Supplementary Table 1. Brief macro- and micromorphological description of PC1, L2, PC2 and L3 of the Obi-Mazar section. Distinctive properties are printed in ***bold*** italics. Texture: SiL – silt loam, SiCL – silty clay loam. Structure and microstructure: MA – massive, A-SBK - angular and subangular blocky, SBK – subangular blocky, S-ABK - subangular and angular blocky, GR – granular, CH – channel, CM – crumb, V – Vughy. Special features: $CaCO_3$ PM – calcite pseudomycelia; SC – soft concretions; HC – hard concretions. Sin. – single. Ø – diameter. B-fabric – birefringence fabric in the micromass. B-fabric: CR – crystallitic; ST-SP – stipple-speckled, PS – porostriated; MS – monostriated. Microfeatures: Org-Min – organic-mineral matter; c. – coatings; h/c. – hypocoatings; q/c. – quasicoatings; inf. – infillings; cyt. calcite – cytomorphic calcite; n. – nodules.

Depth and thickness, m	Unit	Horizon	Macromorphological pedofeatures			Micromorphological pedofeatures			
						Microstructure / b-fabric	Neoformations		
			Colour	Texture / structure	Special pedofeatures		$CaCO_3$	Org-Min	Silt/clay
$\frac{0-0.38}{0.38}$	HS	Ak-BCk	Light grey	SiL / GR-SBK	$CaCO_3$ HC ≤3 cm Ø, roots				
$\frac{0.38-5}{4.62}$	L1.1	Ck	Yellowish pale brown 10 YR 6/4d	SiL / MA	Sin. $CaCO_3$ HC ≤2 mm Ø				
$\frac{5-7}{3}$	L1.2	Ck	Yellowish pale brown 10 YR 6/4d	SiL / MA	-				
$\frac{7-10}{3}$	L1.3	Ck	Yellowish pale brown 10 YR 6/4d	SiL / MA	Sin. bioliths-capsules with hard $CaCO_3$ walls				
$\frac{10-11}{1}$	L1.4	Ck	Yellowish pale brown 10 YR 6/4d	SiL / MA	Sin. $CaCO_3$ HC ≤2 mm Ø, bioliths-capsules with hard $CaCO_3$ walls				
$\frac{11-12.85}{1.85}$	L1.5	Ck	Light yellowish brown, 10 YR 6/4d	SiL / MA	Sin. bioliths-capsules, **shells**	MA / CR	c.; h/c.; calcite grains	h/c.	-
$\frac{12.85-13.15}{0.3}$	PC1.1	1ABk	Yellowish brown with a brown tint, 10 YR 5/4d	SiL / MA	$CaCO_3$ PM, **shells**	GR with **humus impregnation**/ CR, ST-SP	c.; h/c.; calcite grains; c. and inf. by cyt. calcite	h/c., n.	silt c. and inf.
$\frac{13.15-13.8}{0.65}$		1BAk	Light yellowish brown, 10 YR 6/4d	SiL / SBK	$CaCO_3$ PM, bioliths-capsules	CH / CR	c.; h/c.; n.	-	silt c. and inf.

13.8– 14.07 0.27	PC1.2	2ABwk	Very pale brown, 10 YR 7/3d	SiL / SBK, more dense	$CaCO_3$ PM, bioliths-capsules	CM with **humus impregnation**/ CR, ST-SP	c.; h/c.; c. by calcite grains	h/c.	**layered** silt c. and inf.; weak **clay c.**
14.07– 14.14 0.07		2Bkm	Yellowish in brown	-	**$CaCO_3$** horizontal layers ≤6-8 mm, **shells**	CH, CM / CR	h/c.; **n**.; inf. with acicular calcite and sparite	Fe impregn ation; n.	silt-clay inf.
14.14– 14.83 0.69		2BAk	Yellowish brown with a yellow tint, 10 YR 5/4d	SiL / A-SBK	**krotovina** ≤4 cm Ø with pale yellow material from 2ABtk, bioliths-capsules	CM / ST-SP, CR	c.; h/c.; n.; c. by calcite grains	h/c., n.	**2-layered** silt c. and inf.
14.83– 15.05 0.22	PC1.3	3ABk	Light yellowish brown, 10 YR 6/4d	SiCL / S-ABK, less dense	Sin. $CaCO_3$ SC	CM with **humus impregnation** / ST-SP, CR	c.; h/c.; q/c.; acicular calcite, n.; c. by calcite grains	-	-
15.05– 15.7 0.65		3Bk	Very pale brown with brown tint, 10 YR 7/3d	SiL / A-SBK	$CaCO_3$ SC	CH / CR	c.; h/c.; inf.; n.; acicular calcite; c. by calcite grains	h/c., n.	**layered** silt c. and inf.
15.7– 16.1 0.40		3BCwk	Very pale brown with brown tint, 10 YR 7/4d	SiL / SBK	$CaCO_3$ PM, HC ≤1 cm Ø	MA / CR, ST-SP	c.; h/c.; n.; c. by calcite grains	h/c., n.	**layered** silt c. and inf.; fragmentary **clay c.**
16.1– 17.96 1.86	L2.1	Ck	Very pale brown, 10 YR 7/4d	SiL / MA, less dense	$CaCO_3$ PM, HC ≤1 cm Ø	MA / ST-SP, CR	c.; h/c.; n.; sparite grains	n.	**layered** silt c. and inf.
17.96– 18.68 0.72	L2.2	Ck	Very pale brown, 10 YR 7/4d	SiL / MA, less dense	Sin. $CaCO_3$ SC	MA / ST-SP, CR	c.; h/c.; n.; sparite grains	n.	**layered** silt c. and inf.
18.68– 19.36 0.68	PC2.1	1BCk	Light yellowish	SiL / A-SBK	$CaCO_3$ PM	CH with weak humus	c.; h/c.; q/c.; n.; c. by calcite grains	n.	-

			brown with a yellow tint, 10 YR 6/4d			impregnation/ ST-SP			
19.36– 20.76 / 1.4		1ABk	Yellowish Brown, 10 YR 5/4d	SiL / S-ABK	$CaCO_3$ PM	CH, porosity ~30% / ST-SP, PS	c.; h/c.; acicular calcite; n.	h/c.	**layered** silt c. and inf. with calcite
20.76– 21.26 / 0.5		1ABwk	Light yellowish brown, 10 YR 6/4d	SiCL / S-ABK	$CaCO_3$ PM ≤1 cm Ø and coatings on peds	SA / ST-SP, PS, MS	c.; h/c.; acicular calcite; c. by sparite grains	h/c., n.	silt c. and inf.
21.26– 21.82 / 0.56		1Bwk	Brown, 7.5 YR 5/4d	CL / GR-SBK, less dense	$CaCO_3$ PM ≤0.5 cm Ø	V, CH / CR, ST-SP	c.; h/c.; q/c.; n.	h/c., n.	silt c. and inf.
21.82– 21.86 / 0.04		1Bkm	Very pale brown	Dense, very porous	Ranges 3-5 cm in extent	CH, CM / ST-SP, CR	c. with acicular calcite; h/c.; n.; inf. with sparite	Fe impregnation; dendrites; h/c.; n.	**layered** silt c. and inf. with calcite
21.86– 22.2 / 0.34		1Bk	Whitish yellow, 10 YR 7/3d	SiL / SBK	$CaCO_3$ PM, krotovina with material from $1ABk_2$, bioliths-capsules with dense walls	CH / CR	c.; h/c.; inf.; n.; acicular calcite; c. by calcite grains	h/c., n.	silt c. and inf.
22.2– 23.02 / 0.82		Ck1	Very pale brown, 10 YR 7/3d	SiL / MA, less dense	Small $CaCO_3$ SC, sin. bioliths-capsules, Fe-Mn SC	SB, porosity ~30% / CR, ST-SP, PS	c.; h/c.; n.; acicular calcite; c. by cyt. calcite	h/c.	silt c. and inf.
23.02– 23.40 / 0.38		Ck2	Very pale brown, 10 YR 7/3d	SiL / MA, less dense	$CaCO_3$ HC 3-4 cm Ø, sin. bioliths-capsules				
23.40– 24.56 / 1.16	PC2.2	2BAk	Pale brown, 10 YR 6/3d	SiL / SBK, less dense	$CaCO_3$ PM and HC ≤1 cm Ø	MA / CR, ST-SP	c.; h/c.; n.; **shells**	h/c., n.	silt c. and inf.
24.56– 25.46 / 0.9		2BAwk	Brown, 7.5 YR 5/4d	SiCL / S-ABK	$CaCO_3$ PM and HC ≤1 cm Ø	AS, porosity ~40% / ST-SP, PS	h/c.; inf.; acicular calcite; c. by cyt. calcite	h/c., n.	silt c. and inf.

25.46– 25.68 0.22		2Bkm	Yellowish white	made up of large concretions	$CaCO_3$ HC ≤10 cm Ø, bioliths-capsules with/without dense walls	CH, CM / CR, ST-SP	c. with acicular calcite; h/c.; n.; inf. with sparite	dendrites, h/c.; n.	silt inf.
25.68– 26.15 0.47		2Bk	Very pale brown, 10 YR 7/3d	SiL / MA, very dense	$CaCO_3$ PM and HC ≤3 cm Ø, bioliths-capsules, krotovinas	MA / CR, ST-SP	c.; h/c.; q/c.; inf.; acicular calcite; c. by cyt. calcite	h/c., n.	silt c. and inf.
26.15– 26.85 0.7	L3.1	Ck	Very pale brown, 10 YR 7/4d	SiL / MA	$CaCO_3$ PM and HC ≤1.5 mm Ø, sin. bioliths-capsules	MA / CR	c.; h/c.	h/c., n.	silt c. and inf.
26.85– 27.96 1.11	L3.2	Ck	Very pale brown, 10 YR 7/3d	SiL / MA, less dense	-	MA / CR	c.; h/c.; n.; calcite grains; c. by cyt. calcite; **shells**	h/c., n.	**layered** silt c. and inf. with cyt. calcite
27.96– 28.74 0.78	L3.3	Ck	Very pale brown, 10 YR 7/3d	SiL / MA	Sin. $CaCO_3$ SC and HC ≤2 mm Ø, sin. bioliths-capsules, humified root channels				
28.74– 29.8 1.06	L3.4	Ck	Very pale brown, 10 YR 7/3d	SiL / MA	Sin. $CaCO_3$ SC, sin. bioliths-capsules				
29.8– 30.0 0.2	L3.5	Ck	Very pale brown, 10 YR 7/3d	SiL / MA	$CaCO_3$ HC ≤3 cm Ø				
30.0– 32.7 2.7	L3.6	Ck	Very pale brown, 10 YR 7/3d	SiL / MA	$CaCO_3$ HC ≤3 cm Ø, humified root channels				
32.7– 34.86 2.16	L3.7	Ck	Very pale brown, 10 YR 7/3d	SiL / MA	Humified root channels				