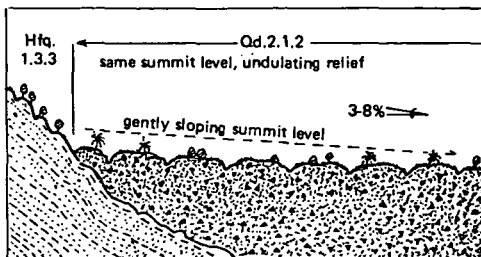
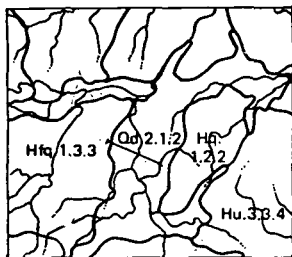
s. Total anal. profiles:	1	1	0	0
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f. LAB CHECK	: Yes	Yes	--	--
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27. ADDITIONAL NOTES : The soil data of Humitropepts are extrapolated from Qd.2.3.4

MAP IMAGE :

CROSS SECTION :



1. LAND UNIT : Qd.2.1.2 Toba acid tuff lowlands and footslopes, acid tuffs, gently sloping plains (slopes 3-8%), moderately dissected
2. MAP SHEET : 0717 3. AREA : 22.8 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 06/11/89 Status : Final
7. SATELLITE SCENES : 128/58/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000
9. RADAR : STAR-1/250/88/0717-5
10. PARENT MATERIAL 11. ROCK OUTCROP : 0%
- a. Weathering : Partial
- b. Lithology : dacite, ,
- c. Formation : Qvt ,
12. WATER a. Quality : Fresh
- b. Source : Rain, Perennial river
13. FISHERIES : River
14. RIVERS
- a. Floodrisk water : None b. Floodrisk sed.: None
- c. Inundation : None
15. VEGETATION/LAND USE : , bush, scrub, alang-alang, upland crops
- Area used : 25 %
16. ACCELERATED EROSION
- a. Occurrence : Common b. Evidence : Various
17. TERRAIN : Undulating 3-8%, 0-50 m
18. PLAN/ Dominant: Not elongated and random > 60% of area flat-topped
- PROFILE Included:
19. RELIEF AMPLITUDE
- a. Amplitude: Medium b. Variability : Medium
20. ALTITUDE Minimum : 100 m Maximum : 300 m
- Range : 150 - 200 m
21. DRAINAGE a. Pattern: Dendritic b. Density : Moderate
24. VALLEY FLOOR Width : Very narrow
25. FRAGMEN a. Valleys: Small blocks b. Interfluves : Large blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item	10b	12a	14a	14b	19	20	21b	22b	22c	22d1	22d2	22e1	23b	23c	23d	23er	24	25
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rate	1	2	2	2	2	2	1	2	2	2	2	1	1	1	1	1	2	2
------	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

28. REPRESENTATIVE PROFILES:

ity/	/	/87/PT/0618/53/	/016/	uda/	/	/87/MR/0618/64/	/006/
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22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	:	1a	1b	--	--
b. Description	:	Interfluves	Interfluves	--	--
c. % of Land Unit	:	100%	100%	%	%

SLOPES

d1. Steepness	:	3 - 8%	3 - 8%	--	--
d2. Slope length	:	101 - 200 m	101 - 200 m	--	--
d3. Slope curvature	:	Convex	Convex	--	--

SOILS

e1. USDA Class	:	dystropepts	hapludults		
e2. % Facet	:	75%	25%	%	%

23. SOIL CHARACTERISTICS

a. USDA Great Group	:	dystropepts	hapludults		
---------------------	---	-------------	------------	--	--

b. Texture:	topsoil:	Fine	Fine	--	--
	subsoil:	Fine	Fine	--	--
c. Depth:	peatsoil:	--	--	--	--
	mineralsoil:	Very deep	Extremely deep	--	--
d. Drainage	:	Well drained	Well drained	--	--

NUTRIENTS :

e. Exch. K:	topsoil:	High	Medium	--	--
	subsoil:	Medium	Low	--	--
f. Total K2O:	topsoil:	Very high	Very high	--	--
	subsoil:	Very high	Very high	--	--
g. Avail. P:	method:	Bray I	Bray I	--	--
	topsoil:	Very low	Very low	--	--
	subsoil:	Very low	Very low	--	--
h. Total P:	topsoil:	Low	Very low	--	--
	subsoil:	Very low	Very low	--	--

OTHERS :

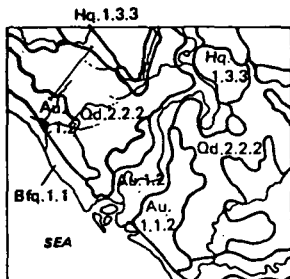
i. CEC pH 7	topsoil:	Low	Low	--	--
	subsoil:	Low	Low	--	--
j. Reaction:	topsoil:	Moderately acid	Very strong acid	--	--
	subsoil:	Moderately acid	Strong acid	--	--
k. Al sat.	topsoil:	None, very low	Medium	--	--
	subsoil:	None, very low	High	--	--
l. Al toxicity	:	No	Yes	--	--
m. Acid sulph. pot.	:	Not relevant	Not relevant	--	--
n. Salinity (ec)	:	Salt free	Salt free	--	--
o. Other toxicity	:	--	--	--	--
p. Root obstr. layer	:	30 cm	--	--	--
q. Organic matter (%)	:	1.4	3.4	--	--
r. TEB (meq/100 g)	:	5.8	0.9	--	--

s. Total anal. profiles:	1	1	0	0
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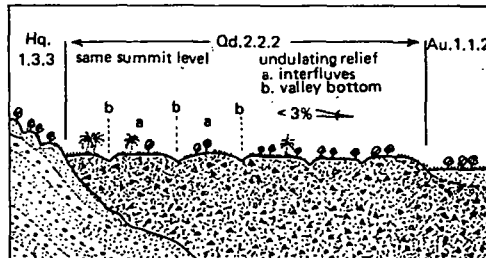
f. LAB CHECK	:	Yes	Yes	--	--
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27. ADDITIONAL NOTES : The soil data are extrapolated data from Qd.1.2.1, sheet 0618

MAP IMAGE :



CROSS SECTION :



1. LAND UNIT : Qd.2.2.2 Toba acid tuff lowlands and footslopes, acid tuffs, flat plains (slopes <3%), moderately dissected
2. MAP SHEET : 0617
3. AREA : 57.1 km²
4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 06/11/89 Status : Final
7. SATELLITE SCENES :
8. AERIAL PHOTOGRAPHS : 1:100.000 10H / -42 , 10H / -44
9. RADAR : STAR-1/250/88/0617-
10. PARENT MATERIAL
11. ROCK OUTCROP : 0%
- a. Weathering : Partial
- b. Lithology : dacite ,
- c. Formation : Qvt ,
12. WATER a. Quality : Fresh
- b. Source : Rain, Perennial river
13. FISHERIES : River
14. RIVERS
- a. Floodrisk water : None
- b. Floodrisk sed.: None
- c. Inundation : None
15. VEGETATION/LAND USE : , bush, scrub, alang-alang, upland crops, rainfed wetland rice, rubber
- Area used : 30 %
16. ACCELERATED EROSION
- a. Occurrence : None
- b. Evidence : Not relevant
17. TERRAIN : Flat, slope < 3%, 0-50 m
18. PLAN/ Dominant: Not elongated and random 40-60% of area flat-topped
- PROFILE Included:
19. RELIEF AMPLITUDE
- a. Amplitude: Low
- b. Variability : Low
20. ALTITUDE Minimum : 100 m
- Maximum : 350 m
- Range : 150 - 300 m
21. DRAINAGE a. Pattern: Dendritic
- b. Density : Moderate
24. VALLEY FLOOR Width : Narrow
25. FRAGMEN a. Valleys: Small blocks
- b. Interfluvies : Medium blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item	10b	12a	14a	14b	19	20	21b	22b	22c	22d1	22d2	22e1	23b	23c	23d	23er	24	25
------	-----	-----	-----	-----	----	----	-----	-----	-----	------	------	------	-----	-----	-----	------	----	----

rate	1	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	2	2
------	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

28. REPRESENTATIVE PROFILES:

ity/	/	/87/MD/0617/63/	/052/	uda/	/	/87/JH/0617/63/	/090/
igt/	/	/87/MD/0617/63/	/053/				

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	1a	1b	2	--
b. Description	Interfluves	Interfluves	Valley bottoms	--
c. % of Land Unit	85%	85%	15%	%

SLOPES

d1. Steepness	3 - 8%	3 - 16%	0 - 8%	--
d2. Slope length	101 - 200 m	101 - 200 m	< 50 m	--
d3. Slope curvature	Straight	Straight	Concave	--

SOILS

e1. USDA Class	dystropepts	hapludults	tropaquepts	
e2. % Facet	60%	40%	100%	%

23. SOIL CHARACTERISTICS

a. USDA Great Group	dystropepts	hapludults	tropaquepts	
b. Texture:				
topsoil:	Moderately coarse	Moderately coarse	Coarse	--
subsoil:	Moderately fine	Moderately fine	Coarse	--
c. Depth:				
peatsoil:	--	--	--	--
mineralsoil:	Very deep	Very deep	Very deep	--
d. Drainage	Well drained	Moderately well	Poorly drained	--

NUTRIENTS :

e. Exch. K:				
topsoil:	Very low	Very low	Very low	--
subsoil:	Very low	Very low	Very low	--
f. Total K2O:				
topsoil:	Low	Medium	Medium	--
subsoil:	Very low	Very high	Very high	--
g. Avail. P:				
method:	--	Bray I	Bray I	--
topsoil:	--	Very low	Low	--
subsoil:	--	Very low	Low	--
h. Total P:				
topsoil:	Very low	Very low	Very low	--
subsoil:	Very low	Very low	Very low	--

OTHERS :

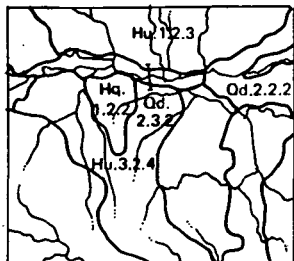
i. CEC pH 7				
topsoil:	Low	Low	Very high	--
subsoil:	Very low	Low	Very high	--
j. Reaction:				
topsoil:	Excessively acid	Excessively acid	Excessively acid	--
subsoil:	Excessively acid	Very strong acid	Strong acid	--
k. Al sat.				
topsoil:	Very high	High	None, very low	--
subsoil:	Very high	Medium	Low	--
l. Al toxicity	Yes	No	No	--
m. Acid sulph. pot.	Not relevant	Not relevant	Not relevant	--
n. Salinity (ec)	Salt free	Salt free	Salt free	--
o. Other toxicity	--	--	--	--
p. Root obstr. layer	--	--	--	--
q. Organic matter (%)	4.3	--	5.9	--
r. TEB (meq/100 g)	0.5	0.6	0.6	--

s. Total anal. profiles:	1	1	1	0
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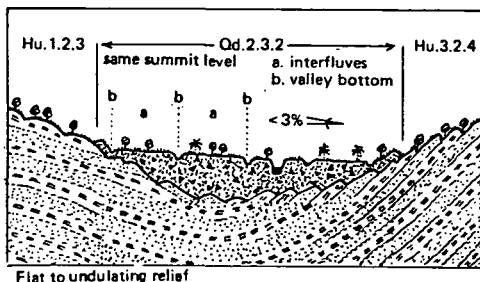
f. LAB CHECK	Yes	Yes	Yes	--
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27. ADDITIONAL NOTES :

MAP IMAGE :



CROSS SECTION :



1. LAND UNIT : Qd.2.3.2 Toba acid tuff lowlands and footslopes, acid tuffs, infilled river valleys, flat (slopes <3%), moderately dissected

2. MAP SHEET : 0717 3. AREA : 15.8 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%

5. STATUS IDENTIFIERS : Updated by : SS Edit date: 06/11/89 Status : Final

7. SATELLITE SCENES : 128/58/08/08/85

8. AERIAL PHOTOGRAPHS : 1:100.000 18 /8319-117

9. RADAR : STAR-1/250/88/0717-

10. PARENT MATERIAL

11. ROCK OUTCROP : 0%

a. Weathering : Partial

b. Lithology : dacite, ,

c. Formation : Qvt ,

12. WATER a. Quality : Fresh

b. Source : Rain, Perennial river

13. FISHERIES : River

14. RIVERS

a. Floodrisk water : None

b. Floodrisk sed.: None

c. Inundation : None

15. VEGETATION/LAND USE : , bush, scrub

Area used : 0 %

16. ACCELERATED EROSION

a. Occurrence : Localised

b. Evidence : Various

17. TERRAIN : Flat, slope < 3%, 0-50 m

18. PLAN/ Dominant: Not elongated and random 40-60% of area flat-topped

PROFILE Included:

19. RELIEF AMPLITUDE

a. Amplitude: Low

b. Variability : Low

20. ALTITUDE Minimum : 100 m

Maximum : 200 m

Range : 125 - 175 m

21. DRAINAGE a. Pattern: Dendritic

b. Density : Moderate

24. VALLEY FLOOR Width : Narrow

25. FRAGMEN a. Valleys: Small blocks

b. Interfluvies : Medium blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item | 10b | 12a | 14a | 14b | 19 | 20 | 21b | 22b | 22c | 22d1 | 22d2 | 22e1 | 23b | 23c | 23d | 23er | 24 | 25 |

rate : 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 2 | 1 | 1 | 1 | 2 |

28. REPRESENTATIVE PROFILES:

ith/ / /87/TB/0618/51/ /015/

ity/ / /87/KR/0618/24/ /036/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	: 1a	1b	2	--
b. Description	: Interfluves	Interfluves	Valley bottoms	--
c. % of Land Unit	: 85%	85%	15%	%

SLOPES

d1. Steepness	: < 3%	< 3%	< 3%	--
d2. Slope length	: 101 - 200 m	101 - 200 m	50 - 100 m	--
d3. Slope curvature	: Straight	Straight	Concave	--

SOILS

e1. USDA Class	: humitropepts	dystropepts	tropaquepts	
e2. % Facet	: 60%	40%	100%	%

23. SOIL CHARACTERISTICS

a. USDA Great Group	: humitropepts	dystropepts	tropaquepts	
b. Texture:				
topsoil:	Medium	Fine	--	--
subsoil:	Fine	Fine	--	--
c. Depth:				
peatsoil:	--	--	--	--
mineralsoil:	Very deep	Very deep	Very deep	--
d. Drainage	: Well drained	Well drained	Poorly drained	--

NUTRIENTS

e. Exch. K:				
topsoil:	Low	Low	--	--
subsoil:	Very low	Very low	--	--
f. Total K2O:				
topsoil:	Very high	Very high	--	--
subsoil:	Very high	Very high	--	--
g. Avail. P:				
method:	Bray I	Bray I	--	--
topsoil:	Very low	Very low	--	--
subsoil:	Very low	Very low	--	--
h. Total P:				
topsoil:	Low	Very low	--	--
subsoil:	Very low	Very low	--	--

OTHERS

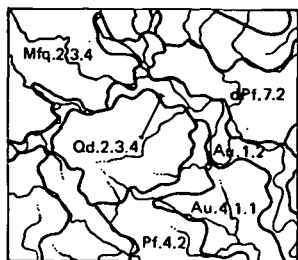
i. CEC pH 7				
topsoil:	Low	Medium	--	--
subsoil:	Low	Low	--	--
j. Reaction:				
topsoil:	Excessively acid	Very strong acid	--	--
subsoil:	Very strong acid	Very strong acid	--	--
k. Al sat.				
topsoil:	High	High	--	--
subsoil:	Low	High	--	--
l. Al toxicity	: No	Yes	--	--
m. Acid sulph. pot.	: Not relevant	Not relevant	Not relevant	--
n. Salinity (ec)	: Salt free	Salt free	Salt free	--
o. Other toxicity	: --	--	--	--
p. Root obstr. layer	: --	--	--	--
q. Organic matter (%)	: 4.0	3.2	--	--
r. TEB (meq/100 g)	: 1.3	0.5	--	--

s. Total anal. profiles:	1	1	0	0
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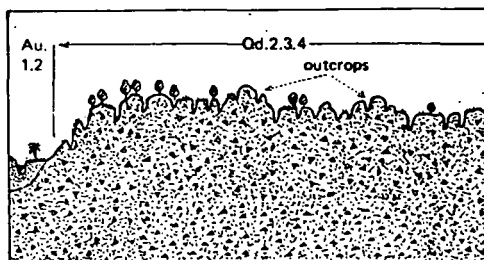
f. LAB CHECK	: Yes	Yes	No	--
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27. ADDITIONAL NOTES : The soil data of Humitropepts and Dystropepts are extrapolated from sheet 0618

MAP IMAGE :



CROSS SECTION :



Rocky land, hillocky relief, badland

1. LAND UNIT : Qd.2.3.4 Toba acid tuff lowlands and footslopes, acid tuffs, infilled river valleys, flat (slopes <3%), extremely dissected

2. MAP SHEET : 0717 3. AREA : 16.7 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%

5. STATUS IDENTIFIERS : Updated by : SS Edit date: 06/11/89 Status : Final

7. SATELLITE SCENES : 128/58/08/08/85

8. AERIAL PHOTOGRAPHS : 1:100.000 T2 /8323-177

9. RADAR : STAR-1/250/88/0717

10. PARENT MATERIAL

a. Weathering : Partial

b. Lithology : dacite, ,

c. Formation : Qvt ,

12. WATER a. Quality : Fresh

b. Source : Rain, Perennial river

13. FISHERIES : River

14. RIVERS

a. Floodrisk water : None

c. Inundation : None

11. ROCK OUTCROP : 0%

b. Floodrisk sed.: None

15. VEGETATION/LAND USE : , bush, scrub, grazing land

Area used : 0 %

16. ACCELERATED EROSION

a. Occurrence : Common

b. Evidence : Various

17. TERRAIN : Flat, slope < 3%, 0-50 m

18. PLAN/ Dominant: Not elongated and random > 60% of area flat-topped

PROFILE Included:

19. RELIEF AMPLITUDE

a. Amplitude: Low

b. Variability : Low

20. ALTITUDE Minimum : 100 m

Maximum : 350 m

Range : 125 - 300 m

21. DRAINAGE a. Pattern: Dendritic

b. Density : Moderately high

24. VALLEY FLOOR Width : Moderate

25. FRAGMEN a. Valleys: Small blocks

b. Interfluves : Medium blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item | 10b | 12a | 14a | 14b | 19 | 20 | 21b | 22b | 22c | 22d1 | 22d2 | 22e1 | 23b | 23c | 23d | 23er | 24 | 25 |

rate : 1 | 1 | 2 | 2 | 2 | 2 | 2 | 3 | 2 | 2 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 3 |

28. REPRESENTATIVE PROFILES:

ith/ / /89/YM/0717/51/ /050/ ity/ / /87/KR/0618/24/ /036/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	:	1a	1b	2	--
b. Description	:	Interfluves	Interfluves	Depression	--
c. % of Land Unit	:	90%	90%	10%	X

SLOPES

d1. Steepness	:	< 3%	< 3%	< 3%	--
d2. Slope length	:	101 - 200 m	101 - 200 m	50 - 100 m	--
d3. Slope curvature	:	Straight	Straight	Concave	--

SOILS

e1. USDA Class	:	dystropepts	humitropepts	tropaquepts	
e2. % Facet	:	60%	40%	100%	X

23. SOIL CHARACTERISTICS

a. USDA Great Group	:	dystropepts	humitropepts	tropaquepts	
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b. Texture:	topsoil:	Fine	Fine	--	--
	subsoil:	Fine	Fine	--	--
c. Depth:	peatsoil:	--	--	--	--
	mineralsoil:	Very deep	Moderately deep	Very deep	--
d. Drainage	:	Well drained	Well drained	Poorly drained	--

NUTRIENTS

e. Exch. K:	topsoil:	Low	Medium	--	--
	subsoil:	Very low	Medium	--	--
f. Total K2O:	topsoil:	Very high	Very low	--	--
	subsoil:	Very high	Medium	--	--
g. Avail. P:	method:	Bray I	Bray I	--	--
	topsoil:	Very low	Low	--	--
	subsoil:	Very low	Very low	--	--
h. Total P:	topsoil:	Very low	Very low	--	--
	subsoil:	Very low	High	--	--

OTHERS

i. CEC pH 7	topsoil:	Medium	Very low	--	--
	subsoil:	Low	Very high	--	--
j. Reaction:	topsoil:	Very strong acid	Very strong acid	--	--
	subsoil:	Very strong acid	Very strong acid	--	--
k. Al sat.	topsoil:	High	Low	--	--
	subsoil:	High	Medium	--	--
l. Al toxicity	:	Yes	No	--	--
m. Acid sulph. pot.	:	Not relevant	Not relevant	Not relevant	--
n. Salinity (ec)	:	Salt free	Salt free	--	--
o. Other toxicity	:	--	--	--	--
p. Root obstr. layer	:	--	--	--	--
q. Organic matter (%)	:	3.2	9.7	--	--
r. TEB (meq/100 g)	:	0.5	18.9	--	--

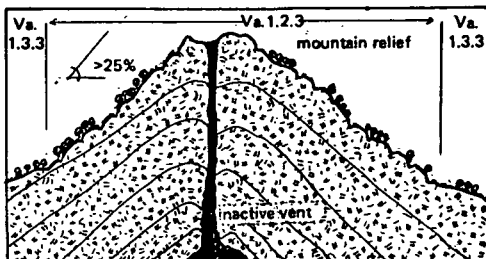
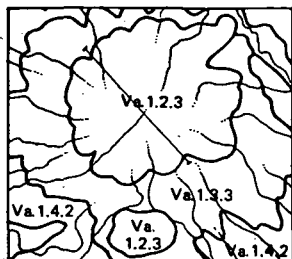
s. Total anal. profiles:	1	1	0	0
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f. LAB CHECK	:	Yes	Yes	No	--
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27. ADDITIONAL NOTES : The soil data of Tropaquepts are extrapolated from Qd.2.3.2 and
The data of Dystropepts are from 0618 sheet

MAP IMAGE :

CROSS SECTION :



1. LAND UNIT : Va.1.2.3 Stratovolcanoes, intermediate tuffs, volcano upper slopes, steep to very steep slopes (>25%), strongly dissected

2. MAP SHEET : 0717 3. AREA : 45.2 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%

5. STATUS IDENTIFIERS : Updated by : SS Edit date: 06/11/89 Status : Final

7. SATELLITE SCENES : 128/59/08/08/85

8. AERIAL PHOTOGRAPHS : 1:100.000 11S /8348-153

9. RADAR : STAR-1/250/88/0717-3

10. PARENT MATERIAL

11. ROCK OUTCROP : 2%

a. Weathering : Partial

b. Lithology : andesitic tuffs, ,

c. Formation : Qvlu ,

12. WATER a. Quality : Fresh

b. Source : Rain, Perennial river

13. FISHERIES : None

14. RIVERS

a. Floodrisk water : None

b. Floodrisk sed.: None

c. Inundation : None

15. VEGETATION/LAND USE : moist primary montane forest, horticultural crops

Area used : 10 %

16. ACCELERATED EROSION

a. Occurrence : Common

b. Evidence : Various

17. TERRAIN : Mountainous >16%, >300 m

18. PLAN/ Dominant: Not elongated and random > 60% of area crested/peaked

PROFILE Included:

19. RELIEF AMPLITUDE

a. Amplitude: Very high

b. Variability : Low

20. ALTITUDE Minimum :1000 m

Maximum :1862 m

Range :1100 - 1700 m

21. DRAINAGE a. Pattern: Radial

b. Density : Moderately high

24. VALLEY FLOOR Width : Very narrow

25. FRAGMEN a. Valleys: None

b. Interfluves : Small blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item | 10b | 12a | 14a | 14b | 19 | 20 | 21b | 22b | 22c | 22d1 | 22d2 | 22e1 | 23b | 23c | 23d | 23er | 24 | 25 |

rate : 2 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 2 | 2 |

28. REPRESENTATIVE PROFILES:

ith/ / /89/YM/0717/13/ /131/

iny/ /

/88/JH/0617/64/ /101/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	:	1a	1b	--	--
b. Description	:	Interfluves	Interfluves	--	--
c. % of Land Unit	:	100%	100%	X	X

SLOPES

d1. Steepness	:	25 - 75%	25 - 75%	--	--
d2. Slope length	:	201 - 500 m	201 - 500 m	--	--
d3. Slope curvature	:	Straight	Straight	--	--

SOILS

e1. USDA Class	:	dysterandepts	humitropepts		
e2. % Facet	:	75%	25%	X	X

23. SOIL CHARACTERISTICS

a. USDA Great Group	:	dysterandepts	humitropepts		
---------------------	---	---------------	--------------	--	--

b. Texture:	topsoil:	Fine	Fine	--	--
	subsoil:	Moderately fine	Fine	--	--
c. Depth:	peatsoil:	--	--	--	--
	mineralsoil:	Moderately deep	Very deep	--	--
d. Drainage	:	Well drained	Well drained	--	--

NUTRIENTS

e. Exch. K:	topsoil:	Low	Low	--	--
	subsoil:	Low	Low	--	--
f. Total K2O:	topsoil:	Low	Low	--	--
	subsoil:	Low	Very low	--	--
g. Avail. P:	method:	Bray I	Bray I	--	--
	topsoil:	Very low	Very low	--	--
	subsoil:	Very low	Very low	--	--
h. Total P:	topsoil:	Low	Very low	--	--
	subsoil:	Low	Very low	--	--

OTHERS

i. CEC pH 7	topsoil:	Very high	Medium	--	--
	subsoil:	Very high	Medium	--	--
j. Reaction:	topsoil:	Very strong acid	Excessively acid	--	--
	subsoil:	Strong acid	Excessively acid	--	--
k. Al sat.	topsoil:	High	High	--	--
	subsoil:	Medium	High	--	--
l. Al toxicity	:	No	Yes	--	--
m. Acid sulph. pot.	:	Not relevant	Not relevant	--	--
n. Salinity (ec)	:	Salt free	Salt free	--	--
o. Other toxicity	:	--	--	--	--
p. Root obstr. layer	:	55 cm	--	--	--
q. Organic matter (%)	:	7.8	5.4	--	--
r. TEB (meq/100 g)	:	1.2	1.3	--	--

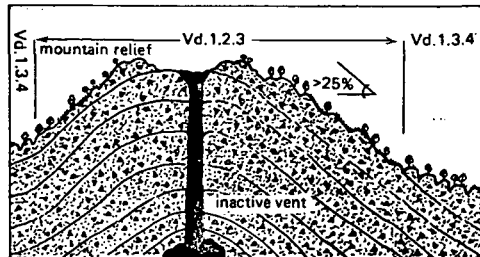
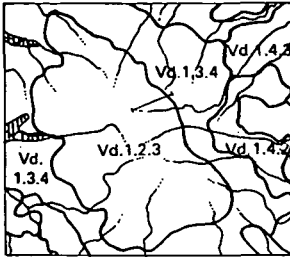
s. Total anal. profiles:	1	1	0	0
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f. LAB CHECK	:	Yes	Yes	--	--
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27. ADDITIONAL NOTES :

MAP IMAGE :

CROSS SECTION :



1. LAND UNIT : Vd.1.2.3 Stratovolcanoes, acid tuffs, volcano upper slopes, steep to very steep slopes (>25%), strongly dissected
2. MAP SHEET : 0717 3. AREA : 40.5 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 06/11/89 Status : Final
7. SATELLITE SCENES : 128/58/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000 14S /8323-49 , 14S /8323-47
9. RADAR : STAR-1/250/88/0717-3/5
10. PARENT MATERIAL 11. ROCK OUTCROP : 10%
 - a. Weathering : Partial
 - b. Lithology : liparite, dacite,
 - c. Formation : Qvb ,
12. WATER a. Quality : Fresh b. Source : Rain, Perennial river
13. FISHERIES : None
14. RIVERS a. Floodrisk water : None b. Floodrisk sed.: None c. Inundation : None
15. VEGETATION/LAND USE : moist primary montane forest, bush, scrub
Area used : 0 %
16. ACCELERATED EROSION a. Occurrence : Common b. Evidence : Various
17. TERRAIN : Mountainous >16%, >300 m
18. PLAN/ Dominant: Not elongated and random > 60% of area crested/peaked
PROFILE Included:
19. RELIEF AMPLITUDE a. Amplitude: Very high b. Variability : Low
20. ALTITUDE Minimum :1200 m Maximum :1812 m
Range :1300 - 1750 m
21. DRAINAGE a. Pattern: Radial b. Density : Moderately high
24. VALLEY FLOOR Width : Very narrow
25. FRAGMEN a. Valleys: None b. Interfluves : None

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item	10b	12a	14a	14b	19	20	21b	22b	22c	22d1	22d2	22e1	23b	23c	23d	23er	24	25
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rate	2	1	1	1	2	2	2	2	2	2	2	2	1	1	1	1	1	2	2
------	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

28. REPRESENTATIVE PROFILES:

ity/ / /89/CD/0717/41/ /088/

ith/ / /89/CD/0717/41/ /099/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	: 1a	1b	--	--
b. Description	: Upper slopes	Upper slopes	--	--
c. % of Land Unit	: 100%	100%	%	%

SLOPES

d1. Steepness	: 25 - 75%	25 - 75%	--	--
d2. Slope length	: > 500 m	> 500 m	--	--
d3. Slope curvature	: Straight	Straight	--	--

SOILS

e1. USDA Class	: humitropepts	dystropepts		
e2. % Facet	: 60%	40%	%	%

23. SOIL CHARACTERISTICS

a. USDA Great Group	: humitropepts	dystropepts		
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b. Texture:	topsoil:	Fine	Moderately fine	--	--
	subsoil:	Fine	Fine	--	--
c. Depth:	peatsoil:	--	--	--	--
	mineralsoil:	Moderately shallow	Deep	--	--
d. Drainage	: Well drained	Well drained	--	--	--

NUTRIENTS :

e. Exch. K:	topsoil:	Low	Medium	--	--
	subsoil:	Very low	Low	--	--
f. Total K2O:	topsoil:	Low	Medium	--	--
	subsoil:	Low	Very high	--	--
g. Avail. P:	method:	Bray I	Bray I	--	--
	topsoil:	Very low	Very low	--	--
	subsoil:	Very low	Very low	--	--
h. Total P:	topsoil:	Very low	Very low	--	--
	subsoil:	Very low	Very low	--	--

OTHERS :

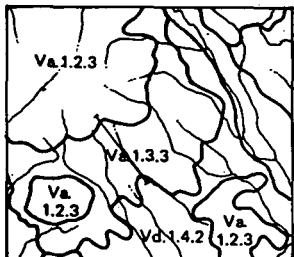
i. CEC pH 7	topsoil:	Medium	Very high	--	--
	subsoil:	Medium	High	--	--
j. Reaction:	topsoil:	Very strong acid	Excessively acid	--	--
	subsoil:	Strong acid	Very strong acid	--	--
k. Al sat	topsoil:	Low	Very high	--	--
	subsoil:	Medium	Very high	--	--
l. Al toxicity	: No	Yes	--	--	--
m. Acid sulph. pot.	: Not relevant	Not relevant	--	--	--
n. Salinity (ec)	: Salt free	Salt free	--	--	--
o. Other toxicity	: --	--	--	--	--
p. Root obstr. layer	: 26 cm	96 cm	--	--	--
q. Organic matter (%)	: 11.0	3.4	--	--	--
r. TEB (meq/100 g)	: 1.8	1.3	--	--	--

s. Total anal. profiles:	1	1	0	0
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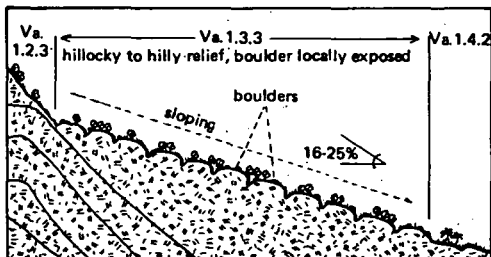
f. LAB CHECK	: Yes	Yes	--	--
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27. ADDITIONAL NOTES : The soil data are extrapolated from Vd.1.3.4

MAP IMAGE :



CROSS SECTION :



1. LAND UNIT : Va.1.3.3 Stratovolcanoes, intermediate tuffs, volcano middle slopes, moderately steep to steep slopes (16-55%), strongly dissected
2. MAP SHEET : 0717 3. AREA : 57.8 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 06/11/89 Status : Final
7. SATELLITE SCENES : 128/59/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000 14S /8323-49
9. RADAR : STAR-1/250/88/0717-3/5
10. PARENT MATERIAL 11. ROCK OUTCROP : 2%
- a. Weathering : Partial
- b. Lithology : andesitic tuffs, ,
- c. Formation : Qvlu ,
12. WATER a. Quality : Fresh
- b. Source : Rain, Perennial river
13. FISHERIES : None
14. RIVERS b. Floodrisk sed.: None
- a. Floodrisk water : None
- c. Inundation : None
15. VEGETATION/LAND USE : secondary forest, bush, scrub, upland crops, unspecified estate
- Area used : 20 %
16. ACCELERATED EROSION b. Evidence : Various
- a. Occurrence : Common
17. TERRAIN : Hilly >16%, 51-300 m
18. PLAN/ Dominant: Not elongated and random > 60% of area crested/peaked
- PROFILE Included:
19. RELIEF AMPLITUDE b. Variability : Low
- a. Amplitude: Very high
20. ALTITUDE Minimum : 600 m Maximum : 1200 m
- Range : 650 - 1110 m
21. DRAINAGE a. Pattern: Radial b. Density : Moderately high
24. VALLEY FLOOR Width : Very narrow
25. FRAGMEN a. Valleys: None b. Interfluves : Medium blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item | 10b | 12a | 14a | 14b | 19 | 20 | 21b | 22b | 22c | 22d1 | 22d2 | 22e1 | 23b | 23c | 23d | 23er | 24 | 25 |

rate : 2 | 1 | 1 | 2 | 2 | 2 | 2 | 3 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | | 2 | 3 |

28. REPRESENTATIVE PROFILES:

iny/ / /88/JH/0617/64/ /101/ ith/ / /89/YM/0717/13/ /087/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	:	1a	1b	--	--
b. Description	:	Interfluves	Interfluves	--	--
c. % of Land Unit	:	100%	100%	X	X

SLOPES

d1. Steepness	:	16 - 55%	16 - 55%	--	--
d2. Slope length	:	201 - 500 m	201 - 500 m	--	--
d3. Slope curvature	:	Straight	Straight	--	--

SOILS

e1. USDA Class	:	dystrochrepts	humitrochrepts		
e2. % Facet	:	60%	40%	X	X

23. SOIL CHARACTERISTICS

a. USDA Great Group	:	dystrochrepts	humitrochrepts		
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b. Texture:	topsoil:	Fine	Fine	--	--
	subsoil:	Moderately fine	Fine	--	--
c. Depth:	peatsoil:	--	--	--	--
	mineralsoil:	Deep	Very deep	--	--
d. Drainage	:	Well drained	Well drained	--	--

NUTRIENTS :

e. Exch. K:	topsoil:	Low	Low	--	--
	subsoil:	Low	Low	--	--
f. Total K2O:	topsoil:	Low	Low	--	--
	subsoil:	Low	Very low	--	--
g. Avail. P:	method:	Bray I	Bray I	--	--
	topsoil:	Very low	Very low	--	--
	subsoil:	Very low	Very low	--	--
h. Total P:	topsoil:	Low	Very low	--	--
	subsoil:	Low	Very low	--	--

OTHERS :

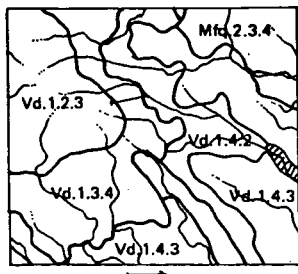
i. CEC pH 7	topsoil:	Very high	Medium	--	--
	subsoil:	Very high	Medium	--	--
j. Reaction:	topsoil:	Very strong acid	Excessively acid	--	--
	subsoil:	Strong acid	Excessively acid	--	--
k. Al sat.	topsoil:	High	High	--	--
	subsoil:	Medium	High	--	--
l. Al toxicity	:	No	Yes	--	--
m. Acid sulph. pot.	:	Not relevant	Not relevant	--	--
n. Salinity (ec)	:	Salt free	Salt free	--	--
o. Other toxicity	:	--	--	--	--
p. Root obstr. layer	:	--	--	--	--
q. Organic matter (%)	:	7.8	5.4	--	--
r. TEB (meq/100 g)	:	1.2	1.3	--	--

s. Total anal. profiles:	1	1	0	0
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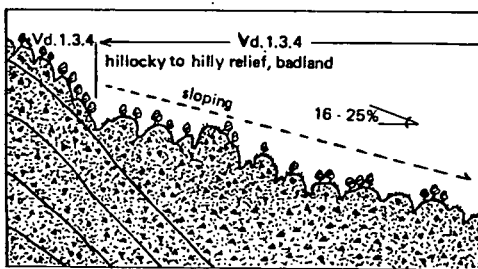
t. LAB CHECK	:	Yes	Yes	--	--
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27. ADDITIONAL NOTES : The soil data of Dystrandepts are extrapolated from Va.1.2.3

MAP IMAGE :



CROSS SECTION :



1. LAND UNIT : Vd.1.3.4 Stratovolcanoes, acid tuffs, volcano middle slopes, moderately steep to steep slopes (16-55%), extremely dissected
2. MAP SHEET : 0717 3. AREA : 97.1 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 06/11/89 Status : Final
7. SATELLITE SCENES : 128/58/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000 14S /8323-49
9. RADAR : STAR-1/250/88/0717-3/5
10. PARENT MATERIAL 11. ROCK OUTCROP : 2%
- a. Weathering : Partial
- b. Lithology : liparite, dacite,
- c. Formation : Qvb
12. WATER a. Quality : Fresh
- b. Source : Rain, Perennial river
13. FISHERIES : None
14. RIVERS b. Floodrisk sed.: None
- a. Floodrisk water : None
- c. Inundation : None
15. VEGETATION/LAND USE : , bush, scrub, rubber
- Area used : 10 %
16. ACCELERATED EROSION b. Evidence : Gulleys
- a. Occurrence : Common
17. TERRAIN : Hillocky >16%, 0-50 m
18. PLAN/ Dominant: Not elongated and random > 60% of area crested/peaked
- PROFILE Included:
19. RELIEF AMPLITUDE b. Variability : Medium
- a. Amplitude: High
20. ALTITUDE Minimum : 800 m Maximum : 1200 m
- Range : 850 - 1100 m
21. DRAINAGE a. Pattern: Radial b. Density : High
24. VALLEY FLOOR Width : Very narrow
25. FRAGMEN a. Valleys: None b. Interfluves : Small blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item | 10b | 12a | 14a | 14b | 19 | 20 | 21b | 22b | 22c | 22d1 | 22d2 | 22e1 | 23b | 23c | 23d | 23er | 24 | 25 |

rate : 2 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 2 | 2 |

28. REPRESENTATIVE PROFILES:

ity/ / /89/CD/0717/41/ /088/ ith/ / /89/CD/0717/42/ /099/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	:	1a	1b	--	--
b. Description	:	Interfluves	Interfluves	--	--
c. % of Land Unit	:	100%	100%	%	%

SLOPES

d1. Steepness	:	16 - 55%	16 - 55%	--	--
d2. Slope length	:	> 500 m	> 500 m	--	--
d3. Slope curvature	:	Straight	Straight	--	--

SOILS

e1. USDA Class	:	humitropepts	dystropepts		
e2. % Facet	:	70%	30%	%	%

23. SOIL CHARACTERISTICS

a. USDA Great Group	:	humitropepts	dystropepts		
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b. Texture:	topsoil:	Moderately fine	Fine	--	--
	subsoil:	Fine	Fine	--	--
c. Depth:	peatsoil:	--	--	--	--
	mineralsoil:	Deep	Moderately shallow	--	--
d. Drainage	:	Well drained	Well drained	--	--

NUTRIENTS :

e. Exch. K:	topsoil:	Medium	Low	--	--
	subsoil:	Low	Very low	--	--
f. Total K2O:	topsoil:	Medium	Low	--	--
	subsoil:	Very high	Low	--	--
g. Avail. P:	method:	Bray I	Bray I	--	--
	topsoil:	Very low	Very low	--	--
	subsoil:	Very low	Very low	--	--
h. Total P:	topsoil:	Very low	Very low	--	--
	subsoil:	Very low	Very low	--	--

OTHERS :

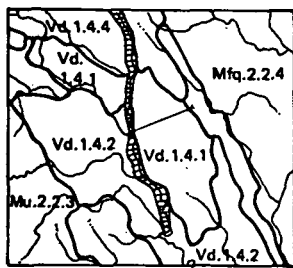
i. CEC pH 7	topsoil:	Very high	Medium	--	--
	subsoil:	High	Medium	--	--
j. Reaction:	topsoil:	Excessively acid	Very strong acid	--	--
	subsoil:	Very strong acid	Strong acid	--	--
k. Al sat.	topsoil:	Very high	Low	--	--
	subsoil:	Very high	Medium	--	--
l. Al toxicity	:	Yes	No	--	--
m. Acid sulph. pot.	:	Not relevant	Not relevant	--	--
n. Salinity (ec)	:	Salt free	Salt free	--	--
o. Other toxicity	:	--	--	--	--
p. Root obstr. layer	:	96 cm	26 cm	--	--
q. Organic matter (%)	:	11.0	13.4	--	--
r. TEB (meq/100 g)	:	1.3	1.8	--	--

s. Total anal. profiles:	1	1	0	0
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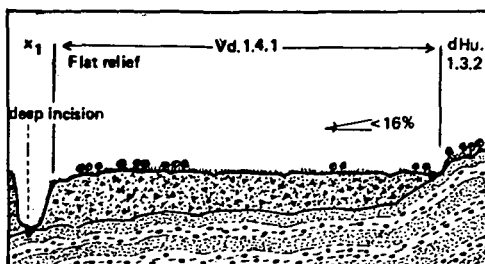
f. LAB CHECK	:	Yes	Yes	--	--
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27. ADDITIONAL NOTES :

MAP IMAGE :



CROSS SECTION :



1. LAND UNIT : Vd.1.4.1 Stratovolcanoes, acid tuffs, volcano lower slopes, flat to sloping (slopes <16%), slightly dissected
2. MAP SHEET : 0717 3. AREA : 23.7 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 06/11/89 Status : Final
7. SATELLITE SCENES : 128/59/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000 14S /8323-41
9. RADAR : STAR-1/250/88/0717-3
10. PARENT MATERIAL 11. ROCK OUTCROP : 5%
- a. Weathering : Partial
- b. Lithology : liparite, dacite,
- c. Formation : Qvb ,
12. WATER a. Quality : Fresh
- b. Source : Rain, Perennial river
13. FISHERIES : River
14. RIVERS
- a. Floodrisk water : None b. Floodrisk sed.: None
- c. Inundation : None
15. VEGETATION/LAND USE : , bush, scrub, alang-alang, wetland rice, rubber
- Area used : 50 %
16. ACCELERATED EROSION
- a. Occurrence : Localised b. Evidence : Various
17. TERRAIN : Undulating 3-8%, 0-50 m
18. PLAN/ Dominant: Not elongated and parallel > 60% of area flat-topped
- PROFILE Included:
19. RELIEF AMPLITUDE
- a. Amplitude: Low b. Variability : Low
20. ALTITUDE Minimum : 350 m Maximum : 400 m
- Range : 350 - 375 m
21. DRAINAGE a. Pattern: Parallel b. Density : Low
24. VALLEY FLOOR Width : Narrow
25. FRAGMEN a. Valleys: Small blocks b. Interfluves : Large blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item	10b	12a	14a	14b	19	20	21b	22b	22c	22d1	22d2	22e1	23b	23c	23d	23er	24	25
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rate	2	1	1	2	2	2	2	2	2	2	2	1	1	1	1	1	2	2
------	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

28. REPRESENTATIVE PROFILES:

ity/ / /89/KR/0717/14/ /090/

ity/ / /89/KR/0717/14/ /063/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	:	1a	1b	--	--
b. Description	:	Interfluves	Interfluves	--	--
c. % of Land Unit	:	100%	100%	%	%

SLOPES

d1. Steepness	:	3 - 8%	3 - 8%	--	--
d2. Slope length	:	> 500 m	> 500 m	--	--
d3. Slope curvature	:	Straight	Straight	--	--

SOILS

e1. USDA Class	:	dystropepts	humitropepts		
e2. % Facet	:	60%	40%	%	%

23. SOIL CHARACTERISTICS

a. USDA Great Group	:	dystropepts	humitropepts
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b. Texture:	topsoil:	Fine	Fine	--	--
	subsoil:	Moderately fine	Fine	--	--
c. Depth:	peatsoil:	--	--	--	--
	mineralsoil:	Very deep	Moderately shallow	--	--
d. Drainage	:	Well drained	Well drained	--	--

NUTRIENTS :

e. Exch. K:	topsoil:	Low	--	--	--
	subsoil:	Low	--	--	--
f. Total K2O:	topsoil:	Very high	--	--	--
	subsoil:	Very high	--	--	--
g. Avail. P:	method:	Bray I	--	--	--
	topsoil:	Very low	--	--	--
	subsoil:	Very low	--	--	--
h. Total P:	topsoil:	Very low	--	--	--
	subsoil:	Very low	--	--	--

OTHERS :

i. CEC pH 7	topsoil:	Medium	--	--	--
	subsoil:	Medium	--	--	--
j. Reaction:	topsoil:	Excessively acid	Very strong acid	--	--
	subsoil:	Strong acid	Strong acid	--	--
k. Al sat.	topsoil:	High	--	--	--
	subsoil:	High	--	--	--
l. Al toxicity	:	Yes	--	--	--
m. Acid sulph. pot.	:	Not relevant	Not relevant	--	--
n. Salinity (ec)	:	Salt free	Salt free	--	--
o. Other toxicity	:	--	--	--	--
p. Root obstr. layer	:	--	--	--	--
q. Organic matter (%)	:	4.5	--	--	--
r. TEB (meq/100 g)	:	0.2	--	--	--

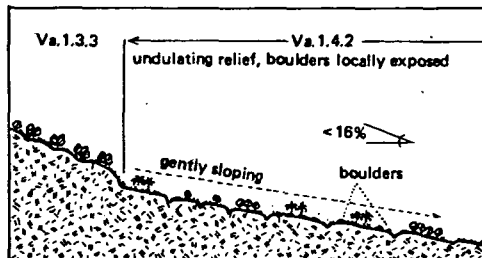
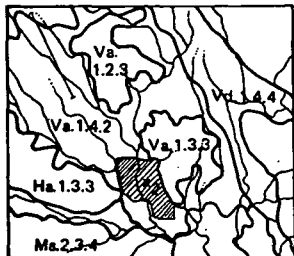
s. Total anal. profiles:	2	0	0	0
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f. LAB CHECK	:	Yes	No	--	--
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27. ADDITIONAL NOTES :

MAP IMAGE :

CROSS SECTION :



1. LAND UNIT : Va.1.4.2 Stratovolcanoes, intermediate tuffs, volcano lower slopes, flat to sloping (slopes <16%), moderately dissected
2. MAP SHEET : 0717 3. AREA : 157.5 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 06/11/89 Status : Final
7. SATELLITE SCENES : 128/59/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000 10S /8348-146, 11S /8348-153
9. RADAR : STAR-1/250/88/0717-3/5
10. PARENT MATERIAL 11. ROCK OUTCROP : 2%
- a. Weathering : Partial
- b. Lithology : andesitic tuffs, ,
- c. Formation : Qvlu ,
12. WATER a. Quality : Fresh
- b. Source : Rain, Perennial river
13. FISHERIES : River
14. RIVERS a. Floodrisk water : None b. Floodrisk sed.: None
- c. Inundation : None
15. VEGETATION/LAND USE : , bush, scrub, upland crops, irrigated wetland rice, unspecified estate
- Area used : 60 %
16. ACCELERATED EROSION a. Occurrence : Localised b. Evidence : Various
17. TERRAIN : Undulating 3-8%, 0-50 m
18. PLAN/ Dominant: Not elongated and random > 60% of area flat-topped
- PROFILE Included:
19. RELIEF AMPLITUDE a. Amplitude: Low b. Variability : Medium
20. ALTITUDE Minimum : 400 m Maximum : 600 m
- Range : 450 - 550 m
21. DRAINAGE a. Pattern: Radial b. Density : Moderate
24. VALLEY FLOOR Width : Very narrow
25. FRAGMEN a. Valleys: Small blocks b. Interfluves : Large blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item | 10b | 12a | 14a | 14b | 19 | 20 | 21b | 22b | 22c | 22d1 | 22d2 | 22e1 | 23b | 23c | 23d | 23er | 24 | 25 |

rate : 1 | 1 | 1 | 2 | 2 | 2 | 2 | 3 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | | 2 | 2 |

28. REPRESENTATIVE PROFILES:

ith/ / /89/YM/0717/13/ /133/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	:	1a	1b	--	--
b. Description	:	Interfluves	Interfluves	--	--
c. % of Land Unit	:	100%	100%	0%	0%

SLOPES

d1. Steepness	:	3 - 8%	3 - 16%	--	--
d2. Slope length	:	201 - 500 m	201 - 500 m	--	--
d3. Slope curvature	:	Straight	Straight	--	--

SOILS

e1. USDA Class	:	dystropepts	humitropepts		
e2. % Facet	:	60%	40%	0%	0%

23. SOIL CHARACTERISTICS

a. USDA Great Group	:	dystropepts	humitropepts		
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b. Texture:	topsoil:	Fine	Medium	--	--
	subsoil:	Fine	Medium	--	--
c. Depth:	peatsoil:	--	--	--	--
	mineralsoil:	Very deep	Moderately shallow	--	--
d. Drainage	:	Well drained	Imperfectly drained	--	--

NUTRIENTS :

e. Exch. K:	topsoil:	--	Very high	--	--
	subsoil:	--	High	--	--
f. Total K ₂ O:	topsoil:	--	Very high	--	--
	subsoil:	--	High	--	--
g. Avail. P:	method:	--	Bray I	--	--
	topsoil:	--	Low	--	--
	subsoil:	--	Very low	--	--
h. Total P:	topsoil:	--	Medium	--	--
	subsoil:	--	Medium	--	--

OTHERS :

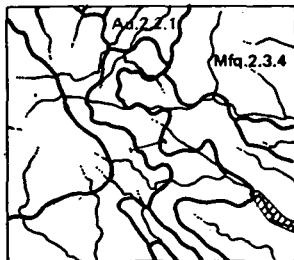
i. CEC pH 7	topsoil:	--	Medium	--	--
	subsoil:	--	Low	--	--
j. Reaction:	topsoil:	--	Very strong acid	--	--
	subsoil:	--	Strong acid	--	--
k. Al sat.	topsoil:	--	--	--	--
	subsoil:	--	--	--	--
l. Al toxicity	:	--	--	--	--
m. Acid sulph. pot.	:	Not relevant	Not relevant	--	--
n. Salinity (ec)	:	Salt free	Salt free	--	--
o. Other toxicity	:	--	--	--	--
p. Root obstr. layer	:	--	40 cm	--	--
q. Organic matter (%)	:	--	5.2	--	--
r. TEB (meq/100 g)	:	--	23.1	--	--

s. Total anal. profiles:	0	1	0	0
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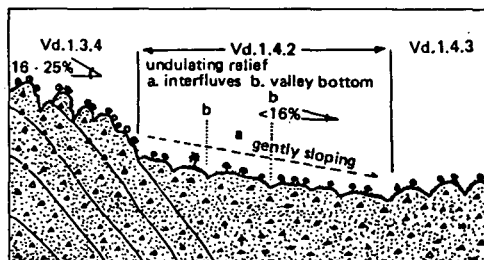
f. LAB CHECK	:	No	Yes	--	--
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27. ADDITIONAL NOTES :

MAP IMAGE :



CROSS SECTION :



1. LAND UNIT : Vd.1.4.2 Stratovolcanoes, acid tuffs, volcano lower slopes, flat to sloping (slopes <16%), moderately dissected
 2. MAP SHEET : 0717 3. AREA : 17.5 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
 5. STATUS IDENTIFIERS : Updated by : SS Edit date: 06/11/89 Status : Final
 7. SATELLITE SCENES : 128/59/08/08/85, 128/58/08/08/85
 8. AERIAL PHOTOGRAPHS : 1:100.000 14S /8323-41 , 14S /8323-43 , 14S /8323-47
 9. RADAR : STAR-1/250/88/0717-3
 10. PARENT MATERIAL 11. ROCK OUTCROP : 5%
 - a. Weathering : Partial
 - b. Lithology : liparite, dacite,
 - c. Formation : Qvb ,
 12. WATER a. Quality : Fresh
 - b. Source : Rain, Perennial river
 13. FISHERIES : None
 14. RIVERS
 - a. Floodrisk water : None b. Floodrisk sed.: None
 - c. Inundation : None
 15. VEGETATION/LAND USE : secondary forest, bush, scrub, alang-alang, upland crops, irrigated wetland rice, deepwater rice
 - Area used : 60 %
 16. ACCELERATED EROSION
 - a. Occurrence : Localised b. Evidence : Various
 17. TERRAIN : Undulating to rolling (3-16%)
 18. PLAN/ Dominant: Not elongated and parallel > 60% of area flat-topped
 - PROFILE Included:
 19. RELIEF AMPLITUDE
 - a. Amplitude: Low b. Variability : Low
 20. ALTITUDE Minimum : 600 m Maximum : 1100 m
 - Range : 650 - 800 m
 21. DRAINAGE a. Pattern: Parallel b. Density : Moderate
 24. VALLEY FLOOR Width : Narrow
 25. FRAGMEN a. Valleys: Small blocks b. Interfluvies : Large blocks
-
26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)
- | | | | | | | | | | | | | | | | | | | |
|------|-----|-----|-----|-----|----|----|-----|-----|-----|------|------|------|-----|-----|-----|------|----|----|
| item | 10b | 12a | 14a | 14b | 19 | 20 | 21b | 22b | 22c | 22d1 | 22d2 | 22e1 | 23b | 23c | 23d | 23er | 24 | 25 |
| rate | 2 | 1 | 1 | 2 | 2 | 2 | 2 | | | | | | | | | | | |
-
28. REPRESENTATIVE PROFILES:
- 1th/ / /89/KR/0717/14/ /090/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	: 1a	1b	--	--
b. Description	: Interfluves	Interfluves	--	--
c. % of Land Unit	: 100%	100%	0%	%

SLOPES

d1. Steepness	: 3 - 16%	3 - 16%	--	--
d2. Slope length	: > 500 m	> 500 m	--	--
d3. Slope curvature	: Straight	Straight	--	--

SOILS

e1. USDA Class	: dystropepts	humitropepts		
e2. % Facet	: 60%	40%	0%	%

23. SOIL CHARACTERISTICS

a. USDA Great Group	: dystropepts	humitropepts		
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b. Texture:	topsoil:	Fine	Fine	--	--
	subsoil:	Fine	Fine	--	--
c. Depth:	peatsoil:	--	--	--	--
	mineralsoil:	Very deep	Very deep	--	--
d. Drainage	: Well drained	Well drained	--	--	--

NUTRIENTS :

e. Exch. K:	topsoil:	--	Medium	--	--
	subsoil:	--	Very low	--	--
f. Total K2O:	topsoil:	--	High	--	--
	subsoil:	--	Medium	--	--
g. Avail. P:	method:	--	Bray I	--	--
	topsoil:	--	Very low	--	--
	subsoil:	--	Very low	--	--
h. Total P:	topsoil:	--	Very low	--	--
	subsoil:	--	Very low	--	--

OTHERS :

i. CEC pH 7	topsoil:	--	Low	--	--
	subsoil:	--	Low	--	--
j. Reaction:	topsoil:	Excessively acid	Very strong acid	--	--
	subsoil:	Strong acid	Very strong acid	--	--
k. Al sat.	topsoil:	--	Medium	--	--
	subsoil:	--	Low	--	--
l. Al toxicity	: --	--	--	--	--
m. Acid sulph. pot.	: Not relevant	Not relevant	--	--	--
n. Salinity (ec)	: Salt free	Salt free	--	--	--
o. Other toxicity	: --	--	--	--	--
p. Root obstr. layer	: --	--	--	--	--
q. Organic matter (%)	: --	7.3	--	--	--
r. TEB (meq/100 g)	: --	1.6	--	--	--

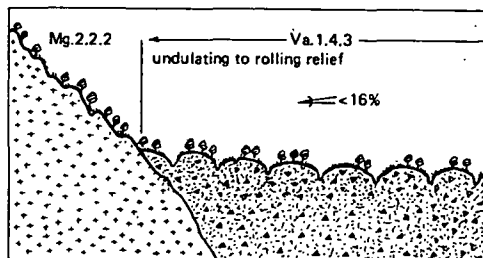
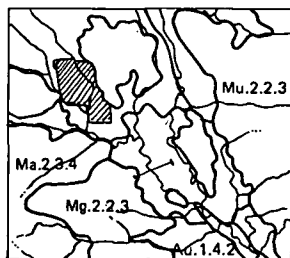
s. Total anal. profiles:	0	1	0	0
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f. LAB CHECK	: No	Yes	--	--
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27. ADDITIONAL NOTES : The soil data of Humitropepts are extrapolated from Vd.1.4.3

MAP IMAGE :

CROSS SECTION :



1. LAND UNIT : Va.1.4.3 Stratovolcanoes, intermediate tuffs, volcano lower slopes, flat to sloping (slopes <16%), strongly dissected
2. MAP SHEET : 0717 3. AREA : 46.2 km2 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 06/11/89 Status : Final
7. SATELLITE SCENES : 128/59/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000 11S /8348-153
9. RADAR : STAR-1/250/88/0717-3
10. PARENT MATERIAL f1. ROCK OUTCROP : 5%
 - a. Weathering : Partial
 - b. Lithology : andesitic tuffs, ,
 - c. Formation : Qvlu ,
12. WATER a. Quality : Fresh
 - b. Source : Rain, Perennial river
13. FISHERIES : River
14. RIVERS a. Floodrisk water : None b. Floodrisk sed.: None
 - c. Inundation : None
15. VEGETATION/LAND USE : , bush, scrub, rubber

Area used : 30 %
16. ACCELERATED EROSION a. Occurrence : Localised b. Evidence : Various
17. TERRAIN : Undulating 3-8%, 0-50 m
18. PLAN/ Dominant: Not elongated and random > 60% of area flat-topped

PROFILE Included:
19. RELIEF AMPLITUDE a. Amplitude: Low b. Variability : Medium
 20. ALTITUDE Minimum : 200 m Maximum : 400 m

Range : 250 - 350 m
 21. DRAINAGE a. Pattern: Radial b. Density : Moderately high
 24. VALLEY FLOOR Width : Very narrow
 25. FRAGMEN a. Valleys: Small blocks b. Interfluves : Large blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item	10b	12a	14a	14b	19	20	21b	22b	22c	22d1	22d2	22e1	23b	23c	23d	23er	24	25
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rate	1	1	1	2	2	2	2	2	2	2	2	2	2	2	1	1		2	2
------	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	--	---	---

28. REPRESENTATIVE PROFILES:

ith/ / /89/YM/0717/13/ /133/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	:	1a	1b	--	--
b. Description	:	Interfluves	Interfluves	--	--
c. % of Land Unit	:	100%	100%	X	X

SLOPES

d1. Steepness	:	3 - 8%	3 - 16%	--	--
d2. Slope length	:	201 - 500 m	101 - 200 m	--	--
d3. Slope curvature	:	Undulating	Undulating	--	--

SOILS

e1. USDA Class	:	dystropepts	humitropepts		
e2. % Facet	:	60%	40%	X	X

23. SOIL CHARACTERISTICS

a. USDA Great Group	:	dystropepts	humitropepts
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b. Texture:	topsoil:	Moderately fine	Medium	--	--
	subsoil:	Fine	Medium	--	--
c. Depth:	peatsoil:	--	--	--	--
	mineralsoil:	Very deep	Moderately shallow	--	--
d. Drainage	:	Well drained	Imperfectly drained	--	--

NUTRIENTS :

e. Exch. K:	topsoil:	--	Very high	--	--
	subsoil:	--	High	--	--
f. Total K2O:	topsoil:	--	Very high	--	--
	subsoil:	--	High	--	--
g. Avail. P:	method:	--	Bray I	--	--
	topsoil:	--	Low	--	--
	subsoil:	--	Very low	--	--
h. Total P:	topsoil:	--	Medium	--	--
	subsoil:	--	Medium	--	--

OTHERS :

i. CEC pH 7	topsoil:	--	Medium	--	--
	subsoil:	--	Low	--	--
j. Reaction:	topsoil:	Strong acid	Very strong acid	--	--
	subsoil:	Very strong acid	Strong acid	--	--
k. Al sat.	topsoil:	--	--	--	--
	subsoil:	--	--	--	--
l. Al toxicity	:	--	--	--	--
m. Acid sulph. pot.	:	Not relevant	Not relevant	--	--
n. Salinity (ec)	:	Salt free	Salt free	--	--
o. Other toxicity	:	--	--	--	--
p. Root obstr. layer	:	--	40 cm	--	--
q. Organic matter (%)	:	--	5.2	--	--
r. TEB (meq/100 g)	:	--	23.1	--	--

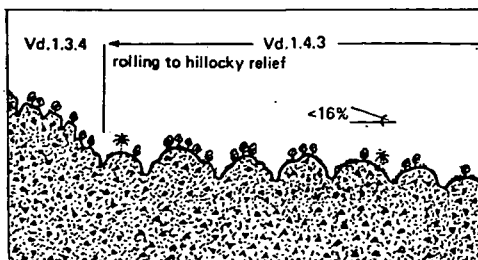
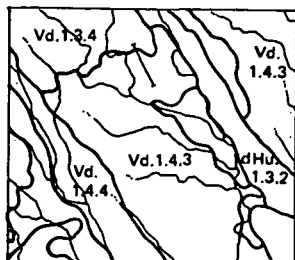
s. Total anal. profiles.	0	1	0	0
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f. LAB CHECK	:	No	Yes	--	--
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27. ADDITIONAL NOTES : The soil data of Humitropepts are extrapolated from Va.1.4.2

MAP IMAGE :

CROSS SECTION :



1. LAND UNIT : Vd.1.4.3 Stratovolcanoes, acid tuffs, volcano lower slopes, flat to sloping (slopes <16%), strongly dissected
2. MAP SHEET : 0717 3. AREA : 239.4 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 06/11/89 Status : Final
7. SATELLITE SCENES : 128/58/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000 14S /8323-49
9. RADAR : STAR-1/250/88/0717-3/5
10. PARENT MATERIAL 11. ROCK OUTCROP : 5%
- a. Weathering : Partial
- b. Lithology : liparite, dacite,
- c. Formation : Qvb
12. WATER a. Quality : Fresh
- b. Source : Rain, Perennial river
13. FISHERIES : None
14. RIVERS a. Floodrisk water : None b. Floodrisk sed.: None
- c. Inundation : None
15. VEGETATION/LAND USE : pinus forests, bush, scrub, alang-alang, mixed gardens of fruit trees, wetland rice, rubber
- Area used : 80 %
16. ACCELERATED EROSION a. Occurrence : Localised b. Evidence : Various
17. TERRAIN : Undulating to rolling (3-16%)
18. PLAN/ Dominant: Not elongated and parallel 40-60% of area flat-topped
- PROFILE Included:
19. RELIEF AMPLITUDE a. Amplitude: Low b. Variability : Low
20. ALTITUDE Minimum : 600 m Maximum : 1000 m
- Range : 750 - 850 m
21. DRAINAGE a. Pattern: Parallel b. Density : Moderately high
24. VALLEY FLOOR Width : Very narrow
25. FRAGMEN a. Valleys: Small blocks b. Interfluves : Large blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item | 10b | 12a | 14a | 14b | 19 | 20 | 21b | 22b | 22c | 22d1 | 22d2 | 22e1 | 23b | 23c | 23d | 23er | 24 | 25 |

rate : 2 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 2 | 2 |

28. REPRESENTATIVE PROFILES:

1th/ / /89/CD/0717/41/ /090/

ity/ / /89/LH/0717/14/ /105/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	:	1a	1b	--	--
b. Description	:	Interfluves	Interfluves	--	--
c. % of Land Unit	:	100%	100%	X	X

SLOPES

d1. Steepness	:	3 - 16%	3 - 16%	--	--
d2. Slope length	:	> 500 m	> 500 m	--	--
d3. Slope curvature	:	Straight	Straight	--	--

SOILS

e1. USDA Class	:	dystropepts	humitropepts		
e2. % Facet	:	60%	40%	X	X

23. SOIL CHARACTERISTICS

a. USDA Great Group	:	dystropepts	humitropepts		
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b. Texture:	topsoil:	Fine	Fine	--	--
	subsoil:	Fine	Fine	--	--
c. Depth:	peatsoil:	--	--	--	--
	mineralsoil:	Very deep	Very deep	--	--
d. Drainage	:	Well drained	Well drained	--	--

NUTRIENTS :

e. Exch. K:	topsoil:	Very low	Medium	--	--
	subsoil:	Very low	Very low	--	--
f. Total K2O:	topsoil:	Low	High	--	--
	subsoil:	Very low	Medium	--	--
g. Avail. P:	method:	Bray I	Bray I	--	--
	topsoil:	Very low	Very low	--	--
	subsoil:	Very low	Very low	--	--
h. Total P:	topsoil:	Low	Very low	--	--
	subsoil:	Low	Very low	--	--

OTHERS :

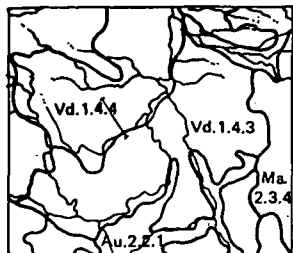
i. CEC pH 7	topsoil:	Low	Low	--	--
	subsoil:	Low	Low	--	--
j. Reaction:	topsoil:	Excessively acid	Very strong acid	--	--
	subsoil:	Very strong acid	Very strong acid	--	--
k. Al sat.	topsoil:	High	Medium	--	--
	subsoil:	High	Low	--	--
l. Al toxicity	:	Yes	No	--	--
m. Acid sulph. pot.	:	Not relevant	Not relevant	--	--
n. Salinity (ec)	:	Salt free	Salt free	--	--
o. Other toxicity	:	--	--	--	--
p. Root obstr. layer	:	--	--	--	--
q. Organic matter (%)	:	6.2	7.3	--	--
r. YEB (meq/100 g)	:	2.5	1.6	--	--

s. Total anal. profiles:	1	1	0	0
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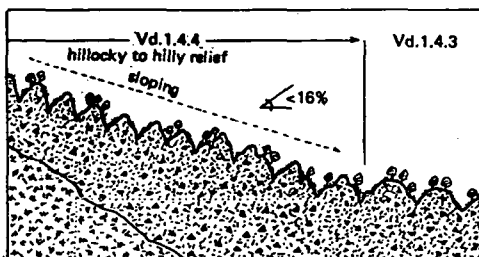
f. LAB CHECK	:	Yes	Yes	--	--
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27. ADDITIONAL NOTES :

MAP IMAGE :



CROSS SECTION :



1. LAND UNIT : Vd.1.4.4 Stratovolcanoes, acid tuffs, volcano lower slopes, flat to sloping (slopes <16%), extremely dissected
2. MAP SHEET : 0717 3. AREA : 126.0 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 06/11/89 Status : Final
7. SATELLITE SCENES : 128/59/08/08/85, 128/58/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000 14S /8323-47 , T2 /8323-171
9. RADAR : STAR-1/250/88/0717-3/5
10. PARENT MATERIAL 11. ROCK OUTCROP : 5%
- a. Weathering : Partial
- b. Lithology : liparite, dacite,
- c. Formation : Qvb
12. WATER a. Quality : Fresh
- b. Source : Rain, Perennial river
13. FISHERIES : River
14. RIVERS
- a. Floodrisk water : None b. Floodrisk sed.: None
- c. Inundation : None
15. VEGETATION/LAND USE : , bush, scrub, alang-alang, upland crops
- Area used : 50 %
16. ACCELERATED EROSION
- a. Occurrence : Common b. Evidence : Gulleys
17. TERRAIN : Undulating to rolling (3-16%)
18. PLAN/ Dominant: Not elongated and parallel 40-60% of area flat-topped
- PROFILE Included:
19. RELIEF AMPLITUDE
- a. Amplitude: Low b. Variability : Medium
20. ALTITUDE Minimum : 300 m Maximum : 400 m
- Range : 300 - 400 m
21. DRAINAGE a. Pattern: Parallel b. Density : Moderately high
24. VALLEY FLOOR Width : Very narrow
25. FRAGMEN a. Valleys: Small blocks b. Interfluves : Medium blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item | 10b | 12a | 14a | 14b | 19 | 20 | 21b | 22b | 22c | 22d1 | 22d2 | 22e1 | 23b | 23c | 23d | 23er | 24 | 25 |

rate : 2 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 2 | 2 |

28. REPRESENTATIVE PROFILES:

ith/ / /89/LH/0717/42/ /095/ ity/ / /89/CD/0717/41/ /080/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	:	1a	1b	--	--
b. Description	:	Interfluves	Interfluves	--	--
c. % of Land Unit	:	100%	100%	X	X

SLOPES

d1. Steepness	:	3 - 16%	3 - 16%	--	--
d2. Slope length	:	> 500 m	> 500 m	--	--
d3. Slope curvature	:	Straight	Straight	--	--

SOILS

e1. USDA Class	:	dystropepts	humitropepts		
e2. % Facet	:	65%	35%	X	X

23. SOIL CHARACTERISTICS

a. USDA Great Group	:	dystropepts	humitropepts		
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b. Texture:	topsoil:	Fine	Medium	--	--
	subsoil:	Fine	Fine	--	--
c. Depth:	peatsoil:	--	--	--	--
	mineralsoil:	Deep	Very deep	--	--
d. Drainage	:	Imperfectly drained	Well drained	--	--

NUTRIENTS :

e. Exch. K:	topsoil:	Low	Low	--	--
	subsoil:	Very high	Very low	--	--
f. Total K2O:	topsoil:	Very high	Very high	--	--
	subsoil:	Very low	Very high	--	--
g. Avail. P:	method:	Bray I	Bray I	--	--
	topsoil:	Very low	Very low	--	--
	subsoil:	Very low	Very low	--	--
h. Total P:	topsoil:	Very low	Very low	--	--
	subsoil:	Very low	Very low	--	--

OTHERS :

i. CEC pH 7	topsoil:	Low	Very high	--	--
	subsoil:	Low	High	--	--
j. Reaction:	topsoil:	Excessively acid	Very strong acid	--	--
	subsoil:	Excessively acid	Strong acid	--	--
k. Al sat.	topsoil:	High	None, very low	--	--
	subsoil:	High	None, very low	--	--
l. Al toxicity	:	Yes	No	--	--
m. Acid sulph. pot.	:	Not relevant	Not relevant	--	--
n. Salinity (ec)	:	Salt free	Salt free	--	--
o. Other toxicity	:	--	--	--	--
p. Root obstr. layer	:	--	--	--	--
q. Organic matter (%)	:	5.2	8.8	--	--
r. TEB (meq/100 g)	:	1.4	3.7	--	--

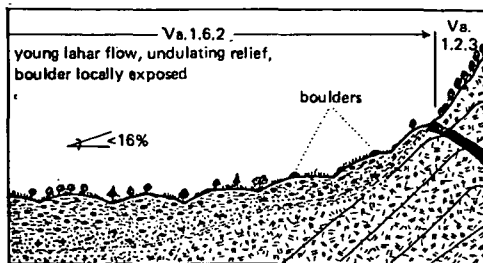
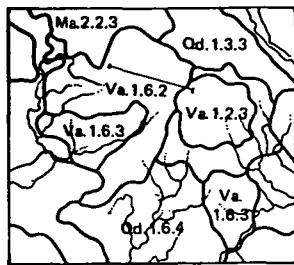
a. Total anal. profiles:	1	1	0	0
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f. LAB CHECK	:	Yes	Yes	--	--
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27. ADDITIONAL NOTES :

MAP IMAGE :

CROSS SECTION :



1. LAND UNIT : Va.1.6.2 Stratovolcanoes, intermediate tuffs, (young) lahars, moderately dissected
2. MAP SHEET : 0617 3. AREA : 19.8 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 06/11/89 Status : Final
7. SATELLITE SCENES : 128/58/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000 14S /832 -15
9. RADAR : STAR-1/250/88/0717-6
10. PARENT MATERIAL 11. ROCK OUTCROP : 5%
- a. Weathering : Partial
- b. Lithology : andesitic tuffs, others,
- c. Formation : Qvlu ,
12. WATER a. Quality : Fresh
- b. Source : Rain, Perennial river
13. FISHERIES : None
14. RIVERS
- a. Floodrisk water : None b. Floodrisk sed.: None
- c. Inundation : None
15. VEGETATION/LAND USE : , bush, scrub, rubber
- Area used : 10 %
16. ACCELERATED EROSION
- a. Occurrence : Localised b. Evidence : Various
17. TERRAIN : Hillocky >16%, 0-50 m
18. PLAN/ Dominant: Not elongated and random > 60% of area flat-topped
- PROFILE Included:
19. RELIEF AMPLITUDE
- a. Amplitude: High b. Variability : Medium
20. ALTITUDE Minimum :1000 m Maximum :1100 m
- Range :1000 - 1100 m
21. DRAINAGE a. Pattern: Radial b. Density : Moderately high
24. VALLEY FLOOR Width : Very narrow
25. FRAGMEN a. Valleys: None b. Interfluves : Small blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item | 10b | 12a | 14a | 14b | 19 | 20 | 21b | 22b | 22c | 22d1 | 22d2 | 22e1 | 23b | 23c | 23d | 23er | 24 | 25 |

rate : 1 | 1 | 1 | 2 | 2 | 2 | 2 | 3 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 2 | 3 |

28. REPRESENTATIVE PROFILES:

ith/ / /89/YM/0717/13/ /133/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	:	1a	1b	--	--
b. Description	:	Interfluves	Interfluves	--	--
c. % of Land Unit	:	100%	100%	X	X

SLOPES

d1. Steepness	:	16 - 25%	16 - 55%	--	--
d2. Slope length	:	201 - 500 m	201 - 500 m	--	--
d3. Slope curvature	:	Complex	Complex	--	--

SOILS

e1. USDA Class	:	dystandepts	humitropepts		
e2. % Facet	:	60%	40%	X	X

23. SOIL CHARACTERISTICS

a. USDA Great Group	:	dystandepts	humitropepts		
---------------------	---	-------------	--------------	--	--

b. Texture:	topsoil:	Fine	Medium	--	--
	subsoil:	Fine	Medium	--	--
c. Depth:	peatsoil:	--	--	--	--
	mineralsoil:	Extremely deep	Moderately shallow	--	--
d. Drainage	:	Well drained	Imperfectly drained	--	--

NUTRIENTS

e. Exch. K:	topsoil:	--	Very high	--	--
	subsoil:	--	High	--	--
f. Total K2O:	topsoil:	--	Very high	--	--
	subsoil:	--	High	--	--
g. Avail. P:	method:	--	Bray I	--	--
	topsoil:	--	Low	--	--
	subsoil:	--	Very low	--	--
h. Total P:	topsoil:	--	Medium	--	--
	subsoil:	--	Medium	--	--

OTHERS

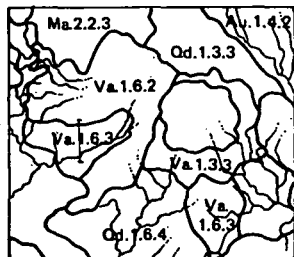
i. CEC pH 7	topsoil:	--	Medium	--	--
	subsoil:	--	Low	--	--
j. Reaction:	topsoil:	--	Very strong acid	--	--
	subsoil:	--	Strong acid	--	--
k. Al sat.	topsoil:	--	--	--	--
	subsoil:	--	--	--	--
l. Al toxicity	:	--	--	--	--
m. Acid sulph. pot.	:	Not relevant	Not relevant	--	--
n. Salinity (ec)	:	Salt free	Salt free	--	--
o. Other toxicity	:	--	--	--	--
p. Root obstr. layer	:	--	40 cm	--	--
q. Organic matter (%)	:	--	5.2	--	--
r. TEB (meq/100 g)	:	--	23.1	--	--

s. Total anal. profiles:	0	1	0	0
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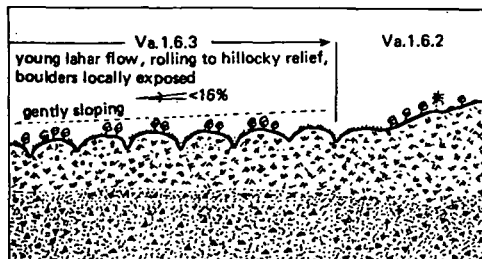
f. LAB CHECK	:	No	Yes	--	--
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27. ADDITIONAL NOTES : The soil data of Humitropepts are extrapolated from Va.1.4.2

MAP IMAGE :



CROSS SECTION :



1. LAND UNIT : Va.1.6.3 Stratovolcanoes, intermediate tuffs, (young) lahars, strongly dissected
2. MAP SHEET : 0617 3. AREA : 10.8 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 06/11/89 Status : Final
7. SATELLITE SCENES : 128/58/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100,000 14S /832 -15
9. RADAR : STAR-1/250/88/0617-6
10. PARENT MATERIAL
 - a. Weathering : Partial
 - b. Lithology : andesitic tuffs, others,
 - c. Formation : Qvlu ,
11. ROCK OUTCROP : 5%
12. WATER
 - a. Quality : Fresh
 - b. Source : Rain, Perennial river
13. FISHERIES : None
14. RIVERS
 - a. Floodrisk water : None
 - b. Floodrisk sed.: None
 - c. Inundation : None
15. VEGETATION/LAND USE : , bush, scrub, alang-alang, mixed gardens of fruit trees
Area used : 20 %
16. ACCELERATED EROSION
 - a. Occurrence : Localised
 - b. Evidence : Various
17. TERRAIN : Hillocky >16%, 0-50 m
18. PLAN/ PROFILE
 - Dominant: Not elongated and parallel > 60% of area flat-topped
 - Included:
19. RELIEF AMPLITUDE
 - a. Amplitude: --
 - b. Variability :
20. ALTITUDE
 - Minimum :1100 m
 - Maximum :1200 m
 - Range :1100 - 1200 m
21. DRAINAGE
 - a. Pattern: Parallel
 - b. Density : Moderately high
24. VALLEY FLOOR Width : Very narrow
25. FRAGMEN
 - a. Valleys: None
 - b. Interfluves : Medium blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item | 10b | 12a | 14a | 14b | 19 | 20 | 21b | 22b | 22c | 22d1 | 22d2 | 22e1 | 23b | 23c | 23d | 23er | 24 | 25 |

rate : 1 | 1 | 1 | 1 | 2 | 2 | 2 | 3 | 3 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 2 | 3 |

28. REPRESENTATIVE PROFILES:

1th/ / /89/YM/0717/13/ /133/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	:	1a	1b	--	--
b. Description	:	Interfluves	Interfluves	--	--
c. % of Land Unit	:	100%	100%	%	%

SLOPES

d1. Steepness	:	16 - 55%	16 - 55%	--	--
d2. Slope length	:	> 500 m	> 500 m	--	--
d3. Slope curvature	:	Complex	Complex	--	--

SOILS

e1. USDA Class	:	dystrandepts	humitropepts		
e2. % Facet	:	60%	40%	%	%

23. SOIL CHARACTERISTICS

a. USDA Great Group	:	dystrandepts	humitropepts		
---------------------	---	--------------	--------------	--	--

b. Texture:	topsoil:	Fine	Medium	--	--
	subsoil:	Fine	Medium	--	--
c. Depth:	peatsoil:	--	--	--	--
	mineralsoil:	Extremely deep	Moderately shallow	--	--
d. Drainage	:	Well drained	Imperfectly drained	--	--

NUTRIENTS :

e. Exch. K:	topsoil:	--	Very high	--	--
	subsoil:	--	High	--	--
f. Total K20:	topsoil:	--	Very high	--	--
	subsoil:	--	High	--	--
g. Avail. P:	method:	--	Bray I	--	--
	topsoil:	--	Low	--	--
	subsoil:	--	Very low	--	--
h. Total P:	topsoil:	--	Medium	--	--
	subsoil:	--	Medium	--	--

OTHERS :

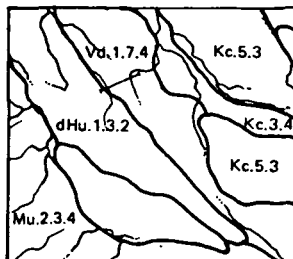
i. CEC pH 7	topsoil:	--	Medium	--	--
	subsoil:	--	Low	--	--
j. Reaction:	topsoil:	--	Very strong acid	--	--
	subsoil:	--	Strong acid	--	--
k. Al sat.	topsoil:	--	--	--	--
	subsoil:	--	--	--	--
l. Al toxicity	:	--	--	--	--
m. Acid sulph. pot.	:	Not relevant	Not relevant	--	--
n. Salinity (ec)	:	Salt free	Salt free	--	--
o. Other toxicity	:	--	--	--	--
p. Root obstr. layer	:	--	40 cm	--	--
q. Organic matter (%)	:	--	5.2	--	--
r. TEB (meq/100 g)	:	--	23.1	--	--

s. Total anal. profiles:	0	1	0	0
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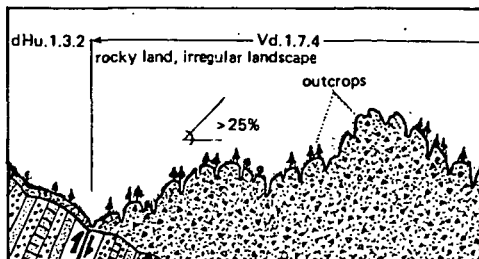
f. LAB CHECK	:	No	Yes	--	--
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27. ADDITIONAL NOTES : The soil data of Humitropepts are extrapolated from Va.1.4.2

MAP IMAGE :



CROSS SECTION :



1. LAND UNIT : Vd.1.7.4 Stratovolcanoes, acid tuffs, volcano lower slopes, outcrops and erosion remnants, extremely dissected
 2. MAP SHEET : 0717 3. AREA : 41.8 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
 5. STATUS IDENTIFIERS : Updated by : SS Edit date: 06/11/89 Status : Final
 7. SATELLITE SCENES : 128/59/08/08/85
 8. AERIAL PHOTOGRAPHS : 1:100.000 14S /8323-42
 9. RADAR : STAR-1/250/88/0717-3
 10. PARENT MATERIAL
 11. ROCK OUTCROP : 50%
 - a. Weathering : Slight
 - b. Lithology : liparite, dacite,
 - c. Formation : Qvb
 12. WATER
 - a. Quality : Fresh
 - b. Source : Rain, Perennial river
 13. FISHERIES : None
 14. RIVERS
 - a. Floodrisk water : None
 - b. Floodrisk sed.: None
 - c. Inundation : None
 15. VEGETATION/LAND USE : , bush, scrub, alang-alang, rubber, reafforestation
Area used : 15 %
 16. ACCELERATED EROSION
 - a. Occurrence : Extensive
 - b. Evidence : Various
 17. TERRAIN : Undulating to rolling (3-16%)
 18. PLAN/ Dominant: Not elongated and random > 60% of area crested/peaked
PROFILE Included:
 19. RELIEF AMPLITUDE
 - a. Amplitude: High
 - b. Variability : Low
 20. ALTITUDE Minimum : 400 m
Range : 550 - 700 m
Maximum : 800 m
 21. DRAINAGE a. Pattern: Complex
b. Density : High
 24. VALLEY FLOOR Width : Very narrow
 25. FRAGMEN a. Valleys: None
b. Interfluves : Medium blocks
-
26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)
- | | | | | | | | | | | | | | | | | | | |
|------|-----|-----|-----|-----|----|----|-----|-----|-----|------|------|------|-----|-----|-----|------|----|----|
| item | 10b | 12a | 14a | 14b | 19 | 20 | 21b | 22b | 22c | 22d1 | 22d2 | 22e1 | 23b | 23c | 23d | 23er | 24 | 25 |
| rate | 2 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 1 |
-
28. REPRESENTATIVE PROFILES:
not available

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	:	1a	1b	--	--
b. Description	:	Interfluves	Interfluves	--	--
c. % of Land Unit	:	100%	100%	%	%

SLOPES

d1. Steepness	:	3 - 16%	3 - 16%	--	--
d2. Slope length	:	101 - 200 m	101 - 200 m	--	--
d3. Slope curvature	:	Undulating	Undulating	--	--

SOILS

e1. USDA Class	:	troporthents	dystropepts		
e2. % Facet	:	90%	10%	%	%

23. SOIL CHARACTERISTICS

a. USDA Great Group	:	troporthents	dystropepts
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b. Texture:	topsoil:	Coarse	Coarse	--	--
	subsoil:	--	Fine	--	--
c. Depth:	peatsoil:	--	--	--	--
	mineralsoil:	Shallow	Moderately deep	--	--
d. Drainage	:	Somewhat excessively	Somewhat excessively	--	--

NUTRIENTS :

e. Exch. K:	topsoil:	--	--	--	--
	subsoil:	--	--	--	--
f. Total K2O:	topsoil:	--	--	--	--
	subsoil:	--	--	--	--
g. Avail. P:	method:	--	--	--	--
	topsoil:	--	--	--	--
	subsoil:	--	--	--	--
h. Total P:	topsoil:	--	--	--	--
	subsoil:	--	--	--	--

OTHERS :

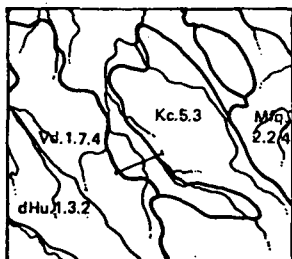
i. CEC pH 7	topsoil:	--	--	--	--
	subsoil:	--	--	--	--
j. Reaction:	topsoil:	Slightly acid	Slightly acid	--	--
	subsoil:	Moderately acid	Slightly acid	--	--
k. Al sat.	topsoil:	--	--	--	--
	subsoil:	--	--	--	--
l. Al toxicity	:	--	--	--	--
m. Acid sulph. pot.	:	Not relevant	Not relevant	--	--
n. Salinity (ec)	:	Salt free	Salt free	--	--
o. Other toxicity	:	--	--	--	--
p. Root obstr. layer	:	22 cm	62 cm	--	--
q. Organic matter (%)	:	--	--	--	--
r. TEB (meq/100 g)	:	--	--	--	--

s. Total anal. profiles:	0	0	0	0
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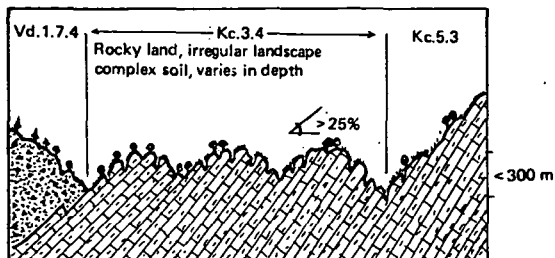
f. LAB CHECK	:	No	No	--	--
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27. ADDITIONAL NOTES :

MAP IMAGE :



CROSS SECTION :



1. LAND UNIT : Kc.3.4 Karst, hard calcareous rocks, hillocks and hills, moderately steep to steep slopes (16-55%), extremely dissected
2. MAP SHEET : 0717 3. AREA : 58.0 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 06/11/89 Status : Final
7. SATELLITE SCENES : 128/59/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000 12S /8348-201
9. RADAR : STAR-1/250/88/0717-
10. PARENT MATERIAL 11. ROCK OUTCROP : 20%
 - a. Weathering : Partial
 - b. Lithology : limestone/marble, ,
 - c. Formation : Pukul, ,
12. WATER a. Quality : Fresh
 - b. Source : Rain, Perennial river
13. FISHERIES : None
14. RIVERS
 - a. Floodrisk water : None
 - b. Floodrisk sed.: None
 - c. Inundation : None
15. VEGETATION/LAND USE : moist primary submontane forest, alang-alang, coffee
 - Area used : 15 %
16. ACCELERATED EROSION
 - a. Occurrence : Common
 - b. Evidence : Gulleys
17. TERRAIN : Hillocky >16%, 0-50 m
18. PLAN/ Dominant: Not elongated and random > 60% of area crested/peaked
 - PROFILE Included:
19. RELIEF AMPLITUDE
 - a. Amplitude: Medium
 - b. Variability : Medium
20. ALTITUDE Minimum : 400 m Maximum : 800 m
 - Range : 500 - 750 m
21. DRAINAGE a. Pattern: Karstic b. Density : High
24. VALLEY FLOOR Width : Very narrow
25. FRAGMEN a. Valleys: None b. Interfluves : Small blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item | 10b | 12a | 14a | 14b | 19 | 20 | 21b | 22b | 22c | 22d1 | 22d2 | 22e1 | 23b | 23c | 23d | 23er | 24 | 25 |

rate : 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 2 | 2 |

28. REPRESENTATIVE PROFILES:

ite/ / /89/KR/0717/21/ /103/ adk/ / /89/LH/0716/22/ /21"

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	:	1	2	--	--
b. Description	:	Upper and middle slopes	Lower slopes	--	--
c. % of Land Unit	:	85%	15%	X	X

SLOPES

d1. Steepness	:	16 - 55%	16 - 55%	--	--
d2. Slope length	:	101 - 200 m	50 - 100 m	--	--
d3. Slope curvature	:	Convex	Straight	--	--

SOILS

e1. USDA Class	:	eutropepts	kandiudalfs		
e2. % Facet	:	100%	100%	X	X

23. SOIL CHARACTERISTICS

a. USDA Great Group	:	eutropepts	kandiudalfs		
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b. Texture:	topsoil:	Fine	Fine	--	--
	subsoil:	Fine	Moderately fine	--	--
c. Depth:	peatsoil:	--	--	--	--
	mineralsoil:	Moderately deep	Very deep	--	--
d. Drainage	:	Well drained	Well drained	--	--

NUTRIENTS

e. Exch. K:	topsoil:	Low	Medium	--	--
	subsoil:	Very low	Low	--	--
f. Total K2O:	topsoil:	Very high	Low	--	--
	subsoil:	Very high	Very low	--	--
g. Avail. P:	method:	Olsen	Bray I	--	--
	topsoil:	Low	Very low	--	--
	subsoil:	Very low	Very low	--	--
h. Total P:	topsoil:	Medium	Low	--	--
	subsoil:	High	Very low	--	--

OTHERS

i. CEC pH 7	topsoil:	Low	Medium	--	--
	subsoil:	Medium	Low	--	--
j. Reaction:	topsoil:	Slightly acid	Moderately acid	--	--
	subsoil:	Neutral	Slightly acid	--	--
k. Al sat.	topsoil:	--	--	--	--
	subsoil:	--	--	--	--
l. Al toxicity	:	--	--	--	--
m. Acid sulph. pot.	:	Not relevant	Not relevant	--	--
n. Salinity (ec)	:	Salt free	Salt free	--	--
o. Other toxicity	:	--	--	--	--
p. Root obstr. layer	:	78 cm	140 cm	--	--
q. Organic matter (%)	:	2.5	6.5	--	--
r. TEB (meq/100 g)	:	9.5	18.5	--	--

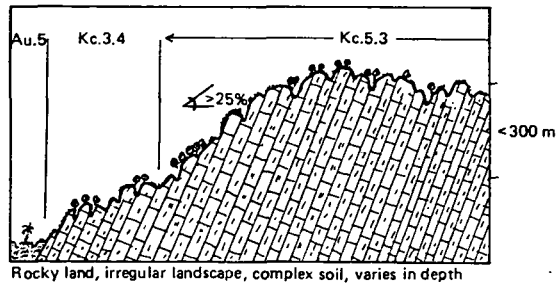
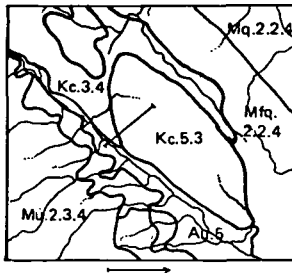
s. Total anal. profiles:	1	1	0	0
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f. LAB CHECK	:	Yes	Yes	--	--
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27. ADDITIONAL NOTES : The soil data of Kandiudalfs are extrapolated from 0716 sheet,
Land Unit Kc.3.3

MAP IMAGE :

CROSS SECTION :



1. LAND UNIT : Kc.5.3 Karst, hard calcareous rocks, mountains, steep to very steep slopes (>25%), strongly dissected
2. MAP SHEET : 0717 3. AREA : 130.7 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 06/11/89 Status : Final
7. SATELLITE SCENES : 128/59/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000 12S /8348-201
9. RADAR : STAR-1/250/88/0717-
10. PARENT MATERIAL
 - a. Weathering : Partial
 - b. Lithology : limestone/marble, ,
 - c. Formation : Pukul ,
11. ROCK OUTCROP : 30%
12. WATER
 - a. Quality : Fresh
 - b. Source : Rain, Perennial river
13. FISHERIES : None
14. RIVERS
 - a. Floodrisk water : None
 - b. Floodrisk sed.: None
 - c. Inundation : None
15. VEGETATION/LAND USE : moist primary submontane forest, coffee
Area used : 10 %
16. ACCELERATED EROSION
 - a. Occurrence : Common
 - b. Evidence : Various
17. TERRAIN : Mountainous >16%, >300 m
18. PLAN/PROFILE
 - Dominant: Not elongated and random > 60% of area crested/peaked
 - Included:
19. RELIEF AMPLITUDE
 - a. Amplitude: Very high
 - b. Variability : Medium
20. ALTITUDE
 - Minimum : 800 m
 - Maximum : 1260 m
 - Range : 900 - 1100 m
21. DRAINAGE
 - a. Pattern: Karstic
 - b. Density : Moderately high
24. VALLEY FLOOR Width : Very narrow
25. FRAGMEN
 - a. Valleys: None
 - b. Interfluves : Small blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item	10b	12a	14a	14b	19	20	21b	22b	22c	22d1	22d2	22e1	23b	23c	23d	23er	24	25
------	-----	-----	-----	-----	----	----	-----	-----	-----	------	------	------	-----	-----	-----	------	----	----

rate	1	1	1	1	2	2	2	2	2	2	2	1	1	1	2	1	2	2
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28. REPRESENTATIVE PROFILES:

ite/	/	/89/SS/0717/21/	/115/	adk/	/	/89/CD/0716/53/	/158/
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22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	1	2	3	--
b. Description	Middle slopes	Crest and upper slopes	Lower slopes	--
c. % of Land Unit	60%	25%	15%	X

SLOPES

d1. Steepness	25 - 75%	25 - 75%	25 - 55%	--
d2. Slope length	201 - 500 m	50 - 100 m	50 - 100 m	--
d3. Slope curvature	Straight	Convex	Straight	--

SOILS

e1. USDA Class	eutropepts	troporthents	kandiudalfs	
e2. % Facet	100%	100%	100%	X

23. SOIL CHARACTERISTICS

a. USDA Great Group	eutropepts	troporthents	kandiudalfs	
b. Texture: topsoil:	Medium	Fine	Moderately fine	--
subsoil:	Medium	--	Moderately fine	--
c. Depth: peatsoil:	--	--	--	--
mineralsoil:	Very deep	Shallow	Very deep	--
d. Drainage	Well drained	Well drained	Well drained	--

NUTRIENTS :

e. Exch. K:	topsoil: Low	--	Low	--
	subsoil: Low	--	Low	--
f. Total K2O:	topsoil: Low	--	Medium	--
	subsoil: Low	--	Medium	--
g. Avail. P:	method: Bray I	--	Bray I	--
	topsoil: Very low	--	Very low	--
	subsoil: Very low	--	Very low	--
h. Total P:	topsoil: Low	--	Low	--
	subsoil: Low	--	Low	--

OTHERS :

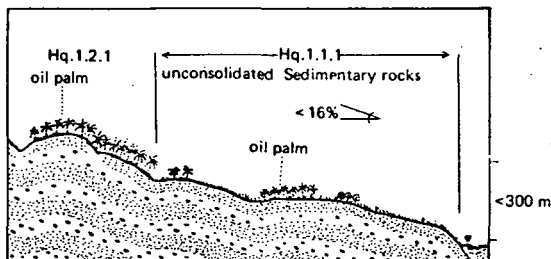
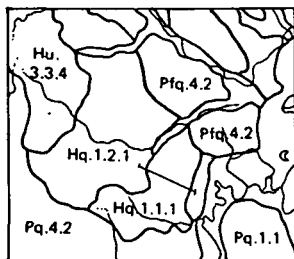
i. CEC pH 7	topsoil: Very high	--	Low	--
	subsoil: High	--	Very low	--
j. Reaction:	topsoil: Moderately acid	--	Strong acid	--
	subsoil: Neutral	--	Strong acid	--
k. Al sat.	topsoil: --	--	--	--
	subsoil: --	--	--	--
l. Al toxicity	--	--	--	--
m. Acid sulph. pot.	Not relevant	Not relevant	Not relevant	--
n. Salinity (ec)	Salt free	Salt free	Salt free	--
o. Other toxicity	--	--	--	--
p. Root obstr. layer	20 cm	15 cm	--	--
q. Organic matter (%)	1.0	--	4.0	--
r. TEB (meq/100 g)	19.8	--	5.6	--

s. Total anal. profiles:	1	0	1	0
f. LAB CHECK	Yes	No	Yes	--

27. ADDITIONAL NOTES : The soil data of Kandiudalfs are extrapolated from 0716 sheet,
Land Unit Kc.5.4

MAP IMAGE :

CROSS SECTION :



1. LAND UNIT : Hq.1.1.1 Hillocks and hills in random pattern, coarse felsic sedimentary rocks, gentle slopes and foot slopes (slopes <16%), slightly dissected
2. MAP SHEET : 0717 3. AREA : 13.5 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 05/09/90 Status : Final
7. SATELLITE SCENES : 128/58/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000 23 /8218-215
9. RADAR : STAR-1/250/88/0717²5
10. PARENT MATERIAL 11. ROCK OUTCROP : 0%
- a. Weathering : Partial
- b. Lithology : sandstone, ,
- c. Formation : Tmsk ,
12. WATER a. Quality : Fresh
- b. Source : Rain, Perennial river
13. FISHERIES : River
14. RIVERS
- a. Floodrisk water : None
- b. Floodrisk sed.: None
- c. Inundation : None
15. VEGETATION/LAND USE : , bush, scrub, rubber, coconut
- Area used : 30 %
16. ACCELERATED EROSION
- a. Occurrence : Localised
- b. Evidence : Various
17. TERRAIN : Undulating 3-8%, 0-50 m
18. PLAN/ Dominant: Not elongated and random 40-60% of area flat-topped
- PROFILE Included:
19. RELIEF AMPLITUDE
- a. Amplitude: Low
- b. Variability : Low
20. ALTITUDE Minimum : 50 m
- Maximum : 125 m
- Range : 50 - 100 m
21. DRAINAGE a. Pattern: Dendritic
- b. Density : Low
24. VALLEY FLOOR Width : Moderate
25. FRAGMENT a. Valleys: Medium blocks
- b. Interfluves : Medium blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item	10b	12a	14a	14b	19	20	21b	22b	22c	22d1	22d2	22e1	23b	23c	23d	23er	24	25
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rate	1	1	1	1	2	2	1	2	2	2	2	2	2	2	2	2	2	2
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28. REPRESENTATIVE PROFILES:

est/	/	/88/JH/0717/54/	/147/	est/	/	/87/KR/0717/63/	/083/
ity/	/	/88/YM/0717/51/	/043/				

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	:	1	2	--	--
b. Description	:	Upper and middle slopes	Lower slopes	--	--
c. % of Land Unit	:	80%	20%	X	X

SLOPES

d1. Steepness	:	3 - 8%	8 - 16%	--	--
d2. Slope length	:	201 - 500 m	50 - 100 m	--	--
d3. Slope curvature	:	Convex	Concave	--	--

SOILS

e1. USDA Class	:	tropopsamments	dystropepts		
e2. % Facet	:	100%	100%	X	X

23. SOIL CHARACTERISTICS

a. USDA Great Group	:	tropopsamments	dystropepts		
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b. Texture:	topsoil:	Coarse	Coarse	--	--
	subsoil:	Coarse	Coarse	--	--
c. Depth:	peatsoil:	--	--	--	--
	mineralsoil:	Very deep	Very deep	--	--
d. Drainage	:	Well drained	Well drained	--	--

NUTRIENTS :

e. Exch. K:	topsoil:	Low	Low	--	--
	subsoil:	Very low	Low	--	--
f. Total K2O:	topsoil:	Low	Very low	--	--
	subsoil:	High	Very low	--	--
g. Avail. P:	method:	Bray I	Bray I	--	--
	topsoil:	Medium	Very high	--	--
	subsoil:	Low	Low	--	--
h. Total P:	topsoil:	Very low	Medium	--	--
	subsoil:	Very low	Low	--	--

OTHERS :

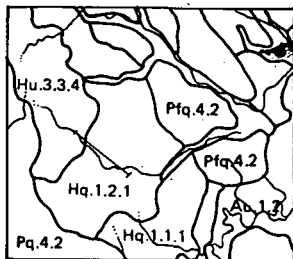
i. CEC pH 7	topsoil:	Medium	Very low	--	--
	subsoil:	Low	Very low	--	--
j. Reaction:	topsoil:	Excessively acid	Excessively acid	--	--
	subsoil:	Extremely acid	Excessively acid	--	--
k. Al sat.	topsoil:	Low	High	--	--
	subsoil:	Medium	High	--	--
l. Al toxicity	:	Yes	--	--	--
m. Acid sulph. pot.	:	Not relevant	Not relevant	--	--
n. Salinity (ec)	:	Salt free	Salt free	--	--
o. Other toxicity	:	--	--	--	--
p. Root obstr. layer	:	--	--	--	--
q. Organic matter (%)	:	24.2	2.1	--	--
r. TEB (meq/100 g)	:	5.0	0.9	--	--

s. Total anal. profiles:	2	1	0	0
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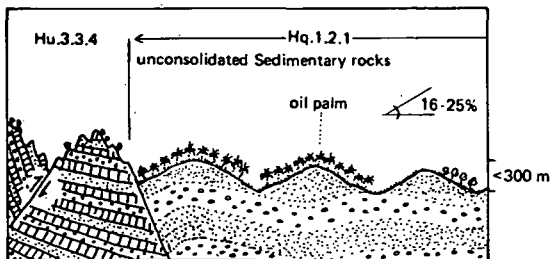
f. LAB CHECK	:	Yes	Yes	--	--
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27. ADDITIONAL NOTES : The soil data of Dystropepts are extrapolated from LU Hq.1.2.2

MAP IMAGE :



CROSS SECTION :



1. LAND UNIT : Hq.1.2.1 Hillocks and hills in random pattern, coarse felsic sedimentary rocks, moderately steep slopes (16-25%), strongly dissected

2. MAP SHEET : 0717 3. AREA : 45.7 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%

5. STATUS IDENTIFIERS : Updated by : SS Edit date: 02/11/89 Status : Final

7. SATELLITE SCENES : 128/58/08/08/85

8. AERIAL PHOTOGRAPHS : 1:100.000 23 /8218-215

9. RADAR : STAR-1/250/88/0717-3

10. PARENT MATERIAL

a. Weathering : Partial

b. Lithology : sandstone, ,

c. Formation : Tmsk , ,

12. WATER a. Quality : Fresh

b. Source : Rain, Perennial river

13. FISHERIES : River

14. RIVERS

a. Floodrisk water : None

b. Floodrisk sed.: None

c. Inundation : None

15. VEGETATION/LAND USE : , bush, scrub, rubber

Area used : 15 %

16. ACCELERATED EROSION

a. Occurrence : Localised

b. Evidence : Various

17. TERRAIN : Hillocky >16%, 0-50 m

18. PLAN/ Dominant: Not elongated and random 40-60% of area flat-topped

PROFILE Included:

19. RELIEF AMPLITUDE

a. Amplitude: Medium

b. Variability : Low

20. ALTITUDE Minimum : 60 m

Maximum : 137 m

Range : 75 - 125 m

21. DRAINAGE a. Pattern: Dendritic

b. Density : Low

24. VALLEY FLOOR Width : Very narrow

25. FRAGMEN a. Valleys: None

b. Interfluves : Small blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item | 10b | 12a | 14a | 14b | 19 | 20 | 21b | 22b | 22c | 22d1 | 22d2 | 22e1 | 23b | 23c | 23d | 23er | 24 | 25 |

rate : 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |

28. REPRESENTATIVE PROFILES:

ity/ / /88/YM/0717/51/ /043/

est/ / /87/KR/0717/54/ /072/

est/ / /88/KR/0717/63/ /076/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	: 1	2	--	--
b. Description	: Upper and middle slopes	Lower slopes	--	--
c. % of Land Unit	: 80%	20%	X	X

SLOPES

d1. Steepness	: 16 - 25%	16 - 25%	--	--
d2. Slope length	: 201 - 500 m	50 - 100 m	--	--
d3. Slope curvature	: Convex	Straight	--	--

SOILS

e1. USDA Class	: tropopsamments	dystropepts		
e2. % Facet	: 100%	100%	X	X

23. SOIL CHARACTERISTICS

a. USDA Great Group	: tropopsamments	dystropepts		
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b. Texture:	topsoil:	Coarse	Coarse	--	--
	subsoil:	Coarse	Coarse	--	--
c. Depth:	peatsoil:	--	--	--	--
	mineralsoil:	Extremely deep	Very deep	--	--
d. Drainage	: Somewhat excessively	Well drained	--	--	--

NUTRIENTS

e. Exch. K:	topsoil:	Very low	Low	--	--
	subsoil:	Very low	Low	--	--
f. Total K2O:	topsoil:	Very low	Very low	--	--
	subsoil:	Very low	Very low	--	--
g. Avail. P:	method:	Bray I	Bray I	--	--
	topsoil:	Very low	Very high	--	--
	subsoil:	Very low	Low	--	--
h. Total P:	topsoil:	Very low	Medium	--	--
	subsoil:	Very low	Low	--	--

OTHERS

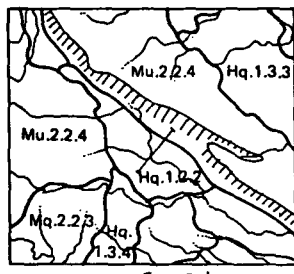
i. CEC pH 7	topsoil:	Very low	Very low	--	--
	subsoil:	Very low	Very low	--	--
j. Reaction:	topsoil:	Moderately acid	Excessively acid	--	--
	subsoil:	Moderately acid	Excessively acid	--	--
k. Al sat.	topsoil:	Low	High	--	--
	subsoil:	Low	High	--	--
l. Al toxicity	: No	--	--	--	--
m. Acid sulph. pot.	: Not relevant	Not relevant	--	--	--
n. Salinity (ec)	: Salt free	Salt free	--	--	--
o. Other toxicity	: --	--	--	--	--
p. Root obstr. layer	: --	--	--	--	--
q. Organic matter (%)	: 0.4	2.1	--	--	--
r. TEB (meq/100 g)	: 0.3	0.9	--	--	--

s. Total anal. profiles:	2	1	0	0
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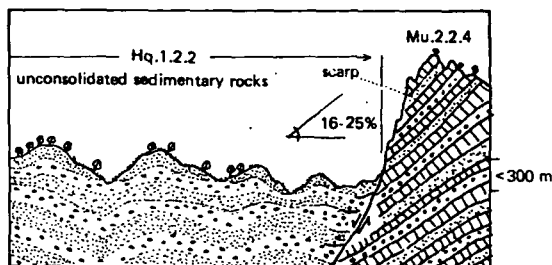
f. LAB CHECK	: Yes	Yes	--	--
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27. ADDITIONAL NOTES : The soil data of Dystropepts are extrapolated from LU Hq.1.2.2

MAP IMAGE :



CROSS SECTION :



1. LAND UNIT : Hq.1.2.2 Hillocks and hills in random pattern, coarse felsic sedimentary rocks, moderately steep slopes (16-25%), moderately dissected
2. MAP SHEET : 0717
3. AREA : 52.9 km²
4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 02/11/89 Status : Final
7. SATELLITE SCENES : 128/58/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000 18 /8319-175
9. RADAR : STAR-1/250/88/0717-4
10. PARENT MATERIAL
 - a. Weathering : Partial
 - b. Lithology : sandstone, ,
 - c. Formation : Tmsk ,
11. ROCK OUTCROP : 0%
12. WATER
 - a. Quality : Fresh
 - b. Source : Rain, Perennial river
13. FISHERIES : River
14. RIVERS
 - a. Floodrisk water : None
 - b. Floodrisk sed.: None
 - c. Inundation : None
15. VEGETATION/LAND USE : , bush, scrub, coconut, rubber
Area used : 20 %
16. ACCELERATED EROSION
 - a. Occurrence : Localised
 - b. Evidence : Various
17. TERRAIN : Hillocky >16%, 0-50 m
18. PLAN/ Dominant: Not elongated and random 40-60% of area flat-topped
PROFILE Included:
19. RELIEF AMPLITUDE
 - a. Amplitude: Medium
 - b. Variability : Medium
20. ALTITUDE Minimum : 60 m
Range : 75 - 150 m
Maximum : 200 m
21. DRAINAGE a. Pattern: Dendritic
b. Density : Moderate
24. VALLEY FLOOR Width : Very narrow
25. FRAGMEN a. Valleys: None
b. Interfluves : Small blocks

28. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item	10b	12a	14a	14b	19	20	21b	22b	22c	22d1	22d2	22e1	23b	23c	23d	23er	24	25	
rate	1	1	1	1	2	2	2	2	2	2	2	2	1	1	1	1	1	2	2

28. REPRESENTATIVE PROFILES:

ity/	/	/88/YM/0717/51/	/043/	est/	/	/88/KR/0717/63/	/076/
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22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	:	1	2	--	--
b. Description	:	Upper and middle slopes	Lower slopes	--	--
c. % of Land Unit	:	80%	20%	X	X

SLOPES

d1. Steepness	:	16 - 25%	16 - 25%	--	--
d2. Slope length	:	201 - 500 m	50 - 100 m	--	--
d3. Slope curvature	:	Convex	Straight	--	--

SOILS

e1. USDA Class	:	tropopsamments	dystropepts		
e2. % Facet	:	100%	100%	X	X

23. SOIL CHARACTERISTICS

a. USDA Great Group	:	tropopsamments	dystropepts		
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b. Texture:	topsoil:	Moderately fine	Coarse	--	--
	subsoil:	Moderately fine	Coarse	--	--
c. Depth:	peatsoil:	--	--	--	--
	mineralsoil:	Extremely deep	Very deep	--	--
d. Drainage	:	Well drained	Excessively drained	--	--

NUTRIENTS :

e. Exch. K:	topsoil:	Very low	Low	--	--
	subsoil:	Very low	Low	--	--
f. Total K2O:	topsoil:	Very low	Very low	--	--
	subsoil:	Very low	Very low	--	--
g. Avail. P:	method:	Bray I	Bray I	--	--
	topsoil:	Very low	Very high	--	--
	subsoil:	Very low	Low	--	--
h. Total P:	topsoil:	Low	Medium	--	--
	subsoil:	Low	Low	--	--

OTHERS :

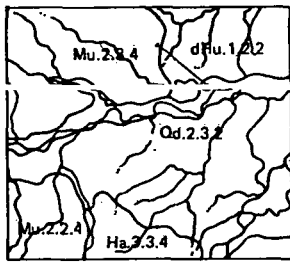
i. CEC pH 7	topsoil:	Very low	Very low	--	--
	subsoil:	Very low	Very low	--	--
j. Reaction:	topsoil:	Very strong acid	Excessively acid	--	--
	subsoil:	Very strong acid	Excessively acid	--	--
k. Al sat.	topsoil:	High	High	--	--
	subsoil:	Very high	High	--	--
l. Al toxicity	:	Yes	No	--	--
m. Acid sulph. pot.	:	Not relevant	Not relevant	--	--
n. Salinity (ec)	:	Salt free	Salt free	--	--
o. Other toxicity	:	--	--	--	--
p. Root obstr. layer	:	--	--	--	--
q. Organic matter (%)	:	0.9	2.1	--	--
r. TEB (meq/100 g)	:	0.4	0.9	--	--

s. Total anal. profiles:	1	1	0	0
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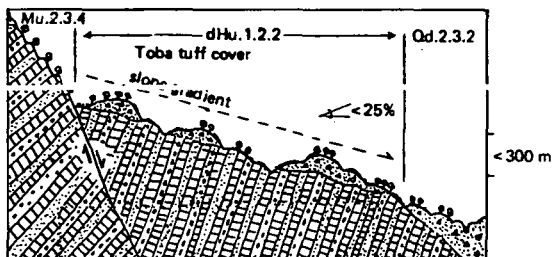
f. LAB CHECK	:	Yes	Yes	--	--
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27. ADDITIONAL NOTES : The soil data of Tropopsamments are extrapolated from LU Hq.1.2.

MAP IMAGE :



CROSS SECTION :



1. LAND UNIT : dHu.1.2.2 Hillocks and hills in random pattern, undifferentiated sedimentary rocks, moderately steep slopes (16-25%), covered with acid tuffs, mod. dissected
2. MAP SHEET : 0717 3. AREA : 9.9 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 06/09/90 Status : Final
7. SATELLITE SCENES : 128/58/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000
9. RADAR : STAR-1/250/88/0717-4
10. PARENT MATERIAL
 - a. Weathering : Partial
 - b. Lithology : sandstone, clay,
 - c. Formation : Tmsk ,
11. ROCK OUTCROP : 10%
12. WATER
 - a. Quality : Fresh
 - b. Source : Rain, Perennial river
13. FISHERIES : Not known
14. RIVERS
 - a. Floodrisk water : None
 - b. Floodrisk sed.: None
 - c. Inundation : Not relevant
15. VEGETATION/LAND USE : secondary forest, bush, scrub, alang-alang
Area used : 0 %
16. ACCELERATED EROSION
 - a. Occurrence : Common
 - b. Evidence : Various
17. TERRAIN : Hilly >16%, 51-300 m
18. PLAN/ Dominant: Not elongated and random > 60% of area crested/peaked
PROFILE Included:
19. RELIEF AMPLITUDE
 - a. Amplitude: High
 - b. Variability : Medium
20. ALTITUDE - Minimum : 75 m
Range : 100 - 150 m
Maximum : 200 m
21. DRAINAGE a. Pattern: Dendritic
b. Density : Moderate
24. VALLEY FLOOR Width : Very narrow
25. FRAGMEN a. Valleys: None
b. Interfluves : None

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item	10b	12a	14a	14b	19	20	21b	22b	22c	22d1	22d2	22e1	23b	23c	23d	23er	24	25
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rate	1	1	1	1	1	1	2	2	2	2	2	1	1	1	1	1	2	2
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28. REPRESENTATIVE PROFILES:

eot/	/	/88/SS/0717/21/	/059/	ity/	/	/88/KR/0717/14/	/065/
uda/	/	/89/KR/0717/14/	/094/				

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	: 1a	1b	2	--
b. Description	: Interfluves	Interfluves	Valley bottoms	--
c. % of Land Unit	: 90%	90%	10%	%

SLOPES

d1. Steepness	: 16 - 25%	16 - 25%	0 - 8%	--
d2. Slope length	: 101 - 200 m	101 - 200 m	< 50 m	--
d3. Slope curvature	: Convex	Convex	Concave	--

SOILS

e1. USDA Class	: troportments	dystropepts	hapludults	
e2. % Facet	: 60%	40%	100%	%

23. SOIL CHARACTERISTICS

a. USDA Great Group	: troportments	dystropepts	hapludults	
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b. Texture:	topsoil: Moderately fine	Moderately fine	Fine	--
	subsoil: Moderately fine	Moderately fine	Fine	--
c. Depth:	peatsoil: --	--	--	--
	mineralsoil: Moderately shallow	Very deep	Extremely deep	--
d. Drainage	: Excessively drained	Well drained	Moderately well	--

NUTRIENTS :

e. Exch. K:	topsoil: Low	Low	Low	--
	subsoil: Low	Very low	Very low	--
f. Total K2O:	topsoil: Low	Low	Low	--
	subsoil: Low	Very low	Very low	--
g. Avail. P:	method: Bray I	Bray I	Bray I	--
	topsoil: Medium	Very low	Very low	--
	subsoil: Very low	Very low	Very low	--
h. Total P:	topsoil: Very low	Low	Very low	--
	subsoil: Very low	Very low	Very low	--

OTHERS :

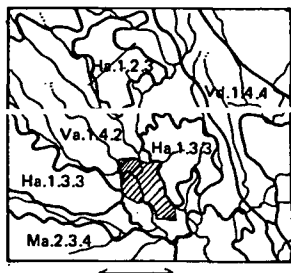
i. CEC pH 7	topsoil: Low	Low	Low	--
	subsoil: Low	Low	Low	--
j. Reaction:	topsoil: Excessively acid	Very strong acid	Very strong acid	--
	subsoil: Excessively acid	Very strong acid	Very strong acid	--
k. Al sat.	topsoil: High	High	Low	--
	subsoil: Very high	High	Medium	--
l. Al toxicity	: Yes	Yes	No	--
m. Acid sulph. pot.	: Not relevant	Not relevant	Not relevant	--
n. Salinity (ec)	: Salt free	Salt free	Salt free	--
o. Other toxicity	: --	--	--	--
p. Root obstr. layer	: 35 cm	--	--	--
q. Organic matter (%)	: 5.9	2.4	2.8	--
r. TEB (meq/100 g)	: 0.9	1.3	2.7	--

a. Total anal. profiles:	1	1	1	0
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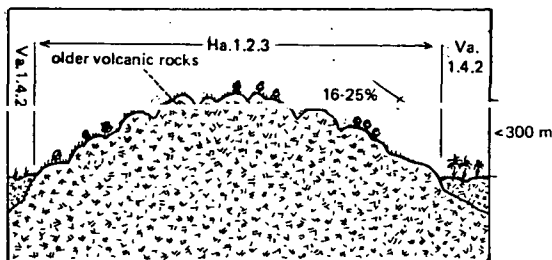
f. LAB CHECK	: Yes	Yes	Yes	--
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27. ADDITIONAL NOTES : The soil data of Dystropepts and Hapludults are extrapolated from dHu.1.3.2 and the data of Troportments are from Hu.1.3.3.

MAP IMAGE :



CROSS SECTION :



1. LAND UNIT : Ha.1.2.3 Hillocks and hills in random pattern, intermediate tuffs, moderately steep slopes (16-25%), strongly dissected

2. MAP SHEET : 0717 3. AREA : 96.4 km2 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%

5. STATUS IDENTIFIERS : Updated by : SS Edit date: 01/11/89 Status : Final

7. SATELLITE SCENES : 128/59/08/08/85

8. AERIAL PHOTOGRAPHS : 1:100.000 11S /8348-153

9. RADAR : STAR-1/250/88/0717-3

10. PARENT MATERIAL

11. ROCK OUTCROP : 0%

a. Weathering : High

b. Lithology : andesitic tuffs, ,

c. Formation : Tmvak ,

12. WATER a. Quality : Fresh

b. Source : Rain, Perennial river

13. FISHERIES : River

14. RIVERS

a. Floodrisk water : None

b. Floodrisk sed.: None

c. Inundation : None

15. VEGETATION/LAND USE : , bush, scrub, alang-alang, rubber, towns, villages

Area used : 20 %

16. ACCELERATED EROSION

a. Occurrence : Common

b. Evidence : Various

17. TERRAIN : Hilly >16%, 51-300 m

18. PLAN/ Dominant: Not elongated and random > 60% of area crested/peaked

PROFILE Included:

19. RELIEF AMPLITUDE

a. Amplitude: High

b. Variability : Medium

20. ALTITUDE Minimum : 50 m

Maximum : 300 m

Range : 100 - 250 m

21. DRAINAGE a. Pattern: Dendritic

b. Density : Moderately high

24. VALLEY FLOOR Width : Very narrow

25. FRAGMEN a. Valleys: None

b. Interfluves : Small blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item | 10b | 12a | 14a | 14b | 19 | 20 | 21b | 22b | 22c | 22d1 | 22d2 | 22e1 | 23b | 23c | 23d | 23er | 24 | 25 |

rate : 2 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |

28. REPRESENTATIVE PROFILES:

not available

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	:	1	2	--	--
b. Description	:	Upper and middle slopes	Lower slopes	--	--
c. % of Land Unit	:	70%	30%	%	%

SLOPES

d1. Steepness	:	16 - 25%	16 - 25%	--	--
d2. Slope length	:	201 - 500 m	101 - 200 m	--	--
d3. Slope curvature	:	Straight	Straight	--	--

SOILS

e1. USDA Class	:	dystropepts	hapludults		
e2. % Facet	:	100%	100%	%	%

23. SOIL CHARACTERISTICS

a. USDA Great Group	:	dystropepts	hapludults
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b. Texture:	topsoil:	Fine	Moderately fine	--	--
	subsoil:	Fine	Moderately fine	--	--
c. Depth:	peatsoil:	--	--	--	--
	mineralsoil:	Very deep	Deep	--	--
d. Drainage	:	Well drained	Well drained	--	--

NUTRIENTS :

e. Exch. K:	topsoil:	--	--	--	--
	subsoil:	--	--	--	--
f. Total K2O:	topsoil:	--	--	--	--
	subsoil:	--	--	--	--
g. Avail. P:	method:	--	--	--	--
	topsoil:	--	--	--	--
	subsoil:	--	--	--	--
h. Total P:	topsoil:	--	--	--	--
	subsoil:	--	--	--	--

OTHERS :

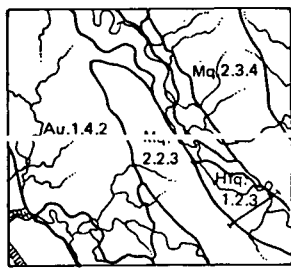
i. CEC pH 7	topsoil:	--	--	--	--
	subsoil:	--	--	--	--
j. Reaction:	topsoil:	Very strong acid	Very strong acid	--	--
	subsoil:	Very strong acid	Strong acid	--	--
k. Al sat.	topsoil:	--	--	--	--
	subsoil:	--	--	--	--
l. Al toxicity	:	--	--	--	--
m. Acid sulph. pot.	:	Not relevant	Not relevant	--	--
n. Salinity (ec)	:	Salt free	Salt free	--	--
o. Other toxicity	:	--	--	--	--
p. Root obstr. layer	:	--	92 cm	--	--
q. Organic matter (%)	:	--	--	--	--
r. TEB (meq/100 g)	:	--	--	--	--

s. Total anal. profiles:	0	0	0	0
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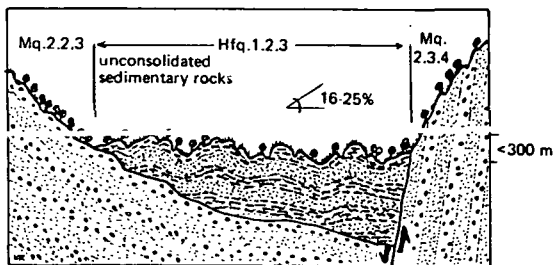
f. LAB CHECK	:	No	No	--	--
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27. ADDITIONAL NOTES :

MAP IMAGE :



CROSS SECTION :



1. LAND UNIT : Hfq.1.2.3 Hillocks and hills in random pattern, fine and coarse felsic sedimentary rocks, moderately steep slopes (16-25%), strongly dissected
2. MAP SHEET : 0717 3. AREA : 35.3 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 02/11/89 Status : Final
7. SATELLITE SCENES : 128/59/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000 23 /8218-199
9. RADAR : STAR-1/250/88/0717-1
10. PARENT MATERIAL 11. ROCK OUTCROP : 0%
- a. Weathering : Partial
- b. Lithology : claystone, sandstone,
- c. Formation : Tms , Tmbal
12. WATER a. Quality : Fresh
- b. Source : Rain, Perennial river
13. FISHERIES : River
14. RIVERS b. Floodrisk sed.: None
- a. Floodrisk water : None
- c. Inundation : None
15. VEGETATION/LAND USE : , bush, scrub, alang-alang, rubber
- Area used : 20 %
16. ACCELERATED EROSION b. Evidence : Various
- a. Occurrence : Localised
17. TERRAIN : Hilly >16%, 51-300 m
18. PLAN/ Dominant: Not elongated and random > 60% of area flat-topped
- PROFILE Included:
19. RELIEF AMPLITUDE b. Variability : Medium
- a. Amplitude: High
20. ALTITUDE Minimum : 200 m Maximum : 330 m
- Range : 225 - 325 m
21. DRAINAGE a. Pattern: Dendritic b. Density : Moderately high
24. VALLEY FLOOR Width : Very narrow
25. FRAGMEN a. Valleys: None b. Interfluves : Small blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item | 10b | 12a | 14a | 14b | 19 | 20 | 21b | 22b | 22c | 22d1 | 22d2 | 22e1 | 23b | 23c | 23d | 23er | 24 | 25 |

rate : 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |

28. REPRESENTATIVE PROFILES:

ity/ / /89/CD/0717/12/ /141/ uda/ / /87/GD/0717/44/ /025/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	:	1	2	--	--
b. Description	:	Upper and middle slopes	Lower slopes	--	--
c. % of Land Unit	:	60%	40%	%	%

SLOPES

d1. Steepness	:	25 - 75%	16 - 25%	--	--
d2. Slope length	:	> 500 m	201 - 500 m	--	--
d3. Slope curvature	:	Straight	Straight	--	--

SOILS

e1. USDA Class	:	dystropepts	hapludults		
e2. % Facet	:	100%	100%	%	%

23. SOIL CHARACTERISTICS

a. USDA Great Group	:	dystropepts	hapludults		
b. Texture:					
topsoil:	Medium	Medium	--	--	
subsoil:	Medium	Medium	--	--	
c. Depth:					
peatsoil:	--	--	--	--	
mineralsoil:	Very deep	Very deep	--	--	
d. Drainage	:	Well drained	Well drained	--	--

NUTRIENTS

e. Exch. K:					
topsoil:	Low	--	--	--	
subsoil:	Very low	--	--	--	
f. Total K2O:					
topsoil:	Very low	Very low	--	--	
subsoil:	Very low	Very low	--	--	
g. Avail. P:					
method:	Bray I	Bray I	--	--	
topsoil:	Very low	Very low	--	--	
subsoil:	Very low	Very low	--	--	
h. Total P:					
topsoil:	Very low	Very low	--	--	
subsoil:	Very low	Very low	--	--	

OTHERS

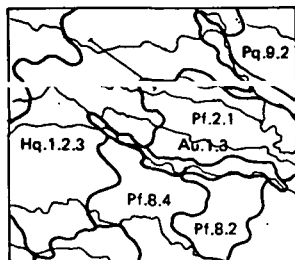
i. CEC pH 7					
topsoil:	Low	Low	--	--	
subsoil:	Low	Low	--	--	
j. Reaction:					
topsoil:	Excessively acid	Very strong acid	--	--	
subsoil:	Excessively acid	Very strong acid	--	--	
k. Al sat.					
topsoil:	Low	Very high	--	--	
subsoil:	High	Very high	--	--	
l. Al toxicity	:	No	Yes	--	--
m. Acid sulph. pot.	:	Not relevant	Not relevant	--	--
n. Salinity (ec)	:	Salt free	Salt free	--	--
o. Other toxicity	:	--	--	--	--
p. Root obstr. layer	:	--	--	--	--
q. Organic matter (%)	:	4.5	0.6	--	--
r. TEB (meq/100 g)	:	2.5	0.4	--	--

s. Total anal. profiles:	1	1	0	0
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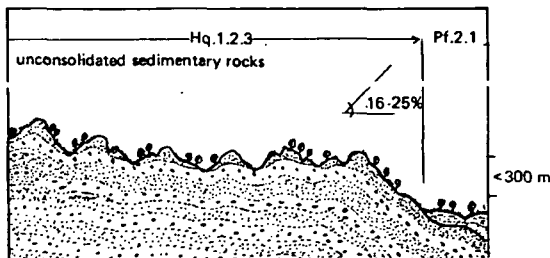
f. LAB CHECK	:	Yes	Yes	--	--
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27. ADDITIONAL NOTES : The soil data are extrapolated from Hfq.1.3.3

MAP IMAGE :



CROSS SECTION :



1. LAND UNIT : Hq.1.2.3 Hillocks and hills in random pattern, coarse felsic sedimentary rocks, moderately steep slopes (16-25%), strongly dissected
2. MAP SHEET : 0717 3. AREA : 110.4 km2 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 02/11/89 Status : Final
7. SATELLITE SCENES : 128/58/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000 18 /8319-171
9. RADAR : STAR-1/250/88/0717-4
10. PARENT MATERIAL
11. ROCK OUTCROP : 0%
- a. Weathering : Partial
- b. Lithology : sandstone, ,
- c. Formation : Put , Tmsk
12. WATER
- a. Quality : Fresh
- b. Source : Rain, Perennial river
13. FISHERIES : River
14. RIVERS
- a. Floodrisk water : None
- b. Floodrisk sed.: None
- c. Inundation : None
15. VEGETATION/LAND USE : , bush, scrub, rubber
- Area used : 20 %
16. ACCELERATED EROSION
- a. Occurrence : Common
- b. Evidence : Various
17. TERRAIN : Hilly >16%, 51-300 m
18. PLAN/ Dominant: Not elongated and random > 60% of area crested/peaked
- PROFILE Included:
19. RELIEF AMPLITUDE
- a. Amplitude: Medium
- b. Variability : Medium
20. ALTITUDE Minimum : 100 m
- Maximum : 250 m
- Range : 125 - 200 m
21. DRAINAGE a. Pattern: Dendritic
- b. Density : Moderately high
24. VALLEY FLOOR Width : Very narrow
25. FRAGMEN a. Valleys: None
- b. Interfluves : Small blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item | 10b | 12a | 14a | 14b | 19 | 20 | 21b | 22b | 22c | 22d1 | 22d2 | 22e1 | 23b | 23c | 23d | 23er | 24 | 25 |

rate : 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 2 | 2 |

28. REPRESENTATIVE PROFILES:

est/ / /87/KR/0717/63/ /076/ ity/ / /88/KR/0717/54/ /100/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	: 1	2	--	--
b. Description	: Upper and middle slopes	Lower slopes	--	--
c. % of Land Unit	: 60%	40%	z	z

SLOPES

d1. Steepness	: 25 - 75%	16 - 25%	--	--
d2. Slope length	: > 500 m	201 - 500 m	--	--
d3. Slope curvature	: Straight	Straight	--	--

SOILS

e1. USDA Class	: dystropepts	hapludults		
e2. % Facet	: 100%	100%	z	z

23. SOIL CHARACTERISTICS

a. USDA Great Group	: dystropepts	hapludults		
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b. Texture:	topsoil:	Medium	Medium	--	--
	subsoil:	Medium	Medium	--	--
c. Depth:	peatsoil:	--	--	--	--
	mineralsoil:	Very deep	Very deep	--	--
d. Drainage	: Well drained	Well drained	--	--	--

NUTRIENTS

e. Exch. K:	topsoil:	Low	--	--	--
	subsoil:	Very low	--	--	--
f. Total K2O:	topsoil:	Very low	Very low	--	--
	subsoil:	Very low	Very low	--	--
g. Avail. P:	method:	Bray I	Bray I	--	--
	topsoil:	Very low	Very low	--	--
	subsoil:	Very low	Very low	--	--
h. Total P:	topsoil:	Very low	Very low	--	--
	subsoil:	Very low	Very low	--	--

OTHERS

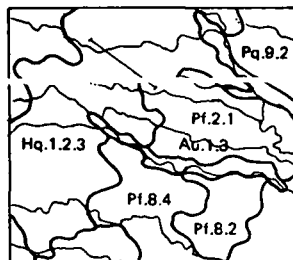
i. CEC pH 7	topsoil:	Low	Low	--	--
	subsoil:	Low	Low	--	--
j. Reaction:	topsoil:	Excessively acid	Very strong acid	--	--
	subsoil:	Excessively acid	Very strong acid	--	--
k. Al sat.	topsoil:	Low	Very high	--	--
	subsoil:	High	Very high	--	--
l. Al toxicity	: No	Yes	--	--	--
m. Acid sulph. pot.	: Not relevant	Not relevant	--	--	--
n. Salinity (ec)	: Salt free	Salt free	--	--	--
o. Other toxicity	: --	--	--	--	--
p. Root obstr. layer	: --	--	--	--	--
q. Organic matter (%)	: 4.5	0.6	--	--	--
r. TEB (meq/100 g)	: 2.5	0.4	--	--	--

a. Total anal. profiles:	1	1	0	0
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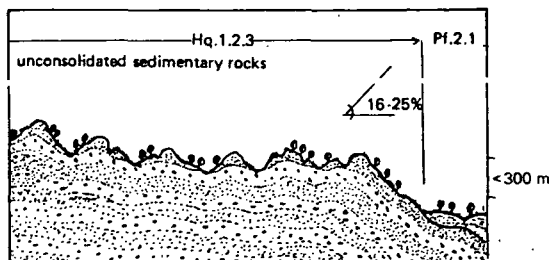
f. LAB CHECK	: Yes	Yes	--	--
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27. ADDITIONAL NOTES : The soil data are extrapolated from Hfq.1.3.3

MAP IMAGE :



CROSS SECTION :



1. LAND UNIT : Hq.1.2.3 Hillocks and hills in random pattern, coarse felsic sedimentary rocks, moderately steep slopes (16-25%), strongly dissected
2. MAP SHEET : 0717 3. AREA : 110.4 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 02/11/89 Status : Final
7. SATELLITE SCENES : 128/58/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000 18 /8319-171
9. RADAR : STAR-1/250/88/0717-4
10. PARENT MATERIAL
11. ROCK OUTCROP : 0%
- a. Weathering : Partial
- b. Lithology : sandstone, ,
- c. Formation : Put , Tmsk
12. WATER a. Quality : Fresh
- b. Source : Rain, Perennial river
13. FISHERIES : River
14. RIVERS
- a. Floodrisk water : None
- b. Floodrisk sed.: None
- c. Inundation : None
15. VEGETATION/LAND USE : , bush, scrub, rubber
- Area used : 20 %
16. ACCELERATED EROSION
- a. Occurrence : Common
- b. Evidence : Various
17. TERRAIN : Hilly >16%, 51-300 m
18. PLAN/ Dominant: Not elongated and random > 60% of area crested/peaked
- PROFILE Included:
19. RELIEF AMPLITUDE
- a. Amplitude: Medium
- b. Variability : Medium
20. ALTITUDE Minimum : 100 m
- Range : 125 - 200 m
21. DRAINAGE a. Pattern: Dendritic
- b. Density : Moderately high
24. VALLEY FLOOR Width : Very narrow
25. FRAGMEN a. Valleys: None
- b. Interfluves : Small blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item	10b	12a	14a	14b	19	20	21b	22b	22c	22d1	22d2	22e1	23b	23c	23d	23er	24	25	
rate	1	1	1	1	2	2	2	2	2	2	2	2	1	1	1	1	1	2	2

28. REPRESENTATIVE PROFILES:

est/ / /87/KR/0717/63/ /076/ ity/ / /88/KR/0717/54/ /100/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	: 1	2	--	--
b. Description	: Crest and middle slopes	Lower slopes	--	--
c. % of Land Unit	: 80%	20%	X	X

SLOPES

d1. Steepness	: 16 - 25%	16 - 25%	--	--
d2. Slope length	: 201 - 500 m	50 - 100 m	--	--
d3. Slope curvature	: Convex	Straight	--	--

SOILS

e1. USDA Class	: tropopsamments	dystropepts		
e2. % Facet	: 100%	100%	X	X

23. SOIL CHARACTERISTICS

a. USDA Great Group	: tropopsamments	dystropepts		
b. Texture:	topsoil: Moderately fine	Moderately fine	--	--
	subsoil: Moderately fine	Moderately coarse	--	--
c. Depth:	peatsoil: --	--	--	--
	mineralsoil: Extremely deep	Extremely deep	--	--
d. Drainage	: Well drained	Well drained	--	--

NUTRIENTS :

e. Exch. K:	topsoil: Very low	Very low	--	--
	subsoil: Very low	Very low	--	--
f. Total K2O:	topsoil: Very low	Very low	--	--
	subsoil: Very low	Very low	--	--
g. Avail. P:	method: Bray I	Bray I	--	--
	topsoil: Very low	Low	--	--
	subsoil: Very low	Low	--	--
h. Total P:	topsoil: Low	Low	--	--
	subsoil: Low	Low	--	--

OTHERS :

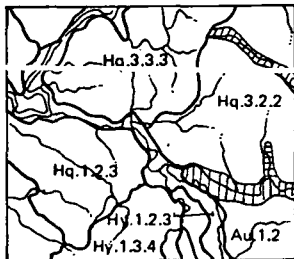
i. CEC pH 7	topsoil: Very low	Very low	--	--
	subsoil: Very low	Very low	--	--
j. Reaction:	topsoil: Very strong acid	Excessively acid	--	--
	subsoil: Very strong acid	Excessively acid	--	--
k. Al sat.	topsoil: High	High	--	--
	subsoil: Very high	High	--	--
l. Al toxicity	: Yes	No	--	--
m. Acid sulph. pot.	: Not relevant	Not relevant	--	--
n. Salinity (ec)	: Salt free	Salt free	--	--
o. Other toxicity	: --	--	--	--
p. Root obstr. layer	: --	--	--	--
q. Organic matter (%)	: 0.9	1.6	--	--
r. TEB (meq/100 g)	: 0.4	0.5	--	--

s. Total anal. profiles:	1	1	0	0
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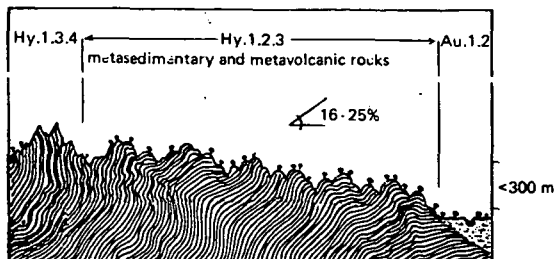
f. LAB CHECK	: Yes	Yes	--	--
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27. ADDITIONAL NOTES : The soil data of Tropopsamments are extrapolated from LU Hq.1.2.1

MAP IMAGE :



CROSS SECTION :



1. LAND UNIT : Hy.1.2.3 Hillocks and hills in random pattern, undifferentiated metamorphic rocks, moderately steep slopes (16-25%), strongly dissected
2. MAP SHEET : 0717 3. AREA : 2.8 km2 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 05/09/90 Status : Final
7. SATELLITE SCENES : 128/59/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000 9S /8347-60
9. RADAR : STAR-1/250/88/0717-1/2
10. PARENT MATERIAL
 - a. Weathering : Partial
 - b. Lithology : gneiss, ,
 - c. Formation : Muw ,
11. ROCK OUTCROP : 0%
12. WATER
 - a. Quality : Fresh
 - b. Source : Rain, Perennial river
13. FISHERIES : River
14. RIVERS
 - a. Floodrisk water : None
 - b. Floodrisk sed.: None
 - c. Inundation : None
15. VEGETATION/LAND USE : secondary forest, rubber
Area used : 10 %
16. ACCELERATED EROSION
 - a. Occurrence : Localised
 - b. Evidence : Various
17. TERRAIN : Hilly >16%, 51-300 m
18. PLAN/ Dominant: Not elongated and random > 60% of area crested/peaked
PROFILE Included:
19. RELIEF AMPLITUDE
 - a. Amplitude: Medium
 - b. Variability : Medium
20. ALTITUDE Minimum : 100 m
Range : 125 - 200 m
Maximum : 200 m
21. DRAINAGE a. Pattern: Dendritic
b. Density : Moderately high
24. VALLEY FLOOR Width : Very narrow
25. FRAGMEN a. Valleys: None
b. Interfluves : Small blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item	10b	12a	14a	14b	19	20	21b	22b	22c	22d1	22d2	22e1	23b	23c	23d	23er	24	25
------	-----	-----	-----	-----	----	----	-----	-----	-----	------	------	------	-----	-----	-----	------	----	----

rate	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2
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28. REPRESENTATIVE PROFILES:

ith/	/	/89/KR/0716/22/	/171/	ity/	/	/89/JH/0716/43/	/195/
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22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	:	1	2	--	--
b. Description	:	Crest, middle & upper	Lower slopes	--	--
c. % of Land Unit	:	70%	30%	X	X

SLOPES

d1. Steepness	:	16 - 25%	16 - 25%	--	--
d2. Slope length	:	201 - 500 m	50 - 100 m	--	--
d3. Slope curvature	:	Convex	Concave	--	--

SOILS

e1. USDA Class	:	humitropepts	dystropepts		
e2. % Facet	:	100%	100%	X	X

23. SOIL CHARACTERISTICS

a. USDA Great Group	:	humitropepts	dystropepts		
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b. Texture:	topsoil:	Medium	Moderately fine	--	--
	subsoil:	Medium	Moderately fine	--	--
c. Depth:	peatsoil:	--	--	--	--
	mineralsoil:	Very deep	Very deep	--	--
d. Drainage	:	Well drained	Well drained	--	--

NUTRIENTS :

e. Exch. K:	topsoil:	Very low	Low	--	--
	subsoil:	Very low	Very low	--	--
f. Total K2O:	topsoil:	Low	Very low	--	--
	subsoil:	Very low	Very low	--	--
g. Avail. P:	method:	Bray I	Bray I	--	--
	topsoil:	Very low	Medium	--	--
	subsoil:	Very low	Very low	--	--
h. Total P:	topsoil:	Very low	Low	--	--
	subsoil:	Very low	Very low	--	--

OTHERS :

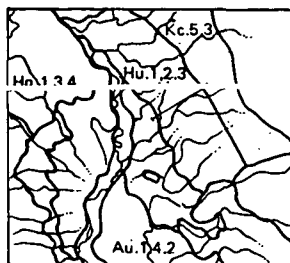
i. CEC pH 7	topsoil:	Low	Low	--	--
	subsoil:	Very low	Very low	--	--
j. Reaction:	topsoil:	Very strong acid	Strong acid	--	--
	subsoil:	Strong acid	Excessively acid	--	--
k. Al sat.	topsoil:	--	Medium	--	--
	subsoil:	--	High	--	--
l. Al toxicity	:	--	Yes	--	--
m. Acid sulph. pot.	:	Not relevant	Not relevant	--	--
n. Salinity (ec)	:	Salt free	Salt free	--	--
o. Other toxicity	:	--	--	--	--
p. Root obstr. layer	:	--	--	--	--
q. Organic matter (%)	:	5.2	3.7	--	--
r. TEB (meq/100 g)	:	0.3	1.4	--	--

s. Total anal. profiles:	1	1	0	0
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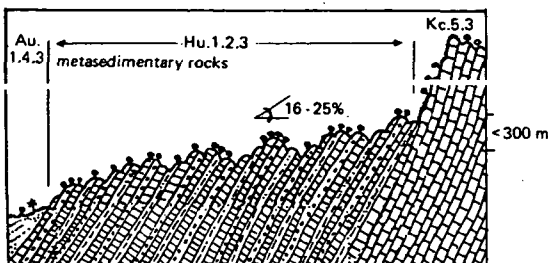
f. LAB CHECK	:	Yes	Yes	--	--
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27. ADDITIONAL NOTES : Extrapolated data from 0716 sheet, LU Hy.1.2.3

MAP IMAGE :



CROSS SECTION :



1. LAND UNIT : Hu.1.2.3 Hillocks and hills in random pattern, undifferentiated sedimentary rocks, moderately steep slopes (16-25%), strongly dissected
2. MAP SHEET : 0717 3. AREA : 40.2 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 02/11/89 Status : Final
7. SATELLITE SCENES : 128/59/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000 11S /8348-159
9. RADAR : STAR-1/250/88/0717-1
10. PARENT MATERIAL
 - a. Weathering : Partial
 - b. Lithology : claystone, shale,
 - c. Formation : Puku , Put
11. ROCK OUTCROP : 0%
12. WATER
 - a. Quality : Fresh
 - b. Source : Rain, Perennial river
13. FISHERIES : River
14. RIVERS
 - a. Floodrisk water : None
 - b. Floodrisk sed.: None
 - c. Inundation : None
15. VEGETATION/LAND USE : , bush, scrub, rubber
Area used : 20 %
16. ACCELERATED EROSION
 - a. Occurrence : Localised
 - b. Evidence : Various
17. TERRAIN : Hilly >16%, 51-300 m
18. PLAN/ Dominant: Not elongated and random > 60% of area crested/peaked
PROFILE Included:
19. RELIEF AMPLITUDE
 - a. Amplitude: Medium
 - b. Variability :
20. ALTITUDE Minimum : 100 m
Range : 100 - 200 m
Maximum : 210 m
21. DRAINAGE a. Pattern: Dendritic
b. Density : Moderately high
24. VALLEY FLOOR Width : Very narrow
25. FRAGMEN a. Valleys: None
b. Interfluves : Small blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item	10b	12a	14a	14b	19	20	21b	22b	22c	22d1	22d2	22e1	23b	23c	23d	23er	24	25
------	-----	-----	-----	-----	----	----	-----	-----	-----	------	------	------	-----	-----	-----	------	----	----

rate	2	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2
------	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

28. REPRESENTATIVE PROFILES:

ity/ / /89/YH/0717/41/ /091/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	:	1	--	--	--
b. Description	:	Interfluves	--	--	--
c. % of Land Unit	:	100%	%	%	%

SLOPES

d1. Steepness	:	16 - 25%	--	--	--
d2. Slope length	:	50 - 100 m	--	--	--
d3. Slope curvature	:	Straight	--	--	--

SOILS

e1. USDA Class	:	dystropepts			
e2. % Facet	:	100%	%	%	%

23. SOIL CHARACTERISTICS

a. USDA Great Group	:	dystropepts			
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b. Texture:	topsoil:	Moderately fine	--	--	--
	subsoil:	Moderately fine	--	--	--
c. Depth:	peatsoil:	--	--	--	--
	mineralsoil:	Deep	--	--	--
d. Drainage	:	Well drained	--	--	--

NUTRIENTS :

e. Exch. K:	topsoil:	Low	--	--	--
	subsoil:	Low	--	--	--
f. Total K2O:	topsoil:	Low	--	--	--
	subsoil:	Very low	--	--	--
g. Avail. P:	method:	Bray I	--	--	--
	topsoil:	Very low	--	--	--
	subsoil:	Very low	--	--	--
h. Total P:	topsoil:	Very low	--	--	--
	subsoil:	Very low	--	--	--

OTHERS :

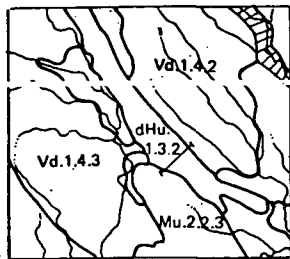
i. CEC pH 7	topsoil:	Medium	--	--	--
	subsoil:	Low	--	--	--
j. Reaction:	topsoil:	Strong acid	--	--	--
	subsoil:	Strong acid	--	--	--
k. Al sat.	topsoil:	High	--	--	--
	subsoil:	Very high	--	--	--
l. Al toxicity	:	Yes	--	--	--
m. Acid sulph. pot.	:	Not relevant	--	--	--
n. Salinity (ec)	:	Salt free	--	--	--
o. Other toxicity	:	--	--	--	--
p. Root obstr. layer	:	76 cm	--	--	--
q. Organic matter (%)	:	6.4	--	--	--
r. TEB (meq/100 g)	:	0.8	--	--	--

s. Total anal. profiles:	1	0	0	0
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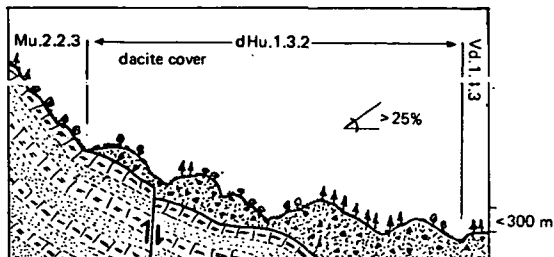
f. LAB CHECK	:	Yes	--	--	--
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27. ADDITIONAL NOTES : The soil data of Dystropepts are extrapolated from LU Hu.1.3.3

MAP IMAGE :



CROSS SECTION :



1. LAND UNIT : dHu.1.3.2 Hillocks and hills in random pattern, undifferentiated sedimentary rocks, steep to very steep slopes (>25%), covered with acid tuffs, mod. dissected
2. MAP SHEET : 0717 3. AREA : 75.5 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 06/09/90 Status : Final
7. SATELLITE SCENES : 128/58/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000
9. RADAR : STAR-1/250/88/0717-5
10. PARENT MATERIAL 11. ROCK OUTCROP : 20%
 - a. Weathering : Partial
 - b. Lithology : dacite, clay,
 - c. Formation : Qpsg ,
12. WATER a. Quality : Fresh
 - b. Source : Rain, Perennial river
13. FISHERIES : Not known
14. RIVERS
 - a. Floodrisk water : None
 - b. Floodrisk sed.: None
 - c. Inundation : Not relevant
15. VEGETATION/LAND USE : secondary forest, bush, scrub, alang-alang

Area used : 0 %
16. ACCELERATED EROSION
 - a. Occurrence : Common
 - b. Evidence : Various
17. TERRAIN : Hilly >16%, 51-300 m
18. PLAN/ Dominant: Elongated and random > 60% of area crested/peaked

PROFILE Included:
19. RELIEF AMPLITUDE
 - a. Amplitude: High
 - b. Variability : Medium
20. ALTITUDE Minimum : 200 m

Range : 250 - 275 m
21. DRAINAGE a. Pattern: Dendritic
 - b. Density : Moderate
24. VALLEY FLOOR Width : Very narrow
25. FRAGMEN a. Valleys: None
 - b. Interfluves : None

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item	10b	12a	14a	14b	19	20	21b	22b	22c	22d1	22d2	22e1	23b	23c	23d	23er	24	25
------	-----	-----	-----	-----	----	----	-----	-----	-----	------	------	------	-----	-----	-----	------	----	----

rate	1	1	1	1	1	1	2	2	2	2	2	1	1	1	1	1	2	2
------	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

28. REPRESENTATIVE PROFILES:

eot/	/	/88/SS/0717/21/	/059/	ity/	/	/89/KR/0717/14/	/065/
uda/	/	/89/KR/0717/14/	/094/				

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	: 1	2	3	--
b. Description	: Crest and upper slopes	Middle slopes	Lower slopes	--
c. % of Land Unit	: 50%	35%	15%	X

SLOPES

d1. Steepness	: 16 - 25%	16 - 55%	3 - 8%	--
d2. Slope length	: 101 - 200 m	101 - 200 m	50 - 100 m	--
d3. Slope curvature	: Convex	Straight	Concave	--

SOILS

e1. USDA Class	: troporthents	dystropepts	hapludults	
e2. % Facet	: 100%	100%	100%	X

23. SOIL CHARACTERISTICS

a. USDA Great Group	: troporthents	dystropepts	hapludults	
b. Texture:				
topsoil:	Moderately fine	Moderately fine	Fine	--
subsoil:	Moderately fine	Moderately fine	Fine	--
c. Depth:				
peatsoil:	--	--	--	--
mineralsoil:	Moderately shallow	Very deep	Extremely deep	--
d. Drainage	: Excessively drained	Well drained	Moderately well	--

NUTRIENTS :

e. Exch. K:				
topsoil:	Low	Low	Low	--
subsoil:	Low	Very low	Very low	--
f. Total K2O:				
topsoil:	Low	Low	Low	--
subsoil:	Low	Very low	Very low	--
g. Avail. P:				
method:	Bray I	Bray I	Bray I	--
topsoil:	Medium	Very low	Very low	--
subsoil:	Very low	Very low	Very low	--
h. Total P:				
topsoil:	Very low	Low	Very low	--
subsoil:	Very low	Very low	Very low	--

OTHERS :

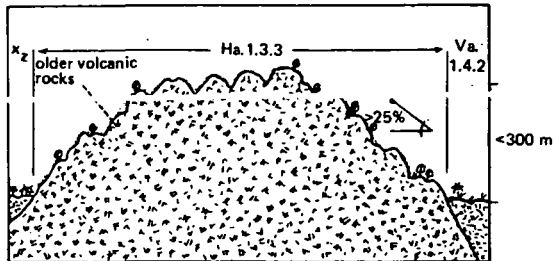
i. CEC pH 7				
topsoil:	Low	Low	Low	--
subsoil:	Low	Low	Low	--
j. Reaction:				
topsoil:	Excessively acid	Very strong acid	Very strong acid	--
subsoil:	Excessively acid	Very strong acid	Very strong acid	--
k. Al sat.				
topsoil:	High	High	Low	--
subsoil:	Very high	High	Medium	--
l. Al toxicity	: Yes	Yes	No	--
m. Acid sulph. pot.	: Not relevant	Not relevant	Not relevant	--
n. Salinity (ec)	: Salt free	Salt free	Salt free	--
o. Other toxicity	: --	--	--	--
p. Root obstr. layer	: 35 cm	--	--	--
q. Organic matter (%)	: 5.9	2.4	2.8	--
r. TEB (meq/100 g)	: 0.9	1.3	2.7	--

s. Total anal. profiles:	1	1	1	0
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f. LAB CHECK	: Yes	Yes	Yes	--
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27. ADDITIONAL NOTES : The soil data of Troporthents are extrapolated from Hu.1.3.3

CROSS SECTION :



- [illegible]

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item	10b	12a	14a	14b	19	20	21b	22b	22c	22d1	22d2	22e1	23b	23c	23d	23er	24	25
------	-----	-----	-----	-----	----	----	-----	-----	-----	------	------	------	-----	-----	-----	------	----	----

rate : 2 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 2 | 2 |

28. REPRESENTATIVE PROFILES:

ity/ / /89/CD/0717/13/ /092/ uda/ / /89/LH/0717/14/ /127/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	:	1	2	--	--
b. Description	:	Upper and middle slopes	Lower slopes	--	--
c. % of Land Unit	:	60%	40%	0%	%

SLOPES

d1. Steepness	:	25 - 55%	16 - 55%	--	--
d2. Slope length	:	201 - 500 m	101 - 200 m	--	--
d3. Slope curvature	:	Straight	Straight	--	--

SOILS

e1. USDA Class	:	dystropepts	hapludults		
e2. % Facet	:	100%	100%	0%	%

23. SOIL CHARACTERISTICS

a. USDA Great Group	:	dystropepts	hapludults
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b. Texture:	topsoil:	Moderately fine	Moderately fine	--	--
	subsoil:	Moderately coarse	Moderately fine	--	--
c. Depth:	peatsoil:	--	--	--	--
	mineralsoil:	Moderately deep	Very deep	--	--
d. Drainage	:	Well drained	Well drained	--	--

NUTRIENTS

e. Exch. K:	topsoil:	Very low	Low	--	--
	subsoil:	--	Low	--	--
f. Total K2O:	topsoil:	Very high	Very high	--	--
	subsoil:	Very high	Very high	--	--
g. Avail. P:	method:	--	Bray I	--	--
	topsoil:		Very low	--	--
	subsoil:		Very low	--	--
h. Total P:	topsoil:	Medium	Medium	--	--
	subsoil:	Medium	Medium	--	--

OTHERS

i. CEC pH 7	topsoil:	Low	Very low	--	--
	subsoil:	--	Low	--	--
j. Reaction:	topsoil:	Strong acid	Very strong acid	--	--
	subsoil:	Strong acid	Very strong acid	--	--
k. Al sat.	topsoil:	--	Medium	--	--
	subsoil:	--	High	--	--
l. Al toxicity	:	No	Yes	--	--
m. Acid sulph. pot.	:	Not relevant	Not relevant	--	--
n. Salinity (ec)	:	Salt free	Salt free	--	--
o. Other toxicity	:	--	--	--	--
p. Root obstr. layer	:	62 cm	--	--	--
q. Organic matter (%)	:	2.6	2.0	--	--
r. TEB (meq/100 g)	:	4.1	1.3	--	--

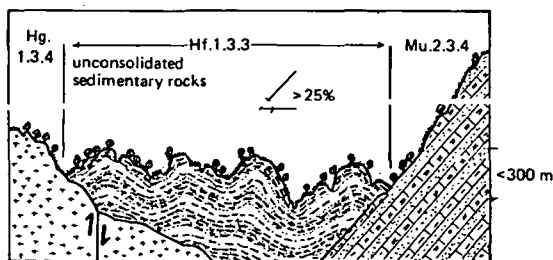
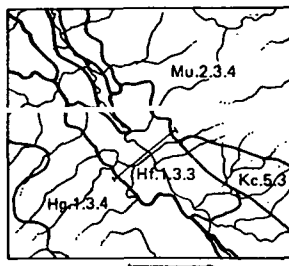
s. Total anal. profiles:	1	1	0	0
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f. LAB CHECK	:	Yes	Yes	--	--
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27. ADDITIONAL NOTES :

MAP IMAGE :

CROSS SECTION :



1. LAND UNIT : Hf.1.3.3 Hillocks and hills in random pattern, fine felsic sedimentary rocks, steep to very steep slopes (>25%), strongly dissected
2. MAP SHEET : 0717 3. AREA : 55.7 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 02/11/89 Status : Final
7. SATELLITE SCENES : 128/59/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000 11S /8348-157
9. RADAR : STAR-1/250/88/0717-2
10. PARENT MATERIAL 11. ROCK OUTCROP : 0%
- a. Weathering : Partial
- b. Lithology : claystone, ,
- c. Formation : Tups ,
12. WATER a. Quality : Fresh
- b. Source : Rain, Perennial river
13. FISHERIES : River
14. RIVERS
- a. Floodrisk water : None b. Floodrisk sed.: None
- c. Inundation : None
15. VEGETATION/LAND USE : , bush, scrub, rubber
- Area used : 20 %
16. ACCELERATED EROSION
- a. Occurrence : Common b. Evidence : Various
17. TERRAIN : Hilly >16%, 51-300 m
18. PLAN/ Dominant: Not elongated and random > 60% of area crested/peaked
- PROFILE Included:
19. RELIEF AMPLITUDE
- a. Amplitude: High b. Variability : Medium
20. ALTITUDE Minimum : 200 m Maximum : 350 m
- Range : 200 - 300 m
21. DRAINAGE a. Pattern: Dendritic b. Density : Moderately high
24. VALLEY FLOOR Width : Very narrow
25. FRAGMEN a. Valleys: None b. Interfluves : Small blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item | 10b | 12a | 14a | 14b | 19 | 20 | 21b | 22b | 22c | 22d1 | 22d2 | 22e1 | 23b | 23c | 23d | 23er | 24 | 25 |

rate : 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 2 | 2 |

28. REPRESENTATIVE PROFILES:

ity/ / /87/KR/0717/43/ /054/ uda/ / /87/JH/0717/43/ /056/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	: 1	2	--	--
b. Description	: Middle and lower slopes	Crest and upper slopes	--	--
c. % of Land Unit	: 70%	30%	2	2

SLOPES

d1. Steepness	: 25 - 55%	25 - 55%	--	--
d2. Slope length	: 201 - 500 m	101 - 200 m	--	--
d3. Slope curvature	: Straight	Convex	--	--

SOILS

e1. USDA Class	: hapludults	dystropepts		
e2. % Facet	: 100%	100%	2	2

23. SOIL CHARACTERISTICS

a. USDA Great Group	: hapludults	dystropepts
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b. Texture:	topsoil:	Moderately fine	Moderately fine	--	--
	subsoil:	Moderately fine	Coarse	--	--
c. Depth:	peatsoil:	--	--	--	--
	mineralsoil:	Very deep	Extremely deep	--	--
d. Drainage	:	Well drained	Well drained	--	--

NUTRIENTS

e. Exch. K:	topsoil:	Medium	Very low	--	--
	subsoil:	Low	Low	--	--
f. Total K2O:	topsoil:	High	Low	--	--
	subsoil:	High	Very low	--	--
g. Avail. P:	method:	Bray I	Bray I	--	--
	topsoil:	Very low	Very low	--	--
	subsoil:	Very low	Very high	--	--
h. Total P:	topsoil:	Very low	Low	--	--
	subsoil:	Very low	Medium	--	--

OTHERS

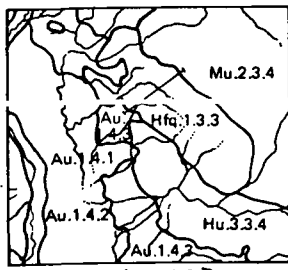
i. CEC pH 7	topsoil:	Medium	Low	--	--
	subsoil:	High	Very low	--	--
j. Reaction:	topsoil:	Very strong acid	Excessively acid	--	--
	subsoil:	Very strong acid	Excessively acid	--	--
k. Al sat.	topsoil:	Medium	Very high	--	--
	subsoil:	Very high	None, very low	--	--
l. Al toxicity	:	Yes	No	--	--
m. Acid sulph. pot.	:	Not relevant	Not relevant	--	--
n. Salinity (ec)	:	Salt free	Salt free	--	--
o. Other toxicity	:	--	--	--	--
p. Root obstr. layer	:	--	--	--	--
q. Organic matter (%)	:	0.2	0.8	--	--
r. TEB (meq/100 g)	:	1.3	0.4	--	--

s. Total anal. profiles:	1	1	0	0
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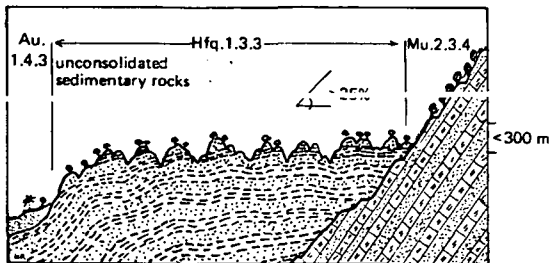
f. LAB CHECK	: Yes	Yes	--	--
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27. ADDITIONAL NOTES :

MAP IMAGE :



CROSS SECTION :



1. LAND UNIT : Hfq.1.3.3 Hillocks and hills in random pattern, fine and coarse felsic sedimentary rocks, steep to very steep slopes (>25%), strongly dissected

2. MAP SHEET : 0717 3. AREA : 75.9 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%

5. STATUS IDENTIFIERS : Updated by : SS Edit date: 02/11/89 Status : Final

7. SATELLITE SCENES : 127/59/08/08/85

8. AERIAL PHOTOGRAPHS : 1:100,000 11S /8348-161

9. RADAR : STAR-1/250/88/0717-I

10. PARENT MATERIAL

11. ROCK OUTCROP : 0%

a. Weathering : Partial

b. Lithology : claystone, sandstone,

c. Formation : Tms , Tmbal

12. WATER a. Quality : Fresh

b. Source : Rain, Perennial river

13. FISHERIES : River

14. RIVERS

a. Floodrisk water : None

b. Floodrisk sed.: None

c. Inundation : None

15. VEGETATION/LAND USE : , bush, scrub, alang-alang, rubber

Area used : 20 %

16. ACCELERATED EROSION

a. Occurrence : Common

b. Evidence : Various

17. TERRAIN : Hilly >16%, 51-300 m

18. PLAN/ Dominant: Not elongated and random > 60% of area crested/peaked

PROFILE Included:

19. RELIEF AMPLITUDE

a. Amplitude: High

b. Variability : Medium

20. ALTITUDE Minimum : 150 m

Maximum : 300 m

Range : 150 - 275 m

21. DRAINAGE a. Pattern: Dendritic

b. Density : Moderately high

24. VALLEY FLOOR Width : Very narrow

25. FRAGMEN a. Valleys: None

b. Interfluves : Small blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item | 10b | 12a | 14a | 14b | 19 | 20 | 21b | 22b | 22c | 22d1 | 22d2 | 22e1 | 23b | 23c | 23d | 23er | 24 | 25 |

rate : 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 2 | 2 |

28. REPRESENTATIVE PROFILES:

uda/ / /87/GD/0717/44/ /025/ ity/ / /89/CD/0717/12/ /141/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	:	1	2	--	--
b. Description	:	Upper and middle slopes	Lower slopes	--	--
c. % of Land Unit	:	70%	30%	X	X

SLOPES

d1. Steepness	:	25 - 55%	25 - 55%	--	--
d2. Slope length	:	> 500 m	201 - 500 m	--	--
d3. Slope curvature	:	Straight	Straight	--	--

SOILS

e1. USDA Class	:	dystropepts	hapludults		
e2. % Facet	:	100%	100%	X	X

23. SOIL CHARACTERISTICS

a. USDA Great Group	:	dystropepts	hapludults		
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b. Texture:	topsoil:	Medium	Medium	--	--
	subsoil:	Medium	Medium	--	--
c. Depth:	peatsoil:	--	--	--	--
	mineralsoil:	Very deep	Very deep	--	--
d. Drainage	:	Well drained	Well drained	--	--

NUTRIENTS :

e. Exch. K:	topsoil:	Low	--	--	--
	subsoil:	Very low	--	--	--
f. Total K2O:	topsoil:	Very low	Very low	--	--
	subsoil:	Very low	Very low	--	--
g. Avail. P:	method:	Bray I	Bray I	--	--
	topsoil:	Very low	Very low	--	--
	subsoil:	Very low	Very low	--	--
h. Total P:	topsoil:	Very low	Very low	--	--
	subsoil:	Very low	Very low	--	--

OTHERS :

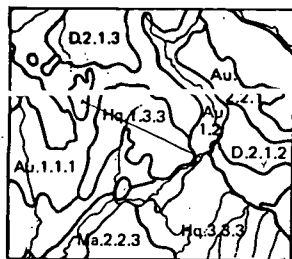
i. CEC pH 7	topsoil:	Low	Low	--	--
	subsoil:	Low	Low	--	--
j. Reaction:	topsoil:	Excessively acid	Very strong acid	--	--
	subsoil:	Excessively acid	Very strong acid	--	--
k. Al sat.	topsoil:	Low	Very high	--	--
	subsoil:	High	Very high	--	--
l. Al toxicity	:	No	Yes	--	--
m. Acid sulph. pot.	:	Not relevant	Not relevant	--	--
n. Salinity (ec)	:	Salt free	Salt free	--	--
o. Other toxicity	:	--	--	--	--
p. Root obstr. layer	:	--	--	--	--
q. Organic matter (%)	:	4.5	0.6	--	--
r. TEB (meq/100 g)	:	2.5	0.4	--	--

s. Total anal. profiles:	1	1	0	0
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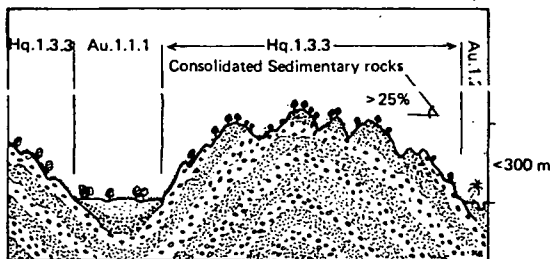
f. LAB CHECK	:	Yes	Yes	--	--
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27. ADDITIONAL NOTES :

MAP IMAGE :



CROSS SECTION :



1. LAND UNIT : Hq.1.3.3 Hillocks and hills in random pattern, coarse felsic sedimentary rocks, steep to very steep slopes (>25%), strongly dissected
2. MAP SHEET : 0717
3. AREA : 142.4 km²
4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 02/11/89 Status : Final
7. SATELLITE SCENES : 128/58/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000 155 /8319-175
9. RADAR : STAR-1/250/88/0717-4
10. PARENT MATERIAL
11. ROCK OUTCROP : 0%
- a. Weathering : Partial
- b. Lithology : sandstone, ,
- c. Formation : Tmsk , Tmba
12. WATER a. Quality : Fresh
- b. Source : Rain, Perennial river.
13. FISHERIES : River
14. RIVERS
- a. Floodrisk water : None
- b. Floodrisk sed.: None
- c. Inundation : None
15. VEGETATION/LAND USE : secondary forest, bush, scrub, rubber
- Area used : 20 %
16. ACCELERATED EROSION
- a. Occurrence : Common
- b. Evidence : Various
17. TERRAIN : Hilly >16%, 51-300 m
18. PLAN/ Dominant: Not elongated and random > 60% of area crested/peaked
- PROFILE Included:
19. RELIEF AMPLITUDE
- a. Amplitude: High
- b. Variability : Medium
20. ALTITUDE Minimum : 100 m
- Maximum : 300 m
- Range : 125 - 250 m
21. DRAINAGE a. Pattern: Dendritic
- b. Density : Moderately high
24. VALLEY FLOOR Width : Very narrow
25. FRAGMEN a. Valleys: None
- b. Interfluves : Small blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item	10b	12a	14a	14b	19	20	21b	22b	22c	22d1	22d2	22e1	23b	23c	23d	23er	24	25
------	-----	-----	-----	-----	----	----	-----	-----	-----	------	------	------	-----	-----	-----	------	----	----

rate	1	1	1	1	2	2	2	2	2	2	2	1	1	1	1	1	2	2
------	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

28. REPRESENTATIVE PROFILES:

ity/ / /87/JH/0617/63/ /096/

ity/ / /88/KR/0717/22/ /041/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	:	1	2	--	--
b. Description	:	Upper and middle slopes	Lower slopes	--	--
c. % of Land Unit	:	70%	30%	%	%

SLOPES

d1. Steepness	:	25 - 55%	25 - 55%	--	--
d2. Slope length	:	> 500 m	201 - 500 m	--	--
d3. Slope curvature	:	Straight	Straight	--	--

SOILS

e1. USDA Class	:	dystropepts	hapludults		
e2. % Facet	:	100%	100%	%	%

23. SOIL CHARACTERISTICS

a. USDA Great Group		:	dystropepts	hapludults	
b. Texture:	topsoil:	Medium	Medium	--	--
	subsoil:	Medium	Medium	--	--
c. Depth:	peatsoil:	--	--	--	--
	mineralsoil:	Very deep	Very deep	--	--
d. Drainage		:	Well drained	Well drained	--

NUTRIENTS :

e. Exch. K:	topsoil:	Low	--	--	--
	subsoil:	Very low	--	--	--
f. Total K2O:	topsoil:	Very low	Very low	--	--
	subsoil:	Very low	Very low	--	--
g. Avail. P:	method:	Bray I	Bray I	--	--
	topsoil:	Very low	Very low	--	--
	subsoil:	Very low	Very low	--	--
h. Total P:	topsoil:	Very low	Very low	--	--
	subsoil:	Very low	Very low	--	--

OTHERS :

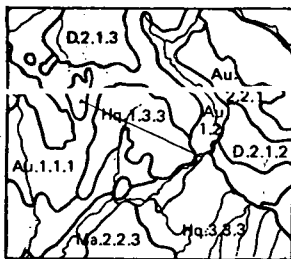
i. CEC pH 7	topsoil:	Low	Low	--	--
	subsoil:	Low	Low	--	--
j. Reaction:	topsoil:	Excessively acid	Very strong acid	--	--
	subsoil:	Excessively acid	Very strong acid	--	--
k. Al sat.	topsoil:	Low	Very high	--	--
	subsoil:	High	Very high	--	--
l. Al toxicity	:	No	Yes	--	--
m. Acid sulph. pot.	:	Not relevant	Not relevant	--	--
n. Salinity (ec)	:	Salt free	Salt free	--	--
o. Other toxicity	:	--	--	--	--
p. Root obstr. layer	:	--	--	--	--
q. Organic matter (%)	:	4.5	0.6	--	--
r. TEB (meq/100 g)	:	2.5	0.4	--	--

s. Total anal. profiles:	1	1	0	0
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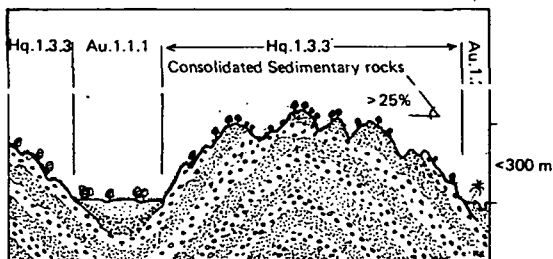
f. LAB CHECK	:	Yes.	Yes	--	--
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27. ADDITIONAL NOTES :

MAP IMAGE :



CROSS SECTION :



1. LAND UNIT : Hq.1.3.3 Hillocks and hills in random pattern, coarse felsic sedimentary rocks, steep to very steep slopes (>25%), strongly dissected
2. MAP SHEET : 0717 3. AREA : 142.4 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 02/11/89 Status : Final
7. SATELLITE SCENES : 128/58/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000 155 /8319-175
9. RADAR : STAR-1/250/88/0717-4
10. PARENT MATERIAL
 - a. Weathering : Partial
 - b. Lithology : sandstone, ,
 - c. Formation : Tmsk , Tmba
11. ROCK OUTCROP : 0%
12. WATER
 - a. Quality : Fresh
 - b. Source : Rain, Perennial river
13. FISHERIES : River
14. RIVERS
 - a. Floodrisk water : None
 - b. Floodrisk sed.: None
 - c. Inundation : None
15. VEGETATION/LAND USE : secondary forest, bush, scrub, rubber
Area used : 20 %
16. ACCELERATED EROSION
 - a. Occurrence : Common
 - b. Evidence : Various
17. TERRAIN : Hilly >16%, 51-300 m
18. PLAN/ Dominant: Not elongated and random > 60% of area crested/peaked
PROFILE Included:
19. RELIEF AMPLITUDE
 - a. Amplitude: High
 - b. Variability : Medium
20. ALTITUDE Minimum : 100 m
Range : 125 - 250 m
Maximum : 300 m
21. DRAINAGE a. Pattern: Dendritic
b. Density : Moderately high
24. VALLEY FLOOR Width : Very narrow
25. FRAGMEN a. Valleys: None
b. Interfluves : Small blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item | 10b | 12a | 14a | 14b | 19 | 20 | 21b | 22b | 22c | 22d1 | 22d2 | 22e1 | 23b | 23c | 23d | 23er | 24 | 25 |

rate : 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 2 | 2 |

28. REPRESENTATIVE PROFILES:

ity/ / /87/JH/0617/63/ /096/

ity/ / /88/KR/0717/22/ /041/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	:	1	2	--	--
b. Description	:	Upper and middle slopes	Lower slopes	--	--
c. % of Land Unit	:	85%	15%	X	X

SLOPES

d1. Steepness	:	25 - 55%	25 - 55%	--	--
d2. Slope length	:	201 - 500 m	101 - 200 m	--	--
d3. Slope curvature	:	Convex	Straight	--	--

SOILS

e1. USDA Class	:	tropopsamments	dystropepts		
e2. % Facet	:	100%	100%	X	X

23. SOIL CHARACTERISTICS

a. USDA Great Group	:	tropopsamments	dystropepts
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b. Texture:	topsoil:	Coarse	Moderately coarse	--	--
	subsoil:	Coarse	Moderately coarse	--	--
c. Depth:	peatsoil:	--	--	--	--
	mineralsoil:	Moderately deep	Extremely deep	--	--
d. Drainage	:	Somewhat excessively	Somewhat excessively	--	--

NUTRIENTS :

e. Exch. K:	topsoil:	--	Low	--	--
	subsoil:	--	Very low	--	--
f. Total K2O:	topsoil:	--	Low	--	--
	subsoil:	--	Very low	--	--
g. Avail. P:	method:	--	Bray I	--	--
	topsoil:	--	High	--	--
	subsoil:	--	Low	--	--
h. Total P:	topsoil:	--	Low	--	--
	subsoil:	--	Very low	--	--

OTHERS :

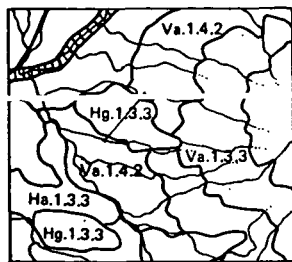
i. CEC pH 7	topsoil:	--	Low	--	--
	subsoil:	--	Very low	--	--
j. Reaction:	topsoil:	--	Excessively acid	--	--
	subsoil:	--	Excessively acid	--	--
k. Al sat.	topsoil:	--	--	--	--
	subsoil:	--	--	--	--
l. Al toxicity	:	--	--	--	--
m. Acid sulph. pot.	:	Not relevant	Not relevant	--	--
n. Salinity (ec)	:	Salt free	Salt free	--	--
o. Other toxicity	:	--	--	--	--
p. Root obstr. layer	:	58 cm	--	--	--
q. Organic matter (%)	:	--	2.2	--	--
r. TEB (meq/100 g)	:	--	0.5	--	--

s. Total anal. profiles:	0	2	0	0
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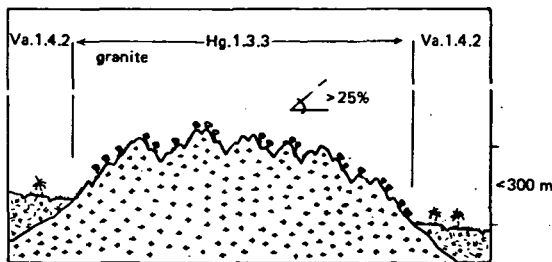
f. LAB CHECK	:	No	Yes	--	--
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27. ADDITIONAL NOTES :

MAP IMAGE :



CROSS SECTION :



1. LAND UNIT : Hg.1.3.3 Hillocks and hills in random pattern, acid plutonic rocks, steep to very steep slopes (>25%), strongly dissected
2. MAP SHEET : 0717 3. AREA : 38.6 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 02/11/89 Status : Final
7. SATELLITE SCENES : 128/59/08/08/85, 128/58/08/08/85
8. AERIAL PHOTOGRAPHS : 1: .000
9. RADAR : STAR-1/250/88/0717-3
10. PARENT MATERIAL 11. ROCK OUTCROP : 0%
- a. Weathering : Partial
- b. Lithology : granite, ,
- c. Formation : Mpsl , Tmsi
12. WATER a. Quality : Fresh
- b. Source : Rain, Perennial river
13. FISHERIES : River
14. RIVERS b. Floodrisk sed.: None
- a. Floodrisk water : None
- c. Inundation : None
15. VEGETATION/LAND USE : , bush, scrub, rubber
- Area used : 25 %
16. ACCELERATED EROSION b. Evidence : Various
- a. Occurrence : Common
17. TERRAIN : Hilly >16%, 51-300 m
18. PLAN/ Dominant: Not elongated and random > 60% of area crested/peaked
- PROFILE Included:
19. RELIEF AMPLITUDE b. Variability : Medium
- a. Amplitude: High
20. ALTITUDE Minimum : 150 m Maximum : 300 m
- Range : 150 - 250 m
21. DRAINAGE a. Pattern: Dendritic b. Density : Moderately high
24. VALLEY FLOOR Width : Very narrow
25. FRAGMEN a. Valleys: None b. Interfluves : Small blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item | 10b | 12a | 14a | 14b | 19 | 20 | 21b | 22b | 22c | 22d1 | 22d2 | 22e1 | 23b | 23c | 23d | 23er | 24 | 25 |

rate : 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 2 | 2 |

28. REPRESENTATIVE PROFILES:

uda/ / /87/JH/0617/63/ /088/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	:	1	2	--	--
b. Description	:	Upper and middle slopes	Lower slopes	--	--
c. % of Land Unit	:	75%	25%	%	%

SLOPES

d1. Steepness	:	25 - 55%	25 - 55%	--	--
d2. Slope length	:	> 500 m	201 - 500 m	--	--
d3. Slope curvature	:	Straight	Concave	--	--

SOILS

e1. USDA Class	:	dystropepts	hapludults		
e2. % Facet	:	100%	100%	%	%

23. SOIL CHARACTERISTICS

a. USDA Great Group	:	dystropepts	hapludults		
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b. Texture:	topsoil:	Fine	Moderately fine	--	--
	subsoil:	Fine	Moderately fine	--	--
c. Depth:	peatsoil:	--	--	--	--
	mineralsoil:	Moderately deep	Very deep	--	--
d. Drainage	:	Moderately well	Well drained	--	--

NUTRIENTS :

e. Exch. K:	topsoil:	--	Medium	--	--
	subsoil:	--	Low	--	--
f. Total K2O:	topsoil:	--	Low	--	--
	subsoil:	--	Very low	--	--
g. Avail. P:	method:	--	Bray I	--	--
	topsoil:		Medium	--	--
	subsoil:		Very low	--	--
h. Total P:	topsoil:	--	Low	--	--
	subsoil:	--	Very low	--	--

OTHERS :

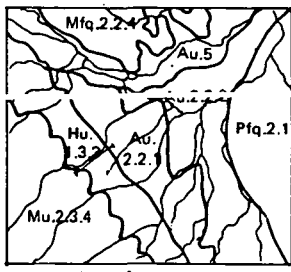
i. CEC pH 7	topsoil:	--	Low	--	--
	subsoil:	--	Very low	--	--
j. Reaction:	topsoil:	--	Excessively acid	--	--
	subsoil:	--	Excessively acid	--	--
k. Al sat.	topsoil:	--	None, very low	--	--
	subsoil:	--	High	--	--
l. Al toxicity	:	--	Yes	--	--
m. Acid sulph. pot.	:	Not relevant	Not relevant	--	--
n. Salinity (ec)	:	Salt free	Salt free	--	--
o. Other toxicity	:	--	--	--	--
p. Root obstr. layer	:	74 cm	--	--	--
q. Organic matter (%)	:	--	1.5	--	--
r. TEB (meq/100 g)	:	--	3.5	--	--

s. Total anal. profiles:	0	1	0	0
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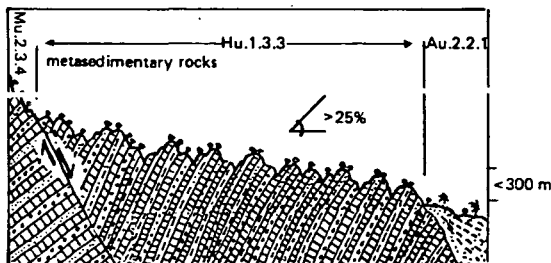
f. LAB CHECK	:	No	Yes	--	--
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27. ADDITIONAL NOTES :

MAP IMAGE :



CROSS SECTION :



1. LAND UNIT : Hu.1.3.3 Hillocks and hills in random pattern, undifferentiated sedimentary rocks, steep to very steep slopes (>25%), strongly dissected
2. MAP SHEET : 0717
3. AREA : 63.0 km²
4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 02/11/89 Status : Final
7. SATELLITE SCENES : 128/59/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000 14S /8323-39 , 12S /8348-201
9. RADAR : STAR-1/250/88/0717-2
10. PARENT MATERIAL
 - a. Weathering : Partial
 - b. Lithology : claystone, clay,
 - c. Formation : Qvsg ,
11. ROCK OUTCROP : 0%
12. WATER
 - a. Quality : Fresh
 - b. Source : Rain, Perennial river
13. FISHERIES : River
14. RIVERS
 - a. Floodrisk water : None
 - b. Floodrisk sed.: None
 - c. Inundation : None
15. VEGETATION/LAND USE : , bush, scrub, alang-alang, rubber
Area used : 10 %
16. ACCELERATED EROSION
 - a. Occurrence : Common
 - b. Evidence : Various
17. TERRAIN : Hilly >16%, 51-300 m
18. PLAN/PROFILE
 - Dominant: Not elongated and random > 60% of area crested/peaked
 - Included:
19. RELIEF AMPLITUDE
 - a. Amplitude: High
 - b. Variability : Medium
20. ALTITUDE
 - Minimum : 200 m
 - Maximum : 300 m
 - Range : 200 - 300 m
21. DRAINAGE
 - a. Pattern: Dendritic
 - b. Density : Moderately high
24. VALLEY FLOOR Width : Very narrow
25. FRAGMEN
 - a. Valleys: None
 - b. Interfluves : Small blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item	10b	12a	14a	14b	19	20	21b	22b	22c	22d1	22d2	22e1	23b	23c	23d	23er	24	25
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rate	2	1	1	1	2	2	2	2	2	2	2	1	1	1	1	1	2	2
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28. REPRESENTATIVE PROFILES:

eot/	/	/88/SS/0717/21/	/059/	ity/	/	/89/YH/0717/41/	/091/
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22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	:	1	2	--	--
b. Description	:	Middle and lower slopes	Crest and upper slopes	--	--
c. % of Land Unit	:	85%	15%	x	x

SLOPES

d1. Steepness	:	25 - 55%	25 - 55%	--	--
d2. Slope length	:	201 - 500 m	50 - 100 m	--	--
d3. Slope curvature	:	Straight	Convex	--	--

SOILS

e1. USDA Class	:	dystropepts	troporthents		
e2. % Facet	:	100%	100%	x	x

23. SOIL CHARACTERISTICS

a. USDA Great Group	:	dystropepts	troporthents		
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b. Texture:	topsoil:	Moderately fine	Moderately fine	--	--
	subsoil:	Moderately fine	Moderately fine	--	--
c. Depth:	peatsoil:	--	--	--	--
	mineralsoil:	Deep	Moderately shallow	--	--
d. Drainage	:	Well drained	Excessively drained	--	--

NUTRIENTS :

e. Exch. K:	topsoil:	Low	Low	--	--
	subsoil:	Low	Low	--	--
f. Total K2O:	topsoil:	Low	Low	--	--
	subsoil:	Very low	Low	--	--
g. Avail. P:	method:	Bray I	Bray I	--	--
	topsoil:	Very low	Medium	--	--
	subsoil:	Very low	Very low	--	--
h. Total P:	topsoil:	Very low	Very low	--	--
	subsoil:	Very low	Very low	--	--

OTHERS :

i. CEC pH 7	topsoil:	Medium	Low	--	--
	subsoil:	Low	Low	--	--
j. Reaction:	topsoil:	Strong acid	Excessively acid	--	--
	subsoil:	Strong acid	Excessively acid	--	--
k. Al sat.	topsoil:	High	High	--	--
	subsoil:	Very high	Very high	--	--
l. Al toxicity	:	Yes	Yes	--	--
m. Acid sulph. pot.	:	Not relevant	Not relevant	--	--
n. Salinity (ec)	:	Salt free	Salt free	--	--
o. Other toxicity	:	--	--	--	--
p. Root obstr. layer	:	76 cm	35 cm	--	--
q. Organic matter (%)	:	6.4	5.9	--	--
r. TEB (meq/100 g)	:	0.8	0.9	--	--

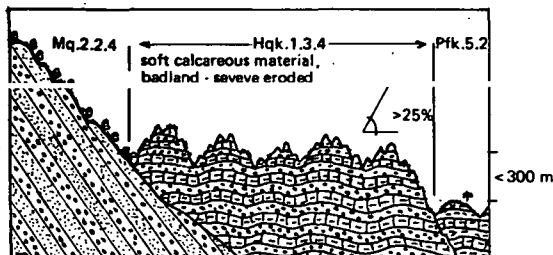
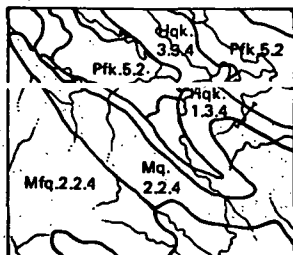
s. Total anal. profiles:	1	1	0	0
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f. LAB CHECK	:	Yes	Yes	--	--
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27. ADDITIONAL NOTES :

MAP IMAGE :

CROSS SECTION :



1. LAND UNIT : Hqk.1.3.4 Hillocks and hills in random pattern, coarse felsic sedimentary and soft calcareous rocks, steep to very steep slopes (>25%), extremely dissected
2. MAP SHEET : 0717 3. AREA : 22.9 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 02/11/89 Status : Final
7. SATELLITE SCENES : 128/59/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000 145 /8323-39
9. RADAR : STAR-1/250/88/0717-2/3
10. PARENT MATERIAL 11. ROCK OUTCROP : 0%
- a. Weathering : Partial
- b. Lithology : marly clay, sandstone,
- c. Formation : Tmt , Tmts
12. WATER a. Quality : Fresh
- b. Source : Rain, Perennial river
13. FISHERIES : River
14. RIVERS a. Floodrisk water : None b. Floodrisk sed.: None
- c. Inundation : None
15. VEGETATION/LAND USE : , bush, scrub, grazing land, along-alang
- Area used : 70 %
16. ACCELERATED EROSION b. Evidence : Gulleys
- a. Occurrence : Extensive
17. TERRAIN : Hilly >16%, 51-300 m
18. PLAN/ Dominant: Not elongated and random > 60% of area crested/peaked
- PROFILE Included: Not elongated and random < 40% of area flat-topped
19. RELIEF AMPLITUDE b. Variability :
- a. Amplitude: High Maximum : 300 m
20. ALTITUDE Minimum : 150 m
- Range : 175 - 275 m
21. DRAINAGE a. Pattern: Dendritic b. Density : High
24. VALLEY FLOOR Width : Very narrow
25. FRAGMEN a. Valleys: None b. Interfluves : Medium blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item | 10b | 12a | 14a | 14b | 19 | 20 | 21b | 22b | 22c | 22d1 | 22d2 | 22e1 | 23b | 23c | 23d | 23er | 24 | 25 |

rate : 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 2 | 2 |

28. REPRESENTATIVE PROFILES:

ite/ / /89/KR/0717/14/ /086/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	:	1	2	--	--
b. Description	:	Upper and middle slopes	Lower slopes	--	--
c. % of Land Unit	:	60%	40%	0%	2

SLOPES

d1. Steepness	:	25 - 55%	25 - 55%	--	--
d2. Slope length	:	201 - 500 m	101 - 200 m	--	--
d3. Slope curvature	:	Convex	Straight	--	--

SOILS

e1. USDA Class	:	troporthents	eutropepts		
e2. % Facet	:	100%	100%	0%	2

23. SOIL CHARACTERISTICS

a. USDA Great Group	:	troporthents	eutropepts		
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b. Texture:	topsoil:	Moderately fine	Fine	--	--
	subsoil:	Moderately coarse	Fine	--	--
c. Depth:	peatsoil:	--	--	--	--
	mineralsoil:	Moderately shallow	Very deep	--	--
d. Drainage	:	Somewhat excessively	Well drained	--	--

NUTRIENTS :

e. Exch. K:	topsoil:	--	Low	--	--
	subsoil:	--	Low	--	--
f. Total K2O:	topsoil:	--	Very high	--	--
	subsoil:	--	High	--	--
g. Avail. P:	method:	--	Olsen	--	--
	topsoil:	--	Medium	--	--
	subsoil:	--	Medium	--	--
h. Total P:	topsoil:	--	Medium	--	--
	subsoil:	--	Medium	--	--

OTHERS :

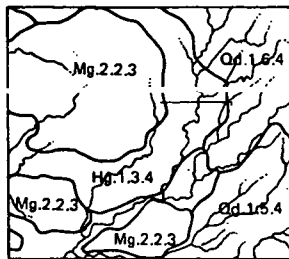
i. CEC pH 7	topsoil:	--	High	--	--
	subsoil:	--	High	--	--
j. Reaction:	topsoil:	Moderately alkaline	Slightly alkaline	--	--
	subsoil:	Moderately alkaline	Slightly alkaline	--	--
k. Al sat.	topsoil:	--	--	--	--
	subsoil:	--	--	--	--
l. Al toxicity	:	--	--	--	--
m. Acid sulph. pot.	:	Not relevant	Not relevant	--	--
n. Salinity (ec)	:	Salt free	Salt free	--	--
o. Other toxicity	:	--	--	--	--
p. Root obstr. layer	:	36 cm	106 cm	--	--
q. Organic matter (%)	:	--	7.7	--	--
r. TEB (meq/100 g)	:	--	36.3	--	--

s. Total anal. profiles:	0	1	0	0
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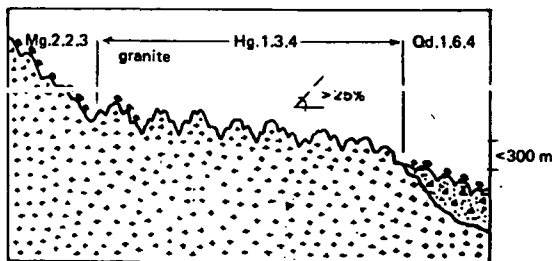
f. LAB CHECK	:	No	Yes	--	--
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27. ADDITIONAL NOTES :

MAP IMAGE :



CROSS SECTION :



1. LAND UNIT : Hg.1.3.4 Hillocks and hills in random pattern, acid plutonic rocks, steep to very steep slopes (>25%), extremely dissected
2. MAP SHEET : 0717
3. AREA : 98.9 km²
4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 02/11/89 Status : Final
7. SATELLITE SCENES : 128/59/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000 11 /8348-157
9. RADAR : STAR-1/250/88/0717-1
10. PARENT MATERIAL
 - a. Weathering : Partial
 - b. Lithology : granite, . .
 - c. Formation : Tmiti ,
11. ROCK OUTCROP : 0%
12. WATER
 - a. Quality : Fresh
 - b. Source : Rain, Perennial river
13. FISHERIES : River
14. RIVERS
 - a. Floodrisk water : None
 - b. Floodrisk sed.: None
 - c. Inundation : None
15. VEGETATION/LAND USE : , bush, scrub, rubber
Area used : 25 %
16. ACCELERATED EROSION
 - a. Occurrence : Common
 - b. Evidence : Various
17. TERRAIN : Hilly >16%, 51-300 m
18. PLAN/ PROFILE
 - Dominant: Not elongated and random > 60% of area crested/peaked
 - Included:
19. RELIEF AMPLITUDE
 - a. Amplitude: High
 - b. Variability : Medium
20. ALTITUDE
 - Minimum : 200 m
 - Maximum : 400 m
 - Range : 250 - 350 m
21. DRAINAGE a. Pattern: Dendritic
24. VALLEY FLOOR Width : Very narrow
25. FRAGMEN
 - a. Valleys: None
 - b. Interfluves : None

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item	10b	12a	14a	14b	19	20	21b	22b	22c	22d1	22d2	22e1	23b	23c	23d	23er	24	25
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rate	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2
------	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

28. REPRESENTATIVE PROFILES:

uda/ / /87/JH/0617/63/ /088/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	:	1	2	--	--
b. Description	:	Upper and middle slopes	Lower slopes	--	--
c. % of Land Unit	:	70%	30%	%	%

SLOPES

d1. Steepness	:	25 - 55%	25 - 55%	--	--
d2. Slope length	:	> 500 m	201 - 500 m	--	--
d3. Slope curvature	:	Straight	Concave	--	--

SOILS

e1. USDA Class	:	dystropepts	hapludults		
e2. % Facet	:	100%	100%	%	%

23. SOIL CHARACTERISTICS

a. USDA Great Group		:	dystropepts	hapludults		
b. Texture:	topsoil:	Fine	Moderately fine	--		--
	subsoil:	Fine	Moderately fine	--		--
c. Depth:	peatsoil:	--	--	--		--
	mineralsoil:	Moderately deep	Very deep	--		--
d. Drainage	:	Moderately well	Well drained	--		--

NUTRIENTS

e. Exch. K:	topsoil:	--	Medium	--	--
	subsoil:	--	Low	--	--
f. Total K2O:	topsoil:	--	Low	--	--
	subsoil:	--	Very low	--	--
g. Avail. P:	method:	--	Bray I	--	--
	topsoil:		Medium	--	--
	subsoil:		Very low	--	--
h. Total P:	topsoil:	--	Low	--	--
	subsoil:	--	Very low	--	--

OTHERS

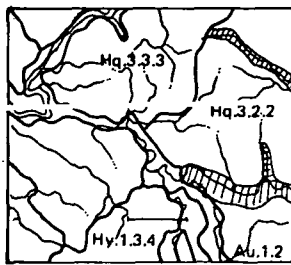
i. CEC-pH 7	topsoil:	--	Low	--	--
	subsoil:	--	Very low	--	--
j. Reaction:	topsoil:	--	Excessively acid	--	--
	subsoil:	--	Excessively acid	--	--
k. Al sat.	topsoil:	--	None, very low	--	--
	subsoil:	--	High	--	--
l. Al toxicity	:	--	Yes	--	--
m. Acid sulph. pot.	:	Not relevant	Not relevant	--	--
n. Salinity (ec)	:	Salt free	Salt free	--	--
o. Other toxicity	:	--	--	--	--
p. Root obstr. layer	:	74 cm	--	--	--
q. Organic matter (%)	:	--	1.5	--	--
r. TEB (meq/100 g)	:	--	3.5	--	--

a. Total anal. profiles:	0	1	0	0
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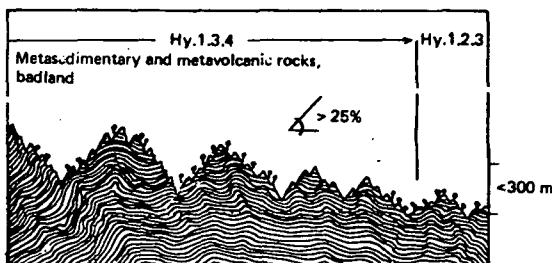
f. LAB CHECK	:	No	Yes	--	--
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27. ADDITIONAL NOTES : The soil data of Hapludults are extrapolated from LU Hg.1.3.3

MAP IMAGE :



CROSS SECTION :



1. LAND UNIT : Hy.1.3.4 Hillocks and hills in random pattern, undifferentiated metamorphic rocks, steep to very steep slopes (>25%), extremely dissected
2. MAP SHEET : 0717 3. AREA : 9.0 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 05/09/90 Status : Final
7. SATELLITE SCENES : 128/59/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000 9S /8347-60
9. RADAR : STAR-1/250/88/0717-1/2
10. PARENT MATERIAL 11. ROCK OUTCROP : 0%
- a. Weathering : Partial
- b. Lithology : gneiss, ,
- c. Formation : Muw ,
12. WATER a. Quality : Fresh
- b. Source : Rain, Perennial river
13. FISHERIES : River
14. RIVERS
- a. Floodrisk water : None
- b. Floodrisk sed. : None
- c. Inundation : None
15. VEGETATION/LAND USE : secondary forest
- Area used : 0 %
16. ACCELERATED EROSION
- a. Occurrence : Localised
- b. Evidence : Gulleys
17. TERRAIN : Hilly >16%, 51-300 m
18. PLAN/ Dominant: Not elongated and random > 60% of area crested/peaked
- PROFILE Included:
19. RELIEF AMPLITUDE
- a. Amplitude: High
- b. Variability : Medium
20. ALTITUDE Minimum : 200 m Maximum : 400 m
- Range : 250 - 350 m
21. DRAINAGE a. Pattern: Dendritic
- b. Density : High
24. VALLEY FLOOR Width : Very narrow
25. FRAGMEN a. Valleys: None
- b. Interfluves : None

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item | 10b | 12a | 14a | 14b | 19 | 20 | 21b | 22b | 22c | 22d1 | 22d2 | 22e1 | 23b | 23c | 23d | 23er | 24 | 25 |

rate : 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |

28. REPRESENTATIVE PROFILES:

ith/ / /89/KR/0716/22/ /171/

ity/ / /89/JH/0716/43/ /195/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	:	1	2	--	--
b. Description	:	Upper and middle slopes	Lower slopes	--	--
c. % of Land Unit	:	70%	30%	z	z

SLOPES

d1. Steepness	:	25 - 55%	25 - 55%	--	--
d2. Slope length	:	201 - 500 m	101 - 200 m	--	--
d3. Slope curvature	:	Convex	Straight	--	--

SOILS

e1. USDA Class	:	humitropepts	dystropepts		
e2. % Facet	:	100%	100%	z	z

23. SOIL CHARACTERISTICS

a. USDA Great Group	:	humitropepts	dystropepts		
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b. Texture:	topsoil:	Medium	Moderately fine	--	--
	subsoil:	Medium	Moderately fine	--	--
c. Depth:	peatsoil:	--	--	--	--
	mineralsoil:	Very deep	Very deep	--	--
d. Drainage	:	Well drained	Well drained	--	--

NUTRIENTS :

e. Exch. K:	topsoil:	Very low	Low	--	--
	subsoil:	Very low	Very low	--	--
f. Total K2O:	topsoil:	Low	Very low	--	--
	subsoil:	Very low	Very low	--	--
g. Avail. P:	method:	Bray I	Bray I	--	--
	topsoil:	Very low	Medium	--	--
	subsoil:	Very low	Very low	--	--
h. Total P:	topsoil:	Very low	Low	--	--
	subsoil:	Very low	Very low	--	--

OTHERS :

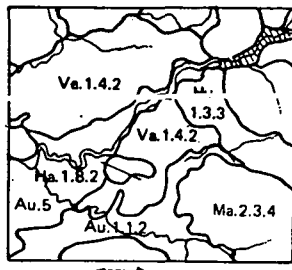
i. CEC pH 7	topsoil:	Low	Low	--	--
	subsoil:	Very low	Very low	--	--
j. Reaction:	topsoil:	Very strong acid	Strong acid	--	--
	subsoil:	Strong acid	Excessively acid	--	--
k. Al sat.	topsoil:	--	Medium	--	--
	subsoil:	--	High	--	--
l. Al toxicity	:	--	Yes	--	--
m. Acid sulph. pot.	:	Not relevant	Not relevant	--	--
n. Salinity (ec)	:	Salt free	Salt free	--	--
o. Other toxicity	:	--	--	--	--
p. Root obstr. layer	:	--	--	--	--
q. Organic matter (%)	:	5.2	3.7	--	--
r. TEB (meq/100 g)	:	0.3	1.4	--	--

s. Total anal. profiles:	1	1	0	0
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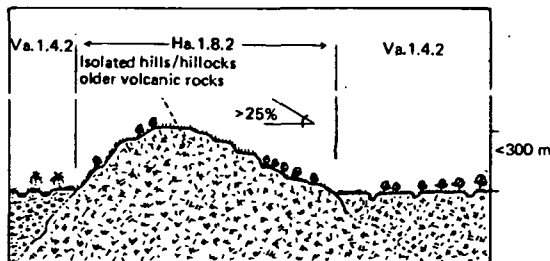
f. LAB CHECK	:	Yes	Yes	--	--
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27. ADDITIONAL NOTES : The soil data are extrapolated from 0716 sheet, land unit Hy.1.2.3

MAP IMAGE :



CROSS SECTION :



1. LAND UNIT : Ha.1.8.2 Hillocks and hills in random pattern, intermediate tuffs, erosion remnants, residual hills and hillocks, moderately dissected
2. MAP SHEET : 0717 3. AREA : 16.7 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 01/11/89 Status : Final
7. SATELLITE SCENES : 128/59/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000 10S /8348-145
9. RADAR : STAR-1/250/88/0717-
10. PARENT MATERIAL 11. ROCK OUTCROP : 0%
- a. Weathering : Partial
- b. Lithology : andesitic tuffs, ,
- c. Formation : Tmvak ,
12. WATER a. Quality : Fresh
- b. Source : Rain,
13. FISHERIES : None
14. RIVERS
- a. Floodrisk water : None b. Floodrisk sed.: None
- c. Inundation : None
15. VEGETATION/LAND USE : moist primary lowland forest, rubber
- Area used : 20 %
16. ACCELERATED EROSION
- a. Occurrence : Common b. Evidence : Various
17. TERRAIN : Hilly >16%, 51-300 m
18. PLAN/ Dominant: Not elongated and random 40-60% of area crested/peaked
- PROFILE Included:
19. RELIEF AMPLITUDE
- a. Amplitude: High b. Variability : Low
20. ALTITUDE Minimum : 50 m Maximum : 230 m
- Range : 100 - 200 m
21. DRAINAGE a. Pattern: Dendritic b. Density : Moderate
24. VALLEY FLOOR Width : Very narrow
25. FRAGMEN a. Valleys: None b. Interfluves : Small blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item	10b	12a	14a	14b	19	20	21b	22b	22c	22d1	22d2	22e1	23b	23c	23d	23er	24	25
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rate	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	1	2	2
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28. REPRESENTATIVE PROFILES:

ith/	/	/89/YM/0617/62/	/128/
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22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	:	1	2	--	--
b. Description	:	Middle and lower slopes	Crest and upper slopes	--	--
c. % of Land Unit	:	85%	15%	X	X

SLOPES

d1. Steepness	:	16 - 55%	16 - 25%	--	--
d2. Slope length	:	201 - 500 m	50 - 100 m	--	--
d3. Slope curvature	:	Straight	Convex	--	--

SOILS

e1. USDA Class	:	dystropepts	humitropepts		
e2. % Facet	:	100%	100%	X	X

23. SOIL CHARACTERISTICS

a. USDA Great Group	:	dystropepts	humitropepts		
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b. Texture:	topsoil:	Medium	Fine	--	--
	subsoil:	Fine	Fine	--	--
c. Depth:	peatsoil:	--	--	--	--
	mineralsoil:	Very deep	Moderately deep	--	--
d. Drainage	:	Well drained	Moderately well	--	--

NUTRIENTS :

e. Exch. K:	topsoil:	--	Medium	--	--
	subsoil:	--	Low	--	--
f. Total K2O:	topsoil:	--	Medium	--	--
	subsoil:	--	Low	--	--
g. Avail. P:	method:	--	Bray I	--	--
	topsoil:	--	Very low	--	--
	subsoil:	--	Very low	--	--
h. Total P:	topsoil:	--	Low	--	--
	subsoil:	--	Very low	--	--

OTHERS :

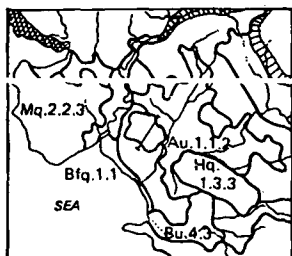
i. CEC pH 7	topsoil:	--	High	--	--
	subsoil:	--	High	--	--
j. Reaction:	topsoil:	Strong acid	Very strong acid	--	--
	subsoil:	Moderately acid	Excessively acid	--	--
k. Al sat.	topsoil:	--	Very high	--	--
	subsoil:	--	Very high	--	--
l. Al toxicity	:	--	Yes	--	--
m. Acid sulph. pot.	:	Not relevant	Not relevant	--	--
n. Salinity (ec)	:	Salt free	Salt free	--	--
o. Other toxicity	:	--	--	--	--
p. Root obstr. layer	:	108 cm	--	--	--
q. Organic matter (%)	:	--	7.3	--	--
r. TEB (meq/100 g)	:	--	1.9	--	--

s. Total anal. profiles:	0	1	0	0
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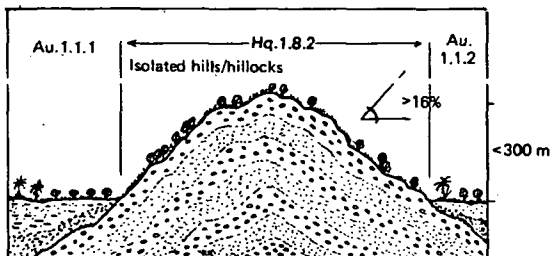
f. LAB CHECK	:	No	Yes	--	--
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27. ADDITIONAL NOTES :

MAP IMAGE :



CROSS SECTION :



1. LAND UNIT : Hq.1.8.2 Hillocks and hills in random pattern, coarse felsic sedimentary rocks, erosion remnants, residual hills and hillocks, moderately dissected.

2. MAP SHEET : 0617 3. AREA : 19.1 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%

5. STATUS IDENTIFIERS : Updated by : SS Edit date: 02/11/89 Status : Final

7. SATELLITE SCENES : 128/58/08/08/85

8. AERIAL PHOTOGRAPHS : 1: 000

9. RADAR : STAR-1/250/88/0617-4

10. PARENT MATERIAL

11. ROCK OUTCROP : 0%

a. Weathering : Partial

b. Lithology : sandstone, ,

c. Formation : Imba ,

12. WATER a. Quality : Fresh

b. Source : Rain,

13. FISHERIES : None

14. RIVERS

a. Floodrisk water : None

b. Floodrisk sed.: None

c. Inundation : None

15. VEGETATION/LAND USE : , bush, scrub, rubber

Area used : 10 %

16. ACCELERATED EROSION

a. Occurrence : Common

b. Evidence : Various

17. TERRAIN : Hillocky >16%, 0-50 m

18. PLAN/ Dominant: Not elongated and random

PROFILE Included:

19. RELIEF AMPLITUDE

a. Amplitude: Medium

b. Variability : Medium

20. ALTITUDE Minimum : 50 m

Maximum : 200 m

Range : 75 - 150 m

21. DRAINAGE a. Pattern: None

b. Density : Moderate

24. VALLEY FLOOR Width : Very narrow

25. FRAGMEN a. Valleys: None

b. Interfluves : Small blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item | 10b | 12a | 14a | 14b | 19 | 20 | 21b | 22b | 22c | 22d1 | 22d2 | 22e1 | 23b | 23c | 23d | 23er | 24 | 25 |

rate : 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 2 | 2 | 2 |

28. REPRESENTATIVE PROFILES:

not available

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	:	1	2	--	--
b. Description	:	Upper and middle slopes	Lower slopes	--	--
c. % of Land Unit	:	85%	15%	✓	✓

SLOPES

d1. Steepness	:	16 - 55%	16 - 25%	--	--
d2. Slope length	:	201 - 500 m	50 - 100 m	--	--
d3. Slope curvature	:	Straight	Straight	--	--

SOILS

e1. USDA Class	:	tropopsamments	dystropepts		
e2. % Facet	:	100%	100%	✓	✓

23. SOIL CHARACTERISTICS

a. USDA Great Group	:	tropopsamments	dystropepts
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b. Texture:	topsoil:	Coarse	Fine	--	--
	subsoil:	Coarse	Fine	--	--
c. Depth:	peatsoil:	--	--	--	--
	mineralsoil:	Moderately deep	Moderately deep	--	--
d. Drainage	:	Somewhat excessively	Moderately well	--	--

NUTRIENTS

e. Exch. K:	topsoil:	--	--	--	--
	subsoil:	--	--	--	--
f. Total K2O:	topsoil:	--	--	--	--
	subsoil:	--	--	--	--
g. Avail. P:	method:	--	--	--	--
	topsoil:	--	--	--	--
	subsoil:	--	--	--	--
h. Total P:	topsoil:	--	--	--	--
	subsoil:	--	--	--	--

OTHERS

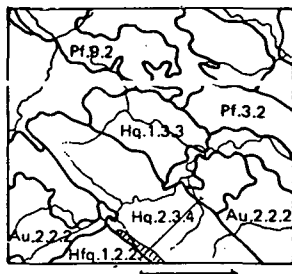
i. CEC pH 7	topsoil:	--	--	--	--
	subsoil:	--	--	--	--
j. Reaction:	topsoil:	--	Very strong acid	--	--
	subsoil:	--	Very strong acid	--	--
k. Al sat.	topsoil:	--	--	--	--
	subsoil:	--	--	--	--
l. Al toxicity	:	--	--	--	--
m. Acid sulph. pot.	:	Not relevant	Not relevant	--	--
n. Salinity (ec)	:	Salt free	Salt free	--	--
o. Other toxicity	:	--	--	--	--
p. Root obstr. layer	:	58 cm	58 cm	--	--
q. Organic matter (%)	:	--	--	--	--
r. TEB (meq/100 g)	:	--	--	--	--

s. Total anal. profiles:	0	0	0	0
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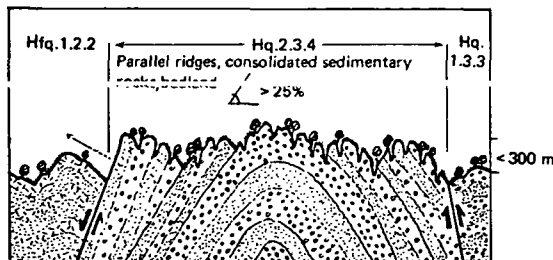
f. LAB CHECK	:	No	No	--	--
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27. ADDITIONAL NOTES : The soil data of Tropopsamments are extrapolated from LU Hq.1.3.3

MAP IMAGE :



CROSS SECTION :



1. LAND UNIT : Hq.2.3.4 Parallel elongated ridges and structural slopes from bedded rocks, coarse felsic sedimentary rocks, steep to very steep slopes (25-75%), ex. dissected
2. MAP SHEET : 0717 3. AREA : 20.2 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 02/11/89 Status : Final
7. SATELLITE SCENES : 128/59/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000 12S /8348-197
9. RADAR : STAR-1/250/88/0717-1
10. PARENT MATERIAL 11. ROCK OUTCROP : 0%
- a. Weathering : Partial
- b. Lithology : sandstone, ,
- c. Formation : Tmba , Tmsk
12. WATER a. Quality : Fresh
- b. Source : Rain, Perennial river
13. FISHERIES : River
14. RIVERS a. Floodrisk water : None b. Floodrisk sed.: None
- c. Inundation : None
15. VEGETATION/LAND USE : secondary forest, bush, scrub
- Area used : 0 %
16. ACCELERATED EROSION b. Evidence : Various
- a. Occurrence : Common
17. TERRAIN : Hilly >16%, 51-300 m
18. PLAN/ Dominant: Elongated and parallel > 60% of area crested/peaked
- PROFILE Included:
19. RELIEF AMPLITUDE b. Variability : Medium
- a. Amplitude: High
20. ALTITUDE Minimum : 100 m Maximum : 200 m
- Range : 125 - 200 m
21. DRAINAGE a. Pattern: Parallel b. Density : High
24. VALLEY FLOOR Width : Very narrow
25. FRAGMEN a. Valleys: None b. Interfluves : None

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item | 10b | 12a | 14a | 14b | 19 | 20 | 21b | 22b | 22c | 22d1 | 22d2 | 22e1 | 23b | 23c | 23d | 23er | 24 | 25 |

rate : 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 2 | 2 | 2 |

28. REPRESENTATIVE PROFILES:

ity/ / /88/KR/0717/22/ /041/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	:	1	2	--	--
b. Description	:	Upper, and middle slopes	Lower slopes	--	--
c. % of Land Unit	:	85%	15%	%	%

SLOPES

d1. Steepness	:	25 - 75%	25 - 55%	--	--
d2. Slope length	:	> 500 m	50 - 100 m	--	--
d3. Slope curvature	:	Straight	Straight	--	--

SOILS

e1. USDA Class	:	tropopsamments	dystropepts		
e2. % Facet	:	100%	100%	%	%

23. SOIL CHARACTERISTICS

a. USDA Great Group	:	tropopsamments	dystropepts
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b. Texture:	topsoil:	Coarse	Moderately coarse	--	--
	subsoil:	Coarse	Moderately coarse	--	--
c. Depth:	peatsoil:	--	--	--	--
	mineralsoil:	Moderately deep	Extremely deep	--	--
d. Drainage	:	Somewhat excessively	Somewhat excessively	--	--

NUTRIENTS

e. Exch. K:	topsoil:	--	Low	--	--
	subsoil:	--	Very low	--	--
f. Total K2O:	topsoil:	--	Low	--	--
	subsoil:	--	Very low	--	--
g. Avail. P:	method:	--	Bray I	--	--
	topsoil:	--	High	--	--
	subsoil:	--	Low	--	--
h. Total P:	topsoil:	--	Low	--	--
	subsoil:	--	Very low	--	--

OTHERS

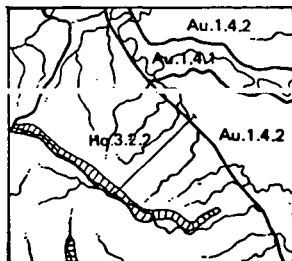
i. CEC pH 7	topsoil:	--	Low	--	--
	subsoil:	--	Very low	--	--
j. Reaction:	topsoil:	--	Excessively acid	--	--
	subsoil:	--	Very strong acid	--	--
k. Al sat.	topsoil:	--	High	--	--
	subsoil:	--	High	--	--
l. Al toxicity	:	--	Yes	--	--
m. Acid sulph. pot.	:	Not relevant	Not relevant	--	--
n. Salinity (ec)	:	Salt free	Salt free	--	--
o. Other toxicity	:	--	--	--	--
p. Root obstr. layer	:	58 cm	--	--	--
q. Organic matter (%)	:	--	2.2	--	--
r. TEB (meq/100 g)	:	--	0.5	--	--

s. Total anal. profiles:	0	1	0	0
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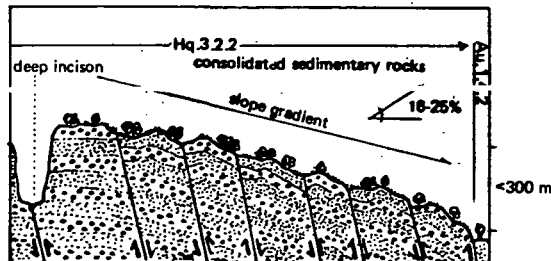
f. LAB CHECK	:	No	Yes	--	--
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27. ADDITIONAL NOTES : The soil data of Tropopsamments & Dystropepts are Extrapolated from Land Unit Hq.1.3.3

MAP IMAGE :



CROSS SECTION :



1. LAND UNIT : Hq.3.2.2 Complex hilly relief and special features, coarse felsic sedimentary rocks, moderately steep slopes (16-25%), moderately dissected
2. MAP SHEET : 0717 3. AREA : 122.1 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 02/11/89 Status : Final
7. SATELLITE SCENES : 128/59/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000 9S /8347-057
9. RADAR : STAR-1/250/88/0717-1/2
10. PARENT MATERIAL 11. ROCK OUTCROP : 0%
- a. Weathering : Partial
- b. Lithology : sandstone, ,
- c. Formation : Tmba , Tmsk
12. WATER a. Quality : Fresh
- b. Source : Rain, Perennial river
13. FISHERIES : River
14. RIVERS b. Floodrisk sed.: None
- a. Floodrisk water : None
- c. Inundation : None
15. VEGETATION/LAND USE : secondary forest, bush, scrub
- Area used : 0 %
16. ACCELERATED EROSION b. Evidence : Various
- a. Occurrence : Common
17. TERRAIN : Hilly >16%, 51-300 m
18. PLAN/ Dominant: Not elongated and random > 60% of area crested/peaked
- PROFILE Included:
19. RELIEF AMPLITUDE b. Variability : Medium
- a. Amplitude: High
20. ALTITUDE Minimum : 100 m Maximum : 220 m
- Range : 100 - 200 m
21. DRAINAGE a. Pattern: Dendritic b. Density : Moderate
24. VALLEY FLOOR Width : Very narrow
25. FRAGMEN a. Valleys: None b. Interfluves : None

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item | 10b | 12a | 14a | 14b | 19 | 20 | 21b | 22b | 22c | 22d1 | 22d2 | 22e1 | 23b | 23c | 23d | 23er | 24 | 25 |

rate : 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 2 | 2 | 2 |

28. REPRESENTATIVE PROFILES:

not available

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	:	1	2	--	--
b. Description	:	Upper and middle slopes	Lower slopes	--	--
c. % of Land Unit	:	80%	20%	%	%

SLOPES

d1. Steepness	:	16 - 55%	16 - 25%	--	--
d2. Slope length	:	> 500 m	101 - 200 m	--	--
d3. Slope curvature	:	Straight	Straight	--	--

SOILS

e1. USDA Class	:	tropopsamments	dystropepts		
e2. % Facet	:	100%	100%	%	%

23. SOIL CHARACTERISTICS

a. USDA Great Group	:	tropopsamments	dystropepts
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b. Texture:	topsoil:	Coarse	Medium	--	--
	subsoil:	Coarse	Moderately coarse	--	--
c. Depth:	peatsoil:	--	--	--	--
	mineralsoil:	Deep	Very deep	--	--
d. Drainage	:	Somewhat excessively	Well drained	--	--

NUTRIENTS :

e. Exch. K:	topsoil:	--	--	--	--
	subsoil:	--	--	--	--
f. Total K2O:	topsoil:	--	--	--	--
	subsoil:	--	--	--	--
g. Avail. P:	method:	--	--	--	--
	topsoil:	--	--	--	--
	subsoil:	--	--	--	--
h. Total P:	topsoil:	--	--	--	--
	subsoil:	--	--	--	--

OTHERS :

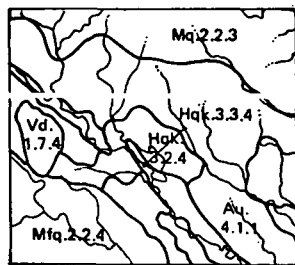
i. CEC pH 7	topsoil:	--	--	--	--
	subsoil:	--	--	--	--
j. Reaction:	topsoil:	Excessively acid	Strong acid	--	--
	subsoil:	Very strong acid	Very strong acid	--	--
k. Al sat.	topsoil:	--	--	--	--
	subsoil:	--	--	--	--
l. Al toxicity	:	--	--	--	--
m. Acid sulph. pot.	:	Not relevant	Not relevant	--	--
n. Salinity (ec)	:	Salt free	Salt free	--	--
o. Other toxicity	:	--	--	--	--
p. Root obstr. layer	:	--	--	--	--
q. Organic matter (%)	:	--	--	--	--
r. TEB (meq/100 g)	:	--	--	--	--

s. Total anal. profiles:	0	0	0	0
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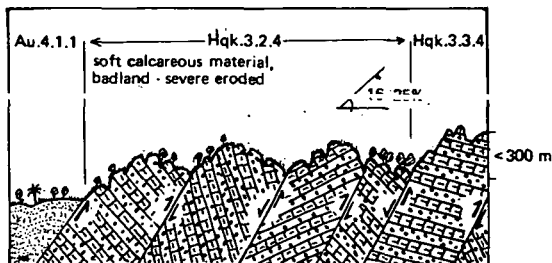
f. LAB CHECK	:	No	No	--	--
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27. ADDITIONAL NOTES : Extrapolated data from Hq.3.3.3

MAP IMAGE :



CROSS SECTION :



1. LAND UNIT : Hqk.3.2.4 Complex hilly relief and special features, coarse felsic sedimentary and soft calcareous rocks, moderately steep slopes (16-25%), extremely dissected
2. MAP SHEET : 0717 3. AREA : 13.9 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 02/11/89 Status : Final
7. SATELLITE SCENES : 128/59/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000 2 /8323-179
9. RADAR : STAR-1/250/88/0717-2/3
10. PARENT MATERIAL 11. ROCK OUTCROP : 0%
- a. Weathering : Partial
- b. Lithology : sand, marly clay,
- c. Formation : Tmts ,
12. WATER a. Quality : Fresh
- b. Source : Rain, Perennial river
13. FISHERIES : River
14. RIVERS
- a. Floodrisk water : None
- b. Floodrisk sed.: None
- c. Inundation : None
15. VEGETATION/LAND USE : , bush, scrub
- Area used : 0 %
16. ACCELERATED EROSION
- a. Occurrence : Extensive
- b. Evidence : Various
17. TERRAIN : Hilly >16%, 51-300 m
18. PLAN/ Dominant: Not elongated and random > 60% of area crested/peaked
- PROFILE Included:
19. RELIEF AMPLITUDE
- a. Amplitude: High
- b. Variability : Medium
20. ALTITUDE Minimum : 150 m
- Maximum : 300 m
- Range : 175 - 275 m
21. DRAINAGE a. Pattern: Dendritic
24. VALLEY FLOOR Width : Very narrow
25. FRAGMEN a. Valleys: None
- b. Interfluves : None

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item | 10b | 12a | 14a | 14b | 19 | 20 | 21b | 22b | 22c | 22d1 | 22d2 | 22e1 | 23b | 23c | 23d | 23er | 24 | 25 |

rate : 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 2 | 2 |

28. REPRESENTATIVE PROFILES:

ite/ / /89/KR/0717/23/ /075/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	:	1	2	--	--
b. Description	:	Upper and middle slopes	Lower slopes	--	--
c. % of Land Unit	:	50%	40%	%	%

SLOPES

d1. Steepness	:	16 - 25%	16 - 25%	--	--
d2. Slope length	:	201 - 500 m	101 - 200 m	--	--
d3. Slope curvature	:	Convex	Straight	--	--

SOILS

e1. USDA Class	:	troporthents	eutropepts		
e2. % Facet	:	100%	100%	%	%

23. SOIL CHARACTERISTICS

a. USDA Great Group	:	troporthents	eutropepts		
b. Texture:					
topsoil:	Moderately fine	Fine	--	--	
subsoil:	Moderately coarse	Fine	--	--	
c. Depth:					
peatsoil:	--	--	--	--	
mineralsoil:	Moderately shallow	Very deep	--	--	
d. Drainage	:	Somewhat excessively	Well drained	--	--

NUTRIENTS :

e. Exch. K:					
topsoil:	--	Low	--	--	
subsoil:	--	Very low	--	--	
f. Total K2O:					
topsoil:	--	Medium	--	--	
subsoil:	--	Low	--	--	
g. Avail. P:					
method:	--	Olsen	--	--	
topsoil:	--	Low	--	--	
subsoil:	--	Low	--	--	
h. Total P:					
topsoil:	--	Low	--	--	
subsoil:	--	Low	--	--	

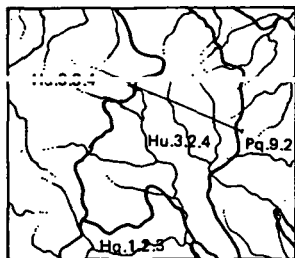
OTHERS :

i. CEC pH 7					
topsoil:	--	High	--	--	
subsoil:	--	Medium	--	--	
j. Reaction:					
topsoil:	Moderately alkaline	Slightly alkaline	--	--	
subsoil:	Moderately alkaline	Neutral	--	--	
k. Al sat.					
topsoil:	--	--	--	--	
subsoil:	--	--	--	--	
l. Al toxicity	:	--	--	--	
m. Acid sulph. pot.	:	Not relevant	Not relevant	--	--
n. Salinity (ec)	:	Salt free	Salt free	--	--
o. Other toxicity	:	--	--	--	--
p. Root obstr. layer	:	36 cm	--	--	--
q. Organic matter (%)	:	--	2.7	--	--
r. TEB (meq/100 g)	:	--	30.6	--	--

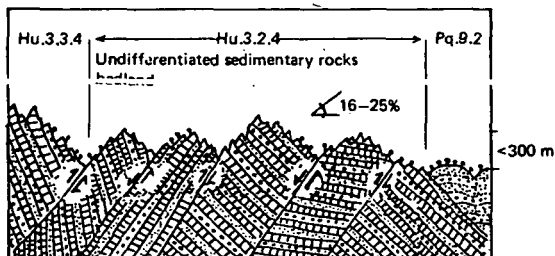
s. Total anal. profiles:	0	1	0	0
t. LAB CHECK	:	No	Yes	--

27. ADDITIONAL NOTES : The soil data of Troporthents are extrapolated from LU Hqk.1.3.4

MAP IMAGE :



CROSS SECTION :



1. LAND UNIT : Hu.3.2.4 Complex hilly relief and special features, undifferentiated sedimentary rocks moderately steep slopes (16-25%), extremely dissected
2. MAP SHEET : 0717 3. AREA : 56.9 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 02/11/89 Status : Final
7. SATELLITE SCENES : 128/58/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000 18 /8319-97
9. RADAR : STAR-1/250/88/0717-5
10. PARENT MATERIAL
- a. Weathering : Partial
- b. Lithology : clay, claystone, sandstone
- c. Formation : Put
11. ROCK OUTCROP : 0%
12. WATER a. Quality : Fresh
- b. Source : Rain, Perennial river
13. FISHERIES : River
14. RIVERS
- a. Floodrisk water : None
- b. Floodrisk sed.: None
- c. Inundation : None
15. VEGETATION/LAND USE : secondary forest, bush, scrub
- Area used : 0 %
16. ACCELERATED EROSION
- a. Occurrence : Common
- b. Evidence : Gulleys
17. TERRAIN : Hilly >16%, 51-300 m
18. PLAN/ Dominant: Not elongated and random
- PROFILE Included:
19. RELIEF AMPLITUDE
- a. Amplitude: High
- b. Variability : Medium
20. ALTITUDE Minimum : 100 m
- Maximum : 300 m
- Range : 125 - 250 m
21. DRAINAGE a. Pattern: Dendritic
- b. Density : High
24. VALLEY FLOOR Width : Very narrow
25. FRAGMEN a. Valleys: None
- b. Interfluves : None

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item | 10b | 12a | 14a | 14b | 19 | 20 | 21b | 22b | 22c | 22d1 | 22d2 | 22e1 | 23b | 23c | 23d | 23er | 24 | 25 |

rate : 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 2 | 1 | 2 |

28. REPRESENTATIVE PROFILES:

ity/ / /89/YH/0717/41/ /091/ uda/ / /88/KR/0717/53/ /114/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	: 1	2	--	--
b. Description	: Upper and middle slopes	Lower slopes	--	--
c. % of Land Unit	: 70%	30%	X	X

SLOPES

d1. Steepness	: 16 - 55%	16 - 25%	--	--
d2. Slope length	: 201 - 500 m	101 - 200 m	--	--
d3. Slope curvature	: Straight	Straight	--	--

SOILS

e1. USDA Class	: dystropepts	hapludults		
e2. % Facet	: 100%	100%	X	X

23. SOIL CHARACTERISTICS

a. USDA Great Group	: dystropepts	hapludults		
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b. Texture:	topsoil:	Moderately fine	Fine	--	--
	subsoil:	Moderately fine	Fine	--	--
c. Depth:	peatsoil:	--	--	--	--
	mineralsoil:	Deep	Extremely deep	--	--
d. Drainage	: Well drained	Well drained	--	--	--

NUTRIENTS :

e. Exch. K:	topsoil:	Low	Very low	--	--
	subsoil:	Low	Low	--	--
f. Total K2O:	topsoil:	Low	Low	--	--
	subsoil:	Very low	Very low	--	--
g. Avail. P:	method:	Bray I	Bray I	--	--
	topsoil:	Very low	Very low	--	--
	subsoil:	Very low	Very low	--	--
h. Total P:	topsoil:	Very low	Very low	--	--
	subsoil:	Very low	Very low	--	--

OTHERS :

i. CEC pH 7	topsoil:	Medium	Low	--	--
	subsoil:	Low	Low	--	--
j. Reaction:	topsoil:	Strong acid	Excessively acid	--	--
	subsoil:	Strong acid	Very strong acid	--	--
k. Al-sat.	topsoil:	High	Low	--	--
	subsoil:	Very high	Medium	--	--
l. Al toxicity	: Yes	No	--	--	--
m. Acid sulph. pot.	: Not relevant	Not relevant	--	--	--
n. Salinity (ec)	: Salt free	Salt free	--	--	--
o. Other toxicity	: --	--	--	--	--
p. Root obstr. layer	: 76 cm	--	--	--	--
q. Organic matter (%)	: 6.4	2.6	--	--	--
r. TEB (meq/100 g)	: 0.8	3.0	--	--	--

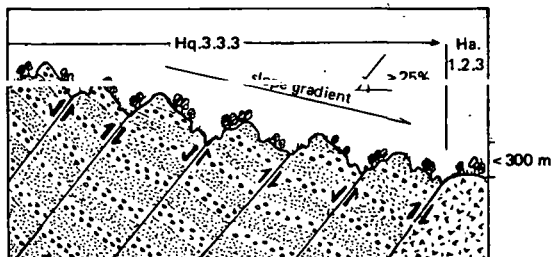
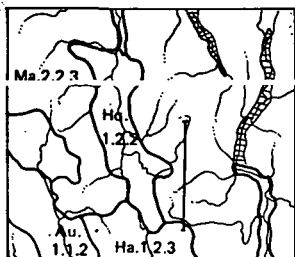
s. Total anal. profiles:	1	1	0	0
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f. LAB CHECK	: Yes	Yes	--	--
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27. ADDITIONAL NOTES : The soil data are extrapolated from land unit Hu.1.3.3 & Hu.3.3.4

MAP IMAGE :

CROSS SECTION :



1. LAND UNIT : Hq.3.3.3 Complex hilly relief and special features, coarse felsic sedimentary rocks, steep to very steep slopes (>25%), strongly dissected
2. MAP SHEET : 0617 3. AREA : 297.3 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 02/11/89 Status : Final
7. SATELLITE SCENES : 128/59/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000 9S /8347-60
9. RADAR : STAR-1/250/88/0617-1/2
10. PARENT MATERIAL 11. ROCK OUTCROP : 0%
- a. Weathering : Partial
- b. Lithology : sandstone, ,
- c. Formation : Tmba ,
12. WATER a. Quality : Fresh
- b. Source : Rain, Perennial river
13. FISHERIES : River
14. RIVERS b. Floodrisk sed.: None
- a. Floodrisk water : None
- c. Inundation : None
15. VEGETATION/LAND USE : secondary forest, moist primary submontane forest
- Area used : 0 %
16. ACCELERATED EROSION b. Evidence : Various
- a. Occurrence : Common
17. TERRAIN : Hilly >16%, 51-300 m
18. PLAN/ Dominant: Not elongated and random > 60% of area crested/peaked
- PROFILE Included:
19. RELIEF AMPLITUDE b. Variability : Medium
- a. Amplitude: High
20. ALTITUDE Minimum : 150 m Maximum : 450 m
- Range : 200 - 400 m
21. DRAINAGE a. Pattern: Dendritic b. Density : Moderately high
24. VALLEY FLOOR Width : Very narrow
25. FRAGMEN a. Valleys: None b. Interfluves : None

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item | 10b | 12a | 14a | 14b | 19 | 20 | 21b | 22b | 22c | 22d1 | 22d2 | 22e1 | 23b | 23c | 23d | 23er | 24 | 25 |

rate : 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |

28. REPRESENTATIVE PROFILES:

not available

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	:	1	2	--	--
b. Description	:	Upper and middle slopes	Lower slopes	--	--
c. % of Land Unit	:	80%	20%	%	%

SLOPES

d1. Steepness	:	25 - 55%	25 - 55%	--	--
d2. Slope length	:	> 500 m	101 - 200 m	--	--
d3. Slope curvature	:	Convex	Straight	--	--

SOILS

e1. USDA Class	:	tropopsamments	dystropepts		
e2. % Facet	:	100%	100%	%	%

23. SOIL CHARACTERISTICS

a. USDA Great Group	:	tropopsamments	dystropepts
---------------------	---	----------------	-------------

b. Texture:	topsoil:	Coarse	Medium	--	--
	subsoil:	Coarse	Moderately coarse	--	--
c. Depth:	peatsoil:	--	--	--	--
	mineralsoil:	Deep	Very deep	--	--
d. Drainage	:	Somewhat excessively	Well drained	--	--

NUTRIENTS :

e. Exch. K:	topsoil:	--	--	--	--
	subsoil:	--	--	--	--
f. Total K2O:	topsoil:	--	--	--	--
	subsoil:	--	--	--	--
g. Avail. P:	method:	--	--	--	--
	topsoil:	--	--	--	--
	subsoil:	--	--	--	--
h. Total P:	topsoil:	--	--	--	--
	subsoil:	--	--	--	--

OTHERS :

i. CEC pH 7	topsoil:	--	--	--	--
	subsoil:	--	--	--	--
j. Reaction:	topsoil:	Excessively acid	Strong acid	--	--
	subsoil:	Very strong acid	Very strong acid	--	--
k. Al sat.	topsoil:	--	--	--	--
	subsoil:	--	--	--	--
l. Al toxicity	:	--	--	--	--
m. Acid sulph. pot.	:	Not relevant	Not relevant	--	--
n. Salinity (ec)	:	Salt free	Salt free	--	--
o. Other toxicity	:	--	--	--	--
p. Root obstr. layer	:	--	--	--	--
q. Organic matter (%)	:	--	--	--	--
r. TEB (meq/100 g)	:	--	--	--	--

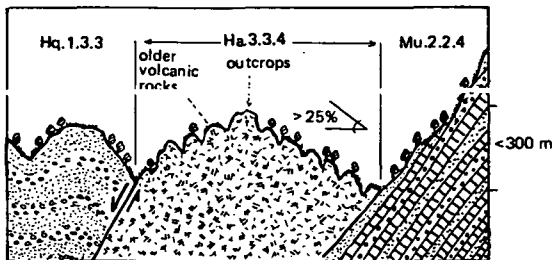
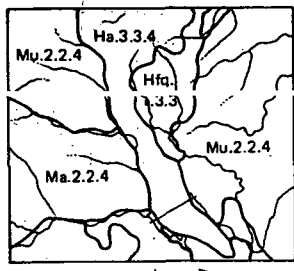
s. Total anal. profiles:	0	0	0	0
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f. LAB CHECK	:	No	No	--	--
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27. ADDITIONAL NOTES :

MAP IMAGE :

CROSS SECTION :



1. LAND UNIT : Ha.3.3.4 Complex hilly relief and special features, intermediate tuffs, steep to very steep slopes (>25%), extremely dissected
2. MAP SHEET : 0717 3. AREA : 22.1 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 01/11/89 Status : Final
7. SATELLITE SCENES : 128/59/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000 11. /8348-153
9. RADAR : STAR-1/250/88/0717-3
10. PARENT MATERIAL 11. ROCK OUTCROP : 0%
- a. Weathering : Partial
- b. Lithology : andesitic tuffs,
- c. Formation : Tmvak ,
12. WATER a. Quality : Fresh
- b. Source : Rain, Perennial river
13. FISHERIES : River
14. RIVERS a. Floodrisk water : None b. Floodrisk sed.: None
- c. Inundation : None
15. VEGETATION/LAND USE : moist primary lowland forest, bush, scrub
- Area used : 0 %
16. ACCELERATED EROSION a. Occurrence : Common b. Evidence : Gulleys
17. TERRAIN : Hilly >16%, 51-300 m
18. PLAN/ Dominant: Not elongated and random > 60% of area crested/peaked
- PROFILE Included:
19. RELIEF AMPLITUDE a. Amplitude: High b. Variability : Medium
20. ALTITUDE Minimum : 150 m Maximum : 350 m
- Range : 175 - 300 m
21. DRAINAGE a. Pattern: Dendritic b. Density : High
24. VALLEY FLOOR Width : Very narrow
25. FRAGMEN a. Valleys: None b. Interfluves : None

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item | 10b | 12a | 14a | 14b | 19 | 20 | 21b | 22b | 22c | 22d1 | 22d2 | 22e1 | 23b | 23c | 23d | 23er | 24 | 25 |

rate : 2 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |

28. REPRESENTATIVE PROFILES:

not available

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	:	1	2	--	--
b. Description	:	Middle slopes	Lower slopes	--	--
c. % of Land Unit	:	60%	40%	X	X

SLOPES

d1. Steepness	:	25 - 75%	25 - 55%	--	--
d2. Slope length	:	> 500 m	> 500 m	--	--
d3. Slope curvature	:	Straight	Straight	--	--

SOILS

e1. USDA Class	:	dystropepts	hapludults		
e2. % Facet	:	100%	100%	X	X

23. SOIL CHARACTERISTICS

a. USDA Great Group	:	dystropepts	hapludults		
---------------------	---	-------------	------------	--	--

b. Texture:	topsoil:	Medium	Medium	--	--
	subsoil:	Fine	Medium	--	--
c. Depth:	peatsoil:	--	--	--	--
	mineralsoil:	Very deep	Deep	--	--
d. Drainage	:	Moderately well	Moderately well	--	--

NUTRIENTS :

e. Exch. K:	topsoil:	--	--	--	--
	subsoil:	--	--	--	--
f. Total K2O:	topsoil:	--	--	--	--
	subsoil:	--	--	--	--
g. Avail. P:	method:	--	--	--	--
	topsoil:	--	--	--	--
	subsoil:	--	--	--	--
h. Total P:	topsoil:	--	--	--	--
	subsoil:	--	--	--	--

OTHERS :

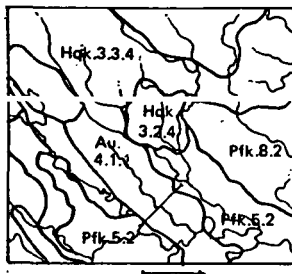
i. CEC pH 7	topsoil:	--	--	--	--
	subsoil:	--	--	--	--
j. Reaction:	topsoil:	--	--	--	--
	subsoil:	--	--	--	--
k. Al sat.	topsoil:	--	--	--	--
	subsoil:	--	--	--	--
l. Al toxicity	:	--	--	--	--
m. Acid sulph. pot.	:	Not relevant	Not relevant	--	--
n. Salinity (ec)	:	Salt free	Salt free	--	--
o. Other toxicity	:	--	--	--	--
p. Root obstr. layer	:	--	--	--	--
q. Organic matter (%)	:	--	--	--	--
r. TEB (meq/100 g)	:	--	--	--	--

s. Total anal. profiles:	0	0	0	0
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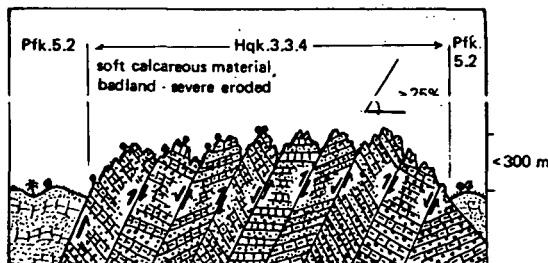
f. LAB CHECK	:	No	No	--	--
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27. ADDITIONAL NOTES :

MAP IMAGE :



CROSS SECTION :



1. LAND UNIT : Hqk.3.3.4 Complex hilly relief and special features, coarse felsic sedimentary and soft calcareous rocks, steep to very steep slopes (>25%), extremely dissected
2. MAP SHEET : 0717 3. AREA : 98.2 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 02/11/89 Status : Final
7. SATELLITE SCENES : 128/59/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000 2 /8323-179
9. RADAR : STAR-1/250/88/0717-3
10. PARENT MATERIAL 11. ROCK OUTCROP : 0%
- a. Weathering : Partial
- b. Lithology : marly clay, sandstone,
- c. Formation : Tmts ,
12. WATER a. Quality : Fresh
- b. Source : Rain, Perennial river
13. FISHERIES : River
14. RIVERS a. Floodrisk water : None b. Floodrisk sed.: None
- c. Inundation : None
15. VEGETATION/LAND USE : , bush, scrub
- Area used : 0 %
16. ACCELERATED EROSION b. Evidence : Various
- a. Occurrence : None
17. TERRAIN : Hilly >16%, 51-300 m
18. PLAN/ Dominant: Not elongated and random > 60% of area crested/peaked
- PROFILE Included:
19. RELIEF AMPLITUDE b. Variability : Medium
- a. Amplitude: High Maximum : 400 m
20. ALTITUDE Minimum : 100 m
- Range : 200 - 350 m
21. DRAINAGE a. Pattern: Dendritic b. Density : High
24. VALLEY FLOOR Width : Very narrow
25. FRAGMEN a. Valleys: None b. Interfluves : None

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item	10b	12a	14a	14b	19	20	21b	22b	22c	22d1	22d2	22e1	23b	23c	23d	23er	24	25
------	-----	-----	-----	-----	----	----	-----	-----	-----	------	------	------	-----	-----	-----	------	----	----

rate	1	1	1	1	2	2	2	2	2	2	2	1	1	1	1	1	2	2
------	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

28. REPRESENTATIVE PROFILES:

ite/	/	/89/KR/0717/23/	/083/	ite/	/	/89/CD/0717/42/	/121/
ite/	/	/88/CD/0717/23/	/066/	ite/	/	/89/KR/0717/23/	/075/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	: 1	2	--	--
b. Description	: Upper and middle slopes	Lower slopes	--	--
c. % of Land Unit	: 70%	30%	X	X

SLOPES

d1. Steepness	: 25 - 55%	25 - 55%	--	--
d2. Slope length	: 201 - 500 m	101 - 200 m	--	--
d3. Slope curvature	: Convex	Straight	--	--

SOILS

e1. USDA Class	: troporthents	eutropepts		
e2. % Facet	: 100%	100%	X	X

23. SOIL CHARACTERISTICS

a. USDA Great Group	: troporthents	eutropepts		
b. Texture:	topsoil: Moderately fine	Fine	--	--
	subsoil: Moderately coarse	Fine	--	--
c. Depth:	peatsoil: --	--	--	--
	mineralsoil: Moderately shallow	Deep	--	--
d. Drainage	: Somewhat excessively	Somewhat excessively	--	--

NUTRIENTS :

e. Exch. K:	topsoil: --	Low	--	--
	subsoil: --	Low	--	--
f. Total K2O:	topsoil: --	High	--	--
	subsoil: --	High	--	--
g. Avail. P:	method: --	Olsen	--	--
	topsoil: --	Very high	--	--
	subsoil: --	Very high	--	--
h. Total P:	topsoil: --	High	--	--
	subsoil: --	High	--	--

OTHERS :

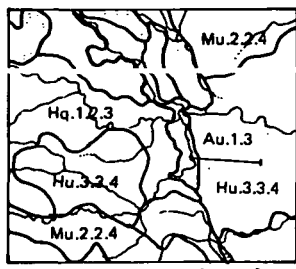
i. CEC pH 7	topsoil: --	High	--	--
	subsoil: --	High	--	--
j. Reaction:	topsoil: Moderately alkaline	Neutral	--	--
	subsoil: Moderately alkaline	Neutral	--	--
k. Al sat.	topsoil: --	--	--	--
	subsoil: --	--	--	--
l. Al toxicity	: --	--	--	--
m. Acid sulph. pot.	: Not relevant	Not relevant	--	--
n. Salinity (ec)	: Salt free	Salt free	--	--
o. Other toxicity	: --	--	--	--
p. Root obstr. layer	: 36 cm	79 cm	--	--
q. Organic matter (%)	: --	2.2	--	--
r. TEB (meq/100 g)	: --	28.2	--	--

s. Total anal. profiles:	0	4	0	0
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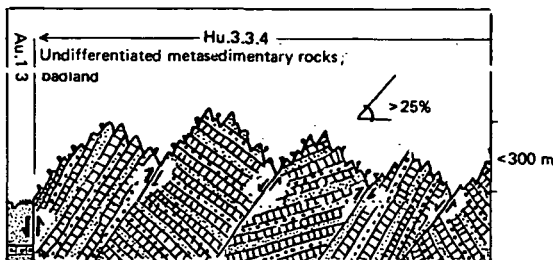
f. LAB CHECK	: No	Yes	--	--
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27. ADDITIONAL NOTES : The soil data of Troporthents are extrapolated from Hqk.1.3.4

MAP IMAGE :



CROSS SECTION :



1. LAND UNIT : Hu.3.3.4 Complex hilly relief and special features, undifferentiated sedimentary rocks, steep to very steep slopes (>25%), extremely dissected
2. MAP SHEET : 0717 3. AREA : 180.9 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 02/11/89 Status : Final
7. SATELLITE SCENES : 128/58/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000 18 /8319-169, 14S /8319-97
9. RADAR : STAR-1/250/88/0717-4/5
10. PARENT MATERIAL 11. ROCK OUTCROP : 0%
- a. Weathering : Partial
- b. Lithology : claystone, clay, sandstone
- c. Formation : Puk , Put
12. WATER a. Quality : Fresh
- b. Source : Rain, Perennial river
13. FISHERIES : River
14. RIVERS a. Floodrisk water : None
- b. Floodrisk sed.: None
- c. Inundation : None
15. VEGETATION/LAND USE : secondary forest, bush, scrub
- Area used : 0 %
16. ACCELERATED EROSION b. Evidence : Gulleys
- a. Occurrence : Common
17. TERRAIN : Hilly >16%, 51-300 m
18. PLAN/ Dominant: Not elongated and random
- PROFILE Included:
19. RELIEF AMPLITUDE b. Variability : Medium
- a. Amplitude: High Maximum : 300 m
20. ALTITUDE Minimum : 150 m
- Range : 175 - 275 m
21. DRAINAGE a. Pattern: Complex b. Density : High
24. VALLEY FLOOR Width : Very narrow
25. FRAGMEN a. Valleys: None b. Interfluves : None

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item	10b	12a	14a	14b	19	20	21b	22b	22c	22d1	22d2	22e1	23b	23c	23d	23er	24	25
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rate	1	1	1	1	2	2	2	2	2	2	2	2	1	1	1	1	1	2
------	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

28. REPRESENTATIVE PROFILES:

ity/	/	/88/KR/0717/54/	/075/	uda/	/	/88/JH/0717/53/	/160/
uda/	/	/87/KR/0717/53/	/114/				

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	:	1	2	--	--
b. Description	:	Upper and middle slopes	Lower slopes	--	--
c. % of Land Unit	:	70%	30%	%	%

SLOPES

d1. Steepness	:	25 - 55%	25 - 55%	--	--
d2. Slope length	:	201 - 500 m	50 - 100 m	--	--
d3. Slope curvature	:	Straight	Straight	--	--

SOILS

e1. USDA Class	:	dystropepts	hapludults		
e2. % Facet	:	100%	100%	%	%

23. SOIL CHARACTERISTICS

a. USDA Great Group	:	dystropepts	hapludults
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b. Texture:	topsoil:	Fine	Moderately coarse	--	--
	subsoil:	Fine	Moderately fine	--	--
c. Depth:	peatsoil:	--	--	--	--
	mineralsoil:	Deep	Very deep	--	--
d. Drainage	:	Somewhat excessively	Well drained	--	--

NUTRIENTS :

e. Exch. K:	topsoil:	Very low	--	--	--
	subsoil:	Very low	--	--	--
f. Total K2O:	topsoil:	Low	Very low	--	--
	subsoil:	Low	Very low	--	--
g. Avail. P:	method:	Bray I	Bray I	--	--
	topsoil:	Very low	Very low	--	--
	subsoil:	Very low	Very low	--	--
h. Total P:	topsoil:	Low	Low	--	--
	subsoil:	Low	Low	--	--

OTHERS :

i. CEC pH 7	topsoil:	Low	Low	--	--
	subsoil:	Low	Low	--	--
j. Reaction:	topsoil:	Very strong acid	Very strong acid	--	--
	subsoil:	Very strong acid	Very strong acid	--	--
k. Al sat.	topsoil:	Very high	Very high	--	--
	subsoil:	Very high	Very high	--	--
l. Al toxicity	:	Yes	Yes	--	--
m. Acid sulph. pot.	:	Not relevant	Not relevant	--	--
n. Salinity (ec)	:	Salt free	Salt free	--	--
o. Other toxicity	:	--	--	--	--
p. Root obstr. layer	:	--	--	--	--
q. Organic matter (%)	:	0.7	0.9	--	--
r. TEB (meq/100 g)	:	0.3	0.3	--	--

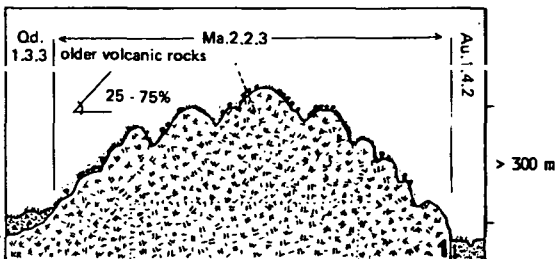
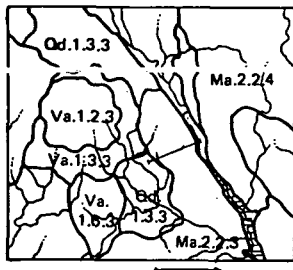
s. Total anal. profiles:	1	2	0	0
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f. LAB CHECK	:	Yes	Yes	--	--
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27. ADDITIONAL NOTES :

MAP IMAGE :

CROSS SECTION :



1. LAND UNIT : Ma.2.2.3 Mountains, intermediate tuffs, steep to very steep slopes (25-75%), strongly dissected
2. MAP SHEET : 0617 3. AREA : 376.3 km2 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 02/11/89 Status : Final
7. SATELLITE SCENES : 128/58/08/08/85, 128/59/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000
9. RADAR : STAR-1/250/88/0717-4
10. PARENT MATERIAL
 - a. Weathering : Partial
 - b. Lithology : others, ,
 - c. Formation : Tmvak , Tmvna
11. ROCK OUTCROP : 3%
12. WATER
 - a. Quality : Fresh
 - b. Source : Rain, Perennial river
13. FISHERIES : None
14. RIVERS
 - a. Floodrisk water : None
 - b. Floodrisk sed.: None
 - c. Inundation : None
15. VEGETATION/LAND USE : secondary forest
Area used : 0 %
16. ACCELERATED EROSION
 - a. Occurrence : Common
 - b. Evidence : Various
17. TERRAIN : Mountainous >16%, >300 m
18. PLAN/ Dominant: Not elongated and random > 60% of area crested/peaked
PROFILE Included:
19. RELIEF AMPLITUDE
 - a. Amplitude: Very high
 - b. Variability : Medium
20. ALTITUDE Minimum : 250 m
Range : 500 - 1000 m
Maximum : 1315 m
21. DRAINAGE a. Pattern: Dendritic
b. Density : Moderately high
24. VALLEY FLOOR Width : Very narrow
25. FRAGMEN a. Valleys: None
b. Interfluves : None

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item | 10b | 12a | 14a | 14b | 19 | 20 | 21b | 22b | 22c | 22d1 | 22d2 | 22e1 | 23b | 23c | 23d | 23er | 24 | 25 |

rate : 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 2 |

28. REPRESENTATIVE PROFILES:

ith/ / /89/YH/0617/62/ /157/ ith/ / /89/YM/0617/62/ /120/
ith/ / /88/MR/0617/64/ /055/ uda/ / /88/AB/0717/53/ /003/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	:	1	2	--	--
b. Description	:	Upper and middle slopes	Lower slopes	--	--
c. % of Land Unit	:	60%	40%	0%	1

SLOPES

d1. Steepness	:	25 - 75%	25 - 75%	--	--
d2. Slope length	:	> 500 m	201 - 500 m	--	--
d3. Slope curvature	:	Straight	Straight	--	--

SOILS

e1. USDA Class	:	humitropepts	hapludults		
e2. % Facet	:	100%	100%	0%	1

23. SOIL CHARACTERISTICS

a. USDA Great Group	:	humitropepts	hapludults		
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b. Texture:	topsoil:	Fine	Fine	--	--
	subsoil:	Fine	Moderately fine	--	--
c. Depth:	peatsoil:	--	--	--	--
	mineralsoil:	Very deep	Very deep	--	--
d. Drainage	:	Well drained	Well drained	--	--

NUTRIENTS :

e. Exch. K:	topsoil:	Low	Low	--	--
	subsoil:	Low	Very low	--	--
f. Total K2O:	topsoil:	Low	Low	--	--
	subsoil:	Very low	Low	--	--
g. Avail. P:	method:	Bray I	Bray I	--	--
	topsoil:	Very low	Very low	--	--
	subsoil:	Very low	Very low	--	--
h. Total P:	topsoil:	Medium	Low	--	--
	subsoil:	Low	Low	--	--

OTHERS :

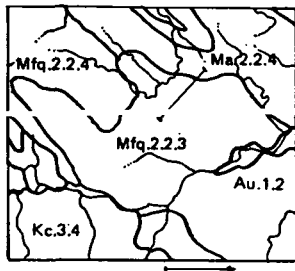
i. CEC pH 7	topsoil:	Medium	Medium	--	--
	subsoil:	Low	Low	--	--
j. Reaction:	topsoil:	Very strong acid	Strong acid	--	--
	subsoil:	Very strong acid	Strong acid	--	--
k. Al sat.	topsoil:	Very high	Medium	--	--
	subsoil:	Very high	Medium	--	--
l. Al toxicity	:	Yes	No	--	--
m. Acid sulph. pot.	:	Not relevant	Not relevant	--	--
n. Salinity (ec)	:	Salt free	Salt free	--	--
o. Other toxicity	:	--	--	--	--
p. Root obstr. layer	:	--	100 cm	--	--
q. Organic matter (%)	:	4.8	1.8	--	--
r. TEB (meq/100 g)	:	0.1	1.1	--	--

s. Total anal. profiles:	3	1	0	0
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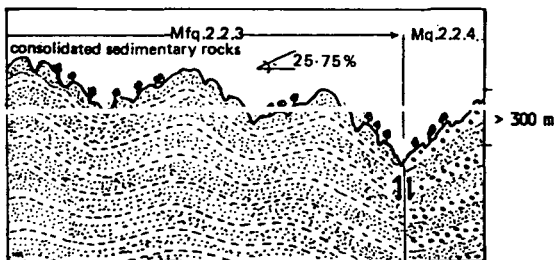
f. LAB CHECK	:	Yes	Yes	--	--
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27. ADDITIONAL NOTES : Hapludults extrapolated from Ma.2.2.4

MAP IMAGE :



CROSS SECTION :



1. LAND UNIT : Mfq.2.2.3 Mountains, fine and coarse felsic sedimentary rocks, steep to very steep slopes (25-75%), strongly dissected
2. MAP SHEET : 0717 3. AREA : 283.4 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 06/11/89 Status : Final
7. SATELLITE SCENES : 128/59/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000 12S /8348-199, 14S /8323-39
9. RADAR : STAR-1/250/88/0717-2
10. PARENT MATERIAL
11. ROCK OUTCROP : 0%
- a. Weathering : Partial
- b. Lithology : claystone, sandstone,
- c. Formation : Tmbal ,
12. WATER a. Quality : Fresh
- b. Source : Rain, Perennial river
13. FISHERIES : None
14. RIVERS
- a. Floodrisk water : None
- b. Floodrisk sed.: None
- c. Inundation : None
15. VEGETATION/LAND USE : moist primary lowland forest, secondary forest, logged forest, bush, scrub
- Area used : 0 %
16. ACCELERATED EROSION
- a. Occurrence : None
- b. Evidence : Various
17. TERRAIN : Mountainous >16%, >300 m
18. PLAN/ Dominant: Not elongated and random > 60% of area crested/peaked
- PROFILE Included:
19. RELIEF AMPLITUDE
- a. Amplitude: Very high
- b. Variability : High
20. ALTITUDE Minimum : 400 m
- Maximum : 1200 m
- Range : 500 - 1100 m
21. DRAINAGE a. Pattern: Complex
- b. Density : Moderately high
24. VALLEY FLOOR Width : Very narrow
25. FRAGMEN a. Valleys: None
- b. Interfluves : None

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item	10b	12a	14a	14b	19	20	21b	22b	22c	22d1	22d2	22e1	23b	23c	23d	23er	24	25
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rate	1	1	1	1	2	2	2	2	2	2	1	1	1	1	1	1	2	1	1
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28. REPRESENTATIVE PROFILES:

ith/	/	/89/CD/0717/41/	/083/	uda/	/	/87/JH/0617/63/	/091/
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22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	:	1	2	2	--
b. Description	:	Middle slopes	Lower slopes	Upper slopes	--
c. % of Land Unit	:	60%	25%	15%	x

SLOPES

d1. Steepness	:	25 - 75%	25 - 55%	25 - 55%	--
d2. Slope length	:	> 500 m	201 - 500 m	101 - 200 m	--
d3. Slope curvature	:	Straight	Convex	Convex	--

SOILS

e1. USDA Class	:	dystropepts	hapludults	humitropepts	
e2. % Facet	:	100%	100%	100%	x

23. SOIL CHARACTERISTICS

a. USDA Great Group		:	dystropepts	hapludults	humitropepts	

b. Texture:	topsoil:		Moderately fine	Fine	Fine	--
	subsoil:		Moderately fine	Coarse	Fine	--
c. Depth:	peatsoil:		--	--	--	--
	mineralsoil:		Very deep	Very deep	Moderately shallow	--
d. Drainage	:		Well drained	Well drained	Somewhat excessively	--

NUTRIENTS :

e. Exch. K:	topsoil:	--	Very low	High	--
	subsoil:	--	Very low	Medium	--
f. Total K2O:	topsoil:	--	Very low	High	--
	subsoil:	--	Very low	Medium	--
g. Avail. P:	method:	--	Bray I	Bray I	--
	topsoil:		Very low	Very low	--
	subsoil:		Very high	Very low	--
h. Total P:	topsoil:	--	Very low	High	--
	subsoil:	--	High	Medium	--

OTHERS :

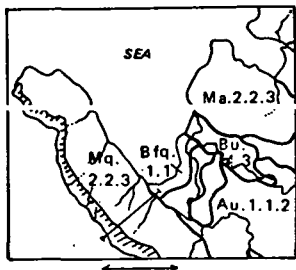
i. CEC pH 7	topsoil:	--	Very low	High	--
	subsoil:	--	Very low	High	--
j. Reaction:	topsoil:	--	Very strong acid	Very strong acid	--
	subsoil:	--	Excessively acid	Very strong acid	--
k. Al sat.	topsoil:	--	Very high	Low	--
	subsoil:	--	High	Medium	--
l. Al toxicity	:	--	Yes	Yes	--
m. Acid sulph. pot.	:	Not relevant	Not relevant	Not relevant	--
n. Salinity (ec)	:	Salt free	Salt free	Salt free	--
o. Other toxicity	:	--	--	--	--
p. Root obstr. layer	:	--	--	40 cm	--
q. Organic matter (%)	:	--	0.6	5.1	--
r. TEB (meq/100 g)	:	--	0.4	10.1	--

s. Total anal. profiles:	0	1	1	0
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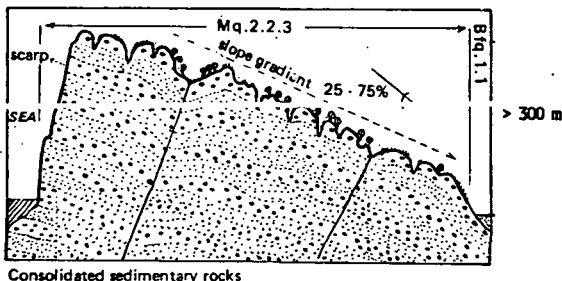
f. LAB CHECK	:	No	Yes	Yes	--
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27. ADDITIONAL NOTES : The soil data of Hapludults dan Humitropepts are extrapolated from Mq.2.2.3 and Mfq.2.2.4

MAP IMAGE :



CROSS SECTION :



1. LAND UNIT : Mq.2.2.3 Mountains, coarse felsic sedimentary rocks, steep to very steep slopes (25-75%), strongly dissected

2. MAP SHEET : 0617 3. AREA : 376.5 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%

5. STATUS IDENTIFIERS : Updated by : SS Edit date: 06/11/89 Status : Final

7. SATELLITE SCENES : 128/58/08/08/85

8. AERIAL PHOTOGRAPHS : 1:100,000 9S /8347-53 , T2 /8323-177

9. RADAR : STAR-1/250/88/0617-4/5

10. PARENT MATERIAL

a. Weathering : Partial

b. Lithology : sandstone, ,

c. Formation : Tmba ,

12. WATER a. Quality : Fresh

b. Source : Rain, Perennial river

13. FISHERIES : None

14. RIVERS

a. Floodrisk water : None

c. Inundation : None

11. ROCK OUTCROP : 10%

b. Floodrisk sed.: None

15. VEGETATION/LAND USE : moist primary submontane forest

Area used : 0 %

16. ACCELERATED EROSION

a. Occurrence : Common

b. Evidence : Various

17. TERRAIN : Mountainous >16%, >300 m

18. PLAN/ Dominant: Not elongated and random > 60% of area crested/peaked

PROFILE Included:

19. RELIEF AMPLITUDE

a. Amplitude: Very high

b. Variability : Medium

20. ALTITUDE Minimum : 200 m

Maximum : 780 m

Range : 350 - 750 m

21. DRAINAGE a. Pattern: Dendritic

b. Density : Moderately high

24. VALLEY FLOOR Width : Very narrow

25. FRAGMEN a. Valleys: None

b. Interfluves : None

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item | 10b | 12a | 14a | 14b | 19 | 20 | 21b | 22b | 22c | 22d1 | 22d2 | 22e1 | 23b | 23c | 23d | 23er | 24 | 25 |

rate : 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 2 | 2 |

28. REPRESENTATIVE PROFILES:

uda/ / /88/JH/0617/63/ /091/

set/ / /87/TB/0617/64/ /072/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	: 1	2	3	--
b. Description	: Crest and upper slopes	Middle slopes	Lower slopes	--
c. % of Land Unit	: 55%	30%	15%	%

SLOPES

d1. Steepness	: 25 - 55%	25 - 75%	25 - 55%	--
d2. Slope length	: 201 - 500 m	201 - 500 m	101 - 200 m	--
d3. Slope curvature	: Convex	Straight	Straight	--

SOILS

e1. USDA Class	: troporthents	dystropepts	hapludults	
e2. % Facet	: 100%	100%	100%	%

23. SOIL CHARACTERISTICS

a. USDA Great Group	: troporthents	dystropepts	hapludults	
b. Texture: topsoil:	Coarse	Fine	Fine	--
subsoil:	Moderately coarse	Fine	Coarse	--
c. Depth: peatsoil:	--	--	--	--
mineralsoil:	Very deep	Very deep	Very deep	--
d. Drainage	: Excessively drained	Well drained	Well drained	--

NUTRIENTS :

e. Exch. K:	topsoil: Low	--	Very low	--
	subsoil: Very low	--	Very low	--
f. Total K2O:	topsoil: Very low	--	Very low	--
	subsoil: Very low	--	Very low	--
g. Avail. P:	method: Bray I	--	Bray I	--
	topsoil: Low	--	Very low	--
	subsoil: Very low	--	Very high	--
h. Total P:	topsoil: Very low	--	Very low	--
	subsoil: Very low	--	High	--

OTHERS :

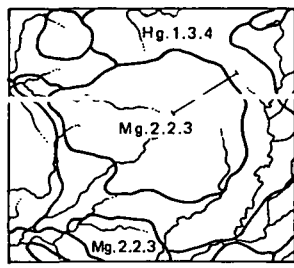
i. CEC pH 7	topsoil: Low	--	Very low	--
	subsoil: Low	--	Very low	--
j. Reaction:	topsoil: Excessively acid	--	Very strong acid	--
	subsoil: Excessively acid	--	Excessively acid	--
k. Al sat.	topsoil: Medium	--	Very high	--
	subsoil: Medium	--	High	--
l. Al toxicity	: --	--	Yes	--
m. Acid sulph. pot.	: Not relevant	Not relevant	Not relevant	--
n. Salinity (ec)	: Salt free	Salt free	Salt free	--
o. Other toxicity	: --	--	--	--
p. Root obstr. layer	: --	--	--	--
q. Organic matter (%)	: 2.6	--	0.6	--
r. TEB (meq/100 g)	: 0.8	--	0.4	--

s. Total anal. profiles:	1	0	1	0
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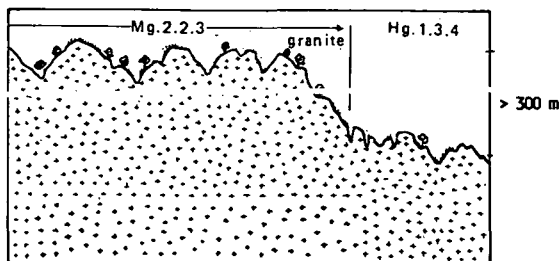
f. LAB CHECK	: Yes	No	Yes	--
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27. ADDITIONAL NOTES : The soil data of Troporthents are extrapolated data from Mq.2.3.4

MAP IMAGE :



CROSS SECTION :



1. LAND UNIT : Mg.2.2.3 Mountains, acid plutonic rocks, steep to very steep slopes (25-75%), strongly dissected
2. MAP SHEET : 0617
3. AREA : 213.7 km²
4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 02/11/89 Status : Final
6. SATELLITE SCENES : 128/59/08/08/85
7. AERIAL PHOTOGRAPHS : 1:100.000
8. RADAR : STAR-1/250/88/0617-5
9. PARENT MATERIAL
10. ROCK OUTCROP : 0%
11. Weathering : Partial
12. Lithology : granite, ,
13. Formation : Tmti ,
14. WATER
15. a. Quality : Fresh
16. b. Source : Rain, Perennial river
17. FISHERIES : None
18. RIVERS
19. a. Floodrisk water : None
20. b. Floodrisk sed.: None
21. c. Inundation : None
22. VEGETATION/LAND USE : moist primary lowland forest, bush, scrub, mixed gardens of fruit trees, rubber
23. Area used : 20 %
24. ACCELERATED EROSION
25. a. Occurrence : Common
26. b. Evidence : Various
27. TERRAIN : Mountainous >16%, >300 m
28. PLAN/ Dominant: Not elongated and random > 60% of area crested/peaked
29. PROFILE Included:
30. RELIEF AMPLITUDE
31. a. Amplitude: Very high
32. b. Variability : High
33. ALTITUDE Minimum : 600 m
34. Maximum : 1100 m
35. Range : 650 - 1000 m
36. DRAINAGE a. Pattern: Dendritic
37. b. Density : Moderately high
38. VALLEY FLOOR Width : Very narrow
39. FRAGMEN a. Valleys: None
40. b. Interfluves : Small blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item | 10b | 12a | 14a | 14b | 19 | 20 | 21b | 22b | 22c | 22d1 | 22d2 | 22e1 | 23b | 23c | 23d | 23er | 24 | 25 |

rate : 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 2 | 2 |

28. REPRESENTATIVE PROFILES:

uda/ / /89/JH/0717/64/ /100/

ity/ / /89/YH/0617/62/ /137/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	:	1	2	--	--
b. Description	:	Upper and middle slopes	Lower slopes	--	--
c. % of Land Unit	:	60%	40%	0%	1

SLOPES

d1. Steepness	:	25 - 75%	25 - 55%	--	--
d2. Slope length	:	> 500 m	201 - 500 m	--	--
d3. Slope curvature	:	Straight	Straight	--	--

SOILS

e1. USDA Class	:	dystropepts	hapludults		
e2. % Facet	:	100%	100%	0%	1

23. SOIL CHARACTERISTICS

a. USDA Great Group	:	dystropepts	hapludults
---------------------	---	-------------	------------

b. Texture:	topsoil:	Moderately fine	Coarse	--	--
	subsoil:	Moderately fine	Coarse	--	--
c. Depth:	peatsoil:	--	--	--	--
	mineralsoil:	Very deep	Very deep	--	--
d. Drainage	:	Well drained	Well drained	--	--

NUTRIENTS

e. Exch. K:	topsoil:	Low	Very low	--	--
	subsoil:	Low	Medium	--	--
f. Total K2O:	topsoil:	Low	Very low	--	--
	subsoil:	Very low	Low	--	--
g. Avail. P:	method:	Bray I	Bray I	--	--
	topsoil:	High	High	--	--
	subsoil:	Very low	Medium	--	--
h. Total P:	topsoil:	Low	Very high	--	--
	subsoil:	Very low	Very high	--	--

OTHERS

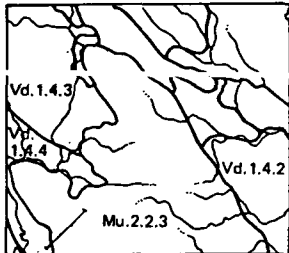
i. CEC pH 7	topsoil:	Low	Very low	--	--
	subsoil:	Low	Low	--	--
j. Reaction:	topsoil:	Very strong acid	Very strong acid	--	--
	subsoil:	Strong acid	Moderately acid	--	--
k. Al sat.	topsoil:	Very high	Medium	--	--
	subsoil:	Very high	None, very low	--	--
l. Al toxicity	:	--	No	--	--
m. Acid sulph. pot.	:	Not relevant	Not relevant	--	--
n. Salinity (ec)	:	Salt free	Salt free	--	--
o. Other toxicity	:	--	--	--	--
p. Root obstr. layer	:	107 cm	--	--	--
q. Organic matter (%)	:	3.8	0.5	--	--
r. YEB (meq/100 g)	:	0.5	0.6	--	--

s. Total anal. profiles:	1	1	0	0
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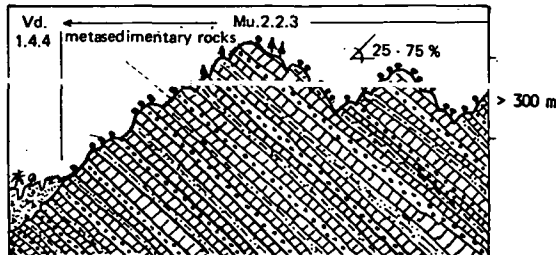
f. LAB CHECK	:	Yes	Yes	--	--
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27. ADDITIONAL NOTES : The soil data of Dystropepts are extrapolated from LU Mg.2.2.4

MAP IMAGE :



CROSS SECTION :



1. LAND UNIT : Mu.2.2.3 Mountains, undifferentiated sedimentary rocks, steep to very steep slopes (25-75%), strongly dissected
2. MAP SHEET : 0717
3. AREA : 269.4 km²
4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 06/11/89 Status : Final
7. SATELLITE SCENES : 128/59/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000 11S /8348-153, 18 /8319-167
9. RADAR : STAR-1/250/88/0717-3/5
10. PARENT MATERIAL
 - a. Weathering : Partial
 - b. Lithology : claystone, gravel,
 - c. Formation : Puku , Put
11. ROCK OUTCROP : 0%
12. WATER
 - a. Quality : Fresh
 - b. Source : Rain, Perennial river
13. FISHERIES : None
14. RIVERS
 - a. Floodrisk water : None
 - b. Floodrisk sed. : None
 - c. Inundation : None
15. VEGETATION/LAND USE : moist primary submontane forest, bush, scrub
Area used : 0 %
16. ACCELERATED EROSION
 - a. Occurrence : Extensive
 - b. Evidence : Various
17. TERRAIN : Mountainous >16%, >300 m
18. PLAN/ Dominant: Not elongated and random > 60% of area crested/peaked
PROFILE Included:
19. RELIEF AMPLITUDE
 - a. Amplitude: Very high
 - b. Variability : High
20. ALTITUDE Minimum : 400 m
Range : 600 - 1200 m
Maximum : 1310 m
21. DRAINAGE a. Pattern: Complex
b. Density : Moderately high
24. VALLEY FLOOR Width : Very narrow
25. FRAGMEN a. Valleys: None
b. Interfluves : None

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item	10b	12a	14a	14b	19	20	21b	22b	22c	22d1	22d2	22e1	23b	23c	23d	23er	24	25
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rate	1	1	1	1	2	2	2	2	2	2	2	1	1	1	1	1	1	1
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28. REPRESENTATIVE PROFILES:

uda/	/	/89/LH/0717/14/	/090/	ity/	/	/88/YM/0717/51/	/040/
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22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	:	1	2	--	--
b. Description	:	Upper and middle slopes	Lower slopes	--	--
c. % of Land Unit	:	70%	30%	X	X

SLOPES

d1. Steepness	:	25 - 75%	25 - 75%	--	--
d2. Slope length	:	> 500 m	201 - 500 m	--	--
d3. Slope curvature	:	Straight	Straight	--	--

SOILS

e1. USDA Class	:	dystropepts	hapludults		
e2. % Facet	:	100%	100%	X	X

23. SOIL CHARACTERISTICS

a. USDA Great Group	:	dystropepts	hapludults		
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b. Texture:	topsoil:	Moderately coarse	Moderately fine	--	--
	subsoil:	Medium	Moderately fine	--	--
c. Depth:	peatsoil:	--	--	--	--
	mineralsoil:	Moderately deep	Deep	--	--
d. Drainage	:	Well drained	Well drained	--	--

NUTRIENTS :

e. Exch. K:	topsoil:	Low	Low	--	--
	subsoil:	Low	Very low	--	--
f. Total K2O:	topsoil:	Low	Medium	--	--
	subsoil:	Low	Low	--	--
g. Avail. P:	method:	Bray I	Bray I	--	--
	topsoil:	Very low	Very low	--	--
	subsoil:	Very low	Very low	--	--
h. Total P:	topsoil:	Medium	Medium	--	--
	subsoil:	Low	Medium	--	--

OTHERS :

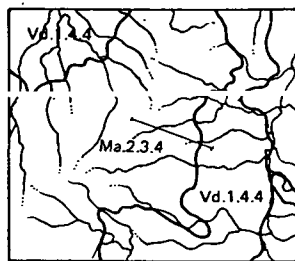
i. CEC pH 7	topsoil:	Very high	High	--	--
	subsoil:	Very high	Medium	--	--
j. Reaction:	topsoil:	Excessively acid	Excessively acid	--	--
	subsoil:	Excessively acid	Excessively acid	--	--
k. Al sat.	topsoil:	High	High	--	--
	subsoil:	Very high	Very high	--	--
l. Al toxicity	:	Yes	Yes	--	--
m. Acid sulph. pot.	:	Not relevant	Not relevant	--	--
n. Salinity (ec)	:	Salt free	Salt free	--	--
o. Other toxicity	:	--	--	--	--
p. Root obstr. layer	:	55 cm	84 cm	--	--
q. Organic matter (%)	:	3.6	3.5	--	--
r. TEB (meq/100 g)	:	0.9	1.5	--	--

s. Total anal. profiles:	1	1	0	0
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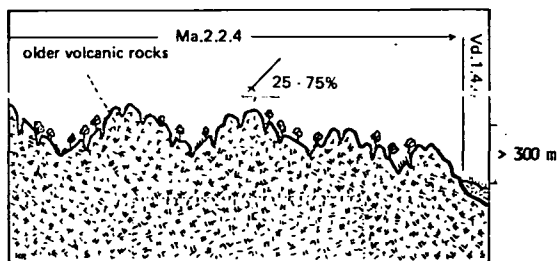
f. LAB CHECK	:	Yes	Yes	--	--
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27. ADDITIONAL NOTES : The soil data of Dystropepts are extrapolated data from Mu.2.2.4

MAP IMAGE :



CROSS SECTION :



1. LAND UNIT : Ma.2.2.4 Mountains, intermediate tuffs, steep to very steep slopes (25-75%), extremely dissected
2. MAP SHEET : 0717
3. AREA : 432.4 km²
4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 02/11/89 Status : Final
7. SATELLITE SCENES : 128/58/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000 14S /8323-051
9. RADAR : STAR-1/250/88/0717-5
10. PARENT MATERIAL
 - a. Weathering : Partial
 - b. Lithology : others,
 - c. Formation : Tmvak,
11. ROCK OUTCROP : 1%
12. WATER
 - a. Quality : Fresh
 - b. Source : Rain, Perennial river
13. FISHERIES : None
14. RIVERS
 - a. Floodrisk water : None
 - b. Floodrisk sed.: None
 - c. Inundation : None
15. VEGETATION/LAND USE : moist primary lowland forest
Area used : 0 %
16. ACCELERATED EROSION
 - a. Occurrence : Common
 - b. Evidence : Various
17. TERRAIN : Mountainous >16%, >300 m
18. PLAN/PROFILE
 - Dominant: Not elongated and random > 60% of area crested/peaked
 - Included:
19. RELIEF AMPLITUDE
 - a. Amplitude: Very high
 - b. Variability : Medium
20. ALTITUDE
 - Minimum : 400 m
 - Maximum : 1400 m
 - Range : 500 - 1000 m
21. DRAINAGE
 - a. Pattern: Dendritic
 - b. Density : High
24. VALLEY FLOOR Width : Very narrow
25. FRAGMEN
 - a. Valleys: None
 - b. Interfluves : None

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item	10b	12a	14a	14b	19	20	21b	22b	22c	22d1	22d2	22e1	23b	23c	23d	23er	24	25
------	-----	-----	-----	-----	----	----	-----	-----	-----	------	------	------	-----	-----	-----	------	----	----

rate	1	1	1	1	2	2	2	2	2	2	2	2	1	1	1	1	1	2	2
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28. REPRESENTATIVE PROFILES:

ith/ / /89/YM/0717/41/ /074/

uda/ / /88/AB/0717/53/ /003/

uha/ / /88/AB/0717/53/ /004/

uha/ / /88/KR/0717/53/ /105/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	: 1	2a	2b	--
b. Description	: Upper and middle slopes	Lower slopes	Lower slopes	--
c. % of Land Unit	: 60%	40%	40%	x

SLOPES

d1. Steepness	: 25 - 55%	25 - 55%	25 - 55%	--
d2. Slope length	: > 500 m	201 - 500 m	201 - 500 m	--
d3. Slope curvature	: Straight	Straight	Straight	--

SOILS

e1. USDA Class	: humitropepts	hapludults	haplohumults	
e2. % Facet	: 100%	60%	40%	x

23. SOIL CHARACTERISTICS

a. USDA Great Group	: humitropepts	hapludults	haplohumults	
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b. Texture:	topsoil: Fine	Fine	Fine	--
	subsoil: Fine	Moderately fine	Moderately fine	--
c. Depth:	peatsoil: --	--	--	--
	mineralsoil: Very deep	Very deep	Extremely deep	--
d. Drainage	: Well drained	Well drained	Well drained	--

NUTRIENTS :

e. Exch. K:	topsoil: Medium	Low	--	--
	subsoil: Medium	Very low	Very low	--
f. Total K2O:	topsoil: Low	Low	Very low	--
	subsoil: Low	Low	Low	--
g. Avail. P:	method: Bray I	Bray I	Bray I	--
	topsoil: Very low	Very low	Very low	--
	subsoil: Very low	Very low	Very low	--
h. Total P:	topsoil: Low	Low	Very low	--
	subsoil: Very low	Low	Medium	--

OTHERS :

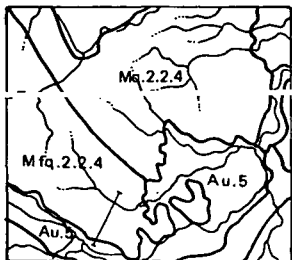
i. CEC pH 7	topsoil: Low	Medium	Very low	--
	subsoil: Low	Low	Low	--
j. Reaction:	topsoil: Very strong acid	Strong acid	Very strong acid	--
	subsoil: Very strong acid	Strong acid	Excessively acid	--
k. Al sat.	topsoil: High	Medium	Medium	--
	subsoil: High	Medium	Very high	--
l. Al toxicity	: Yes	No	Yes	--
m. Acid sulph. pot.	: Not relevant	Not relevant	Not relevant	--
n. Salinity (ec)	: Salt free	Salt free	Salt free	--
o. Other toxicity	: --	--	--	--
p. Root obstr. layer	: --	100 cm	--	--
q. Organic matter (%)	: 3.4	1.8	0.3	--
r. TEB (meq/100 g)	: 1.0	1.1	0.5	--

s. Total anal. profiles:	1	1	2	0
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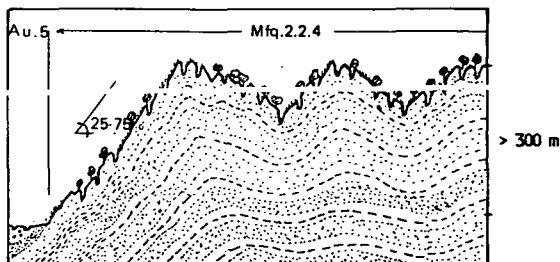
f. LAB CHECK	: Yes	Yes	Yes	--
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27. ADDITIONAL NOTES :

MAP IMAGE :



CROSS SECTION :



1. LAND UNIT : Mfq.2.2.4 Mountains, fine and coarse felsic sedimentary rocks, steep to very steep slopes (25-75%), extremely dissected
2. MAP SHEET : 0717 3. AREA : 379.3 km2 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 06/11/89 Status : Final
7. SATELLITE SCENES : 128/59/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000 18 /8319-175, 12S /8348-199
9. RADAR : STAR-1/250/88/0717-2/5
10. PARENT MATERIAL 11. ROCK OUTCROP : 0%
- a. Weathering : Partial
- b. Lithology : claystone, sandstone,
- c. Formation : Tms , Tmbal
12. WATER a. Quality : Fresh
- b. Source : Rain, Perennial river
13. FISHERIES : None
14. RIVERS
- a. Floodrisk water : None b. Floodrisk sed. : None
- c. Inundation : None
15. VEGETATION/LAND USE : moist primary lowland forest, secondary forest, logged forest, bush, scrub
- Area used : 0 %
16. ACCELERATED EROSION
- a. Occurrence : Common b. Evidence : Gulleys
17. TERRAIN : Mountainous >16%, >300 m
18. PLAN/ Dominant: Not elongated and random > 60% of area crested/peaked
- PROFILE Included:
19. RELIEF AMPLITUDE
- a. Amplitude: Very high b. Variability : High
20. ALTITUDE Minimum : 300 m Maximum : 845 m
- Range : 400 - 800 m
21. DRAINAGE a. Pattern: Dendritic
24. VALLEY FLOOR Width : Very narrow
25. FRAGMEN a. Valleys: None b. Interfluves : None

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item | 10b | 12a | 14a | 14b | 19 | 20 | 21b | 22b | 22c | 22d1 | 22d2 | 22e1 | 23b | 23c | 23d | 23er | 24 | 25 |

rate : 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

28. REPRESENTATIVE PROFILES:

ity/ / /87/KR/0717/14/ /089/ ith/ / /86/CD/0717/41/ /083/
 uda/ / /87/JH/0617/63/ /091/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	1	2	3	--
b. Description	Middle slopes	Lower slopes	Upper slopes	--
c. % of Land Unit	60%	25%	15%	1

SLOPES

d1. Steepness	25 - 75%	55 - 75%	25 - 55%	--
d2. Slope length	201 - 500 m	101 - 200 m	101 - 200 m	--
d3. Slope curvature	Straight	Straight	Convex	--

SOILS

e1. USDA Class	dystropepts	hapludults	humitropepts	
e2. % Facet	100%	100%	100%	1

23. SOIL CHARACTERISTICS

a. USDA Great Group	dystropepts	hapludults	humitropepts	
b. Texture:				
topsoil:	Moderately fine	Fine	Fine	--
subsoil:	Moderately fine	Coarse	Fine	--
c. Depth:				
peatsoil:	--	--	--	--
mineralsoil:	Very deep	Very deep	Moderately shallow	--
d. Drainage	Well drained	Well drained	Somewhat excessively	--

NUTRIENTS

e. Exch. K:				
topsoil:	Low	Very low	High	--
subsoil:	Very low	Very low	Medium	--
f. Total K2O:				
topsoil:	Very low	Very low	High	--
subsoil:	Very low	Very low	Medium	--
g. Avail. P:				
method:	Bray I	Bray I	Bray I	--
topsoil:	Very low	Very low	Very low	--
subsoil:	Very low	Very high	Very low	--
h. Total P:				
topsoil:	Very low	Very low	High	--
subsoil:	Very low	High	Medium	--

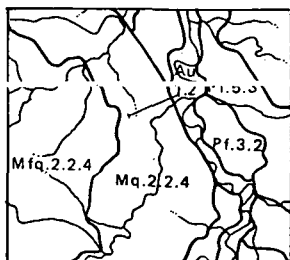
OTHERS

i. CEC pH 7				
topsoil:	High	Very low	High	--
subsoil:	Medium	Very low	High	--
j. Reaction:				
topsoil:	Very strong acid	Very strong acid	Very strong acid	--
subsoil:	Very strong acid	Excessively acid	Very strong acid	--
k. Al sat.				
topsoil:	High	Very high	Low	--
subsoil:	High	High	Medium	--
l. Al toxicity	Yes	Yes	Yes	--
m. Acid sulph. pot.	Not relevant	Not relevant	Not relevant	--
n. Salinity (ec)	Salt free	Salt free	Salt free	--
o. Other toxicity	--	--	--	--
p. Root obstr. layer	135 cm	--	40 cm	--
q. Organic matter (%)	3.5	0.6	5.1	--
r. TEB (meq/100 g)	1.0	0.4	10.0	--

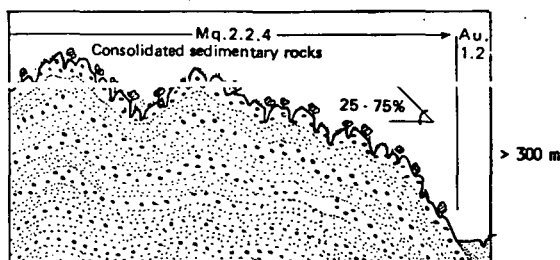
s. Total anal. profiles:	1	1	1	0
f. LAB CHECK	Yes	Yes	Yes	--

27. ADDITIONAL NOTES : The soil data of Hapludults are extrapolated data from Mq.2.2.3

MAP IMAGE :



CROSS SECTION :



1. LAND UNIT : Mq.2.2.4 Mountains, coarse felsic sedimentary rocks, steep to very steep slopes (25-75%), extremely dissected
2. MAP SHEET : 0717 3. AREA : 171.8 km2 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 06/11/89 Status : Final
7. SATELLITE SCENES : 128/59/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000 12S /8348-197
9. RADAR : STAR-1/250/88/0717-2
10. PARENT MATERIAL
 - a. Weathering : Partial
 - b. Lithology : sandstone, ,
 - c. Formation : Tmsk ,
11. ROCK OUTCROP : 5%
12. WATER
 - a. Quality : Fresh
 - b. Source : Rain, Perennial river
13. FISHERIES : None
14. RIVERS
 - a. Floodrisk water : None
 - b. Floodrisk sed.: None
 - c. Inundation : None
15. VEGETATION/LAND USE : moist primary submontane forest, bush, scrub
Area used : 0 %
16. ACCELERATED EROSION
 - a. Occurrence : Common
 - b. Evidence : Gulleys
17. TERRAIN : Mountainous >16%, >300 m
18. PLAN/ Dominant: Not elongated and random > 60% of area crested/peaked
PROFILE Included:
19. RELIEF AMPLITUDE
 - a. Amplitude: Very high
 - b. Variability : High
20. ALTITUDE Minimum : 350 m
Range : 400 - 800 m
Maximum : 850 m
21. DRAINAGE a. Pattern: Dendritic
b. Density : High
24. VALLEY FLOOR Width : Very narrow
25. FRAGMEN a. Valleys: None
b. Interfluves : None

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item | 10b | 12a | 14a | 14b | 19 | 20 | 21b | 22b | 22c | 22d1 | 22d2 | 22e1 | 23b | 23c | 23d | 23er | 24 | 25 |

rate : 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

28. REPRESENTATIVE PROFILES:

eot/ / /87/TB/0617/64/ /072/ ity/ / /89/CD/0717/13/ /133/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	:	1	2	--	--
b. Description	:	Crest, upper&middle slopes	Lower slopes	--	--
c. % of Land Unit	:	60%	40%	Σ	Σ

SLOPES

d1. Steepness	:	55 - 75%	25 - 55%	--	--
d2. Slope length	:	201 - 500 m	201 - 500 m	--	--
d3. Slope curvature	:	Convex	Straight	--	--

SOILS

e1. USDA Class	:	troporthents	dystropepts		
e2. % Facet	:	100%	100%	Σ	Σ

23. SOIL CHARACTERISTICS

a. USDA Great Group	:	troporthents	dystropepts		
---------------------	---	--------------	-------------	--	--

b. Texture:	topsoil:	Coarse	Moderately fine	--	--
	subsoil:	Moderately coarse	Moderately fine	--	--
c. Depth:	peatsoil:	--	--	--	--
	mineralsoil:	Very deep	Deep	--	--
d. Drainage	:	Excessively drained	Well drained	--	--

NUTRIENTS :

e. Exch. K:	topsoil:	Low	Low	--	--
	subsoil:	Very low	Very low	--	--
f. Total K2O:	topsoil:	Very low	Medium	--	--
	subsoil:	Very low	Low	--	--
g. Avail. P:	method:	Bray I	Bray I	--	--
	topsoil:	Low	Very low	--	--
	subsoil:	Very low	Very low	--	--
h. Total P:	topsoil:	Very low	Low	--	--
	subsoil:	Very low	Medium	--	--

OTHERS :

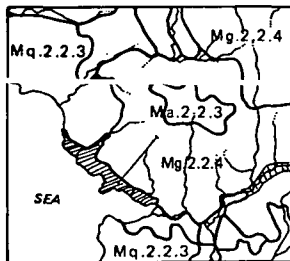
i. CEC pH 7	topsoil:	Low	High	--	--
	subsoil:	Low	Very high	--	--
j. Reaction:	topsoil:	Excessively acid	Very strong acid	--	--
	subsoil:	Excessively acid	Very strong acid	--	--
k. Al. sat.	topsoil:	Medium	Very high	--	--
	subsoil:	Medium	Very high	--	--
l. Al toxicity	:	No	Yes	--	--
m. Acid sulph. pot.	:	Not relevant	Not relevant	--	--
n. Salinity (ec)	:	Salt free	Salt free	--	--
o. Other toxicity	:	--	--	--	--
p. Root obstr. layer	:	--	80 cm	--	--
q. Organic matter (%)	:	2.6	1.9	--	--
r. TEB (meq/100 g)	:	0.6	0.8	--	--

s. Total anal. profiles:	1	1	0	0
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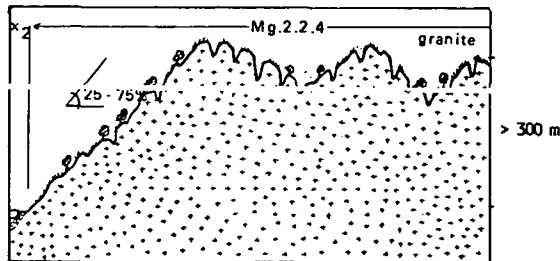
f. LAB CHECK	:	Yes	Yes	--	--
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27. ADDITIONAL NOTES : The soil data of Troporthents are extrapolated data from Mq.2.3.4

MAP IMAGE :



CROSS SECTION :



1. LAND UNIT : Mg.2.2.4 Mountains, acid plutonic rocks, steep to very steep slopes (25-75%), extremely dissected
2. MAP SHEET : 0617
3. AREA : 244.5 km²
4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 02/11/89 Status : Final
7. SATELLITE SCENES : 128/58/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000 14S /8323-59
9. RADAR : STAR-1/250/88/0717-5
10. PARENT MATERIAL
 - a. Weathering : Partial
 - b. Lithology : granite, ,
 - c. Formation : Mpsl ,
11. ROCK OUTCROP : 0%
12. WATER
 - a. Quality : Fresh
 - b. Source : Rain, Perennial river
13. FISHERIES : None
14. RIVERS
 - a. Floodrisk water : None
 - b. Floodrisk sed.: None
 - c. Inundation : None
15. VEGETATION/LAND USE : moist primary lowland forest
Area used : 0 %
16. ACCELERATED EROSION
 - a. Occurrence : Common
 - b. Evidence : Gulleys
17. TERRAIN : Mountainous >16%, >300 m
18. PLAN/ Dominant: Not elongated and random > 60% of area crested/peaked
PROFILE Included:
19. RELIEF AMPLITUDE
 - a. Amplitude: Very high
 - b. Variability : Medium
20. ALTITUDE Minimum : 400 m
Range : 500 - 900 m
Maximum : 1000 m
21. DRAINAGE a. Pattern: Dendritic
b. Density : High
24. VALLEY FLOOR Width : Very narrow
25. FRAGMEN a. Valleys: None
b. Interfluves : None

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item | 10b | 12a | 14a | 14b | 19 | 20 | 21b | 22b | 22c | 22d1 | 22d2 | 22e1 | 23b | 23c | 23d | 23er | 24 | 25 |

rate : 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 2 | 2 |

28. REPRESENTATIVE PROFILES:

ity/ / /89/YH/0617/62/ /137/

uda/ / /89/CD/0617/12/ /136/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	:	1	2	--	--
b. Description	:	Upper and middle slopes	Lower slopes	--	--
c. % of Land Unit	:	70%	30%	0%	%

SLOPES

d1. Steepness	:	25 - 75%	25 - 75%	--	--
d2. Slope length	:	> 500 m	201 - 500 m	--	--
d3. Slope curvature	:	Straight	Straight	--	--

SOILS

e1. USDA Class	:	dystropepts	hapludults		
e2. % Facet	:	100%	100%	0%	%

23. SOIL CHARACTERISTICS

a. USDA Great Group	:	dystropepts	hapludults		
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b. Texture:	topsoil:	Moderately fine	Moderately fine	--	--
	subsoil:	Moderately fine	Moderately fine	--	--
c. Depth:	peatsoil:	--	--	--	--
	mineralsoil:	Very deep	Very deep	--	--
d. Drainage	:	Moderately well	Well drained	--	--

NUTRIENTS :

e. Exch. K:	topsoil:	Low	Medium	--	--
	subsoil:	Low	Low	--	--
f. Total K2O:	topsoil:	Low	Very high	--	--
	subsoil:	Very low	Very high	--	--
g. Avail. P:	method:	Bray I	Bray I	--	--
	topsoil:	High	Very low	--	--
	subsoil:	Very low	Very low	--	--
h. Total P:	topsoil:	Low	Low	--	--
	subsoil:	Very low	Low	--	--

OTHERS :

i. CEC pH 7	topsoil:	Low	Low	--	--
	subsoil:	Low	Low	--	--
j. Reaction:	topsoil:	Very strong acid	Very strong acid	--	--
	subsoil:	Strong acid	Strong acid	--	--
k. Al sat.	topsoil:	Very high	Low	--	--
	subsoil:	Very high	Medium	--	--
l. Al toxicity	:	Yes	--	--	--
m. Acid sulph. pot.	:	Not relevant	Not relevant	--	--
n. Salinity (ec)	:	Salt free	Salt free	--	--
o. Other toxicity	:	--	--	--	--
p. Root obstr. layer	:	107 cm	130 cm	--	--
q. Organic matter (%)	:	3.8	2.5	--	--
r. TEB (meq/100 g)	:	0.5	3.7	--	--

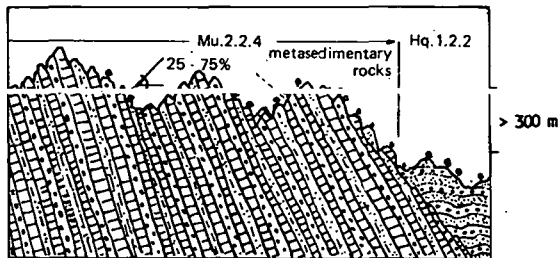
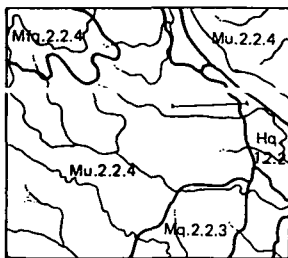
s. Total anal. profiles:	1	1	0	0
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f. LAB CHECK	:	Yes	Yes	--	--
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27. ADDITIONAL NOTES : The soil data of Hapludults are extrapolated data from Mg.2.3.4

MAP IMAGE :

CROSS SECTION :



1. LAND UNIT : Mu.2.2.4 Mountains, undifferentiated sedimentary rocks, steep to very steep slopes (25-75%), extremely dissected
2. MAP SHEET : 0717 3. AREA : 387.7 km2 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 06/11/89 Status : Final
7. SATELLITE SCENES : 128/58/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000 18 /8319-171, 18 /8319-169
9. RADAR : STAR-1/250/88/0717-5
10. PARENT MATERIAL 11. ROCK OUTCROP : 0%
 - a. Weathering : Partial
 - b. Lithology : claystone, gravel, sandstone
 - c. Formation : Put
12. WATER
 - a. Quality : Fresh
 - b. Source : Rain, Perennial river
13. FISHERIES : None
14. RIVERS
 - a. Floodrisk water : None
 - b. Floodrisk sed.: None
 - c. Inundation : None
15. VEGETATION/LAND USE : moist primary lowland forest, secondary forest, bush, scrub
Area used : 0 %
16. ACCELERATED EROSION
 - a. Occurrence : Extensive
 - b. Evidence : Gulleys
17. TERRAIN : Mountainous >16%, >300 m
18. PLAN/ Dominant: Not elongated and random > 60% of area crested/peaked
PROFILE Included:
19. RELIEF AMPLITUDE
 - a. Amplitude: Very high
 - b. Variability : High
20. ALTITUDE Minimum : 400 m Maximum : 1450 m
Range : 550 - 1350 m
21. DRAINAGE a. Pattern: Complex b. Density : High
24. VALLEY FLOOR Width : Very narrow
25. FRAGMEN a. Valleys: None b. Interfluves : None

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item	10b	12a	14a	14b	19	20	21b	22b	22c	22d1	22d2	22e1	23b	23c	23d	23er	24	25
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rate	1	1	1	1	2	2	2	2	2	2	2	1	1	1	1	1	1	1
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28. REPRESENTATIVE PROFILES:

udb/ / /88/JH/0717/53/ /157/

uda/ / /88/JH/0717/53/ /155/

ity/ / /88/YM/0717/51/ /040/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	:	1	2a	2b	--
b. Description	:	Upper and middle slopes	Lower slopes	Lower slopes	--
c. % of Land Unit	:	60%	40%	40%	1

SLOPES

d1. Steepness	:	25 - 75%	25 - 75%	25 - 55%	--
d2. Slope length	:	> 500 m	201 - 500 m	101 - 200 m	--
d3. Slope curvature	:	Straight	Straight	Straight	--

SOILS

e1. USDA Class	:	dystropepts	hapludults	paleudults	
e2. % Facet	:	100%	60%	40%	1

23. SOIL CHARACTERISTICS

a. USDA Great Group	:	dystropepts	hapludults	paleudults	

b. Texture:	topsoil:	Moderately coarse	Fine	Fine	--
	subsoil:	Medium	Fine	Fine	--
c. Depth:	peatsoil:	--	--	--	--
	mineralsoil:	Moderately deep	Very deep	Extremely deep	--
d. Drainage	:	Well drained	Well drained	Well drained	--

NUTRIENTS

e. Exch. K:	topsoil:	Low	Very low	--	--
	subsoil:	Low	Very low	Low	--
f. Total K2O:	topsoil:	Low	Very low	Very low	--
	subsoil:	Low	Very low	Very low	--
g. Avail. P:	method:	Bray I	Bray I	Bray I	--
	topsoil:	Very low	Very low	Very low	--
	subsoil:	Very low	Very low	Very low	--
h. Total P:	topsoil:	Medium	Very low	Very low	--
	subsoil:	Low	Very low	Very low	--

OTHERS

i. CEC pH 7	topsoil:	Very high	Very low	Very low	--
	subsoil:	Very high	Low	Very low	--
j. Reaction:	topsoil:	Excessively acid	Very strong acid	Very strong acid	--
	subsoil:	Excessively acid	Very strong acid	Very strong acid	--
k. Al'sat.	topsoil:	High	High	Medium	--
	subsoil:	Very high	Medium	High	--
l. Al toxicity	:	Yes	No	No	--
m. Acid sulph. pot.	:	Not relevant	Not relevant	Not relevant	--
n. Salinity (ec)	:	Salt free	Salt free	Salt free	--
o. Other toxicity	:	--	--	--	--
p. Root obstr. layer	:	55 cm	140 cm	--	--
q. Organic matter (%)	:	3.6	0.9	0.4	--
r. TEB (meq/100 g)	:	0.9	0.6	0.6	--

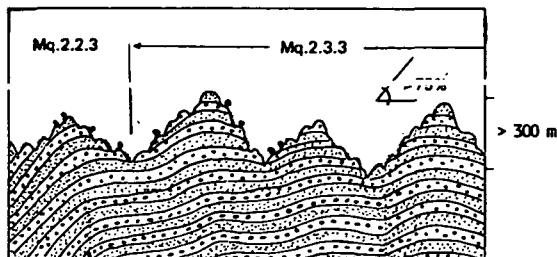
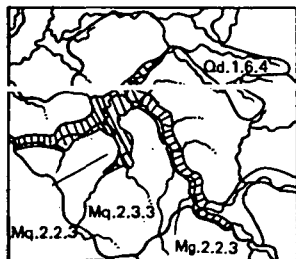
s. Total anal. profiles:	1	1	1	0
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f. LAB CHECK	:	Yes	Yes	Yes	--
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27. ADDITIONAL NOTES

MAP IMAGE :

CROSS SECTION :



1. LAND UNIT : Mq.2.3.3 Mountains, coarse felsic sedimentary rocks, abrupt slopes, scarps (slopes >75%), strongly dissected
2. MAP SHEET : 0617 3. AREA : 20.5 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 01/11/89 Status : Final
7. SATELLITE SCENES : 128/59/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000 18 /8319-171, 18 /8319-74
9. RADAR : STAR-1/250/88/0617-5
10. PARENT MATERIAL 11. ROCK OUTCROP : 0%
- a. Weathering : Partial
- b. Lithology : sandstone, ,
- c. Formation : Tmsk ,
12. WATER a. Quality : Fresh
- b. Source : Rain, Perennial river
13. FISHERIES : None
14. RIVERS
- a. Floodrisk water : None b. Floodrisk sed.: None
- c. Inundation : None
15. VEGETATION/LAND USE : secondary forest, bush, scrub, alang-alang
- Area used : 0 %
16. ACCELERATED EROSION
- a. Occurrence : Localised b. Evidence : Various
17. TERRAIN : Mountainous >16%, >300 m
18. PLAN/ Dominant: Not elongated and parallel > 60% of area crested/peaked
- PROFILE Included:
19. RELIEF AMPLITUDE
- a. Amplitude: High b. Variability : Medium
20. ALTITUDE Minimum : 400 m Maximum : 700 m
- Range : 500 - 600 m
21. DRAINAGE a. Pattern: Parallel b. Density : Moderate
24. VALLEY FLOOR Width : Very narrow
25. FRAGMEN a. Valleys: None b. Interfluves : None

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item | 10b | 12a | 14a | 14b | 19 | 20 | 21b | 22b | 22c | 22d1 | 22d2 | 22e1 | 23b | 23c | 23d | 23er | 24 | 25 |

rate : 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 |

28. REPRESENTATIVE PROFILES:

ity/ / /89/CD/0717/13/ /131/

eot/ /

/87/TB/0617/64/ /072/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	:	1	2	--	--
b. Description	:	Upper and middle slopes	Lower slopes	--	--
c. % of Land Unit	:	60%	40%	1	1

SLOPES

d1. Steepness	:	> 75%	> 75%	--	--
d2. Slope length	:	201 - 500 m	201 - 500 m	--	--
d3. Slope curvature	:	Convex	Straight	--	--

SOILS

e1. USDA Class	:	troporthents	dystropepts		
e2. % Facet	:	100%	100%	1	1

23. SOIL CHARACTERISTICS

a. USDA Great Group	:	troporthents	dystropepts
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b. Texture:	topsoil:	Coarse	Fine	--	--
	subsoil:	Moderately coarse	Moderately fine	--	--
c. Depth:	peatsoil:	--	--	--	--
	mineralsoil:	Very deep	Moderately deep	--	--
d. Drainage	:	Excessively drained	Well drained	--	--

NUTRIENTS :

e. Exch. K:	topsoil:	Low	Low	--	--
	subsoil:	Very low	Low	--	--
f. Total K2O:	topsoil:	Very low	Medium	--	--
	subsoil:	Very low	Medium	--	--
g. Avail. P:	method:	Bray I	Bray I	--	--
	topsoil:	Low	Very low	--	--
	subsoil:	Very low	Very low	--	--
h. Total P:	topsoil:	Very low	Medium	--	--
	subsoil:	Very low	Medium	--	--

OTHERS :

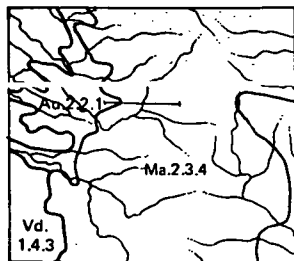
i. CEC pH 7	topsoil:	Low	High	--	--
	subsoil:	Low	High	--	--
j. Reaction:	topsoil:	Excessively acid	Very strong acid	--	--
	subsoil:	Excessively acid	Very strong acid	--	--
k. Al sat.	topsoil:	Medium	Very high	--	--
	subsoil:	Medium	Very high	--	--
l. Al toxicity	:	No	Yes	--	--
m. Acid sulph. pot.	:	Not relevant	Not relevant	--	--
n. Salinity (ec)	:	Salt free	Salt free	--	--
o. Other toxicity	:	--	--	--	--
p. Root obstr. layer	:	--	80 cm	--	--
q. Organic matter (%)	:	2.6	1.9	--	--
r. TEB (meq/100 g)	:	0.6	1.4	--	--

s. Total anal. profiles:	1	1	0	0
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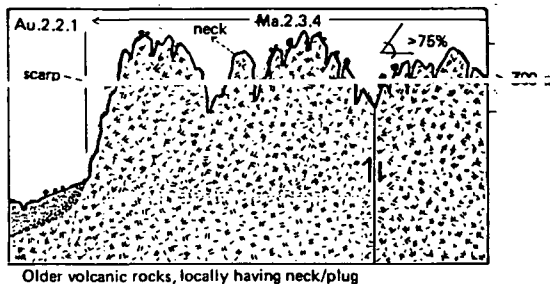
f. LAB CHECK	:	Yes	Yes	--	--
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27. ADDITIONAL NOTES : The soil data are Extrapolated data from Mq.2.3.4

MAP IMAGE :



CROSS SECTION :



1. LAND UNIT : Ma.2.3.4 Mountains, intermediate tuffs, abrupt slopes, scarps (slopes >75%), extremely dissected
2. MAP SHEET : 0717 3. AREA : 1016.6 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 02/11/89 Status : Final
7. SATELLITE SCENES : 128/58/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000 T2 /8323-171, 11S /8348-153
9. RADAR : STAR-1/250/88/0717-2
10. PARENT MATERIAL 11. ROCK OUTCROP : 2%
- a. Weathering : Partial
- b. Lithology : others, ,
- c. Formation : Tmvak , Tmvna
12. WATER a. Quality : Fresh
- b. Source : Rain, Perennial river
13. FISHERIES : None
14. RIVERS a. Floodrisk water : None b. Floodrisk sed.: None
- c. Inundation : None
15. VEGETATION/LAND USE : moist primary lowland forest, bush, scrub
- Area used : 0 %
16. ACCELERATED EROSION a. Occurrence : None b. Evidence : Various
17. TERRAIN : Mountainous >16%, >300 m
18. PLAN/ Dominant: Not elongated and parallel > 60% of area crested/peaked
- PROFILE Included:
19. RELIEF AMPLITUDE a. Amplitude: Very high b. Variability : High
20. ALTITUDE Minimum : 400 m Maximum :2000 m
- Range : 750 - 1500 m
21. DRAINAGE a. Pattern: Parallel b. Density : High
24. VALLEY FLOOR Width : Very narrow
25. FRAGMEN a. Valleys: None b. Interfluves : None

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item | 10b | 12a | 14a | 14b | 19 | 20 | 21b | 22b | 22c | 22d1 | 22d2 | 22e1 | 23b | 23c | 23d | 23er | 24 | 25 |

rate : 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 |

28. REPRESENTATIVE PROFILES:

eot/ / /89/CD/0717/42/ /101/ ith/ / /89/LH/0717/12/ /097/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	:	1	2	--	5
b. Description	:	Upper and middle slopes	Lower slopes	--	--
c. % of Land Unit	:	60%	40%	0%	0%

SLOPES

d1. Steepness	:	> 75%	55 - 75%	--	--
d2. Slope length	:	> 500 m	201 - 500 m	--	--
d3. Slope curvature	:	Convex	Straight	--	--

SOILS

e1. USDA Class	:	troporthents	humitropepts		
e2. % Facet	:	100%	100%	0%	0%

23. SOIL CHARACTERISTICS

a. USDA Great Group	:	troporthents	humitropepts		
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b. Texture:	topsoil:	Moderately fine	Moderately fine	--	--
	subsoil:	Moderately fine	Fine	--	--
c. Depth:	peatsoil:	--	--	--	--
	mineralsoil:	Shallow	Deep	--	--
d. Drainage	:	Somewhat excessively	Well drained	--	--

NUTRIENTS :

e. Exch. K:	topsoil:	Low	Low	--	--
	subsoil:	Very low	Very low	--	--
f. Total K2O:	topsoil:	Low	Very low	--	--
	subsoil:	Very low	Very low	--	--
g. Avail. P:	method:	Bray I	Bray I	--	--
	topsoil:	Very low	Very low	--	--
	subsoil:	Very low	Very low	--	--
h. Total P:	topsoil:	Medium	Low	--	--
	subsoil:	Low	Very low	--	--

OTHERS :

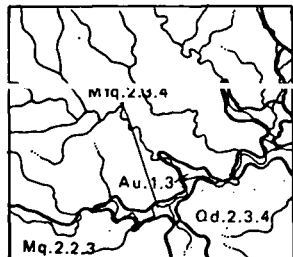
i. CEC pH 7	topsoil:	High	Low	--	--
	subsoil:	Medium	Low	--	--
j. Reaction:	topsoil:	Excessively acid	Excessively acid	--	--
	subsoil:	Excessively acid	Very strong acid	--	--
k. Al sat.	topsoil:	Very high	High	--	--
	subsoil:	Very high	Very high	--	--
l. Al toxicity	:	Yes	Yes	--	--
m. Acid sulph. pot.	:	Not relevant	Not relevant	--	--
n. Salinity (ec)	:	Salt free	Salt free	--	--
o. Other toxicity	:	--	--	--	--
p. Root obstr. layer	:	18 cm	100 cm	--	--
q. Organic matter (%)	:	3.8	3.0	--	--
r. TEB (meq/100 g)	:	1.1	0.9	--	--

s. Total anal. profiles:	1	1	0	0
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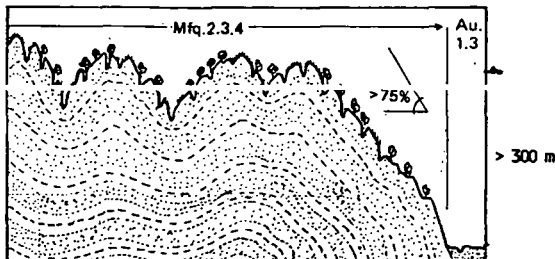
f. LAB CHECK	:	Yes	Yes	--	--
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27. ADDITIONAL NOTES :

MAP IMAGE :



CROSS SECTION :



1. LAND UNIT : Mfq.2.3.4 Mountains, fine and coarse felsic sedimentary rocks, abrupt slopes, scarps (slopes >75%), extremely dissected
2. MAP SHEET : 0717 3. AREA : 383.9 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 06/11/89 Status : Final
7. SATELLITE SCENES : 128/58/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000 14S /8323-47 , 14S /8319-91
9. RADAR : STAR-1/250/88/0717-4
10. PARENT MATERIAL
11. ROCK OUTCROP : 0%
- a. Weathering : Partial
- b. Lithology : claystone, sandstone,
- c. Formation : Tms
12. WATER a. Quality : Fresh
- b. Source : Rain, Perennial river
13. FISHERIES : None
14. RIVERS
- a. Floodrisk water : None b. Floodrisk sed.: None
- c. Inundation : None
15. VEGETATION/LAND USE : moist primary lowland forest, secondary forest, bush, scrub
- Area used : 0 %
16. ACCELERATED EROSION
- a. Occurrence : Extensive b. Evidence : Gulleys
17. TERRAIN : Mountainous >16%, >300 m
18. PLAN/ Dominant: Not elongated and parallel > 60% of area crested/peaked
- PROFILE Included:
19. RELIEF AMPLITUDE
- a. Amplitude: Very high b. Variability : High
20. ALTITUDE Minimum : 400 m Maximum : 1540 m
- Range : 550 ~ 1400 m
21. DRAINAGE a. Pattern: Parallel b. Density : High
24. VALLEY FLOOR Width : Very narrow
25. FRAGMEN a. Valleys: None b. Interfluves : None

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item	10b	12a	14a	14b	19	20	21b	22b	22c	22d1	22d2	22e1	23b	23c	23d	23er	24	25
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rate	1	1	1	1	2	2	2	2	2	2	2	1	1	1	1	1	1	1
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28. REPRESENTATIVE PROFILES:

ity/	/	/89/YH/0717/51/	/066/	ith/	/	/89/CD/0717/41/	/083/
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22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	:	1	2	--	--
b. Description	:	Middle and lower slopes	Upper slopes	--	--
c. % of Land Unit	:	85%	15%	X	X

SLOPES

d1. Steepness	:	> 75%	> 75%	--	--
d2. Slope length	:	> 500 m	201 - 500 m	--	--
d3. Slope curvature	:	Straight	Convex	--	--

SOILS

e1. USDA Class	:	dystropepts	humitropepts		
e2. % Facet	:	100%	100%	X	X

23. SOIL CHARACTERISTICS

a. USDA Great Group	:	dystropepts	humitropepts	0	
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b. Texture:	topsoil:	Moderately fine	Fine	--	--
	subsoil:	Moderately fine	Fine	--	--
c. Depth:	peatsoil:	--	--	--	--
	mineralsoil:	Very deep	Moderately shallow	--	--
d. Drainage	:	Well drained	Somewhat excessively	--	--

NUTRIENTS

e. Exch. K:	topsoil:	Low	High	--	--
	subsoil:	Very low	Medium	--	--
f. Total K2O:	topsoil:	Very low	High	--	--
	subsoil:	Very low	Medium	--	--
g. Avail. P:	method:	Bray I	Bray I	--	--
	topsoil:	Very low	Very low	--	--
	subsoil:	Very low	Very low	--	--
h. Total P:	topsoil:	Very low	High	--	--
	subsoil:	Very low	Medium	--	--

OTHERS

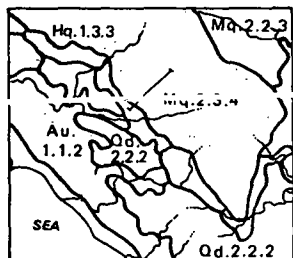
i. CEC pH 7	topsoil:	High	High	--	--
	subsoil:	Medium	High	--	--
j. Reaction:	topsoil:	Very strong acid	Very strong acid	--	--
	subsoil:	Very strong acid	Very strong acid	--	--
k. Al sat.	topsoil:	High	Low	--	--
	subsoil:	High	Medium	--	--
l. Al toxicity	:	Yes	Yes	--	--
m. Acid sulph. pot.	:	Not relevant	Not relevant	--	--
n. Salinity (ec)	:	Salt free	Salt free	--	--
o. Other toxicity	:	--	--	--	--
p. Root obstr. layer	:	135 cm	40 cm	--	--
q. Organic matter (%)	:	3.5	5.2	--	--
r. TEB (meq/100 g)	:	1.0	10.1	--	--

s. Total anal. profiles:	1	1	0	0
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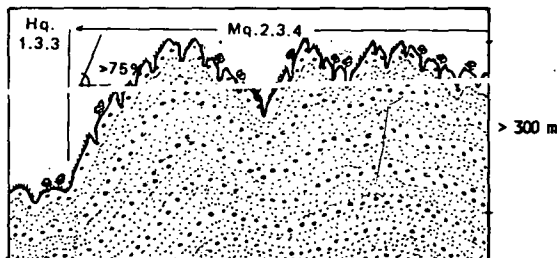
f. LAB CHECK	:	Yes	Yes	--	--
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27. ADDITIONAL NOTES : The soil data of Humitropepts are extrapolated data from Mfq.2.2.4

MAP IMAGE :



CROSS SECTION :



1. LAND UNIT : Mq.2.3.4 Mountains, coarse felsic sedimentary rocks, abrupt slopes, scarps (slopes >75%), extremely dissected
2. MAP SHEET : 0717
3. AREA : 220.8 km²
4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 06/11/89 Status : Final
7. SATELLITE SCENES : 128/59/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000 10 /8348-143, 10 /8348-141
9. RADAR : STAR-1/250/88/0717-2
10. PARENT MATERIAL
11. ROCK OUTCROP : 0%
- a. Weathering : Partial
- b. Lithology : sandstone, ,
- c. Formation : Tmba ,
12. WATER a. Quality : Fresh
- b. Source : Rain, Perennial river
13. FISHERIES : None
14. RIVERS
- a. Floodrisk water : None
- b. Floodrisk sed.: None
- c. Inundation : None
15. VEGETATION/LAND USE : moist primary submontane forest, bush, scrub
- Area used : 0 %
16. ACCELERATED EROSION
- a. Occurrence : Localised
- b. Evidence : Various
17. TERRAIN : Mountainous >16%, >300 m
18. PLAN/ PROFILE Dominant: Not elongated and parallel > 60% of area crested/peaked
- PROFILE Included:
19. RELIEF AMPLITUDE
- a. Amplitude: Very high
- b. Variability : High
20. ALTITUDE Minimum : 400 m
- Maximum : 903 m
- Range : 450 - 900 m
21. DRAINAGE a. Pattern: Parallel
- b. Density : High
24. VALLEY FLOOR Width : Very narrow
25. FRAGMEN a. Valleys: None
- b. Interfluves : None

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item	10b	12a	14a	14b	19	20	21b	22b	22c	22d1	22d2	22e1	23b	23c	23d	23er	24	25
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rate	1	1	1	1	2	2	2	2	1	1	1	1	1	1	1	1	1	2
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28. REPRESENTATIVE PROFILES:

ity/ / /89/CD/0717/13/ /131/

ect/ / /87/TB/0617/64/ /072/

ity/ / /89/LH/0717/13/ /132/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	:	1	2	--	--
b. Description	:	Upper and middle slopes	Lower slopes	--	--
c. % of Land Unit	:	60%	40%	X	X

SLOPES

d1. Steepness	:	> 75%	> 75%	--	--
d2. Slope length	:	201 - 500 m	201 - 500 m	--	--
d3. Slope curvature	:	Convex	Straight	--	--

SOILS

e1. USDA Class	:	troporthents	dystropepts		
e2. % Facet	:	100%	100%	X	X

23. SOIL CHARACTERISTICS

a. USDA Great Group	:	troporthents	dystropepts
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b. Texture:	topsoil:	Coarse	Fine	--	--
	subsoil:	Moderately coarse	Moderately fine	--	--
c. Depth:	peatsoil:	--	--	--	--
	mineralsoil:	Very deep	Moderately deep	--	--
d. Drainage	:	Excessively drained	Well drained	--	--

NUTRIENTS :

e. Exch. K:	topsoil:	Low	Low	--	--
	subsoil:	Very low	Low	--	--
f. Total K2O:	topsoil:	Very low	Medium	--	--
	subsoil:	Very low	Medium	--	--
g. Avail. P:	method:	Bray I	Bray I	--	--
	topsoil:	Low	Very low	--	--
	subsoil:	Very low	Very low	--	--
h. Total P:	topsoil:	Very low	Medium	--	--
	subsoil:	Very low	Medium	--	--

OTHERS :

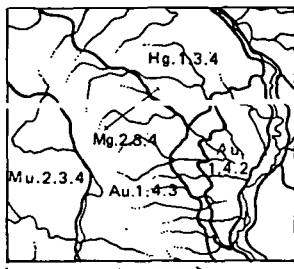
i. CEC pH 7	topsoil:	Low	High	--	--
	subsoil:	Low	High	--	--
j. Reaction:	topsoil:	Excessively acid	Very strong acid	--	--
	subsoil:	Excessively acid	Very strong acid	--	--
k. Al sat.	topsoil:	Medium	Very high	--	--
	subsoil:	Medium	Very high	--	--
l. Al toxicity	:	No	Yes	--	--
m. Acid sulph. pot.	:	Not relevant	Not relevant	--	--
n. Salinity (ec)	:	Salt free	Salt free	--	--
o. Other toxicity	:	--	--	--	--
p. Root obstr. layer	:	--	80 cm	--	--
q. Organic matter (%)	:	2.6	1.9	--	--
r. TEB (meq/100 g)	:	0.6	1.4	--	--

s. Total anal. profiles:	1	2	0	0
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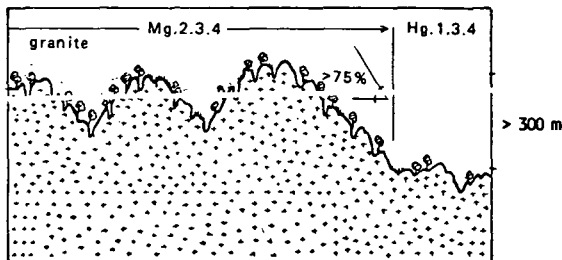
f. LAB CHECK	:	Yes	Yes	--	--
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27. ADDITIONAL NOTES :

MAP IMAGE :



CROSS SECTION :



1. LAND UNIT : Mg.2.3.4 Mountains, acid plutonic rocks, abrupt slopes, scarps (slopes >75%), extremely dissected
2. MAP SHEET : 0717 3. AREA : 175.7 km² 4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 06/11/89 Status : Final
7. SATELLITE SCENES : 128/58/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000 11S /8348-157
9. RADAR : STAR-1/250/88/0717-
10. PARENT MATERIAL
 - a. Weathering : Partial
 - b. Lithology : granite, ,
 - c. Formation : Mpsl ,
11. ROCK OUTCROP : 0%
12. WATER
 - a. Quality : Fresh
 - b. Source : Rain, Perennial river
13. FISHERIES : None
14. RIVERS
 - a. Floodrisk water : None
 - b. Floodrisk sed.: None
 - c. Inundation : None
15. VEGETATION/LAND USE : secondary forest, mixed gardens of fruit trees, rubber
Area used : 25 %
16. ACCELERATED EROSION
 - a. Occurrence : Common
 - b. Evidence : Gulleys
17. TERRAIN : Mountainous >16%, >300 m
18. PLAN/ Dominant: Not elongated and parallel > 60% of area crested/peaked
PROFILE Included:
19. RELIEF AMPLITUDE
 - a. Amplitude: Very high
 - b. Variability : High
20. ALTITUDE Minimum : 600 m Maximum : 1413 m
Range : 700 - 1400 m
21. DRAINAGE a. Pattern: Parallel b. Density : High
24. VALLEY FLOOR Width : Very narrow
25. FRAGMEN a. Valleys: None b. Interfluves : Small blocks

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item | 10b | 12a | 14a | 14b | 19 | 20 | 21b | 22b | 22c | 22d1 | 22d2 | 22e1 | 23b | 23c | 23d | 23er | 24 | 25 |

rate : 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 2 | 2 |

28. REPRESENTATIVE PROFILES:

uda/ / /89/CD/0717/12/ /136/ ity/ / /89/YH/0617/62/ /137/

22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	:	1	2	--	--
b. Description	:	Upper and middle slopes	Lower slopes	--	--
c. % of Land Unit	:	80%	20%	%	%

SLOPES

d1. Steepness	:	> 75%	> 75%	--	--
d2. Slope length	:	> 500 m	201 - 500 m	--	--
d3. Slope curvature	:	Straight	Straight	--	--

SOILS

e1. USDA Class	:	dystropepts	hapludults		
e2. % Facet	:	100%	100%	%	%

23. SOIL CHARACTERISTICS

a. USDA Great Group	:	dystropepts	hapludults		
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b. Texture:	topsoil:	Moderately fine	Moderately fine	--	--
	subsoil:	Moderately fine	Moderately fine	--	--
c. Depth:	peatsoil:	--	--	--	--
	mineralsoil:	Very deep	Very deep	--	--
d. Drainage	:	Moderately well	Well drained	--	--

NUTRIENTS

e. Exch. K:	topsoil:	Low	Medium	--	--
	subsoil:	Low	Low	--	--
f. Total K2O:	topsoil:	Low	Very high	--	--
	subsoil:	Very low	Very high	--	--
g. Avail. P:	method:	Bray I	Bray I	--	--
	topsoil:	High	Very low	--	--
	subsoil:	Very low	Very low	--	--
h. Total P:	topsoil:	Low	Low	--	--
	subsoil:	Very low	Low	--	--

OTHERS

i. CEC pH 7	topsoil:	Low	Low	--	--
	subsoil:	Low	Low	--	--
j. Reaction:	topsoil:	Very strong acid	Very strong acid	--	--
	subsoil:	Strong acid	Strong acid	--	--
k. Al sat.	topsoil:	Very high	Low	--	--
	subsoil:	Very high	Medium	--	--
l. Al toxicity	:	--	No	--	--
m. Acid sulph. pot.	:	Not relevant	Not relevant	--	--
n. Salinity (ec)	:	Salt free	Salt free	--	--
o. Other toxicity	:	--	--	--	--
p. Root obstr. layer	:	107 cm	130 cm	--	--
q. Organic matter (%)	:	3.8	2.5	--	--
r. TEB (meq/100 g)	:	0.5	3.7	--	--

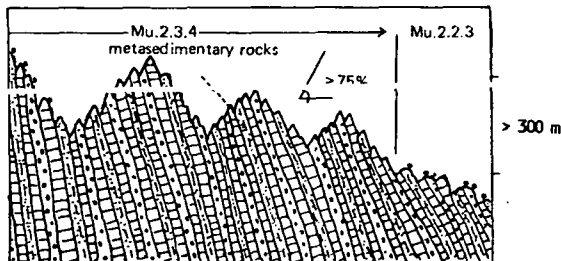
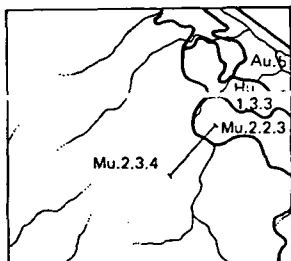
s. Total anal. profiles:	:	1	1	0	0
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f. LAB CHECK	:	Yes	Yes	--	--
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27. ADDITIONAL NOTES : The soil data of Dystropepts are extrapolated from Mg.2.2.4

MAP IMAGE :

CROSS SECTION :



1. LAND UNIT : Mu.2.3.4 Mountains, undifferentiated sedimentary rocks, abrupt slopes, scarps (slopes >75%), extremely dissected
2. MAP SHEET : 0717
3. AREA : 519.4 km²
4. OCCURRENCE by PROVINCE: Sumatera Utara 100%
5. STATUS IDENTIFIERS : Updated by : SS Edit date: 06/11/89 Status : Final
7. SATELLITE SCENES : 128/58/08/08/85, 128/59/08/08/85
8. AERIAL PHOTOGRAPHS : 1:100.000 12S /8348-197, 18 /8319-171
9. RADAR : STAR-1/250/88/0717-2/4
10. PARENT MATERIAL
11. ROCK OUTCROP : 0%
- a. Weathering : Partial
- b. Lithology : claystone, gravel, sandstone
- c. Formation : Puku , Put
12. WATER
- a. Quality : Fresh
- b. Source : Rain, Perennial river
13. FISHERIES : None
14. RIVERS
- a. Floodrisk water : None
- b. Floodrisk sed.: None
- c. Inundation : None
15. VEGETATION/LAND USE : moist primary lowland forest, secondary forest, bush, scrub
- Area used : 0 %
16. ACCELERATED EROSION
- a. Occurrence : Extensive
- b. Evidence : Various
17. TERRAIN : Mountainous >16%, >300 m
18. PLAN/ PROFILE
- Dominant: Not elongated and parallel > 60% of area crested/peaked
- Included:
19. RELIEF AMPLITUDE
- a. Amplitude: Very high
- b. Variability :
20. ALTITUDE
- Minimum : 600 m
- Maximum : 1300 m
- Range : 650 - 1200 m
21. DRAINAGE
- a. Pattern: Parallel
- b. Density : High
24. VALLEY FLOOR Width : Very narrow
25. FRAGMEN
- a. Valleys: None
- b. Interfluves : None

26. RELIABILITY (1= reliable, 2= probable, 3= tenable, 4= plausible)

item	10b	12a	14a	14b	19	20	21b	22b	22c	22d1	22d2	22e1	23b	23c	23d	23er	24	25
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rate	1	1	1	1	2	2	2	2	2	2	2	1	1	1	1	1	1	1
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28. REPRESENTATIVE PROFILES:

ity/	/	/88/YM/0717/51/	/040/	eot/	/	/89/SS/0717/21/	/059/
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22. FACETS, SLOPES and SOILS

FACETS

a. Identifier	:	1	2	--	--
b. Description	:	Middle and lower slopes	Crest and upper slopes	--	--
c. % of Land Unit	:	60%	40%	X	X

SLOPES

d1. Steepness	:	> 75%	> 75%	--	--
d2. Slope length	:	> 500 m	201 - 500 m	--	--
d3. Slope curvature	:	Straight	Convex	--	--

SOILS

e1. USDA Class	:	dystropepts	troporthents		
e2. % Facet	:	100%	100%	X	X

23. SOIL CHARACTERISTICS

a. USDA Great Group	:	dystropepts	troporthents		
b. Texture:					
topsoil:		Moderately coarse	Moderately coarse	--	--
subsoil:		Medium	Moderately coarse	--	--
c. Depth:					
peatsoil:		--	--	--	--
mineralsoil:		Moderately deep	Very shallow	--	--
d. Drainage	:	Well drained	Somewhat excessively	--	--

NUTRIENTS :

e. Exch. K:					
topsoil:		Low	Low	--	--
subsoil:		Low	Low	--	--
f. Total K2O:					
topsoil:		Low	Low	--	--
subsoil:		Low	Low	--	--
g. Avail. P:					
method:		Bray I	Bray I	--	--
topsoil:		Very low	Medium	--	--
subsoil:		Very low	Very low	--	--
h. Total P:					
topsoil:		Medium	Very low	--	--
subsoil:		Low	Very low	--	--

OTHERS :

i. CEC pH 7					
topsoil:		Very high	Very high	--	--
subsoil:		Very high	Very high	--	--
j. Reaction:					
topsoil:		Excessively acid	Excessively acid	--	--
subsoil:		Excessively acid	Excessively acid	--	--
k. Al sat.					
topsoil:		High	High	--	--
subsoil:		Very high	Very high	--	--
l. Al toxicity	:	Yes	Yes	--	--
m. Acid sulph. pot.	:	Not relevant	Not relevant	--	--
n. Salinity (ec)	:	Salt free	Salt free	--	--
o. Other toxicity	:	--	--	--	--
p. Root obstr. layer	:	55 cm	12 cm	--	--
q. Organic matter (%)	:	3.6	4.7	--	--
r. TEB (meq/100 g)	:	0.9	0.7	--	--

s. Total anal. profiles:	:	1	1	0	0
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f. LAB CHECK	:	Yes	Yes	--	--
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27. ADDITIONAL NOTES : The soil data of Dystropepts are extrapolated data from Mu.2.2.4
and Troporthents are Hu.1.3.3