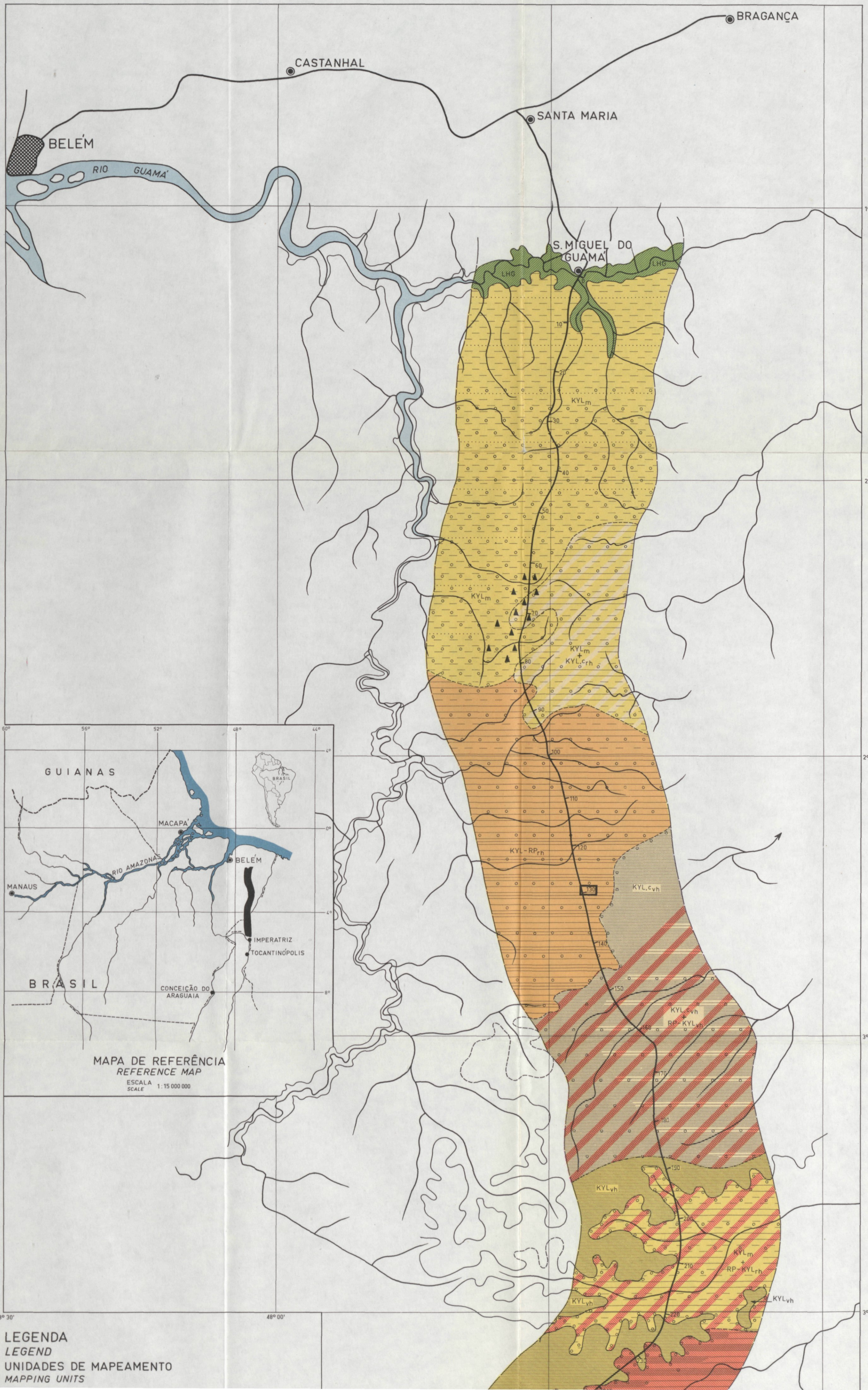
MAPA DOS SOLOS
SOIL MAP

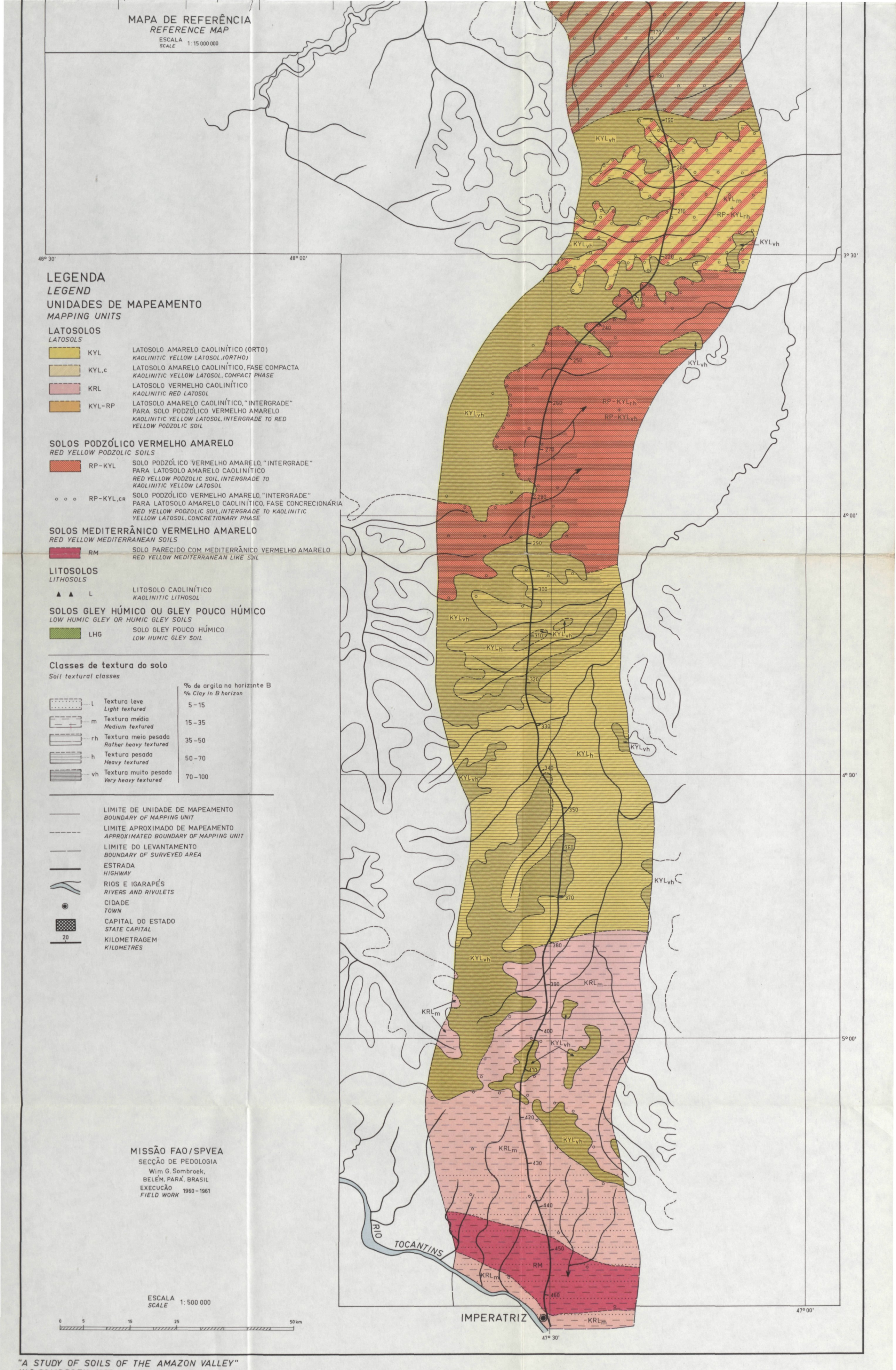
APENDICE 1
APPENDIX 1

ÁREA GUAMÁ - IMPERATRIZ
GUAMÁ - IMPERATRIZ AREA

REGIÃO AO LONGO DA PARTE SUPERIOR DA RODOVIA BR-14
REGION ALONG THE UPPER PART OF THE BR-14 HIGHWAY



LEGENDA
LEGEND
UNIDADES DE MAPEAMENTO
MAPPING UNITS



"A STUDY OF SOILS OF THE AMAZON VALLEY"
W.G. SOMBROEK 1963

MAPA DOS SOLOS
SOIL MAP

AREA ARAGUAIANA DE MOGNO
ARAGUAIA MAHOGANY AREA

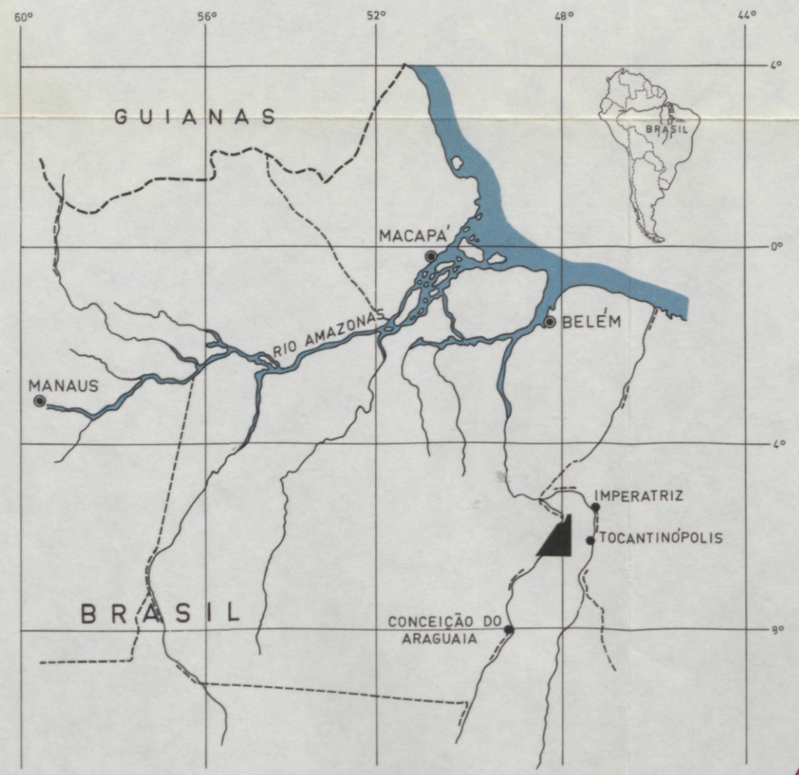
APENDICE 2
APPENDIX 2

LEGENDA
LEGEND

UNIDADES DE MAPEAMENTO
MAPPING UNITS

- RP_{rhb} — SOLO PODZÓLICO VERMELHO AMARELO, COM SATURAÇÃO DE BASES MEIO ALTA
  RED YELLOW PODZOLIC SOIL, WITH RATHER HIGH BASE-SATURATION
- L,QU — LITOSOLO, FASE SUBSTRATO QUARTZÍTICO
  LITHOSOL, QUARTZITE SUBSTRATUM PHASE
- DL,S+AF,G — ASSOCIAÇÃO DE LATOSOLO VERMELHO ESCURO, FASE RASA, E SOLO PARECIDO COM "ACID BROWN FOREST," FASE CASCALHO
  ASSOCIATION OF DARK RED LATOSOL, SHALLOW PHASE AND ACID BROWN FOREST LIKE SOIL, GRAVELLY PHASE
- L,SS — LITOSOLO, FASE SUBSTRATO ARENÍTICO
  LITHOSOL, SANDSTONE SUBSTRATUM PHASE
- KLS,F — AREIA LATOSÓLICA CAOLINÍTICA, FASE FLORESTA
  KAOLINITIC LATOSOLIC SAND, FOREST PHASE
- $HP_{hb,S}$ — SOLO "HYDROMORPHIC GRAY PODZOLIC," COM SATURAÇÃO DE BASES ALTA, FASE RASA
  HYDROMORPHIC GRAY PODZOLIC SOIL, WITH HIGH BASE SATURATION, SHALLOW PHASE
- L,CH — LITOSOLO, FASE SUBSTRATO CALCEDONÍTICO - INCLUSÃO DE SOLO PARECIDO COM "NON CALCIC BROWN," FASE CASCALHO, E.O.
  LITHOSOL, CHERTY SUBSTRATUM PHASE-WITH INCLUSION OF NON-CALCIC BROWN LIKE SOIL, GRAVELLY PHASE, A.O.
- H — SOLOS HIDROMÓRFICOS, INDIFERENCIADOS
  HYDROMORPHIC SOILS, INDIFFERENTIATED
- KLS,T? — AREIA LATOSÓLICA AOLINÍTICA, FASE TRANSIÇÃO - SUPOSTA
  KAOLINITIC LATOSOLIC SAND, TRANSITION PHASE - PRESUMED
- KLS,S — AREIA LATOSÓLICA CAOLINITICA, FASE CAMPO
  KAOLINITIC LATOSOLIC SAND, SAVANNAH PHASE
- F — SOLOS DE VÁRZEA, INDIFERENCIADOS
  FLOOD PLAIN SOILS, INDIFFERENTIATED

- LIMITE DO LEVANTAMENTO
  BOUNDARY OF SURVEYED AREA
- LIMITE DE UNIDADE DE MAPEAMENTO
  BOUNDARY OF MAPPING UNIT
- LIMITE APROXIMADO DE UNIDADE DE MAPEAMENTO
  APPROXIMATED BOUNDARY OF MAPPING UNIT
- LIMITE INTERESTADUAL
  STATE BOUNDARY
- CORREDEIRAS
  RAPIDS
- RIOS E IGARAPÉS
  RIVERS AND RIVULETS



MAPA DE REFERÊNCIA
REFERENCE MAP

ESCALA
SCALE 1:15 000 000

5° 30
5° 45'
6° 00'
ARAGUATINS
RIO ARAGUAIA
RIO BARREIRO
RIO SÃO MARTINHO
FALCÃO
PARÁ
ANTONINA
STA. ISABEL
RIO PIRANHA

MAPA DE REFERÊNCIA
REFERENCE MAP

ESCALA *SCALE* 1:15 000 000

PARÁ

GOIÁS

FALCÃO

ANTONINA

STA. ISABEL

XAMBIOÃ

RIO ARAGUAIA

RIO PIRANHA

RIO SÃO ANTONIO

RIO CORDA

6° 00'

6° 15'

6° 30'

48° 45'

48° 30'

48° 15'

48° 02'

MISSÃO FAO/SPVEA
SECÇÃO DE PEDOLOGIA
Wim G. Sombroek, José Benito Sampaio
BELÉM, PARÁ, BRASIL
EXECUÇÃO *FIELD WORK* 1961 – 1962

ESCALA *SCALE* 1: 200 000

0 2 6 10 20 km

"A STUDY OF SOILS OF THE AMAZON VALLEY"
W.G. SOMBROEK 1963

MAPA SEMI-DETALHADO DOS SOLOS E OCORÊNCIA DE PAU AMARELO
SEMI DETAILED MAP OF SOILS AND OCCURRENCE OF Euxylophora paraensis

APENDICE 3
APPENDIX 3

UNIDADE DE TERRA "CANDIRÚ"
LAND UNIT "CANDIRÚ"

LEGENDA
LEGEND

SOLOS *SOILS*	TOPOGRAFIA *TOPOGRAPHY*	NIVEL *) *LEVEL*
KYL.c_{vh}	TERRAÇO SUPERIOR *UPPER TERRACE*	185 M
RP-KYL.$_{CR}$		180 M
RP-KYL.$_{CR}$	TERRENO UNDULADO *SLOPING TERRAIN*	
RP-KYL$_{vh}$		165 M
KYL-RP$_{rh}$	TERRAÇO SECUNDÁRIO *SECOND TERRACE*	155 M
KYL$_{m}$+B	BAIXADA *LOWLAND*	145 M

*) REFERENTE ÃS ALTURAS INDICADOS NOS MARCOS KM. DA RODOBRÁS
REFERENT TO HEIGHTS INDICATED AT THE RODOBRÁS KM POSTS
RN SÃO MIGUEL DE GUAMÁ - 100 M

EXPLANAÇÃO DOS SÍMBOLOS DE SOLO
EXPLANATION OF SOIL SYMBOLS

KYL.c_{vh} — LATOSOLO AMARELO CAOLINÍTICO, FASE COMPACTA, textura muito pesada
KAOLINITIC YELLOW LATOSOL, COMPACT PHASE very heavy textured

RP-KYL.$_{CR}$ — SOLO PODZÓLICO VERMELHO AMARELO, "INTERGRADE" PARA LATOSOLO AMARELO CAOLINÍTICO, FASE CONCRECIONÁRIA
RED YELLOW PODZOLIC SOIL, INTERGRADE TO KAOLINITIC YELLOW LATOSOL, CONCRETIONARY PHASE

RP-KYL$_{vh}$ — SOLO PODZÓLICO VERMELHO AMARELO, "INTERGRADE" PARA LATOSOLO AMARELO CAOLINÍTICO, textura muito pesada
RED YELLOW PODZOLIC SOIL, INTERGRADE TO KAOLINITIC YELLOW LATOSOL, very heavy textured

KYL-RP$_{rh}$ — LATOSOLO AMARELO CAOLINÍTICO, "INTERGRADE" PARA SOLO PODZÓLICO VERMELHO AMARELO, textura meio pesada
KAOLINITIC YELLOW LATOSOL, INTERGRADE TO RED YELLOW PODZOLIC SOIL, rather heavy textured

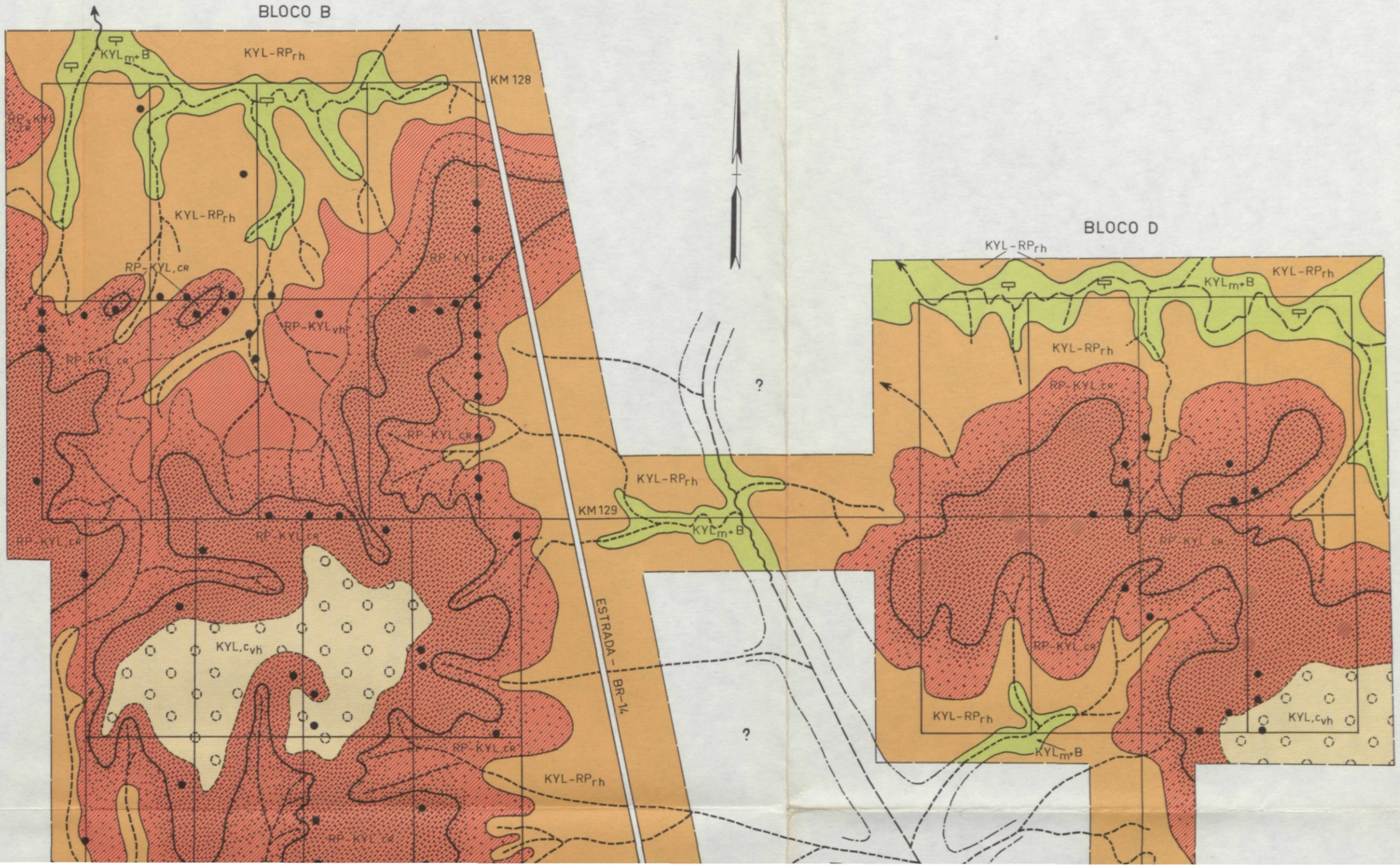
KYL$_{m}$ — LATOSOLO AMARELO CAOLINÍTICO, textura média
KAOLINITIC YELLOW LATOSOL, medium textured

B — SOLO TURFOSO
BOG OR HALF BOG SOIL

IGARAPÉ
RIVULET

DRENO
DRAINAGE WAY

BICADAS



IGARAPÉ
RIVULET

DRENO
DRAINAGE WAY

PICADAS
TRANSECTS

LIMITE DE TERRAÇO
BOUNDARY OF TERRACE

ENCOSTA
ESCARPMENT

LIMITES APROXIMADOS
APPROXIMATED BOUNDARIES

MONTÍCULAS "JABOTI"
"JOBOTI" HUMMOCKS

LAGOA INTERMITTENTE
POORLY DRAINED, PONDLIKE SPOT

CONCRECÕES FERRUGINOSAS: "PLINTHITE" DURO
IRON CONCRETIONS: HARD PLINTHITE

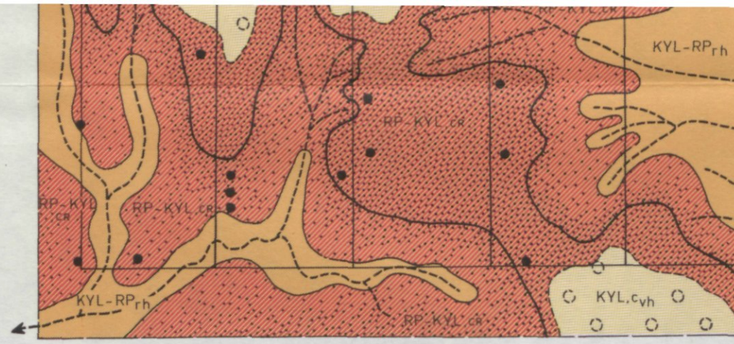
ÁRVORES DE PAU AMARELO PERTO DAS PICADAS
TREES OF EUXYLOPHORA PARAENSIS NEAR TRANSECTS

CIPOAL
CREEPER FOREST

MISSÃO FAO/SPVEA
SECÇÃO DE INVENTÁRIO FLORESTAL
Baruch B. Glerum e Gerard Smit
SECÇÃO DE PEDOLOGIA
Wim G. Sombroek
BELÉM, PARÁ, BRASIL
EXECUÇÃO
FIELD WORK 1960–1961

ESCALA
SCALE 1:10 000

0 100 300 500 1000 m



BLOCO A

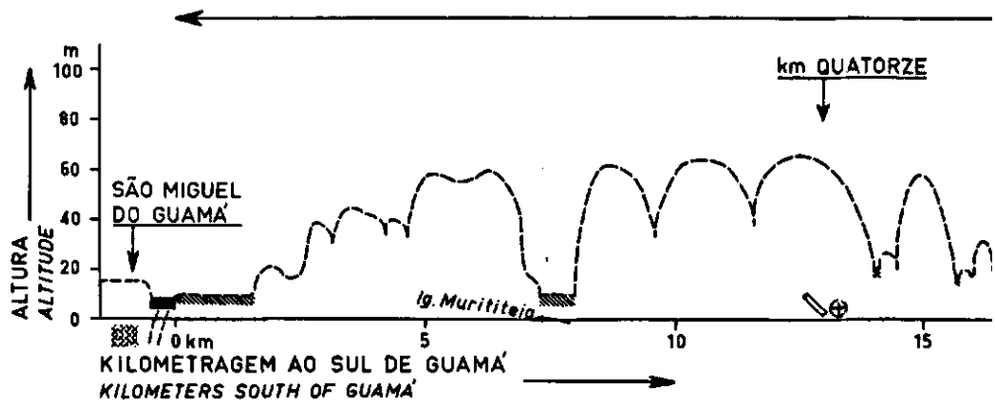
MAPA DE REFERÊNCIA
REFERENCE MAP

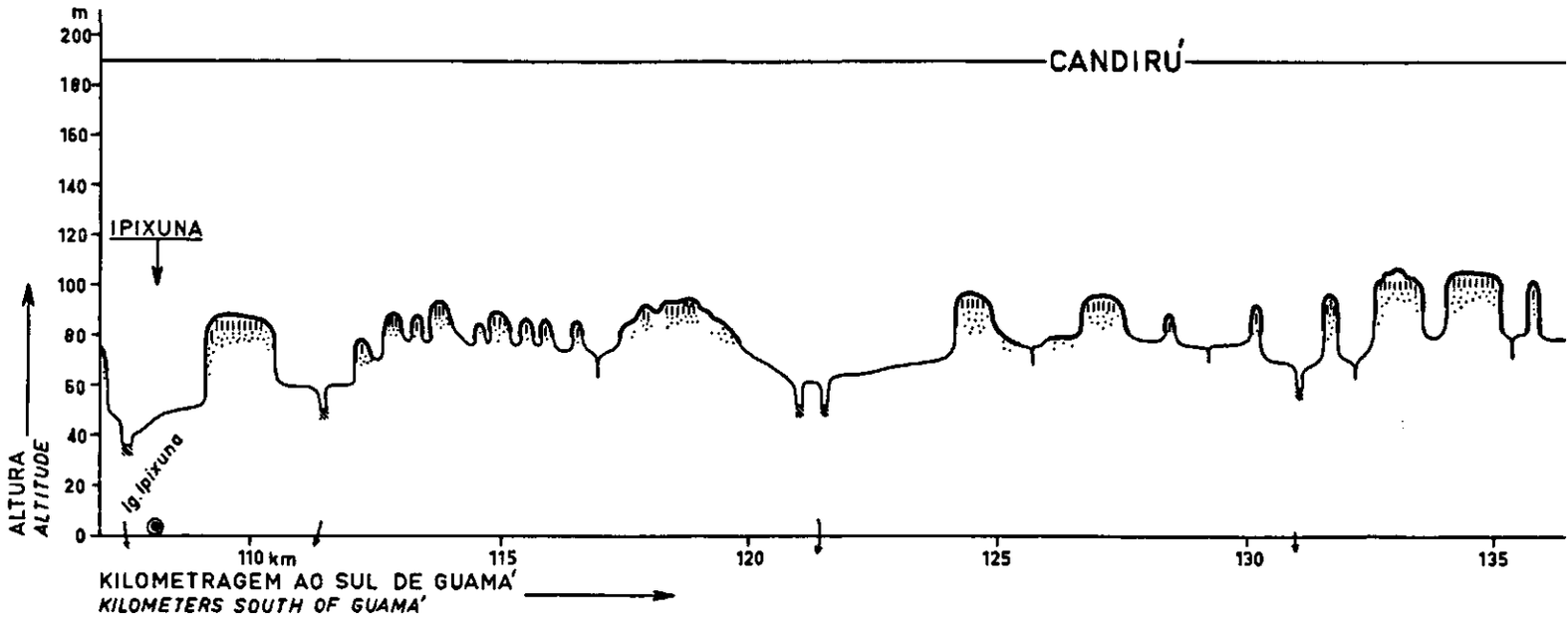
ESCALA
SCALE 1:15 000 000

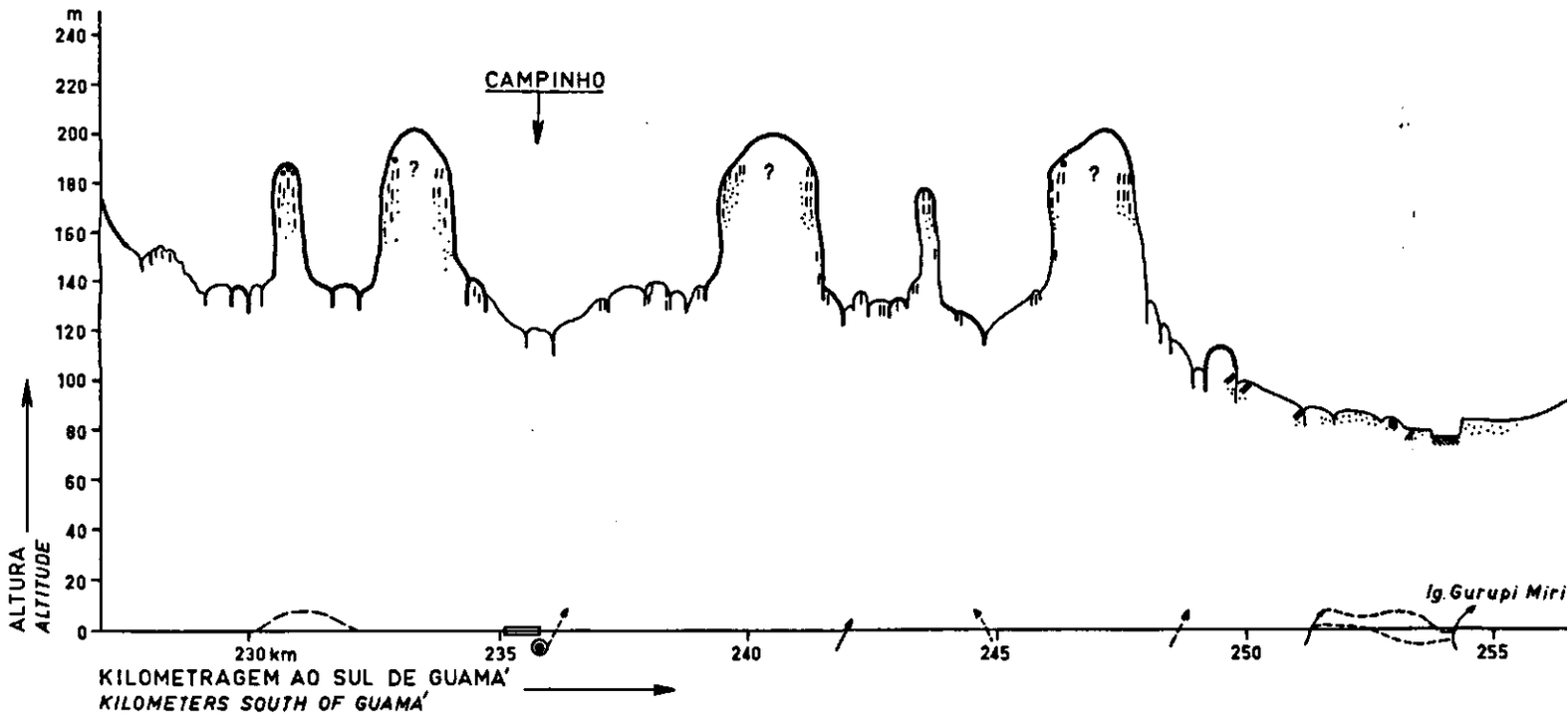
BLOCO C

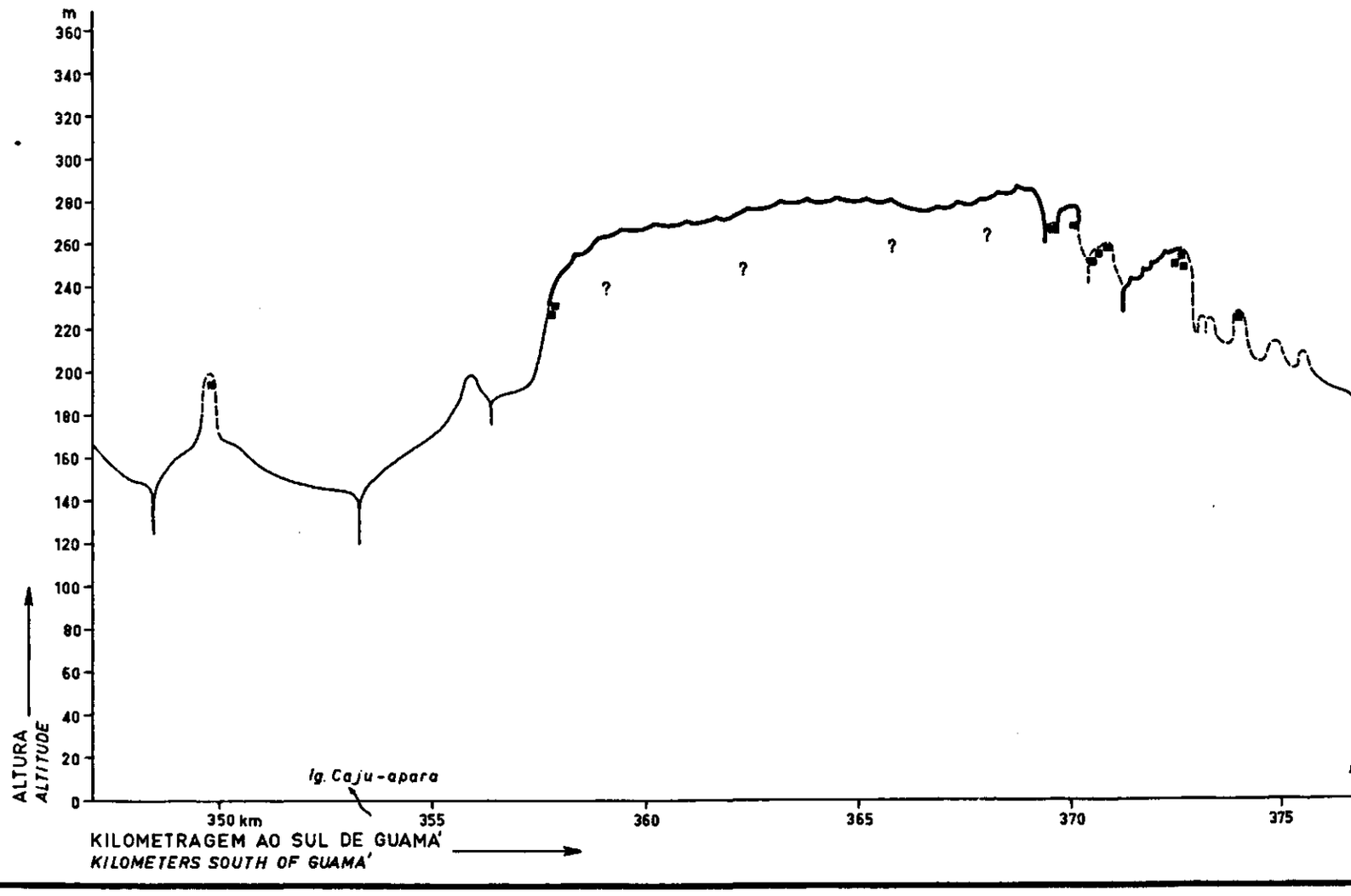
"A STUDY OF SOILS OF THE AMAZON VALLEY"
W.G. SOMBROEK 1963

PERFIL DA ESTRADA
CROSS-SECTION OF THE ROAD









LEGENDA
LEGEND

- SOLOS DE TEXTURA LEVE — *LIGHT TEXTURED SOILS*
- SOLOS DE TEXTURA MÉDIA — *MEDIUM TEXTURED SOILS*
- SOLOS DE TEXTURA MEIO PESADA E PESADA — *RATHER HEAVY AND HEAVY TEXTURED SOILS*
- SOLOS DE TEXTURA MUITO PESADA: ARGILA DE BELTERRA — *VERY HEAVY TEXTURED SOILS: BELTERRA CLAY*
- FOLHELHOS E SILTITOS DA FORMAÇÃO CODÓ — *WEATHERED SHALES AND SILTSTONES OF THE FORMATION "CODO"*
- TERRAS ALAGADAS (VARZEA OU IGAPÓ) — *LOWLANDS*
- CONCREÇÕES FERRUGINOSAS: "PLINTHITE" DURO — *IRON CONCRETIONS: HARD PLINTHITE*
  - TIPO IPIXUNA — *TYPE*
  - TIPO CAMPINHO — *TYPE*
  - TIPO MÃE DO RIO — *TYPE*
  - TIPO PARAGOMINAS — *TYPE*
  - TIPO LIGAÇÃO — *TYPE*
- "PLINTHITE" MACIO — *SOFT PLINTHITE*
- PEDRAS CAOLINÍTICAS — *KAOLINITE STONES*
- SEIXOS DE QUARTZO — *QUARTZ PEBBLES*
- MONTÍCULOS: JABOTIS — *HUMMOCKS: "JABOTIS"*
- ACAMPAMENTO DA RODOBRÁS — *ROAD CONSTRUCTION CAMP*
- CAMPO DE POUSO — *AIRSTRIP*
- CIDADE — *TOWN*
- IGARAPÉ — *RIVULET*
- VARIANTE DA ESTRADA — *VARIANT OF THE ROAD*
- POVOADO NOVO — *NEW VILLAGE*

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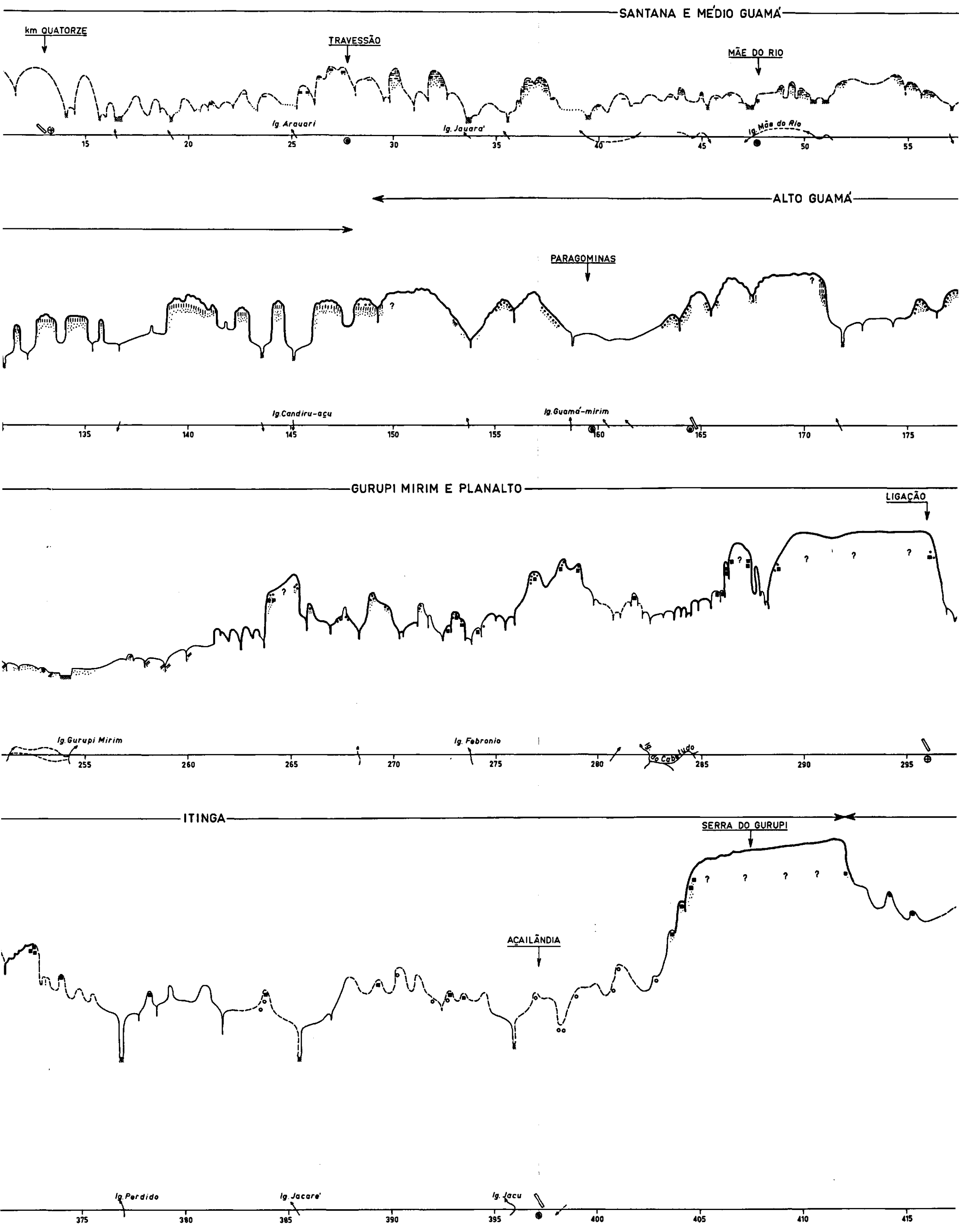
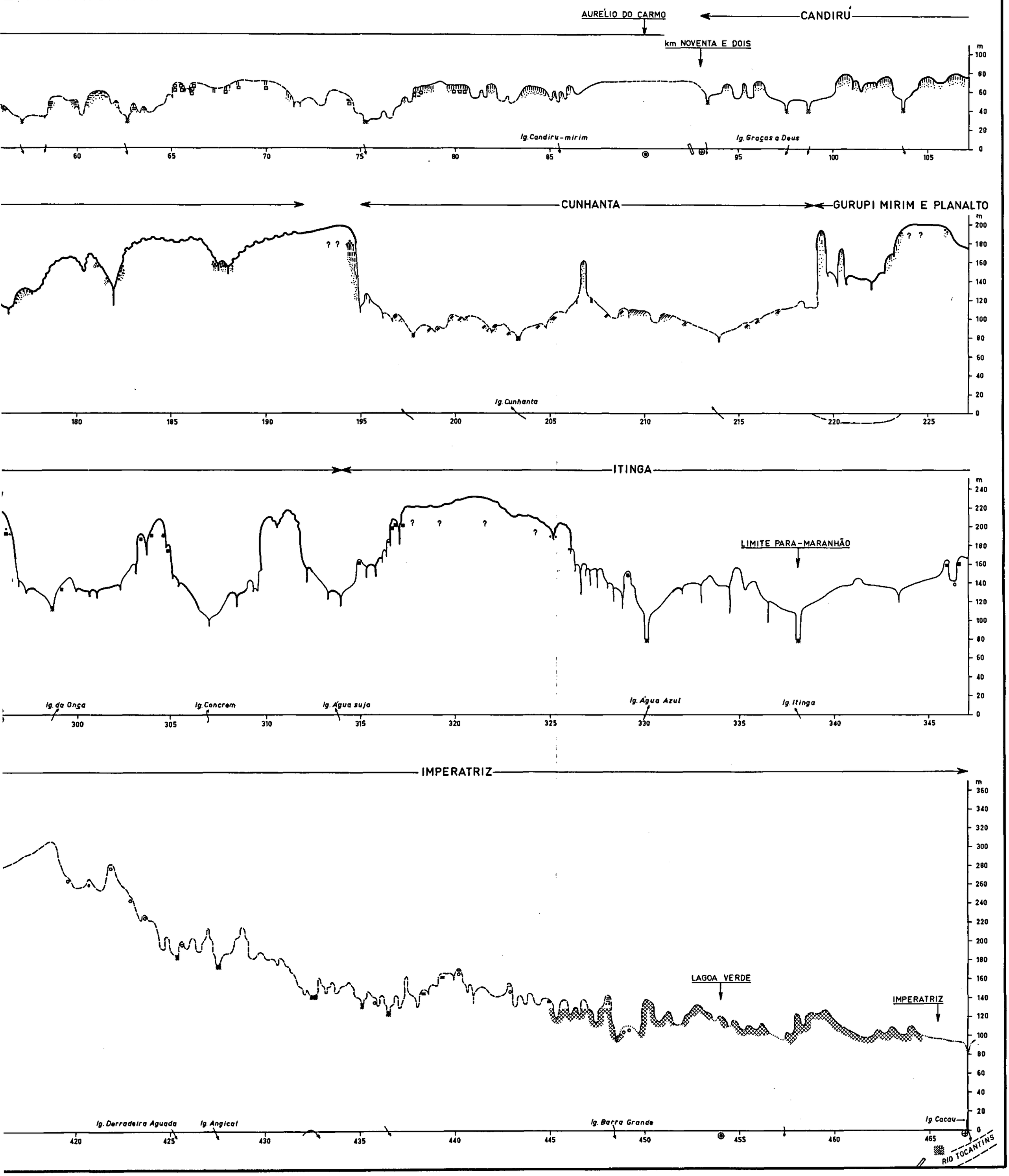
Wim. G. Sombroek
BELÉM, PARÁ, BRASIL
EXECUÇÃO
FIELD WORK 1961

TRECHO SÃO MIGUEL DO GUAMÁ - IMPERATRIZ DA
STRETCH SÃO MIGUEL DO GUAMÁ - IMPERATRIZ OF THE BR



DA RODOVIA BR-14
BR-14 HIGHWAY

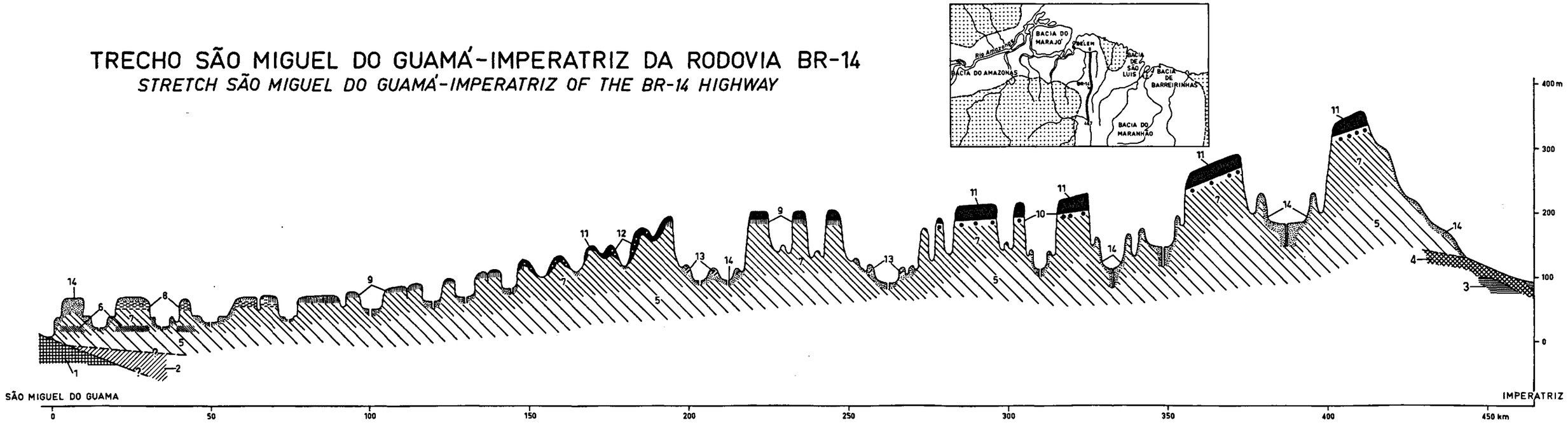
APENDICE 4
APPENDIX 4



ESBOÇO DA GEOLOGIA E GEOMORFOLGIA
SKETCH OF THE GEOLOGY AND GEOMORPHOLOGY

APENDICE 5
APPENDIX 5

TRECHO SÃO MIGUEL DO GUAMÁ-IMPERATRIZ DA RODOVIA BR-14
STRETCH SÃO MIGUEL DO GUAMÁ-IMPERATRIZ OF THE BR-14 HIGHWAY



LEGENDA
LEGEND

	LITOLOGIA *LITHOLOGY*	FORMAÇÃO *FORMATION*	PERÍODO *PERIOD*
1	ARENITOS DUROS *HARD SANDSTONES*		PALEOZOICO *PALEOZOIC*
2	?		MESOZOICO INFERIOR *EARLY MESOZOIC*
3	ARENITOS MACIOS *SOFT SANDSTONES*	CORDA	CRETÁCICO INFERIOR *EARLY CRETACEOUS*
4	SILTITOS E FOLHELHOS MACIOS *SOFT SILTSTONES AND SHALES*	CODÓ	CRETÁCICO MÉDIO *MIDDLE CRETACEOUS*
5	ARENITOS E SILTITOS MACIOS *SOFT SAND-AND SILTSTONES*	ITAPECURÚ ou *or* SERRA NEGRA	CRETÁCICO SUPERIOR ou TERCIÁRIO INFERIOR *LATE CRETACEOUS or EARLY TERTIARY*
6	CALCAREOS E FOLHELHOS *LIMESTONES AND SHALES*	PIRABAS	MIOCENO INFERIOR *EARLY MIOCENE*
7	ARENITOS E SILTITOS MACIOS *SOFT SAND-AND SILTSTONES*	(ALTER DO CHÃO)	MIOCENO *MIOCENE*

	LITOLOGIA *LITHOLOGY*	FORMAÇÃO *FORMATION*	PERÍODO *PERIOD*
8	CONCREÇÕES FERRUGINOSAS *IRON CONCRETIONS*	MÃE DO RIO	MIOCENO / PLIOCENO *MIOCENE / PLIOCENE*
9	CONCREÇÕES FERRUGINOSAS *IRON CONCRETIONS*	IPIXUNA	PLIOCENO *PLIOCENE*
10	CONCREÇÕES FERRUGINOSAS *IRON CONCRETIONS*	LIGAÇÃO	
11	ARGILA DE BELTERRA *BELTERRA CLAY*	(BARREIRAS)	PLIO-PLEISTOCENO (POR PARTE REMODELADO DEPOIS) *PLIO-PLEISTOCENE (PARTLY REWORKED AFTERWARDS)*
12	CONCREÇÕES FERRUGINOSAS *IRON CONCRETIONS*	PARAGOMINAS	PLEISTOCENO *PLEISTOCENE*
13	CONCREÇÕES FERRUGINOSAS *IRON CONCRETIONS*	CAMPINHO	PLEISTOCENO *PLEISTOCENE*
14	AREIAS, SILTES, ARGILAS *SANDS, SILTS, CLAYS*		PLEISTOCENO (POR PARTE MATERIAL MAIS VELHO, REMODELADO) *PLEISTOCENE (PARTLY REWORKED OLDER MATERIAL)*

MISSÃO FAO/SPVEA
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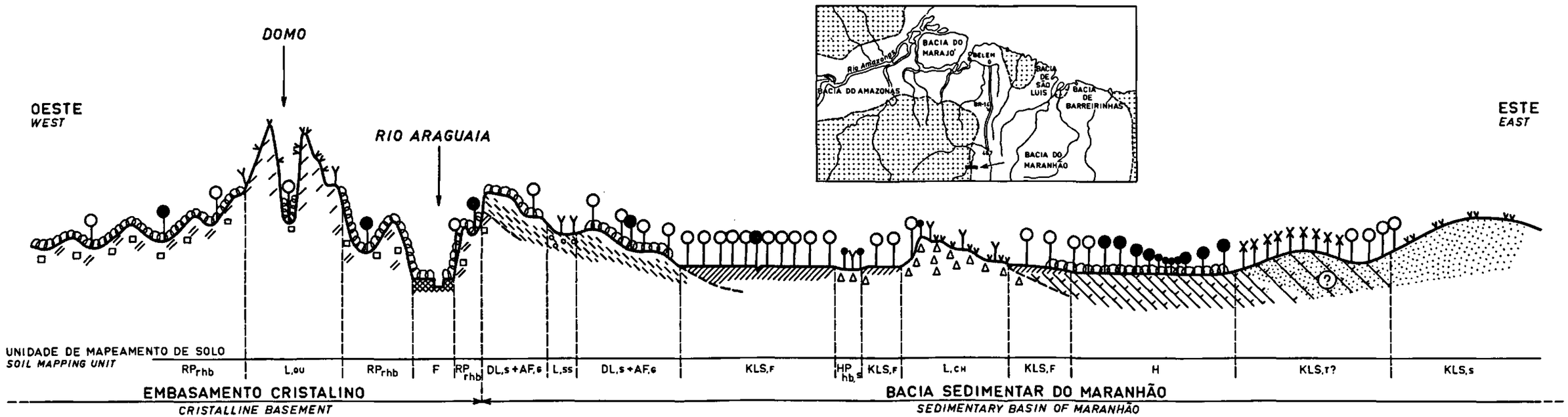
W.G. SOMBROEK 1963

ESBOÇO DA GEOLOGIA, PEDOLOGIA E VEGETAÇÃO
SKETCH OF THE GEOLOGY, THE SOILS AND THE VEGETATION

ÁREA ARAGUAIANA DE MOGNO
ARAGUAIA MAHOGANY AREA



LEGENDA
LEGEND

SOLOS VEJA APENDICE 3
SOILS SEE APPENDIX 3

VEGETAÇÃO
VEGETATION

- FLORESTA — *FOREST*
- FLORESTA COM CIPÓS — *FOREST WITH CREEPERS - CIPOALIC FOREST*
- CIPOAL — *CREEPER FOREST*
- ARBUSTO ALTO — *HIGH SHRUB VEGETATION*
- ARBUSTO — *SHRUB VEGETATION*
- CAMPO — *SAVANNAH*
- MOGNO GROSSO — *LARGE SIZED MAHOGANY TREES*
- MOGNO FINO — *SMALL SIZED MAHOGANY TREES*

GEOLOGIA
GEOLOGY

LITOLOGIA *LITHOLOGY*	FORMAÇÃO ou SÉRIE *FORMATION or SERIE*	PERIODO *PERIOD*
MICAXISTOS *MICA SCHISTS*	ARAXÁ	PRÉ-CAMBRIANO *PRE-CAMBRIAN*
QUARTZITOS *QUARTZITES*		
QUARTZO ANGULAR *ANGULAR QUARTZ BLOCKS*		
ARENITOS, SILTITOS E FOLHELHOS *SANDSTONES, SILTSTONES AND SHALES*	PIMENTEIRAS ou *or* PIMENTEIRAS + POTI + PIAUÍ INFERIOR	DEVONIANO / CARBONÍFERO *DEVONIAN / CARBONIFEROUS*
SEIXOS DE QUARTZO ROLADO *ROUNDED QUARTZ PEBBLES*		
CALCEDONITOS, COM CALCÁREO *CHERTS, WITH LIMESTONES*	PIAUÍ ou *or* PIAUÍ SUPERIOR + PEDRA DE FOGO	CARBONÍFERO SUPERIOR ou CARBONÍFERO SUPERIOR / PERMEANO *UPPER CARBONIFEROUS or UPPER CARBONIFEROUS / PERMIAN*
SILTITOS E ARGILITOS, CALCÁRICOS E GIPSÍTICOS *CALCAREOUS AND GYPSITIC SILT-AND CLAY STONES*	PIAUÍ ou *or* PASTOS BONS - MOTUCA	CABONÍFERO SUPERIOR ou JURÁSSICO / TRIÁSSICO *UPPER CARBONIFEROUS or JURASSIC / TRIASSIC*
ARENITOS *SANDSTONES*	PASTOS BONS - SAMBAIBA	JURÁSSICO / TRIÁSSICO *JURASSIC / TRIASSIC*
AREIAS *SANDS*		PLEISTOCENO *PLEISTOCENE*
AREIAS, SILTES E ARGILAS *SANDS, SILTS AND CLAYS*		HOLOCENO *HOLOCENE*

MISSÃO FAO/SPVEA
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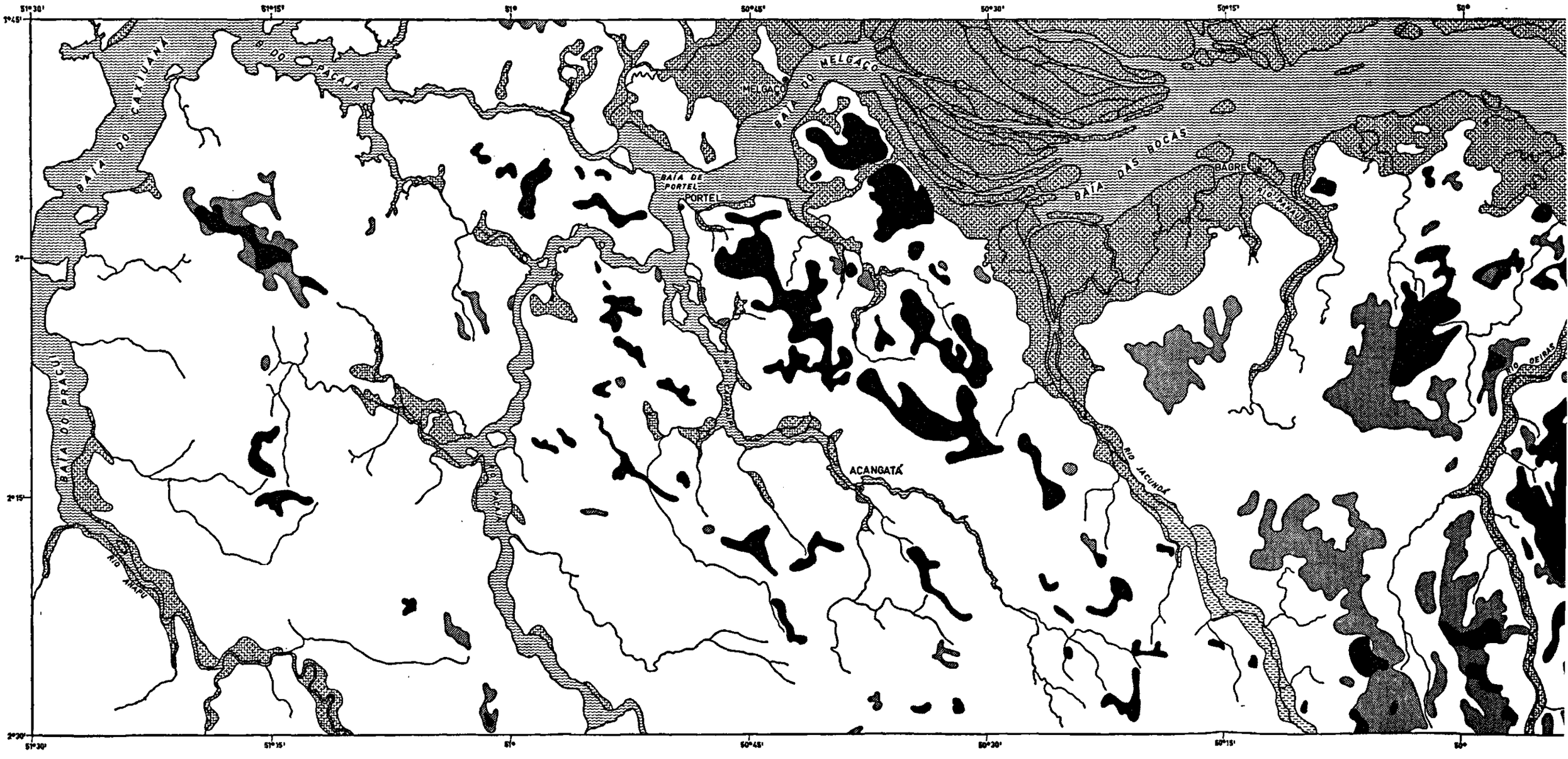
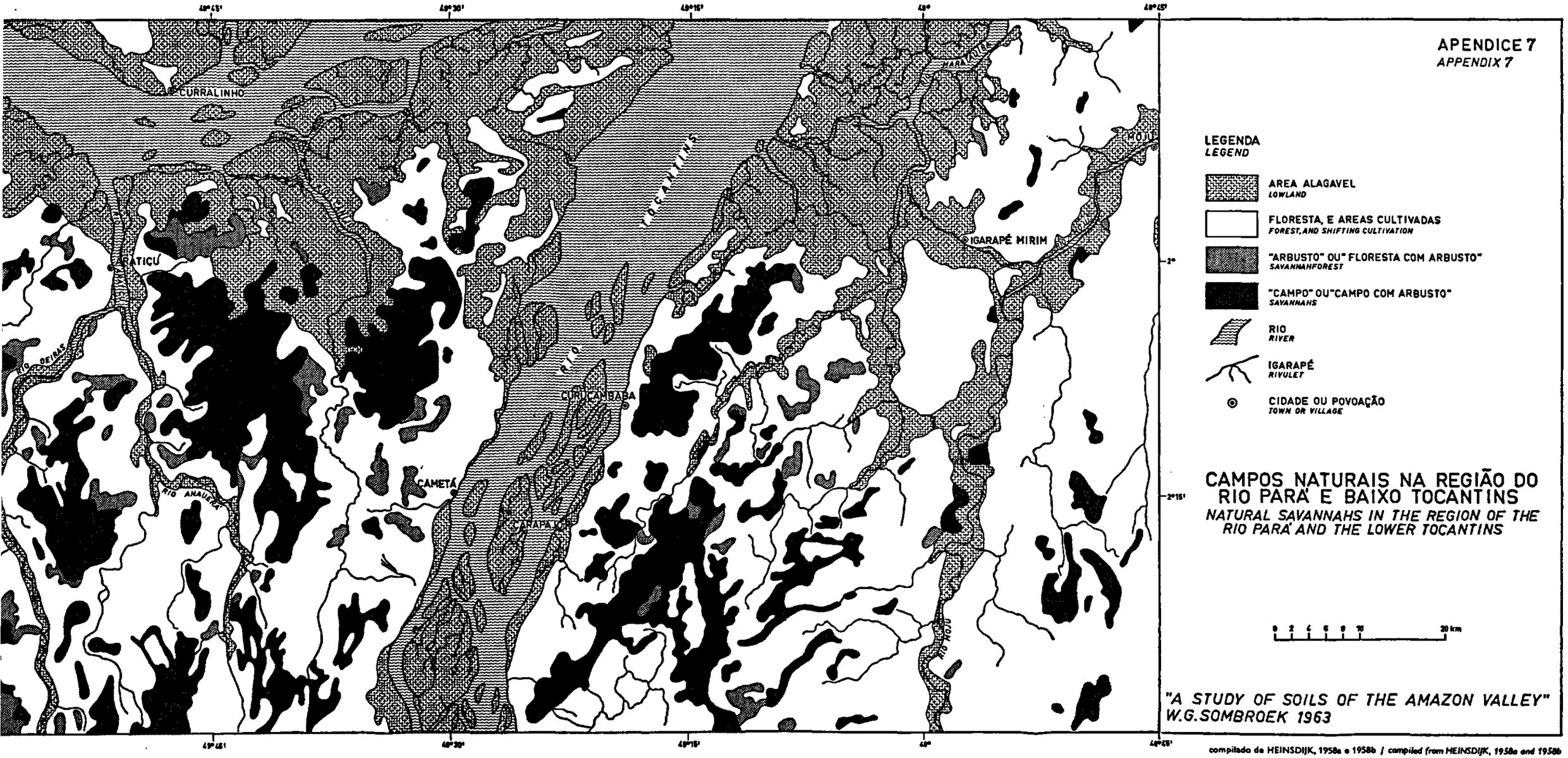
EXECUÇÃO
FIELD WORK 1961



51°30'
51°15'
51°
50°45'
50°30'
50°15'
50°
1°45'
2°
2°15'
2°30'
BAÍA DO CAXIUANÃ
B. DO PACAJÁ
MELGAÇO
BAÍA DO MELGAÇO
BAÍA DE PORTEL
PORTEL
BAÍA DAS BOCAS
BAGRE
RIO JACUNDÁ
ACANGATÁ
BAÍA DO PRACUÍ
RIO ANAPU
RIO OEIRAS



compilado de HEINSDIJK, 1958a e 1958b / compiled from HEINSDIJK, 1958a and 1958b

The Appendices 8, 9 and 10

APPENDIX 8 Stratigraphic sections of (a) the Amazon basin, (b) the Acre basin, (c) the Marajó basin and (d) the Maranhão basin
Apéndice 8 Secções estratigráficas da (a) bacia amazônica, (b) bacia de Acre, (c) bacia de Marajó e (d) bacia de Maranhão

APPENDIX 9 Analytical data of the Profiles 2–18: Ground Water Laterite and related soils, and the Profiles 19–23: soils with fossil plinthite
Apéndice 9 Dados analíticos de Perfis 2–18: solos Laterita Hidromórfica e aparentados, e de Perfis 19–23: solos com 'plinthite' fóssil

APPENDIX 10 Analytical data of the Profiles 24–53: representative profiles of the applied soil classification
Apéndice 10 Dados analíticos de Perfis 24–53: perfis representantes da classificação de solos aplicada

Appendix 8 / *Apéndice 8*. Stratigraphic sections of / *secções estratigráficas da:*

Period *período*	(a) Amazon basin / *bacia amazônica* PETROBRÁS (1960) Formation *formação*	 SAKOMOTO (1960) Thickness, lithology and formation *espessura, litologia e formação*	(b) Acre basin / *bacia de Acre* PETROBRÁS (1960) Formation *formação*	 OLIVEIRA (1956) Formation and lithology *formação e litologia*	(c) Marajó basin / *bacia de Marajó* PETRI (1954)– Cururú well / *poço de Cururú* Period *período*	 Lower boundary and lithology *limite inferior e litologia*
QUATERNARY *Quartenário*		70 m – sands, silts, clays *70 m – areias, siltes, argilas*			Holocene *Holoceno* Pleistocene *Pleistoceno*	clays *argilas* 245 m – silts *245 m – siltes*
TERTIARY *Terciário*	Alter do Chão	600 m – light red to purplish sand-stones and sandy shales – Barreiras (Tertiary) *600 m – arenitos e folhelhos arenosos, vermelho-claros a aroxeados – Barreiras (Terciário)* 500 m – red and white sandy shales and sand-stones; cherts – Alter do Chão (Cretaceous) *500 m – folhelhos arenosos e arenitos, vermelhos e brancos; calcedonitos – Alter do Chão (Cretáceo)*	Pebas Ramon Rio Branco	Pebas – dark or light grey sandy shales *Pebas – folhelhos arenosos cinzas claros ou escuros* Rio Branco – chocolate coloured sand-stones and red shales *Rio Branco – folhelhos vermelhos e arenitos côr de chocolate*	Miocene *Mioceno* Miocene? *Mioceno?* Eoc.-Oligoc. *Eoc.-Oligoc.* Eocene? *Eoceno?*	740 m – silt-stones; shales *740 m – siltitos; folhelhos* 1692 m – medium to coarse grained sand-stones *1692 m – arenitos de textura média a grosseira* 2020 m – silt-stones; shales *2020 m – siltitos; folhelhos* 2580 m – fine grained sand-stones *2580 m – arenitos de textura fina*
CRETACEOUS *Cretáceo*			Divisor Rio Azul Môa	Rio Acre – light grey gypsiferous shales, concr. *Rio Acre – folhelhos gipsíferos cinzas claros, concr.* Divisor – white sand-stones *Divisor – arenitos brancos* Rio Azul – shales and lime-stones *Rio Azul – folhelhos e calcáreos* Môa – white sand-stones *Môa – arenitos brancos*		
JURASSIC *Jurásico*		Basalt and diabase *basalto e diabásio*		Basalt and diabase *basalto e diabásio*		
LATE CARBONIFEROUS *Carbonifero Superior*	Nova Olinda Itaituba	1500 m – anhydrite; rock salt; diabase; reddish and greenish shales – Nova Olinda *1500 m – anidrita; salgema; diabásio; folhelhos avermelhados e esverdeados – Nova Olinda* 450 m – lime-stones; anhydrite; shales – Itaituba *450 m – calcáreos; anidrita; folhelhos – Itaituba*				
EARLY CARBON. *Carb. Inferior*	Monte Alegre	200 m – white sand-stones – M. Alegre *200 m – arenitos brancos – M. Alegre*				
DEVONIAN *Devoniano*	Curuá Maicurú	350 m – black and grey shales – Curuá *350 m – folhelhos pretos e cinzentos – Curuá* 350 m – sand-stones and shales – Maicurú *350 m – arenitos e folhelhos – Maicurú*				
SILURIAN *Siluriano*	Trombetas	50 m – slabby sand-stones – Trombetas *50 m – arenitos lodosos – Trombetas*				
PRE-SILURIAN *Pre-siluriano*	Uatumá		Formosa			
PRE-CAMBRIAN *Pre-cambriano*		Igneous and metamorphic rocks *rochas igneas e metamórficas*				Igneous and metamorphic rocks *rochas igneas e metamórficas*

(d) Maranhão basin / *bacia de Maranhão*

Period *período*	Petrobrás (1960) Formation *formação*	Thickness (m) *espessura*	Lithology *litologia*	Campbell (1949)	Barbosa (1962)
Quaternary *Quartenário*	Undifferentiated *não diferenciado*	0–30	Beach and stream deposits *sedimentos fluviais e marinhos*		
	Perizes	0–130	Clays *argilas*		
Tertiary-Pliocene *Terciário-Plioceno*	Undifferentiated *não diferenciado*	0–60	Continental sand-stones, silt-stones and shales *arenitos, siltitos e folhelhos continentais*		
	São Luis	0–55	Continental sand-stones, silt-stones and shales *arenitos, siltitos e folhelhos continentais*	Barreiras	
Tertiary *Terciário*	Pirabas	0–20	Marine lime-stones and shales *calcáreos e folhelhos marinhos*	Pirabas	
Late Cretaceous to Tertiary *Cretáceo Superior a Terciário*	Itapecurú	35–250	Continental sand-stones, silt-stones and shales, with locally some marine shales and lime-stones *arenitos, siltitos e folhelhos continentais, com algunas ocorrências locais de calcáreos e folhelhos marinhos*	Serra Negra	Urucuia
Cretaceous *Cretáceo*	Codó	5–40	Fresh to brackish water bituminous shales, and lime-stones *folhelhos betuminosos de água doce a salobra, e calcáreos*	Codó	Codó
	Corda	20–65	Fluviatile sand-stones and shales *arenitos e folhelhos fluviais*	Grajaú	Corda { Grajaú; Itaguatins }
Jurassic *Jurásico*	Diabase	0–100	Dikes, plugs, sills and flows *diques, tampões, sills e derrames*	Diabase	Diabase } Pastos Bons
Jura-Triassic *Jura-Triásico*	Pastos Bons { Sambaiba; Motuca }	60–225	Continental and partly marine sand-stones, silt-stones, shales and lime-stones *arenitos, siltitos, folhelhos e calcáreos continentais e parcialmente marinhos*	Sambaiba; Motuca { Pastos Bons; Caxias }	Sambaiba; Motuca } Pastos Bons

(d) Maranhão basin *(continued)* / *bacia de Maranhão (continuado)*

Period *período*	Petrobrás (1960) Formation *formação*	Thickness (m) *espessura*	Lithology *litologia*	Campbell (1949)	Barbosa (1962)
Late Carboniferous *Carbonífero Superior*	Pedra de Fogo	0–350	Continental and some shallow marine lime-stones, silt-stones, sand-stones and cherts; locally gypsum and anhydrite *calcáreos, siltitos, arenitos e calcedonitos, continentais e alguns marinhos rasos; ocorrências locais de gipsita e anidrita*		Pedra de Fogo
Early Carboniferous *Carbonífero Inferior*	Piauí	30–330	Shallow marine sand-stones, silt-stones, shales and lime-stones *arenitos, siltitos, folhelhos e calcáreos marinhos rasos*	Piauí } Potí	Piauí
	Potí		Continental and some shallow marine sand-stones, with shales and silt-stones *arenitos continentais e alguns marinhos, com folhelhos e siltitos*	Campo Maior } Potí	Potí
Late Devonian *Devoniano Superior*	Longá	120–528	Dark grey to black shallow marine shales *folhelhos marinos rasos, cinzentos a pretos*	Longá	Longá { Superior; Tillito Carolina; Inferior }
Middle Devonian *Devoniano Médio*	Cabeças	200–450	Fluviatile and some shallow marine sand-stones *arenitos fluviais e alguns marinhos rasos*		Cabeças { Ipiranga; Oeiras; Passagem }
Early Devonian *Devoniano Inferior*	Pimenteiras	90–270	Shallow marine shales and silt-stones, with some sand-stones *siltitos e folhelhos marinhos rasos, com alguns arenitos*		Pimenteiras
	Serra Grande	130–750	Continental sand-stones *arenitos continentais*		Serra Grande
Pre-Cambrian *Pre-cambriano*			Igneous and metamorphic rocks *rochas igneas e metamórficas*		

Notes Appendix 9 / *chamadas Apéndice 9*

* estimated by graphical interpolation on summation curve / *estimado por interpolação gráfica em curva cumulativa.*

\+ (Profile 5 / *Perfil 5*): see sample 96–2 of Table 7 / *veja amostra 96–2 da Tabela 7.*

++ (Profile 5 / *Perfil 5*): see sample 96–5 of the Tables 7 and 8, Figs. 14a–e and Photo 10 / *veja amostra 96–5 das Tabelas 7 e 8, Figuras 14a–e e Foto 10.*

+++ (Profile 18 / *Perfil 18*): see sample 178–4 of the Tables 7 and 8 / *veja amostra 178–4 das Tabelas 7 e 8.*

No. prof. descr. *de perfil*	Horizon *horizonte*	Depth *profundidade* cm	Granulometric composition of fine earth *composição granulométrica da terra fina*: coarse sand *areia grossa* % 2.0–0.2 mm co.s.	fine sand *areia fina* % 0.2–0.05 mm f.s.	silt *silte* % 0.05–0.02 mm si.	silt *silte* % 0.02–0.002 mm si.	clay *argila* % < 0.002 mm c.	silt-Int./*silte-Int.* / clay/*argila*	silt-USA/*silte-USA* / clay/*argila*	'Natural' clay *argila 'natural'* % n.c.	Fine earth attacked by: *ataque da terra fina por:* H_2SO_4, d = 1.47: SiO_2 %	Al_2O_3 %	Fe_2O_3 %	TiO_2 %	$SiO_2:Al_2O_3$ Ki	$SiO_2:(Al_2O_3 + Fe_2O_3)$ Kr	Moisture equivalent *equivalente de umidade* g/100 g M.E.	C org. %	pH H_2O	Active acidity *acidez ativa* m.e./100g $(Al)^+$	Potential cation exchange capacity *capacidade total de troca* m.e./100g T	Base saturation *saturação de bases* % V	Textural ratio *relação textural* B/A
2	A_1	0–10	6.5	77.4		6.0	10.1	0.58	1.29*	7.0	5.19	4.18	0.69	0.33	2.11	1.91	11.5	0.51	5.4		2.28	29.4	
	A_2	10–30	6.0	69.2		8.1	16.7	0.49	1.02*	10.9	8.11	6.69	1.09	0.40	2.06	1.87	17	0.47	4.8		2.36	14.4	
	B_1	30–60	6.1	59.1		6.9	28.9	0.24	0.45*	13.6	13.10	10.98	1.98	0.52	2.03	1.82	13	0.32	4.8		2.38	15.1	2.90
	B_{2g}	60–110	2.9	38.1		10.2	48.8	0.21	0.33*	0.6	22.57	18.89	3.79	0.67	2.03	1.80	16	0.21	5.0		3.98	8.0	
3	A_1	0–10	2.5	72.5		7.1	17.9	0.40	0.73*	5.1	7.81	6.34	2.45	0.41	2.09	1.68	19.2	1.12	4.6	2.04	5.79	8.5	
	A_2	10–40	2.5	67.7		8.2	21.6	0.38	0.65*	6.3	9.22	8.42	2.84	0.47	1.86	1.53	20.2	0.53	4.8	2.00	3.58	8.9	
	B_{21g}	40–150	2.1	50.9		9.9	37.1	0.27	0.40*	0.2	18.27	14.62	5.76	0.58	2.12	1.70	28.7	0.34	5.3	4.00	5.07	6.5	1.86
	B_{22g}	150–225	2.4	49.6		11.5	36.5	0.32	0.44*	0	20.12	15.45	3.49	0.58	2.21	1.93	29.5	0.15	5.4	5.61	7.36	4.8	
4	A_1	0–40	43.5	28.7	20.9		6.9	1.60*	3.03	2.0	2.75	2.21	0.20	0.26	2.11	1.99	11.5	1.26	4.9	0.81	5.67	13.6	
	A_2	40–100	32.5	28.1	25.5		13.9	1.08*	1.83	10.5	5.80	5.19	0.40	0.46	1.90	1.81	14.3	0.18	4.6	0.64	2.34	19.2	
	AB	100–150	30.1	23.6	24.9		21.4	0.70*	1.16	11.9	9.19	7.78	0.81	0.60	2.01	1.88	17.2	0.17	4.7	1.29	2.85	17.2	2.16
	B_{21g}	150–220	18.7	18.4	26.3		36.6	0.52*	0.72	0	16.76	13.17	2.03	0.80	2.16	1.97	24.7	0.09	5.1	3.17	4.75	9.7	
	B_{22g}	220–330	26.3	17.8	21.8		34.1	0.38*	0.64	0	16.69	13.34	3.65	0.77	2.13	1.81	23.2	0.11	5.1	2.76	4.42	10.6	
5	A_p	0–15	40	37	17	1	5	0.20	3.60									1.10	4.5		5.74		
	A_1^+	15–70	35	35	21	1	8	0.13	2.75									0.44	5.2		4.20		
	A_2	70–110	36	37	18	1	8	0.13	2.38									0.20	5.2		2.55		3.78
	B_{21g}	120–140	33	29	17	1	20	0.05	0.90									0.15	5.1		3.93		
	B_{22g}^{++}	150–170	31	14	12	10	33	0.30	0.67									0.15	4.9		7.37		
6	A_1	0–5	89		5	6	0	–	–									2.0	5.4		0.8		
	A_{21}	5–15	95		3	2	0	–	–									0.3	5.6		0.4		
	A_{22}	15–30	92		7	0	1	0	7.00									0.2	5.4		0.4		11.3
	B_{2g}	40–100	58		8	0	34	0	0.24									0.2	5.1		9.8		
	B_{3g}	100–140	50		7	37	6	6.16	7.33									0.1	5.3		11.5		
7	A_1	0–30	32.3	41.1		10.1	16.5	0.61	1.15*	5.0	7.68	6.87	0.83	0.41	1.90	1.76	25.0	3.33	4.6	3.04	16.47	3.2	
	A_2	30–90	37.0	33.4		7.7	21.9	0.35	0.55*	11.8	9.87	8.13	1.22	0.48	2.06	1.88	16.5	0.22	4.9	1.56	3.43	11.1	
	B_{2g}	120–260	36.9	26.2		7.1	29.8	0.24	0.37*	0	14.67	11.75	2.84	0.51	2.12	1.84	20.6	0.09	5.0	2.48	3.66	10.9	⩽1.84
	B_{3g}	260–300	39.1	34.7		4.0	22.8	0.18	0.31*	0	10.76	8.85	1.61	0.47	2.07	1.85	17.1	–	4.9	1.08	2.16	25.5	
8	A_1	0–3	11.8	22.4		12.5	53.3	0.25	0.34*	24.0	23.53	21.65	1.03	0.94	1.85	1.79	28.5	2.35	5.3	0.25	9.86	37.6	
	A_2	3–20	7.1	15.2		6.4	71.3	0.09	0.15*	28.5	28.58	27.26	2.05	1.12	1.78	1.70	27.5	1.00	4.7	0.70	5.50	25.5	
	B_{21g}	20–100	3.8	9.8		4.3	82.1	0.05	0.07*	0	33.49	32.08	2.46	0.93	1.77	1.69	29.6	0.36	5.2	0.66	4.23	27.2	1.31
	B_{22g}	100–150	2.6	9.1		6.8	81.5	0.08	0.11*	0	35.82	34.82	2.36	1.18	1.75	1.68	31.0	0.27	5.3	0.45	4.27	27.9	

No. prof. descr. *descr. de perfil*	Horizon *horizonte*	Depth *profundidade* cm	Granulometric composition of fine earth *composição granulométrica da terra fina*: coarse sand *areia grossa* % 2.0–0.2 mm co.s.	fine sand *areia fina* % 0.2–0.05 mm f.s.	silt *silte* % 0.05–0.02 mm si.	silt *silte* % 0.02–0.002 mm si.	clay *argila* % < 0.002 mm c.	silt-Int./*silte-Int.* / clay/*argila*	silt-USA/*silte-USA* / clay/*argila*	'Natural' clay *argila 'natural'* % n.e.	Fine earth attacked by: *ataque da terra fina por:* H_2SO_4, d = 1.47: SiO_2 %	Al_2O_3 %	Fe_2O_3 %	TiO_2 %	$SiO_2:Al_2O_3$ Ki	$SiO_2:(Al_2O_3 + Fe_2O_3)$ Kr	Moisture equivalent *equivalente de umidade* g/100 g M.E.	C org. %	pH H_2O	Active acidity *acidez ativa* m.e./100g $(Al)^+$	Potential cation exchange capacity *capacidade total de troca* m.e./100g T	Base saturation *saturação de bases* % V	Textural ratio *relação textural* B/A
9	A_1	0–5	11.9	69.8	3.6	14.7	0.24	0.90*	3.2	6.13	4.63	1.41	0.96	2.25	1.89	10.2	0.34	4.1	0.73	2.77	19.9	
	A_2	5–40	6.1	58.8	3.0	32.1	0.09	0.39*	15.4	14.88	11.24	2.62	1.05	2.25	1.96	16.4	0.23	4.5	0.49	1.91	26.7	2.17
	B_{1g}	40–80	4.9	42.9	3.7	48.5	0.08	0.21*	0	21.46	17.69	3.44	1.01	2.06	1.84	21.4	0.11	4.6	0.49	1.36	40.4	
	B_{2g}	80–150	4.9	35.3	6.7	53.1	0.13	0.24*	0	24.18	21.26	3.03	1.04	1.93	1.77	22.4	0.01	4.9	0.24	1.17	57.3	
10	A_1	0–70	8.2	88.0	1.8	2.0	0.90	2.50*	0.2	0.52	1.02	0.70	0.17	0.87	0.60	5.0	0.43	5.7	0.24	1.02	42.0	
	A_2	70–140	7.0	84.6	2.6	5.8	0.45	1.21*	3.6	1.81	3.03	0.60	0.20	1.02	0.90	7.9	0.19	5.6	0.24	1.00	40.0	
	B_{1g}	140–170	6.5	82.4	3.4	7.7	0.44	0.91*	0.2	3.48	3.39	1.61	0.25	1.75	1.34	10.8	0.10	5.2	0.24	0.88	54.5	1.76
	B_{2g}	170–230	5.7	85.5	2.8	6.0	0.47	1.17*	0.4	2.81	2.51	1.61	0.25	1.90	1.35	8.5	0.05	5.3	0.40	0.92	45.5	
	C_g	230–325	9.2	84.6	2.0	4.2	0.48	1.20*	2.6	2.55	2.15	0.40	0.17	2.02	1.80	5.9	0.06	5.1	0.52	0.99	39.5	
11	A_1	0–30	0.3	69.0	13.1	17.6	0.74	1.31*	5.1	8.17	6.04	0.72	0.43	2.30	2.14	29.4	3.13	4.7	3.36	12.34	4.9	
	A_2	30–60	0.1	48.8	9.9	41.2	0.24	0.39*	0.4	17.25	14.28	1.54	0.62	2.05	1.92	26.2	0.42	4.8	4.92	5.85	12.0	1.78
	B_{2g}	60–270	3.5	26.3	17.9	52.3	0.34	0.35*	0.8	22.61	18.07	7.60	0.66	2.13	1.68	30.3	0.21	4.8	7.80	8.89	10.9	
13	A_1	0–10	0.1	88.2	7.8	3.9	2.00	4.10*	0.4	3.47	1.64	0.50	0.20	3.59	3.01	13.8	1.08	5.2	0.28	2.93	45.1	
	A_2	10–25	0.2	85.7	8.5	5.6	1.52	2.50*	2.6	3.76	2.69	0.80	0.26	2.38	2.00	12.9	0.35	5.1	0.52	1.52	47.4	
	AB_g	25–60	0.3	71.4	9.6	18.7	0.51	0.68*	12.6	7.64	5.85	2.03	0.37	2.22	1.82	18.0	0.21	5.6	1.71	3.14	35.4	2.59
	B_{2g}	60–225	0.3	59.4	10.3	30.0	0.34	0.60*	15.8	13.43	10.21	3.48	0.47	2.24	1.84	22.0	0.15	5.3	4.48	5.49	21.5	
14	A_1	0–50	38.3	34.0	21.9	5.8	1.90*	3.78	1.4	2.86	1.69	0.10	0.25	2.87	2.77	9.6	0.86	4.3	1.47	5.09	13.6	
	A_2	50–140	41.9	28.2	23.0	6.9	1.89*	3.33	4.6	3.12	2.32	0.20	0.27	2.29	2.17	9.7	0.16	4.7	1.13	2.66	28.9	
	AB	140–175	37.6	29.0	22.5	10.9	1.10*	2.06	7.1	4.88	3.36	0.61	0.29	2.47	2.22	12.3	0.14	4.5	1.66	3.39	27.1	2.48
	B_{2g}	175–250	22.2	20.3	29.4	28.1	0.71*	1.05	2.3	12.43	8.39	2.48	0.42	2.52	2.12	19.5	0.09	4.8	2.69	7.78	53.1	
	B_{3g}	250–320	8.6	21.0	45.6	24.8	1.29*	1.84	0.4	11.22	8.78	3.12	0.45	2.17	1.77	22.0	0.06	4.7	0.88	11.39	80.3	
15	A_1	0–5	10.5	39.6	38.9	11.0	1.90*	3.54	3.0	5.52	2.44	1.62	0.62	3.85	2.71	14.9	1.80	4.6	0.45	8.16	46.3	
	A_2	5–30	8.2	34.0	40.7	17.1	1.23*	2.38	9.5	7.80	4.76	3.85	0.54	2.78	1.84	14.9	0.68	4.8	1.83	4.62	22.5	
	B_{1g}	30–50	4.3	18.9	43.9	32.9	0.85*	1.33	16.0	15.84	9.71	6.16	0.47	2.77	1.97	23.6	0.36	4.7	3.95	7.81	18.3	
	B_{2g}	50–80	2.6	12.5	46.8	38.1	0.81*	1.23	9.3	19.37	12.15	7.24	0.67	2.71	1.96	27.6	0.26	4.7	5.76	9.32	16.4	2.53
	B_{3g}	80–100	1.3	13.4	54.6	30.7	1.24*	1.78	1.4	17.60	11.09	4.11	0.47	2.70	2.18	26.4	0.19	4.4	4.66	9.99	37.3	
	C_g	100–120	1.6	15.6	52.0	30.8	1.17*	1.69	7.6	16.67	10.69	4.72	0.54	2.65	2.07	24.6	0.15	4.9	4.36	7.79	22.6	
16	A_1	0–4	23.1	36.7	22.6	17.6	0.63*	1.28	5.5	9.75	5.68	2.45	1.61	2.92	2.29	23.9	2.42	5.0	0.24	13.25	44.8	
	A_2	4–20	24.7	38.4	21.1	15.8	0.70*	1.34	9.5	8.30	5.51	3.02	1.60	2.56	1.90	27.2	0.35	5.0	0.73	4.15	32.5	
	B_{2g}	20–90	12.4	20.5	21.4	45.7	0.27*	0.47	40.4	21.66	15.48	5.34	1.49	2.38	1.95	16.6	0.39	5.3	1.81	11.77	62.2	2.74
	B_{3g}	90–130	18.4	21.6	19.3	40.7	0.29*	0.47	33.3	18.30	13.54	4.48	1.42	2.30	1.90	24.3	0.33	5.3	2.86	8.12	40.3	

No. prof. descr. *descr. de perfil*	Horizon *horizonte*	Depth *profundidade* cm	Granulometric composition of fine earth *composição granulométrica da terra fina*: coarse sand *areia grossa* % 2.0–0.2 mm co.s.	fine sand *areia fina* % 0.2–0.05 mm f.s.	silt *silte* % 0.05–0.02 mm si.	silt *silte* % 0.02–0.002 mm si.	clay *argila* % < 0.002 mm c.	silt-Int./*silte-Int.* / clay/*argila*	silt-USA/*silte-USA* / clay/*argila*	'Natural' clay *argila 'natural'* % n.c.	Fine earth attacked by: *ataque da terra fina por:* H_2SO_4, d = 1.47: SiO_2 %	Al_2O_3 %	Fe_2O_3 %	TiO_2 %	$SiO_2:Al_2O_3$ Ki	$SiO_2:(Al_2O_3 + Fe_2O_3)$ Kr	Moisture equivalent *equivalente de umidade* g/100 g M.E.	C org. %	pH H_2O	Active acidity *acidez ativa* m.e./100g $(Al)^+$	Potential cation exchange capacity *capacidade total de troca* m.e./100g T	Base saturation *saturação de bases* % V	Textural ratio *relação textural* B/A
17	A_1	0–15	3.5	78.5		9.9	8.1	1.22	2.22*	4.2	4.43	1.95	1.21	0.56	3.86	2.76	19.6	0.73	5.0	0.73	2.54	28.7	
18	A_1	0–15	0.1	27.9		19.8	52.2	0.38	0.54*	23.0	25.99	14.25	4.52	0.52	3.10	2.58	38.5	1.81	4.4	7.12	15.80	33.3	
	A_{2g}	15–20	0.7	49.3		19.8	30.2	0.66	1.09*	12.8	16.70	9.01	3.50	0.48	3.15	2.53	31.6	0.93	4.5	4.76	10.55	27.5	
	B_1-C	20–55	0.3	28.8		21.5	49.4	0.44	0.61*	22.7	21.53	14.15	6.04	0.55	2.59	2.03	33.9	0.92	4.4	8.32	12.29	15.1	1.25
	B_{21}-C+++	55–100	0.9	24.8		18.5	55.4	0.33	0.49*	7.1	25.76	18.32	6.34	0.69	2.59	1.96	32.0	0.28	4.3	10.30	12.42	14.5	
	B_{22}-C	100–180	0.9	28.8		20.2	50.1	0.40	0.60*	8.8	22.76	16.60	4.21	0.65	2.33	2.01	30.4	0.19	4.2	7.52	10.65	22.6	
19	A_1	0–10	8.5	22.3		14.9	54.3	0.27	0.40*	23.6	24.7	23.19	3.10	1.15	1.77	1.63	32.0	3.44	4.5	1.20	13.70	23.9	
	A_2	10–70	4.4	13.8		11.6	70.2	0.17	0.24*	32.8	29.21	30.94	3.29	1.29	1.61	1.50	31.6	0.85	4.6	0.91	5.80	11.0	
	B_1	70–120	4.7	15.2		15.4	64.7	0.24	0.31*	0	32.42	36.42	4.51	1.23	1.51	1.40	32.1	0.34	4.9	0.37	3.97	17.1	1.00
	B_2-B_3	120–350	6.9	12.8		20.4	59.9	0.34	0.45*	0	31.88	36.09	4.06	1.31	1.50	1.40	30.5	0.13	5.2	0.24	2.91	16.2	
	C	350–550	2.2	14.5		28.4	54.9	0.51	0.64*	0	32.42	31.19	2.03	1.27	1.77	1.70	32.5	0.06	5.0	0.45	2.46	17.5	
20	A_1	0–10	31.6	36.7		9.8	21.9	0.45	0.73*	4.5	10.43	7.82	5.51	0.88	2.27	1.58	17.3	2.75	4.7	0.53	9.29	33.9	
	A_2	10–80	17.5	23.7		4.5	54.3	0.08	0.15*	23.6	21.66	19.25	9.16	1.35	1.91	1.47	23.8	0.49	4.6	1.43	3.89	16.2	1.46
	B_2	80–160	10.3	24.7		9.4	55.6	0.17	0.25*	0	26.82	22.66	12.91	1.35	2.01	1.48	24.4	0.17	4.5	1.59	3.31	19.9	
	B_3	160–250	16.5	31.4		6.5	45.6	0.14	0.24*	0	20.17	16.89	5.15	1.10	2.03	1.70	19.8	0.10	4.8	1.30	2.22	18.0	
21	A_1	0–5	33.8	41.5		7.6	17.1	0.44	0.82*	3.7	7.95	5.87	2.84	0.53	2.30	1.76	16.7	3.63	4.1	1.10	12.82	20.4	
	A_2	5–80	13.8	37.3		9.2	39.7	0.23	0.38*	22.8	17.18	15.49	3.66	0.89	1.88	1.64	20.9	0.71	4.6	1.10	5.97	11.2	1.84
	B_1-B_2	80–220	13.0	26.4		7.9	52.7	0.15	0.23*	0	26.55	25.26	4.72	1.04	1.79	1.60	25.1	0.29	4.7	0.73	3.65	16.4	
	B_3	220–280	24.5	19.8		13.1	42.6	0.31	0.40*	0	25.42	23.68	3.42	0.88	1.82	1.67	24.8	0.09	5.0	0.44	2.29	20.5	
23	A_1	0–15	36.4	24.2	11.4		28.0	0.18*	0.41	9.1	12,17	10.78	2.63	0.92	1.92	1.53	17	1.08	4.8	1.34	4.93	11	
	A_3	15–30	32.0	25.0	10.8		32.2	0.17*	0.34	13.6	12.87	12.07	3.03	1.02	1.81	1.56	17	0.69	4.8	1.05	3.47	10	
	B_1	30–50	27.9	20.9	9.2		42.0	0.12*	0.22	0	16.25	15.28	3.24	1.04	1.81	1.60	22	0.40	5.0	0.77	2.24	16	1.60
	B_{21}	50–75	23.0	19.1	8.7		49.2	0.10*	0.18	0	18.63	17.38	3.85	1.11	1.82	1.59	24	0.40	5.2	0.39	2.23	17	
	B_{22}	75–110	20.3	18.7	7.2		53.8	0.08*	0.13	0	20.45	18.95	4.06	1.11	1.83	1.63	25	0.30	5.3	0.33	2.07	18	

No. prof. descr. *descr. de perfil*	No. lab. IQA	Horizon *horizonte*	Depth *profundidade* cm	Coarse gravel *calhaus* % > 20 mm co.g.	Fine gravel *cascalho* % 20–2.0 mm f.g.	Fine earth *terra fina* % < 2.0 mm f.e.	Granulometric composition of fine earth *composição granulométrica da terra fina*: coarse sand *areia grossa* % 2.0–0.2 mm co.s.	fine sand *areia fina* % 0.2–0.05 mm f.s.	silt *silte* % 0.05–0.02 mm si.	silt *silte* % 0.02–0.002 mm si.	clay *argila* % < 0.002 mm c.	'Natural' clay *argila 'natural'* % n.c.	Index of structure *grau de floculação*	Apparent bulk density *massa espec. aparente* g/cm³ a.b.d.	Real bulk density *massa espec. real* g/cm³ r.b.d.	Fine earth attacked by: *ataque da terra fina por:* H_2SO_4, d = 1.47: SiO_2 %	Al_2O_3 %	Fe_2O_3 %	TiO_2 %	P_2O_5 %	$SiO_2:Al_2O_3$ Ki	$SiO_2:(Al_2O_3 + Fe_2O_3)$ Kr
KAOLINITIC YELLOW LATOSOL (,Ortho), very heavy textured																						
24	32,681	A_1	0–2	0	0.1	99.9	4.0	11.2	10.2	74.6	23.3	69				28.80	25.54	8.29	1.02	0.05	1.92	1.59
	32,682	A_3	2–20	0	0.2	99.8	1.9	8.0	7.2	82.9	33.0	60				30.82	29.60	8.74	0.89	0.03	1.77	1.49
	32,683	B_2	20–60	0	0	100	0.9	5.8	4.8	88.5	0	100				33.66	32.42	9.99	0.83	0.03	1.77	1.48
	32,684	B_3	60–150	0	0.1	99.9	0.7	13.7	11.7	73.9	0	100				33.85	32.94	10.38	0.77	0.03	1.75	1.45
	32,685*	C	150–250	0	0	100	0.6	10.2	14.2	75.0	0	100				32.50	33.40	9.54	1.01	0.03	1.65	1.40

* 78% hyaline quartz grains, some of them rolled, others corroded; 20% sanguineous iron concretions and cream-coloured clay concretions; 2% vegetal detritus parts; traces of muscovite, turmaline and magnetite

KAOLINITIC YELLOW LATOSOL (,Ortho), medium textured																						
25	32,691	A_1	0–20	0	0	100	79.1	13.2	1.0	6.7	1.8	73				4.11	3.80	1.21	0.34	0.03	1.84	1.52
	32,692	A_3	20–70	0	0	100	68.4	16.4	0.8	14.4	7.9	45				6.95	6.29	1.72	0.57	0.03	1.88	1.60
	32,693	B_1	70–140	0	0	100	68.5	14.3	0.4	16.8	10.1	40				8.62	7.77	1.72	0.67	0.03	1.89	1.65
	32,694	B_{21}	140–220	0	0	100	62.7	16.5	1.0	19.8	0	100				9.31	8.55	1.92	0.64	0.03	1.85	1.62
	32,695*	B_{22}	220–320	0	0	100	62.2	16.4	0.4	21.0	0	100				9.44	8.69	1.82	0.64	0.03	1.85	1.63

* 100% hyaline and lacteous quartz grains, some of the hyaline ones rolled; some of the grains are corroded, many have a ferruginous vernis. Traces of dark iron concretions, turmaline and staurolite

KAOLINITIC YELLOW LATASOL, Compact phase, very heavy textured																						
26	32,879	A_1	0–3	0	0.1	99.9	9.3	15.8	14.6	60.3	33.8	44				25.56	22.62	3.49	1.36	0.08	1.92	1.75
	32,880	A_3	3–40	0	0.6	99.4	4.9	11.7	8.2	75.2	17.3	77				31.41	28.91	3.79	1.97	0.07	1.85	1.70
	32,881	B_2	40–90	0	0.1	99.9	2.8	5.7	7.0	84.5	0	100				34.23	32.82	4.10	1.85	0.06	1.77	1.64
	32,882	B_3	90–130	0	0.1	99.9	2.5	7.4	10.5	79.6	0	100				35.46	33.18	4.00	1.60	0.06	1.82	1.69
	32,883*	C	130–180	0	0.3	99.7	2.3	6.3	8.4	83.0	0	100				35.37	33.47	3.89	1.58	0.07	1.80	1.67

* 83% hyaline quartz grains, many of them rolled, some corroded; 5% vegetal detritus parts; 10% lacteous clay concretions and khaki-coloured clay concretions; 2% dark and sanguineous iron concretions; traces of magnetite and rolled turmaline

KAOLINITIC YELLOW LATOSOL, Compact phase, rather heavy textured																						
27	32,673	A_1	0–30	0	0	100	55.0	27.1	3.0	14.9	5.9	61				7.40	6.02	1.11	0.60	0.03	2.09	1.87
	32,674	A_3	30–60	0	0	100	38.7	24.9	2.4	34.0	17.8	48				14.26	12.45	1.92	0.94	0.03	1.95	1.77
	32,675	B_2	60–120	0	0	100	36.5	25.6	2.6	35.3	12.4	65				15.04	13.02	2.03	1.06	0.03	1.96	1.79
	32,676	B_3	120–170	0	0	100	42.5	24.5	2.4	30.6	0	100				13.51	12.02	1.72	0.94	0.03	1.91	1.75

KAOLINITIC YELLOW LATOSOL, intergrade to RED YELLOW PODZOLIC siol, rather heavy textured																						
29	32,866	A_{11}	0–5	0	0	100	30.1	29.2	7.6	33.1	15.5	53				14.84	12.34	1.12	0.61	0.03	2.04	1.93
	32,867	A_{12}	5–15	0	0	100	25.9	26.9	7.5	39.7	22.6	43				17.91	15.20	1.32	0.82	0.03	2.00	1.90
	32,868	A_3	15–50	0	0	100	11.5	26.7	7.1	54.7	0.8	99				24.71	21.63	1.32	1.06	0.03	1.94	1.87
	32,869	A+B	50–70	0	0	100	10.8	22.7	6.1	60.4	0	100				26.27	23.89	1.32	1.06	0.03	1.87	1.81
	32,870*	B_2	70–140	0	0	100	9.6	20.9	6.3	63.2	0	100				27.79	25.82	1.42	1.19	0.03	1.83	1.77
	32,871	B_3	140–190	0	0	100	9.0	20.2	9.3	61.5	0	100				28.76	26.67	1.32	1.27	0.03	1.83	1.78
	32,872*	C	190–250	0	0	100	6.7	20.2	10.9	62.2	0	100				29.09	28.16	0.91	1.27	0.02	1.76	1.72

* 32,870: 98% hyaline quartz grains; 2% vegetal detritus parts; traces of turmaline and magnetite. 32,872: 100% hyaline quartz grains; traces of lacteous clay concretions, vegetal detritus parts and turmaline.

* mineralogical composition of the coarse sand fraction / *composição mineralógica da fração areia grossa.*

Horizon *horizonte*	Moisture equivalent *equivalente de umidade*	C org.	N total	C/N	pH H_2O	pH KCl	P_2O_5 available *assimilável* Truog	P_2O_5 available *assimilável* Bray	Cation exchange complex/*complexo de troca catiônica* (m.e./100 g): exchangeable metallic cations *bases trocáveis* Ca^{++}	Mg^{++}	K^+	Na^+	sum of cations *soma das bases*	active acidity *acidez ativa*	pH-depend. acidity *acidez pH-depend.*	Potential cation exchange capacity *capac. total de troca*	Base saturation *saturação de bases*	Soluble salts *sais solúveis*	Textural ratio *relação textural*
	g/100 g M.E.	% C	% N				mg/100 g						S	$(Al)^+$	H^+	T	% V	m.e./100 g s.s.	B/A
(KYL, *vh*)																			
A_1	34.7	3.61	0.33	10.9	4.0	3.5	0.5	1.2	0.87	0.98	0.26	0.07	2.18	2.16	10.52	14.86	14.7		
A_3	33.4	1.29	0.13	9.9	4.2	3.8	0.4	0.4	0.56		0.14	0.04	0.74	1.57	4.62	6.93	10.7		
B_2	34.0	0.69	0.08	8.6	4.7	4.1		0.2	0.49		0.12	0.03	0.64	1.07	2.85	4.56	14.0		1.12
B_3	34.2	0.44	0.05	8.8	5.2	4.7		0.1	0.47		0.09	0.03	0.59	0.16	1.90	2.65	22.3		
C	33.6	0.27	0.03	9.0	5.5	4.9		0.1	0.45		0.09	0.03	0.57	0.16	1.28	2.01	28.4		
(KYL, *m*)																			
A_1	4.8	0.88	0.06	14.7	4.6	3.9	0.4	1.1	0.48		0.06	0.03	0.57	0.72	2.91	4.20	13.6		
A_3	8.3	0.42	0.03	14.0	4.6	3.9	0.4	0.6	0.32		0.08	0.04	0.44	0.93	2.30	3.67	12.0		
B_1	9.4	0.25	0.03	8.3	4.5	3.8		0.2	0.28		0.06	0.03	0.37	0.73	1.49	2.59	14.3		1.82
B_{21}	9.4	0.18	0.02	9.0	4.5	3.8		0.2	0.28		0.07	0.03	0.38	0.64	0.97	1.99	19.1		
B_{22}	10.1	0.13	0.02	6.5	4.5	3.8		0.1	0.28		0.06	0.03	0.37	0.64	0.37	1.38	26.8		
(KYL, C_{vh})																			
A_1	31.6	2.59	0.30	8.6	4.4	3.8	0.6	2.5	1.11	0.80	0.12	0.08	2.11	0.95	6.93	9.99	21.1		
A_3	29.4	0.96	0.12	8.0	4.6	4.0	0.4	0.5	0.76		0.10	0.06	0.92	1.11	3.19	5.22	17.6		
B_2	31.7	0.63	0.08	7.9	4.8	4.0		0.2	0.51		0.13	0.11	0.75	1.03	2.47	4.25	17.6		1.28
B_3	32.6	0.48	0.06	8.0	5.1	4.0		0.1	0.51		0.11	0.04	0.66	0.78	2.27	3.71	17.8		
C	32.0	0.38	0.05	7.6	5.1	4.2		0.1	0.47		0.11	0.04	0.62	0.70	2.19	3.51	17.7		
(KYL, C_{rh})																			
A_1	9.3	0.65	0.06	10.8	4.3	3.7	0.4	1.2	0.54		0.11	0.08	0.73	0.72	2.71	4.16	17.5		
A_3	16.8	0.46	0.05	9.2	4.8	4.0	0.3	0.3	0.69		0.08	0.10	0.87	0.61	1.82	3.30	26.4		1.44
B_2	17.2	0.25	0.03	8.3	5.0	4.2		0.2	0.95		0.09	0.08	1.12	0.24	1.58	2.94	38.1		
B_3	14.6	0.22	0.03	7.3	5.0	4.3		0.2	0.58		0.11	0.12	0.73	0.12	1.30	2.15	34.0		
(KYL-RP$_{rh}$)																			
A_{11}	22.2	2.45	0.22	11.1	3.9	3.4	0.8	1.4	0.33	0.90	0.10	0.05	1.38	2.16	7.47	11.01	12.5		
A_{12}	20.6	1.27	0.10	12.7	4.3	3.8	0.5	0.9	0.61		0.08	0.03	0.72	1.42	3.88	6.02	12.0		
A_3	25.1	0.54	0.07	7.7	4.2	3.7	0.4	0.5	0.47		0.05	0.02	0.54	1.34	2.19	4.07	13.3		
AB	26.1	0.45	0.06	7.5	3.8	3.6		0.4	0.36		0.04	0.02	0.42	1.50	1.65	3.57	11.8		1.49
B_2	25.7	0.29	0.06	4.8	3.9	3.7		0.2	0.39		0.06	0.02	0.47	1.54	1.14	3.15	14.9		
B_3	25.1	0.21	0.05	4.2	4.0	3.7		0.2	0.45		0.06	0.03	0.54	1.22	0.96	2.72	19.9		
C	24.4	0.09	0.03	3.0	5.0	4.0		0.2	0.45		0.06	0.02	0.53	0.65	0.76	1.94	27.3		

No. prof. descr. *descr. de perfil*	No. lab. IQA	Horizon *horizonte*	Depth *profundidade* cm	Coarse gravel *calhaus* % > 20 mm co.g.	Fine gravel *cascalho* % 20–2.0 mm f.g.	Fine earth *terra fina* % < 2.0 mm f.e.	Granulometric composition of fine earth *composição granulométrica da terra fina*: coarse sand *areia grossa* % 2.0–0.2 mm co.s.	fine sand *areia fina* % 0.2–0.05 mm f.s.	silt *silte* % 0.05–0.02 mm si.	silt *silte* % 0.02–0.002 mm si.	clay *argila* % < 0.002 mm c.	'Natural' clay *argila 'natural'* % n.c.	Index of structure *grau de floculação*	Apparent bulk density *massa espec. aparente* g/cm³ a.b.d.	Real bulk density *massa espec. real* g/cm³ r.b.d.	Fine earth attacked by: *ataque da terra fina por:* H_2SO_4, d = 1.47: SiO_2 %	Al_2O_3 %	Fe_2O_3 %	TiO_2 %	P_2O_5 %	$SiO_2:Al_2O_3$ Ki	$SiO_2:(Al_2O_3 + Fe_2O_3)$ Kr
KAOLINITIC RED LATOSOL, medium textured																						
31	32,351	A_1	0–20	0	0.6	99.4	47.2	38.8		6.8	7.2	2.4	67	1.49	2.63	2.13	2.10	0.90	0.15	0.03	1.72	1.35
	32,352	A_3	20–70	0	11.3	88.7	22.4	53.5		6.8	17.3	12.1	28	1.54	2.66	6.67	5.40	1.81	0.30	0.02	2.10	1.73
	32,353	B_2	70–120	0	9.2	90.8	25.6	51.4		8.0	15.0	1.0	93	1.61	2.66	5.97	5.06	1.60	0.28	0.03	2.01	1.67
	32,354	B_3	120–300	0	3.3	96.7	27.9	55.7		5.0	14.0	0	100	1.68	2.63	5.61	3.99	1.40	0.25	0.02	2.39	1.95
KAOLINITIC LATOSOLIC SAND, Forest phase																						
32	33,203	A_1	0–10	0	0	100	16.9	70.6		6.4	6.1	1.4	77			2.62	2.05	0.81	0.21	0.03	2.16	1.73
	33,204	A_3	10–70	0	0	100	20.4	64.0		7.7	7.9	1.8	77			3.34	3.50	0.81	0.33	0.02	1.62	1.41
	33,205	B_{11}	70–140	0	0	100	12.9	70.0		8.8	8.3	2.6	69			3.54	3.54	1.21	0.36	0.02	1.70	1.39
	33,206	B_{12}	140–220	0	0	100	15.5	68.1		7.9	8.5	2.0	76			3.68	3.59	0.80	0.36	0.02	1.74	1.52
	33.207	B_2	220–290	0	0	100	14.6	67.2		7.3	10.9	1.2	89			4.21	4.05	1.01	0.34	0.02	1.77	1.53
	33,208	$B_3(g)$	290–320	0	0	100	13.2	66.3		9.8	10.7	0.2	98			4.24	4.05	0.60	0.30	0.02	1.78	1.63
KAOLINITIC LATOSOLIC SAND, Savannah phase																						
33	33,213	A_1	0–30	0	0	100	64.6	26.0		3.8	5.6	2.6	54			3.41	3.43	0.70	0.30	0.02	1.69	1.49
	33,214	A_3	30–65	0	0	100	62.0	28.7		0.9	8.4	3.6	57			4.00	3.90	0.80	0.33	0.02	1.75	1.54
	33,215	B_1	65–130	0	0	100	62.2	22.2		4.1	11.5	0	100			6.03	5.90	1.21	0.50	0.02	1.74	1.54
	33,216	B_{21}	130–220	0	0	100	53.5	27.1		4.3	15.1	0	100			5.97	5.84	1.21	0.49	0.02	1.74	1.53
	33,217	B_{22}	220–320	0	0	100	50.3	28.6		4.8	16.3	0	100			6.95	6.46	1.41	0.53	0.02	1.83	1.61
RED YELLOW LATOSOL(?)																						
34	33,288	A_1	0–40				4.0	3.6		16.0	76.4											
		A_3	40–100																			
	33,289	B_2	100–200				3.7	2.5		11.6	82.2											
DARK RED LATOSOL, Shallow phase																						
35	33,153	A_1	0–15	10	21	69	18.3	26.3		20.3	35.1	12.8	64			11.30	10.62	19.34	0.86	0.28	1.81	0.84
	33,154	A_3	15–40	6	37	57	15.4	26.0		20.5	38.1	16.3	57			11.86	11.23	19.52	0.85	0.30	1.80	0.85
	22,155	B_2	40–80	6	47	47	15.0	24.8		20.5	39.7	4.9	88			11.55	11.95	19.89	0.88	0.33	1.64	0.80
	33,156	C	80–120	0	46	54	12.7	23.1		24.4	39.8	0.2	99			11.87	12.51	24.17	0.99	0.37	1.61	0.72
RED YELLOW PODZOLIC soil, with low base saturation																						
36		A_1	0–3				7	26	11	38	18											
		A_2	3–26				6	25	25	23	21											
		B_1	26–60				6	17	15	27	35											
		B_2	60–85				5	10	26	13	46											
		B_{3g}	85–130				5	8	3	24	60											

Horizon *horizonte*	Moisture equivalent *equivalente de umidade*	C org.	N total	C/N	pH H_2O	pH KCl	P_2O_5 available *assimilável* Truog	P_2O_5 available *assimilável* Bray	Cation exchange complex/*complexo de troca catiônica* (m.e./100 g): exchangeable metallic cations *bases trocáveis* Ca^{++}	Mg^{++}	K^+	Na^+	sum of cations *soma das bases*	active acidity *acidez ativa*	pH-depend. acidity *acidez pH-depend.*	Potential cation exchange capacity *capac. total de troca*	Base saturation *saturação de bases*	Soluble salts *sais solúveis*	Textural ratio *relação textural*
	g/100 g M.E.	% C	% N				mg/100 g						S	$(Al)^+$	H^+	T	% V	m.e./100 g s.s.	B/A
(KRL$_m$)																			
A_1	6.0	0.69	0.05	13.8	4.4	3.6	1.3	2.3	0.64	0.36	0.03	0.02	1.05	0.44	1.17	2.66	39.5		
A_3	11.1	0.18	0.02	9.0	4.4	3.8	0.8	0.3	0.46	0.26	0.03	0.02	0.77	0.44	0.36	1.57	49.0		1.25
B_2	10.3	0.20	0.02	10.0	4.1	3.8	0.8	0.2	0.46	0.26	0.02	0.01	0.75	0.32	0.08	1.15	65.2		
B_3	8.9	0.04	0.01	4.0	4.5	3.8	0.8	0.2	0.46	0.26	0.03	0.01	0.76	0.24	0.06	1.06	71.7		
(KLS, F)																			
A_1	6.8	0.97	0.10	9.7	4.5	3.6		1.3	0.48		0.06	0.03	0.57	0.93	3.83	5.33	10.7		
A_3	6.8	0.41	0.04	10.3	5.1	4.2		0.7	0.30		0.06	0.04	0.40	0.52	2.44	3.36	11.9		
B_{11}	6.4	0.21	0.02	10.5	4.9	4.2		0.3	0.30		0.04	0.07	0.41	0.44	1.62	2.47	16.6		1.31
B_{12}	6.7	0.18	0.02	9.0	5.0	4.2		0.3	0.30		0.06	0.05	0.41	0.36	0.97	1.74	23.6		
B_2	6.0	0.09	0.02	4.5	5.0	4.1		0.3	0.30		0.06	0.05	0.41	0.32	0.88	1.61	25.5		
$B_3(g)$	7.2	0.08	0.02	4.0	4.8	4.1		0.3	0.36		0.08	0.08	0.52	0.32	0.85	1.69	30.8		
(KLS, S)																			
A_1	4.8	0.38	0.03	12.7	5.1	4.0		0.5	0.28		0.03	0.02	0.33	0.44	1.65	2.42	13.6		
A_3	5.7	0.24	0.02	12.0	4.9	4.0		0.4	0.26		0.03	0.02	0.31	0.40	1.29	2.00	15.5		
B_1	7.6	0.13	0.02	6.5	5.0	4.0		0.3	0.26		0.04	0.03	0.33	0.32	1.04	1.69	19.5		2.04
B_{21}	8.5	0.09	0.01	9.0	5.3	4.2		0.2	0.26		0.05	0.04	0.35	0.24	0.86	1.45	24.1		
B_{22}	8.3	0.12	0.01	12.0	5.2	4.1		0.3	0.26		0.04	0.05	0.35	0.24	0.83	1.42	24.6		
(RL)																			
A_1	35.2	0.78	0.08	9.8	5.3	4.4		0.4	1.01		0.13	0.32	1.46	0.41	4.20	6.07	24.1		
A_3																			
B_2	36.5	0.21	0.04	5.3	5.3	4.7		0.3	0.70		0.02	0.03	0.75	0.25	2.88	3.88	19.3		
(DL, S)																			
A_1	21.5	1.44	0.15	9.6	4.9	3.9		0.6	0.62		0.19	0.04	0.85	1.28	6.78	8.91	9.5		
A_3	22.2	1.02	0.11	9.3	5.1	4.0		0.5	0.41		0.15	0.04	0.60	0.99	5.67	7.26	8.3		
B_2	23.0	0.64	0.07	9.1	5.1	4.0		0.5	0.41		0.16	0.04	0.61	0.66	4.63	5.90	10.3		1.08
C	24.0	0.56	0.07	8.0	5.5	4.4		0.4	0.62		0.15	0.03	0.80	0.29	3.88	4.97	16.1		
(RP$_{ib}$)																			
A_1		1.34	0.14	9.6	5.3	3.9	<0.5		0.66	0.56	0.31	<0.01	1.54	8.04		9.58	16		
A_2		0.64	0.09	7.1	4.8	3.6			0.41	0.26	0.25	<0.01	0.93	7.54		8.47	11		
B_1		0.35	0.08	4.4	4.9	3.6			0.10	0.20	0.22	<0.01	0.53	10.67		11.20	5		2.04
B_2		0.34	0.09	3.8	4.8	3.6			<0.01	0.38	0.24	0.01	0.64	13.35		13.99	5		
B_{3g}		0.20	0.08	2.5	5.0	3.8			<0.01	0.38	0.21	0.02	0.62	19.09		19.71	3		

No. prof. descr. *descr. de perfil*	No. lab. IQA	Horizon *horizonte*	Depth *profundidade* cm	Coarse gravel *calhaus* % > 20 mm co.g.	Fine gravel *cascalho* % 20–2.0 mm f.g.	Fine earth *terra fina* % < 2.0 mm f.e.	Granulometric composition of fine earth *composição granulométrica da terra fina*: coarse sand *areia grossa* % 2.0–0.2 mm co.s.	fine sand *areia fina* % 0.2–0.05 mm f.s.	silt *silte* % 0.05–0.02 mm si.	silt *silte* % 0.02–0.002 mm si.	clay *argila* % < 0.002 mm c.	'Natural' clay *argila 'natural'* % n.c.	Index of structure *grau de floculação*	Apparent bulk density *massa espec. aparente* g/cm³ a.b.d.	Real bulk density *massa espec. real* g/cm³ r.b.d.	Fine earth attacked by: *ataque da terra fina por;* H_2SO_4, d = 1.47: SiO_2 %	Al_2O_3 %	Fe_2O_3 %	TiO_2 %	P_2O_5 %	$SiO_2:Al_2O_3$ Ki	$SiO_2:(Al_2O_3 + Fe_2O_3)$ Kr
RED YELLOW PODZOLIC soil, with rather high base saturation																						
37	33,157	A_1	0–8	0	4	96	17.9	29.0	28.5	24.6	12.3	50				12.00	9.34	7.96	1.35	0.08	2.18	1.42
	33,158	A_2	8–40	0	6	94	12.3	26.1	28.6	33.0	23.2	30				16.74	13.64	9.13	1.43	0.06	2.09	1.46
	33,159	B_2	40–80	0	34	66	8.7	16.4	26.9	48.0	2.0	96				23.87	20.01	12.24	1.35	0.07	2.03	1.46
	33,160	B_3	80–110	0	2	98	6.2	13.7	35.0	45.1	0	100				27.36	22.32	13.70	1.36	0.07	2.08	1.50
	33,161	C	110–140	0	2	98	9.1	26.1	39.6	25.2	0	100				19.94	15.95	9.83	1.14	0.05	2.12	1.53
RED YELLOW PODZOLIC soil, intergrade to KAOLINITIC YELLOW LATOSOL, very heavy textured																						
38	32,702	A_1	0–2	0	1.5	98.5	8.9	18.4	9.7	63.0	23.6	63				26.70	23.09	5.98	1.24	0.06	1.97	1.69
	32,703	A_2	2–40	0	1.1	98.9	4.6	11.5	5.7	78.2	14.4	82				31.23	28.67	6.76	1.33	0.04	1.85	1.61
	32,704	B_2	40–100	0	0.9	99.1	2.4	8.6	5.5	83.5	0	100				34.91	32.32	7.98	1.17	0.04	1.84	1.59
	32,705	B_3	100–180	0	0.9	99.1	2.5	15.8	9.0	72.7	0	100				34.40	32.24	7.67	1.23	0.04	1.81	1.58
	72,706*	C	180–230	0	0.8	99.2	2.6	15.4	12.9	69.1	0	100				35.48	32.80	7.45	1.38	0.03	1.84	1.61

* 77% hyaline quartz grains, some of them rolled, others corroded; 15% cream-coloured clay concretions; 6% sanguineous iron concretions; 1% ilmenite and turmaline; 1% vegetal detritus parts; traces of staurolite

RED YELLOW PODZOLIC soil, intergrade to KAOLINITIC YELLOW LATOSOL, rather heavy textured																						
39	32,707	A_1	0–10	0	1.8	98.2	26.8	51.9	6.7	14.6	2.5	83				7.76	5.43	1.52	0.91	0.03	2.43	2.06
	32,708	A_2	10–60	0	4.1	95.9	19.8	48.2	4.9	27.1	12.5	54				12.11	9.79	2.22	0.99	0.03	2.10	1.84
	32,709	AB	60–110	0	19.1	80.9	16.7	42.9	2.2	38.2	3.8	90				15.58	13.57	3.02	1.01	0.03	1.95	1.71
	32,710	B_{21}	110–160	0	1.0	99.0	16.3	37.4	3.4	42.9	0	100				18.09	15.44	3.33	0.95	0.03	1.99	1.75
	22,711	B_{22}	160–220	0	9.2	90.8	15.5	34.9	6.3	43.3	0	100				20.29	17.59	3.63	1.01	0.03	1.96	1.73
RED YELLOW PODZOLIC soil, intergrade to KAOLINITIC YELLOW LATOSOL, Concretionary phase																						
40	32,712	A_1	0–10	0	21.7	78.3	31.6	36.7	9.8	21.9	4.5	79				10.43	7.82	5.51	0.88	0.05	2.27	1.58
	32,713	A_2	10–80	0	31.8	68.2	17.5	23.7	4.5	54.3	23.6	52				21.66	19.25	9.16	1.35	0.04	1.91	1.47
	32,714	B_2	80–160	0	3.1	96.9	10.3	24.7	9.4	55.6	0	100				26.82	22.66	12.91	1.35	0.05	2.01	1.48
	32,715*	B_3	160–250	0	1.1	98.9	16.5	31.4	6.5	45.6	0	100				20.87	16.89	5.15	1.10	0.03	2.03	1.70

* 80% hyaline quartz grains, many of them rolled; 20% of fragments of iron oxides; traces of vegetal detritus parts and turmaline (some of them rolled)

RED YELLOW MEDITERRANEAN-like soil																						
41	32,345*	A_1	0–15	0	1.0	99.0	1.3	70.8	10.2	17.7	5.3	70	1.29	2.58	5.90	4.30	2.14	0.31	0.04	2.33	1.77
	32,346*	$A_3(A_2)$	15–50	0.2	6.4	93.4	1.3	73.3	8.5	13.9	6.7	52	1.47	2.60	5.75	3.35	1.92	0.30	0.04	2.92	2.14
	32,347*	B_2	50–100	0	0.2	99.8	0.7	61.2	7.5	30.6	25.6	16	1.40	2.68	12.56	9.04	3.25	0.46	0.04	2.36	1.92
	32,348*	B_3	100–160	0	1.4	98.6	0.5	62.3	11.0	26.2	17.1	35	1.44	2.66	12.52	8.91	3.04	0.50	0.04	2.39	1.96
	32,349*	C_{1g}	160–230	0	0	100	0	18.8	19.9	61.3	26.9	56	1.31	2.73	27.72	16.14	6.65	0.63	0.06	2.92	2.31
	32.350*	IIC_{2g}	230–270	0	0	100	0	67.3	18.8	13.9	4.1	71	1.46	2.68	11.41	6.38	2.64	0.36	0.10	3.04	2.41

* 32,345: 70% hyaline quartz grains, some of them rolled; 30% vegetal detritus parts; traces of magnetite. 32,346: 90% hyaline quarts grains, many of them rolled; 10% vegetal detritus parts; traces of iron concretions, magnetite, muscovites and very strongly attacked biotite. 32,347: 98% hyaline quartz grains, many of them rolled; 2% muscovite and biotite; and vegetal detritus parts.

Horizon *horizonte*	Moisture equivalent *equivalente de umidade*	C org.	N total	C/N	pH H_2O	pH KCl	P_2O_5 available *assimilável* Truog	P_2O_5 available *assimilável* Bray	Cation exchange complex/*complexo de troca catiônica* (m.e./100 g): exchangeable metallic cations *bases trocáveis* Ca^{++}	Mg^{++}	K^+	Na^+	sum of cations *soma das bases* S	active acidity *acidez ativa* $(Al)^+$	pH-depend. acidity *acidez pH-depend.* H^+	Potential cation exchange capacity *capac. total de troca* T	Base saturation *saturação de bases* V	Soluble salts *sais solúveis* s.s.	Textural ratio *relação textural* B/A
	g/100 g M.E.	% C	% N				mg/100 g										%	m.e./100 g	
(RP$_{rhb}$)																			
A_1	27.3	2.04	0.23	8.9	5.7	5.2		1.4	4.24	1.72	0.24	0.05	6.25	0.08	3.74	10.07	62.1		
A_2	25.2	0.55	0.07	7.9	5.3	4.2		0.4	1.65	1.16	0.13	0.03	2.97	0.08	2.74	5.79	51.3		
B_2	31.2	0.36	0.05	7.2	5.4	4.8		0.3	1.70	2.00	0.21	0.04	3.95	0.08	2.08	6.11	64.6		1.65
B_3	24.2	0.31	0.04	7.8	5.4	4.3		0.3	0.92	2.32	0.22	0.04	3.50	0.20	2.17	5.87	59.6		
C	28.1	0.11	0.03	3.7	5.4	4.3		0.3	0.69	1.65	0.35	0.04	2.73	0.20	1.27	4.20	65.0		
(RP-KYL$_{vh}$)																			
A_1	30.2	2.99	0.26	11.5	4.2	3.6	0.7	1.9	0.41	0.72	0.21	0.10	1.44	1.74	8.08	11.26	12.8		
A_2	30.9	0.86	0.09	9.6	4.3	3.8	0.3	0.2	0.33		0.10	0.03	0.46	1.15	2.84	4.45	10.3		
B_2	36.3	0.50	0.05	10.0	4.5	4.1		0.1	0.47		0.10	0.03	0.60	0.66	2.05	3.31	18.1		1.18
B_3	33.0	0.34	0.04	8.5	5.1	4.3		0.1	0.31		0.08	0.04	0.43	0.45	1.92	2.80	15.4		
C	30.9	0.18	0.02	9.0	5.4	4.6		0.1	0.39		0.09	0.04	0.52	0.24	1.48	2.24	23.2		
(RP-KYL$_{rh}$)																			
A_1	12.8	1.39	0.11	12.6	4.3	3.5	0.5	1.7	0.42		0.08	0.03	0.53	0.93	4.05	5.51	9.6		
A_2	17.1	0.44	0.05	8.8	4.3	3.8	0.4	0.2	0.32		0.14	0.03	0.49	0.65	1.56	2.70	18.1		
AB	19.5	0.25	0.03	8.3	4.6	4.1		0.1	0.61		0.14	0.06	0.81	0.24	1.16	2.21	36.7		2.05
B_{21}	21.2	0.20	0.02	10.0	4.5	4.1		0.1	0.57		0.08	0.03	0.68	0.36	1.11	2.15	31.6		
B_{22}	21.0	0.17	0.02	8.5	4.9	4.0		0.1	0.42		0.08	0.07	0.57	0.36	0.84	1.77	32.2		
(RP-KYL, c)																			
A_1	17.3	2.75	0.25	11.0	4.7	3.9	1.0	3.4	1.98	0.84	0.25	0.08	3.15	0.53	5.61	9.29	33.9		
A_2	23.8	0.49	0.06	8.2	4.6	3.9	0.4	0.2	0.47		0.11	0.05	0.63	1.43	1.83	3.89	16.2		
B_2	24.4	0.17	0.02	8.5	4.5	3.9		0.2	0.47		0.11	0.08	0.66	1.59	1.06	3.31	19.9		1.46
B_3	19.8	0.10	0.01	10.0	4.8	3.9		0.2	0.32		0.06	0.02	0.40	1.30	0.52	2.22	18.0		
(RM)																			
A_1	18.4	2.37	0.19	12.5	6.0	5.3	1.6	2.0	6.39	1.34	0.26	0.08	8.07	0.24	2.40	10.71	75.4		
$A_3(A_2)$	13.9	0.59	0.07	8.4	5.3	4.4	1.1	1.3	2.32	0.97	0.16	0.04	3.49	0.16	1.66	5.31	65.7		
B_2	20.6	0.25	0.04	6.3	4.8	3.6	0.8	0.2	1.83	1.59	0.10	0.04	3.56	2.04	0.81	6.41	55.5		1.90
B_3	20.0	0.16	0.03	5.3	4.7	3.5	0.8	0.2	1.38	1.83	0.07	0.04	3.32	2.56	0.29	6.17	53.8		
C_{1g}	36.3	0.13	0.02	6.5	4.7	3.2	0.9	0.2	5.31	10.30	0.36	0.22	16.19	9.56	0.59	26.34	61.5		
IIC_{2g}	18.3	0.08	0.01	8.0	4.8	3.5	0.9	1.1	3.00	4.80	0.08	0.13	8.03	1.31	0.12	9.46	84.9		

32,348: 97% hyaline quartz grains, many of them rolled; 3% vegetal detritus parts, muscovite and sanguineous iron concretions. 32,349: 95% hyaline quartz grains, only a few of them rolled; 5% vegetal detritus parts; traces of muscovite, biotite and dark iron concretions. 32,350: 50% khaki-coloured sand concretions; 48% quartz grains; 2% vegetal detritus parts and muscovite.

No. prof. descr. *descr. de perfil*	No. lab. IQA	Horizon *horizonte*	Depth *profundidade* cm	Coarse gravel *calhaus* % > 20 mm co.g.	Fine gravel *cascalho* % 20–2.0 mm f.g.	Fine earth *terra fina* % < 2.0 mm f.e.	Granulometric composition of fine earth *composição granulométrica da terra fina*: coarse sand *areia grossa* % 2.0–0.2 mm co.s.	fine sand *areia fina* % 0.2–0.05 mm f.s.	silt *silte* % 0.05–0.02 mm si.	silt *silte* % 0.02–0.002 mm si.	clay *argila* % < 0.002 mm c.	'Natural' clay *argila 'natural'* % n.c.	Index of structure *grau de floculação*	Apparent bulk density *massa espec. aparente* g/cm³ a.b.d.	Real bulk density *massa espec. real* g/cm³ r.b.d.	Fine earth attacked by: *ataque da terra fina por:* H_2SO_4, d = 1.47: SiO_2 %	Al_2O_3 %	Fe_2O_3 %	TiO_2 %	P_2O_5 %	$SiO_2:Al_2O_3$ Ki	$SiO_2:(Al_2O_3 + Fe_2O_3)$ Kr
KAOLINITIC LITHOSOL																						
42	32,722	A_1	0–15	0	14.0	86.0	31.4	27.1	8.3	33.2	12.6	62				15.03	12.60	1.01	0.58	0.04	2.03	1.93
	32,723	A_3	15–60	1.3	9.8	88.9	28.5	24.9	6.3	40.3	20.5	49				18.56	16.28	1.22	0.85	0.04	1.94	1.85
	32,724	R_1-B_1	60–110	0	7.6	92.4	21.8	24.4	11.1	42.7	1.6	96				25.12	24.13	1.42	0.90	0.04	1.77	1.71
	32,725	R_2	110–200	0	0	100	22.0	20.7	22.6	34.7	0	100				32.69	30.77	0.91	0.80	0.05	1.81	1.77
	32,726	R_3	200–270	0	0	100	10.4	14.4	23.5	51.7	0	100				27.26	28.85	0.80	0.92	0.06	1.61	1.58
A sample of the rock in the R_1–R_3, analysed by Kaiser Aluminum Co, Belém, proved to consist totally of kaolinite																						
GROUND WATER LATERITE soil																						
43	31,886	A_1	0–30	0	0	100	32.3	41.1	10.1	16.5	5.0	70		1.34	2.47	7.68	6.87	0.83	0.41		1.90	1.76
	31,887	A_3	30–90	0	0	100	37.0	33.4	7.7	21.9	11.8	46		1.57	2.62	9.87	8.13	1.22	0.48		2.06	1.88
		B_{1g}	90–120																			
	31,888	B_{2g}	120–260	0	5.3	94.7	36.9	26.2	7.1	29.8	0	100		1.50	2.64	14.67	11.75	2.84	0.51		2.12	1.84
	31,889	IIB_{3g}	260–300	0	8.8	91.2	39.1	34.7	4.0	22.8	0	100		1.52	2.62	10.76	8.85	1.61	0.47		2.07	1.85
HYDROMORPHIC GREY PODZOLIC soil, with high base saturation ,Ortho'																						
44	33,168	A_1	0–10	0	0	100	14.1	35.3	41.3	9.3	2.8	70				3.93	2.27	0.81	0.26	0.02	2.94	2.39
	33,169	A_3	10–50	0	1	99	15.3	37.0	38.4	9.3	3.6	61				4.49	2.48	0.81	0.26	0.02	3.08	2.54
	33,170	B_{2g}	50–80	0	1	99	13.1	22.5	34.7	29.7	17.5	41				12.07	6.95	3.11	0.37	0.02	2.95	2.30
	33,171	B_{3g}	80–120	0	1	99	10.1	21.3	37.9	30.7	22.2	28				13.26	7.56	2.89	0.41	0.02	2.98	2.40
	33,172	C_g	120–150	0	0	100	5.5	10.8								17.51	7.60	3.33	0.42	0.03	3.92	3.06
HYDROMORPHIC GREY PODZOLIC soil, with high base saturation, Dark phase																						
45	33,178	A_1	0–7	0	0	100	11.7	29.4	42.7	16.2	4.7	71				6.11	3.27	1.33	0.36	0.04	3.17	2.52
	33,179	A_3	7–30	0	0	100	7.8	27.7	42.7	21.8	11.3	48				8.64	5.14	1.85	0.44	0.03	2.86	2.32
	33,180	B_{2g}	30–75	0	0	100	3.7	10.8	24.8	60.7	30.9	49				25.48	16.08	4.52	0.69	0.03	2.69	2.28
	33,181	B_{3g}	75–120	0	0	100	5.1	16.0	30.1	48.8	13.6	72				20.67	12.66	3.29	0.61	0.03	2.78	2.38
	33,182	C_g	120–140	0	2	98	30.0	14.7	?	?	?	?				11.48	6.92	1.68	0.42	0.02	2.82	2.44
HYDROMORPHIC GREY PODZOLIC soil, with high base saturation, Shallow phase																						
46	33,192	A_1	0–8	0	0	100	18.8	37.9	31.1	12.2	3.9	68				4.41	2.34	1.63	0.23	0.05	3.21	2.22
	33,193	A_{21}	8–25	0	0	100	19.2	38.1	29.9	12.8	5.5	57				4.65	2.59	2.73	0.24	0.05	3.05	1.82
	33,194	A_{22}	25–37	0	22	78	16.9	34.3	31.8	17.0	9.6	44				6.89	3.97	3.36	0.30	0.05	2.95	1.92
	33,195	B_{21g}	37–57	0	2	98	8.6	14.1	29.2	48.1	33.0	31				20.75	10.70	5.10	0.48	0.05	3.30	2.53
	33,196	B_{22g}	57–77	0	1	99	6.0	13.5	31.2	49.3	35.4	28				22.03	10.96	6.63	0.45	0.09	3.42	2.47
	33,197	C_{1g}	77–87	0	0	100	2.1	14.1	62.3	21.5	16.9	21				11.38		5.46	0.24	0.12		
	33,198	C_{2g}	87–102	3	13	84	5.3	6.4	44.9	43.4	31.8	27				24.21	10.10	4.73	0.40	0.24	4.08	3.14

Horizon *horizonte*	Moisture equivalent *equivalente de umidade*	C org.	N total	C/N	pH H_2O	pH KCl	P_2O_5 available *assimilável* Truog	P_2O_5 available *assimilável* Bray	Cation exchange complex/*complexo de troca catiônica* (m.e./100g): exchangeable metallic cations *bases trocáveis* Ca^{++}	Mg^{++}	K^+	Na^+	sum of cations *soma das bases*	active acidity *acidez ativa*	pH-depend. acidity *acidez pH-depend.*	Potential cation exchange capacity *capac. total de troca*	Base saturation *saturação de bases*	Soluble salts *sais solúveis*	Textural ratio *relação textural*
	g/100 g M.E.	% C	% N				mg/100 g						S	$(Al)^+$	H^+	T	% V	m.e./100 g s.s.	B/A
(L)																			
A_1	18.9	1.19	0.11	10.8	4.4	3.8	0.8	3.3	0.57		0.12	0.06	0.75	1.17	4.34	6.26	12.0		
A_3	20.4	0.76	0.07	10.9	4.5	4.0	0.4	0.6	0.36		0.10	0.07	0.53	1.18	3.42	5.13	10.3		
R_1–B_1	23.6	0.34	0.03	11.3	4.6	4.1		0.2	0.36		0.11	0.10	0.57	0.73	1.54	2.84	20.1		
R_2	28.2	0.21	0.02	10.5	4.4	4.0		0.2	0.44		0.12	0.04	0.60	0.44	0.99	2.03	29.6		
R_3	27.3	0.10	0.02	5.0	4.6	3.8		0.1	0.22		0.01	0.02	0.25	0.40	0.49	1.14	21.9		
(GL)																			
A_1	25.0	3.33	0.20	16.7	4.6	4.0	1.0		0.33		0.10	0.09	0.52	3.04	12.91	16.47	3.2		
A_2	16.5	0.22	0.03	7.3	4.9	4.0	1.0		0.28		0.06	0.04	0.38	1.56	1.49	3.43	11.1		
B_{1g}																			$\leqslant 1.55$
B_{2g}	20.6	0.09	0.02	4.5	5.0	3.9	1.3		0.30		0.07	0.03	0.40	2.48	0.78	3.66	10.9		
IIB_{3g}	17.1				4.9	3.9	1.0		0.40		0.07	0.08	0.55	1.08	0.53	2.16	25.5		
(HP_{hb}, O)																			
A_1	17.9	0.93	0.09	10.3	5.3	4.4		1.1	2.57	0.69	0.15	0.05	3.46	0.24	2.17	5.87	58.9		
A_2	16.2	0.50	0.05	10.0	5.0	3.9		0.3	1.78	0.40	0.10	0.03	2.31	0.81	1.76	4.88	47.3		
B_{2g}	23.1	0.30	0.04	7.5	4.9	3.5		0.1	3.74	2.27	0.16	0.01	6.18	3.91	1.89	11.98	51.6		3.20
B_{3g}	22.2	0.09	0.02	4.5	5.7	4.2		0.1	6.37	5.21	0.13	0.47	12.18	0.25	11.93	13.28	91.7		
C_g	29.7	0.08	0.01	8.0	7.7	7.0		0.1	*44.91*	*13.67*	*0.16*	*2.88*	?	0	0		100	chlorides sulphates	
									italics: partly originating from soluble salts										
(HP_{hb}, D)																			
A_1	23.1	2.65	0.22	12.0	4.8	3.9		1.5	3.12	1.07	0.24	0.03	4.46	1.11	6.31	11.88	37.5		
A_2	20.9	0.56	0.08	7.0	4.6	3.7		0.4	1.34	0.88	0.15	0.08	2.45	3.41	2.59	8.45	29.0		
B_{2g}	30.6	0.48	0.07	6.9	4.7	3.5		0.2	7.13	4.08	0.21	0.10	11.52	6.70	3.20	21.42	53.8		3.20
B_{3g}	25.3	0.21	0.04	5.3	4.9	3.6		0.2	10.61	4.41	0.15	0.06	15.23	2.64	2.00	19.87	76.6		
C_g	24.2	0.11	0.02	5.5	5.7	5.1		0.2	*51.09*	*3.22*	*0.09*	*0.01*	?	0	0.45	?	?	sulphates	
									italics: partly originating from soluble salts										
(HP_{hb}, S)																			
A_1	17.0	1.28	0.12	10.7	5.5	4.6		1.1	3.09	1.24	0.15	0.03	4.51	0.16	3.60	8.27	54.5		
A_{21}	15.3	0.65	0.07	9.3	5.8	4.5		0.3	2.42	1.22	0.13	0.03	3.80	0.24	2.37	6.41	59.3		
A_{22}	16.5	0.37	0.05	7.4	5.7	4.3		0.5	2.52	1.60	0.15	0.02	4.29	0.41	2.29	6.99	61.4		
B_{21g}	27.0	0.32	0.04	8.0	5.1	3.9		0.1	8.75	5.60	0.30	0.04	14.69	1.58	2.88	19.15	76.7		3.48
B_{22g}	29.4	0.27	0.04	6.8	5.8	5.3		0.3	12.71	7.95	0.34	0.03	21.03	0	2.09	23.12	91.0		
C_{1g}	25.3	0.28	0.03	9.3	8.2	7.3		0.6	*16.14*	*6.25*	*0.20*	*0.03*	?	0	0	?	100	carbonates	
C_{2g}	28.4	0.26	0.03	8.7	8.1	7.2		0.4	*17.92*	*8.13*	*0.23*	*0.05*	?	0	0	?	100	carbonates	
									italics: partly originating from soluble salts										

No. prof. descr. *descr. de perfil*	No. lab. IQA	Horizon *horizonte*	Depth *profundidade* cm	Coarse gravel *calhaus* % > 20 mm co.g.	Fine gravel *cascalho* % 20–2.0 mm f.g.	Fine earth *terra fina* % < 2.0 mm f.e.	Granulometric composition of fine earth *composição granulométrica da terra fina*: coarse sand *areia grossa* % 2.0–0.2 mm co.s.	fine sand *areia fina* % 0.2–0.05 mm f.s.	silt *silte* % 0.05–0.02 mm si.	silt *silte* % 0.02–0.002 mm si.	clay *argila* % < 0.002 mm c.	'Natural' clay *argila 'natural'* % n.c.	Index of structure *grau de floculação*	Apparent bulk density *massa espec. aparente* g/cm³ a.b.d.	Real bulk density *massa espec. real* g/cm³ r.b.d.	Fine earth attacked by: *ataque da terra fina por:* H_2SO_4, d = 1.47: SiO_2 %	Al_2O_3 %	Fe_2O_3 %	TiO_2 %	P_2O_5 %	$SiO_2:Al_2O_3$ Ki	$SiO_2:(Al_2O_3 + Fe_2O_3)$ Kr
GROUND WATER HUMUS PODZOL																						
47	32,696	A_1	0–10	0	0	100	61.1	36.3		2.2	0.4	0	100			0.70	0.51	0.10	0.10	0.02	2.34	2.09
	32,697	A_2	10–45	0	0	100	59.0	39.2		1.2	0.6	0.2	67			0.52	0.41	0.20	0.08	0.02	2.18	1.64
	32,698	B_{1h}	45–60	0	0	100	58.4	35.6		1.8	4.2	1.4	67			1.97	1.64	0.30	0.31	0.02	2.04	1.82
	32,699	B_{21hm}	60–80	0	0	100	57.5	33.7		2.1	6.7	1.3	81			2.19	3.38	0.32	0.32	0.03	1.10	1.04
	32,700	B_{22hm}	80–110	0	0	100	55.0	36.3		1.5	7.2	1.5	79			2.23	3.54	0.32	0.26	0.03	1.07	1.01
	32,701	B_3	110–150	0	0.7	99.3	56.1	37.8		1.8	4.3	1.8	57			1.42	1.76	0.20	0.18	0.03	1.37	1.27
LOW HUMIC GLEY soil																						
49	33,135	A_1	0–7	0	0	100	9.9	10.4	50.0		29.7	11.3	62			21.34	11.07	5.66	0.60	0.14	3.28	2.47
	33,136	C_{1g}	7–18	0	0	100	4.2	9.5	35.3		51.0	36.0	29			23.17	13.99	9.51	0.77	0.06	2.81	1.96
	32,137	C_{2g}	18–50	0	0	100	2.0	1.8	32.8		63.4	47.2	26			25.31	17.85	9.45	0.89	0.06	2.41	1.80
	33,138	C_{3g}	50–110	0	0	100	40.1	14.6	25.1		20.2	0	100			10.87	8.96	2.60	0.47	0.05	2.06	1.74
	33,139	C_{4g}	110–130	0	0	100	4.1	16.6	56.5		22.8	18.5	19			10.58	7.26	1.22	0.68	0.03	2.48	2.24
	33,140	C_{5g}	130–240	0	0	100	2.1	13.3	43.1		41.5	31.0	25			17.65	13.63	3.91	0.79	0.04	2.20	1.86
HUMIC GLEY soil																						
50	31,923	A_1	0–25	0	0	100	0.1	29.4		30.8	39.7	17.5	56	1.17	2.53	23.53	13.22	3.95	0.44		3.03	2.54
	31,924*	C_{1g}	25–70	0	0	100	0.1	31.4		30.3	38.2	22.0	42	1.36	2.69	23.78	14.93	4.97	0.55		2.71	2.23
	31,925	C_{2g-b}	70–120	0	0	100	0	13.4		30.2	56.4	35.6	37	1.25	2.60	32.71	17.53	4.60	0.55		3.17	2.72
* For full mineralogical analysis of all fractions see sample 188–2 of the Tables 7 and 8, Figs. 14a–e and Photo 11																						
HUMIC GLEY soil, Upland phase																						
51	31,547	A_{11}	0–40	0	0	100	2.6	14.6		6.4	76.4	23.9	69	1.10	2.48	30.17	26.80	4.08	0.87		1.91	1.74
		A_{12g}	40–60																			
	31,548	C_{1g}	60–100	0	0	100	4.6	23.3		2.5	69.6	5.8	92	1.23	2.63	27.60	25.27	4.03	1.00		1.86	1.69
SOLONETZ, Coastal phase																						
52	31,862	A_1	0–20	0	0	100	0.4	9.1		24.7	65.8	39.9	39	1.42	2.66	22.88	18.49	8.14	0.55		2.10	1.64
	31,896	B_{21g}	20–40	0	0	100	0.3	23.3		12.2	64.2	58.2	9	1.39	2.61	27.83	17.13	6.73	0.66		2.76	2.21
	31,897*	B_{22g}	40–140	0	0	100	0.3	24.3		20.4	55.0	53.9	2	1.46	2.71	22.35	14.61	7.10	0.58		2.60	1.99
	31,898	B_{3g}	140–210	0	0	100	0.5	18.4		19.8	61.3	60.7	1	1.41	2.70	25.28	16.99	8.07	0.69		2.53	1.94
* For full mineralogical analysis of all fractions see sample 175-3 of the Tables 7 and 8																						
TERRA PRETA, light textured																						
53	30,061	A_p	0–35				63.9	21.2		5.8	9.1	4.1	55			4.28	3.94	1.33		0.37	1.85	1.52
	30,062	A_3	35–70				65.7	21.9		1.8	10.6	6.3	41			4.67	4.29	1.32		0.18	1.85	1.54
	30,063	B_{21}	70–100				65.7	21.1		1.6	11.6	7.2	38			5.24	3.97	1.31		0.14	2.24	1.85
	30,064	B_{22}	100–160				66.1	20.0		1.2	12.7	7.8	39			5.68	5.29	1.51		0.14	1.82	1.54

Horizon *horizonte*	Moisture equivalent *equivalente de umidade*	C org.	N total	C/N	pH H_2O	pH KCl	P_2O_5 available *assimilável* Truog	P_2O_5 available *assimilável* Bray	Cation exchange complex/*complexo de troca catiónica* (m.e./100 g): exchangeable metallic cations *bases trocáveis* Ca^{++}	Mg^{++}	K^+	Na^+	sum of cations *soma das bases*	active acidity *acidez ativa*	pH-depend. acidity *acidez pH-depend.*	potential cation exchange capacity *capac. total de troca*	Base saturation *saturação de bases*	Soluble salts *sais solúveis*	Textural ratio *relação textural*
	g/100 g M.E.	% C	% N				mg/100 g						S	$(Al)^+$	H^+	T	% V	m.e./100 g s.s.	B/A
(GP)																			
A_1	3.0	0.60	0.05	12.0	5.1	4.2	0.7	1.9	0.84		0.05	0.02	0.91	0.12	1.28	2.31	39.4		
A_2	2.1	0.10	0.01	10.0	5.1	3.8	0.5	0.6	0.30		0.03	0.02	0.35	0.16	0.44	0.95	36.8		
B_{1h}	4.8	0.40	0.04	10.0	4.6	3.7		1.9	0.30		0.03	0.02	0.35	0.80	2.21	3.36	10.4		
B_{21hm}	10.4	1.89	0.13	14.5	4.9	4.2		0.7	0.23		0.06	0.02	0.31	1.94	10.34	13.59	2.3		5.0
B_{22hm}	9.9	1.81	0.12	15.3	5.2	4.5		0.4	0.27		0.07	0.02	0.36	0.97	10.18	11.51	3.1		
B_3	5.5	0.60	0.04	15.0	5.7	4.8		1.9	0.26		0.08	0.03	0.37	0.24	3.01	3.62	10.2		
(LHG)																			
A_1		12.41	0.94	13.2	5.8	5.2		3.1	14.05	6.35	0.63	0.31	21.34	0.26	13.89	35.49	60.1		
C_{1g}	49.3	2.60	0.25	10.4	5.7	5.0		0.7	6.18	3.77	0.44	0.19	10.58	0.10	5.32	16.00	66.1		
C_{2g}	47.3	1.91	0.16	11.9	5.4	4.4		0.5	5.79	4.17	0.22	0.15	10.33	0.25	4.48	15.06	68.6		
C_{3g}		13.51	0.63	21.4	3.3	3.2		0.7	4.03	1.93	0.66	0.30	6.92	18.30	34.49	55.71	11.6		
C_{4g}	20.8	0.91	0.05	18.2	4.1	3.5		0.9	0.77	0.73	0.15	0.14	1.79	1.95	2.49	6.23	28.7		
C_{5g}	26.9	0.34	0.04	8.5	4.5	3.5		0.6	0.66	0.87	0.07	0.06	1.66	4.09	2.22	7.97	20.8		
(HG)																			
A_1	43.1	2.69	0.32	8.4	4.8	3.8	2.0		8.18	6.97	0.99	0.29	16.43	0.72	4.90	22.05	74.5		
C_{1g}	34.6	0.47	0.09	5.2	5.2	3.9	1.0		7.43	7.23	0.31	0.45	15.42	0.52	1.56	17.50	88.1		
C_{2g-b}	41.4	0.71	0.12	5.9	4.9	3.6	1.0		9.37	8.61	0.29	1.30	19.57	1.32	2.45	23.34	83.8	0.26	
(HG, u)																			
A_{11}	40.2	3.19	0.19	16.8	4.8	3.9	1.4		0.42		0.17	0.04	0.63	13.32		13.95	4.5		
A_{12g}																			
C_{1g}	34.6	1.42	0.08	17.8	5.0	4.0	1.0		0.29		0.08	0.02	0.39	5.76		6.15	6.3		
(Sol, c)																			
A_1	38.1	1.16	0.13	8.9	5.0	3.8	2.0		2.86	11.24	0.73	1.56	16.39	5.73		22.12	74.1	1.06	
B_{21g}	47.3	1.18	0.12	9.8	5.3	4.2	1.0		2.93	8.41	0.51	8.02	19.87	0.16	4.55	24.58	80.8	3.75	
B_{22g}	48.5	0.25	0.04	6.3	8.0	6.8	3.8		3.12	9.44	0.54	8.40	21.50	0	0	21.50	100	6.24	
B_{3g}	57.0	0.21	0.04	5.3	7.9	6.9	3.8		3.34	10.71	0.80	7.90	22.75	0	0	22.75	100	7.86	
(TP_l)																			
A_p	11.5	1.66	0.13	12.8	5.6	4.7	98.8		3.97	0.43	0.08	0.04	4.52	5.14		9.66	47		
A_3	7.9	0.66	0.04	16.5	5.6	4.6	43.1		2.32	0.30	0.10	0.03	2.75	3.60		6.35	44		
B_{21}	7.6	0.41	0.03	13.7	5.7	4.6	31.2		1.71	0.48	0.05	0.01	2.25	1.96		4.21	54		
B_{22}	7.7	0.38	0.03	12.7	5.5	4.3	18.0		1.13	0.42	0.05	0.01	1.61	2.25		3.86	51		