

Report on two excavations undertaken at Yli-li Kotikangas NE (972010059)

May 31-June 23 2011

by

the archaeological field school of
University at Buffalo – SUNY Social Systems GIS Laboratory,
Computational Archaeology Laboratory of McGill University

and

University of Oulu International Affairs Office

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1. Introduction

Two excavations at Yli-li Kotikangas NE (972010059) took place between 1 June and 23 June, 2011, by a joint team from University of Oulu¹, University at Buffalo² and McGill University³. These excavations were for the purpose of a) investigating a depression for archaeological data and b) continuing an investigation into an open-air hearth site begun in 2010. The sites are close to each other. The datum for the first excavation lies at KKK N 7251306, E 3451628, 63.5 m above sea level. The datum for the second excavation lies at KKK N 7251219, E 3451594, 62 m above sea level. They are both about 2.0 km south of the Ii River, and 3.9 km southeast of the village of Yli-li.

Since 2003, a joint research team including researchers from McGill University, the University at Buffalo, and University of Oulu has been excavating on the south bank of the Ii River between the 55 m and 65 m shoreline contours at Kotikangas, in order to identify the range of settlement types present in the area during the Stone Age. These excavations are an extension of previous research.

The excavation was funded by the United States National Science Foundation, the University of Oulu International Affairs Office and the Canadian Northern Scientific Training Program. Laboratory support was provided by the University of Oulu Archaeology Laboratory and by the Oulu University Archaeological GIS Laboratory. The excavation was initially supervised by Eva Hulse, PhD from the University of Buffalo. However personal circumstances required her to return to the USA early in the field season, and supervision of the first site was taken over by Jennifer Bracewell of McGill University and Riku-Ville Vaske of the University of Oulu. Supervision of the second site was taken over by Dustin Keeler PhD from University at Buffalo. The excavators were students from the University at Buffalo and the University of Oulu.

Montreal

29.5.2013

Jennifer Bracewell



1 Office of International Affairs

2 Social Systems GIS Laboratory, Department of Anthropology

3 Computational Archaeology Laboratory, Department of Anthropology

1.1 Archival/Registry Details

Yli-li Kotikangas

Area: Kotikangas NE

Project: Two excavations

Municipality: Oulu

Village: Karjalankylä

Peruskartta 3512 10 (Pahkakoski)

Permit: 024/302/2011

Coordinates	Trench 111	Trench 211
	E=3451628	E=3451594
	N=7251306	N=7251219
	z=63.5m asl	z=62m asl

Status: National Forestry

Löydöt: KM 38815: 126-308

Previous Studies:

- v. 1995 Kaarlo Katiskoski ja Juha Laurén. Tarkastus.
- v. 1995 Pentti Koivunen. Kartoitus.
- v. 1997-1998 Hans-Peter Schulz. Inventointi.
- v. 2003-2008 Andre Costopoulos. Kaivaus.
- v. 2009-2010 Eva Hulse. Koekaivaukset.

2. Research History

The site of Yli-li Kotikangas NE (972010059), is a large, multi-component site containing several dwelling clusters at various elevations. It was first described by Kaarlo Katiskoski and Juha Laurén, and mapped by Pentti Koivunen, in 1995. It was thoroughly documented by Hans-Peter Schulz during a survey in 1997-1998, and has been excavated by Andre Costopoulos and a joint team from McGill University, University of Oulu, and University at Buffalo in 2003, 2004, 2005, 2006, 2007, and 2008.

Kotikangas NE is located south of Kierikki Island on the south bank of the Ii River, 5.2 to 6.3 km southeast of the Yli-li church. The prehistoric dwelling sites sit parallel to the river (ESE-WNW) on sandy ridges. These ridges are the result of natural river levee formation rather than dune formation, as the coastal barrier dunes are oriented NW-SE. There are at least six separate dwelling clusters within a 1.1 km stretch along the river.

In 2003, Andre Costopoulos' international archaeological field school (NoCuSo) opened an excavation within a dwelling depression at Kotikangas NE. The purpose of these studies was to obtain an overview of prehistoric settlement and use of the Kotikangas area⁴. Since 2003 the research methods have included standard archaeological excavation and survey as well as soil sampling for geochemical analysis. Except for the first two years (2003-2004), all measurements have been taken with a tachymeter. In 2003-2004, an optical transit was used. Finds were processed in the Oulu University Archaeology Laboratory.

2.1: Background for T111

The 2011 excavation site for Trench 1(T111) was first identified in 2007. Originally it was thought to be a natural elevated platform on a ridge, with two depressions of roughly 2m diameter each inserted into it. Subsequent excavation suggested that in fact the platform had been built up deliberately and that this modification extended both East and West, creating an enclosed area about 40m long and 15m wide (see Figure 8.2).

In 2007, a trench was excavated through the western pit (T207)⁵. In addition to much disturbance, evidence of smelting in the form of slag was discovered. Multiple smelting incidents were hypothesized, which were radio-carbon dated between 1890 and 1960 cal BP. The very bottom of the trench had more charcoal, without any slag, and gave a date of 3450 cal BP.⁶

⁴ Costopoulos and Nurmi 2004

⁵ Costopoulos and Vaneekhout 2010

⁶ (2007). Beta-231990. Miami, Beta Analytic Radiocarbon Dating Laboratory.
(2007). Beta-231991. Miami, Beta Analytic Radiocarbon Dating Laboratory.

In 2008, a trench was excavated through the eastern pit (T208)⁷. This pit showed similar disturbance to the other one, though without the slag. There was evidence of wooden logs fanning out from the center of the burning, and at least eight separate burning incidents were identified. It was hypothesized that most of the charcoal from each of these had been removed before the next burning, possibly for use in smelting. Dates ranged from 1560-3580 Cal BP.⁸

In 2009 no archaeological excavations were done, however four trenches were inserted away from the known archaeological area with the purpose of investigating the geomorphology of the area more generally (see Figure 8.2). The plans and profiles of these investigations are presented in section 8.5 of this report.

The first geological trench, GT109 located to the NE of the pits, revealed a sub-surface trough running through it roughly north-south, which was more pronounced in the north wall (see Figure 8.5.1.2). The east and south walls show some dark organic deposits within the leached layer, which were identified about 10cm subsurface as a partial layer in the trench (see Figure 8.5.1.1).

GT209 was located north of the pits, and showed a similar dark layer within the leached in the south, west and north walls (see Figure 8.5.2.1). In the north wall this was bisected by a trough that could be seen on the surface.

In GT309, about 30m south and slightly to the east of the pits, the most interesting feature was a round, dark area that persisted to the base of the trench at 30cm subsurface (see Figure 8.5.3.1). Once it became clear that it continued through multiple layers excavation was stopped, as the feature could be anthropogenic and the purpose of the excavation was to look at the subsurface geomorphology of the area, not archaeological features.

GT409 showed a typical podsolized soil profile.

2.2 Background for T211

In 2010 a 1 meter x 1 meter unit was excavated by hand trowel in 5 cm levels. The locations of all bone fragments were recorded with a tachymeter. At the end of the field season the bottom edge of the hearth feature had not been uncovered, so the unit was conserved with a plastic

(2007). Beta-231992. Miami, Beta Analytic Radiocarbon Dating Laboratory.

(2007). Beta-231993. Miami, Beta Analytic Radiocarbon Dating Laboratory.

⁷ Costopoulos and Vaneekhout 2010

⁸ (2009). Beta-258174. Miami, Beta Analytic Radiocarbon Dating Laboratory.

(2009). Beta-258175. Miami, Beta Analytic Radiocarbon Dating Laboratory.

(2009). Beta-258176. Miami, Beta Analytic Radiocarbon Dating Laboratory.

(2009). Beta-258177. Miami, Beta Analytic Radiocarbon Dating Laboratory.

sheet before backfilling. The bone fragments and other artifacts were catalogued and stored at the Oulu University Archaeology Laboratory, and the bone fragments underwent detailed faunal analysis⁹. It was this unit that was further excavated as T211 in June 2011 and which is covered in this report.

⁹ Hulse 2011

3. Description of Research Area

The area is flat, sandy, and covered with a managed Scots pine (*Pinus sylvestris*) forest. In better-drained areas the ground is covered with lingonberry (*Vaccinium vitis-idaea*), and in poorly-drained areas with Labrador Tea (*Rhododendron tomentosum*) ground cover. The site is 2.1 km east of the Kierikki hydroelectric dam, near the Kotikankaantie dirt road. The closest landmarks are the intersection of Kotikankaantie and Marttilantie, and the old house foundation, well, and woodworking area at that intersection. The area lies just east of the intersection. The T111 excavation can be found on the north side of the road, the T211 excavation to the south (see Figure 8.1).

4. Research Methods and Description of Fieldwork

4.1 T111

Five adjacent 1 meter x 1 meter units were excavated by hand trowel in 5 cm levels (see Section 8.6 for a diagram of the trench). The locations of all finds were recorded with a tachymeter. The artifacts were catalogued and stored at the Oulu University Archaeology Laboratory (see Section 10.1).

4.2 T211

The excavation of Trench 2 Unit A (T211A) was continued from the previous year's excavation which ended at 20cm below the surface. The hearth feature had been almost completely excavated in 2010. Trench 2 Unit B (T211B) was opened on the west side of Unit 1. Artifacts were recorded in reference to the datum at the NE corner of the trench. The artifacts were catalogued and stored at the Oulu University Archaeology Laboratory (see Section 10.2).

5. Findings and Interpretations

5.1 T111

The purpose of excavating to the north of the existing trench 207 in the western pit of the site was to discover more about the extent of the pit generally, and to investigate whether the channel found in GT209 was associated with the pit. This was inconclusive, however the channels visible on the surface do continue into the soil, and were likely associated with some of the later incidents of burning in the western pit. There are also indications of other channels, now sub-surface, that were associated with the pit at earlier periods of use (for an example, see Photo 9.1.5). These may have been dug for the purpose of access to the pit.

There is very little slag on this northern side of the pit. The pit itself extends further east the further down it goes, to the point that it is possible that the eastern pit was dug into some of the earlier burnings of the western pit (see the profile figures in Section 8.6.1). The very lowest point excavated from the 2011 trench extended to the east of the 2007 trench excavated from western pit, and a previously unidentified hearth was found at this point, just above the waterline, in Unit C. It is not yet clear if this is contemporary with the earliest date from the 2007 trench, although it is located at least a meter to the east of where that sample was taken. Around this new hearth, in the layer directly above the sandy natural soil, a layer of quartz debris was found, mostly in Unit B.

It is hypothesized that this site represents at least two separate activity phases. The earliest applies only to the western pit, which has at least one hearth at its very lowest levels, and an associated layer of quartz debris indicating some kind of activity site. The second activity phase may connect the two pits, with charcoal being processed in the eastern for use in smelting in the western pit. If this is the case, then this activity period extended over a considerable time. It is also possible that the earlier dates from the 2008 excavation of the eastern pit were in fact taken from samples that were associated with the lower hearth found in the 2011 excavation to be an extension of the western pit, but that went unrecognized as such because the 2008 excavation ended at the very border between the two pits.

5.2 T211

Five more bone fragments and three quartz flakes were found on the North side of the Unit A in the first three layers excavated in 2011, extending to 35cm below the surface. Several pieces of charcoal were also found in the area of the hearth. The final layer, 35-40cm below the surface, was sterile.

Quartz micro flakes were found in T211B while screening the soil for several of the layers and a few pieces of charcoal were found while excavating but no other indications of the hearth feature were found in this unit.

There was a deep leached linear feature running from East to West through both units. All of the artifacts found in place during the 2010 and 2011 excavations came from North of this leached feature. Two deep round leached features that may represent postholes were found on the North side of Unit B (see plans in Section 8.7.4).

6. Summary

As the relationship between the western and eastern pits at the site of T111 remains unclear, further excavation of the areas between the pits might clarify this situation. Radiocarbon dates on the slag and charcoal found in T111 would also be useful in working out a clearer chronology.

At the site of T211 a wider excavation might indicate whether there are similar features to the possible postholes in Unit B nearby, and thus facilitate interpretation. Radiocarbon dates might help to clarify whether there was an association between these two neighboring sites.

7. Bibliography

Costopoulos, Andre and Risto Nurmi (2004). Kivikautisen asuinpainanteen kaivaus 2003-2004. Oulun yliopisto.

Costopoulos, Andre and Samuel Vaneekhout (2010). Yli-li (59), Kotikangas Kivi-/varhaismetallikautisen muinaisryhmän koekaivaus 2005-2008. Oulun yliopisto.

Hulse, Eva L. (2008). The difference between dirt and other dirt: using multivariate statistical analysis to classify chemical soil enrichment at Late Stone Age archaeological sites in North Ostrobothnia, Finland. Doctoral dissertation. University at Buffalo Anthropology Department. Buffalo, NY, USA.

Hulse, Eva L. (2011). Kivikautisen tulisijan koekaivaukset kohteella Yli-li Kotikangas NE (972010059) 7 toukokuu - 28 toukokuu 2010. Oulun yliopisto.

Schulz, Hans-Peter (1997). Iijokilaakso. Museoviraston arkeologian osasto.

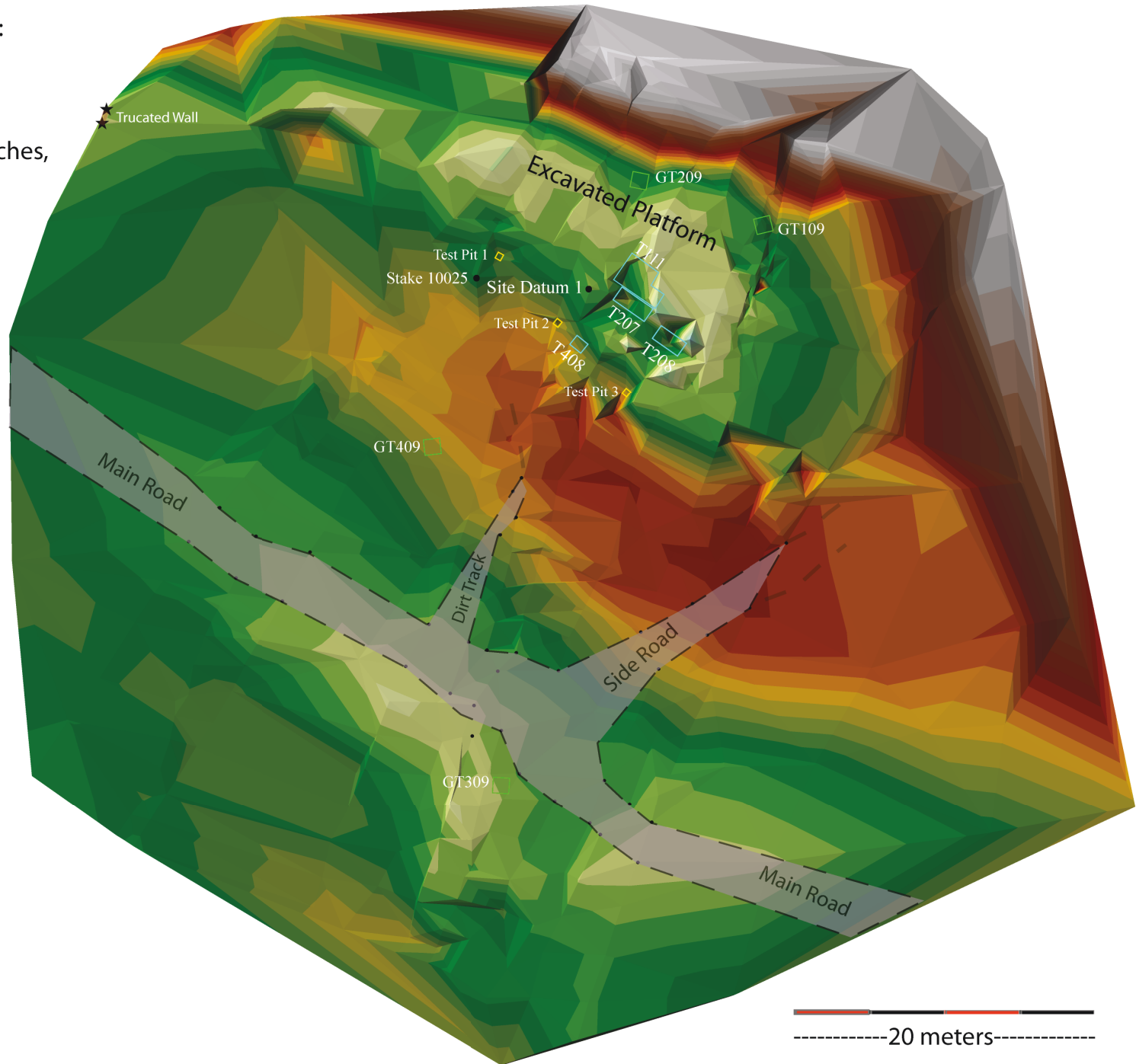
Schulz, Hans-Peter (1998). Iijokilaakso. Museoviraston arkeologian osasto.

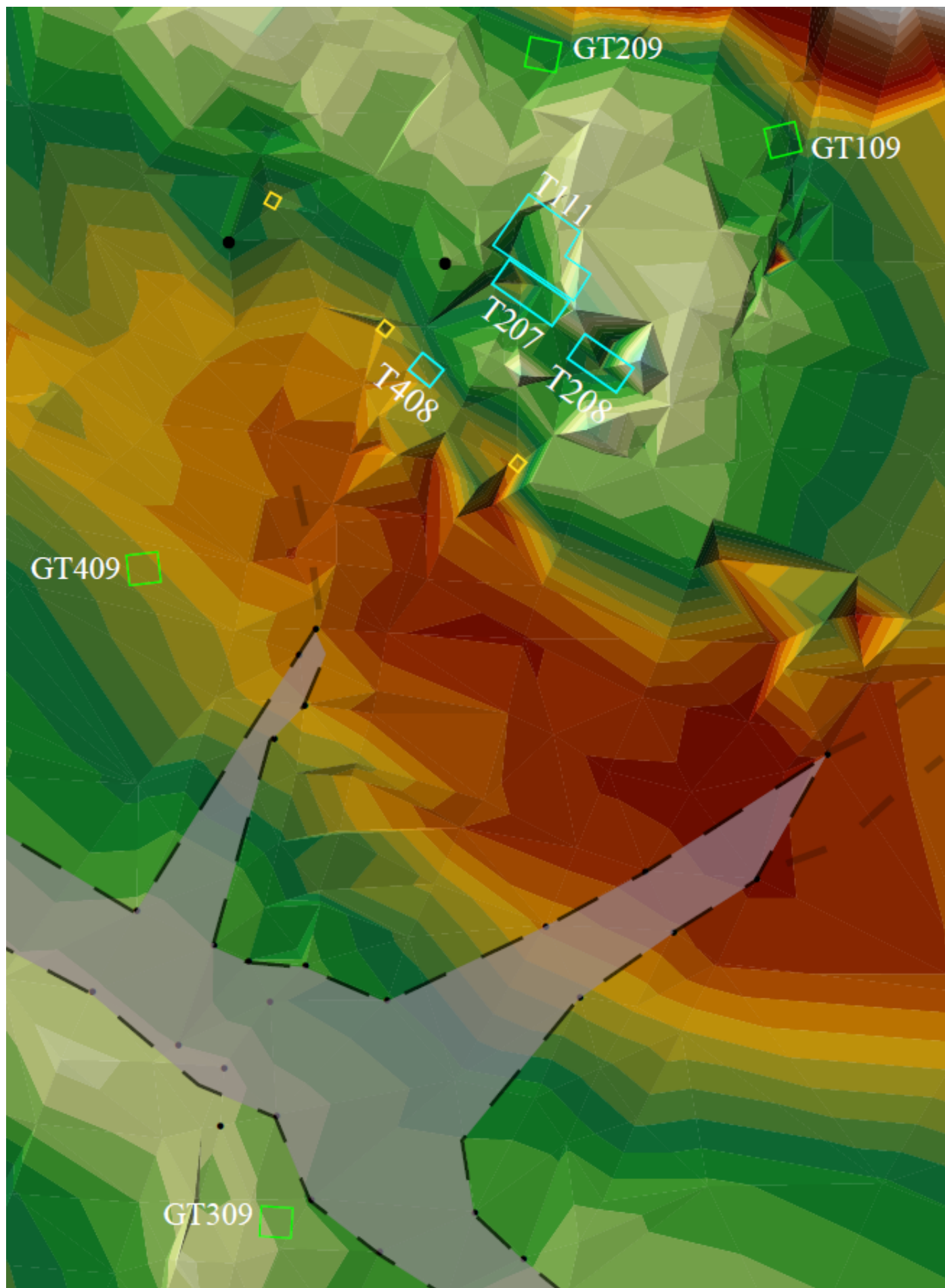
8.1: Area Map (Site Locations 2011)

○ T1111 ○ T2111 (Units not to scale)



















Kotikangas Platform:
DEM showing
Excavated Trenches,
Test Pits,
Geological Test Trenches,
Truncated Wall, and
Road

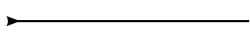


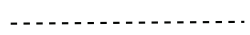



8.4: Legend for Plans and Profiles

	organic
	light enriched (AE) medium-fine sand
	light enriched (AB) medium-fine sand
	enriched (B) medium-fine sand
	dark reddish-brown (B) medium-fine sand
	root
	pine sap
	dark humis-rich medium-fine sand
	enriched (B) very wet medium-fine sand
	coarse sand
	rock
	charcoal
	dark brown mottled hardpan
	hardpan
	mixed enriched and coarse water deposited

 extent of excavation

 slope direction

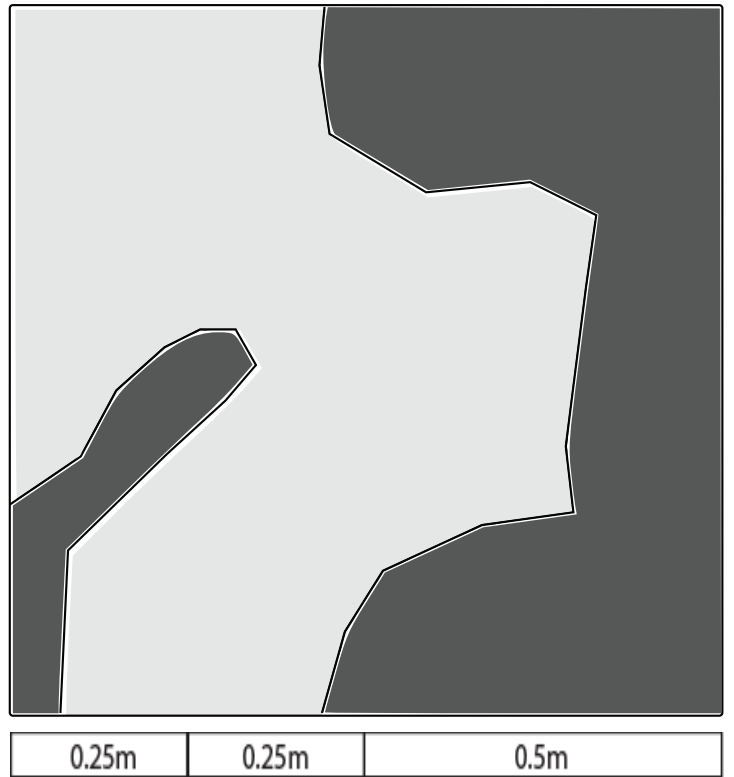
 break in slope

 northing arrow

8.5.1.1: GT109 Plans

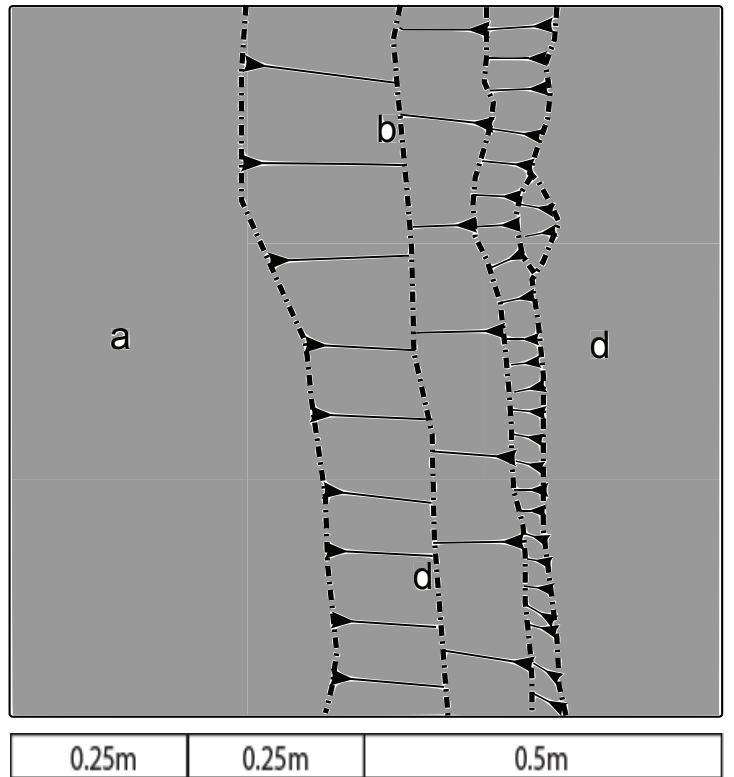
Layer: Organic removed

Depths: 10 cm



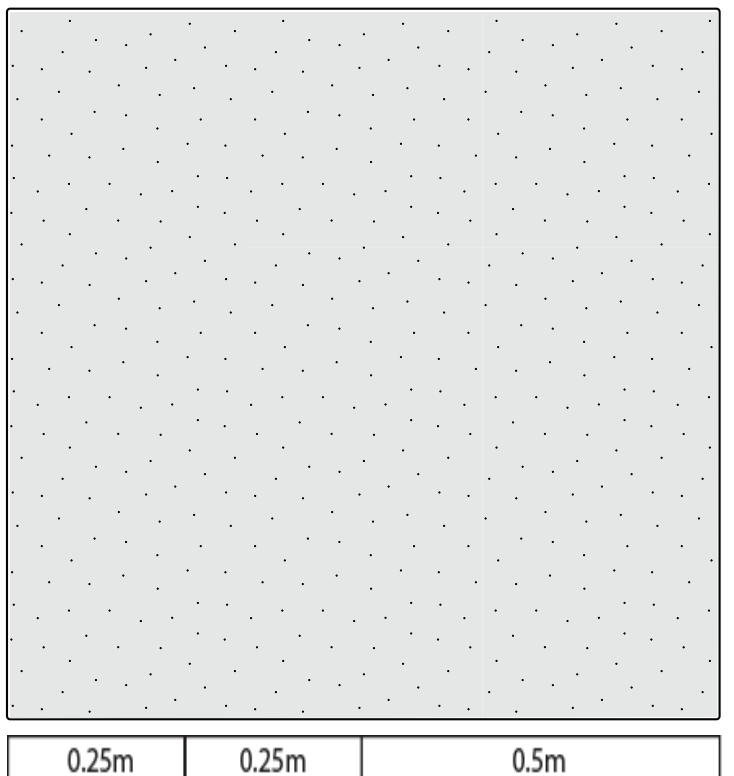
Layer: Enriched exposed

Depths: a) 26 cm, b) 42 cm, c) 37 cm, d) 24 cm

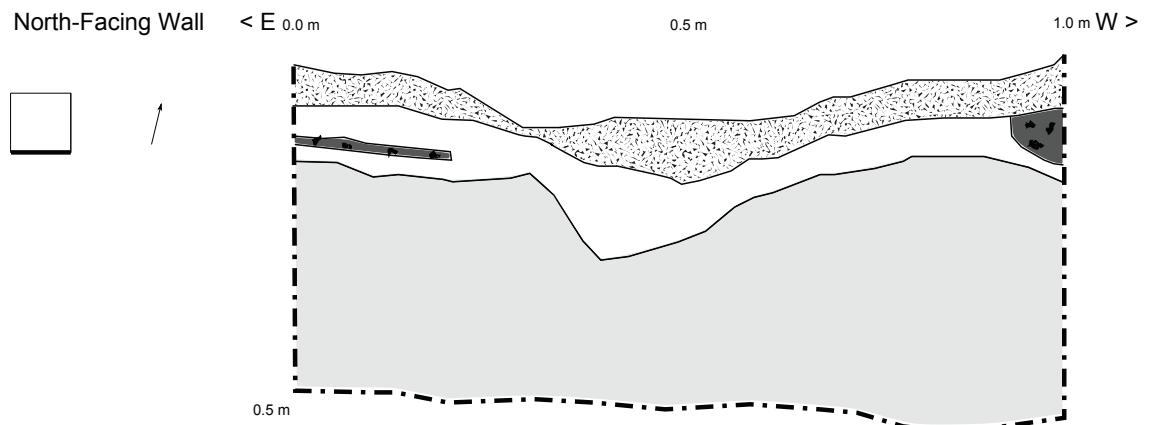
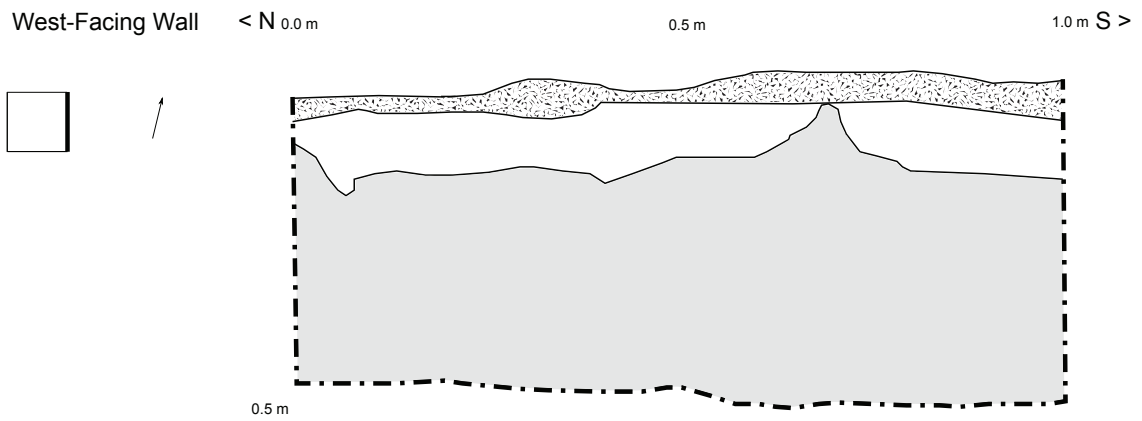
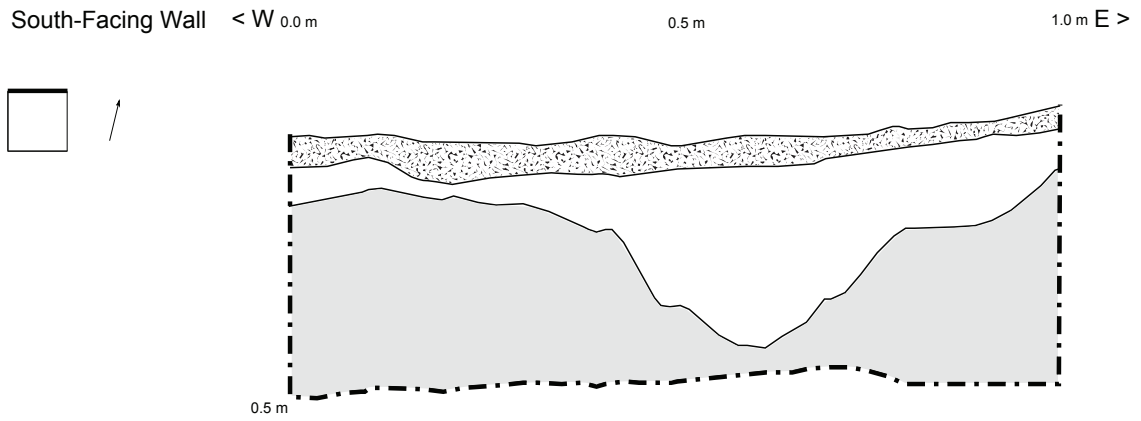
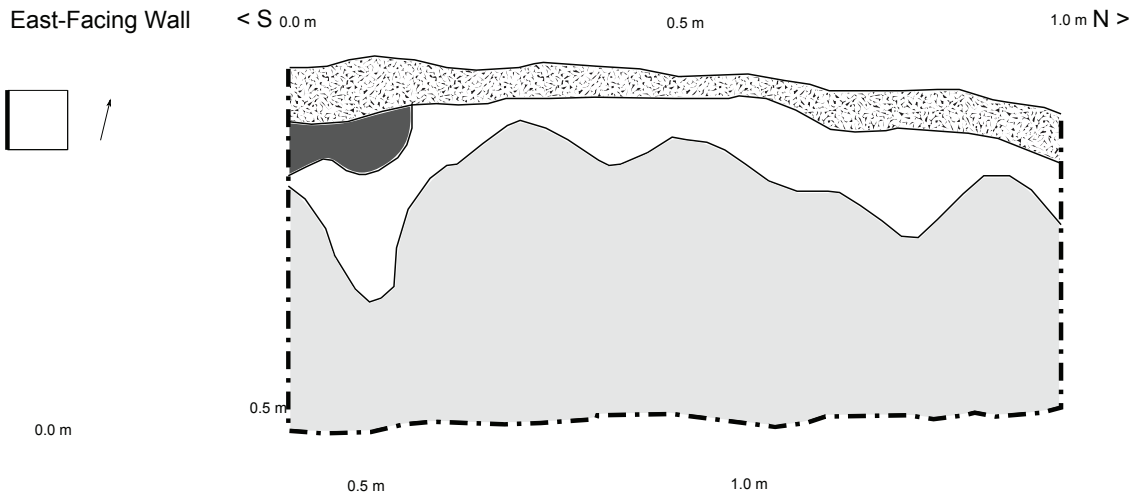


Layer: Bottom of Trench

Depth: 50cm



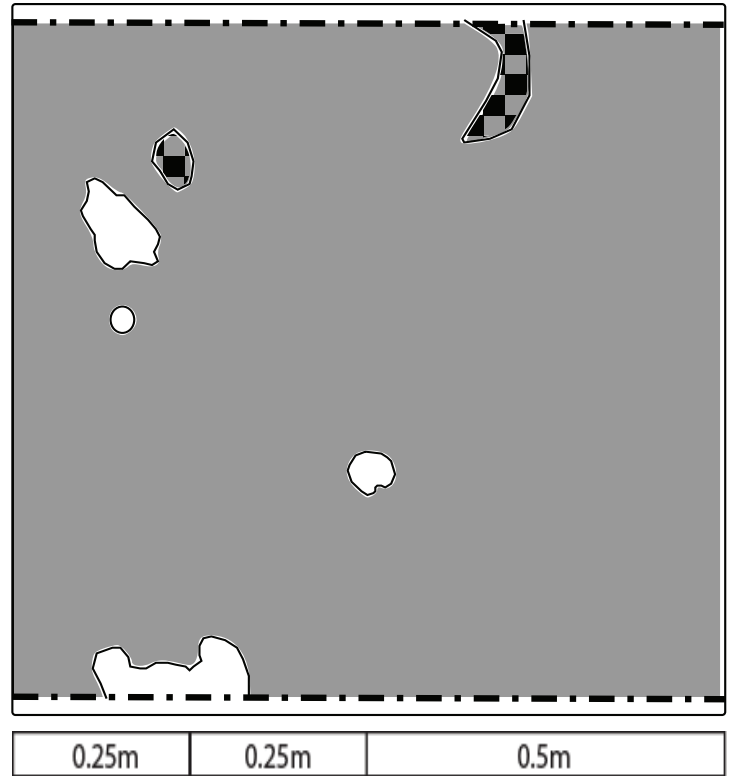
8.5.1.2: GT109 Profiles



8.5.2.1: GT209 Plans

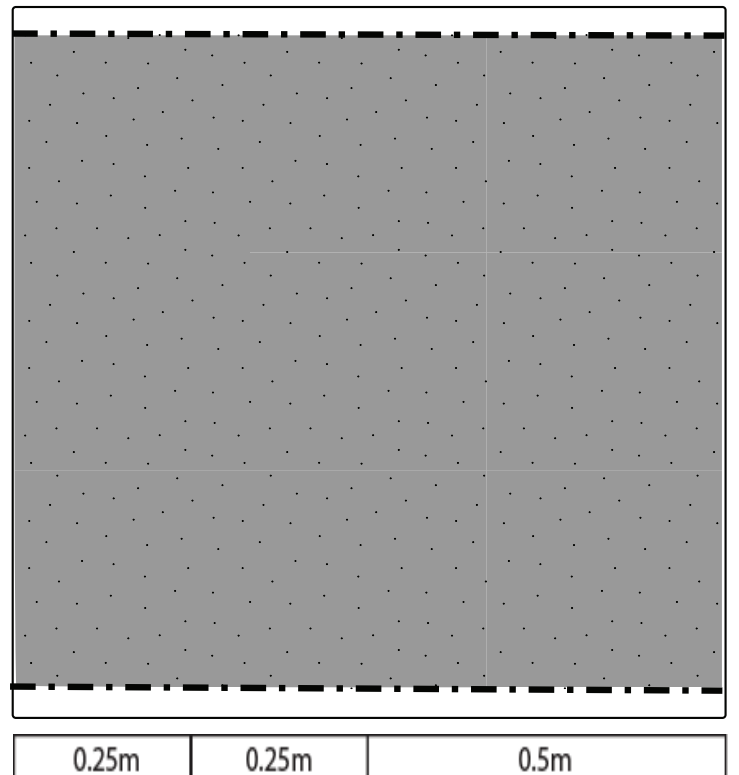
Layer: Leached/Enriched interface

Depth: 50 cm

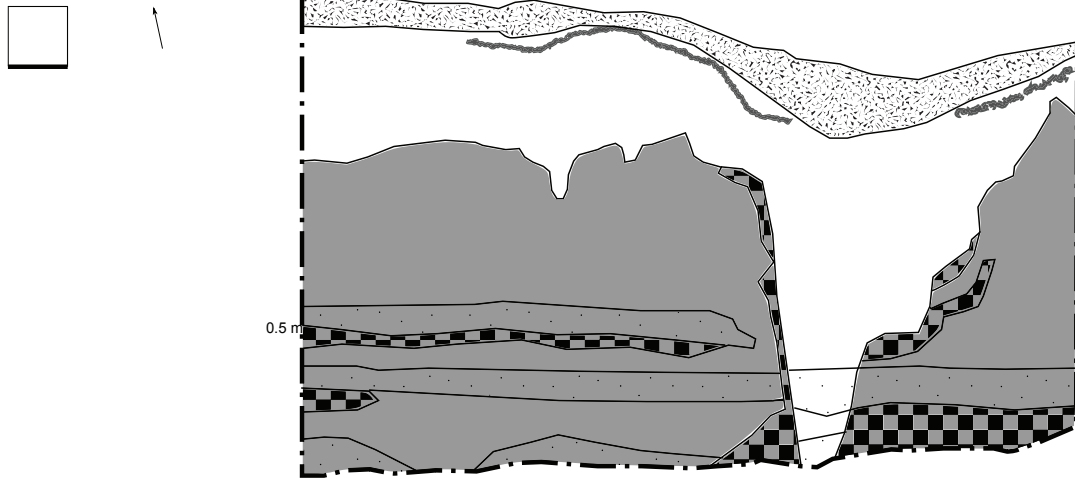


Layer: Bottom of trench

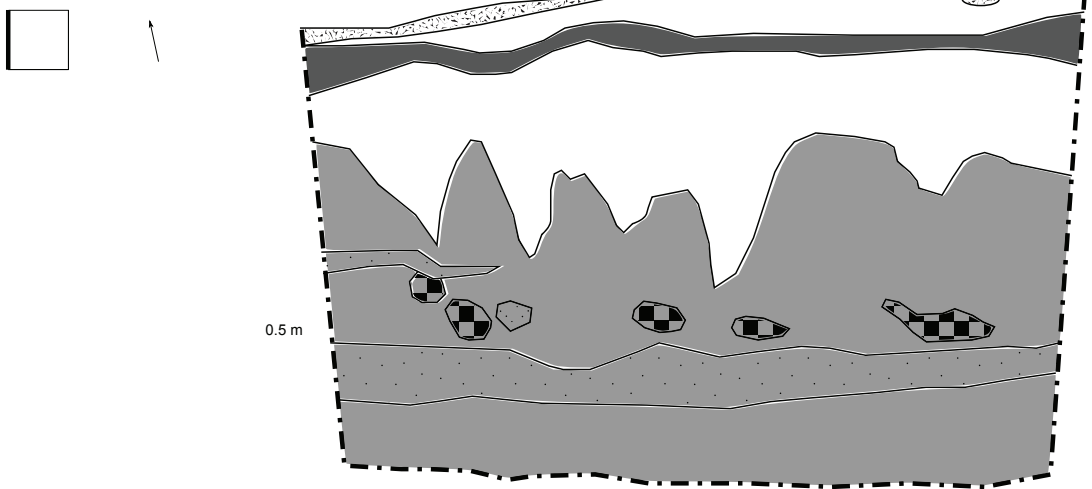
Depth: 70cm



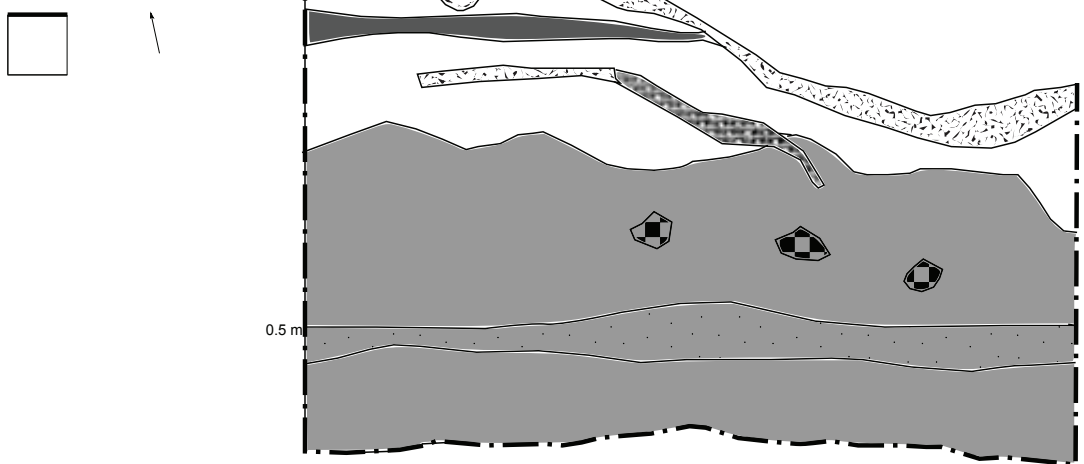
East-Facing 1 i < N > 0.0 m 0.5 m 5.0 m E o



ui htFacing 1 i < N > 0.0 m 0.5 m 5.0 m E o



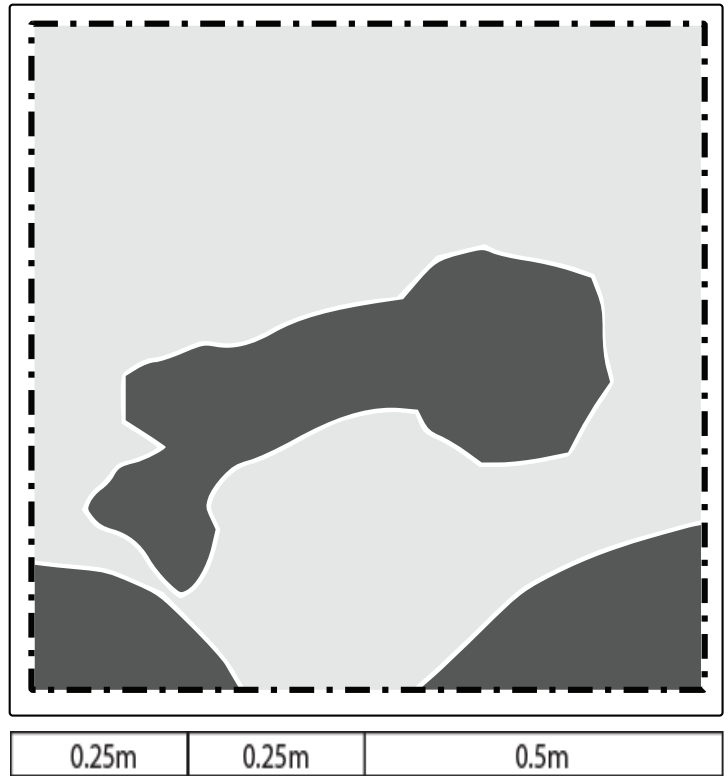
>aet-Facing 1 i < N 1 0.0 m 0.5 m 5.0 m U o



8.5.3.1: GT309 Plans

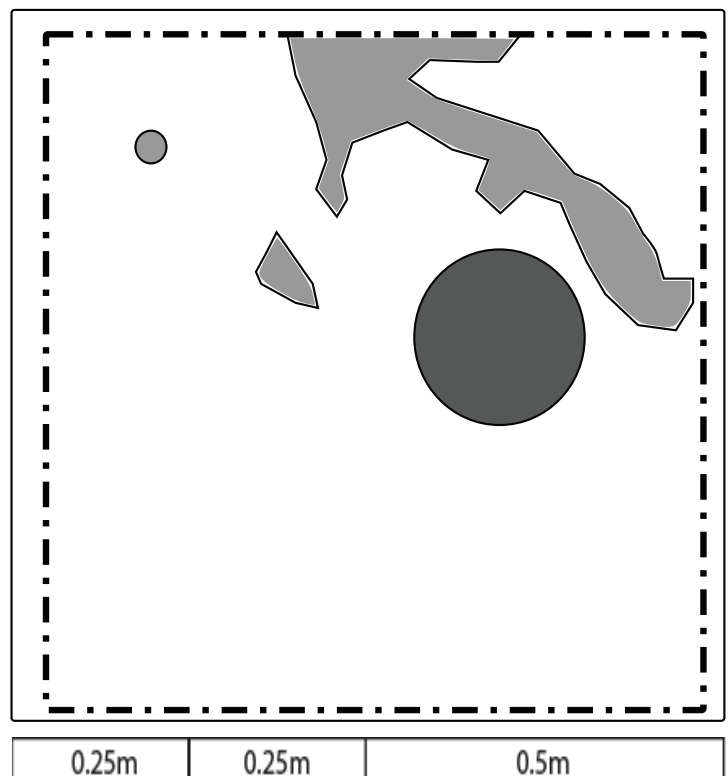
Layer: Organic removed

Depth: 15 cm



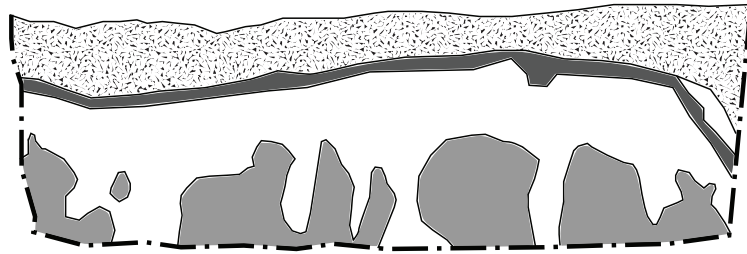
Layer: Leached/Enriched interface,
Bottom of Trench

Depth: 30 cm



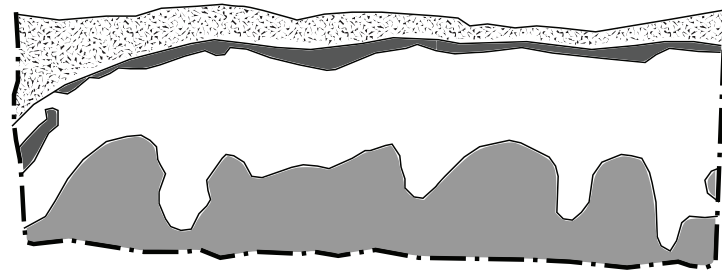
8.5.3.2: GT309 Profiles

East-Facing Wall < S 0.0 m 0.5 m 1.0 m N >



0.5 m

South-Facing Wall < W 0.0 m 0.5 m 1.0 m E >

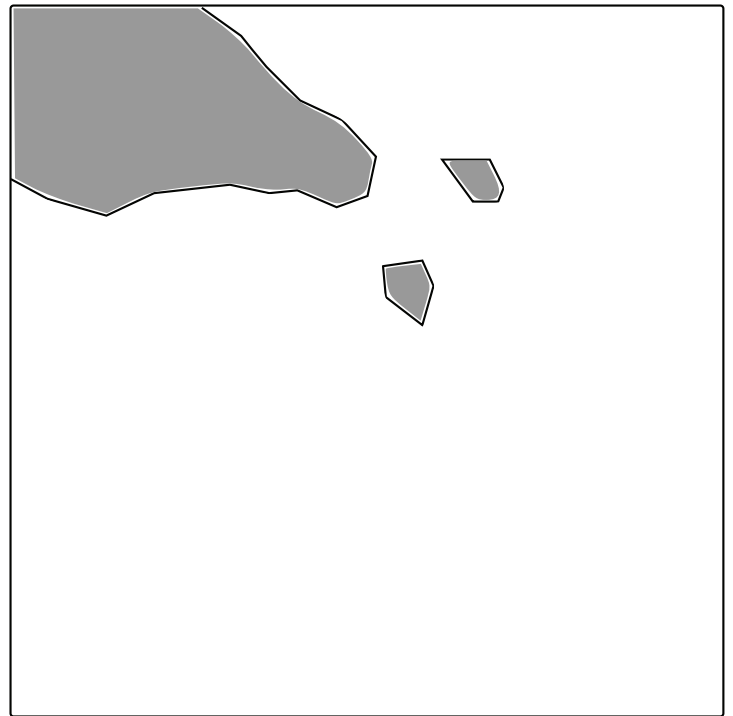


0.5 m

8.5.4.1: GT409 Plans

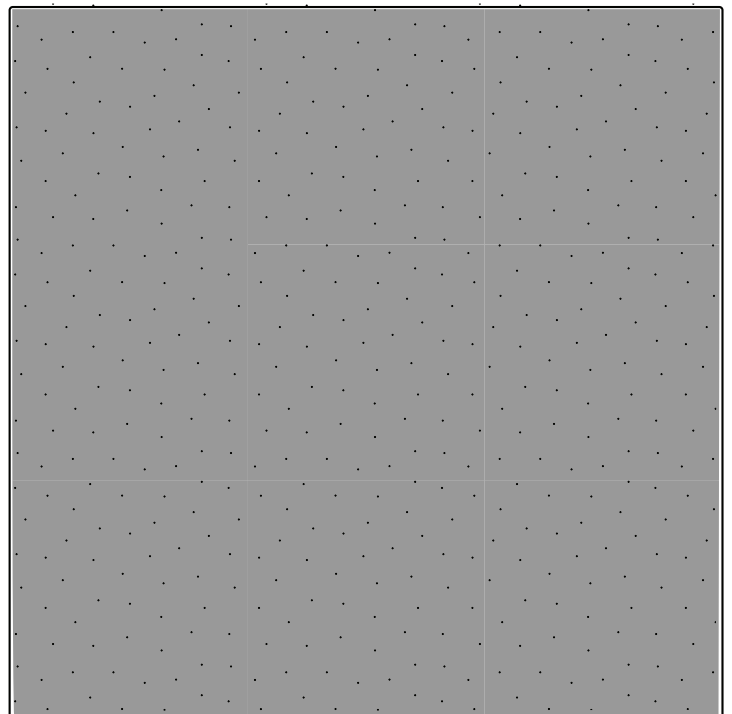
Layer: Enriched exposed

Depth: 22 cm

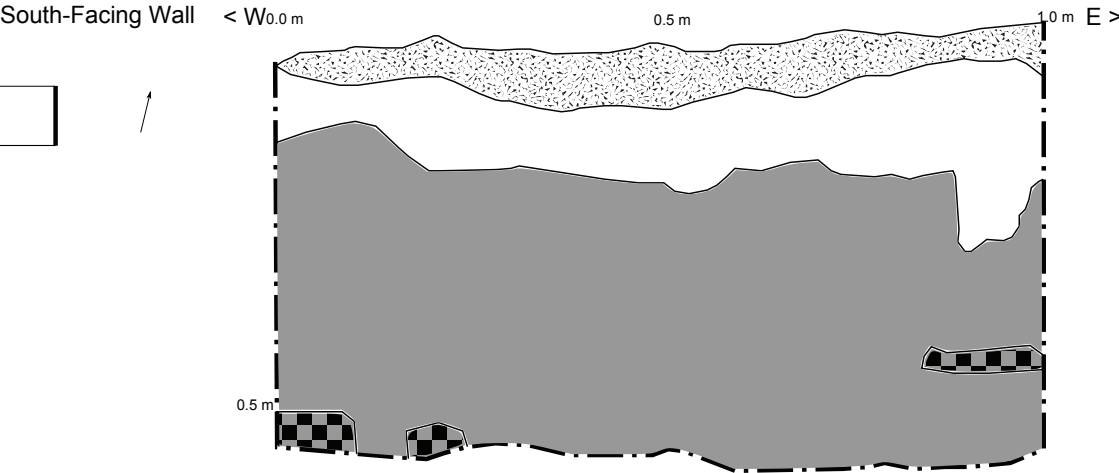
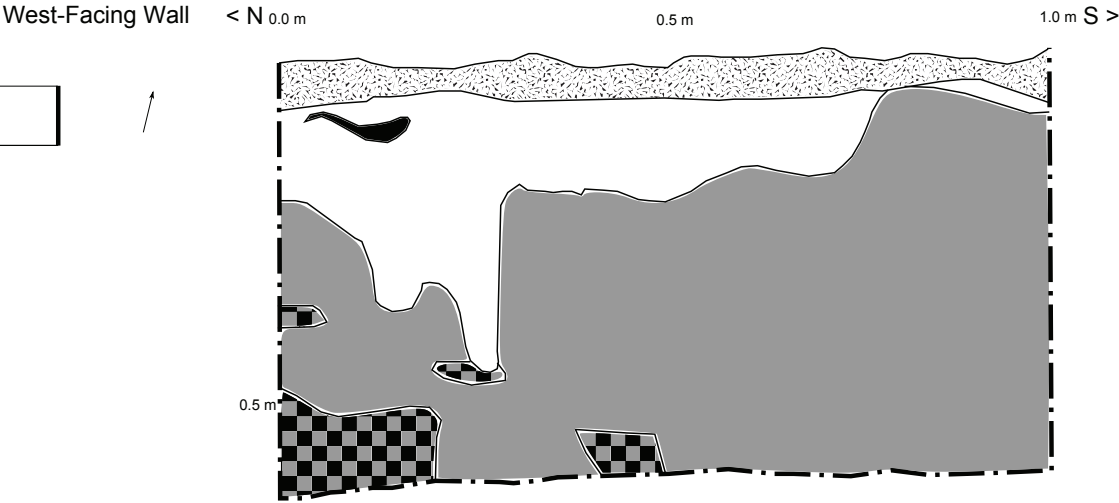


Layer: Bottom of trench

Depth: 55-60 cm

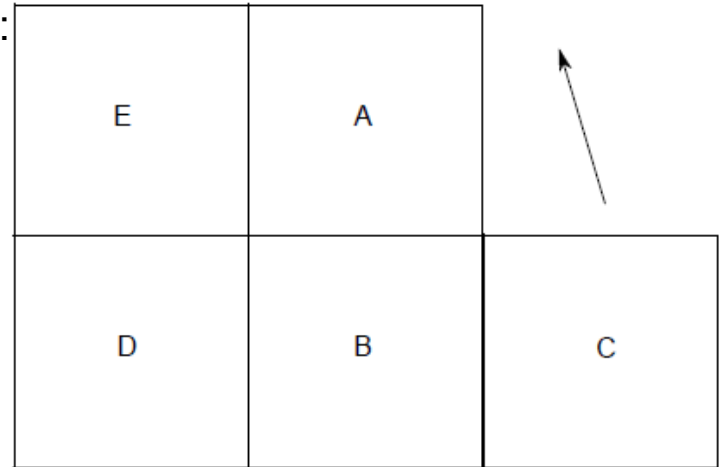


8.5.4.2 GT409 Profiles



8.6: T111 Diagram

Units:



Layer depths (in centimeters) from surface line-level:

Layer 1: 0-5

Layer 2: 5-10

Layer 3: 10-15

Layer 4: 15-20

Layer 5: 20-25

Layer 6: 25-30

Layer 7: 30-35

Layer 8: 35-40

Layer 9: 40-45

Layer 10: 45-50

Layer 11: 50-55

Layer 12: 55-60

Layer 13: 60-65

Layer 14: 65-70

Layer 15: 60-75

Layer 16: 75-80

Layer 17: 80-85

Layer 18: 85-90

Layer 19: 90-95

Layer 20: 95-100

Layer 21: 100-105

Layer 22: 105-110

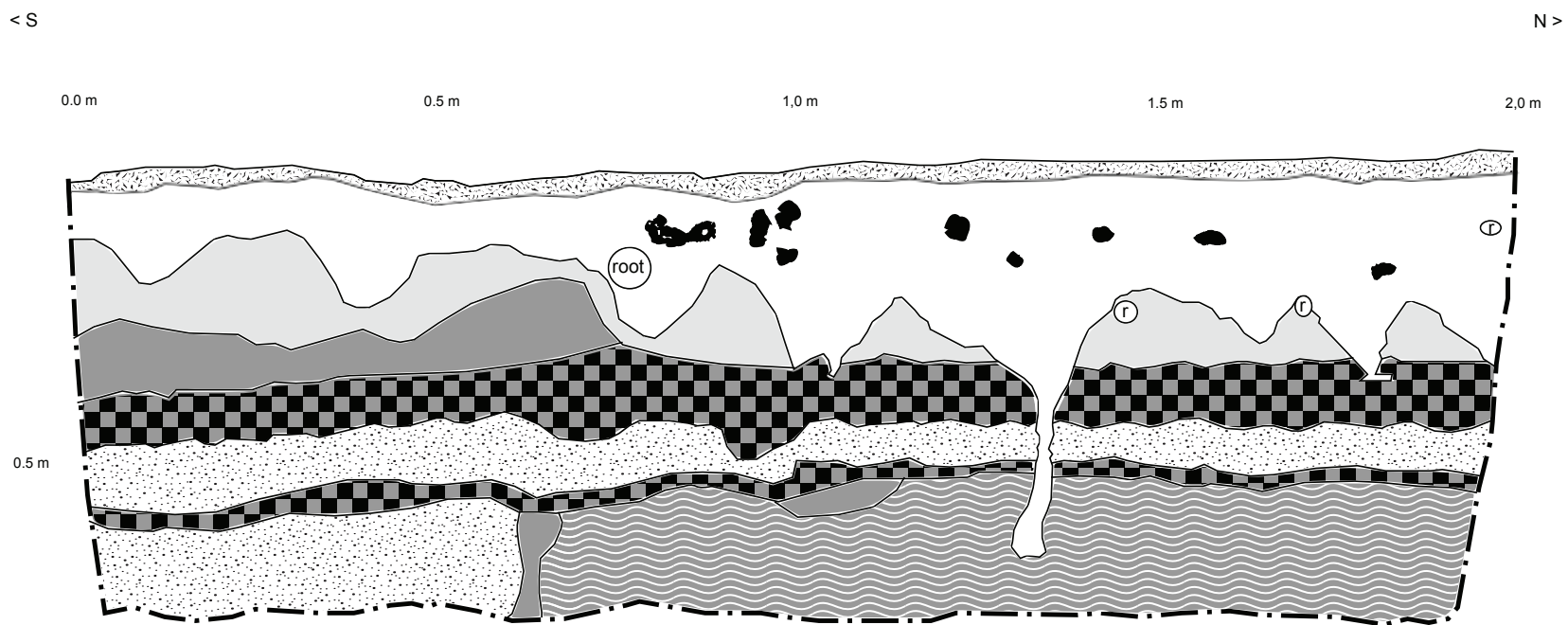
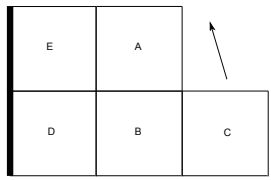
Layer 23: 110-115

Layer 24: 115-120

Layer 25: 120-125

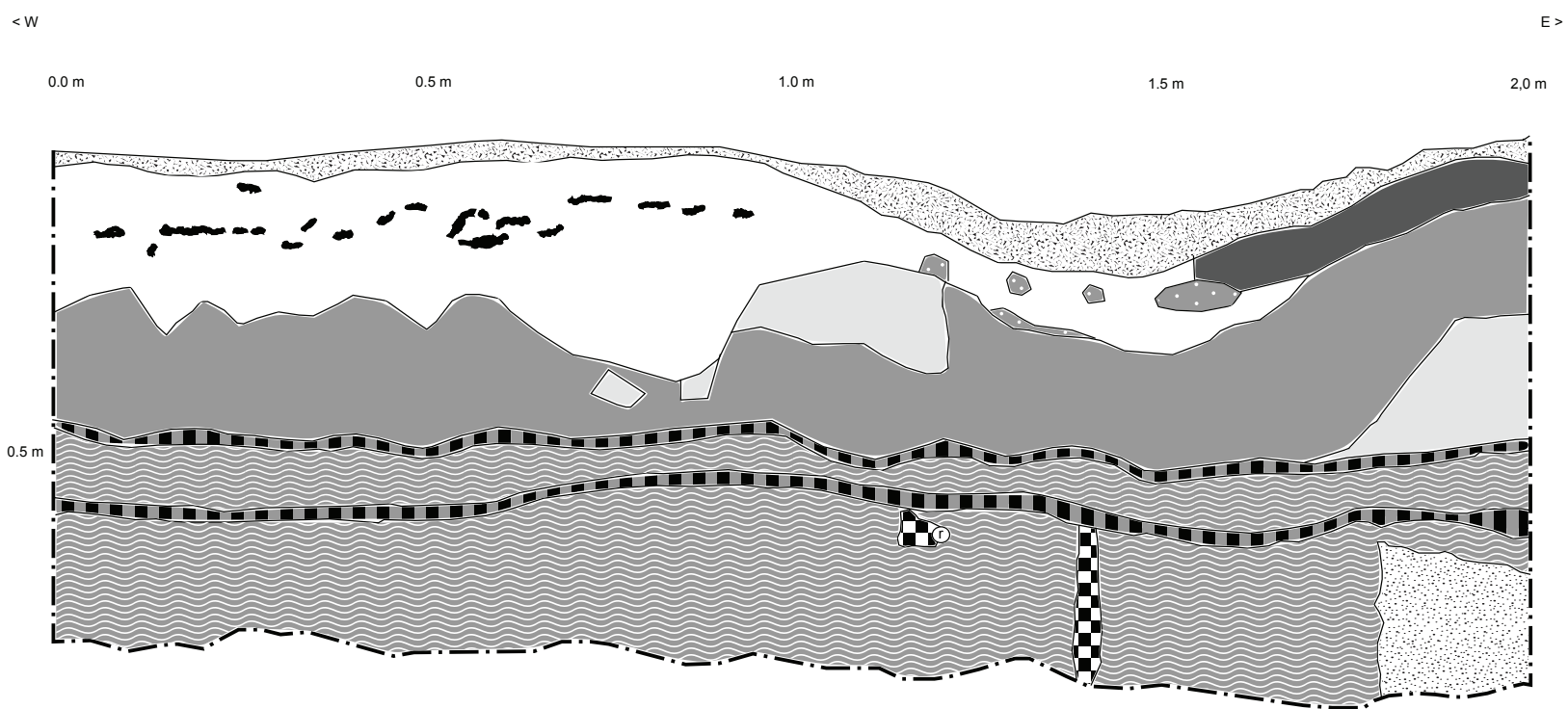
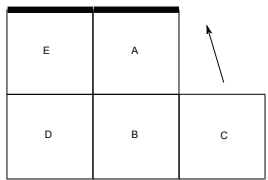
8.6.1 T111 Profiles

East-Facing Wall
Units T111D, T111E



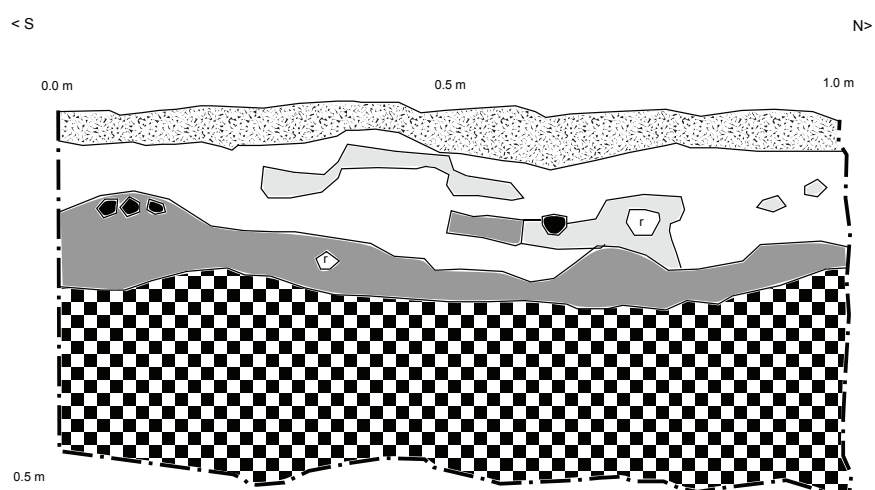
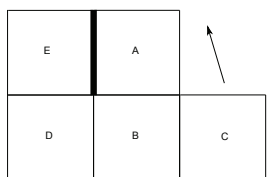
1.0 m

South-Facing Wall
Units T111E, T111A



1.0 m

East-Facing Wall
Unit T111A



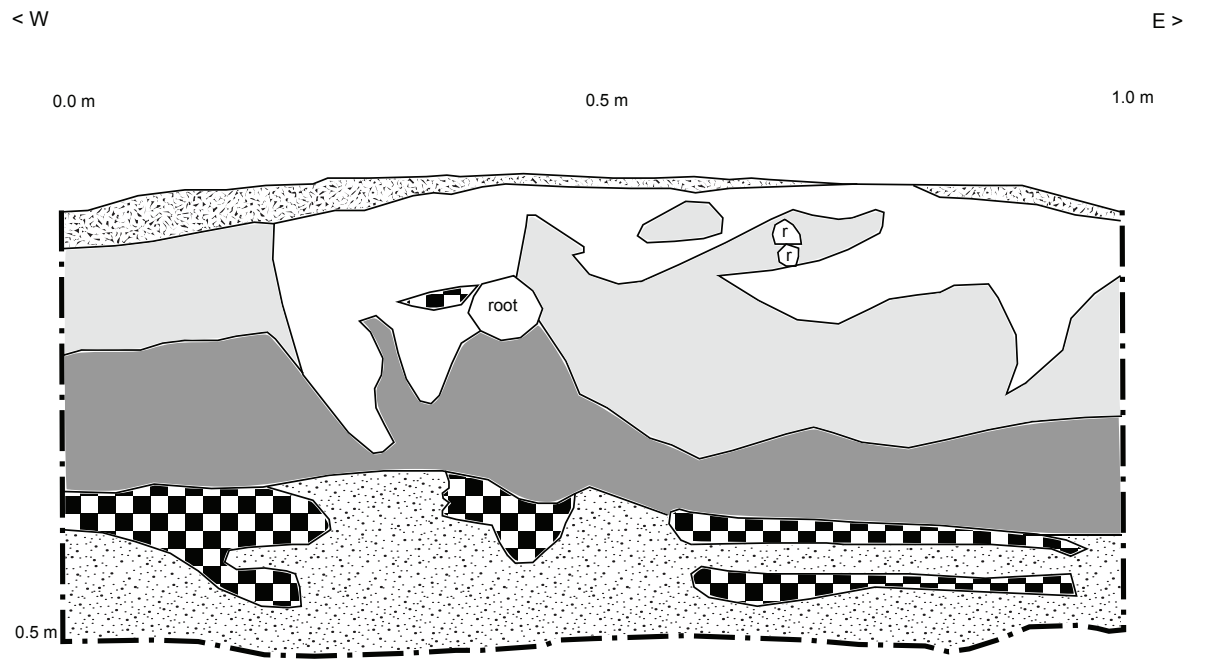
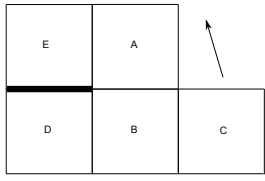
0.5 m



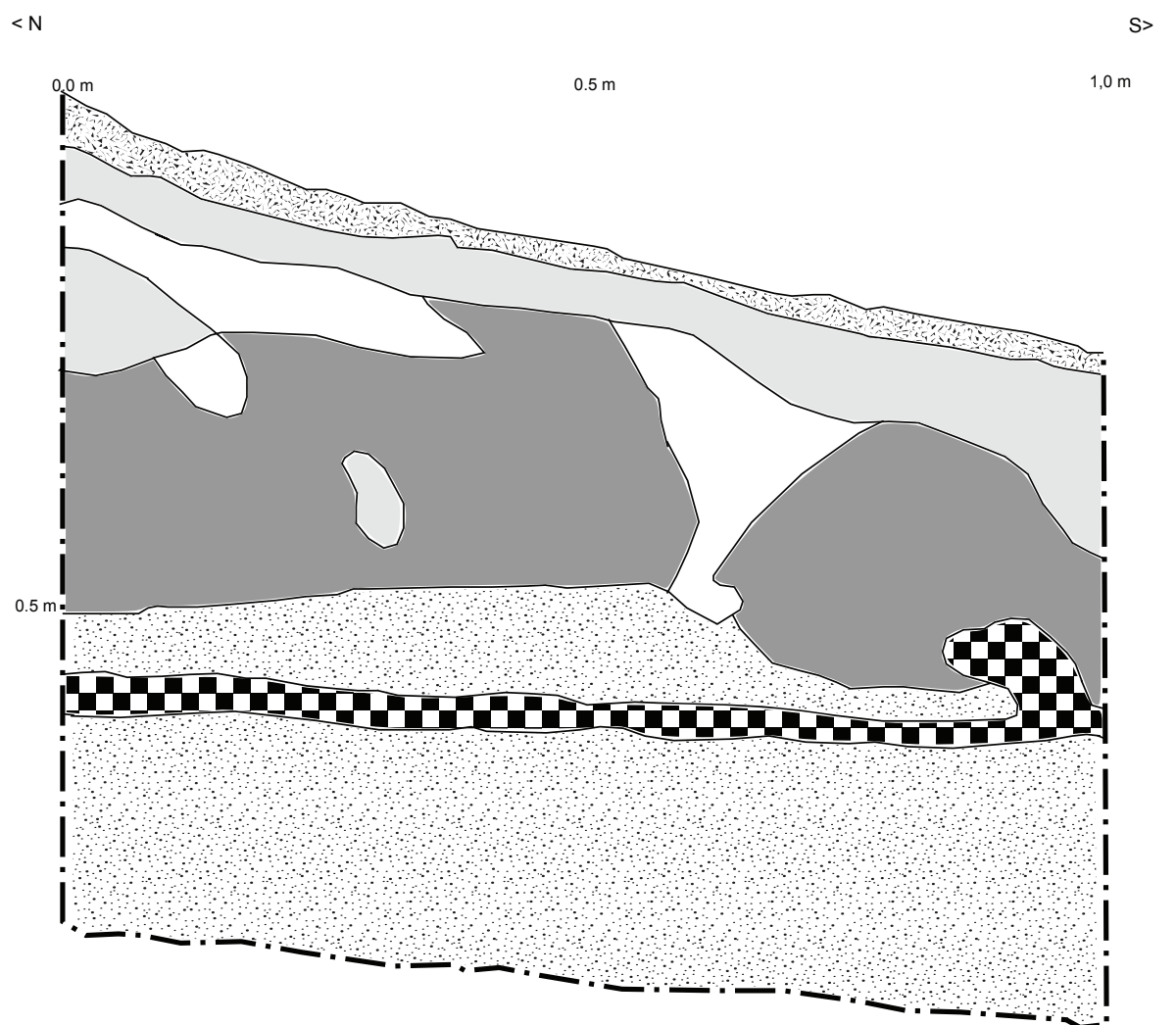
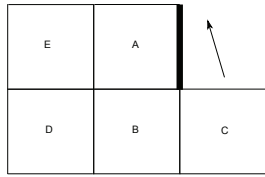
North-Facing Wall
Units T111C, T111B, T111D

E	A	↖
D	B	

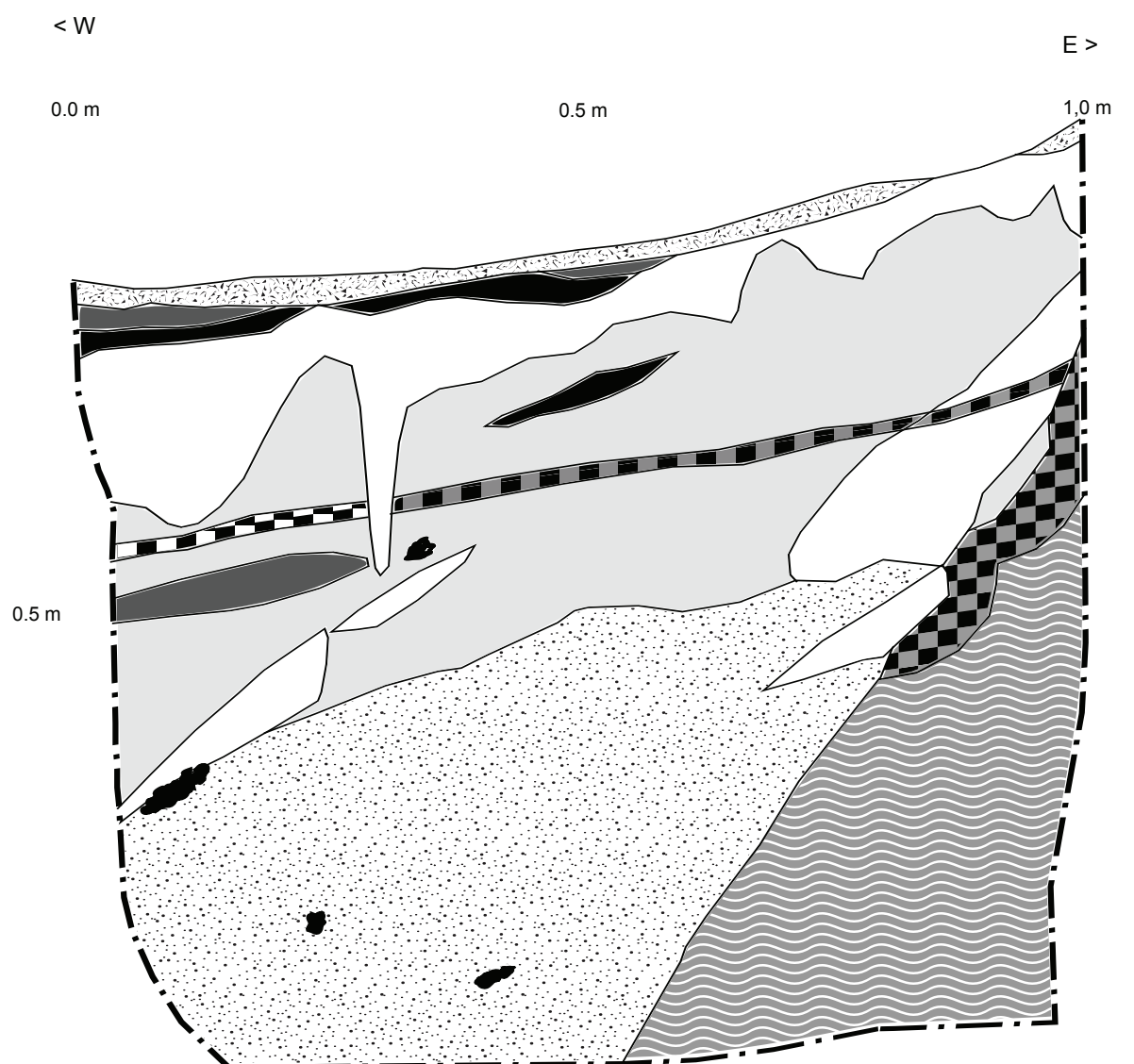
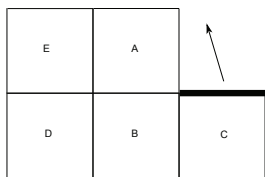
South-Facing Wall
Unit T111D



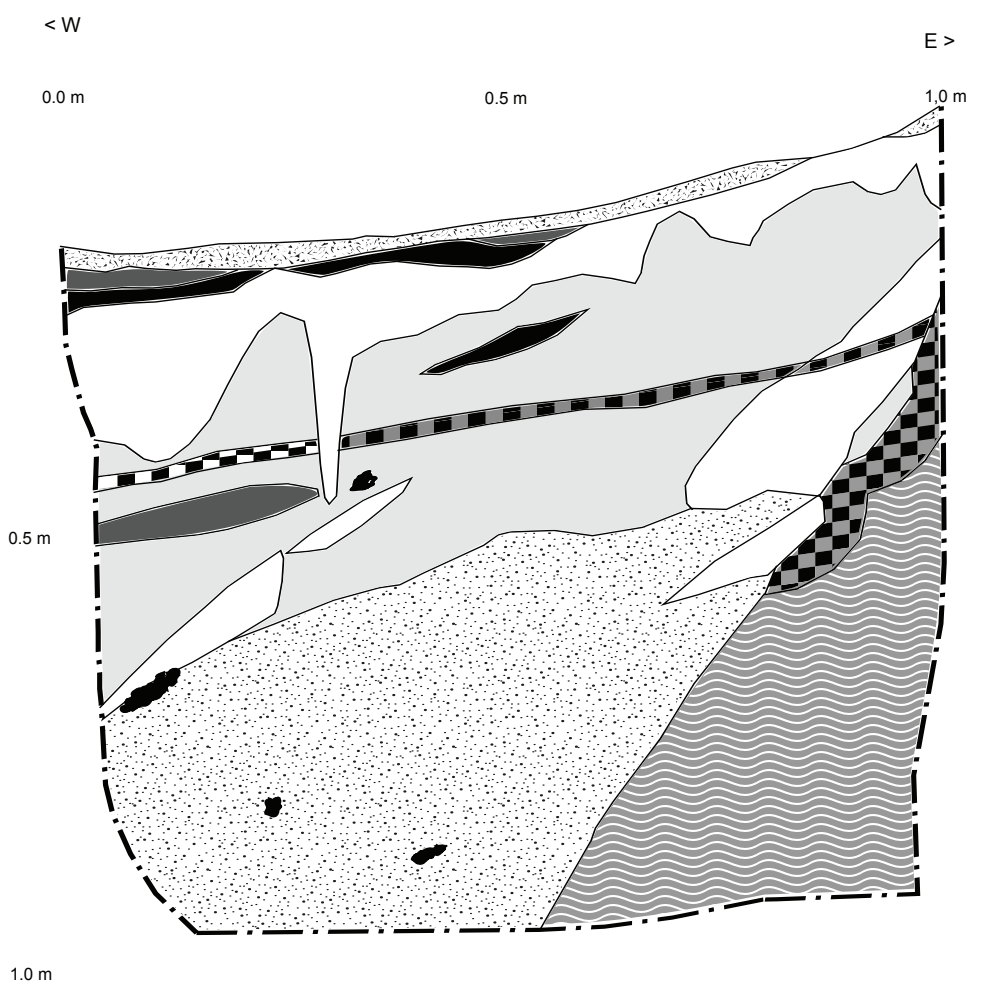
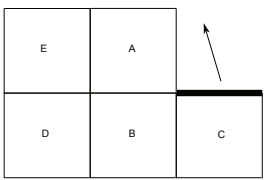
West-Facing Wall
Unit T111A



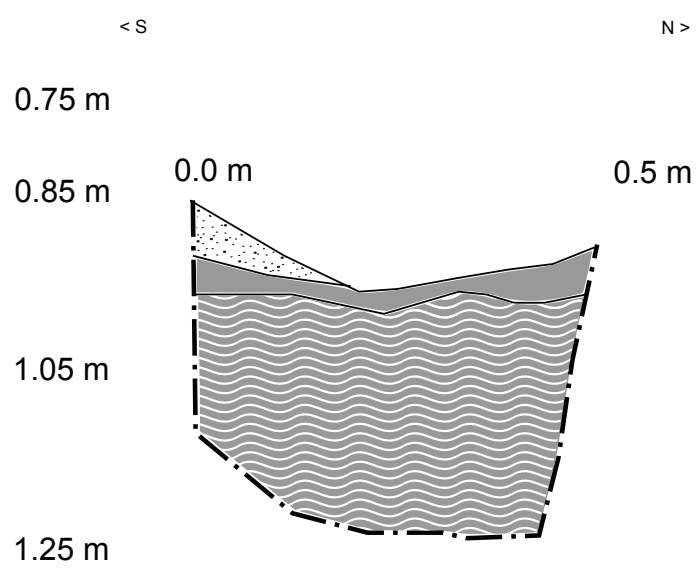
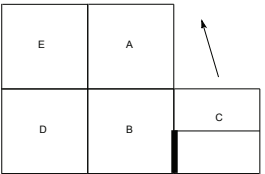
South-Facing Wall
Unit T111C



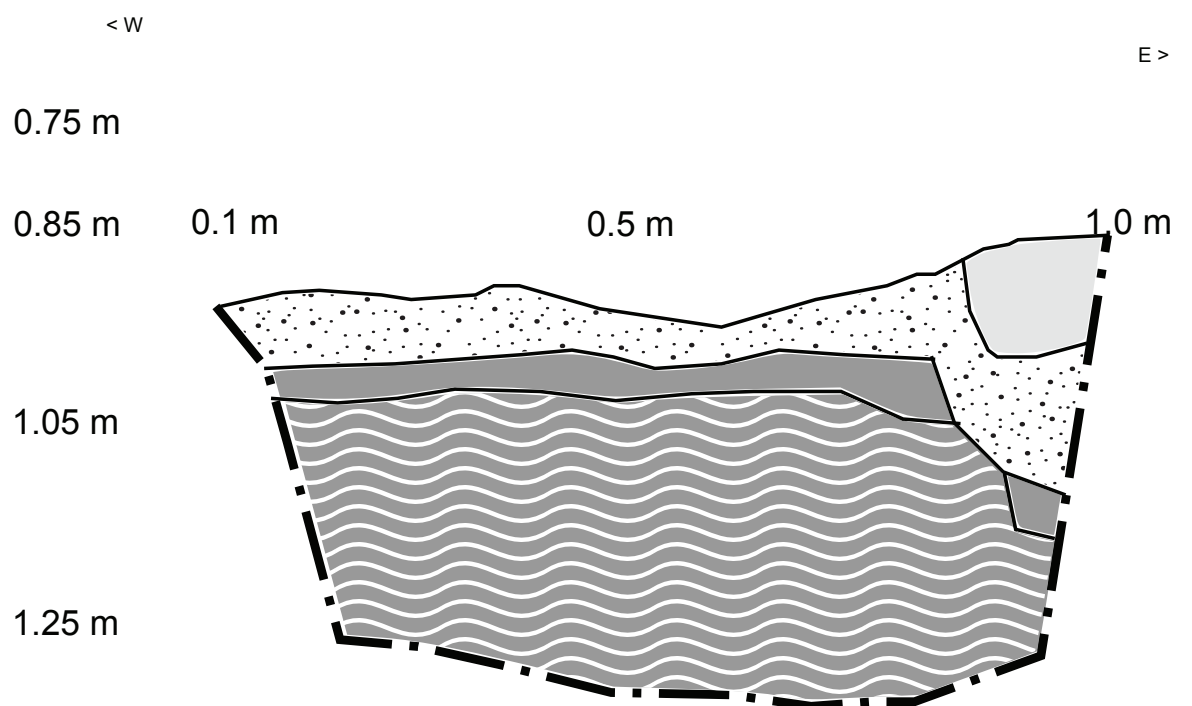
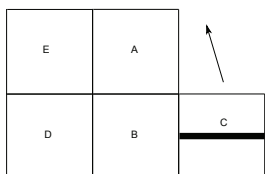
South-Facing Wall
Unit T111C



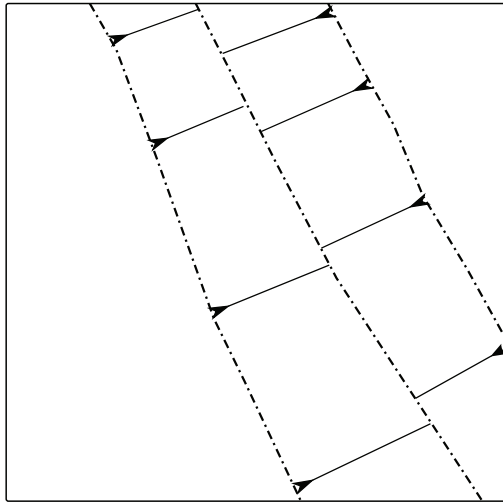
East-Facing Wall of sub-trench
Unit T111C



South-Facing Wall of sub-trench
Unit T111C

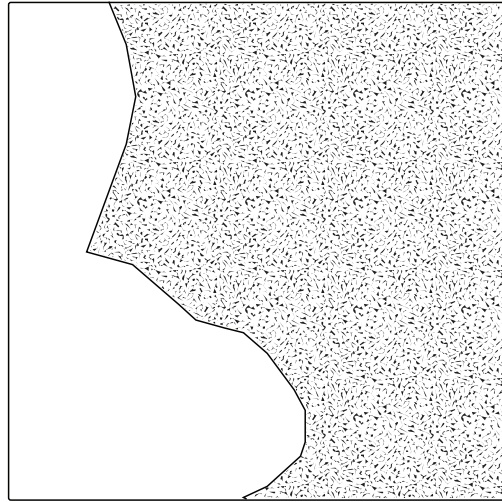


8.6.2: T111A Plans



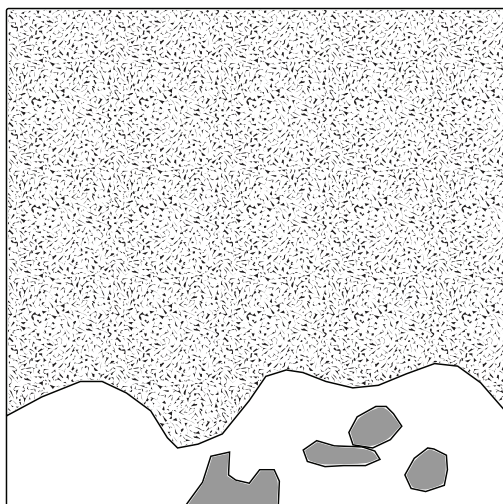
0.25m 0.25m 0.5m

Organic Removed



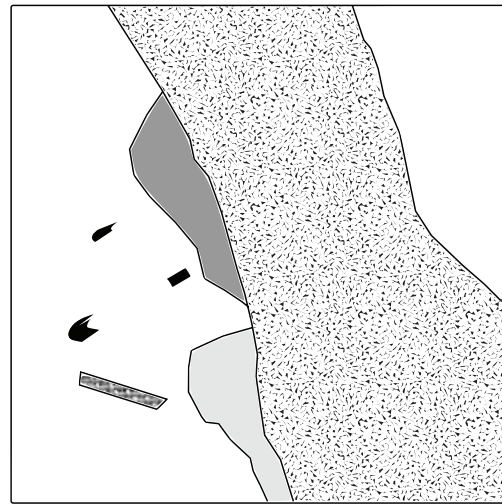
0.25m 0.25m 0.5m

Cleaned surface



0.25m 0.25m 0.5m

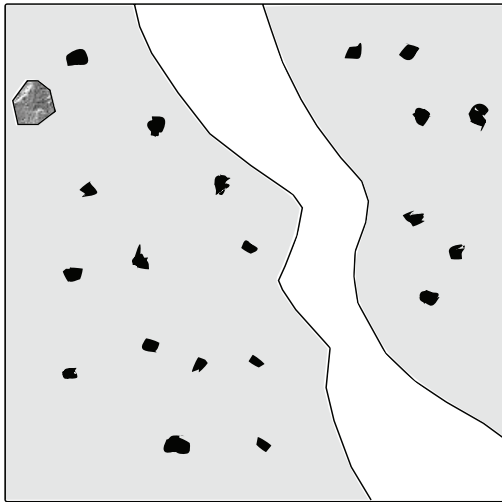
Layer 1



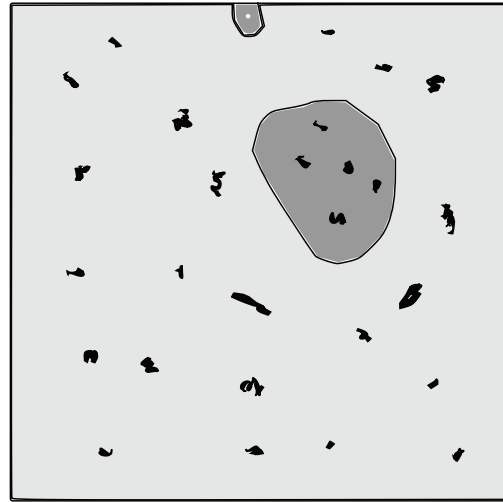
0.25m 0.25m 0.5m

Layer 2

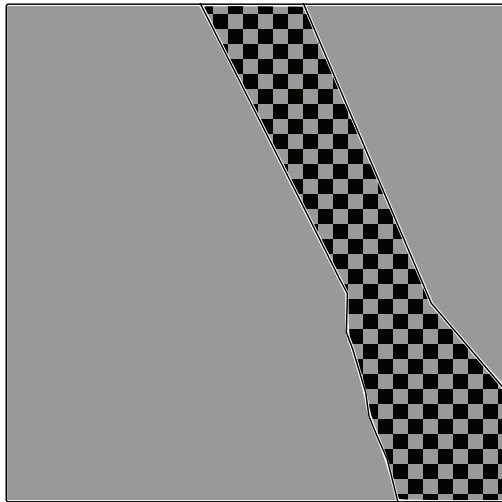




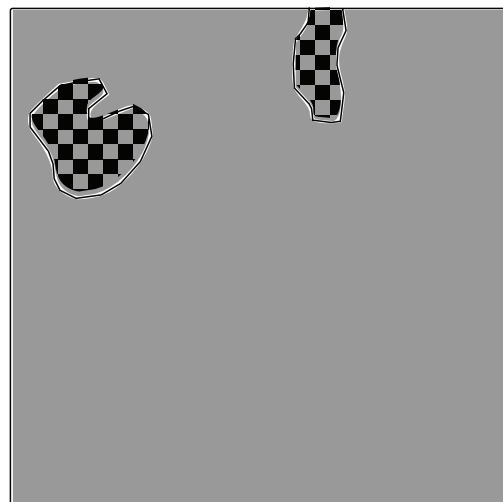
Layer 3



Layer 4

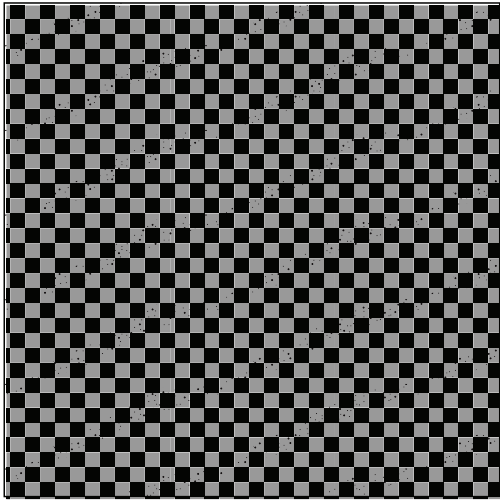


Layer 5 and 6



Layer 7

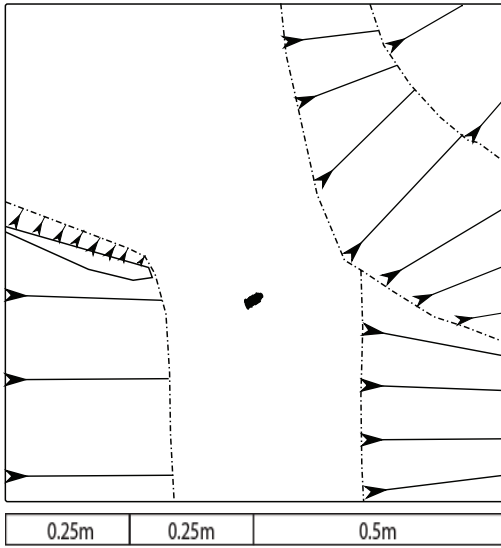




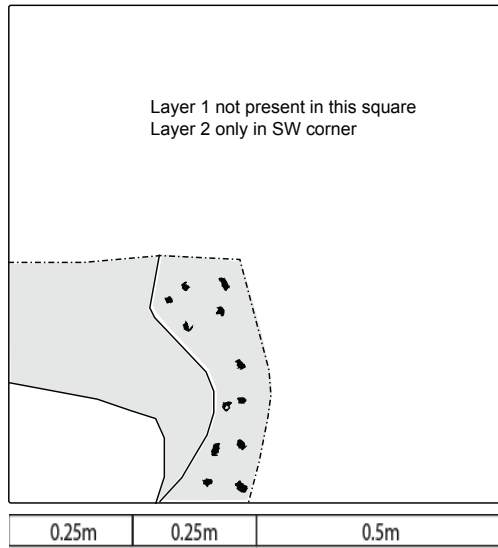
Layers 8-9



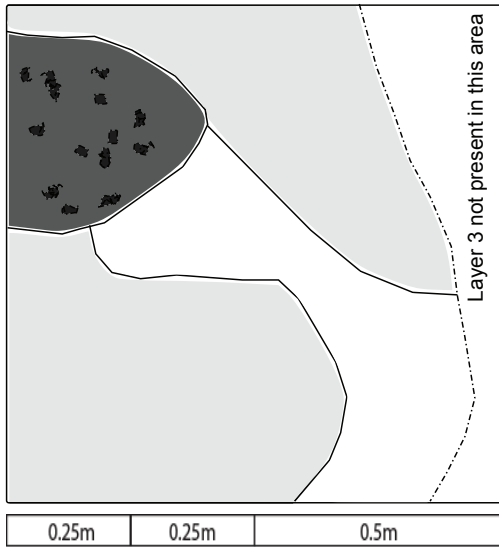
8.6.3: T111B Plans



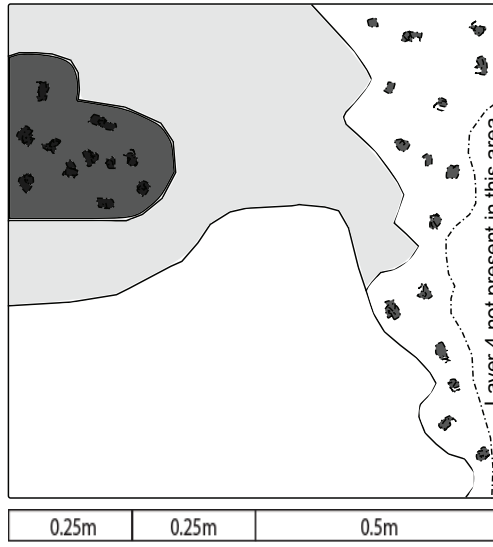
Organic Removed



Layer 2

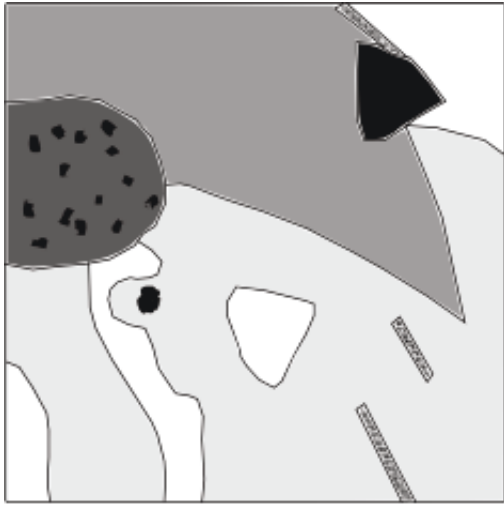


Layer 3

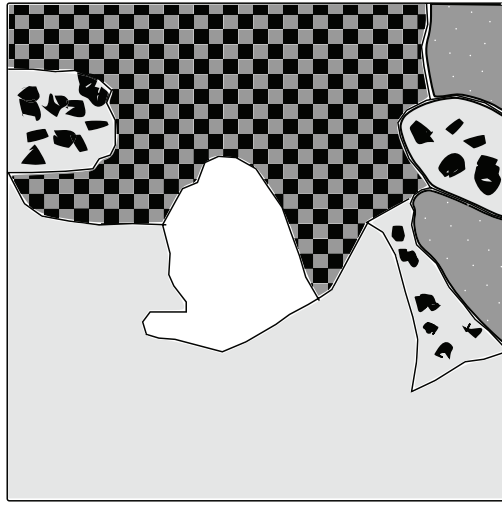


Layer 4

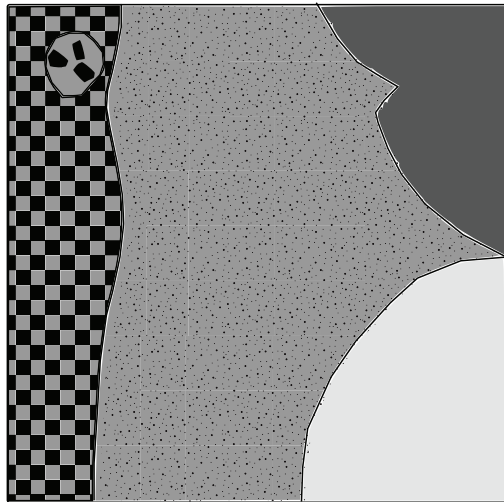




Layer 5



Layer 6

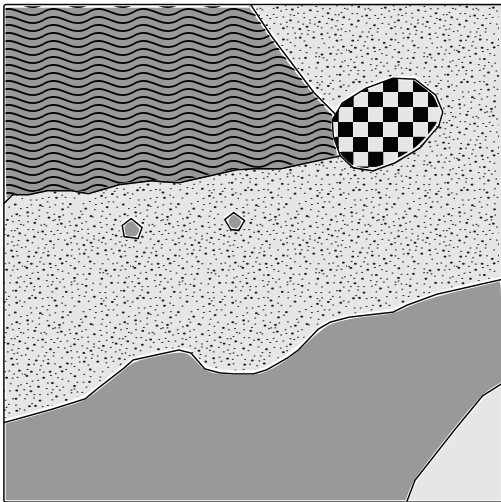


Layer 7



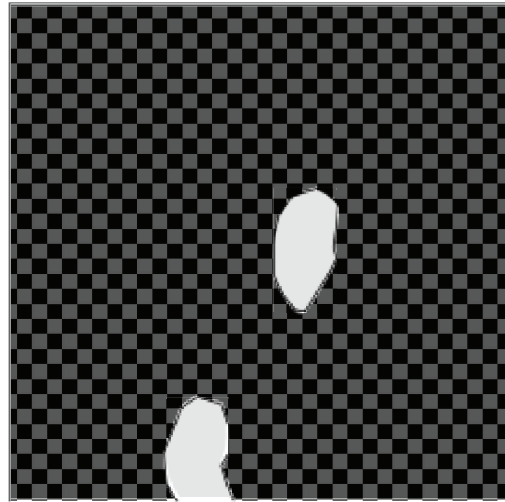
Layer 8





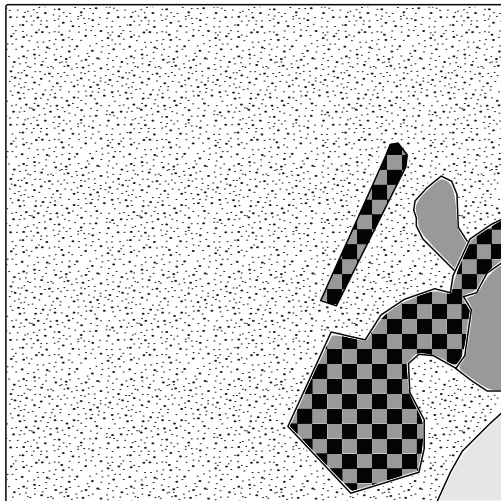
0.25m 0.25m 0.5m

Layer 9



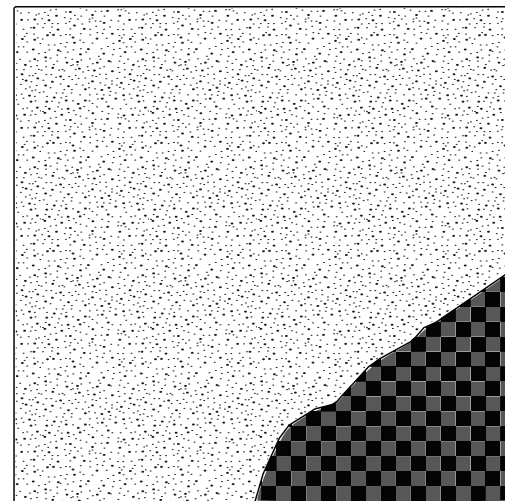
0.25m 0.25m 0.5m

Layer 10



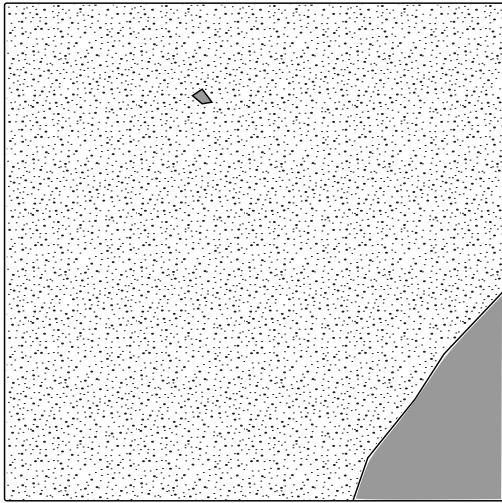
0.25m 0.25m 0.5m

Layer 11

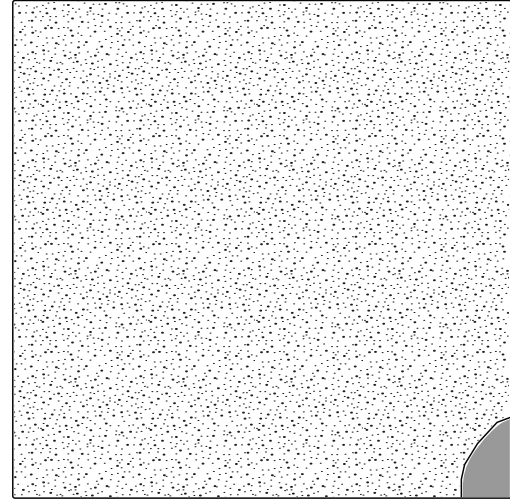


0.25m 0.25m 0.5m

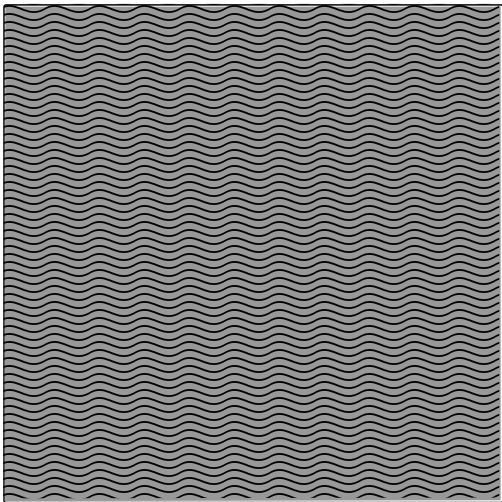
Layer 12



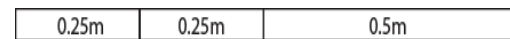
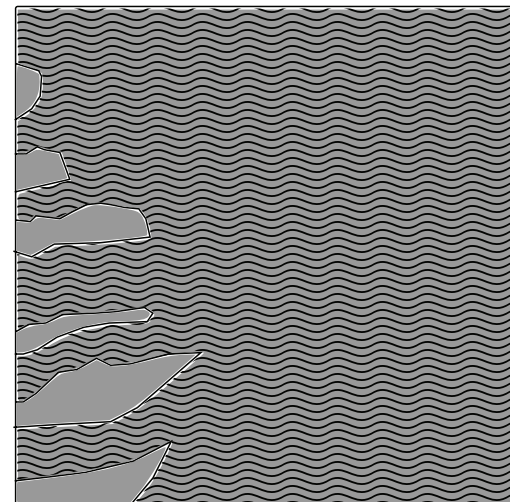
Layer 13



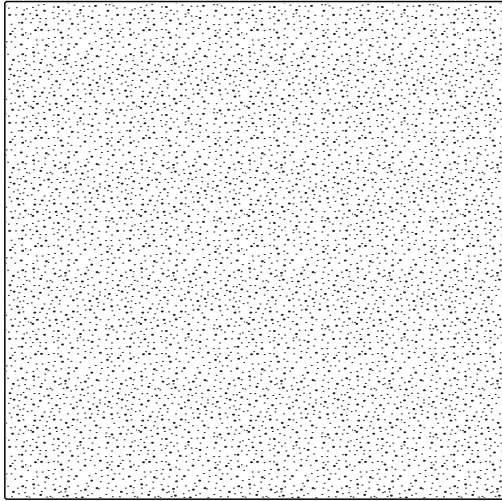
Layer 14



Layer 15

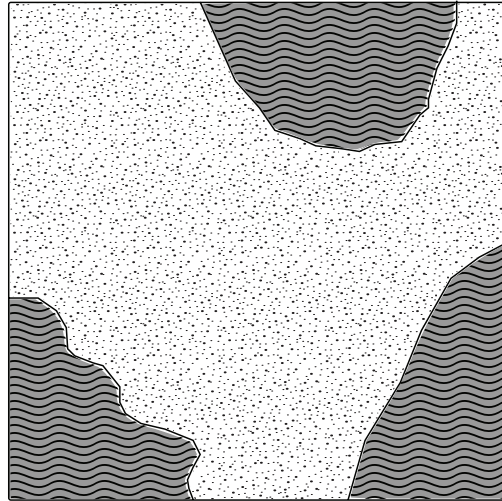


Layer 16



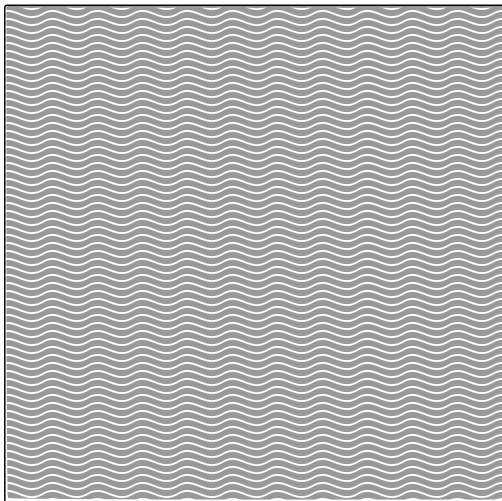
0.25m	0.25m	0.5m
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Layer 17



0.25m	0.25m	0.5m
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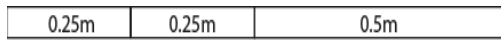
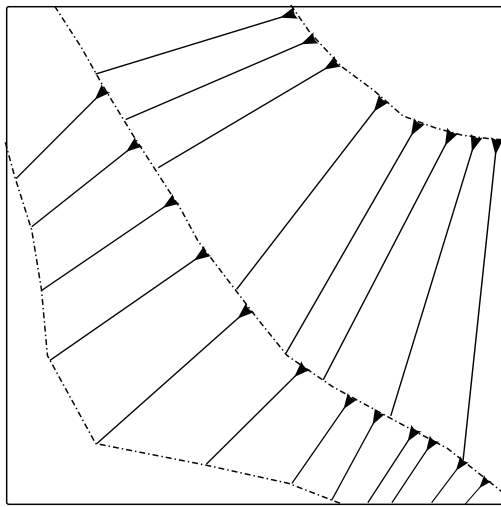
Layer 18



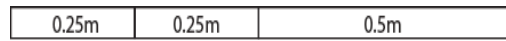
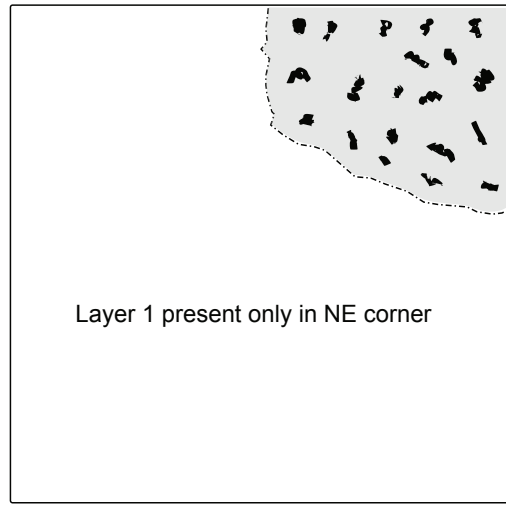
0.25m	0.25m	0.5m
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Layer 19

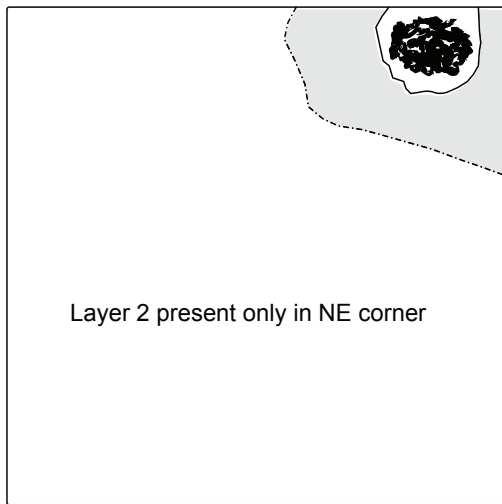
8.6.4: T111C Plans



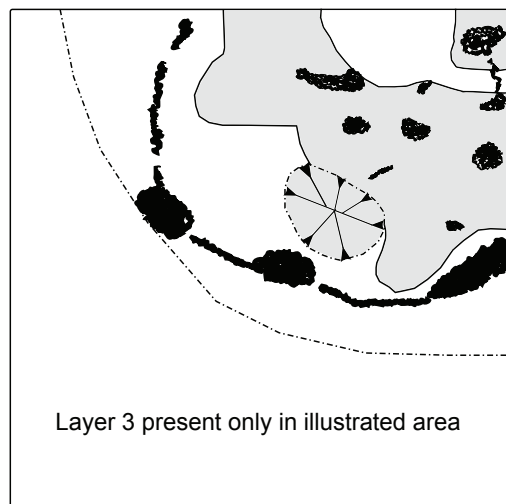
Organic removed



Layer 1

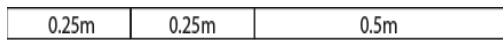
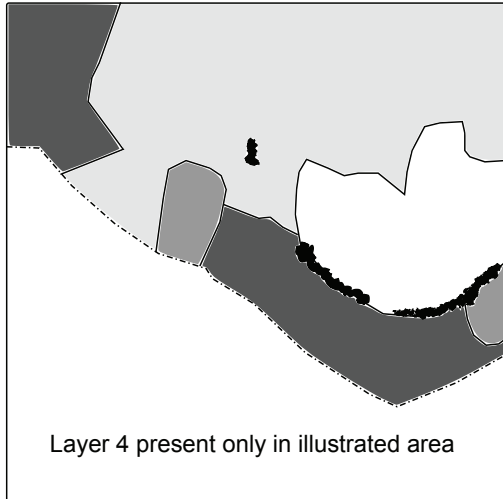


Layer 2

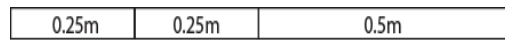
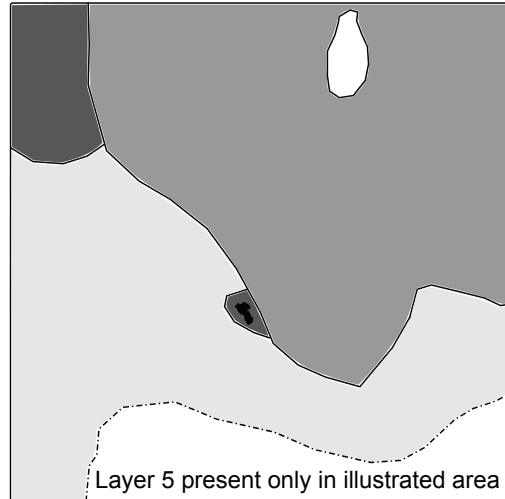


Layer 3

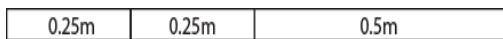
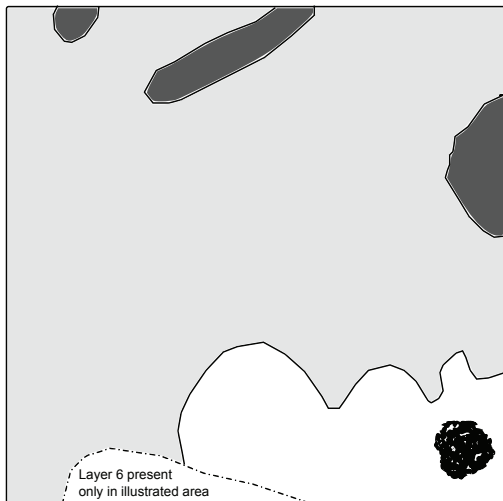




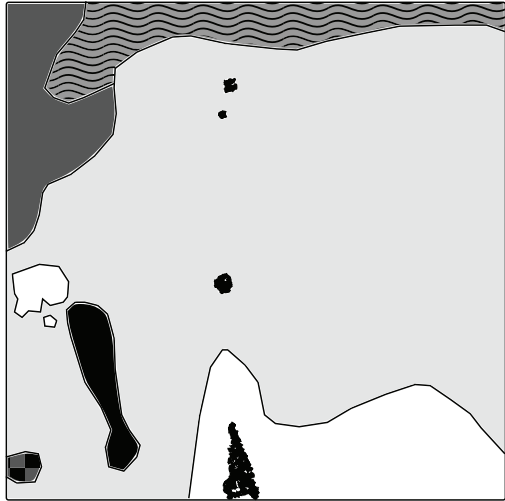
Layer 4



Layer 5

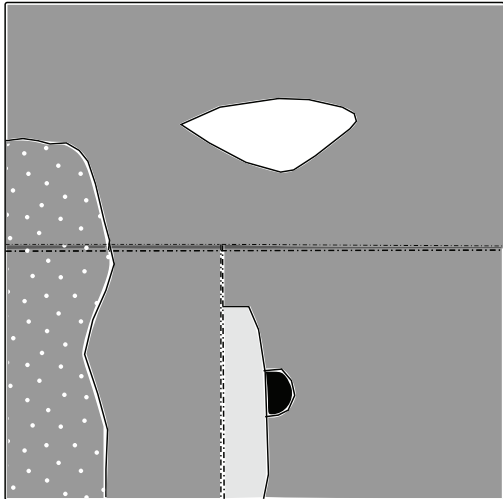


Layer 6



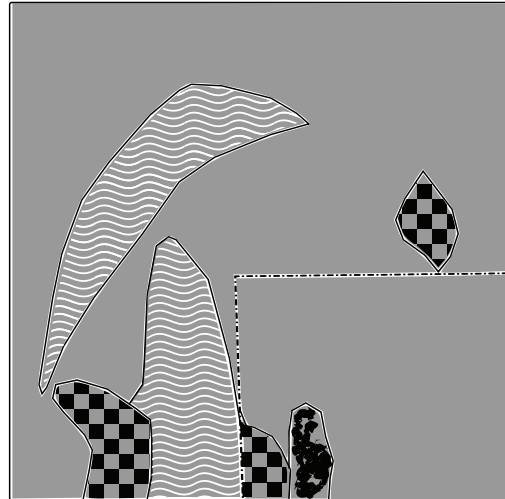
Layer 7





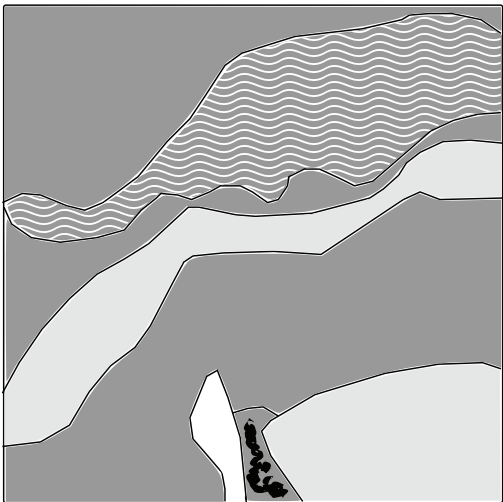
0.25m 0.25m 0.5m

Layer 8



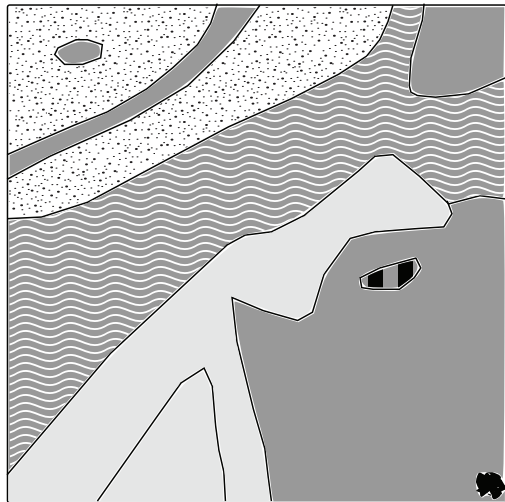
0.25m 0.25m 0.5m

Layer 9



0.25m 0.25m 0.5m

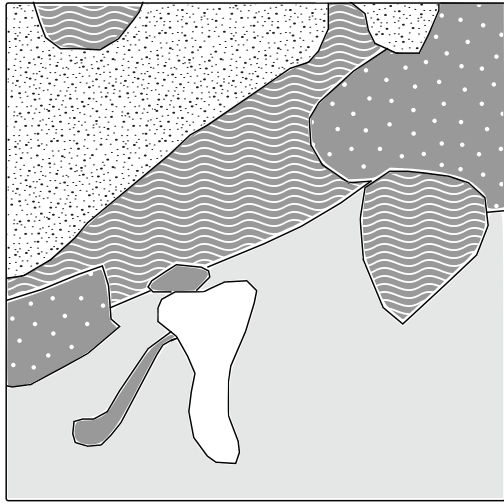
Layer 10



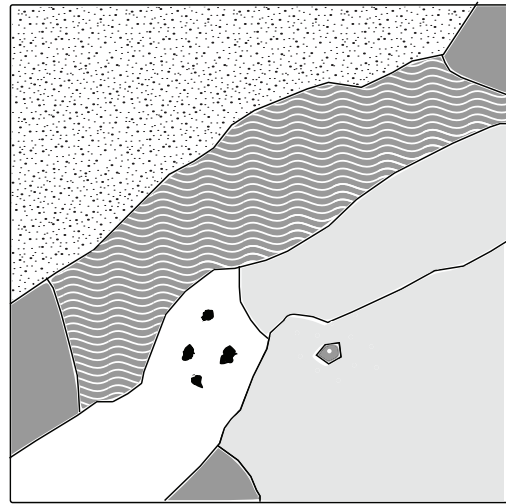
0.25m 0.25m 0.5m

Layer 11

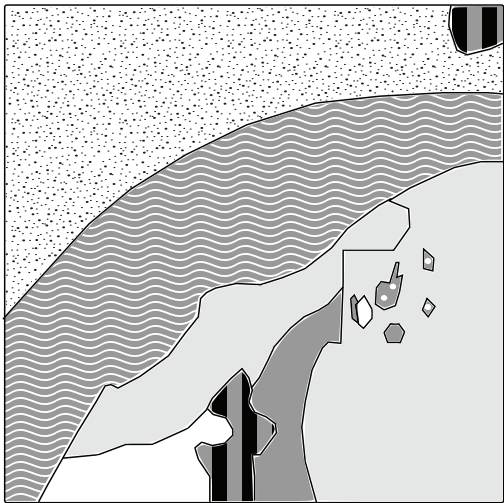




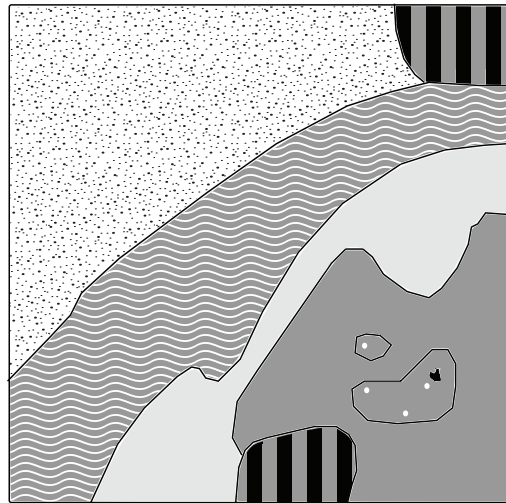
Layer 12a



Layer 12b

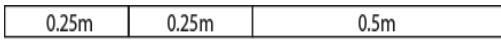
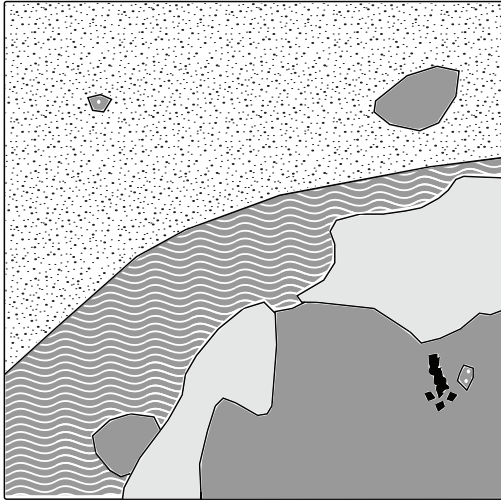


Layer 13

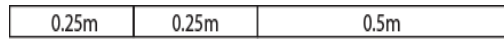
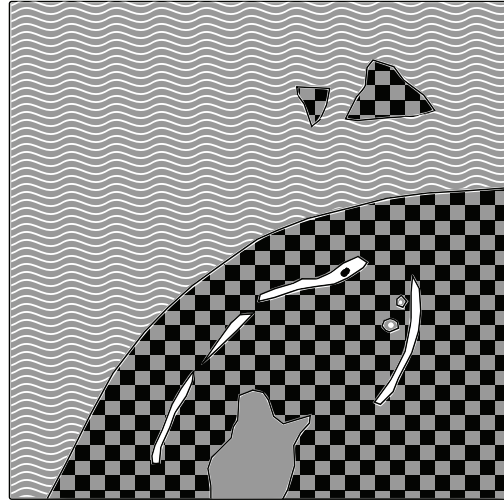


Layer 14

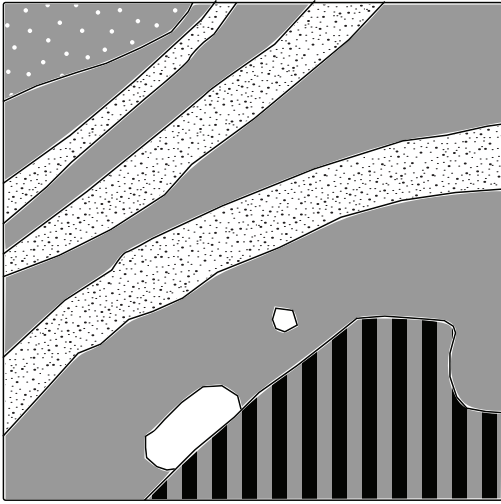




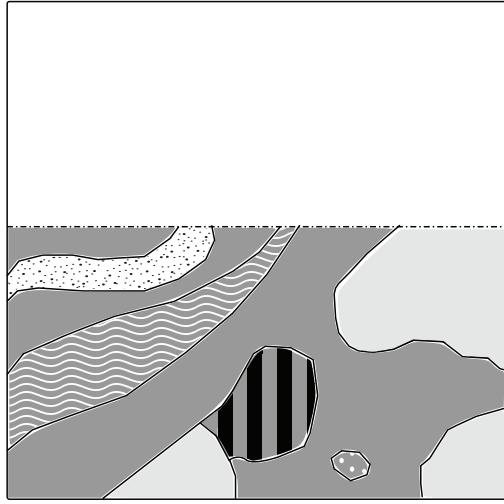
Layer 15



Layer 16

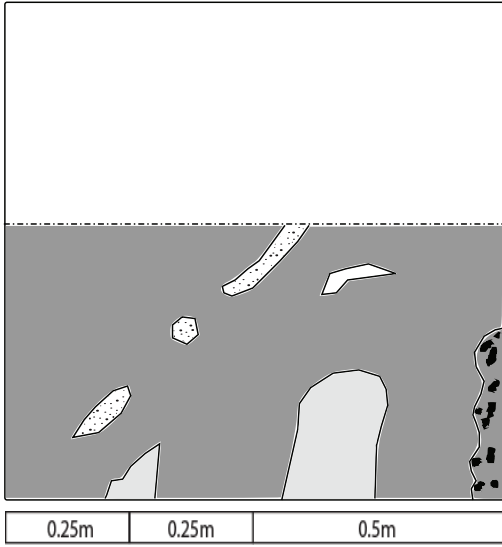


Layer 17

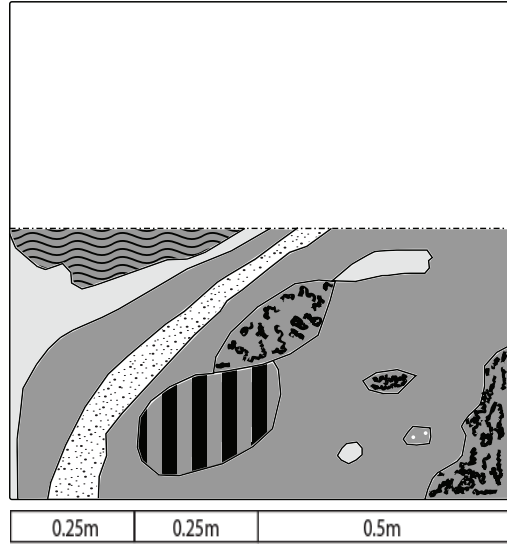


Layer 18

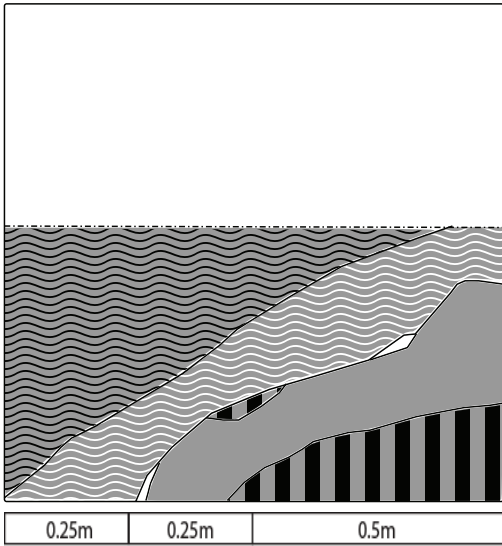




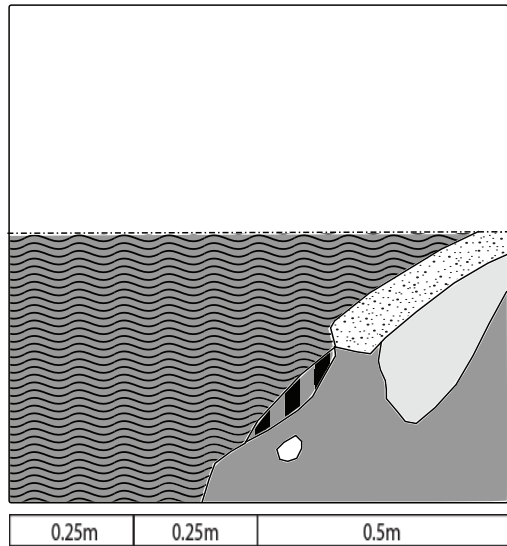
Layer 19



Layer 20

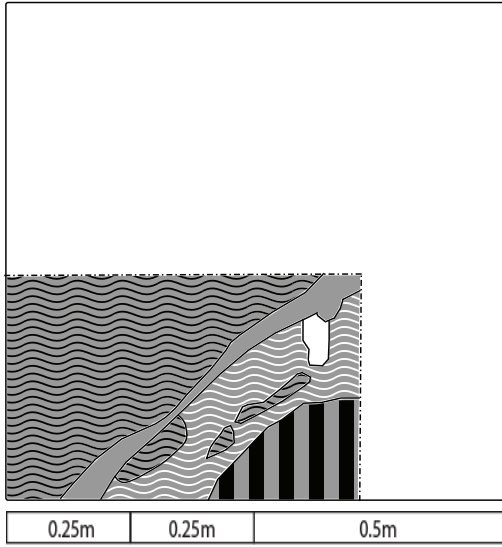


Layer 21

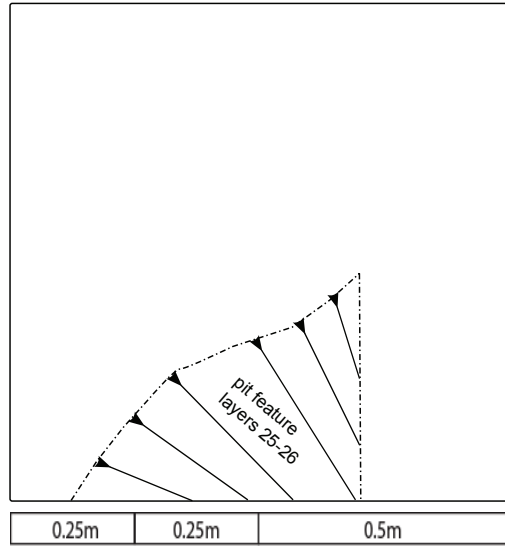


Layers 22-23





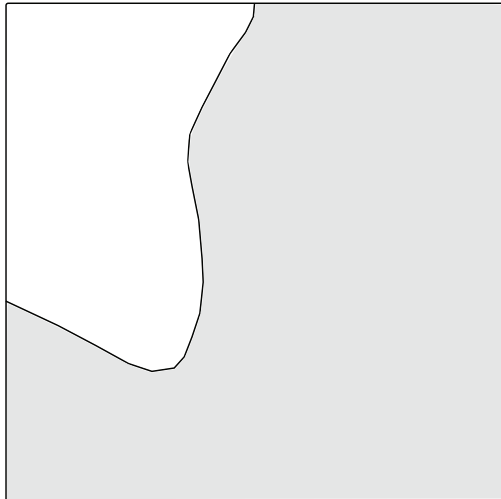
Layer 24



Layers 25-26



8.6.5: T111D Plans



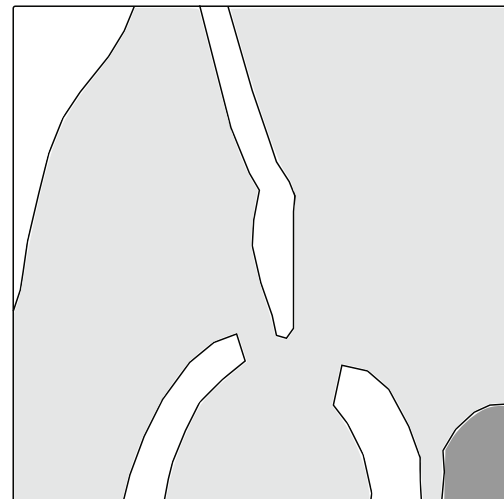
Organic removed



Layer 1

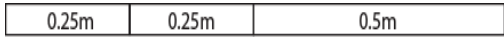
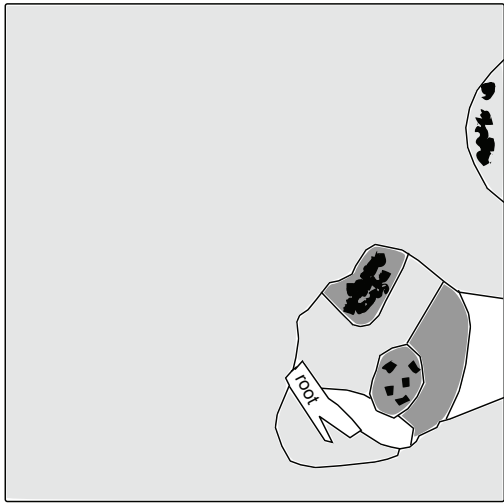


Layer 2

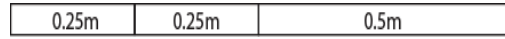
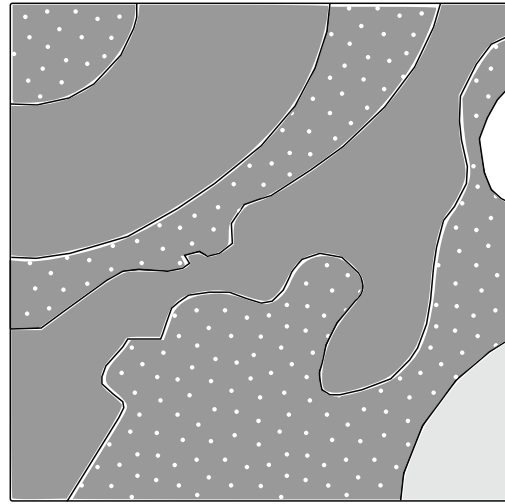


Layer 3

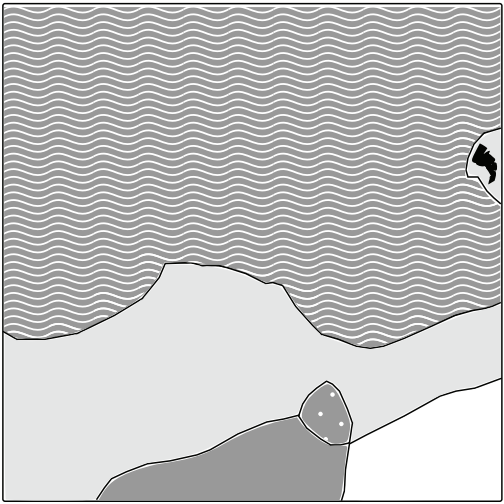




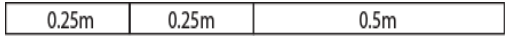
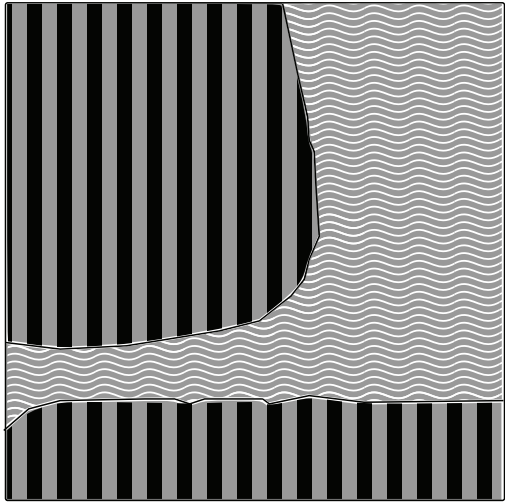
Layer 4



Layer 5

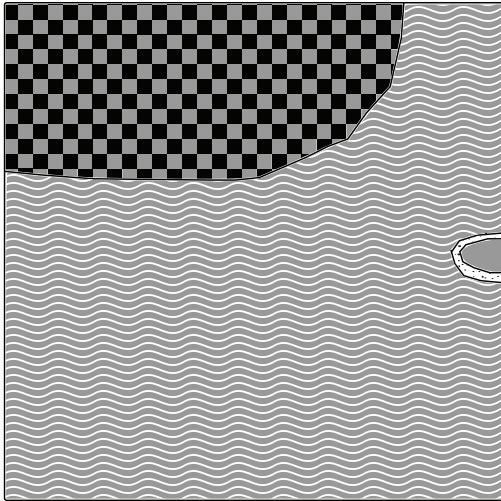


Layer 6

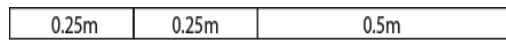
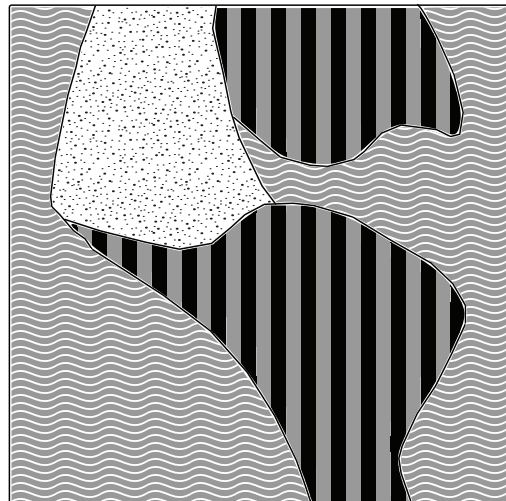


Layer 7

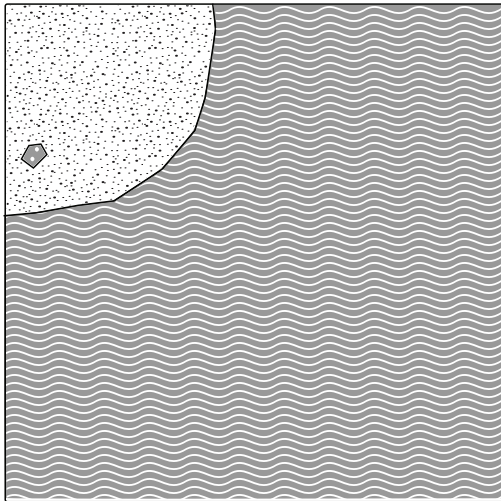




Layer 8

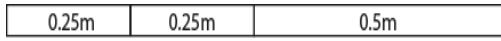
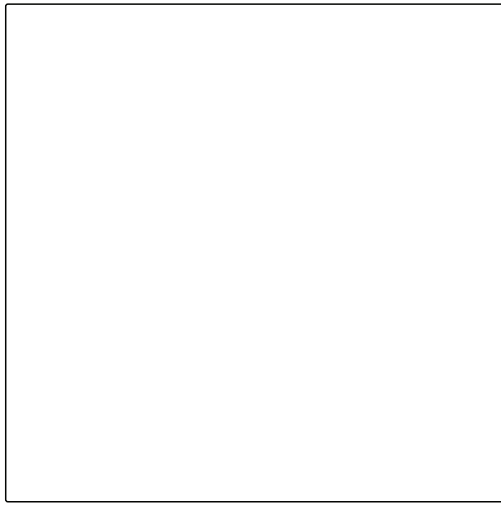


Layer 9

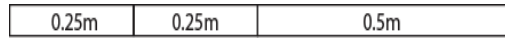


Layers 10-11

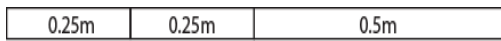
8.6.6: T111E Plans



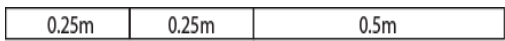
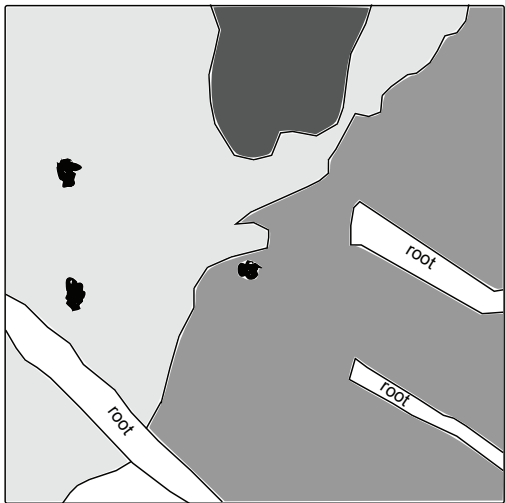
Organic removed



Layer 1



Layer 2

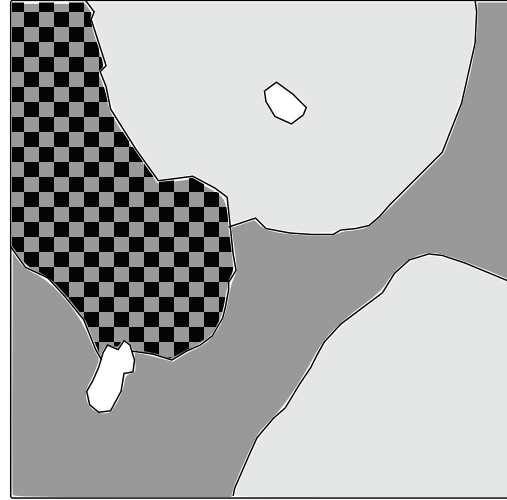


Layer 3

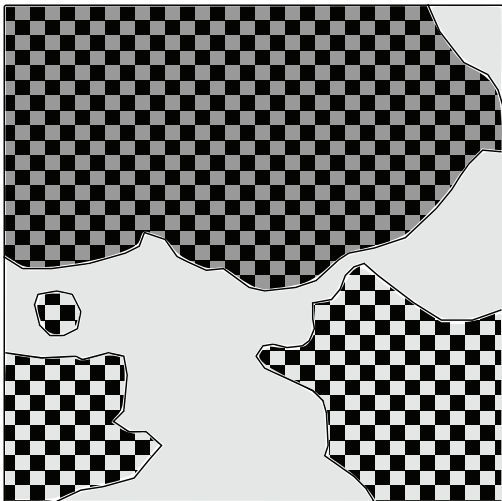




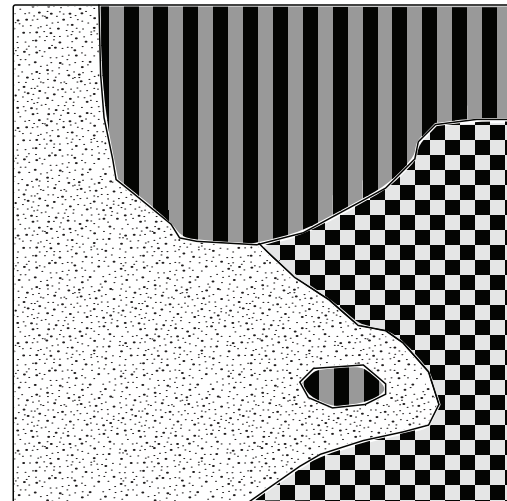
Layer 4



Layer 5

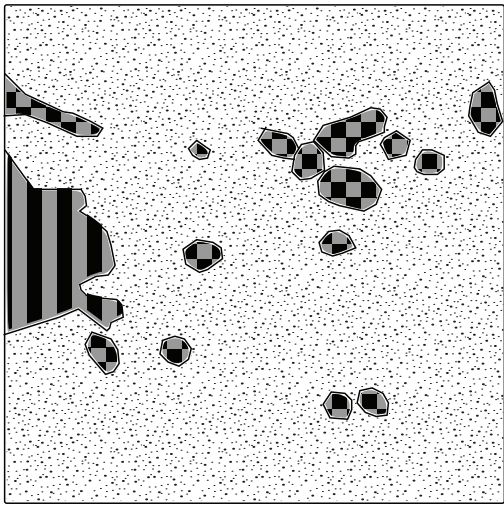


Layer 6

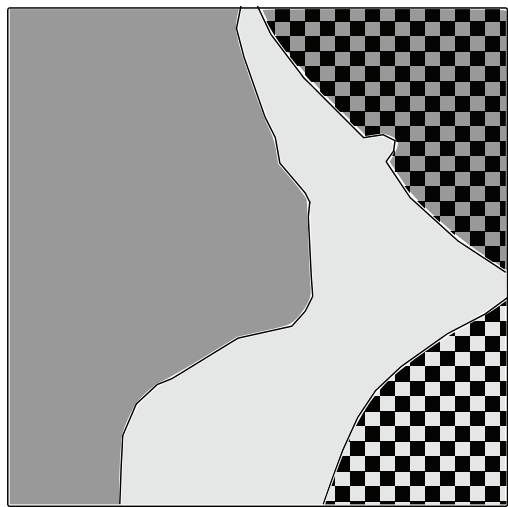


Layer 7

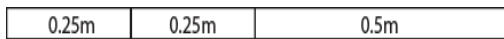
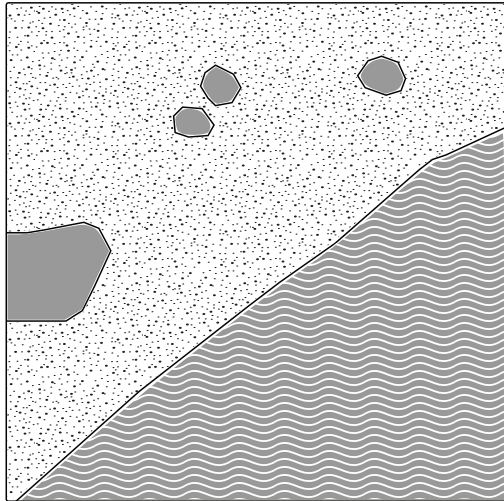




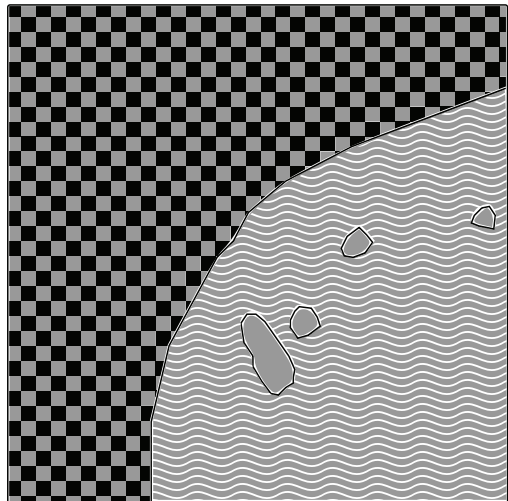
Layer 8



Layer 9

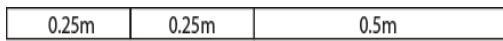
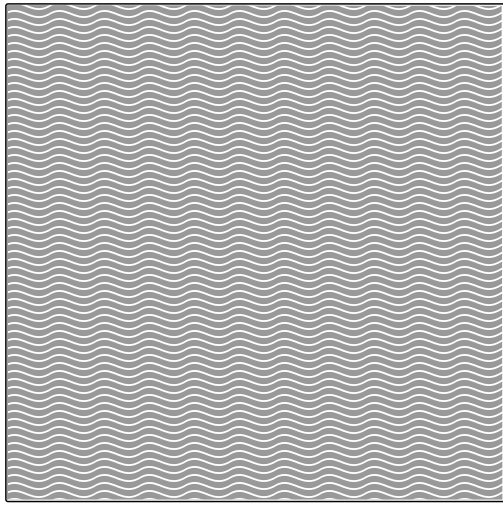


Layer 10

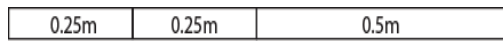
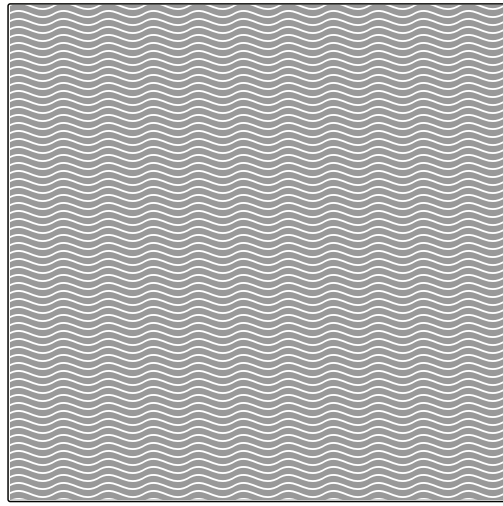


Layer 11

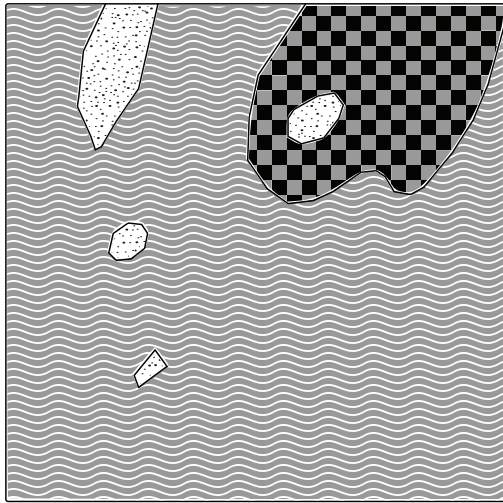




Layer 12



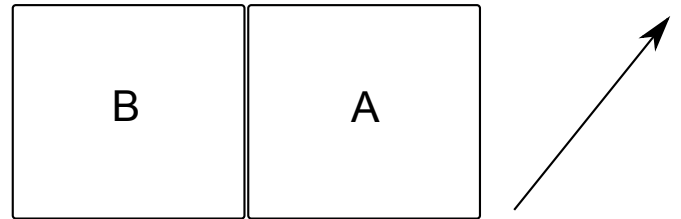
Layer 13



Layer 14

8.7: T211 Diagram

Units:



Layer depths (in centimeters) from surface line-level:

Layer 1: 0-5

Layer 2: 5-10

Layer 3: 10-15

Layer 4: 15-20

Layer 5: 20-25

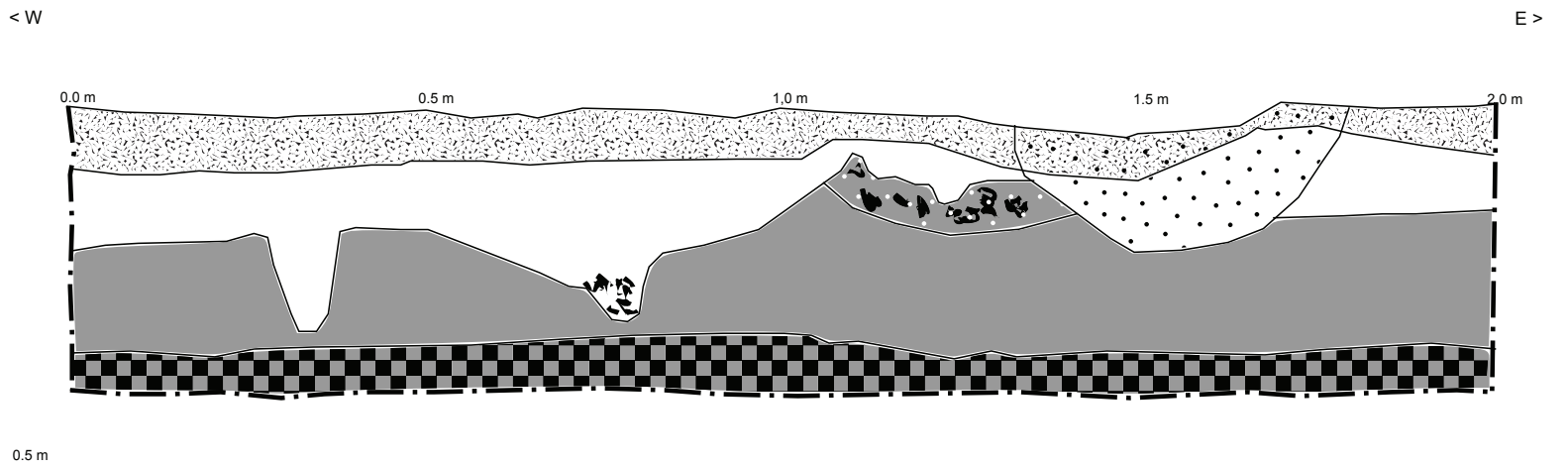
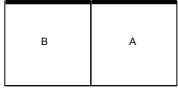
Layer 6: 25-30

Layer 7: 30-35

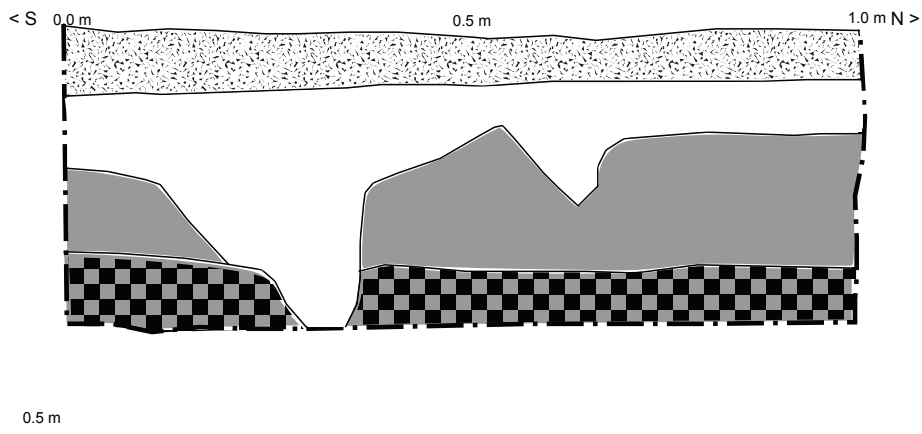
Layer 8: 35-40

8.7.1: T211 Profiles

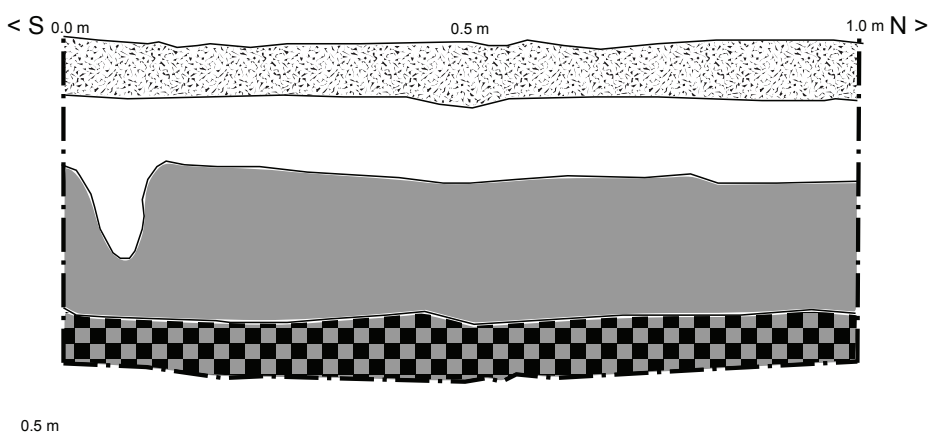
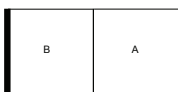
SouthEast-Facing Wall
Units T211B, T211A



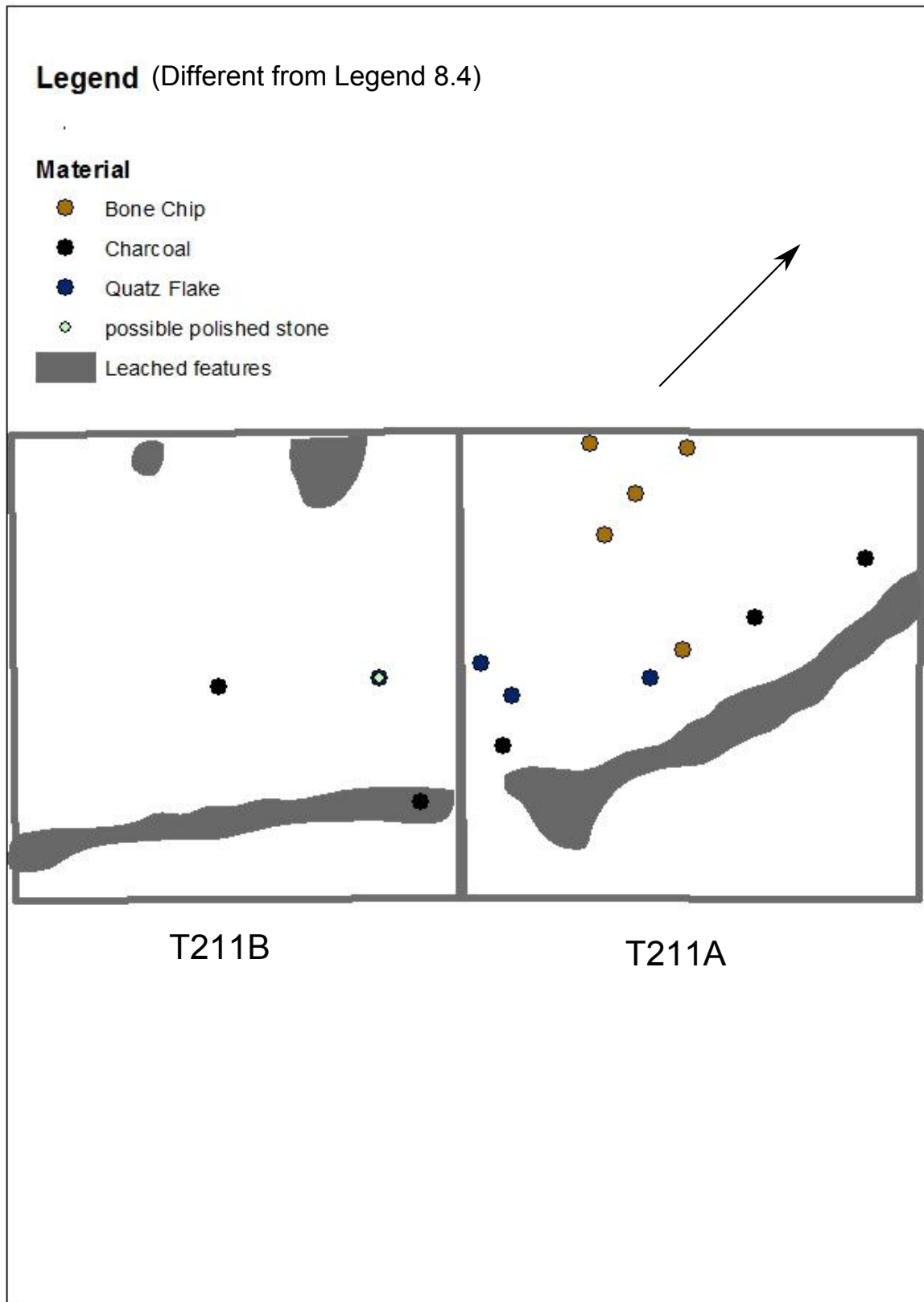
SouthWest-Facing Wall
Unit T211A



NorthEast-Facing Wall
Unit T211B

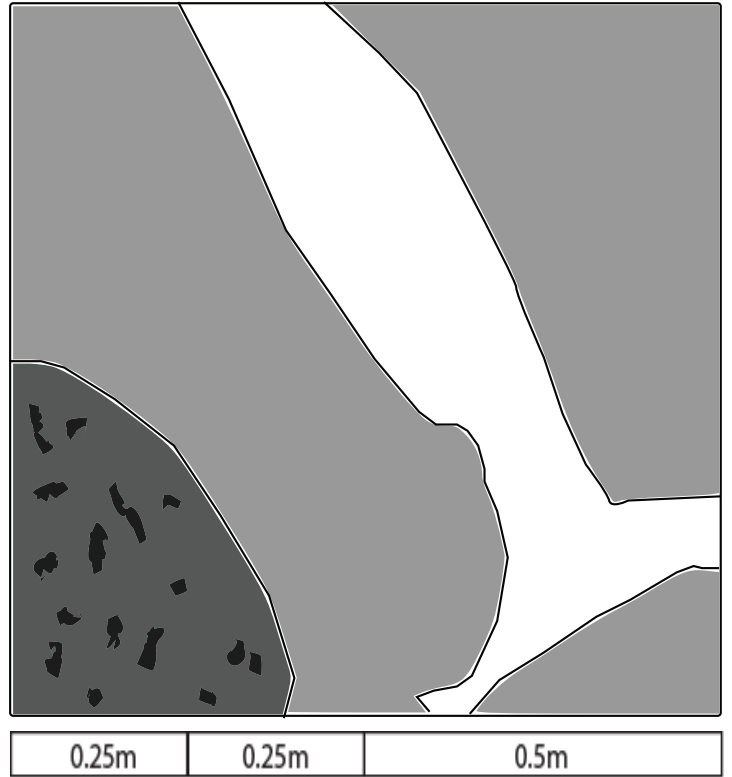
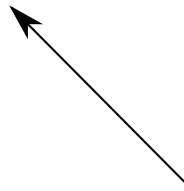


8.7.2: T211B Summary Plan



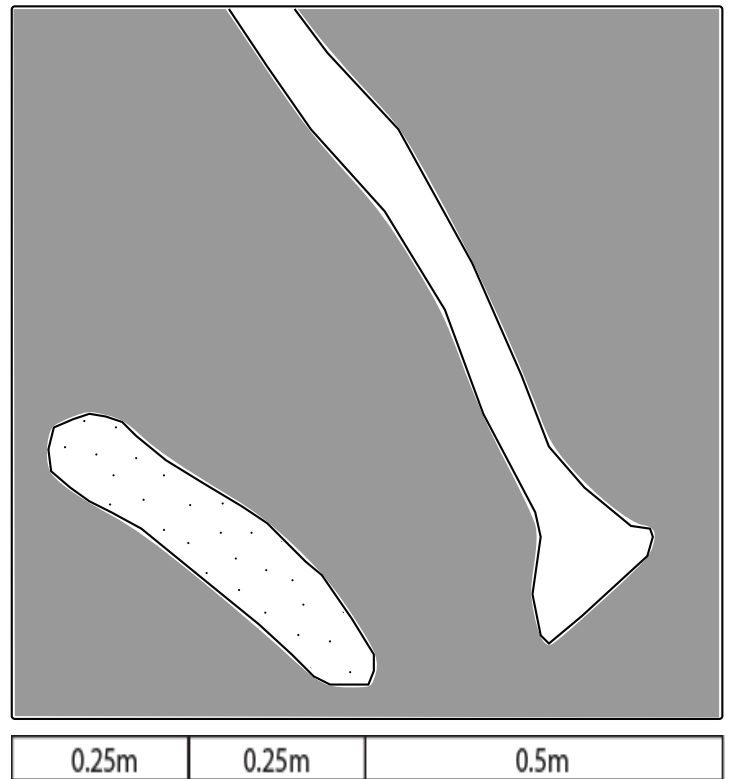
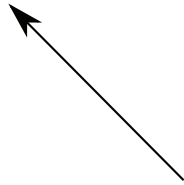
8.7.3: T211A Plans

Layer: Organic Removed



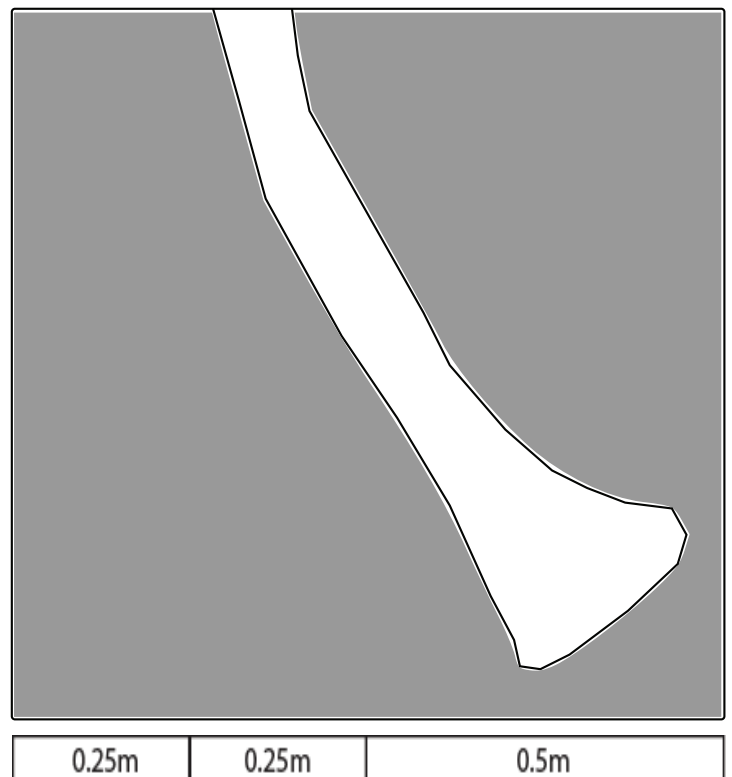
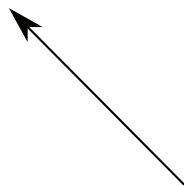
Layer: 4,5

Depth: 15-25 cm



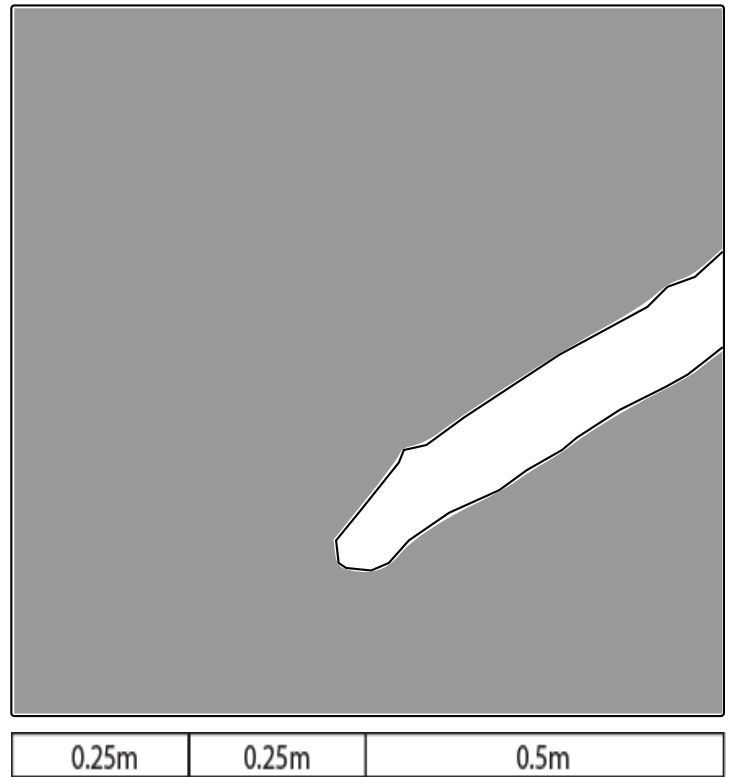
Layer: 6.7

Depth: 25-35 cm



Layer: 8

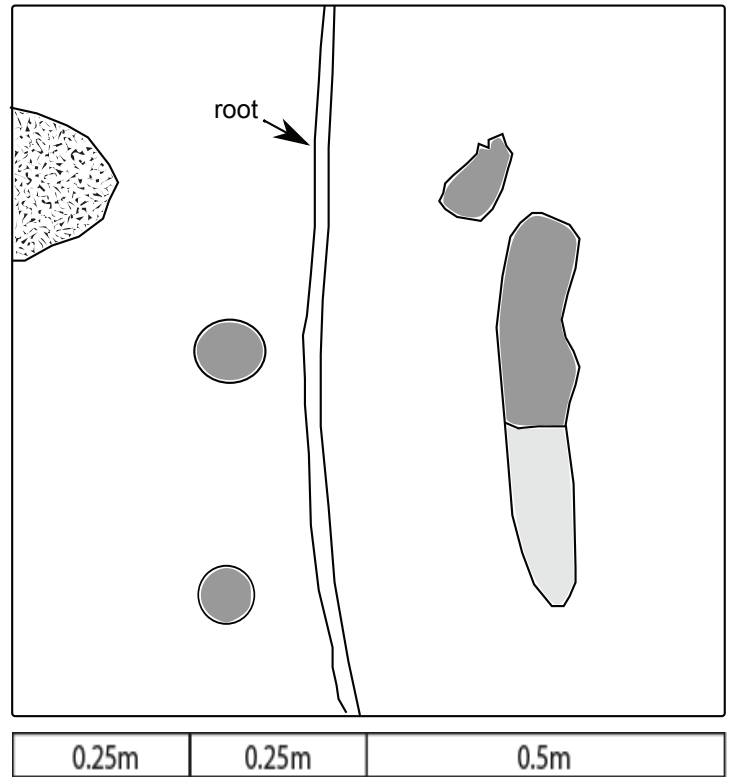
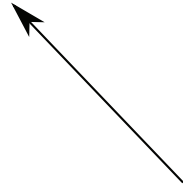
Depth: 35-40 cm



8.7.4: T211B Plans

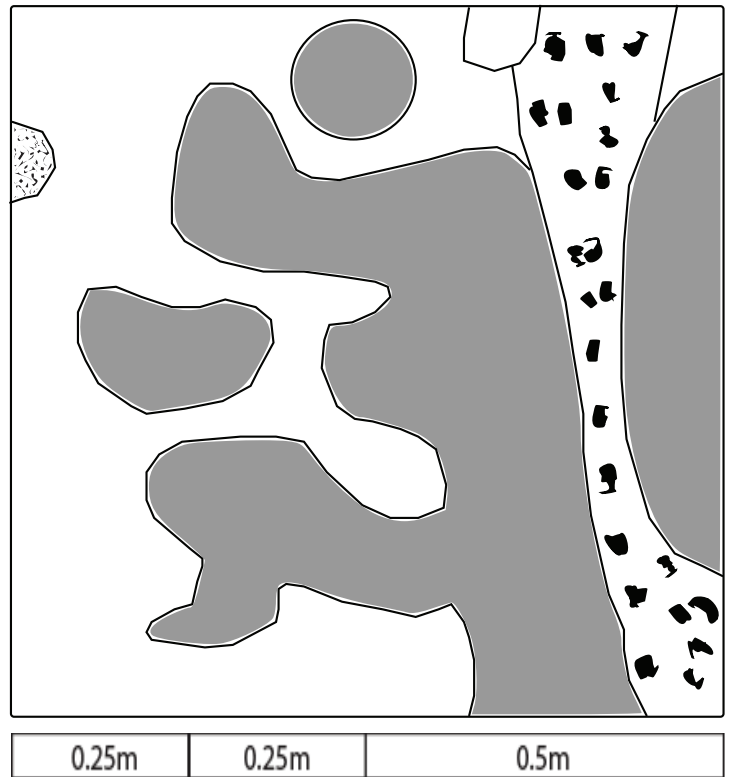
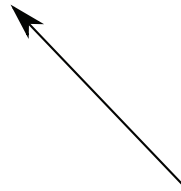
Layer: 1, 2

Depth: 1-10 cm



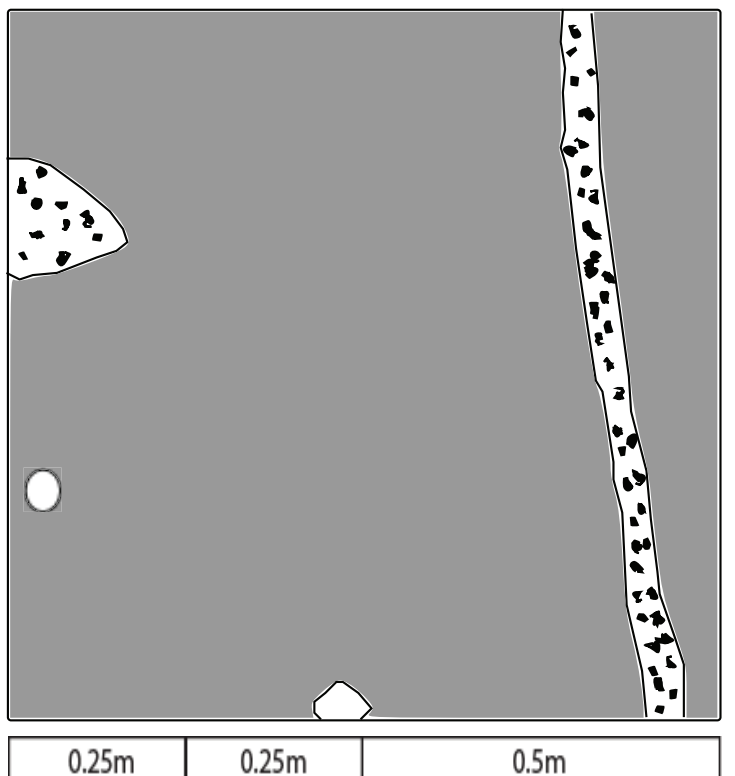
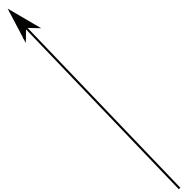
Layer: 3

Depth: 10-15 cm



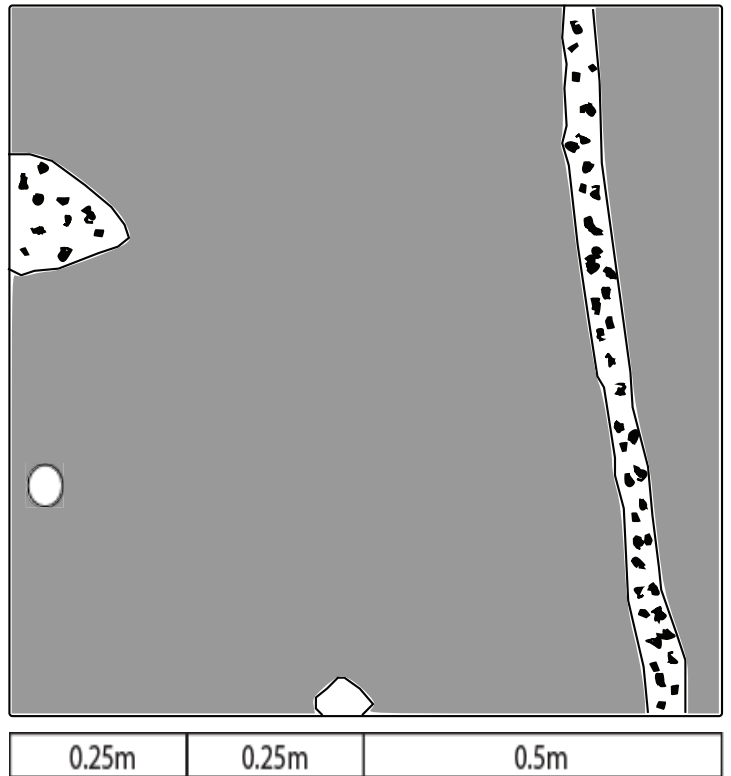
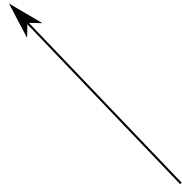
Layer: 4

Depth: 15-20 cm



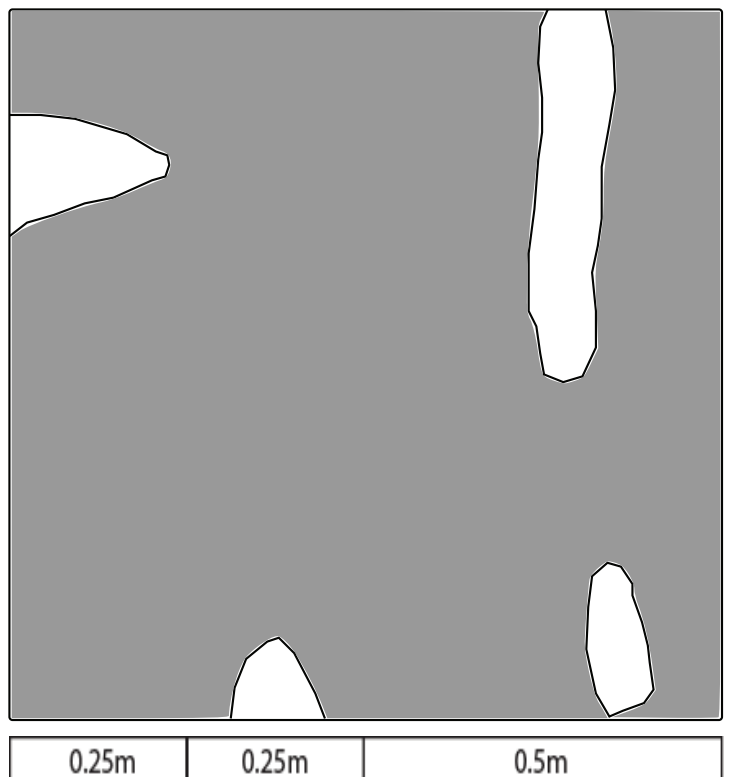
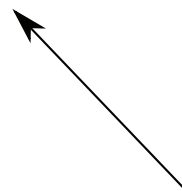
Layer: 4

Depth: 15-20 cm



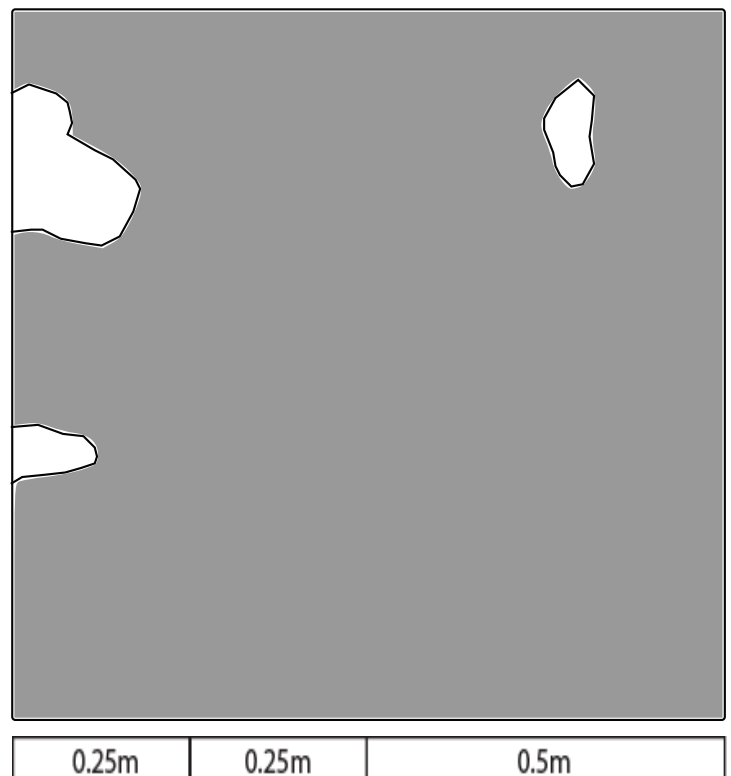
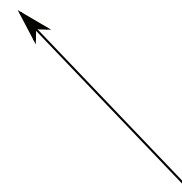
Layer: 5

Depth: 20-25 cm



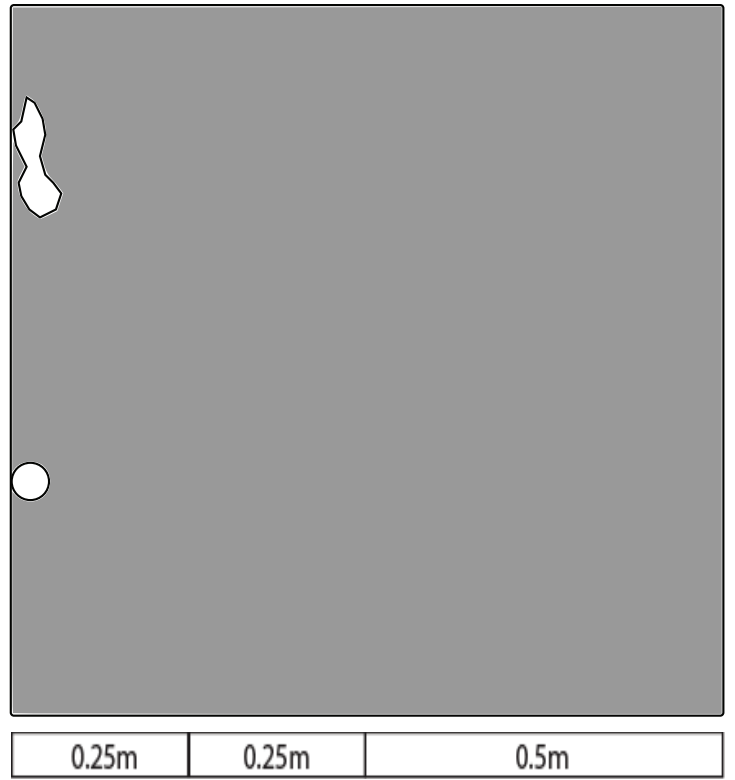
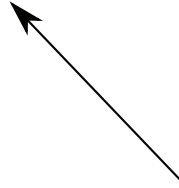
Layer: 6

Depth: 25-30 cm



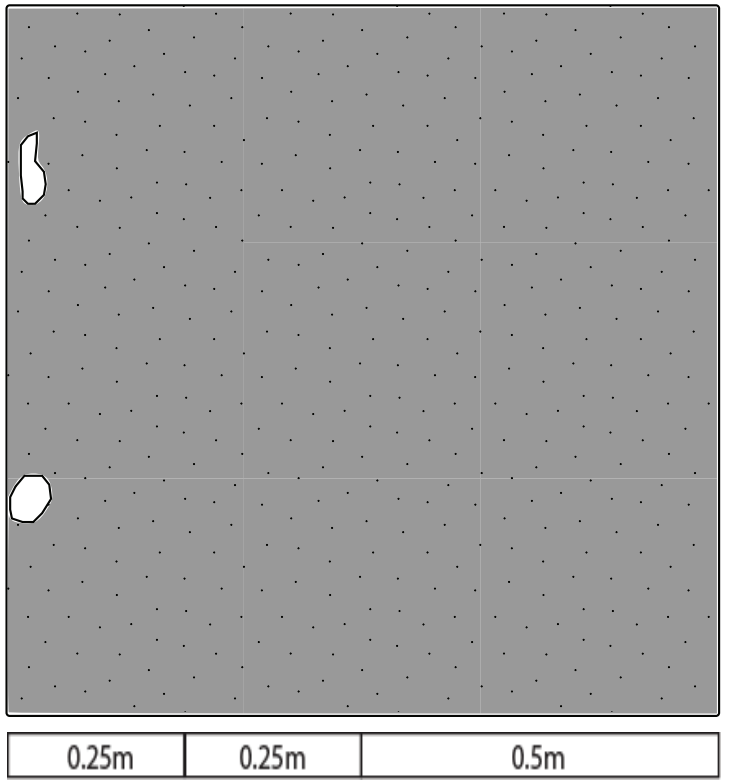
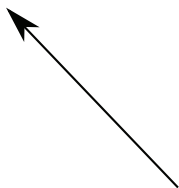
Layer: 7

Depth: 30-35 cm



Layer: 8

Depth: 35-40 cm



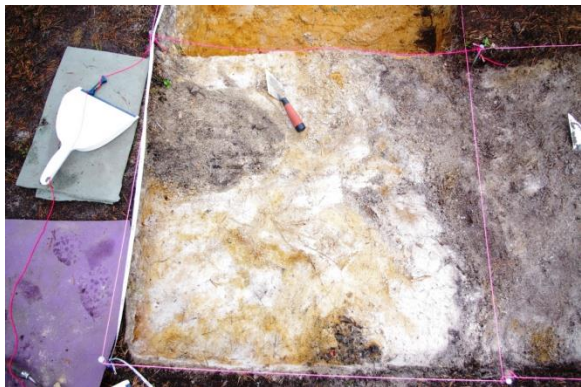
9.1: T111 Photos



9.1.1: Units A, B and C before opening trench



9.1.2: Fieldschool students and supervisors



9.1.3: Hearth in T111B Level 4



9.1.4: T111E Level 2



9.1.5: T111B Level 7



9.1.5: T111B Level 7 and T111D Level 5



9.1.7: T111A South-facing profile



9.1.8: T111E South-facing profile



9.1.6: T111D Level 9



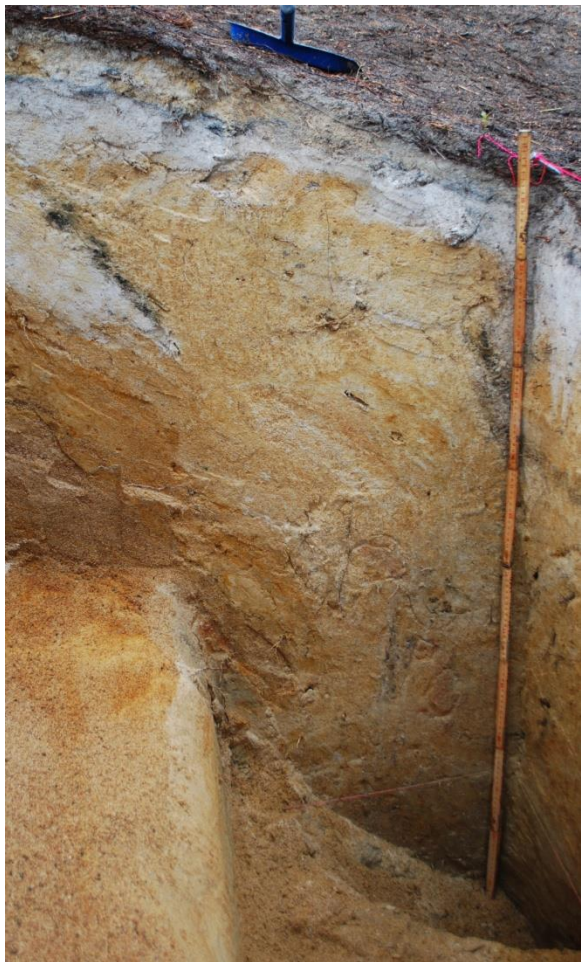
9.1.9: Students recording profiles



9.1.10: Bottom of Sub-Trench in T111C



9.1.12: T111 backfilled



9.1.11: T111C West-facing profile



9.1.13: Replacing topsoil on T111

9.2: T211 Photos



9.2.1: T211A Level 7



9.2.2: T211A Level 7 and T211B Level 4



9.2.3: T211A: Southeast-facing wall



9.2.5: T211B Level 6



9.2.5: T211B Southeast-facing wall

10.1 T111 Artifacts	Site	Find #	KM 38815	Description	Unit	Level	Date
	KKT	1	127	Charcoal	T111A	3	May 31 2011
	KKT	2	128	Charcoal	T111B	Organic removed	June 1 2011
	KKT	3	129	Charcoal	T111B	Organic removed	June 1 2011
	KKT	4	130	Charcoal	T111B	3	June 1 2011
	KKT	5	131	Charcoal	T111B	3	June 1 2011
	KKT	6	132	Charcoal	T111B	4	June 2 2011
	KKT	7	133	Charcoal	T111C	1	June 2 2011
	KKT	8	134	Charcoal	T111C	2	June 2 2011
	KKT	9	135	Charcoal	T111C	3	June 2 2011
	KKT	10	136	Organic/burned	T111C	3	June 2 2011
	KKT	11	137	Quartz flake	T111C	3	June 2 2011
	KKT	12	138	Charcoal	T111B	6	June 3 2011
	KKT	13	139	Charcoal	T111B	6	June 3 2011
	KKT	14	140	Charcoal	T111B	6	June 3 2011
	KKT	15	141	Charcoal	T111C	5	June 3 2011
	KKT	16	142	Charcoal	T111B	6	June 3 2011
	KKT	17	143	Charcoal	T111D	3	June 3 2011
	KKT	18	144	Charcoal	T111C	6	June 3 2011
	KKT	19	145	Charcoal	T111B	7	June 3 2011
	KKT	20	146	Charcoal	T111D	4	June 3 2011
	KKT	21	147	Charcoal	T111B	7	June 3 2011
	KKT	22	148	Charcoal	T111C	7	June 3 2011
	KKT	23	149	Charcoal	T111C	7	June 3 2011
	KKT	24	150	Charcoal	T111C	7	June 3 2011
	KKT	25	151	Charcoal	T111C	8	June 7 2011
	KKT	26	152	Charcoal	T111C	11	June 8 2011
	KKT	27	153	Charcoal	T111C	11	June 8 2011
	KKT	28	154	Charcoal	T111C	11	June 8 2011
	KKT	29	155	Charcoal with red sand	T111C	12	June 9 2011
	KKT	30	156	Charcoal	T111B	10	June 9 2011

KKT	31	157	Charcoal	T111C	12.5	June 10 2011
KKT	32	158	Charcoal	T111C	12.5	June 10 2011
KKT	33	159	Quartz flake	T111B	12	June 10 2011
KKT	34	160	Charcoal	T111E	3	June 10 2011
KKT	35	161	Slag	T111C	3	June 13 2011
KKT	36	162	Slag	T111C	13	June 13 2011
KKT	37	163	Charcoal	T111C	13	June 13 2011
KKT	38	164	Charcoal	T111C	14	June 13 2011
KKT	39	165	Charcoal	T111C	14	June 13 2011
KKT	40	166	Charcoal with red sand	T111C	14	June 13 2011
KKT	41	167	Charcoal	T111C	15	June 14 2011
KKT	42	168	Charcoal	T111C	15	June 14 2011
KKT	43	169	Charcoal	T111C	15	June 14 2011
KKT	44	170	Quartz flake	T111B	15	June 14 2011
KKT	45	171	4 Quartz debris	T111B	15	June 14 2011
KKT	46	172	Quartz flake	T111B	15	June 14 2011
KKT	47	173	Quartz flake	T111B	15	June 14 2011
KKT	48	174	Quartz flake	T111B	15	June 14 2011
KKT	49	175	Quartz flake	T111B	15	June 14 2011
KKT	50	176	Quartz flake	T111B	15	June 14 2011
KKT	51	177	Quartz flake	T111B	15	June 14 2011
KKT	52	178	Quartz flake	T111B	15	June 14 2011
KKT	53	179	Quartz flake	T111B	15	June 14 2011
KKT	54	180	Quartz flake	T111B	15	June 14 2011
KKT	55	181	Quartz flake	T111B	15	June 14 2011
KKT	57	182	Quartz flake	T111C	16	June 14 2011
KKT	58	183	Quartz debris	T111B	15	June 14 2011
KKT	59	184	Quartz debris	T111B	15	June 14 2011
KKT	60	185	Quartz debris	T111B	15	June 14 2011
KKT	61	186	Quartz debris	T111B	15	June 14 2011
KKT	62	187	Quartz debris	T111B	15	June 14 2011

KKT	63	188	Quartz debris	T111B	15	June 14 2011
KKT	64	189	Quartz debris	T111E	9	June 14 2011
KKT	65	190	Quartz flake	T111C	16	June 14 2011
KKT	66	191	Quartz debris	T111B	15	June 14 2011
KKT	67	192	Quartz debris	T111B	15	June 14 2011
KKT	68	193	Rock	T111C	16	June 14 2011
KKT	69	194	Charcoal	T111C	16	June 14 2011
KKT	70	195	Quartz flake	T111B	16	June 14 2011
KKT	71	196	Quartz flake	T111B	16	June 14 2011
KKT	72	197	Quartz debris	T111B	16	June 14 2011
KKT	73	198	Quartz debris	T111B	16	June 14 2011
KKT	74	199	Quartz debris	T111B	16	June 14 2011
KKT	75	200	Quartz debris	T111B	16	June 14 2011
KKT	76	201	Quartz debris	T111B	16	June 14 2011
KKT	77	202	Quartz debris	T111B	16	June 14 2011
KKT	78	203	Quartz debris	T111B	16	June 14 2011
KKT	79	204	Quartz debris	T111B	16	June 14 2011
KKT	80	205	Quartz debris	T111B	16	June 14 2011
KKT	81	206	Quartz debris	T111B	16	June 15 2011
KKT	82	207	Quartz debris	T111B	16	June 15 2011
KKT	83	208	Quartz debris	T111B	16	June 15 2011
KKT	84	209	Quartz debris	T111B	16	June 15 2011
KKT	85	210	Quartz debris	T111B	16	June 15 2011
KKT	86	211	Quartz debris	T111B	16	June 15 2011
KKT	87	212	Quartz debris	T111B	16	June 15 2011
KKT	88	213	Quartz debris	T111B	16	June 15 2011
KKT	89	214	Quartz debris	T111B	16	June 15 2011
KKT	90	215	Quartz debris	T111B	16	June 15 2011
KKT	91	216	Quartz debris	T111B	16	June 15 2011
KKT	92	217	Quartz debris	T111B	16	June 15 2011
KKT	93	218	Quartz debris	T111B	16	June 15 2011

KKT	94	219	Quartz debris	T111B	16	June 15 2011
KKT	95	220	Quartz debris	T111E	10	June 15 2011
KKT	96	221	Quartz debris	T111E	10	June 15 2011
KKT	97	222	Quartz debris	T111B	16	June 15 2011
KKT	98	223	Quartz debris	T111B	16	June 15 2011
KKT	99	224	Quartz debris	T111B	16	June 15 2011
KKT	100	225	Quartz debris	T111B	16	June 15 2011
KKT	101	226	Quartz debris	T111B	16	June 15 2011
KKT	102	227	Quartz debris	T111B	16	June 15 2011
KKT	103	228	Quartz debris	T111B	16	June 15 2011
KKT	104	229	Quartz debris	T111B	16	June 15 2011
KKT	105	230	Quartz debris	T111B	16	June 15 2011
KKT	106	231	Quartz debris	T111B	16	June 15 2011
KKT	107	232	Quartz debris	T111B	16	June 15 2011
KKT	108	233	Quartz debris	T111B	16	June 15 2011
KKT	109	234	Quartz debris	T111B	16	June 15 2011
KKT	110	235	Quartz debris	T111B	16	June 15 2011
KKT	111	236	Quartz debris	T111B	16	June 15 2011
KKT	112	237	Quartz flake	T111B	16	June 15 2011
KKT	113	238	Charcoal	T111C	17	June 15 2011
KKT	114	239	Quartz debris	T111B	16	June 15 2011
KKT	115	240	Quartz debris	T111B	16	June 15 2011
KKT	116	241	Quartz debris	T111B	16	June 15 2011
KKT	117	242	Quartz debris	T111B	16	June 15 2011
KKT	118	243	Quartz debris	T111B	16	June 15 2011
KKT	119	244	Quartz debris	T111B	16	June 15 2011
KKT	120	245	Quartz debris	T111B	16	June 15 2011
KKT	121	246	Quartz debris	T111B	16	June 15 2011
KKT	122	247	Screen bag	T111C	17	June 15 2011
KKT	123	248	Screen bag	T111B	16	June 15 2011
KKT	124	249	Quartz debris	T111E	11	June 15 2011

KKT	125	250	Screen bag	T111E	11	June 15 2011
KKT	126	251	Quartz debris	T111E	11	June 15 2011
KKT	127	252	Quartz debris	T111B	17	June 15 2011
KKT	128	253	Quartz debris	T111B	17	June 15 2011
KKT	129	254	Quartz debris	T111B	17	June 15 2011
KKT	130	255	Quartz debris	T111B	17	June 15 2011
KKT	131	256	Quartz debris	T111B	17	June 15 2011
KKT	132	257	Slag	T111B	17	June 15 2011
KKT	133	258	Quartz debris	T111B	17	June 16 2011
KKT	134	259	Quartz debris	T111B	17	June 16 2011
KKT	135	260	Quartz debris	T111B	17	June 16 2011
KKT	136	261	Quartz debris	T111C	18	June 16 2011
KKT	137	262	Quartz debris	T111B	17	June 16 2011
KKT	138	263	Quartz debris	T111C	18	June 16 2011
KKT	139	264	Quartz debris	T111B	17	June 16 2011
KKT	140	265	Screen bag	T1116	18	June 16 2011
KKT	141	266	Quartz debris	T111B	17	June 16 2011
KKT	142	267	Quartz debris	T111B	17	June 16 2011
KKT	147	268	Quartz debris	T111B	18	June 16 2011
KKT	143	269	Quartz debris	T111B	17	June 16 2011
KKT	144	270	Screen bag	T111E	12	June 16 2011
KKT	145	271	Quartz debris	T111B	18	June 16 2011
KKT	146	272	Quartz debris	T111B	18	June 16 2011
KKT	148	273	Quartz debris	T111B	18	June 16 2011
KKT	149	274	Charcoal	T111C	19	June 16 2011
KKT	150	275	Quartz debris	T111B	18	June 16 2011
KKT	151	276	Screen bag	T111B	18	June 16 2011
KKT	152	277	Screen bag	T111C	19	June 16 2011
KKT	153	278	Screen bag	T111E	12	June 16 2011
KKT	154	279	Quartz debris	T111B	18	June 16 2011
KKT	155	280	Quartz debris	T111B	18	June 16 2011

KKT	156	281	Charcoal	T111C	19	June 16 2011
KKT	157	282	Screen bag	T111B	19	June 16 2011
KKT	158	283	Slag	T111C	20	June 16 2011
KKT	159	284	Screen bag	T111C	20	June 16 2011
KKT	160	285	Charcoal	T111C	21	June 17 2011
KKT	161	286	Charcoal	T111C	21	June 17 2011
KKT	162	287	Quartz	T111E	14	June 17 2011
KKT	163	288	Charcoal	T111C	25	June 17 2011
KKT	164	289	Charcoal	T111C	25	June 17 2011
KKT	165	290	Quartz	T111C	25/26	June 17 2011
KKT	166	291	Charcoal	T111C	25/26	June 17 2011

10.2 T211 Artifacts	Site	Find #	KM 38815	Description	Unit	Level	Date
	KKNE	167.00	292.00	Bone Chip	T211A	1	15-Jun-11
	KKNE	168.00	293.00	Bone Chip	T211A	1	13-Jun-11
	KKNE	169.00	294.00	Quartz Flake	T211A	1	13-Jun-11
	KKNE	199.00	295.00	Charcoal	T211A	1	13-Jun-11
	KKNE	170.00	296.00	Bone Chip	T211A	2	13-Jun-11
	KKNE	173.00	297.00	Quartz Flake	T211A	2	13-Jun-11
	KKNE	171.00	298.00	Quartz Flake	T211A	1	13-Jun-11
	KKNE	172.00	299.00	Screen Bag	T211A	1	15-Jun-11
	KKNE	197.00	300.00	Charcoal	T211A	2	15-Jun-11
	KKNE	174.00	301.00	Bone	T211A	2	15-Jun-11
	KKNE	181.00	302.00	Bone	T211A	3	15-Jun-11
	KKNE	182.00	303.00	Quartz Flake	T211A	3	15-Jun-11
	KKNE	195.00	304.00	Charcoal	T211B	1	15-Jun-11
	KKNE	198.00	305.00	Charcoal	T211A	4	16-Jun-11
	KKNE	183.00	306.00	Quartz Flake	T211B	2	16-Jun-11
	KKNE	184.00	307.00	Polished Stone (?)	T211B	2	16-Jun-11
	KKNE	196.00	308.00	Charcoal	T211B	4	16-Jun-11