

## Appendix 1: GPS coordinates and sample descriptions

Tuff	Sample	Locality	S	E	Thickness	Color	Texture
TBS-1	07-P20	Type	2°18.500'	35°55.987'	15-30 cm	Tan	Med-coarse grain, laminated, contains lava fragments.
TBS-2	07-P5	Type	2°18.364'	35°55.873'	5-20 cm	Yellow-orange	Fine-grain, channel fill, soft.
TBS-3	07-P6	Type	2°18.374'	35°55.876'	15-30 cm	Yellow	Med-grain, massive, crystal-rich, resistant.
Main Humbu	08-P12	Type	2°18.400'	35°56.077'	3.36 m	Orange	Coarse, crystal-poor, contains lava fragments.
	07-P7	Type	2°18.394'	35°55.773'	>3 m	Orange	Laminated, crystal-poor.
	10-T26	Type	2°18.388'	35°56.036'	>3.36 m	Orange	Sample from coarser, crystal-rich layer ~2m below top
	08-P1	SE	2°19.331'	35°54.461'	1 m	Orange	Med-grain, with calcite-rich resistant horizons.
T-1	07-P8	Type	2°18.408'	35°55.795'	30 cm	Yellow-orange	Fine-grain matrix, some lithic fragments.
T-2	07-P9	Type	2°18.408'	35°55.795'	15 cm	Red-orange	Fine-grain, laminated, calcite cement, crystal-poor.
T-3	08-P11	Type	2°18.330'	35°56.101'	10 cm	Yellow	Fine grain, not resistant.
T-4	08-P8	Type	2°18.535'	35°55.798'	7 cm	Yellow-orange	Med-grain, laminated, crystal-poor.
	08-P10	SE	2°19.251'	35°54.215'	10-12 cm	Orange	Med-grain, laminated, crystal-poor.
T-5	07-P13	Type	2°18.298'	35°56.132'	90 cm	Orange	Fine-grain, resistant, often contaminated (sand).
TM-1	07-P14	Type	2°18.895'	35°55.987'	8 cm	Light	Fine-grain matrix, some crystals, dolomite-cemented.
TM-2	07-P16	Type	2°18.981'	35°55.941'	1.5 m	Yellow-white	Med-grain, matrix-supported, crystal-rich, laminated.
TM-3	07-P17	Type	2°19.003'	35°55.953'	10 cm	Gray, orange	Med-grain, crystal-rich.
TM-4	07-P18	Type	2°19.072'	35°55.956'	10 cm	White-yellow	Fine-grain, soft, crystal-poor.
Upper Moinik	07-P19	Type	2°19.081	35°55.930'	15 m	Tan	Med-grain, massive, soft, matrix-supported, crystal-poor.
Olduvai IF	02-T101	40					
Olduvai BPT	06-T5	44					
Olduvai IVA	07-T65	45					

Datum: ARC 1960. Olduvai Localities after Hay (1976).



## Appendix 2: Regional descriptions

Tuff	Sample	Locality	Regional description (from Luque et al., 2009a, b)
TBS-1	07-P20	Type	Two layers, 15 cm and 1.1-1.3 m thick, reworked, abundant volcanic fragments
TBS-2	07-P5	Type	15-30 cm, orange, wavy, well laminated.
TBS-3	07-P6	Type	thin to 45 cm thick, orange, laminated.
Main Humbu	08-P12	Type	1-4 m thick, multiple tephra layers, overlies gastropod-rich limestone.
T-1	07-P8	Type	20-40 cm, well cemented, orange, laminated.
T-2	07-P9	Type	Laminated, highly weathered
T-3	08-P11	Type	thin to 20 cm thick, yellow, weathered
T-4	08-P8	Type	5-8 cm, change from dark brown to yellow, laminated
T-5	07-P13	Type	Brown tephra mixed with coarse sand, channel fill up to 50 cm thick.
TM-1	07-P14	Type	8 cm white tuffaceous limestone, surface resembles bird prints
TM-2	07-P16	Type	White-yellow up to 1.3 m thick, laminated, burrowed, reworked.
TM-3	07-P17	Type	5 m to 1 m, discontinuous
TM-4	07-P18	Type	50 cm to 1 m, white to reddish brown, finely laminated ash fall deposit
Upper Moinik	07-P19	Type	4-20 m yellowish trachytic tephra, altered to erionite