WOSSAC: 134 631.4 (676.2)



SOIL ANALYSIS RESULTS
OF
LAMBUE VALLEY,

SOUTH NYANZA

KENYA

SOIL INSPECTION PIT; PONGE NUMBER 2.

PROFILE DESCRIPTION

LOCATION: To the North of the Roo on the lowest Southern slopes of the Gembe Hills.

SLOPE: 2° 40'
ASPECT: South.

LAND USE: Nil.

VEGETATION COVER: 100%;

60% BUSH: On the edge of thicket extending to the North. Thicket comprises 20% Rhus valgaris; also

Acacia seyal fistula. Acacia brevispica Euclea schimperi Euphorbia candelabrum Grewia similis

40% GRASS.

40% Chloris gayana also; Cynodon dactylon Setaria sphacelata

ROOTING DEPTH: >50"

MAXIMUM ROOTING DENSITY: 0-5"

DRAINAGE: Fair

SOIL DEPTH: >50"

LAND USE CLASS 1

0-6" 10 YR 2/2; Very Dark Brown. Friable, moderately developed fine and medium subangular blocky clay. Few fine and medium stones. No reaction with HCl. Abundant fine and medium roots. Lower boundary even and clear.

6-29" 10 YR 3/2; Very dark greyish brown. Very firm, weak to moderately developed fine and medium prismatic clay; sticky and very plastic when wet. No reaction with HCl. Common very fine to medium roots. Gradual lower boundary.

brown and dark brown. Slightly hard, strongly developed fine and medium sub angular blocky clay; friable when moist; slightly sticky and very plastic when wet. Common fine concretions of Manganese. Few fine stones of nephelinite. No reaction with HCl. Few fine to medium roots.

	-	-	7	-	-	-	-	-	
		2911 +	0 80	6-20m	0-6		Depth		
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lit . No sample, Californ manufacture ochors sticks. Few fine h	0.26	0.25		· #3	5	i in	The /comment	ECe 1:5	
7.5 YR 3/71 F 7.5 YR 1/2 2 7.5 YR 4/21 B 10 YR 4/21 D Phint biotobing, Priebl Was , Few fine most ma	0.76	0.45	own .	0.45	d state	ilian iny	-	ECe Sat.	
imedian with HOL. Barr	vaty i	Apr.	200	30,		-			

SOLL THE PROTECT ATT A POWER WHEN S.

Andrews described and the way and lowest Southern slopes of the Cembr Wills.

ICA S

POOL BEADER OF THE POOL

Egg. Tall: On the edge of thack a extending to the North, Thicket comprines 200 Knes valuaries also

and chirrie sayons

"ON STREET LEGIS

0-6" 10 YR 2/2; Very her, Briefe Fried, moderately developed fine and median substitute blocky clay, but fine and formal moderate boundary even and clay, notice roots, lower boundary even and clay.

Arch 10 YR 3/2 1 Yery dark greylah brewn, Yery firm, week to modern selections to be and medium original to clay! sticky and very plastic wash wat, We reported with Bor. Common very three to medium roots, Gindrel lawer considery

Ash a Faint blatches of 10 Ye 2/1 and 7.5 YE 1/2 & Very dark brown and dark brown. Edichtly bond, strangly developed fine and medium sub angular bloomy clays friels when moises significant at any and very plastic when wet. Commenting concentrations of Mangrasse. For fine clark of nephelints, No reaction with NC1. Few fine to medium roots.

				090		8	图	4)	SENTER		
BCe Sat.	EC. 1.5	eldsegmederi					Sand Silt Clay Rgo Kol	CJsh	\$118	Poss 2	Depth
			Ne K Ne		0.0%	10,8	1,8 8,8	20	88	8	0-8
		**	7.4 5.5 8.7 0.85	0.00			1	-			o com
0,48	7. 33	4.32		1	1		0.8 5.7				
		4	8.1 8.8 8.9 8.0	Z, GI				-			0.00
0.45	0.85	10-1		1		1	7.8 8.7	eg 1	SS	3	000
	0.00	78°0	8.8 5.7 1.7 8.5	60.		-					
0.76		1.19.1	and some and an arrange of the same and a second								

SOIL INSPECTION PIT; MBITA ROAD NUMBER 6 PROFILE DESCRIPTION.

LOCATION: Plateau ; North of Obando.

SLOPE:

ASPECT: North.

LAND USE: Creditable sisal near the pit.

VEGETATION COVER: 100%

BUSH:

Extensive bush clearing being undertaken.

Bushes in the environs include+

Acacia drepanolobium Acacia seyal fistula Balanites aegyptiaca Euphorbia candelabrum Rhus vulgaris.

GRASS:

Aristida adscensionis Cynodon dactylon Setaria sphacelata.

Rooting depth: > 55"

Maximum rooting density:

0-4".

Drainage:

Good.

Soil Depth:

>55"

LAND USE CLASS 2

7.5YR 2/2; Very Dark Brown. Slightly hard, medium crumb and sub-angular blocky clay. Slightly sticky and very plastic when wet. Few medium calcium concretions. No matrix reaction with HCl. Abundant fine roots. Lower boundary even and clear.

5 YR 2/2; Dark Red Brown, Hard, weakly developed medium prismatic clay. Mictostructure fine to coarse sub-angular blocky. Common very fine to medium calcium concretions. Little very fine gravel. No matrix reaction with HCl. Abundant very fine roots. Lower boundary clear and undulating.

7.5 YR 2/2; Very Dark Brown. Hard, moderately developed fine blocky clay with indistinct clay faces. Abundant very fine to medium calcium concretions. No matrix reaction with HCl. Common very fine roots. Lower boundary clear and even.

38-51" No sample. Caliche of a gravel layer with abundant fine to medium manganese concretions and abundant fine to coarse calcium concretions. Few fine roots.

51" + No sample . Matrix of:-

7.5 YR 3/3; Dark brown. 7.5 YR 3/2; Dark brown.

7.5 YR 4/2; Brown

10 YR 4/2; Dark Grey Brown.

Faint blotching. Friable, weakly developed medium sub-angular blocky clay. Few fine soft manganese concretions. Very few calcium concretions. Few fine to medium calcareous gravels. Slight matrix reaction with HCl. Rare very fine roots.

	Depth	0-8-	5-22m	188-88
	5 and	153	I.	St.
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erds synantes Bases	pt	13	#.*0	G G
	218	T.0	0,0	0.8
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a:1 eOg		0.55	0.30	68.0
Jos Sat.		0.0	8.0	6.0

SOIL INSPECTION PIT ; ASINA ROAD NUMBER 2.

PROTE DESCRIPTION

LOCATION: Western slopes down to the Asina Valley.

SLOPE: 2' 30'

ASPECT: North East.

LAND USE: Maize, Cassava, Sisal.

VEGETATION COVER: 100%

GRASS:

Chloris gayana 90%

OTHER HERBS: 10%

ROOTING DEPTH: >45"

MAXIMUM ROOTING DENSITY: 0-5".

DRAINAGE: Fair.

Soil Depth: >45

LAND USE CLASS 2.

0-5" 10 YR 2/2; Very dark brown. Slightly hard, moderately developed fine and medium sub angular blocky clay. Common fine calcium concretions. Slight matrix reaction with HCl. Abundant fine roots. Crumb surface. Lower boundary clear and undulating.

5-22" 7.5 YR 3/1; Very dark brown. Hard, moderately developed coarse and medium sub-angular blocky clay. Very weak prismatic with slight vertical cracking. Few fine and medium calcium concretions. Occasional fine and medium stones. Moderate matrix reaction with HCl. Common fine roots. Lower boundary gradual.

7.5 YR 3/1; Very dark brown. Very hard, strongly developed blocky clay. Lentil structured. Prominent clay faces. Common fine calcium concretions. A little gravel and a few fine stones. Moderate matrix reaction with HCl. Few fine roots. Lower boundary gradual.

42" + No sample. Faint blotches of 10 YR 3/2; Very dark grey brown, and 10 YR 2/2; Very dark brown. Very abundant fine calcium concretions. Few very fine roots.

<u> 2011 (</u> 2	22-42"	5+32m	0-5"	Depth	ROBBIN
lese of ate	27	27	25	Sand	Mills Mills
eth East.	4	12	14	Silt	TEXTURE
REL P	65	61	61	Silt Clay H20 KCl	[E)
< 1	8.0	7.9	7.8	H ₂ 0	Hq
Ac U	6.4	6.4	6.3	KC1	
1,000 By	ı	1	6.5 1.85 0.21	50	No.
Mi þ	1	1	0.21		NA
rion proden	14	QH			Pmqq
>604	18.5	16.5	15.3		CEC meq/100g
8 2/1: BI Smilar blad	8.8	9.2	7.4	Ca	
1 11no 1001 1 3/24 %	7.2	6.1	5.6	Mg	Echa
lim prisma one vertica The roots Thee.	8.8 7.2 0.4 1.90 10.4	9.2 6.1 0.5 0.85	7.4 3.6 0.8 0.55	K Na	Echangeable Bases
YR 3/1: W	90 10.	35 5.1	55 4.5 3.6		Na %
onl erediti on fine su	4	17	6 41	-	
IR 5/20 Ver olay, Bor	0.4	0.4	0.4	est g de	ECe 1:5 mlmhos/cm
	0.58	0.35	0.4		EC. Sat. mlmhos/cm

SOIL INSPECTION PIT : ASIMA BURN WHERE 2.

PRITTE DESCRIPTION

LOCATION: Western slopes down to the Asina Velley.

SLOPE: 2' 30'

ASSET: Worth Bast.

AND USE: Maize, Caseeva, Sieal,

VENETRATION COVERS . 100%

GRASS

Chloria mayana 90%

OTHER HERBS: 10%

BOOTING DEPTH: ">45"
"AXIMUM ROOTING DENSITY: 0~5".

DHAINAGE: Fair.

Poil Depth: My

IAND USB CLASS 2.

255 10 YR 2/2 ; Very dark brown, Slightly hard, moderately developed fine and medium sub sheular blocky clay, Veryon fine concretions. Slight metrix reaction with 101, Apundent fine roots. Grumb surface, Lower boundary clear and undulating.

5-22" 7.5 YR 3/1: Very dark brown. Hard, moderately developed coerse and medium cub-engular block clay. Very week prismatic with slight vertical oracking. Yew fine and medium concretions. Occasional fine and medium stones. Moderate metrix resotion with HOL. Common fine roots. Lower boundary gradual.

22-42 7.5 YR 3/1; Very dark brown, Very hard, Strongly developed blocky clay, Lentil structured; Frominent clay faces. Common fine calcium concretions, & little gravel, and a few flue stones. Moderate matrix reaction with NOI. Few fine roots, Lower boundary gradual.

428 ± No sample . Faint blotobes of 10 YR 3/2 ; Very dark grey proving and 10 YR 2/2; Very dark brows, Very abundant fine calcium connections. Few very fine roots.

18

SOIL INSPECTION PIT; WIGA ROAD NUMBER 3.

PROFILE DESCRIPTION.

LOCATION: Base of steep slope below the Gwasi Hills at the highest level of the lacustrine deposit.

SLOPE: 2°

ASPECT: North East.

LAND USE: Nil

VEGETATION COVER: 100%

< 10% BUSH

Acacia drepanolobium Rhus natalensis

100% GRASS:

Hyparrhenia filipendula 50% Themeda triandra 50%

ROOTING DEPTH:

>50"

MAXIMUM ROOTING DENSITY:

0-9"

DRAINAGE: Receiving laterally.

SOIL DEPTH: >50"

LAND USE CLASS 2.

0-9" 10 YR 2/1; Black. Hard, moderately developed fine and medium subangular blocky clay with surface crumb. No reaction with HCl. Common fine roots. Lower Boundary gradual and even.

9-23" 10 YR 3/1; Very Dark Grey. Extremely hard, strongly developed fine and medium prismatic clay. Microstructure moderate medium blocky. Strong vertical cracking when dry. Few very fine roots, but common fine roots in cracks. No reaction with HCl. Lower boundary diffuse.

23-40" 10 YR 3/1; Very dark grey. Very hard, strongly developed coarse and medium blocky. Lentil structures. Prominent clay cutans.

Strong vertical cracking. No reaction with HCl. Occasional fine stones. Common fine and very fine roots with some root galleries. Lower boundary gradual.

40" + 10 YR 3/2; Very dark grey brown. Hard, moderately developed fine blocky clay. No reaction with HCl. Very few fine roots.

	-	+			
40" +	23-40"	9-231	0-9"	Depth	
16	20	20	22	Sand	
22	12	14	28	Silt	
72	68	66	50	Silt Clay Hg0	
7.6	7.4	6.4	6.5	H20	PH
5.9	5.8	5.4	5.7	KC1	
1	1	1	2.95		%C
1	1	1	0.22 250+		N%
Stept	250	195	250+	8	P
19.3	18.2	16.0	14.3	TTOS	CEC me/100g
10.6	10.0	18.8 4.2	6.6	Ca	
10.6 5.3	10.05.0	4.2	6.6 4.2	Mg	Exch
2.0 1.2	1.8	1.5 1.0	1.4	X (ASF	Exchangeable Bases
1.2	1.8 1.40	1.0	1.4 0.65	Na	P 9
6.3	7.7	6.25	5.00	(ESP)	Exch. Sodium
0.20	0.31	0.21	0.12		ECc 1:5
0.22	0.20	0.34	0.35		ECe Sat. mlmhos/cm

SOLD THEFFORM PITT WICH BOAD BORBERT 3.

PROFILE DESCRIPTION.

COLUTION: See of steep sixpe below the Ocasi Mills at the discest level of the lacustrine deposit.

SIGIE: 2* (SPECE: Vorth Bast.

NOOT : NEW COUNTY 100%

HEDE #OT >

Acadia drepanoloblum Edua natalamata

TOUR GEVER!

Hyparrhenia illipendula 50% Thomsda triandra 50%

*ALLEMAN DEFENDE MONITOR

DEATHER RECEIVED LATERALLY.

"DEK THTTE JIE

ABAID ESU CHAI

0-M 10 YR 2/14 Black, Hard, moderately developed fine aga resident autenmediar blocky clay with surface except. We reaction with the Commerce fine roots, lower Boundary gradual and even.

10 YR 5/11 Very Terk Grey, Extrasely hard, strongly developed the and wedles prismatic clay, Microstructure moderate sedich clack, Etrong vertical cracking when dry, Pew very fine reads, by common fine roots in cracks, We reaction with 'RO1.' Lower houseary diffuse;

Ourse and medium blocky, Lentil structures, Prominent clay cotant,

stone vertical amedding, No resertion with HOL, Occasional line speed, Common Pine and very line roots with some root mileries; tower boundary aredual.

the blocky clay, No reaction with HOL, very few line roots,

	(+.)						
1	0.45	7.2	18.2	0.84	1.08	7.0	23-40
	0.60	7.2	18.4	0.82	1.20	5.9	9-23"
8	0.83	7.6	20.0	0.96	0.85	6.0	0-9"
ш.е.%		п.е.%	m.e.%	п.е.%	m.e.ø	PH	Depth
	Mn	B _W	Ca	×	Na		

Biological Test (Cunninghamella) % of plus all.

0-9"	лерги
0	N
85	70
35	co.

Depth	0-8,	0-88	82-40,	to +
Drien 23	0.5 0.5	80	80	Jo
87 A	60 60	41	ä	88
C.Tg2	190	60	8	53
H _S O _H	0.0	60 44	E-	6.
KCJ	rg.	ro 4	10°	10°
S	35 S. S.		1	
N II	0.28		1	
r b	+048 88.0	100 100 100	0.68	
DISOLVE Evilos Evilos	4.8	0.81	18.8	10.8
0.8	8.8	18,8	0.0 2.0	70.6 5.3
Horas Me	41 63	13	0.0	10 10
Enchangeacle aces (ESP)	1.4	17.00	41	8.0 7.8
74	0.68	0	OA. I 8. I	0.5
Exelination (TEA)	80.8	60.00	35	100 G
D: L. D. Sea MO \COMMILES	SE,0	0.83	0.87	0.80
ECa Sat.	0.29	0.54	0.80	0.88

Desch N P 35

SOIL INSPECTION PIT; LINE 1 NUMBER 2. (L P2)

PROFILE DESCRIPTION.

LOCATION: ? On lacustrine material; at the South West corner of the valley. 200 metres below and to the East of the alluvial fan descending the valley North of Magunga. On a very slight slope.

LAND USE : Nil.

VEGETATION COVER:100%

40% BUSH

Acacia seyal fistula <10% Balanites aegyptiaca <10% Euphorbia candelabrum 10% Rhus natalensis 30%

On the edge of a thicket of RHUS with accompanying

EUPHORBIA.

60% GRASS:

Chloris gayana 50% Setaria sphacelata <10% Themeda triandra 10%.

ROOTING DEPTH: >50"

MAXIMUM ROOTING DENSITY: 0-6"

DRAINAGE: Fair.

SOIL DEPTH: >50"

LAND USE CLASS 2.

0-6" 10 YR 2/2; Very dark brown. Slightly hard, strongly developed fine and medium crumb and sub-angular blocky clay.

No reaction with HCl. Abundant roots. Lower boundary clear and even.

6-24" Faint blotches of 10 YR 2/2; Very dark brown, and 7.5YR 2/2; Very dark brown. Very hard weakly developed medium prismatic clay. Microstructure strong medium blocky with faint clay faces. Lime efflorescence on ped faces exposed to the sun in the pit. No matrix reaction with HCl: slight reaction on the efflorescence. Common fine and medium roots. Lower boundary gradual.

24" + 10 YR 3/1; Very dark grey with abundant and prominent coarse rust blotches (5YR 3/4; Dard red brown). Hard, strongly developed fine and madisum blocky clay with distinct clay faces. Lentil structured. Very firm when moist. Below 39" locally few fine calcium concret; ns. Occasional fine stones of nephelinite. No matrix reaction with HCl. Few very fine roots with few root galleries, increasing with depth (to 50" +).

Mlmhos/

0.60

0.30

SOIL THEF COTION FITT LAND I MODER 2. (L. P.)

TOATTOM: ? On lacustrine materials at the Bouth West country of the valley. 200 metres below and to the Last of the alimytel the descending the valley North of Hagunga. On a very alight sites.

1100 UNE : Mil.

MOOTARRADO ROLLARDOAY.

ADM BUS

Acadia seyal fishula <10%
Balanites degyptiaca <10%
Supporbia candelabrum 10%
Rhus natalensis 50%

On the edge of a thicket of AME with addompanying

MU SHORBIA.

BEARD TOO

Obloris gayama 50% Setaria ephanelata CLOS Themeda briandra 10%

*OSK *ETTER DWITTOOK

National Recording Constitute O-6"

1: .

BERINAGE: Fair.

"ork referribes.

.S BRAID BRY GHAI

0-6" 10 YR 2/2; Very dark brown, Slightly hard, strongly developed time and medium orank and sub-angular blocky clay. "To reaction with HOL, Abundant mosts, Lower boundary alast and even."

6-240. Paint blotches of 10 VR 2/2: Very dark brown, and 7.918 2/2: Very dark brown, and 7.918 2/2: Very dark brown, Very hard weakly developed moutum nitratio oldy.

11 orestence arrows medium blocks with faint day faces. Lime afflorestence on pad faces exposed to the own in the pit. No matrix resoltion with Hill alight reaction on the efflorescence.

Common fine and medium roots, bower boundary gradual.

24" 4 10 YR 3/1: Very dark grey with abundant and prominent course rust blotches (5YR 3/4) Dard red brown). Fars, strongly developed fine and maddom blocky slay with distinct clay faces, bentil: structured. Very firm when noist, Below 39" locally few fine calcium concret ms. Occavional fine stones of aspheliable. No matrix resotion with 801. For very fine mosts with few root galaries; increasing with depth (50 90" *).

Pass of Asina V 20' March Bast

ATT THE Cotton, Mine,

50% chass 50% chas beens,

DEPTH: >55"

WPTR1 >55*

7.57R 2/2: Very Rank not rately developed Classes Process when moist. Sticks a to NOI. Abundany rine was

in 2 10 YR 3/1: Very care or matic clay with some sellay, Pew fine and adding the roots. Lower burndary

10 YR 3/14 Very de suit sedium blocky de very de sical oracks. Fee very de sic reaction with mil.

17 10 TR 2/2: Tory during the inet blotches, Slightly are medium submangular blockes peds. Very faint 18 12 reaction elight on he

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SOIL INSPECTION PIT; WAONDO ROAD NUMBER 2.

PROFILE DESCRIPTION .

LOCATION: Base of Asina Valley.

20' SLOPE:

ASPECT: North East.

LAND USE: Cotton, Maize.

VEGETATION COVER: 100%

50% GRASS

50% OTHER HERBS.

ROOTING DEPTH: >55"

MAXIMUM ROOTING DENSITY: 0-4"

DRAINAGE: Fair.

SOIL DEPTH: >55"

LAND USE CLASS 3

7.5YR 2/2; Very dark brown. Slightly hard to hard, moderately developed fine and medium subangular blocky clay. Friable when moist. Sticky and very plastic when wet. No reaction with HCl. Abundant fine roots. Lower boundary clear and even.

6-23" 10 YR 3/1; Very dark grey. Very hard, moderately developed prismatic clay with some vertical cracks. Microstructure moderate blocky. Few fine and medium calcium concretions. Occasional fine roots. Lower boundary clear and undulating.

23-37" 10 YR 3/1; Very dark grey. Very hard, strongly developed coarse and medium blocky clay with occasional slay faces and vertical cracks. Few very fine calcium concretions. No natrix reaction with HCl. Few very fine roots, tending to follow the cracks. Lower boundary diffuse.

37" + 10 YR 2/2; Very dark brown, with abundant fine yet distinct blotches. Slightly hard, moderately developed fine and medium sub-angular blocky clay. Abundant blue/black faces on the peds. Very faint lime spots. No matrix reaction with HCl: reaction slight on the lime spots. Few very fine roots.

* Committee of the control of the co		37" +	23-371	6-25"	0-6"	Depth
PACTURE NAME OF Actua Valley.		9	17	17	9	Sand
os Liagua de la companya de la compa	11.70	20	18	18	20	TEXTURE
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course and modium blocky clay with occusions; mlay fluse and rertical cracks. Few wary time ealedum confections lie natrix reaction with gol, flux very time rects, indicate to follow the oraces, lower boundary diffuse.	20 10 18	0.7 4.45	0.8 6.0	0.8 3.43	2.1 0.95	Exchangeable Bases Ma K Na
distinct blobbies. Signify part, podoustely developed fine and sedim sub-angular blocks olars, Abundant blue, Find faces on the peda, o Voly foint line spate, Ho makers reduction with Hells requiring slight on the line spate, New very office roots.	6	20.8 27.7	31.8	21.7	6.8 6.10	Exchangeable Sodium %
	2001 10 12 / section s content t rection 1	0.4	0.6	0.4	0.4	EC _e 1:5 mlmhos/cm
	10 TR 20 TR	0.95	0.75	0.53	0.44	ECe Sat.

\$885 ...

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SOIL INSPECTION PIT; LINE 11 NUMBER 2 (L₁₁ P₂) PROFILE DESCRIPTION.

LOCATION: Part way down the slope of a phonolite plateau.

SLOPE: 1° 50'
ASPECT: West.

SURFACE: Some stones. Weak surface crust.

LAND USE: Meize, Millet, Cassava.

VEGETATION COVER: 90%

<10% BUSH:

Acacia drepanelobium Balanites aegyptiaca Euphorbia candelabrum

70% GRASS:

Pennisetum mezianum 40% Setaria sphacelata 30%

10% Other Herbs:

Alos sp. Indigofera sp.

ROOTING DEPTH: 41"

MAXIMUM ROOTING DENSITY: 0-5"

DRAINAGE: Slightly poorly drained; receiving drainage.

SOIL DEPTH: >48"

LAND USE CLASS 3

- 10 YR 2/2; Very dark brown. Hard, strongly developed very fine to medium sub-angular blocky clay. Lime efflorescence. Few fine to very coarse stones. No matrix reaction with HCl. Abundant very fine to medium roots. Lower boundary clear and even.
- 5-16" 10 YR 3/1; Very dark grey. Extremely hard, weakly developed fine prismatic clay. Microstructure strong medium blocky. Some vertical cracking. Abundant extremely fine to fine calcium concretions. No matrix reaction with HCl. Common very fine to medium roots. Lower boundary even and abrupt.
- 16-21" 10 YR 3/1; Very dark grey. Very hard, weakly developed medium sub-angular blocky very dense clay. Abundant lime-coated fine gravel. Very slight matrix reaction with HCl. Few rootgalleries of very fine roots. Lower boundary gradual.
- 21" + 10 YR 5/3; Brown, with faint blotches of:10 YR 2/2; Very dark brown.
 10 YR 3/2; Very dark grey brown.
 10 YR 3/1; Very dark grey.

Slightly hard to soft, moderately developed very fine to medium sub-angular blocky clay with blue/black faces. Very abundant fine calcium concretions. No matrix reaction with HCl. Very few very fine roots.

SOLD DESCRIPTION PRODUCTS MARKET 2 (L. E.)	
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16-21" .10 YR 3/1; Very dark erey, Very hard, waskly devaloped section automation blocky very dense olsy, hourdant linest costed fine system. Very bliche matrix sention et an fill. Faw rooteslleries of very fine mose, hower respussy gradual.	one fine to save the to save the concept that the concept
210. 4 10 YR 5/3; Rrunn, while this blotches often 10 YR 3/2; Very dark brown, 10 YR 3/2; Very dark groy.	
Slightly band to most another developed very fine to medium sub-minguist blocky clay with blue/black face. Very abundant (the deletus concretions, No metrix resulton with HOL. Very fire very fine roots.	

21"+ 16-21" 5-16" 95 Sand Silt Clay 20 18 24 30 TEX TURE 10 14 12 12 8 66 70 64 H₂0 8.7 8.5 8.3 7.6 Hq KC1 6.5 6.0 0 6.4 0 2.39 BE 0 0.18 BE Z P CEC me/100g Soil 19.6 24.0 22.4 21.0 8.4 9.6 9.9 9.4 Ca . Exchangeable
Bases
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SOIL INSPECTION PIT; SCARP ROAD NUMBER 11.

PROFILE DESCRIPTION.

LOCATION: On the lacustrine apron below Sigama hill (Kaniamwia escarpment).

SLOPE: 2°

ASPECT: West.

LAND USE: Nil.

VEGETATION COVER: 100%

<10% BUSH:

Balanites aegyptiaca.

100% GRASS:

Setaria sphacelata 80% Themeda triandra 20% Eragrostis racemosa <10%

ROOTING DEFTH: >56"

MAXIMUM ROOFING DENSITY: 0-3"

DRAINAGE: Fair. Slight surface cracking.

SOIL DEPTH: >56"

LAND USE CLASS 4.

Top 2 horizons sampled together as 0-15".

0-3" 10 YR 2/1; Black. Slightly hard, moderately developed fine and medium sub-angular blocky clay. No reaction with HCl. Abundant fine roots.

3-15" 2.5 Y 2/1; Black. Common fine rust mottles. Very hard, moderately developed medium prismatic clay. No. reaction with HCl. Common fine roots. Lower boundary gradual.

15-28" 10 YR 3/1; Very dark grey. Few very fine rust mottles. Extremely hard, strongly developed very fine to medium blocky clay. Common fine root galleries. No reaction with HCl. Lower boundary gradual.

28-46" Faintly blotched with 10 YR 3/1; very dark grey, and 10 YR 2/2; Very dark brown. Hard, strongly developed fine to medium subangular blocky and blocky clay. Few white faunal casts. Rare fine manganese concretions. No reaction with HCl. Very few very fine roots. Lower boundary diffuse.

46" + 10 YR 4/2; Dark grey brown. Hard, strongly developed very fine to medium blocky clay. White faminal casts. Fine calcium concretions. Common manganese concretions. Rare medium stones. Matrix reaction with HCl. No roots.

	46-56"		040	3000		15-28	,414,		персп	;	
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	0.40	;	0.35		0.30		0.27		Mimhos/		

LOTATION: On the laquetries aprox bolow Signa at II (Kentummikal)

100% GRASS:

Setaria armeceleta how

RODEL NG DELTES > 56"

MAXIMUM BOOTING DENSITY: 0-3%

Pair. Slight surface dracking.

Top 2 horizons sempled toneber as O-15".

0-3" to va a/1; Black; Slightly hard; mederately toveleped

3-15" 2.5 Y 2/11 Black, Common, fine rust mottles; Very hard; moderately developed median prismettic olay, No. reservice with HCI. Common fine roots. Lower bundary graduel

19-28" 10 YR 5/1; Very dark grey, New Very Nine rust medtlesi Extremely bard, strongly developed very line to median blocky clay;

28-46" Paintly blotched with 10 YE 3/11 very dark gray; and 10 YE 2/2 ; Vory dark brown; Hard, streeply developed line to medium subangular blocky and blocky oley. For white friend casts; Haro fine manganese concrettons; No reaction with NCL. Very few very fine rocks; Lower boundary diffuse.

 $\frac{d\mathcal{C}^{n}}{dt}$ 10 YH $\frac{d}{dt}$ 2; Dark grey brown, Mard, strongly developed very fine to medium blocky clay. Thise formal master Fine calcium concretions. Common mangurese concretions, dare medium stones. Matrix reaction with HOL. No coots.

SOIL INSPECTION PIT; FOREST ROAD NUMBER 7.

PROFILE DESCRIPTION

LOCATION:

On the slight slope (1° 50') between the Kaniamwia escarpment and the Olambwe River.

ASPECT:

West.

LAND USE:

Nil.

VEGETATION COVER: 100%

<10% BUSH.

Acacia seyal fistula.

100% GRASS.

Hyparrhenia rufa 80% Themeda triandra 20% Setaria sphacelata <10%

ROOTING DEPTH: 52"

MAXIMUM ROOTING DENSITY: 3 - 7".

DRAINAGE.: Slightly poorly drained.

Slight surface cracking.

SOIL DEPTH: > 57"

LAND USE CLASS 4.

- 0-6" 10 YR 2/0; Black. Slightly hard, moderately developed fine and medium crumb and sub-angular blocky clay loam. Sticky and plastic when wet. Very few rather fine nephelinite stones. No reaction with HCl. Abundant fine roots. Lower boundary clear and even.
- 2.5 Y 3/1; Very dark grey. Few very fine rust mottles. Extremely hard, moderately developed medium prismatic clay; Microstructure weak medium sub-angular blocky with clay faces. Very sticky and plastic when wet; Firm when moist. Very few very fine calcium concretions towards the horizon base. No matrix reaction with HCl. Common fine roots. Lower boundary clear and undulating.
- 27-36"
 2.5 Y 2/2; Black. Common very fine rust mottles. Very hard, strongly developed blocky clay. Few fine Manganese concretions. Common very fine calcium concretions. Slight HCl reaction on the Ca concretions: no reaction on the matrix. Common fine roots: roots concentrated into dense root galleries. Lower boundary gradual.
- 36-43" 10 YR 4/1; Dark grey, and 10 YR 4/2 Dark grey brown with yellow mottles and dark manganese streaks. Hard, strongly developed medium sub-angular blocky clay with clay faces. Very sticky and very plastic when wet. Common fine manganese concretions. Few very fine calcium concretions. Slight HCl reaction on the Ca concretions: no reaction on the matrix. Few fine roots. Lower boundary even and abrupt.
- 43" + 10 YR 3/1; Very dark grey, 10 YR 4/1; Dark grey, and 10 YR 5/3 Light olive brown blotches. Manganese streaks.

 Moderately developed fine and medium blocky clay with clay faces. Some white faunal casts. Common fine manganese concretions. Very abundant fine calcium concretions. Strong HCl reaction on the concretions: slight reaction on the matrix. Roots rare.

	1		36	100						T		
	43" +		36-431	27-36"		6-27		0-6"		Depth		
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HERRY MOLD

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TANK GOVE

Hyperrhenik rais 30% Themeds triandra 20% Setaria sphacelsta (10%

"Se PERSON DITTOR

PAXIMEN ROOTING DESCRIPT: 3 - 7":

PRAIMAGE: Bilderly poorly drained. Slight surface cracking.

BOIL DEFINE > 57th

A SCAR THE CHAI

0 - 6" 10 YH 2/0; Black: Slightly bard, mederately developed fine and modium crumb and sub-unavelar blocky clay loam.
Sticky and plastic when wet. Very few cather fine nephelikite, stones. No reaction with HOL. Abundant fine modes, hower boundary clear and even.

6-27" 2.5 Y 5/1; Very dark gray, Few very fine tust mottles, Extremely hard, moderately developed medium prismatic clays licrostructure weak medium sub-angular blocky with clay faces. Very sticky and plastic which wett film when undet. Very few very fine celeium commettees bouards the horizon base. We matrix reaction with HOl. Jounda fine roots. Hower boundary clear and undulating.

27-36" 2.5 Y 2/2: Black. Comeon very Fine rist mottles. Very hard, strongly developed blooky clay. For fine Manganese congretions, Gosmon very fine galcius concretions. Glight HEL reaction on the Camon very fine galcius concretions on the matrix, Gosmon fine roots: roots concentrated into Jones root galleries. Lower boundary gradual.

35:47" 10 YR AVI: Dark grey, and 10 YR d/2 Dark grey brown with yellow mottles and dark managemen strocks. Acrd. Strongly developed medium sub-angular blocky elsy with elsy faces. Very sticky end vary blackte when wet. Common fine management concretions. Few very fine delosum concretions. Slight HCl reaction on the Cd concretionatho reaction on the matrix. Few fine roots lower boundary even and abrupt.

10 YH 3/1: Very dark grey, 10 YH 4/1; Dark grey, and 10 YH 5/3 Hight citve brown blotches. Mangamose streams. Moderately developed fine and medium blocky clay with clay faces. Some white faceal casts. Common fine mangamose concretions. Very abundant fine calcium concretions. Strong HOl reaction on the concretions: slight reaction on the matrix. Roots rare.

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SOIL INSPECTION PIT; FOREST ROAD NUMBER 11

PROFILE DESCRIPTION.

LOCATION:

On top of a slight whate-back ridge on a clay

plain.

LAND USE:

Nil.

VEGETATION COVER: 100%

<10% BUSH:

Balanites aegyptiaca

100% GRASS:

Setaria sphacelata 60% Hyparrhenia rufa 30% Sporobolus pyramidalis <10% Themeda triandra <10%

ROOTING DEPTH: >40"

MAXIMUM ROOTING DENSITY: 0 - 5"

DRAINAGE: Slightly poorly drained.

SOIL DEPTH: >40"

LAND USE CLASS 4

- 2.5Y 2/1; Black. Slightly hard, strongly developed fine and medium crumb and sub-angular blocky clay. Frieble when moist. No reaction with HCl. Very abundant fine roots. Lower boundary even and abrupt.
- 2-12"
 2.5 Y 2/1; Black Extremely hard, moderately developed coarse and medium prismatic clay. Microstructure weak coarse blocky. Sticky and very plastic when wet. Vertical cracks. No reaction with HCl. Common fine roots concentrated near cracks. Lower boundary gradual.
- 2.5 Y 2/2; Black. Extremely hard, strongly developed fine to coarse blocky clay with distinct clay faces. Lentil structured. No reaction with HCl. Abundant very fine and fine roots especially concentrated in a layer 20" to 28". Lower boundary gradual.
- 2.5 Y 3/1; Very dark grey. Faint dark blotches. White lime streaks. Firm, moderately developed fine to coarse sub-angular blocky clay. Long medium lime streaks. Slight HCl reaction on the streaks: no reaction on the matrix. Very few very fine roots. Lower boundary gradual.
- 10 YR 4/1; Dark grey. Hard, strongly developed fine and medium blocky clay. Abundant fine and medium calcium concretions. Common lime efflorescence. Very slight HCl reaction on the matrix. Very few very fine roots.

SOLE INSIGOTION PITS POREST ROAD NUMBER 11

TROPILL DESCRIPTION.

On top of a slight abadestade ridge on a olay LOCATIONS .nisig

MIL.

VEGETATION COVER: 100%

*Heus kor>

Balanites aegyptings

Hyparrhenia rifa 30%. Sporobolus pyramidalia Clow. Themsels tifactorial

ANTINOM WOLLING DIABILATE OF 24

COALMIGE: Slightly peerly desimed.

463 - SI

188 - ES

38" +

2.5% 2/1: Plack. Slightly hard, strongly developed The and medium orange and sub-engular bisedy clay.

2,5 y 2/1: Black, Extremely hard, mederately developed coeres and medium prismatic clay. Microstracture reak coarse blocky, Sticky and very plant a ven set Vertical cracks, No resolved with BCL tornon live roots concentrated near oracles, lower boundary gradual,

2.5 Y 2/2; Black, Extremely bord, ecrongly developed fire to coarse blooky clay with distinct clay focus, bentit structured. We reaction with HGI. Abundant very fine and I'me roots especially opnoentaged in a layer 20" to 28"

2.5 Y 5/1: Very dark grey, Paint dark blotches, white line streaks, Firm, moderately developed fine to course sub-angular blocky clay, bong medium line strenge, Slight HOL reaction on the streaks; no reaction on the matrix. Very few very fine roots, hower boundary

10 YR 4/1: Dark grey, Bard, strongly developed fine and medium blocky olay, Abundant Fine and medium palatum concretions, Common lime efflorescence, Very slight HUL reaction on the matrix. Very few very fine roots.

		38" + 20		29-3811		12-29"		2-12			0-2"	1	Depth		
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	10.6 3.9 1.0 4.4		8.4 4.7 1.4 1.8		9.4 4.7 1.4 1.6		8.2 4.9 1.3 1.1	oky oky ret		6.84.21.607	10	Ca Mg K No	Lases	ХZ	
19.7	28-1	58.1	**	9.15	, o 4.	6:3	‡	7.3	9.3	Tangara da		(BSP)	Na %	Exc	
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0.40	5		0.38	0.10	0.40		0.23		0.42			1	mlmhos/cm	EC Sat	

0,8

FOIL INSPECTION PIT; JUNCTION ROAD NUMBER 1

PROFILE DESCRIPTION ..

LOCATION : Part way from the Olambwe River towards the Gwasi slopes. On the lacustrine clay plain.

SLOPE:

ASPECT: West.

LAND USE: Nil.

Fine and medium calcium concretions common. SURFACE: VEGETATION COVER: 100%

Acacia drepanolobium and "Grouped Bush" composed primarily of Euphorbia candelabrum

Rhus natalensis

90% GRASS:

:0% BUSH:

Themeda triandra 70% Hyparrhenia rufa 10% Setaria sphacelata 10%

ROOTING DEPTH: >48"

MAXIMUM ROOTING DENSITY: 0 - 3 "

DRAINAGE: Somewhat poorly drained.

SOIL DEPTH: >48"

LAND USE CLASS 5.

Top 2 horizons sampled together as horizon 0 - 26".

- 0-3" 10 YR 3/1; Very dark grey. Hard, strongly developed very fine to medium sub-angular blocky clay with a crumb surface. No reaction with HCl. Abundant fine roots.
- 3 26" 10 YR 3/1; Very dark grey. Extremely hard, moderately developed fine and medium prismatic clay. Microstructure strong medium blocky. Towards the base of this horizon are found lentil structures with prominent clay faces. Common fine and medincalcium concretions. No matrix reaction with HCl. Few fine roots. Lower boundary gradual.
- 26 34" 10 YR 3/1; Very dark grey. Very hard, moderately developed fine and medium sub-angular blocky clay. Common fine calcium concretions. No matrix reaction with HCl. Common root galleries Lower boundary even and abrupt.
- 34" + 10 YR 4/2; Dark grey brown. Very faint fine dark mottling. Somewhat gleyed. Hard, moderately developed medium sub-angulablocky. Common fine and medium calcium concretions. Very slight matrix reaction with HCl. Very few very fine roots.

	NUMBER OF STREET	TV BE V	T		-			
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Screwhat gleyed, Mard, moderately developed addion sub-adjoint blocky, Company fine and medium onterior consections. Very allest metric restrances with HOL. Very few yers fine reasons.

SOIL INSPECTION PIT; SCARP ROAD NUMBER 6

PROFILE DESCRIPTION.

LOCATION: In a seepage basin on the lowest slopes of the Kaniamwia escarpment.

SLOPE: 1° 50'.

ASPECT: West.

LAND USE: Nil.

VEGETATION COVER: 100%

< 10% BUSH:

Acacia seyal fistula. Harrisonia abyssinica Rhus natalensis

90% GRASS:

Imperata cylindrica africana 75% Hyparrhenia rufa 15%

ROOTING DEPTH: >62"

MAXIMUM ROOTING DENSITY: 0 - 7"

DRAINAGE: Poor,
SOIL DEPTH: >62"

LAND USE CLASS 6.

- 0 7"

 10 YR 2/1; Black. Eard, strongly developed fine and medium subtangular blocky clay. No reaction with HCl. Abundant medium roots; Common fine roots. Lower boundary even and abrupt.
- 2.5 Y 2/1; Black. Contains few very fine to medium sized pronounced rust mottles (2.5YR 3/4; Dark reddish brown). Extremely hard, strongly developed fine prismatic clay; microstructure moderate blocky with distinct clay faces. Vertical cracking. Occasional fine stones. No reaction with HCl. Common very fine to medium roots. Lower Boundary diffuse.
- 22 55"

 2.5 Y 2/1; Black. Pronounced rust streaks (7.5YR 3/2; Dark brown). Extremely hard, strongly developed coarse and very coarse blocky clay with very prominent clay faces. Lentil structures are here very pronounced. Vertical rust streaks are associated with vertical cracks. Grups of fine rust mottles are associated with occasional pockets of fine and medium gravel which create conditions of temporary oxidation. No reaction with HCl. Few fine roots. Lower boundary diffuse.
- No sample. 10 YR 3/1; Very dark grey. Somewhat gleyed with faint blotches of 10 YR 4/1; Dark grey, and 10 YR 5/2; grey brown. Very hard, strongly developed coarse and medium blocky clay. Lentil structured. Pockets of lime coated fine gravel. Pockets of fine and medium calcium concretions. The concretions, rust mottles and gravels tend to be associated. Common root galleries on ped faces.

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SOIL INSPECTION FITS START BOAT STARTS &

HOTTS DESCRIPTION

LACATION : In a seensge basin on the lowest slopes of the

\$1,09E; 1° 50°.

ASPROT West,

VEGETATION COVER: 10090

*HSAM BOT >

Acade sevel fistels. Harrisonts abyseinica Rhus matalonsis

90% GRASS:

Imperate cylindrica africana 75% Hyparrhenia rufu 15%

HOOFING DEPTHY >62"

MAXIMUM ROOTING DENSITY: 0 - 70

TRATMACE: Poor.

SOLD DEPTH: >62"

THIS GER GIVES P.

10 YE 2/1; Black, Hard, strongly developed fine and medium subtengular blocky clay. No reaction with HGL. Abundant medium roots; Common fine roots. Lower boundary even and abrunt.

7 - 220 2.5

2.5 Y 2/1; Black. Monvains few very fige to medium sized pronounced rust mottles (2.5YR 5/A; Dark reddish brown). Extremely hard, strongly developed fine prismatic olley; microstructure moderate blocky with distinct risky facts. Vertical cracking. Occasional fine stands. We recetted with NCI, Common very fine to medium roots, Lower Secmedary diffuse.

22 = 55#

2.5 Y 2/1; Black, Promounced rust streaks (7.5 % 3/2; Dark brown), Extremely hard, strongly developed source and very coarse blocky clay with very prominent clay faces, bentil structures are here very promounced. Vertical rust streaks are associated with vertical runces. Or ups of fine rust mottles are associated with vertical runces, pockets of fine and medium gravel which create conditioned of temporary exidation. No reaction with HCL, Few fine roots, Lower boundary diffuse.

+ 492

No sample, 10 YR 3/1; Very dark grey, Somewhat gleyed with faint blotches of 10 YR 4/1; Dark grey, and 10 YR 5/2; grey brown, Very hard, strongly developed coarse and medium blocky clay, Lentil structured, Pockets of lime coated fine gravel. Pockets of fine and medium calcium concretions, The concretions, rust mottler and cravels tend to be associated. Common root galleries on ped faces.

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SOIL INSPECTION PIT; LINE 1 NUMBER 1 (L, P1).

PROFILE DESCRIPTION.

Towards the South East end of the valley. On lacustrine LOCATION: material, 400 metres West of the Olambwe River.

SLOPE: 35'

ASPECT: East.

LAND USE: Nil.

VEGETATION COVER: 100%

60% BUSH:

Acacia seyal fistula 20%

40% "Grouped Bush" essentially composed of:and Euclea schimperi Euphorbia candelabrum Grewia similis Rhus natalensis

40% GRASS:

Setaria sphacelata 40 % Hyparrhenia rufa <10% Themeda triandra <10%

ROOTING DEPTH: >55"

MAXIMUM ROOTING DENSITY: 0 - 7"

DRAINAGE: Poor. Slight surface cracking. SOIL DEPTH: >55"

LAND USE CLASS 8

- 0 16" 10 YR 3/1; Very dark grey. Extremely hard, moderately developed coarse and medium prismatic clay. Microstructure fine and medium strong blocky. Surface 0 - 1" very fine strong blocky only. Incipient lentils below 1". No reaction with HCl. Common fine and very fine roots. Lower boundary clear and even.
- 16 23" 10 YR 3/1; very dary grey. Extremely hard, strongly developed blocky clay. Yo reaction with HC1. Common root galleries. Occasional medium roots. Lower boundary clear and even.
- 23 33" 10 YR 3/1; Very dark grey. Very hard, strongly developed fine blocky clay. No reaction with HCl. Very few very fine roots. Lower boundary gradual.
- 33" + 10 YR 4/2; Dark grey brown. Slightly hard to hard, strongly developed fine and medium blocky clay with occasional distinct clay faces. Lentil structures. Blue faces on the peds common . White faunal casts. Few very fine manganese concretions. Very few fine and medium calcium concretions. Abundant medium gypsum crystals, occasionally lime coated. No matrix reaction with HCl. Rare roots.

Pit REF. L1 1

Lab. No. 7685 - 7688/65

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10 YR 5/1; Very dark (reg. Extremely hard, anodevately developed coarse and redium priematic clay. Macroscacture Time and medica strong blocks, Sor and 0 + In very films atrong block, sely, incipated dentile being the Rolland Son with HCL. Common time and wery Time rolls, hower appendance

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SOIL INSPECTION PIT; LINE 13 NUMBER 2. (L, P2) PROFILE DESCRIPTION

LOCATION:

Olambwe valley alluvium; 100 metres East of the Olambwe.

SLOPE:

Plane.

LAND USE:

VEGETATION COVER: 100%

Acacia seyal fistula 30% Sesbania quadrata <10% Pennisetum mezianum 70%

ROOTING DEPTH:

MAXIMUM ROOTING DENSITY: 0 - 4"

DRAINAGE: Poor. Slight surface gracking.

50"

SOIL DEPTH: >55"

LAND USE CLASS 8.

- 0 7"

 10 YR 3/1; Very dark grey. Hard, strongly developed fine and medium blocky heavy clay. Very few fine epots at the base of the horizon. No matrix reaction with HCl. Abundant fine roots. Lower boundary clear and even.
- 10 YR 3/1; Very dark grey. Hard, weakly developed fine and medium prismatic heavy clay. Microstructure moderate fine and medium blocky. Few very fine calcium concretions. Abundant medium and coarse gypsum crystals. No matrix reaction with HCl. Common very fine roots. Lower boundary clear and even.
- 23 38"

 2.5 Y 3/1; Very dark grey. Abundant coarse faint blotches of 10 YR 3/2; Very dark grey brown: Very hard, strongly developed fine and medium blocky heavy clay: Very firm when moist. Very few very fine calcium concretions. Common fine to coarse gypsum crystals. No matrix reaction with HCl. Fine root galleries. Lower boundary gradual.
- 2.5Y 4/1; Dark grey. Very hard, strongly developed fine and medium blocky heavy clay with prominent and thick clay faces. Lentil structured. Very few very fine calcium concretions. Very abundant fine to coarse gypsum crystals. No matrix reaction with HCl. Very few fine roots.

SOLT INSPECDED NAMED TO MANAGER 5. (172 5.)

LOCATION: Olambwe valley alluvium; 100 metres East of the Olambwe.

SLOPE: Plane.

LAND USE: Wil.

VEGETATION COVER: 100%

Acacia seyal fistula 105 Sesbania quadrata (105 Pennisetum mezianum 70%

NOS HITTER DETTOOR

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23 + 38F

MAXIMUM ROOTING DENSITY: 0 - 4"
DENINAGE: POOT, SIEGHT SHUTNOG GESCHING.
SOIL DEPTH: >55"

LAND USE CLASS 8.

10 VR 5/1; Very dark grey, Hard, strongly developed fine and medium blocky heavy clay. Very few fine flats at the base of the horizon. We matrix resption with Hel. Abundant fine roots boundary clear and even.

10 YR 3/1; Very dark grey, Hard, wearly developed fine and medium prismatic heavy clay. Microstructure moderate fine and medium blocky, New very fine calcium concretions. Abundant medium sad coarse gypsum crystals, No matrix reaction with Hel. Common very fine roots. Lower boundary clear and even.

2.5 Y 7/1; Very dark grey, Abuneant coarse faint blotches of 10 YR 3/2; Very dark grey brown; Very hard, strongly developed fine and medium blocky nearly clay. Very firm when moist, Very few very fine osleium concretions. Common fine to coarse gypaum crystals. No matrix reaction with HOL. Fine root galleries, Lower boundary gradual.

2.57 4/1: Dark grey, Very hard, strongly developed fine and medium blocky heavy clay with prominent and thick clay faces. Lentil structured. Very few very line calcium concretions, Very thundant fine to course gypous crystals. No matrix reaction with HOL. Very few fine roots.

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