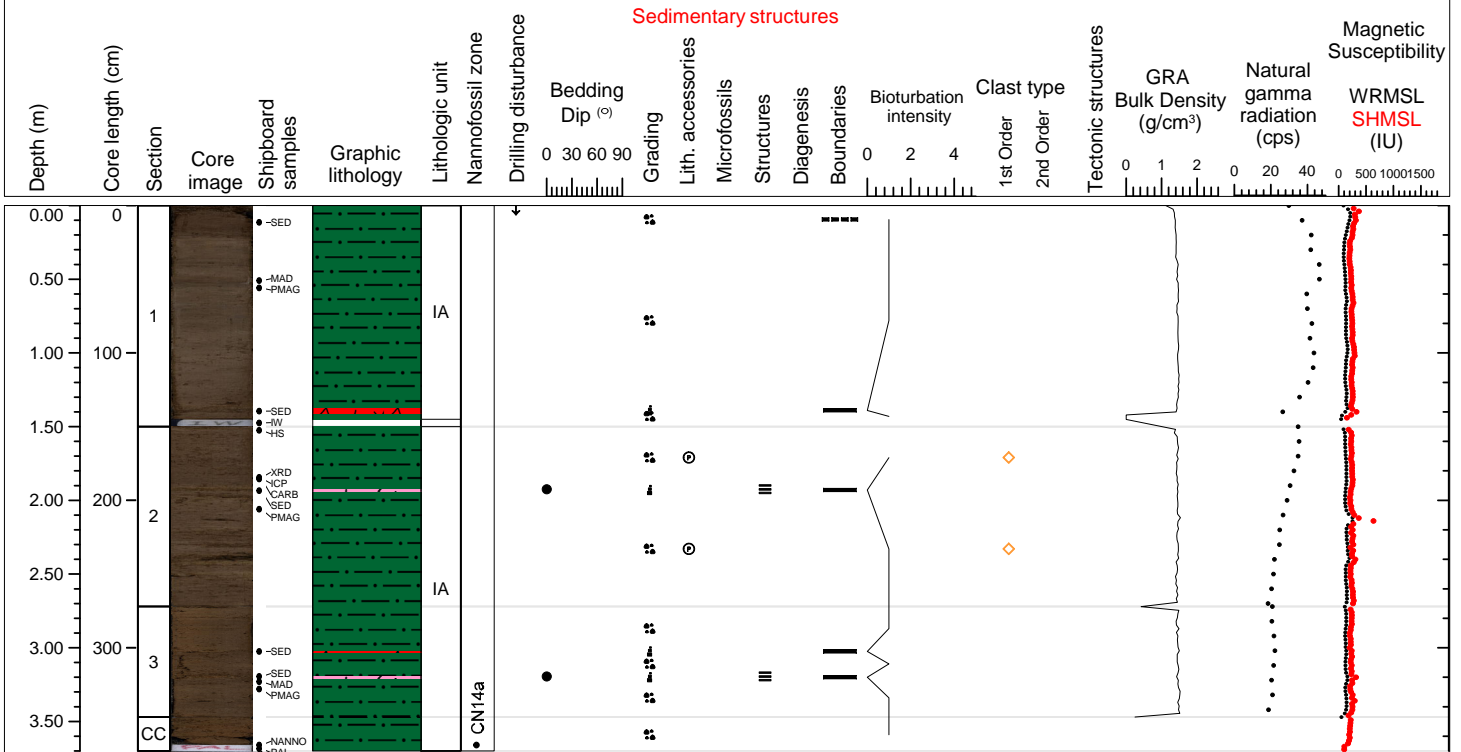


Hole 352 - U1440A Core 1H, Interval 0-3.7 m (CSF-A)

Core is mostly weakly bioturbated brownish mud with occasional thin graded tephra interbeds. Two isolated pumice clasts in Section 2. Top of Section 1 is distinctly darker brown and more soupy, reflecting proximity to the mudline.

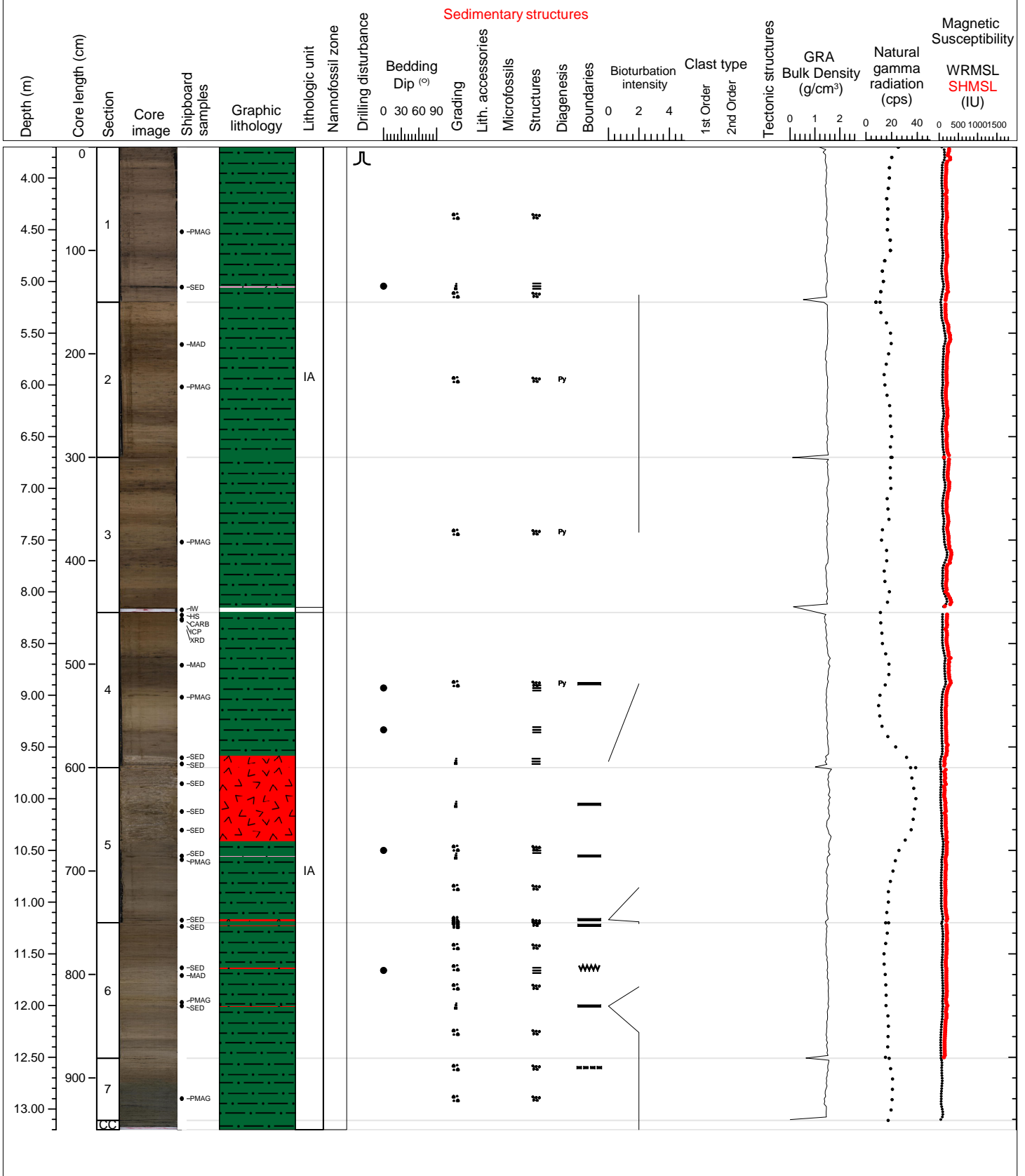
Depth Drilled (DSF), 3.7 ; Bottom Depth Recovered, Curated Depth (CSF-A), 3.71, Recovery: 100%



Hole 352 - U1440A Core 2H, Interval 3.7-13.2 m (CSF-A)

Core is mostly weakly bioturbated brownish mud with occasional thin graded tephra (three), tuffaceous sand (two) interbeds as well as one thick felsic, pinkish beige ash layer between Section 4 and 5.

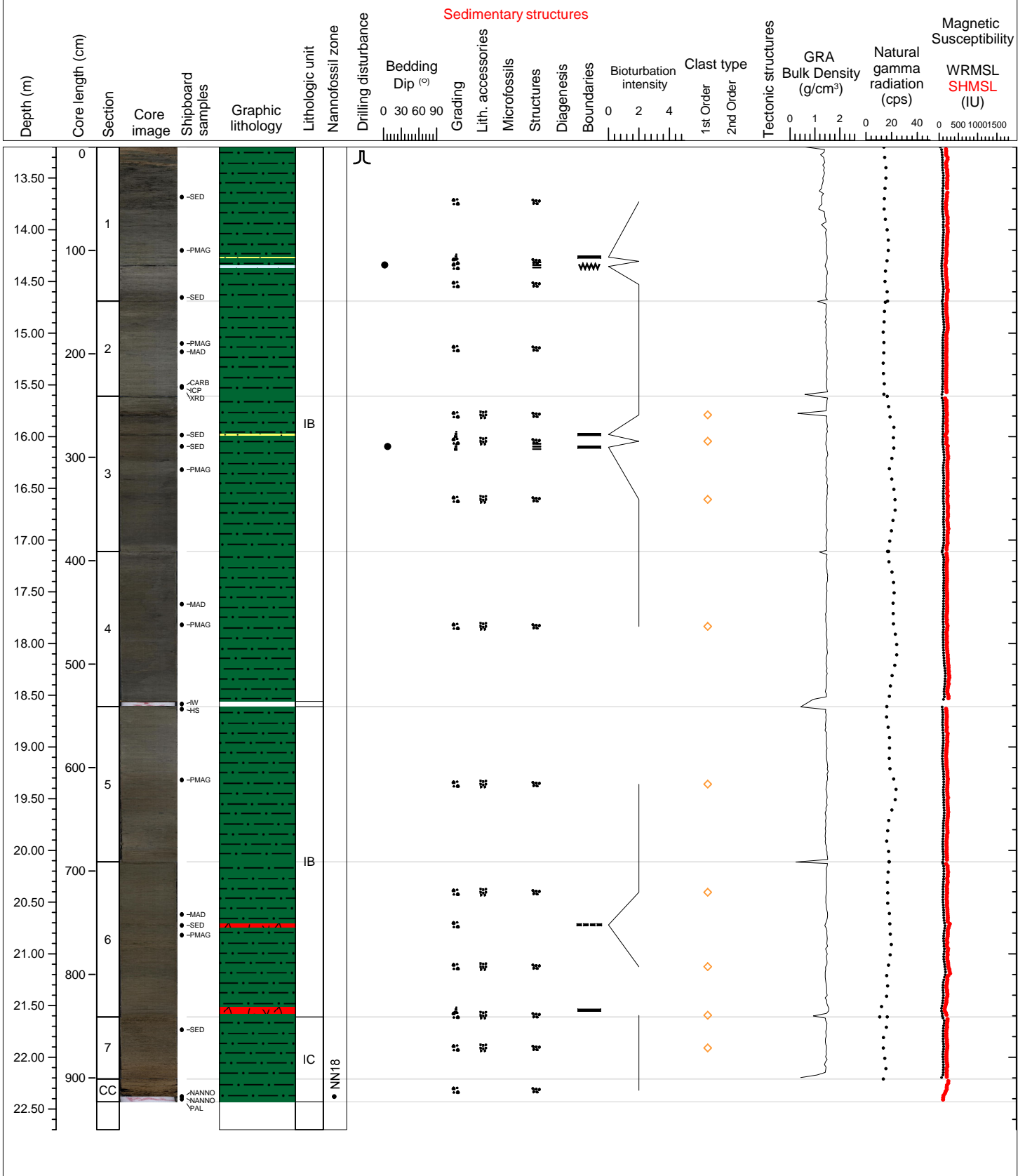
Depth Drilled (DSF), 13.2 : Bottom Depth Recovered, Curated Depth (CSF-A), 13.33, Recovery: 101%



Hole 352 - U1440A Core 3H, Interval 13.2-22.7 m (CSF-A)

Foraminifer bearing mud with foraminifers. Smear slides indicate a predominant terrigenous component including volcanic minerals and pyroclasts. Two ash/lapilli layers occur in Section 6.

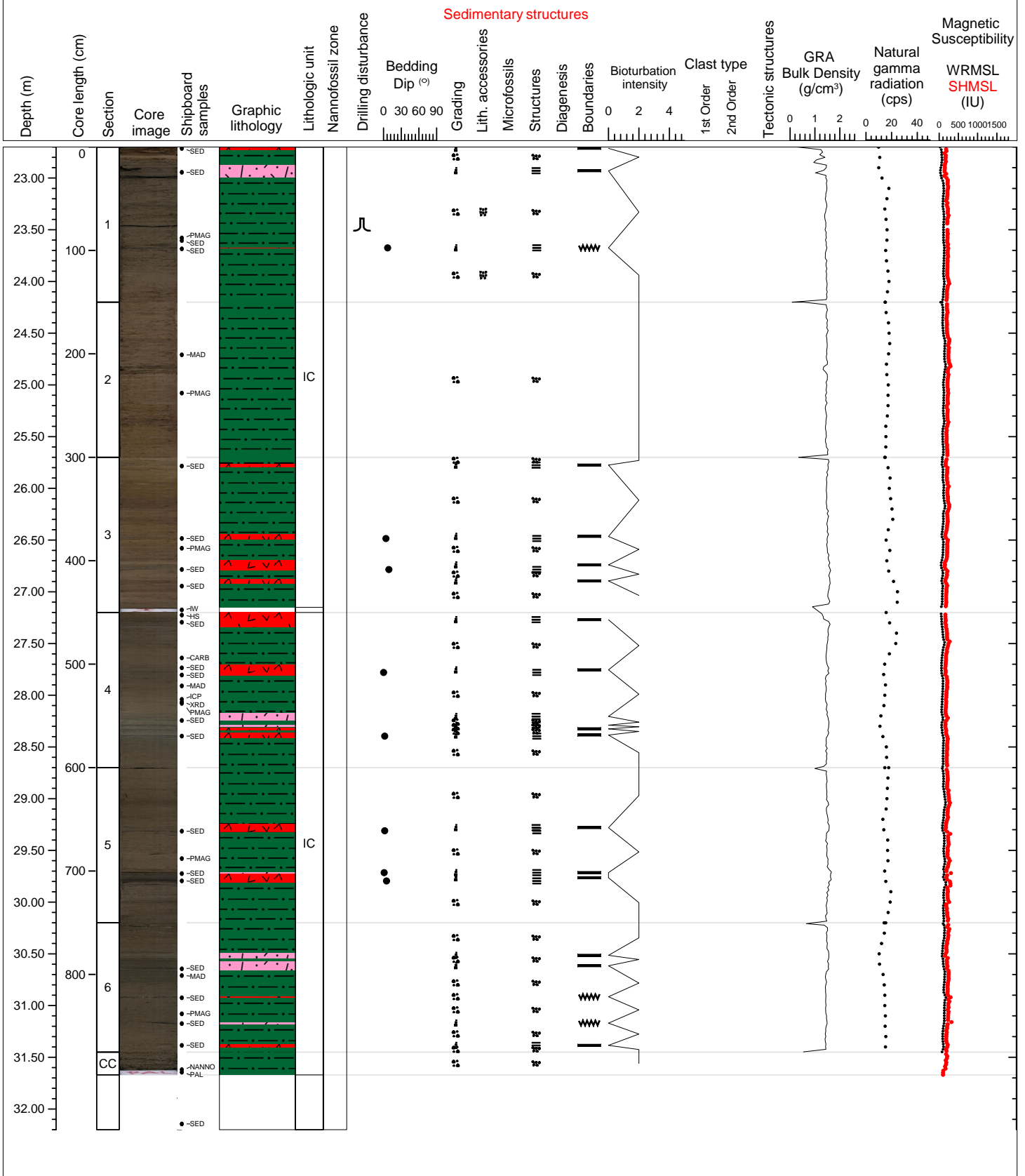
Depth Drilled (DSF), 22.7 : Bottom Depth Recovered, Curated Depth (CSF-A), 22.43, Recovery: 97%



Hole 352 - U1440A Core 4H, Interval 22.7-32.2 m (CSF-A)

Dark greenish grey to greenish brown silty mud predominantly containing volcanoclastic matter and less calcareous nannofossils. Additionally, abundant ash layer, lapilli ash layer and tuffaceous sandstones (19 in total) are intercalated in finer background sedimentation.

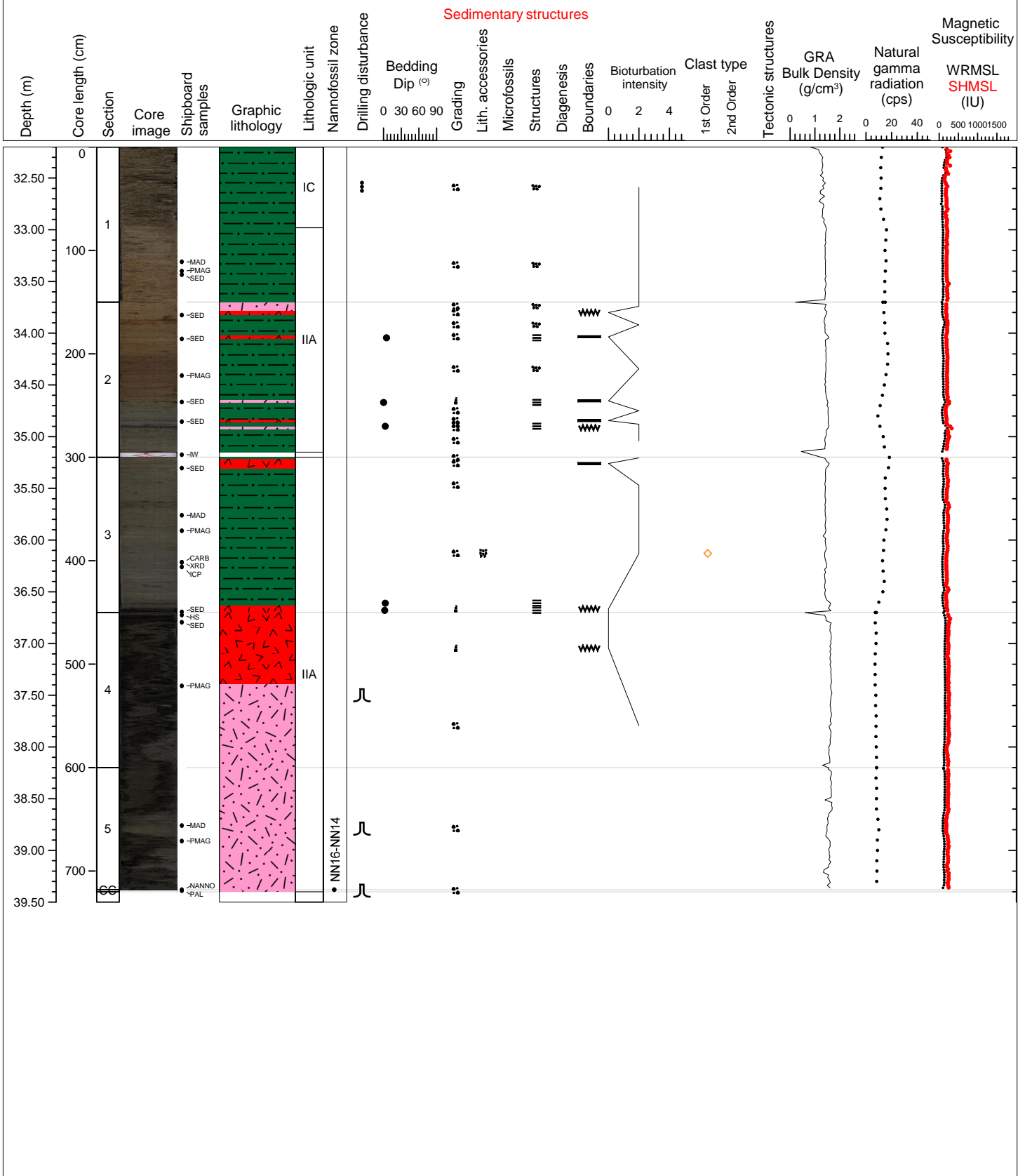
Depth Drilled (DSF), 32.2 : Bottom Depth Recovered, Curated Depth (CSF-A), 31.67, Recovery: 94%



Hole 352 - U1440A Core 5H, Interval 32.2-39.5 m (CSF-A)

Strongly disturbed core with basically the same volcanoclastic-rich silty mud background sedimentation with 7 intercalated tephra and tuffaceous sand layers. From the base of Section 3 the entire core is disturbed by flow in leading to a mixture of tephra and background sedimentation.

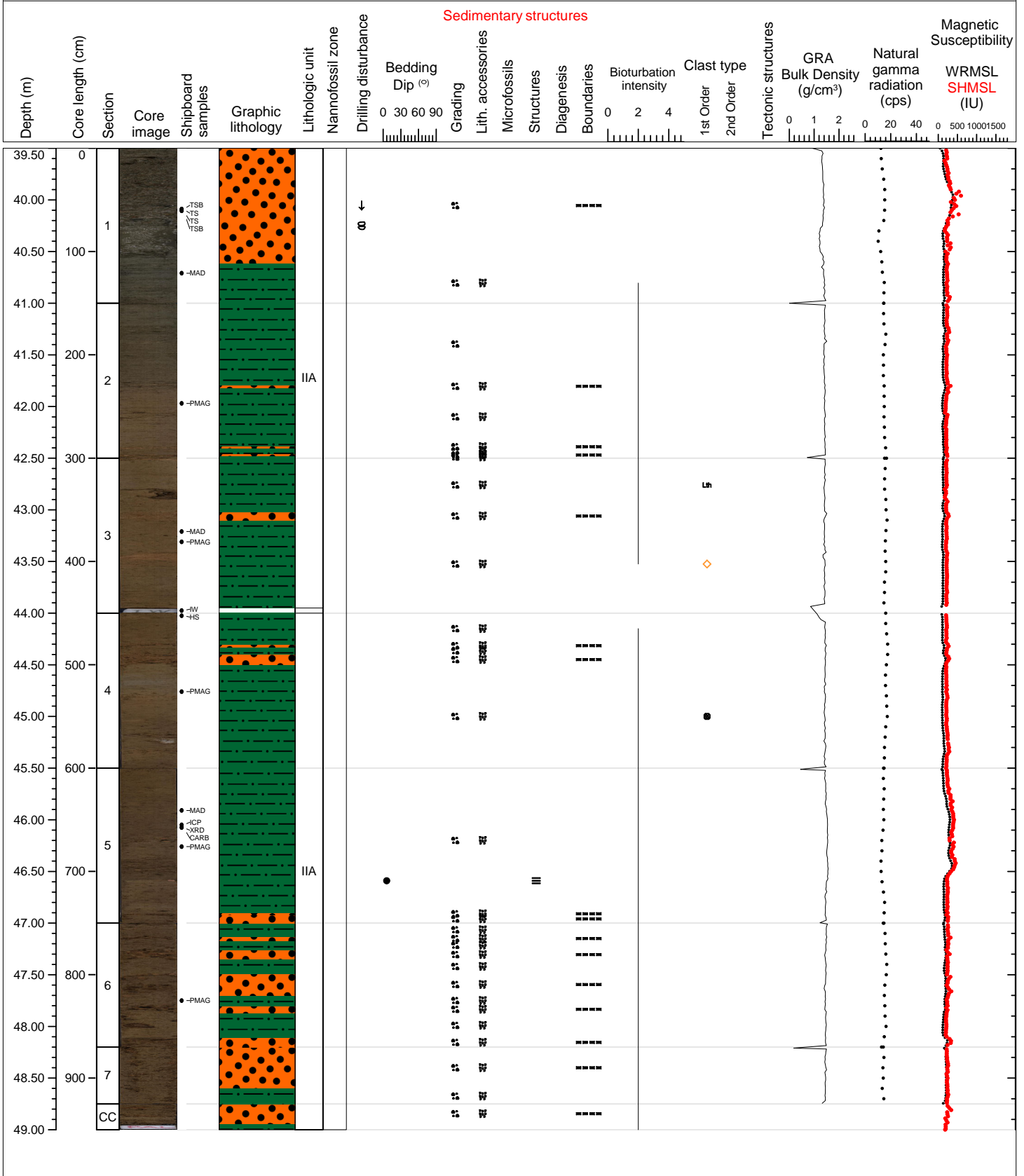
Depth Drilled (DSF), 39.5 : Bottom Depth Recovered, Curated Depth (CSF-A), 39.4, Recovery: 99%



Hole 352 - U1440A Core 6H, Interval 39.5-49 m (CSF-A)

Below flow-in pumiceous debris in Section 1, the core is characterized by alternations of more or less clast-rich layers within bioturbated silty mud. The clastic-rich layers are up to several tens of centimeters thick and matrix supported. An isolated angular basalt clast (2.5 cm in size) is located in Section 3. An unusually large (3 cm in size) pumice clast is present in Section 4. The clastic debris includes pink, non-calcareous soft siltstone, highly altered basalt-derived debris and likely some reworked manganese-rich oxide-rich sediment.

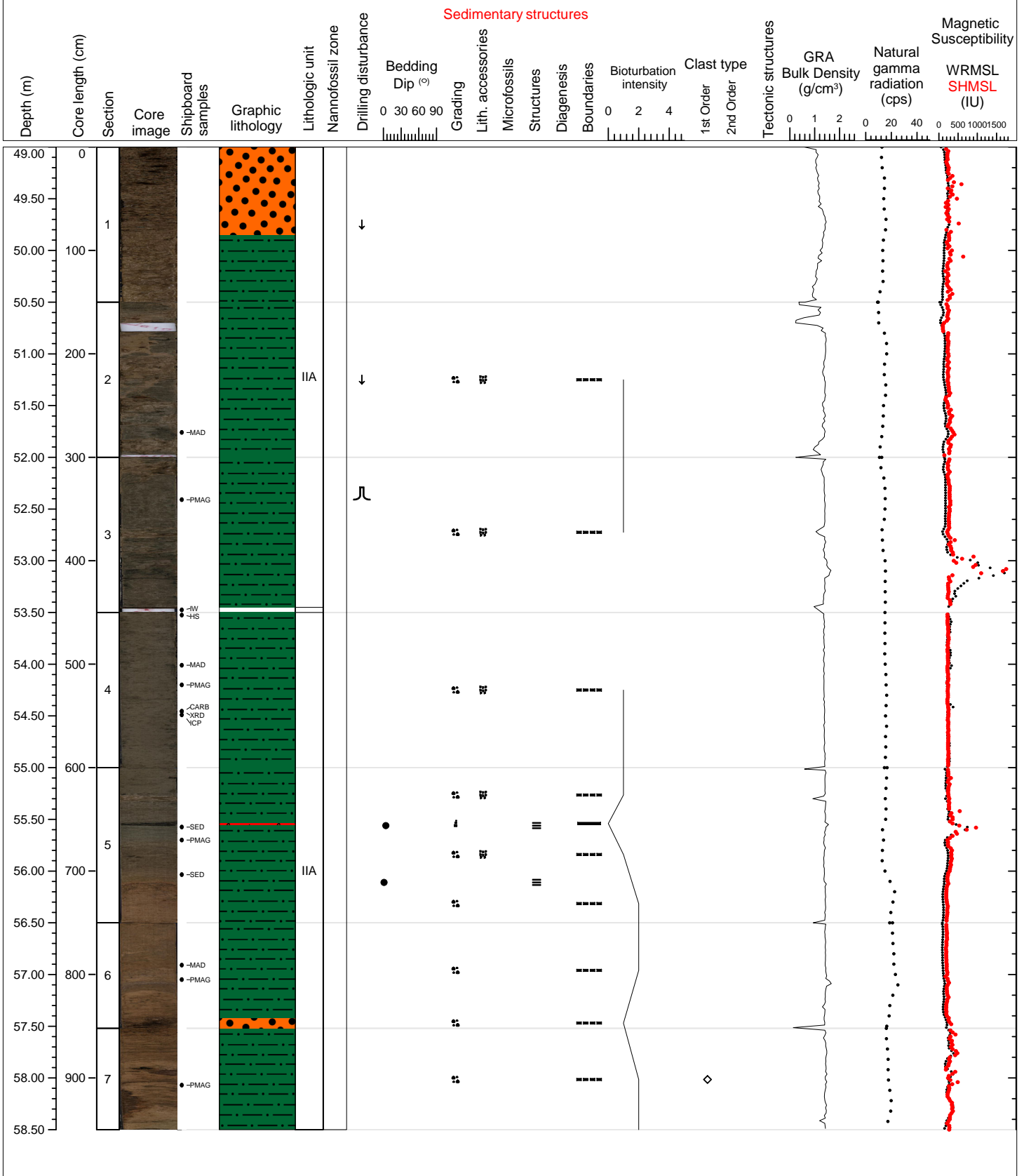
Depth Drilled (DSF), 49 : Bottom Depth Recovered, Curated Depth (CSF-A), 49.12, Recovery: 101%



Hole 352 - U1440A Core 7H, Interval 49-58.5 m (CSF-A)

Sections 1 & 2 are mostly flow-in material. The upper part of Section 1 is mostly dropped-in pumice clasts, which are mostly sub-rounded and up to 2 cm in size. Sections 3-5 are mostly silty mud with scattered lithic clasts (< 1 cm in size). There is a thin, dark colored tephra layer in Section 5. There is then a sharp change to more homogeneous pinkish silty mud (non calcareous) in the lower part of Section 5. Section 6 contains a sub-angular clast of altered basalt, plus several other angular smaller basaltic clasts.

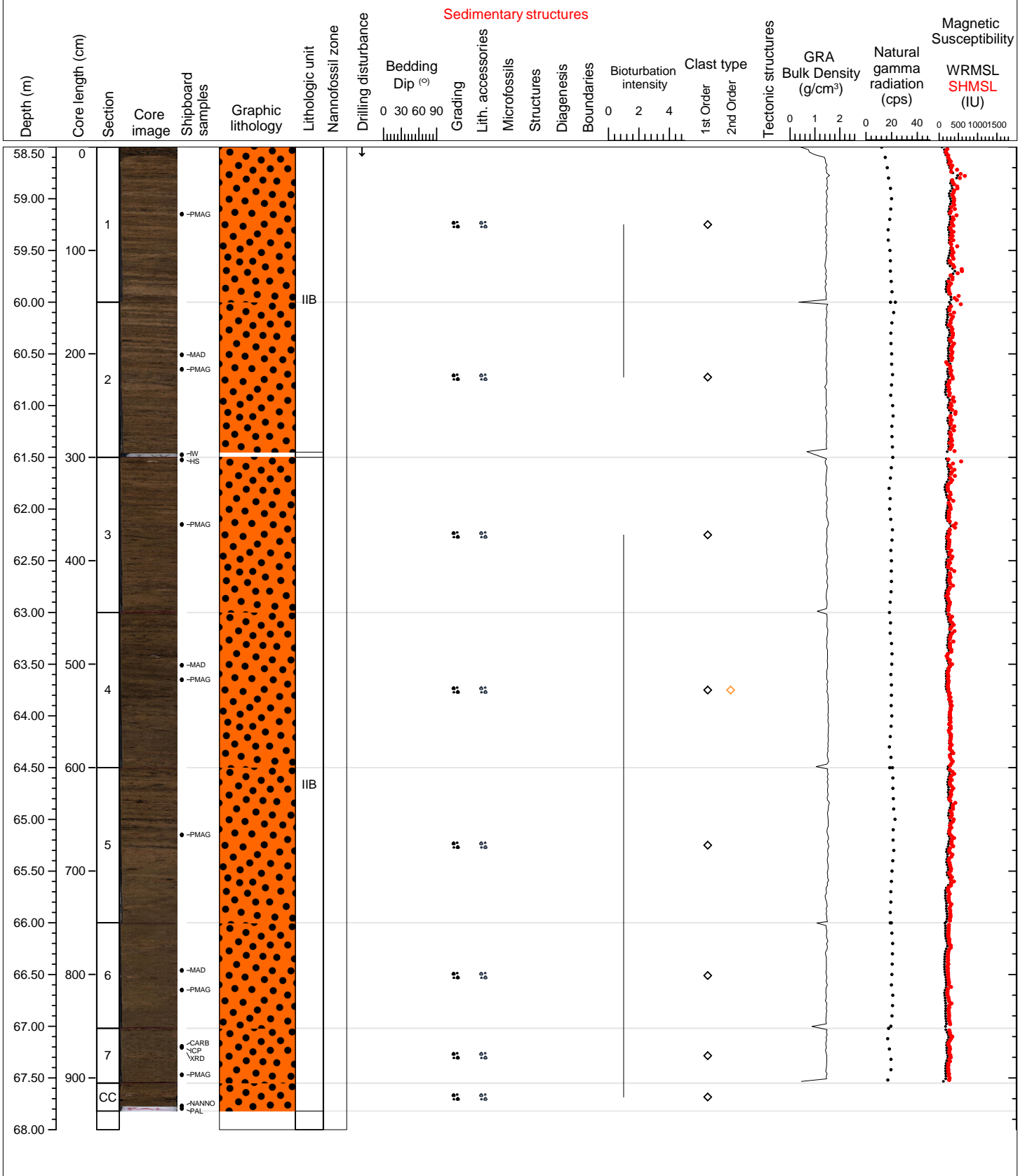
Depth Drilled (DSF), 58.5 : Bottom Depth Recovered, Curated Depth (CSF-A), 58.72, Recovery: 102%



Hole 352 - U1440A Core 8H, Interval 58.5-68 m (CSF-A)

Apart from fallen-in material at the top of Section 1, the entire core is made up of pale brownish, silty non-calcareous mud with scattered clasts that range from pumice to altered basalt. In detail, there is an indistinct layering of more or less clast-rich intervals, typically on a centimeter to decimeter scale. The layering is inclined throughout Section 1-5.

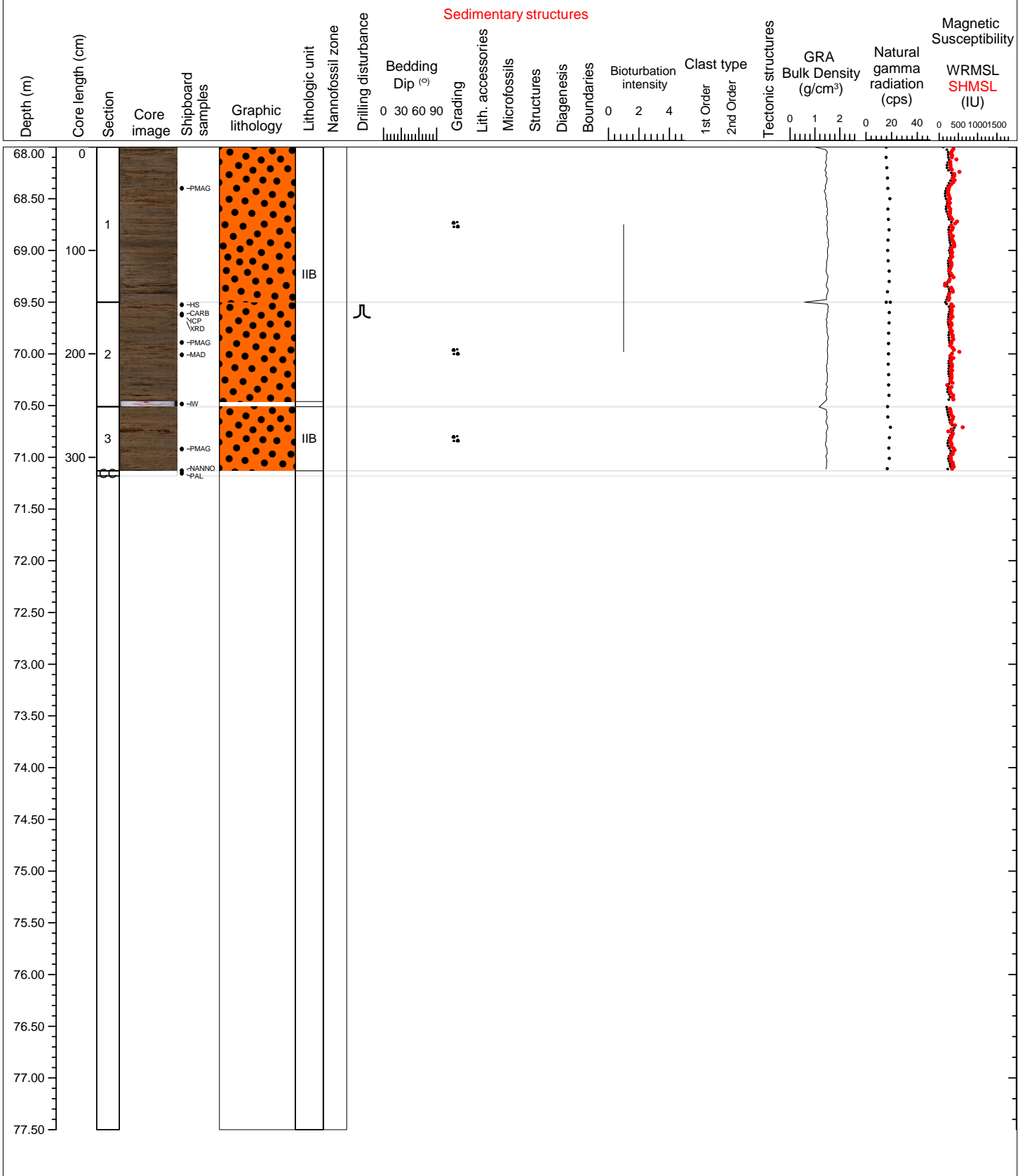
Depth Drilled (DSF), 68 : Bottom Depth Recovered, Curated Depth (CSF-A), 67.82, Recovery: 98%



Hole 352 - U1440A Core 9H, Interval 68-77.5 m (CSF-A)

The limited recovery is entirely matrix-supported breccia-conglomerate with the dominant clast size being granule to pebble. A vague sub-horizontal color banding is visible, together with rare dark manganese oxide segregations. Occasional larger centimeter-sized sub-angular pumice clasts are present at the intervals specified.

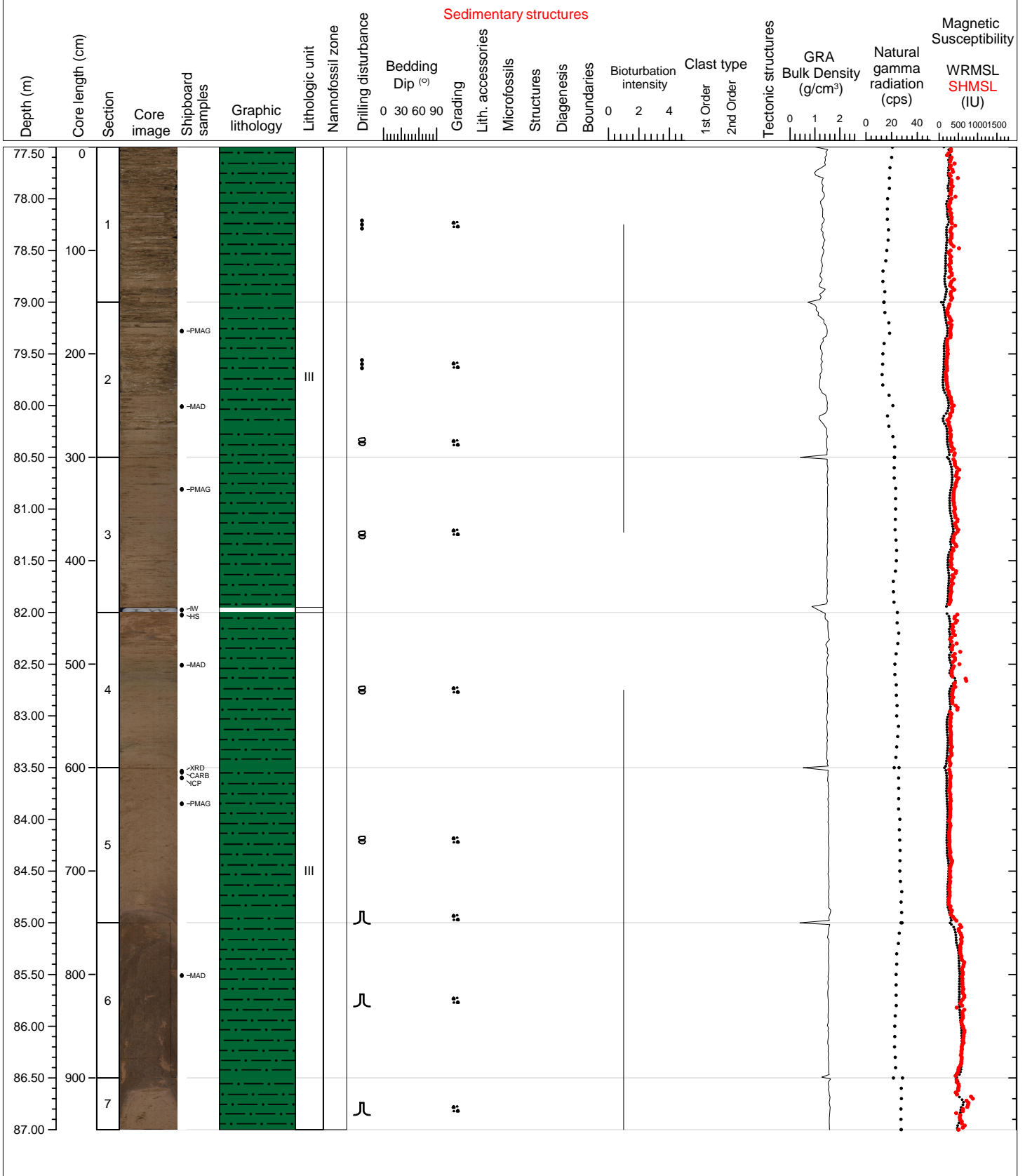
Depth Drilled (DSF), 77.5 : Bottom Depth Recovered, Curated Depth (CSF-A), 71.18, Recovery: 33%



Hole 352 - U1440A Core 10H, Interval 77.5-87 m (CSF-A)

Most of the cores is made up of mud-supported granule-grade conglomerate in which the clasts are of volcanic origin, either pumice or highly altered basaltic material. In different parts of the core the clasts range from millimeters to several centimeters in size. Overall there are some centimeter to decimeter-thick layers intercalated where the texture remains similar but the color of the matrix changes to pinkish.

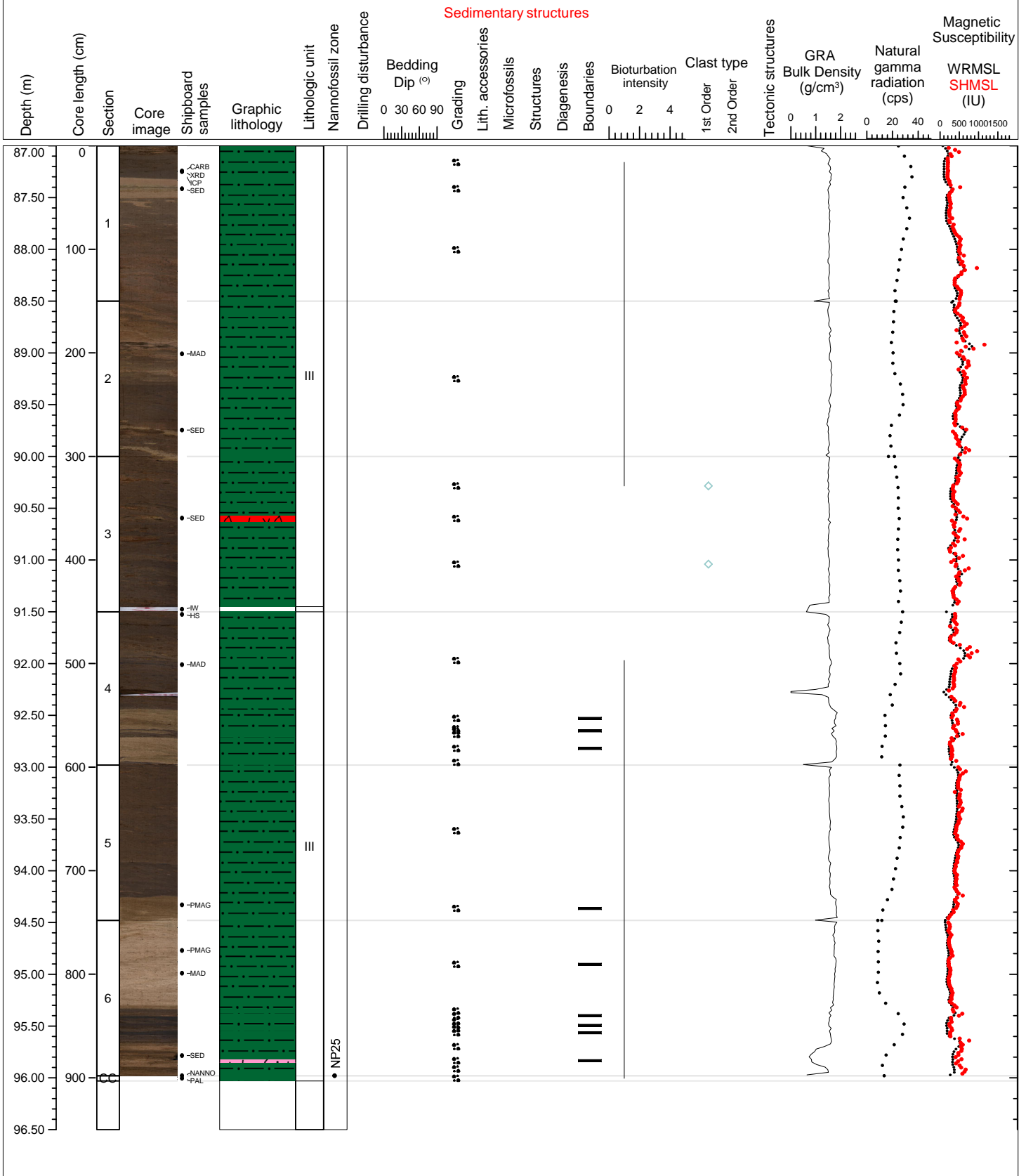
Depth Drilled (DSF), 87 : Bottom Depth Recovered, Curated Depth (CSF-A), 87.26, Recovery: 103%



Hole 352 - U1440A Core 11H, Interval 87-96.5 m (CSF-A)

Most of the cores is made up of mud-supported granule-grade conglomerate in which the clasts are of volcanic origin, either pumice or highly altered basaltic material. In different parts of the core the clasts range from millimeters to several centimeters in size. In the lower part of the core the texture remains similar but the color of the matrix changes to pinkish. The lower part of the cores also contains several centimeter-thick thin beds of homogeneous, non-calcareous, dark brown mud. Finally, there are several variably distorted thin layers of silty volcaniclastic sand in Sections 1 and 6.

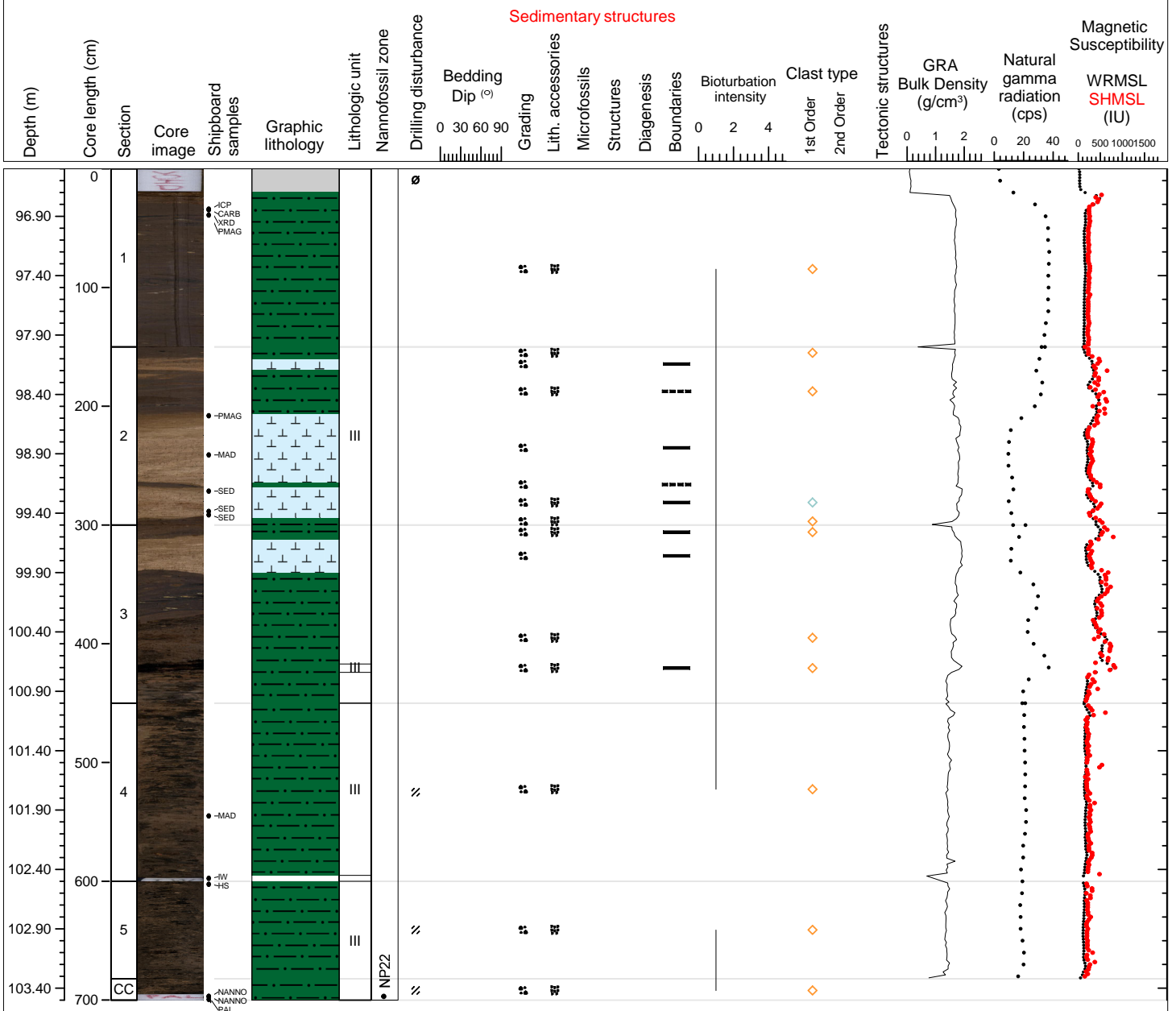
Depth Drilled (DSF), 96.5 : Bottom Depth Recovered, Curated Depth (CSF-A), 96.03, Recovery: 95%

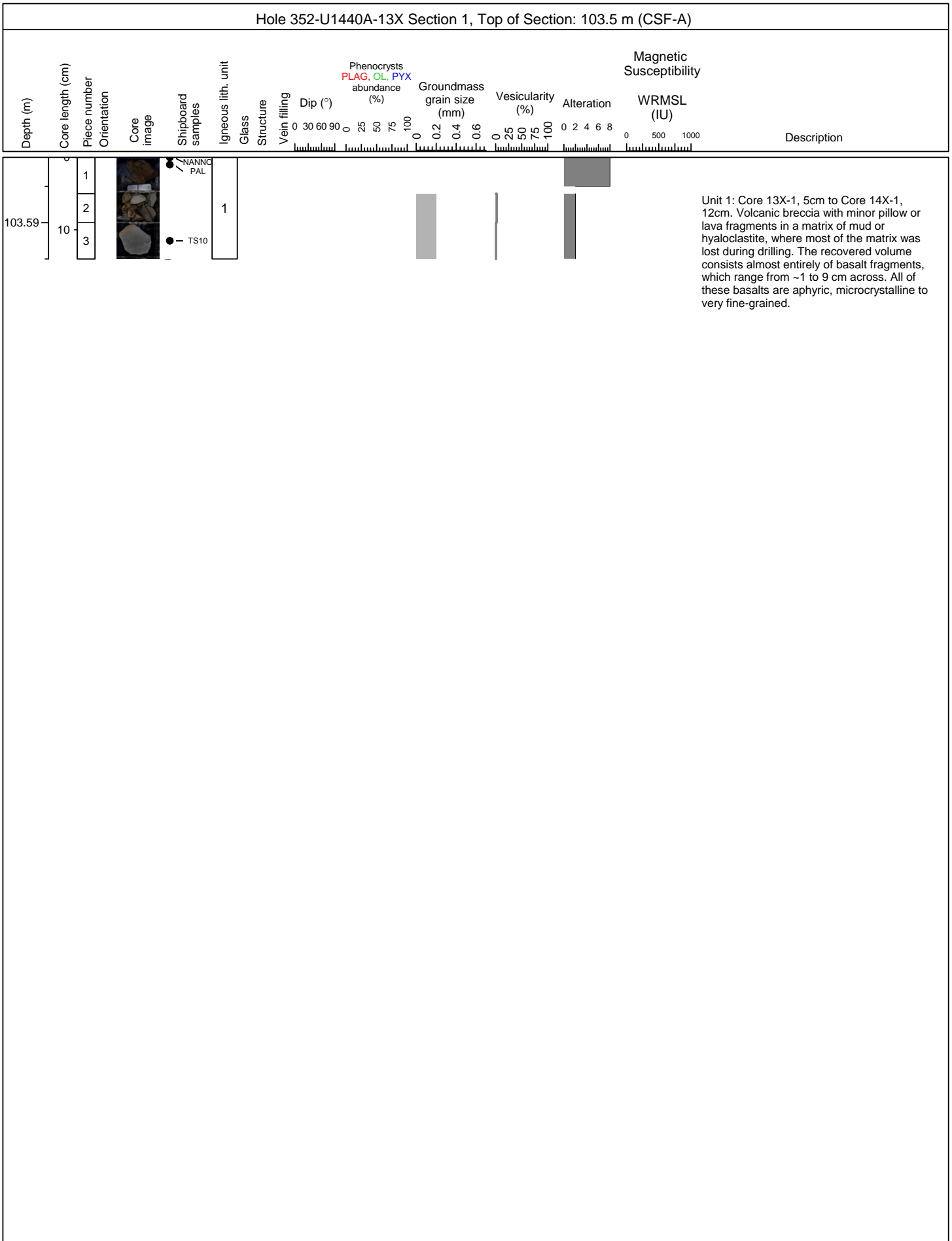



Hole 352 - U1440A Core 12H, Interval 96.5-103.5 m (CSF-A)

The core is dominated by volcanic clast-bearing silty, non-calcareous mud with scattered clasts of altered pumice. The ratio of mud to clasts increases from c. <10% in Sections 1 and 2, to >25% in Sections 3-6. There is a conspicuous dark layer that appears to be enriched in manganese oxide in Section 3. The dominant muddy, clast-bearing facies is interrupted by two layers of silty nannofossil ooze in Sections 2 and 3.

Depth Drilled (DSF), 103.5 : Bottom Depth Recovered, Curated Depth (CSF-A), 103.52, Recovery: 100%



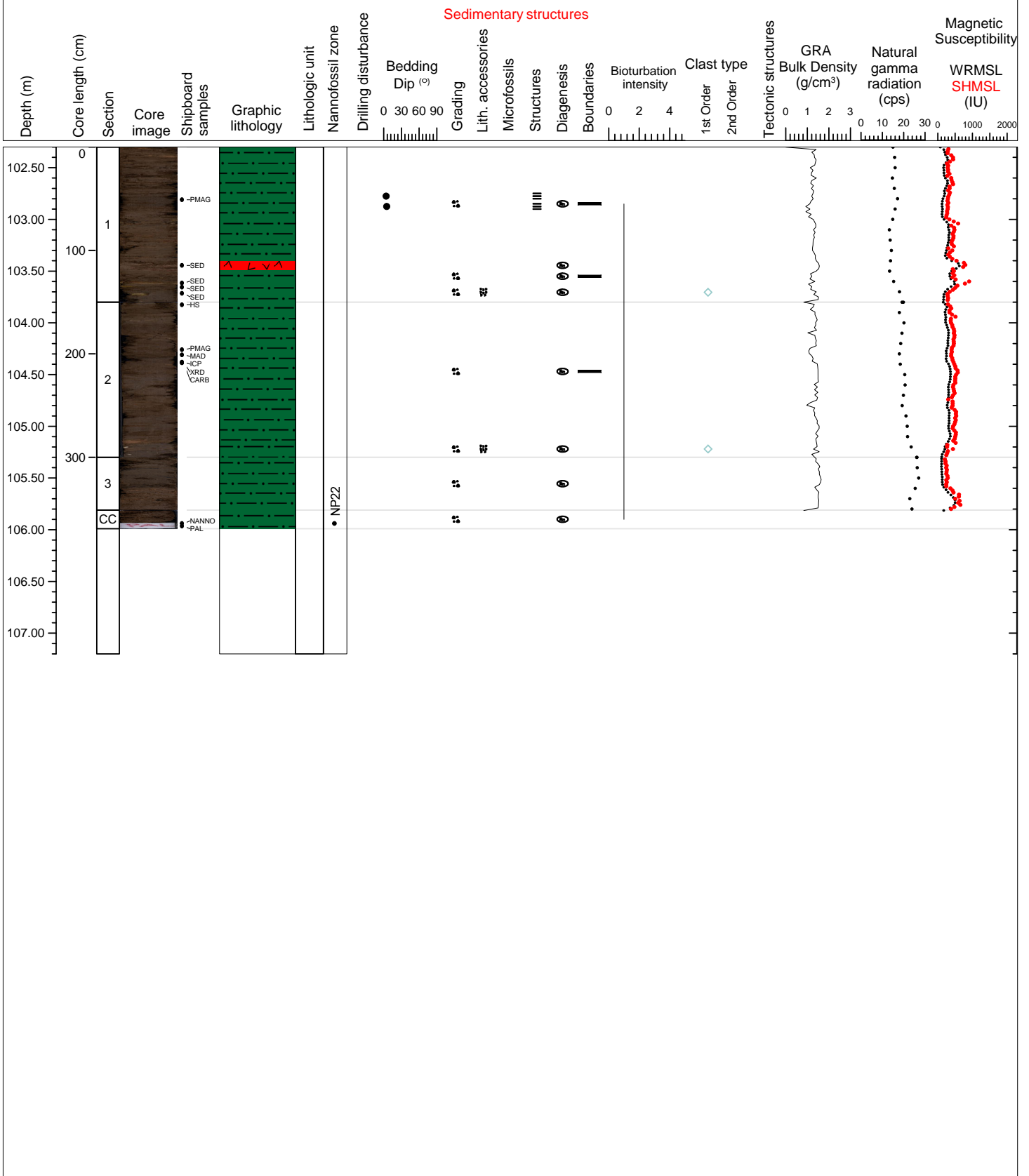


Hole 352-U1440A-14X Section 1, Top of Section: 104.6 m (CSF-A)																
Depth (m)	Core length (cm)	Piece number	Orientation	Core image	Shipboard samples	Igneous lith. unit	Glass	Structure	Vein filling	Dip (°)	Phenocrysts	Groundmass	Vesicularity	Alteration	Magnetic Susceptibility	Description
											abundance					
											PLAG, OL, PYX	grain size (mm)	(%)			
104.69	10	1			ICP TS14a TS14b	1										Unit 1: Core 13X-1, 5cm to Core 14X-1, 12cm. Volcanic breccia with minor pillow or lava fragments in a matrix of mud or hyaloclastite, where most of the matrix was lost during drilling. The recovered volume consists almost entirely of basalt fragments, which range from ~1 to 9 cm across. All of these basalts are aphyric, microcrystalline to very fine-grained.

Hole 352 - U1440B Core 2R, Interval 102.3-107.2 m (CSF-A)

Brown mud with disseminated lenses of manganese and scattered, altered, pumice lapilli clasts. A layer of lapilli ash occurs between 111 and 119 cm in Section 1.

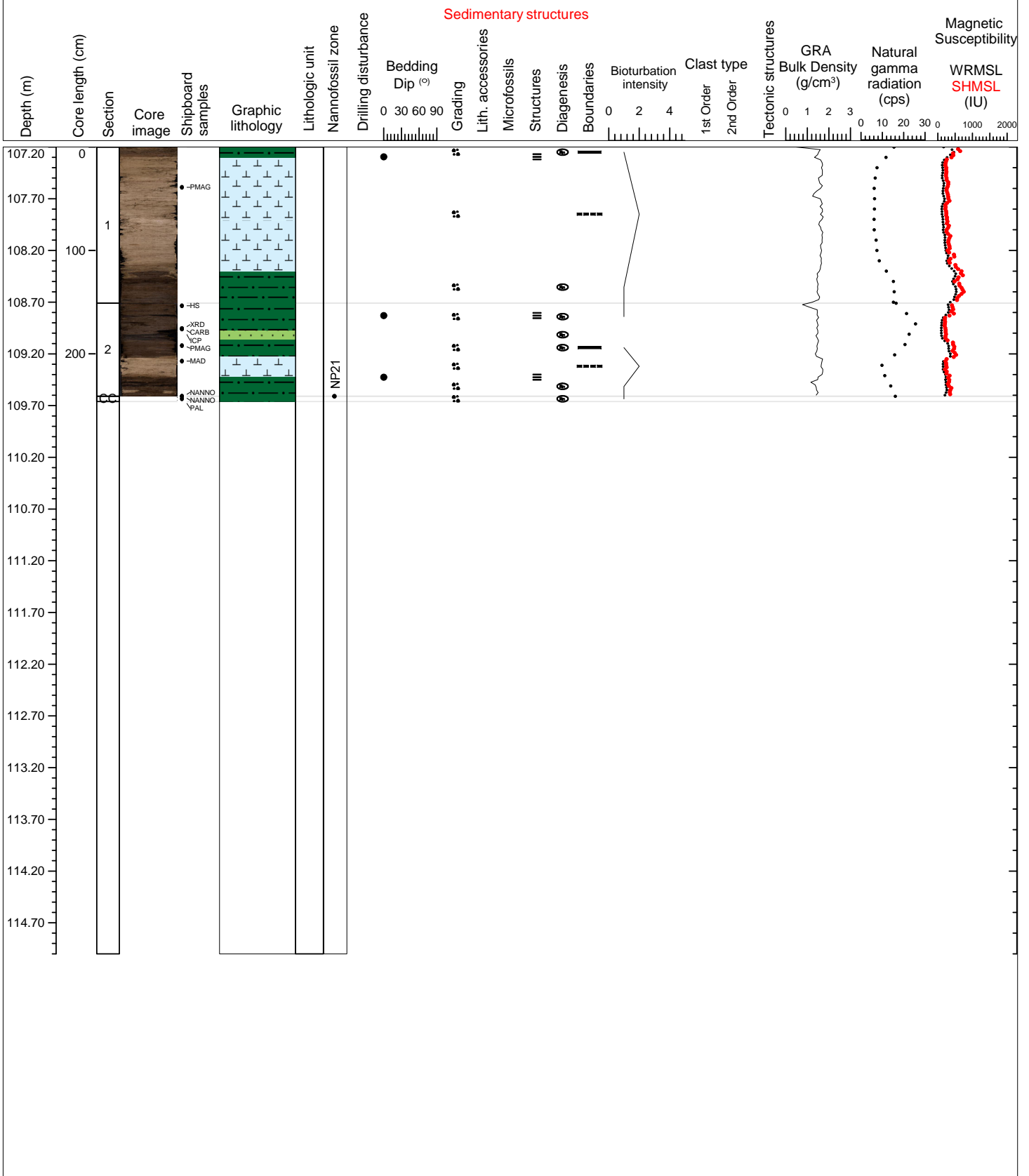
Depth Drilled (DSF), 107.2 : Bottom Depth Recovered, Curated Depth (CSF-A), 105.99, Recovery: 75%

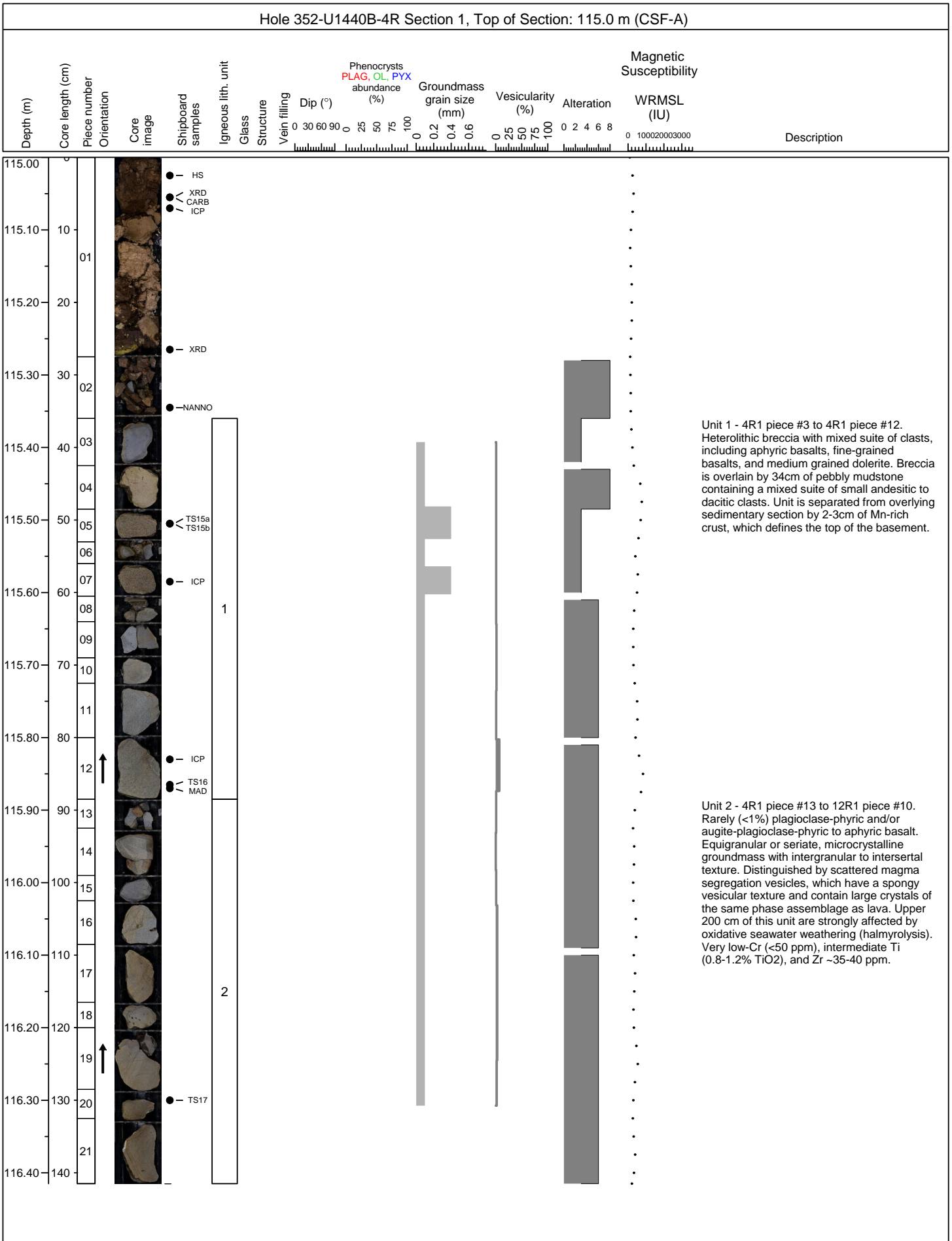








Hole 352 - U1440B Core 3R, Interval 107.2-115 m (CSF-A)

Brown mud with disseminated lenses and layers of manganese and scattered, altered, pumice lapilli clasts alternating with beige, silty, nannofossil ooze.

Depth Drilled (DSF), 115 : Bottom Depth Recovered, Curated Depth (CSF-A), 109.66, Recovery: 32%



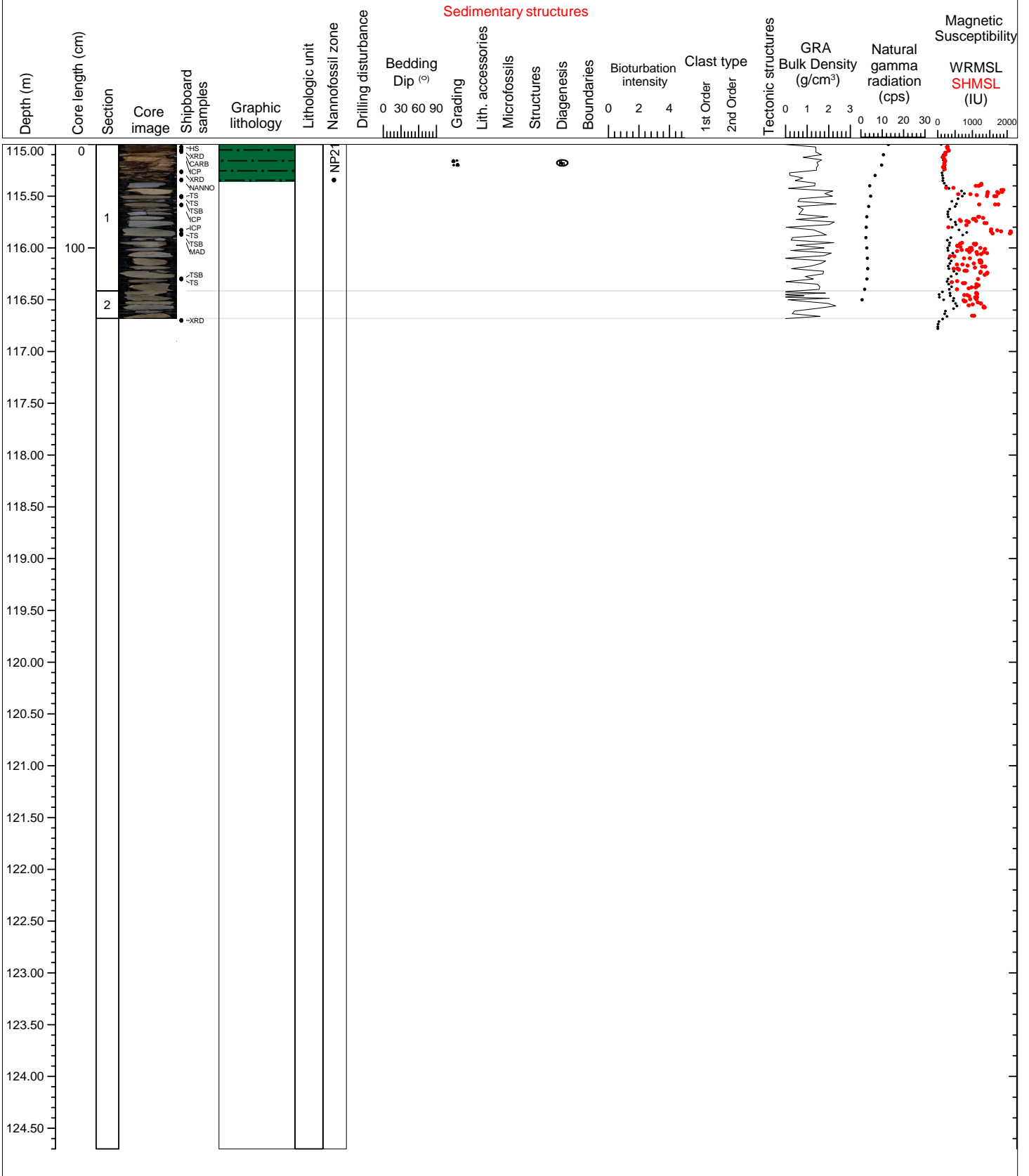


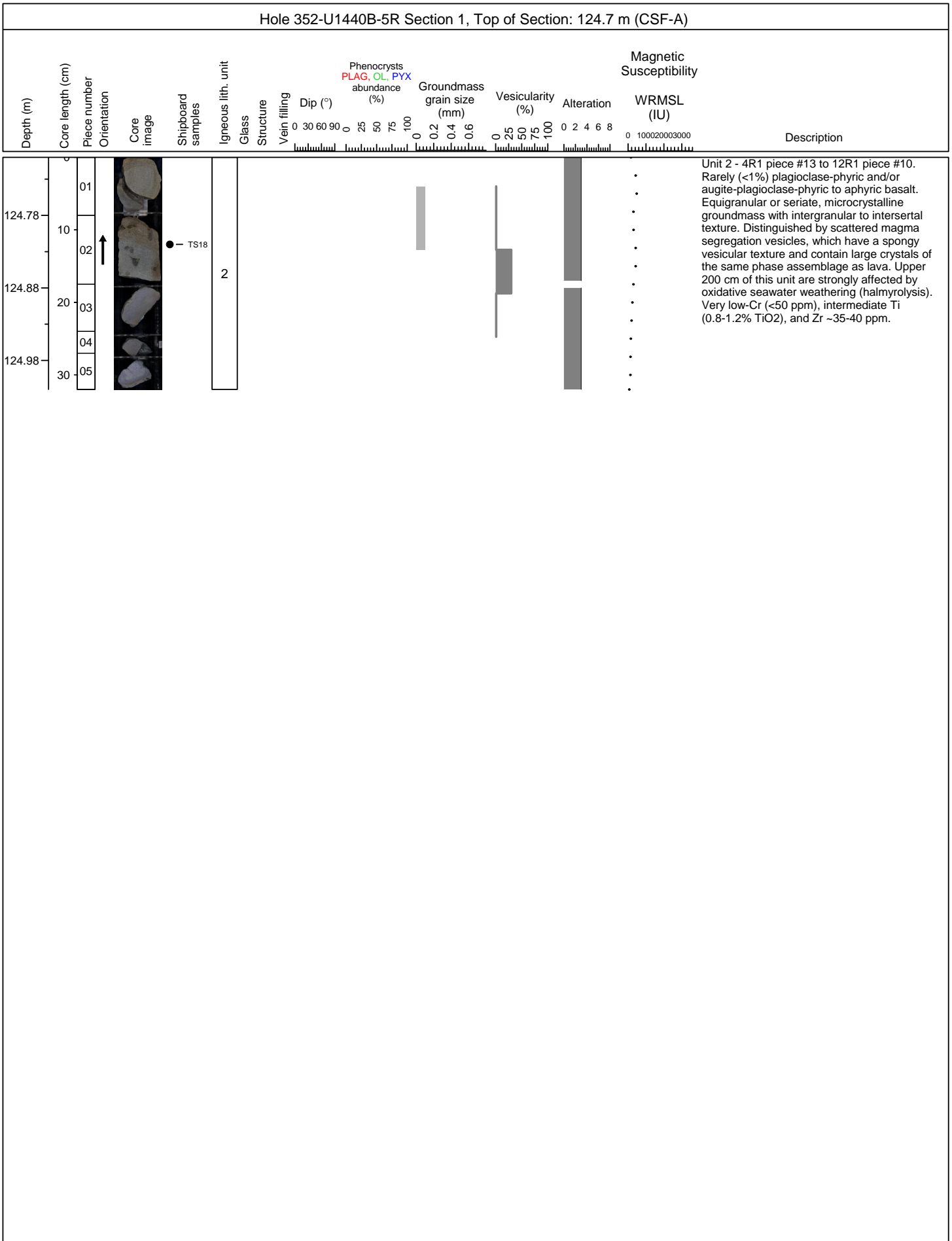
Hole 352-U1440B-4R Section 2, Top of Section: 116.415 m (CSF-A)																
Depth (m)	Core length (cm)	Piece number	Orientation	Core image	Shipboard samples	Igneous lith. unit	Glass	Structure	Vein filling	Dip (°)	Phenocrysts abundance (%) PLAG, OL, PYX	Groundmass grain size (mm)	Vesicularity (%)	Alteration	Magnetic Susceptibility WRMSL (IU)	Description
116.50	10	01				2										Unit 2 - 4R1 piece #13 to 12R1 piece #10. Rarely (<1%) plagioclase-phyric and/or augite-plagioclase-phyric to aphyric basalt. Equigranular or seriate, microcrystalline groundmass with intergranular to intersertal texture. Distinguished by scattered magma segregation vesicles, which have a spongy vesicular texture and contain large crystals of the same phase assemblage as lava. Upper 200 cm of this unit are strongly affected by oxidative seawater weathering (halmyrolysis). Very low-Cr (<50 ppm), intermediate Ti (0.8-1.2% TiO2), and Zr ~35-40 ppm.
		02														
		03														
		04														
116.60	20	05														
		06														

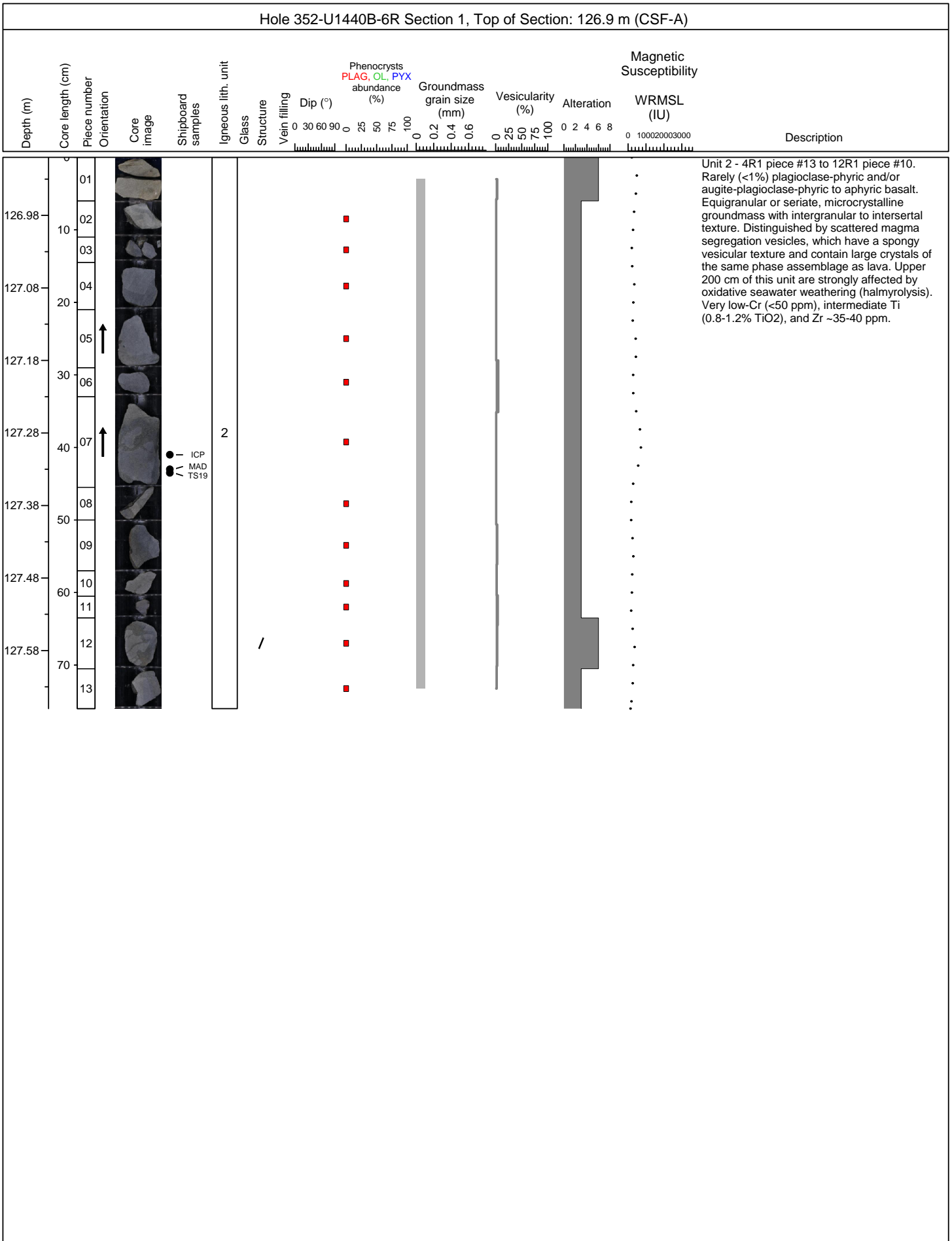
Hole 352 - U1440B Core 4R, Interval 115-124.7 m (CSF-A)

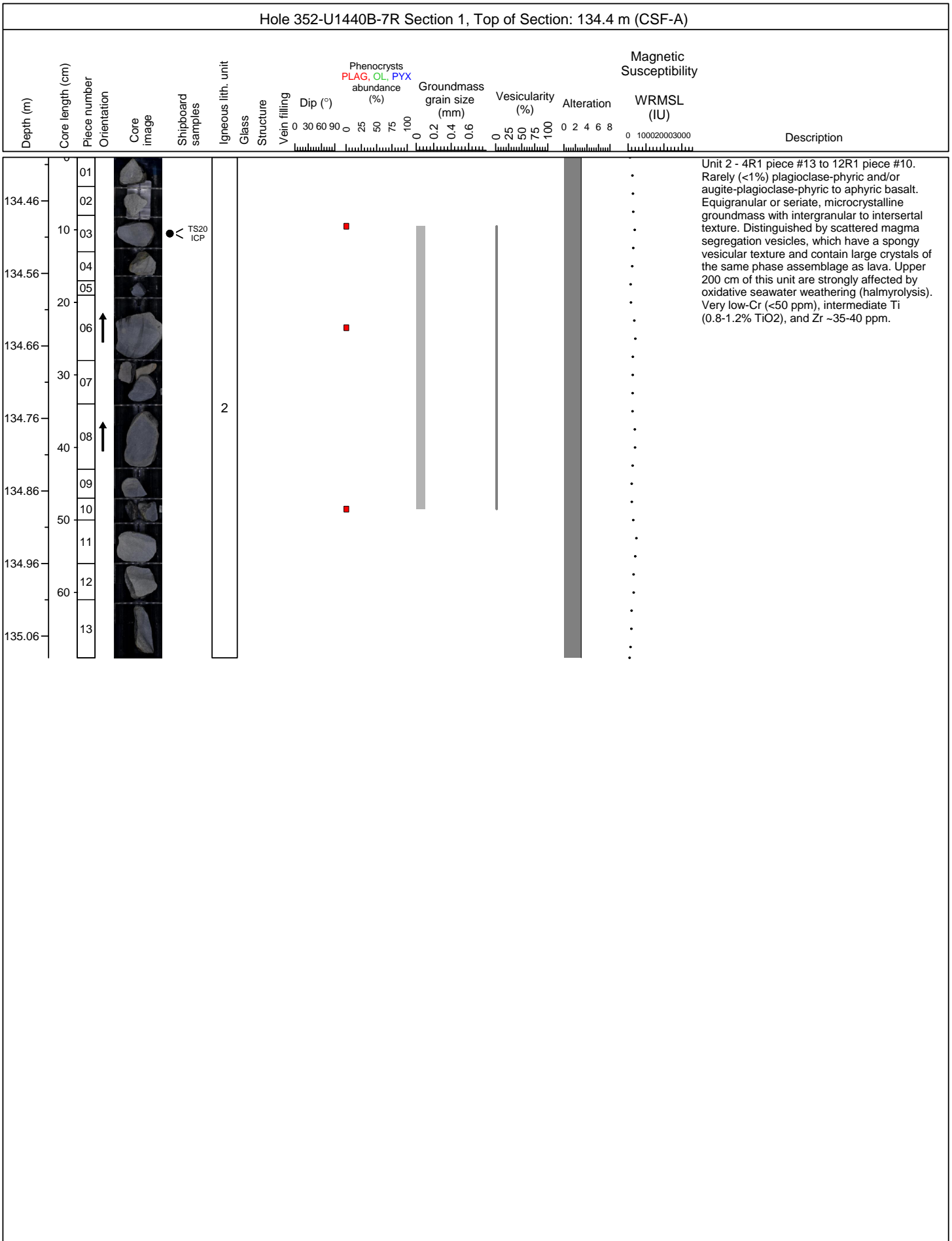
Brown mud with disseminated manganese oxide. The rest of Section 1 and Section 2 are described in the hard rock VCDs.

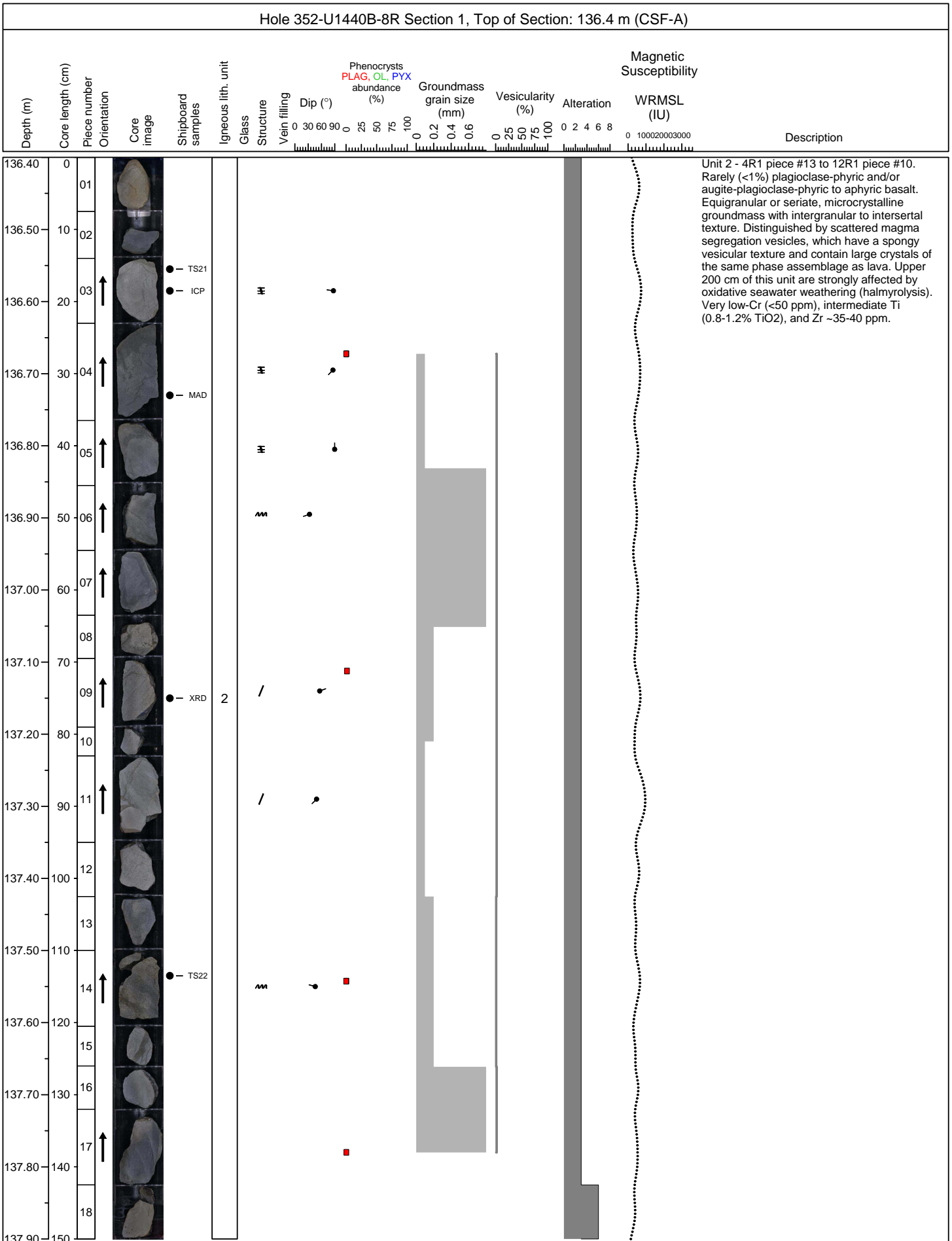
Depth Drilled (DSF), 124.7 : Bottom Depth Recovered, Curated Depth (CSF-A), 116.68, Recovery: 13%

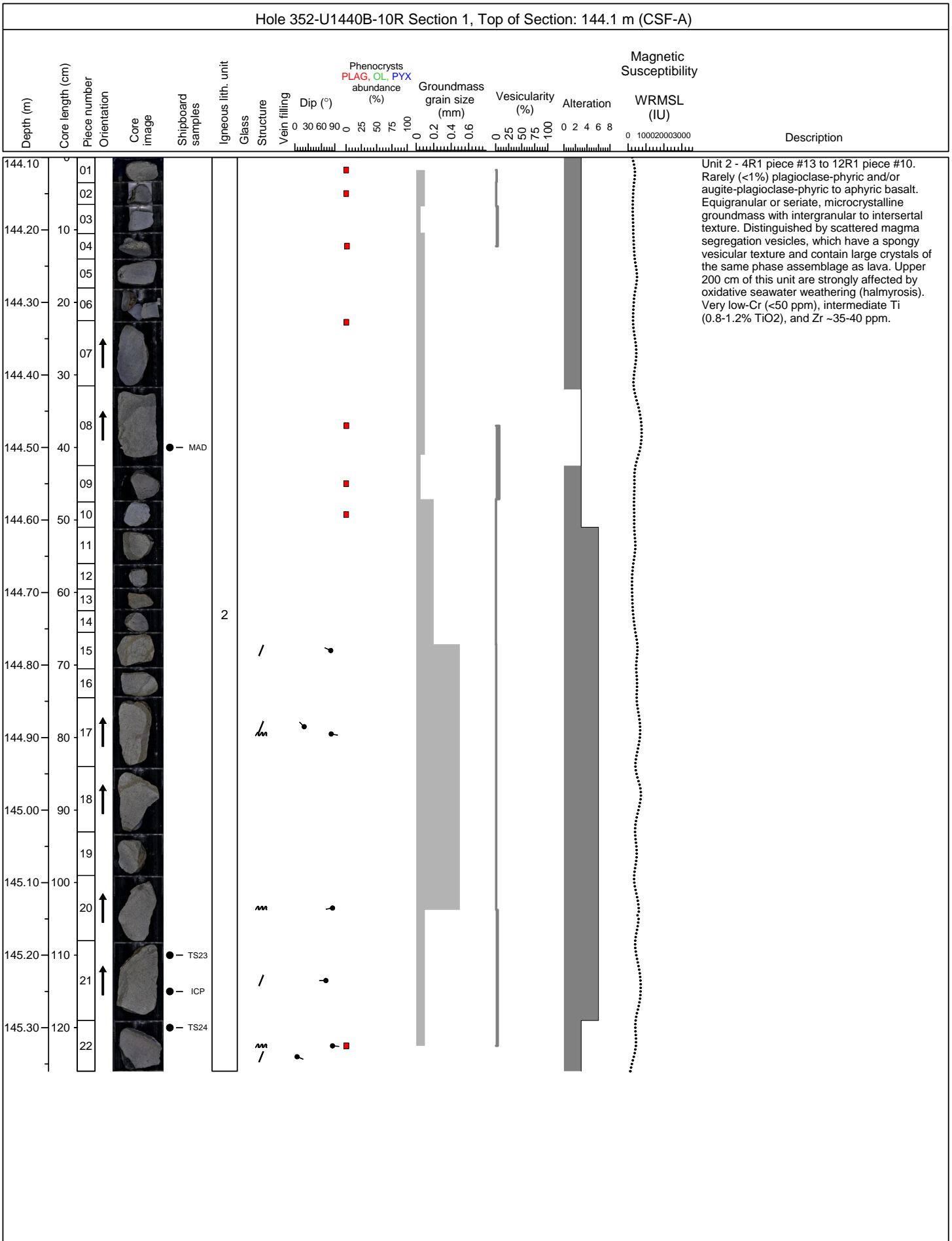


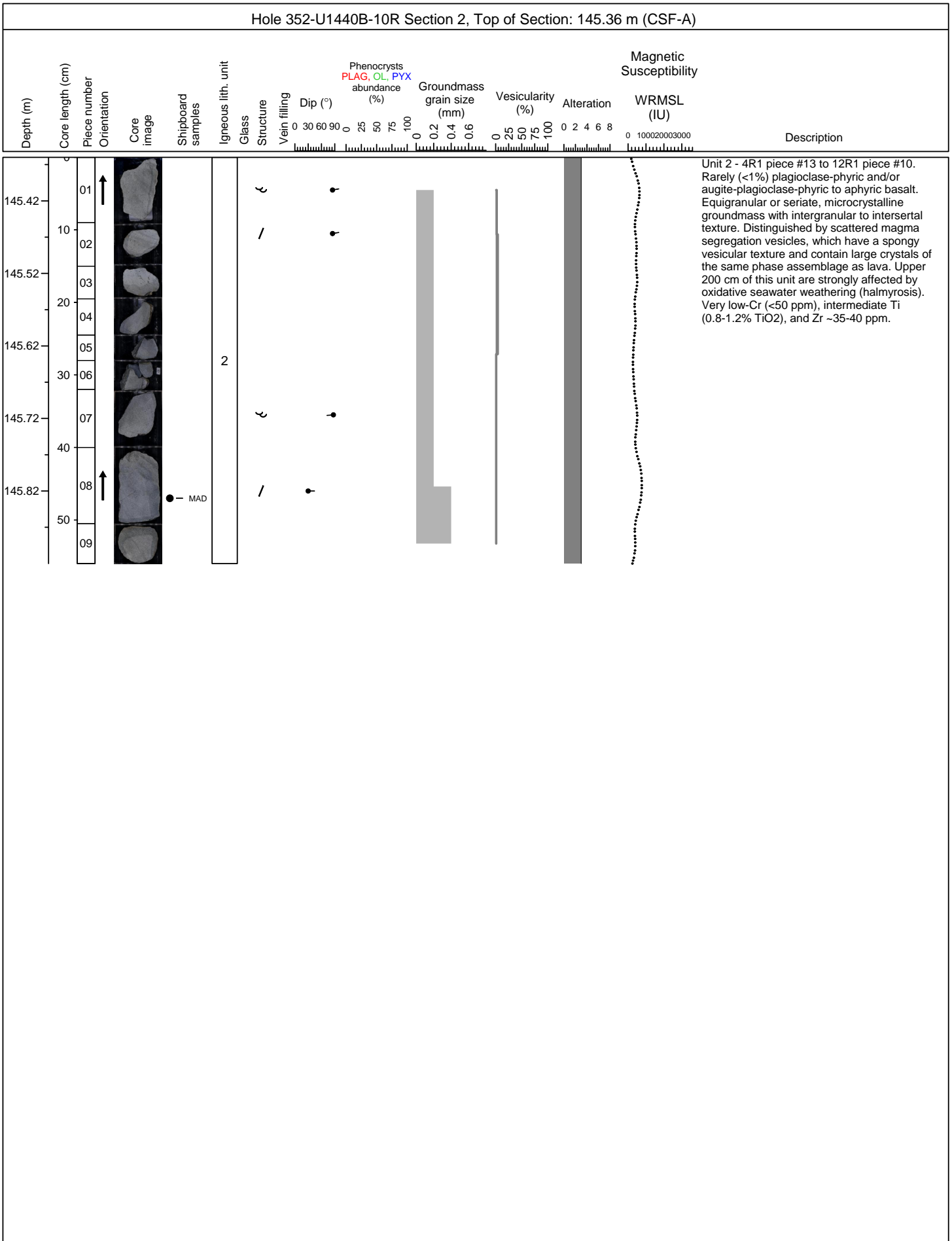


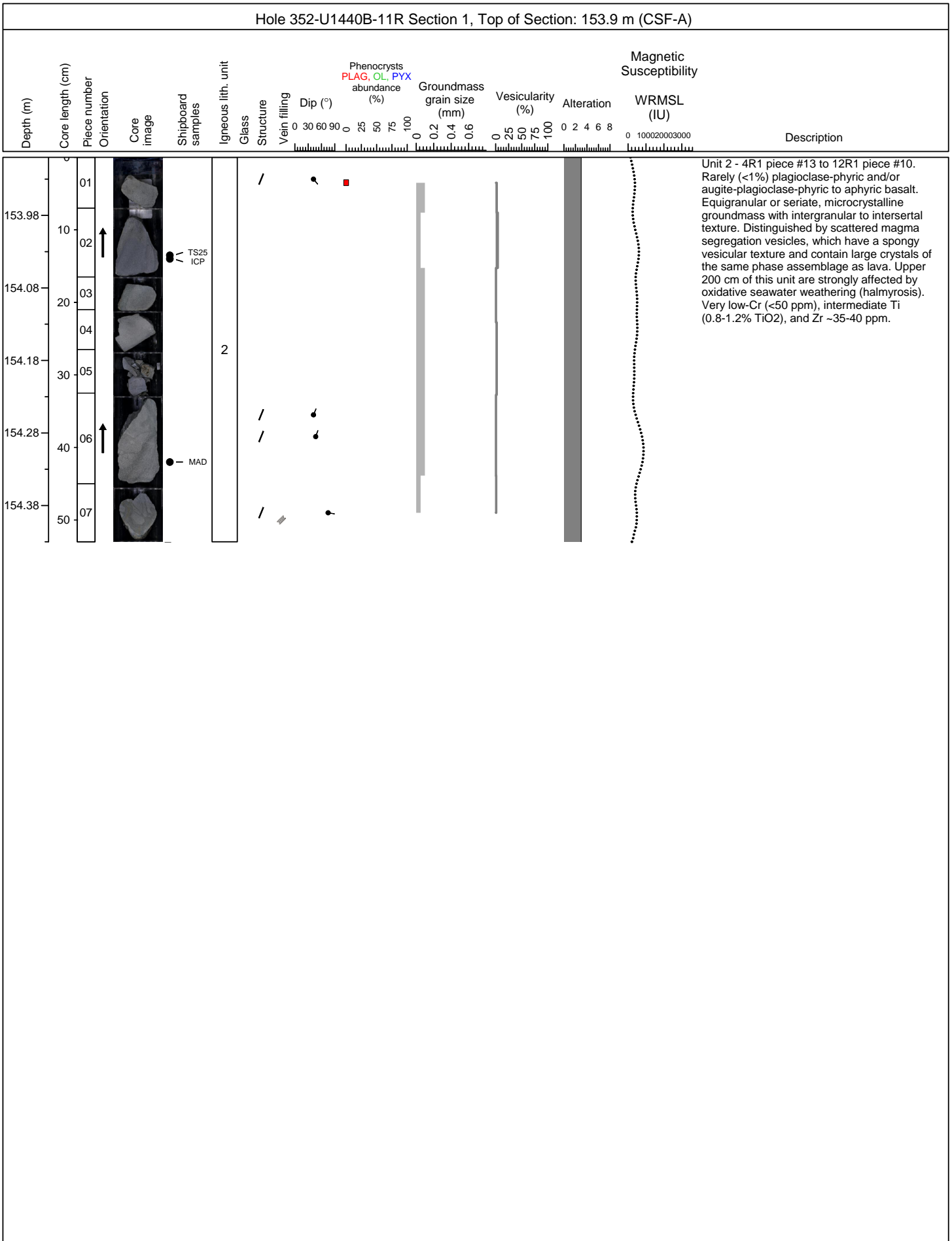


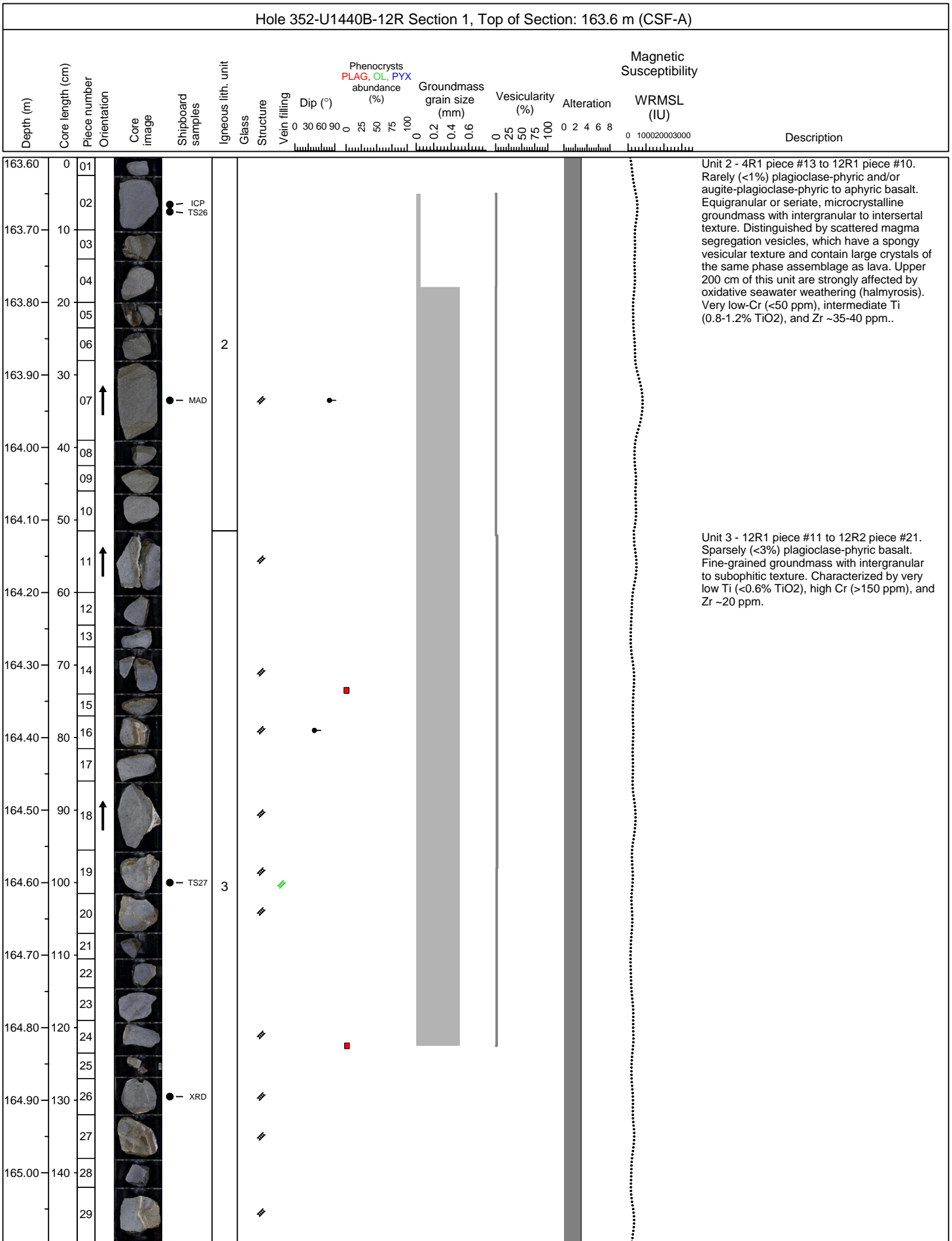


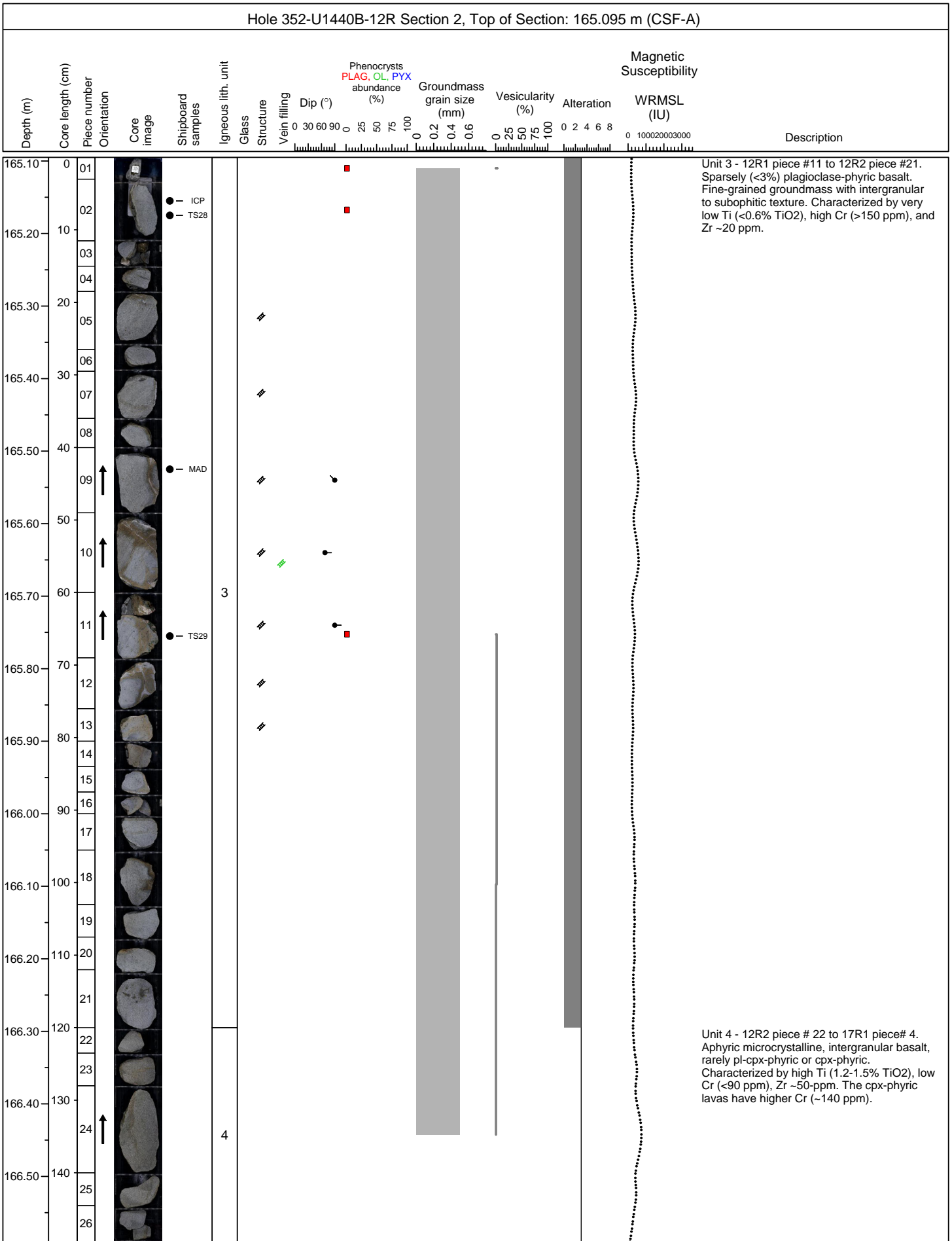


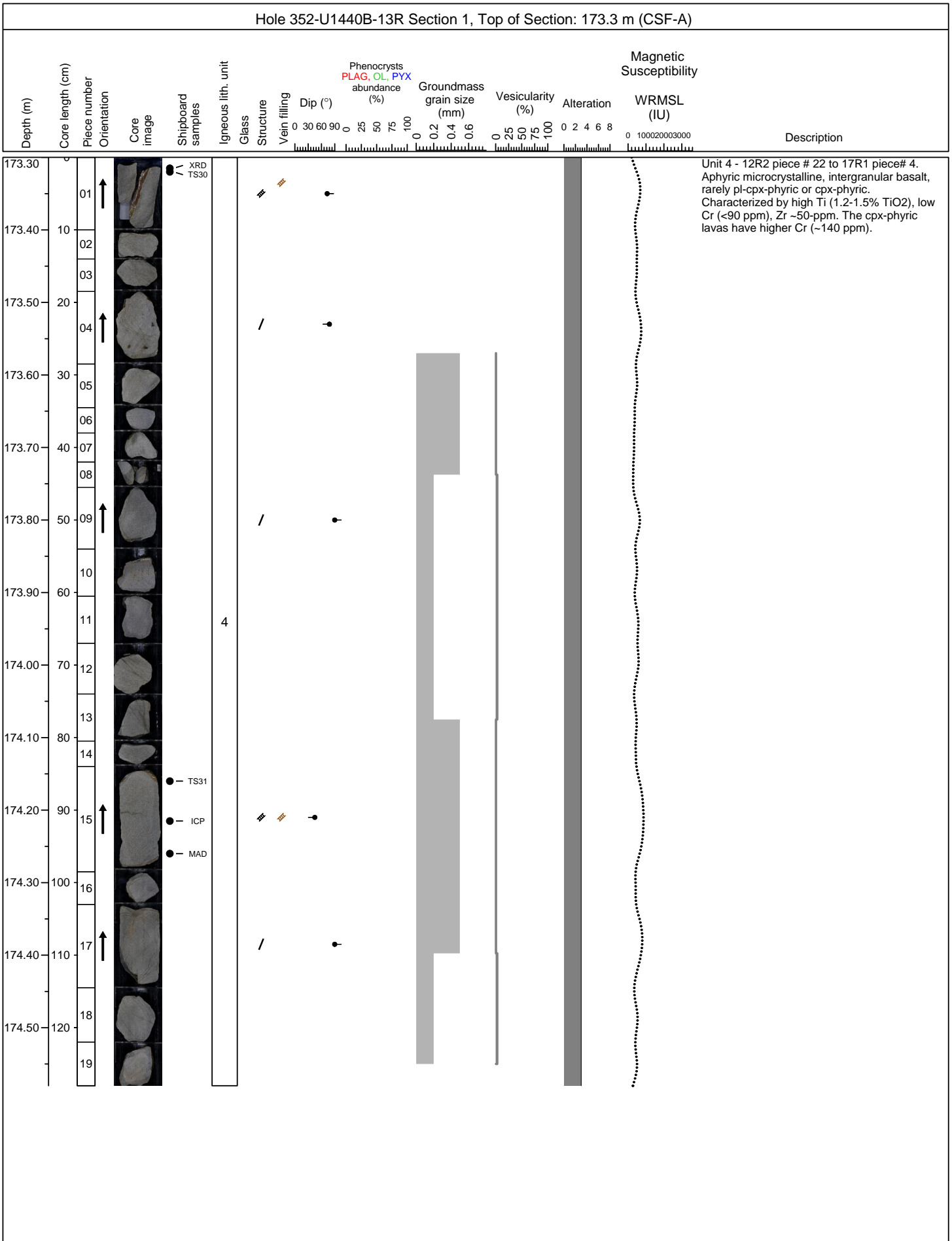


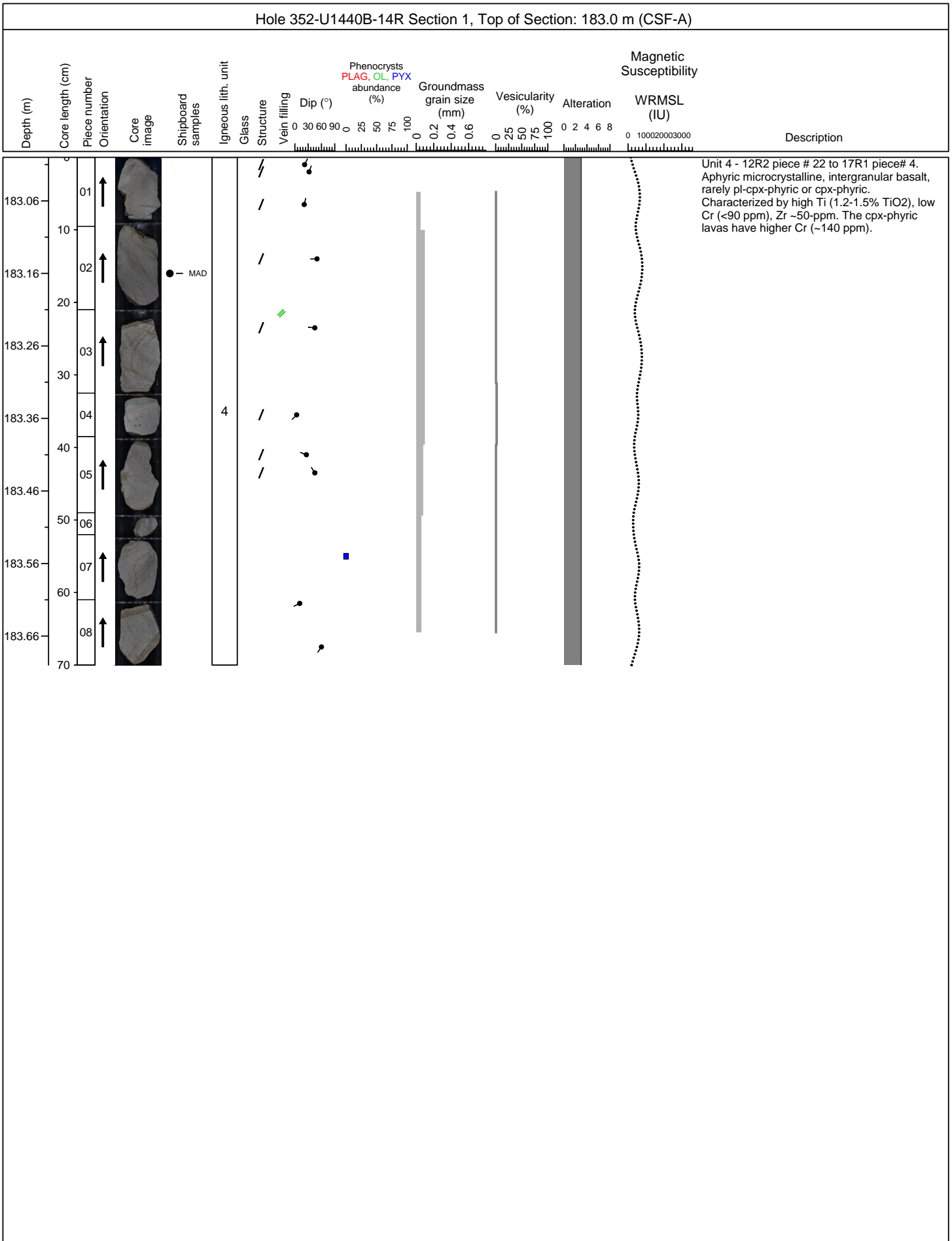


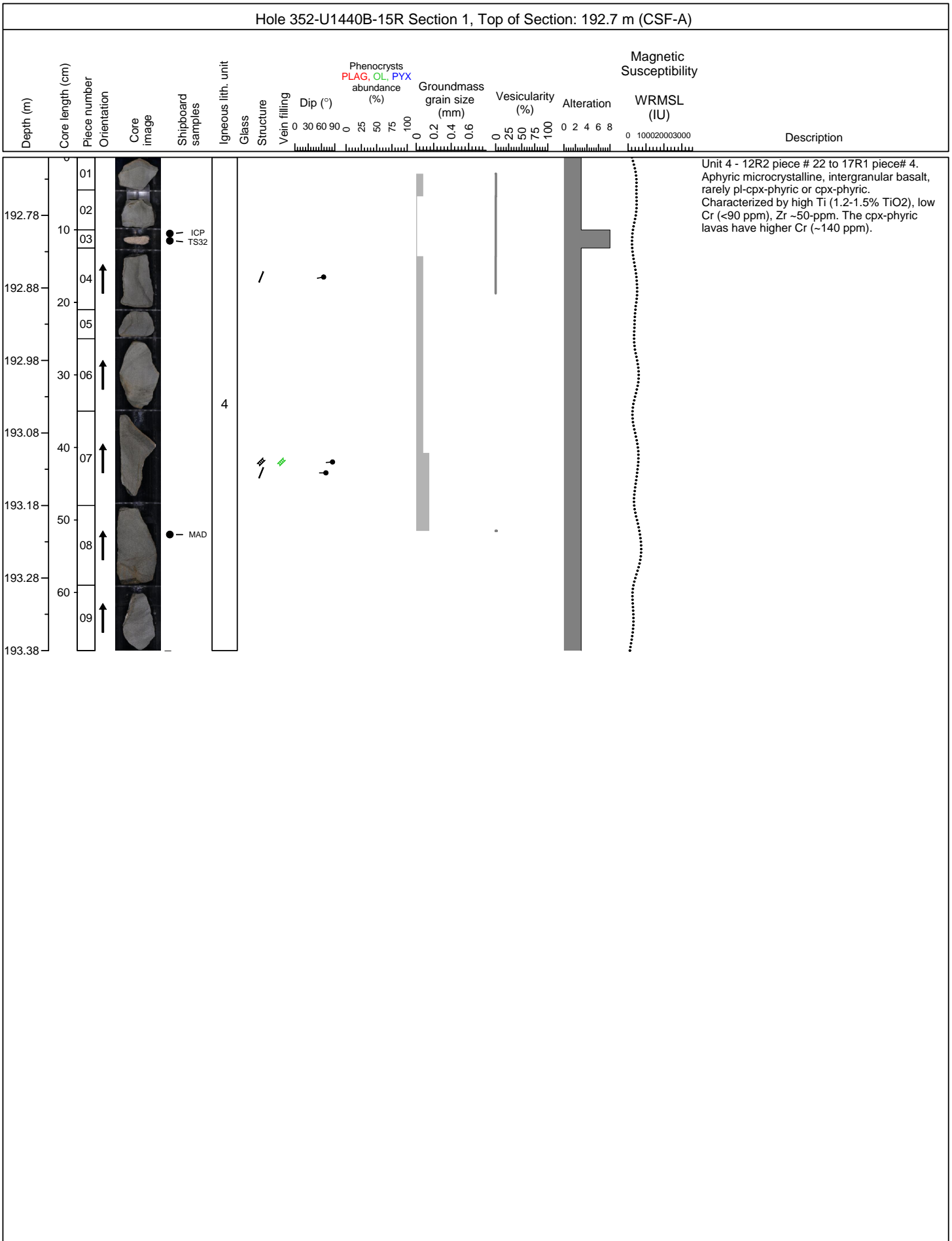


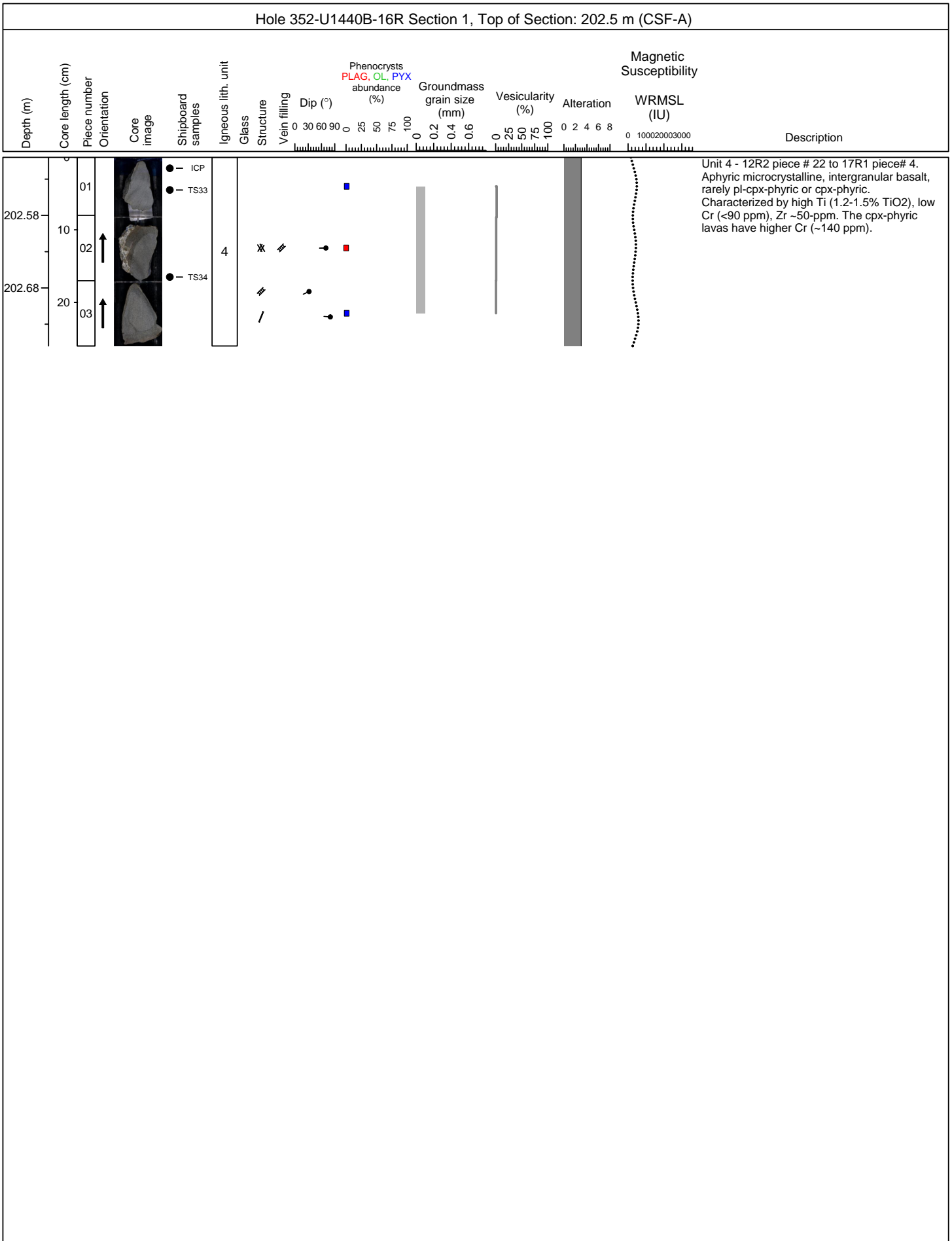


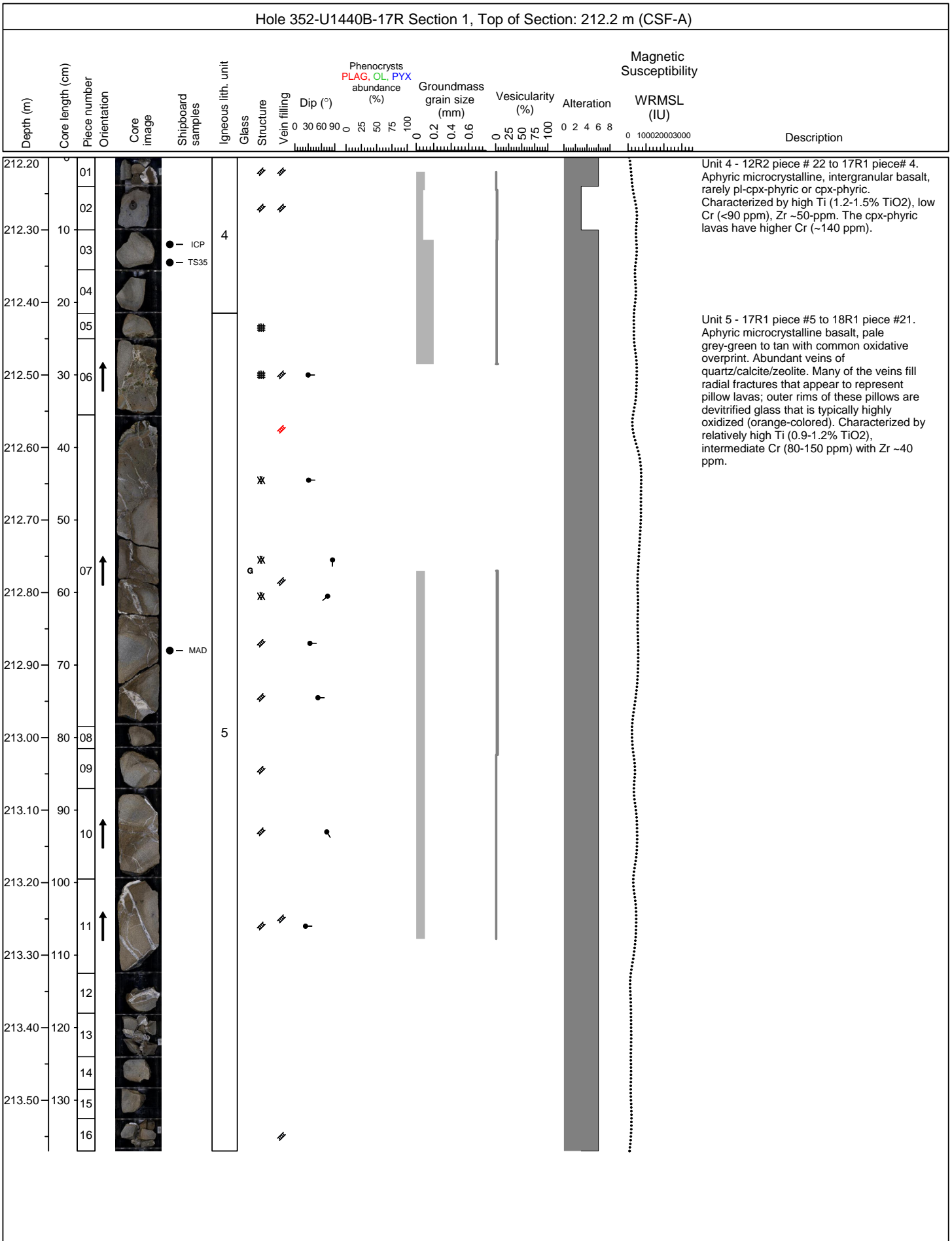


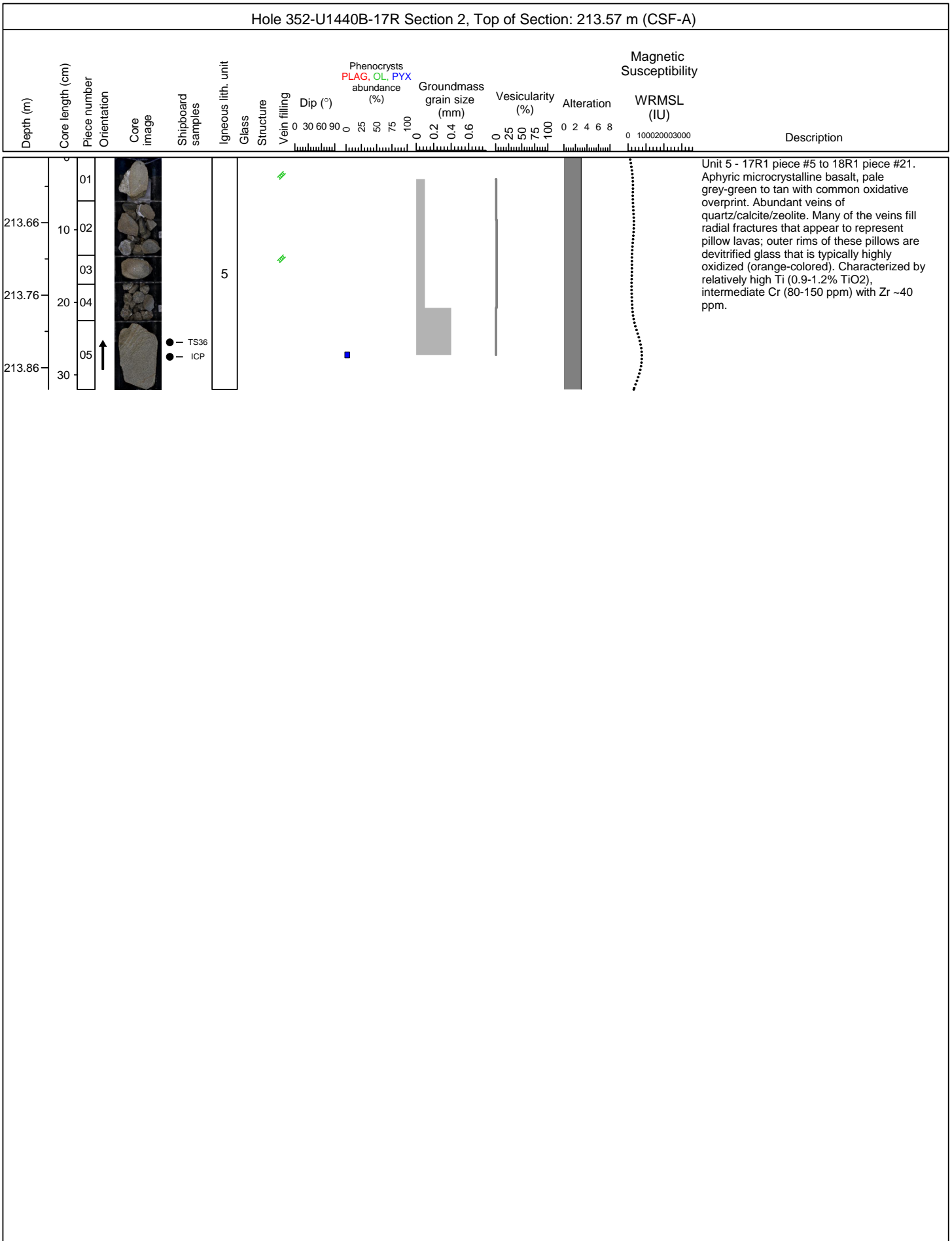


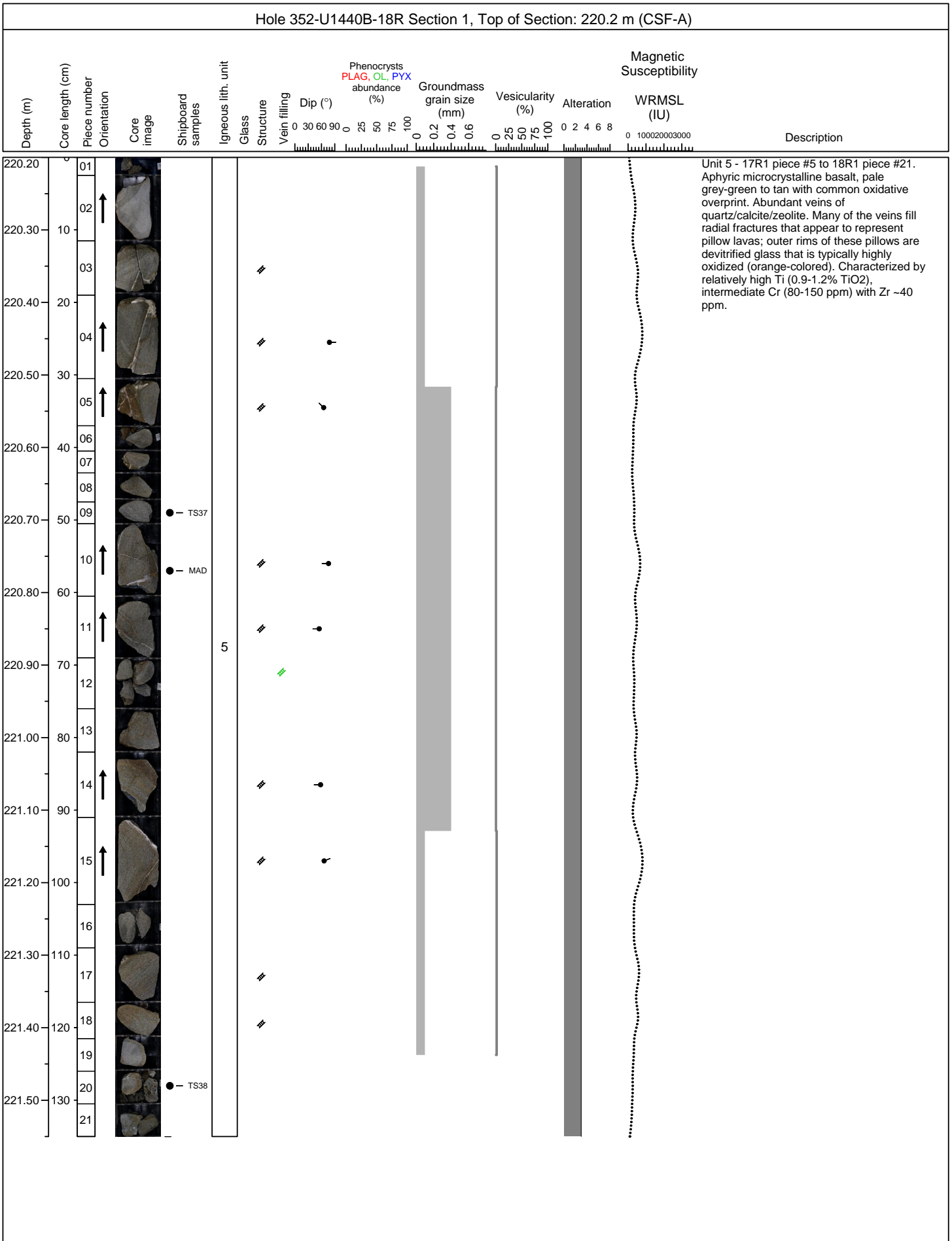


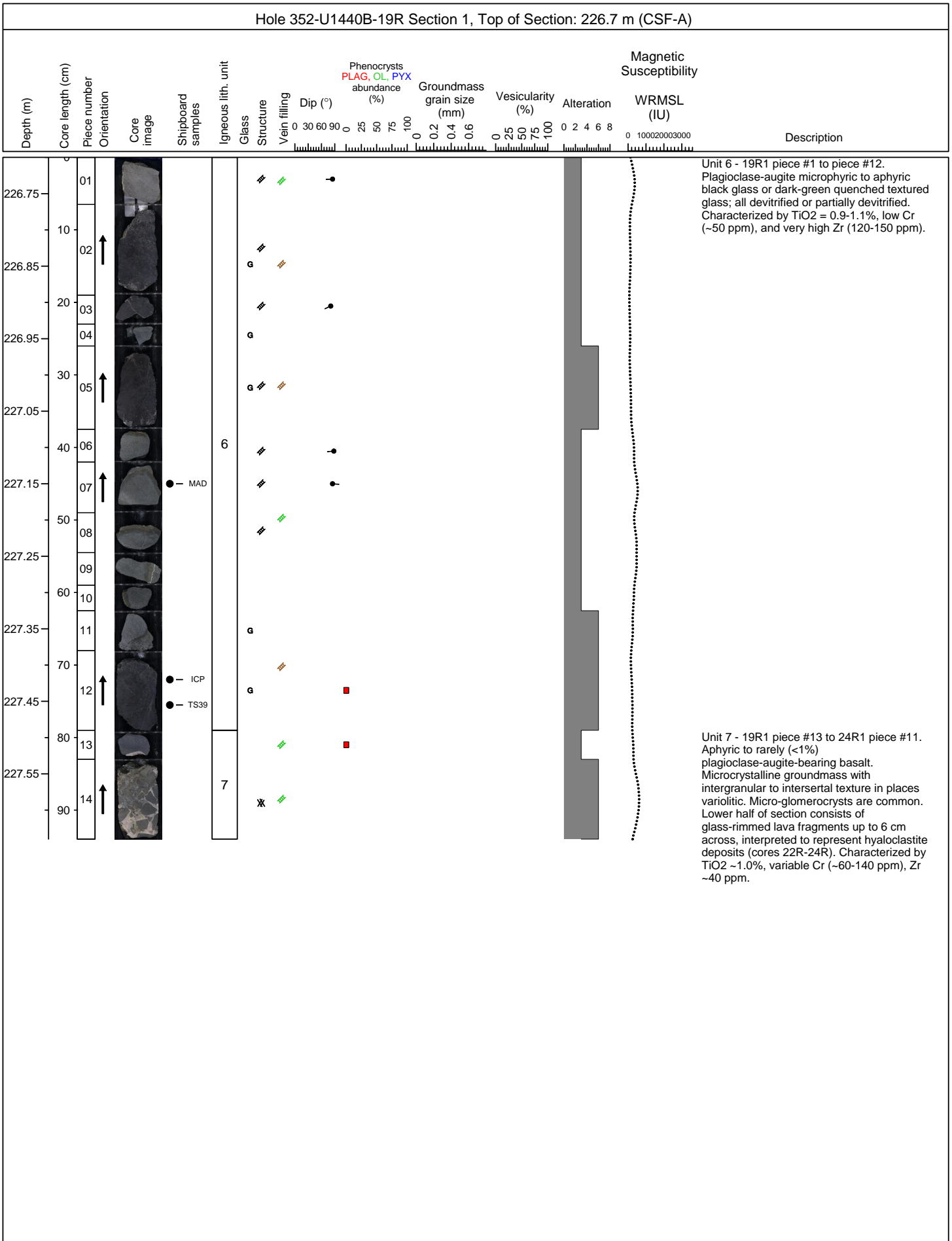


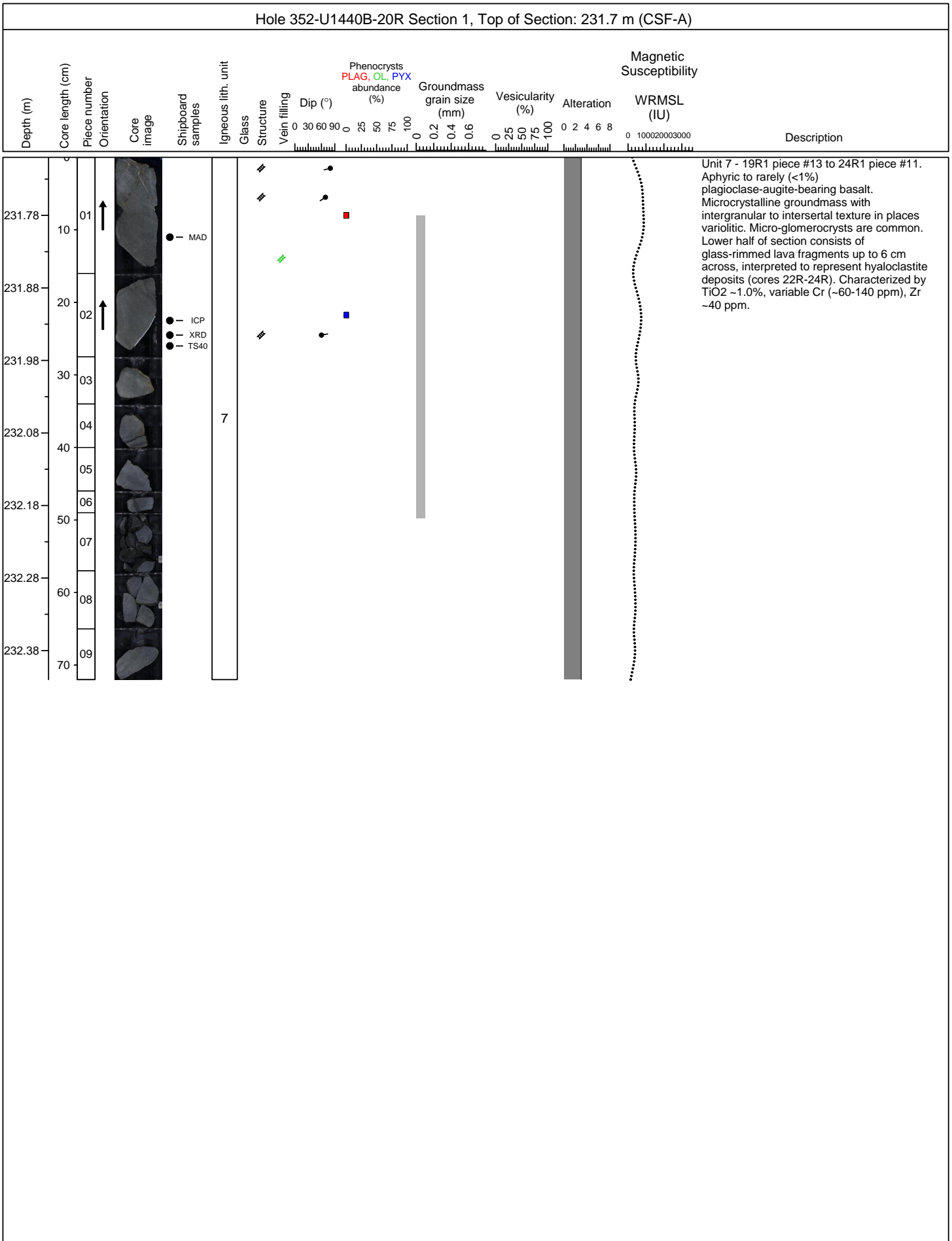


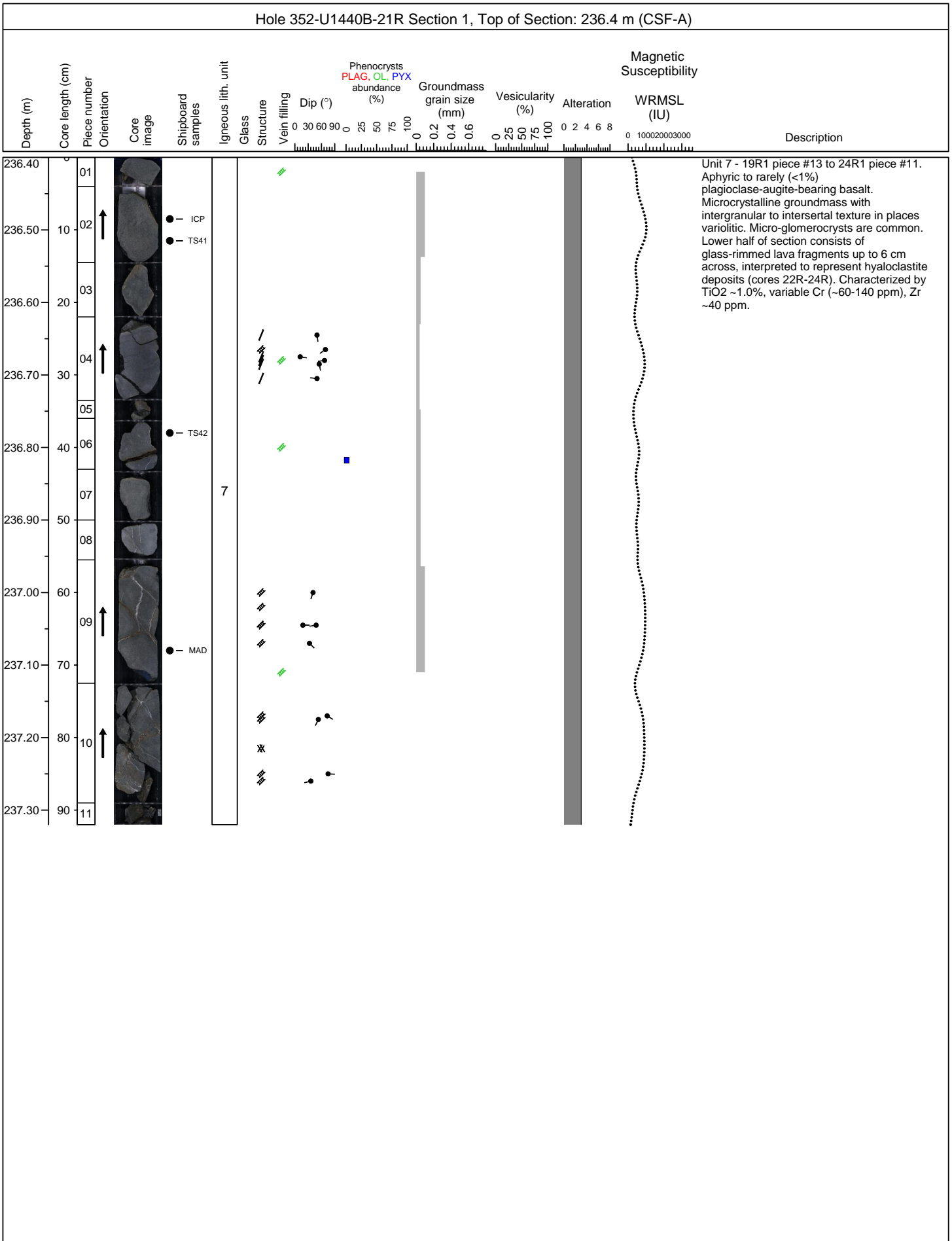


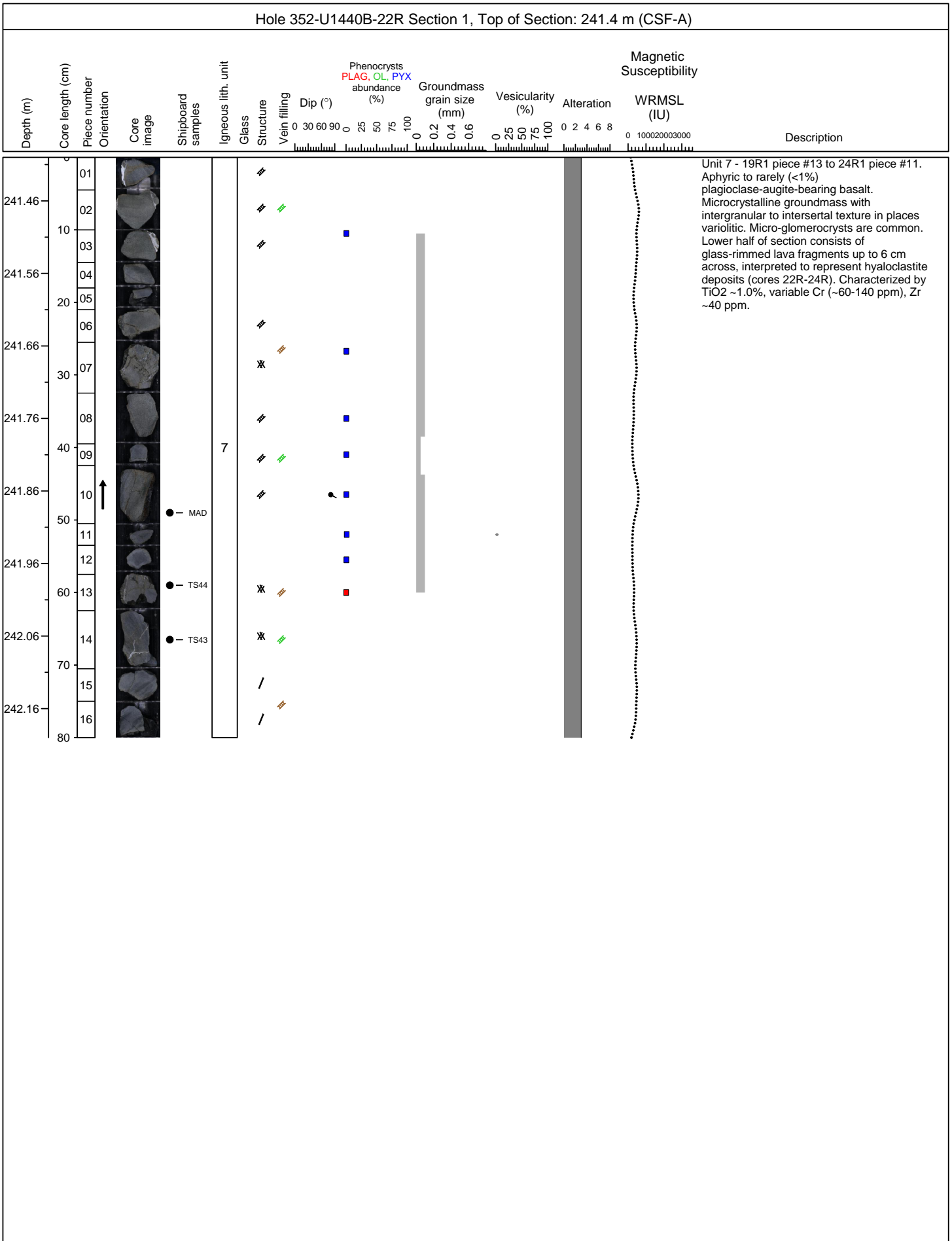


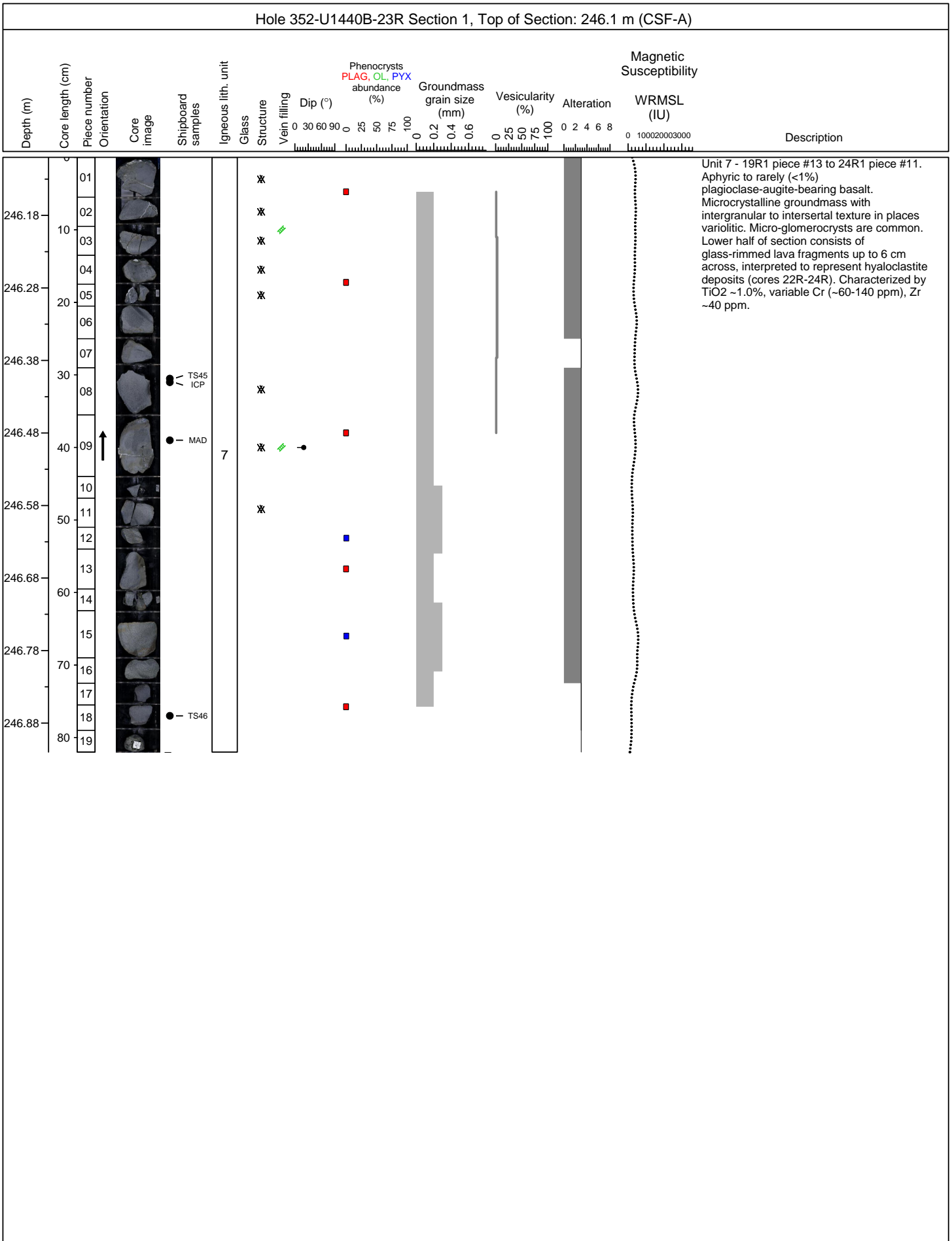


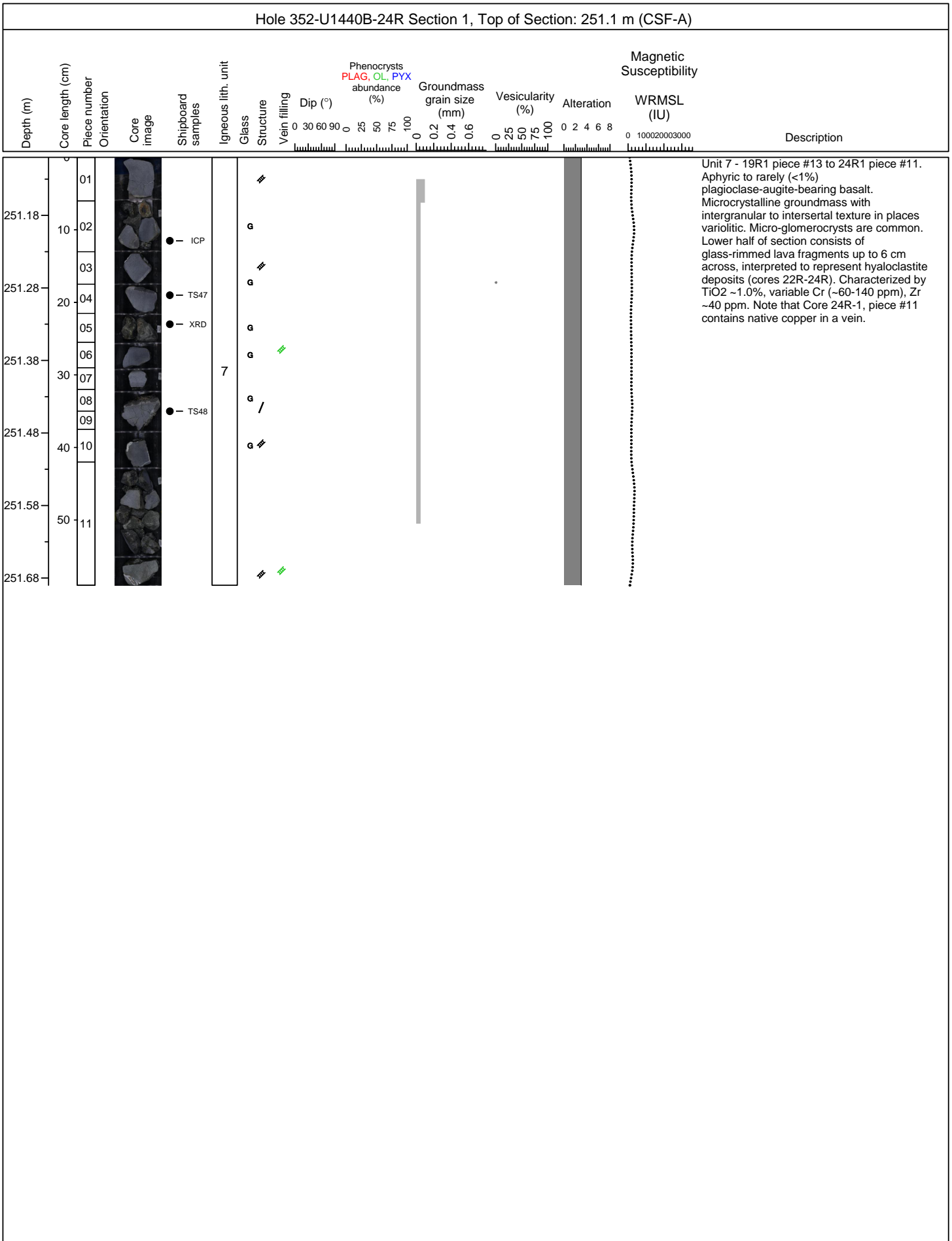


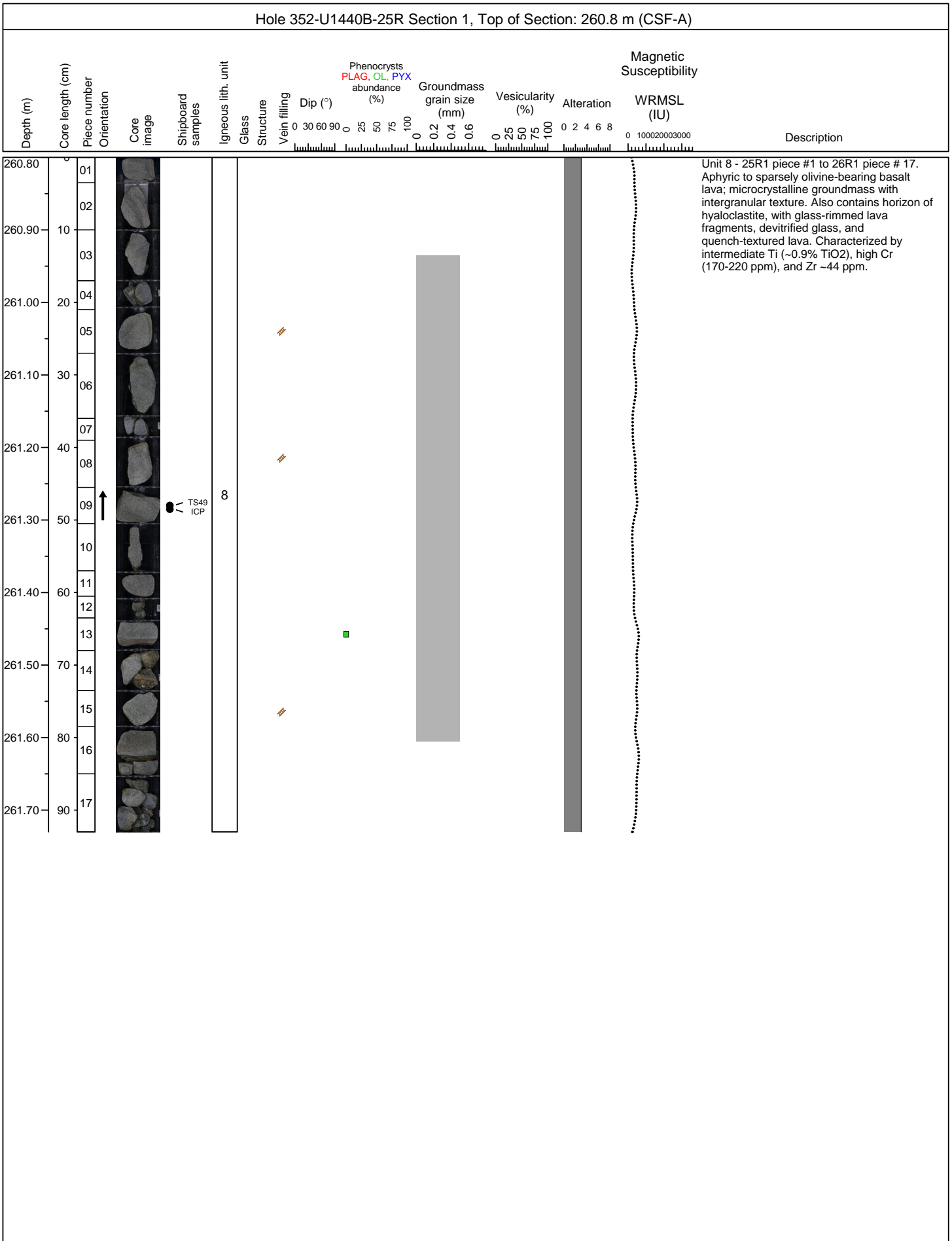


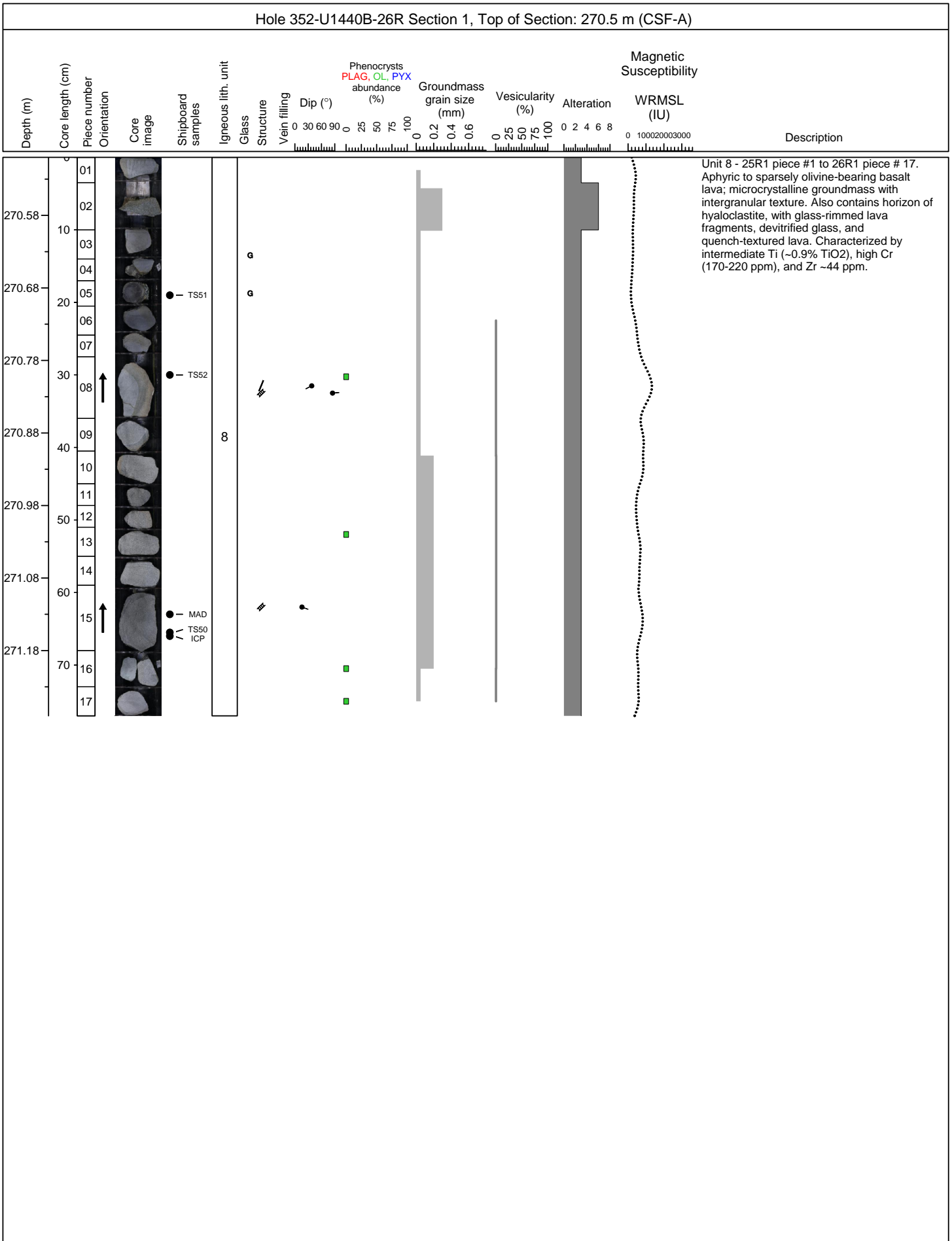


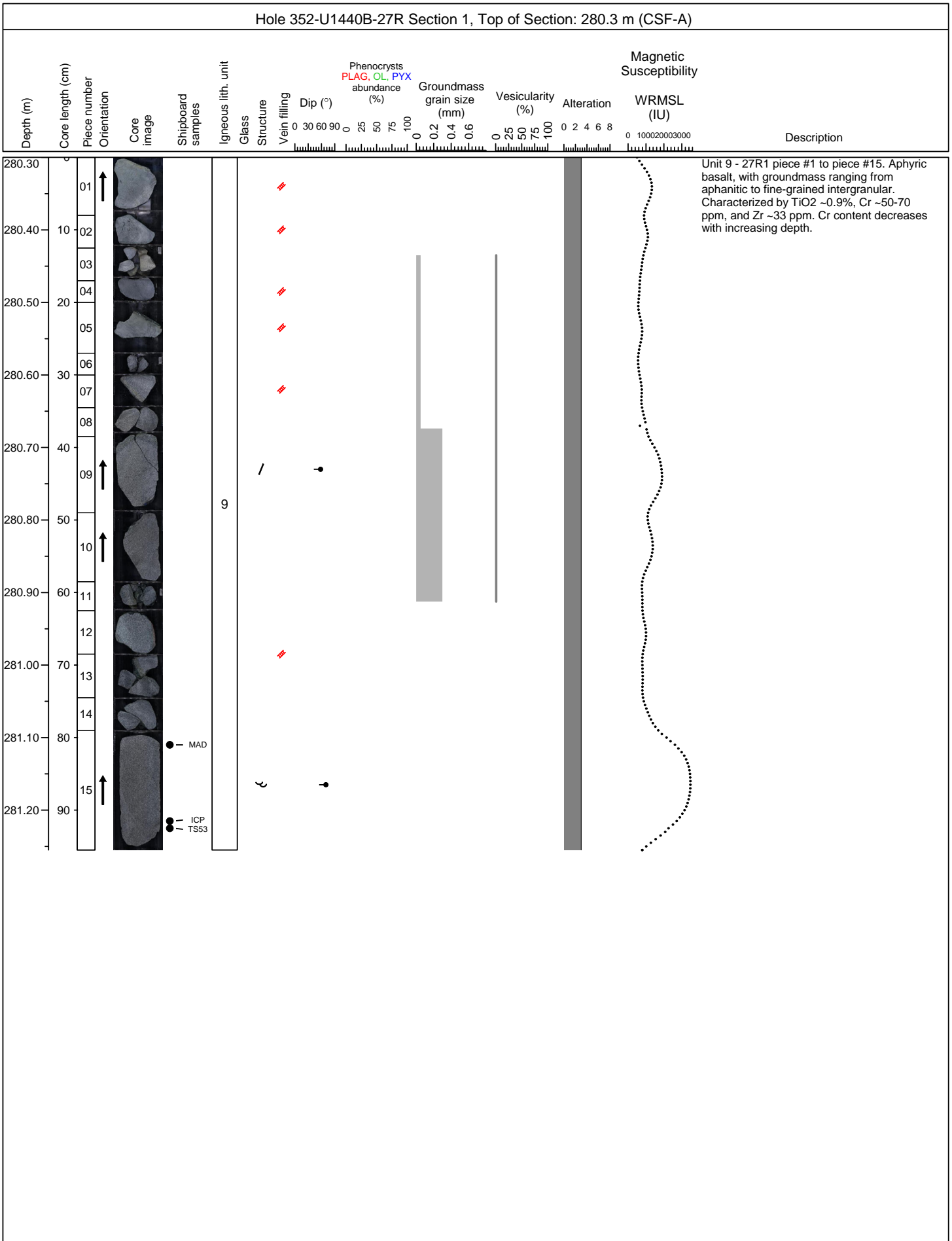


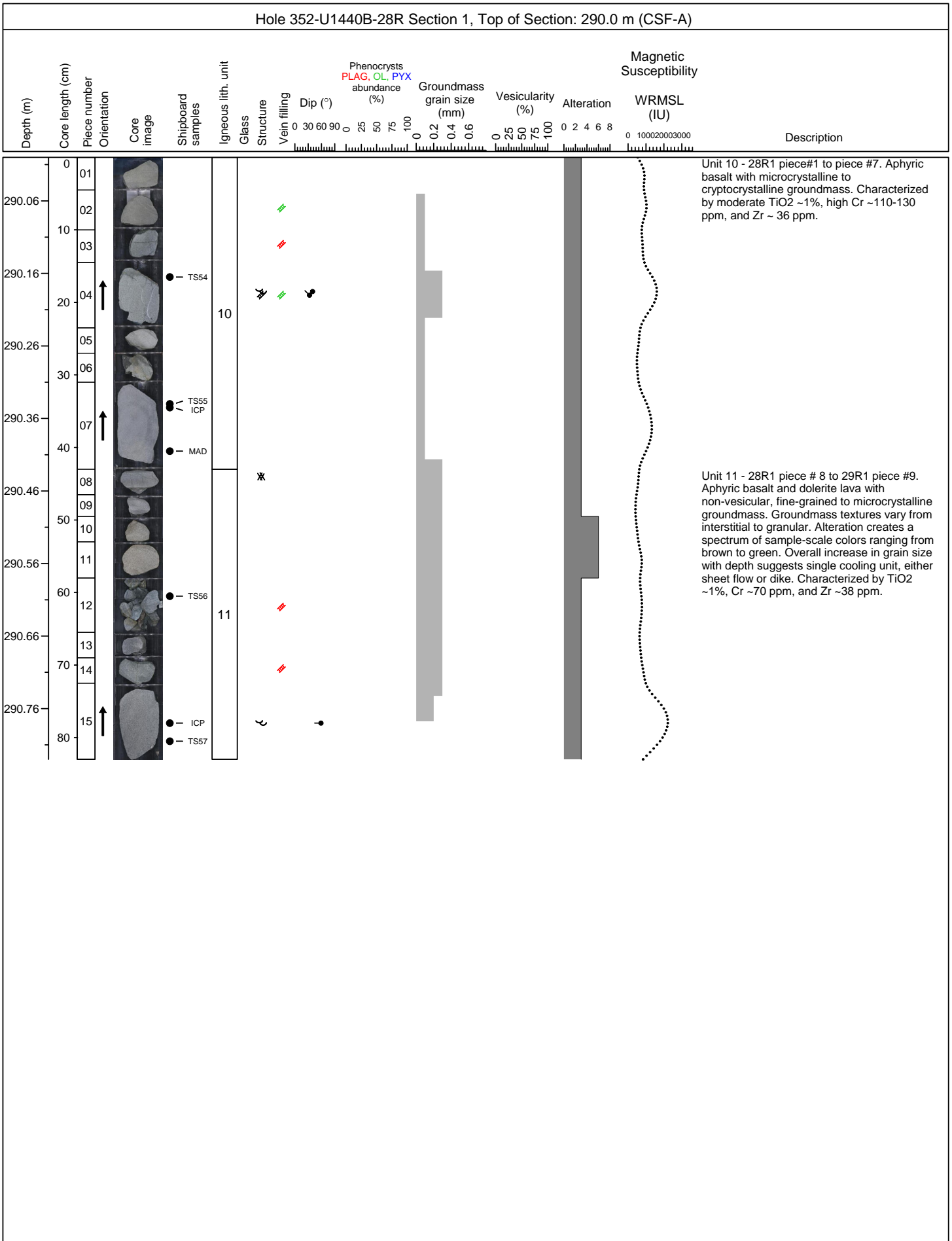


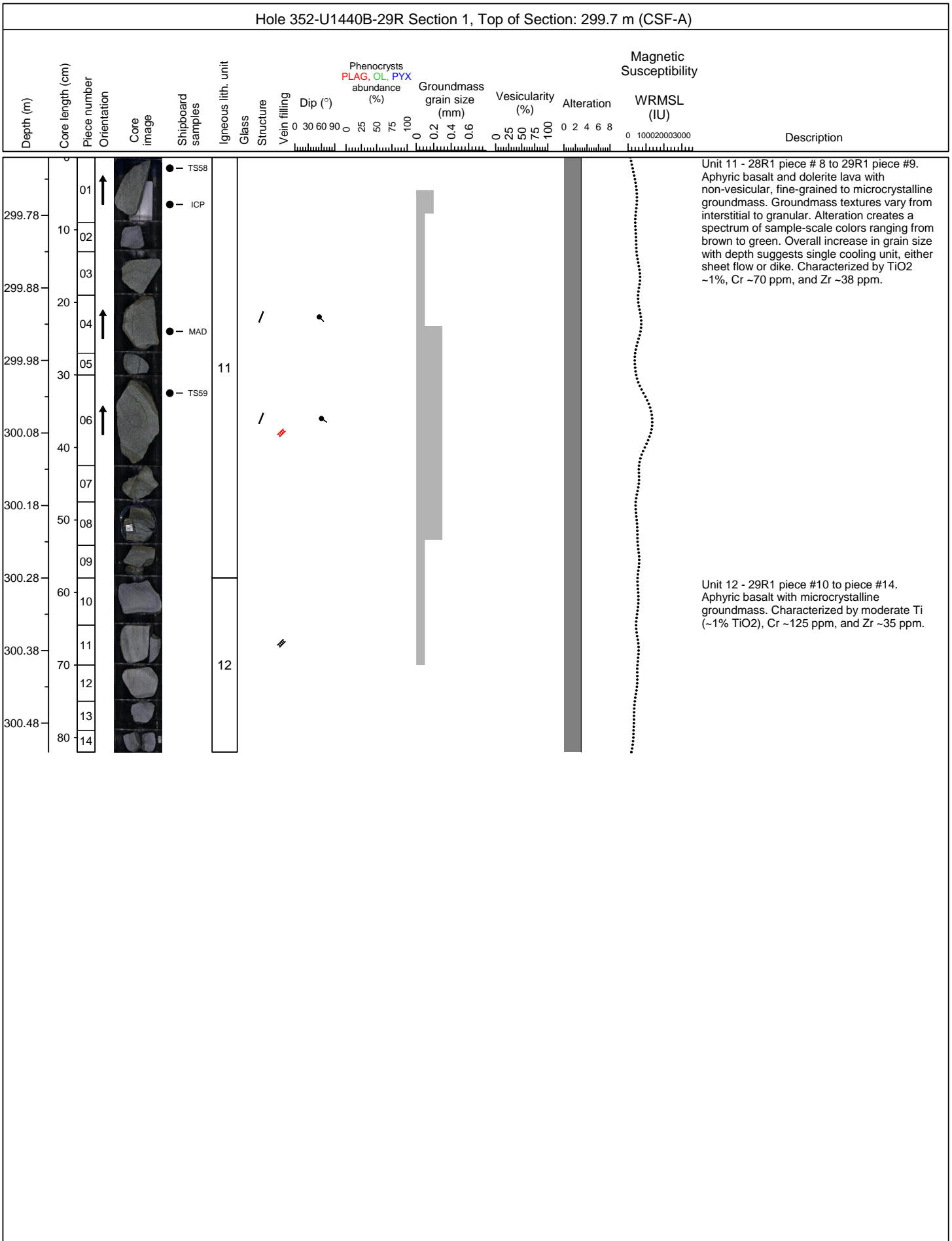


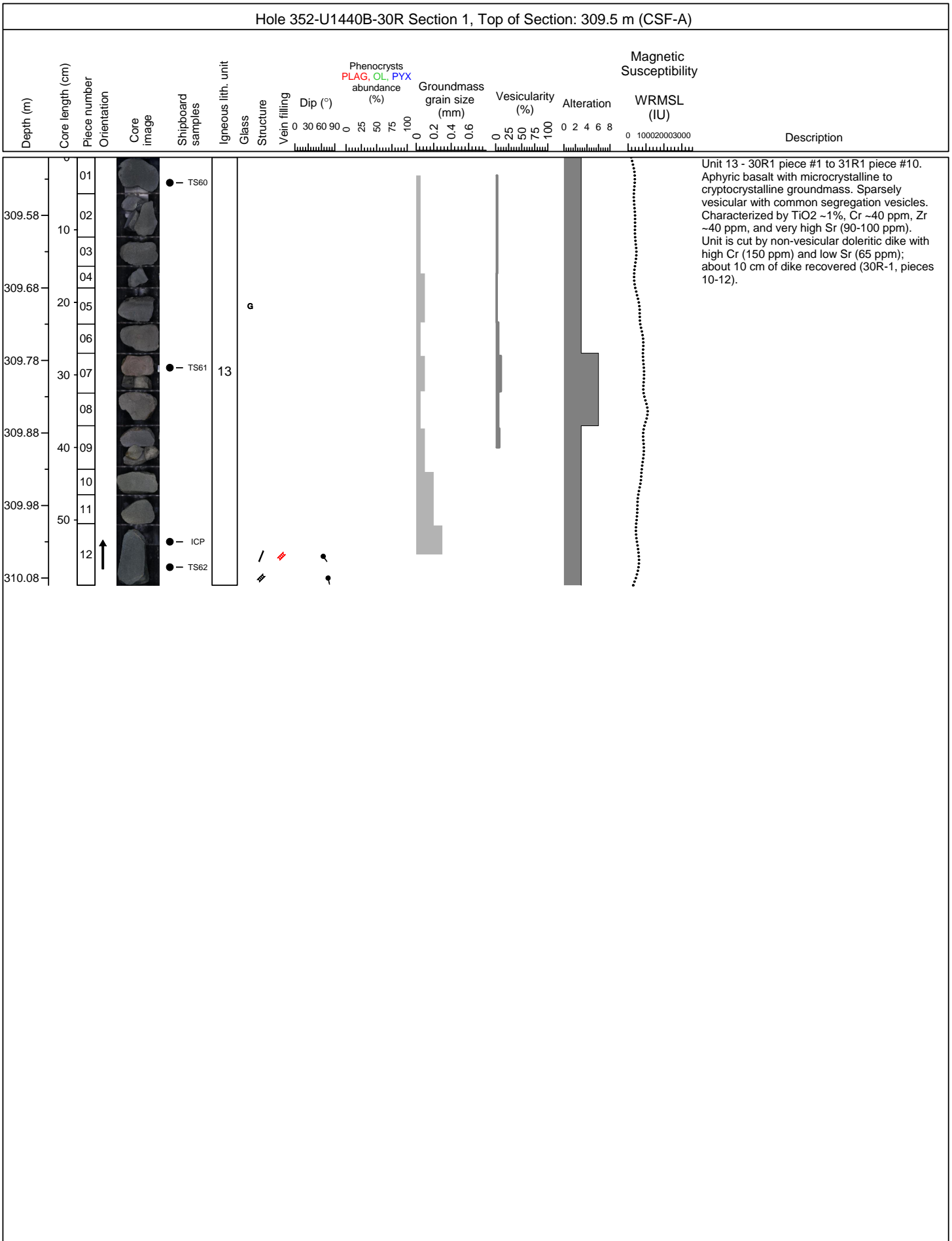


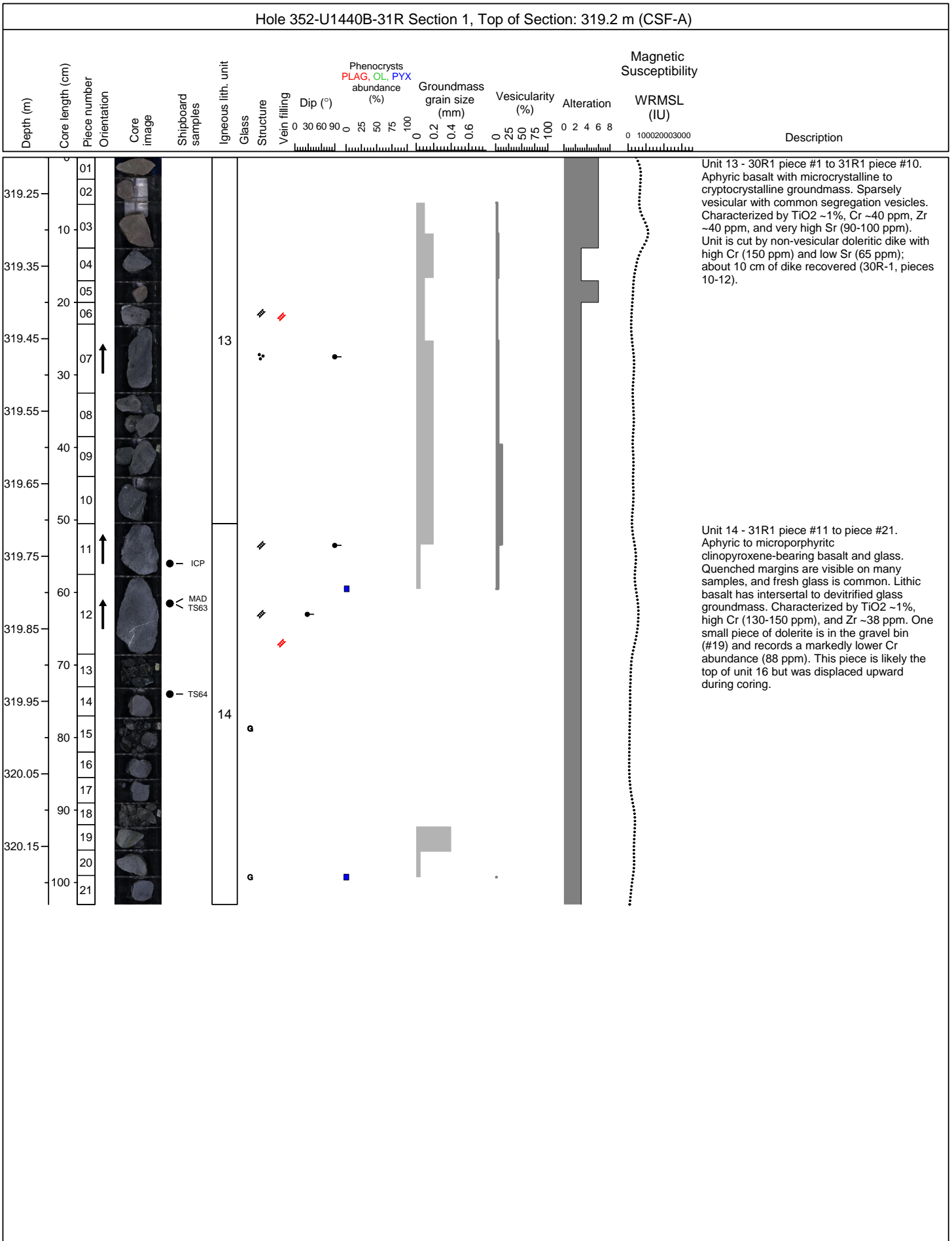


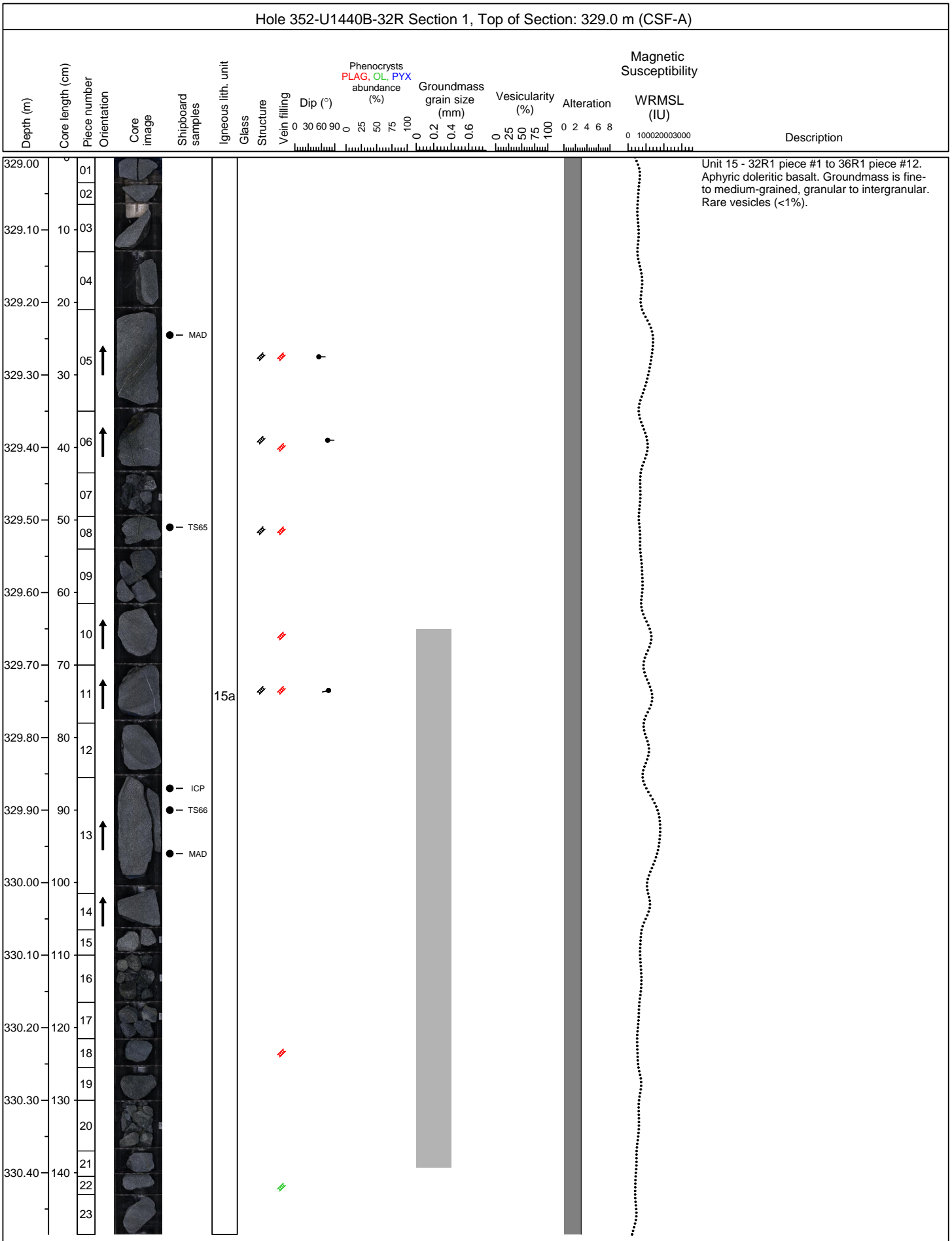


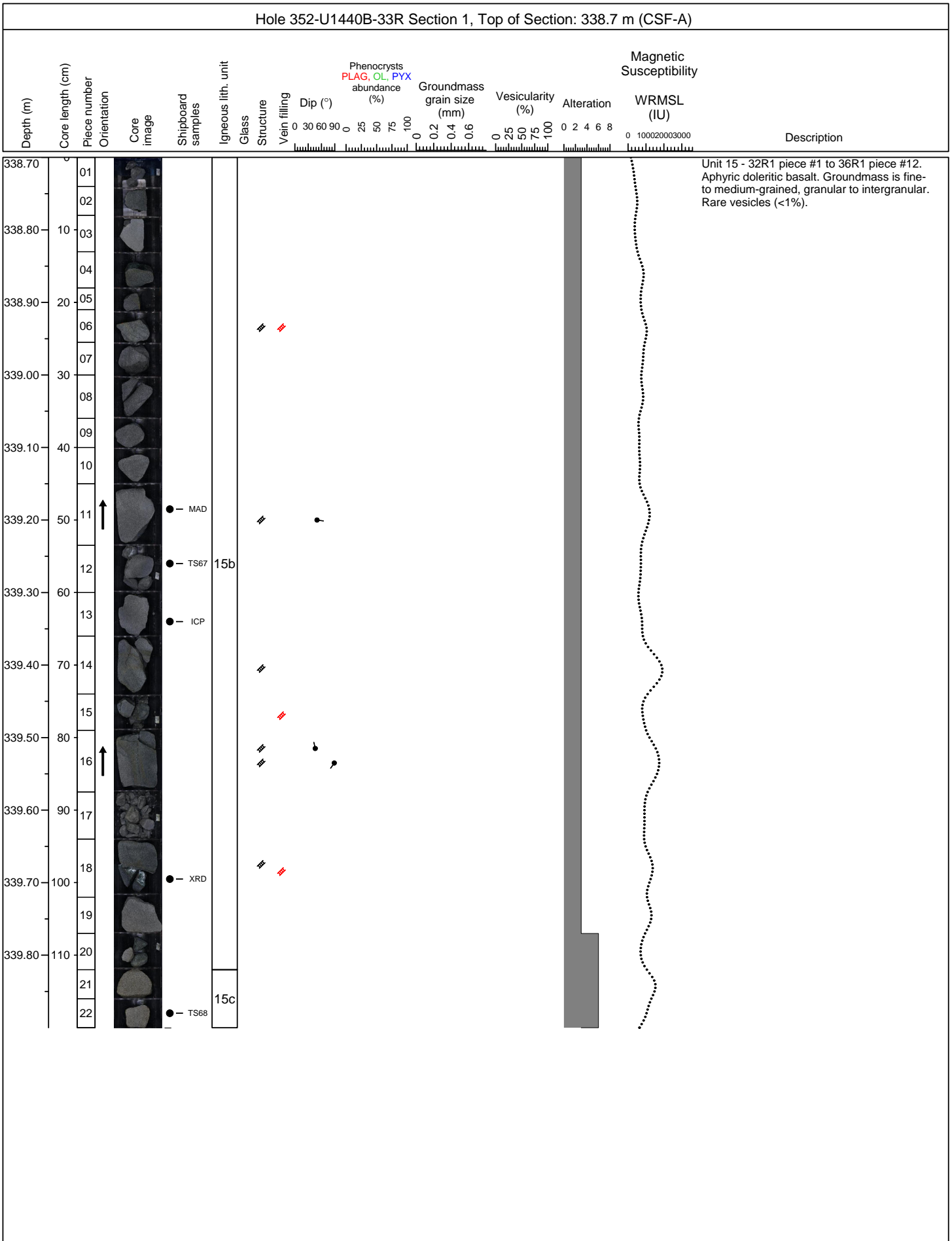


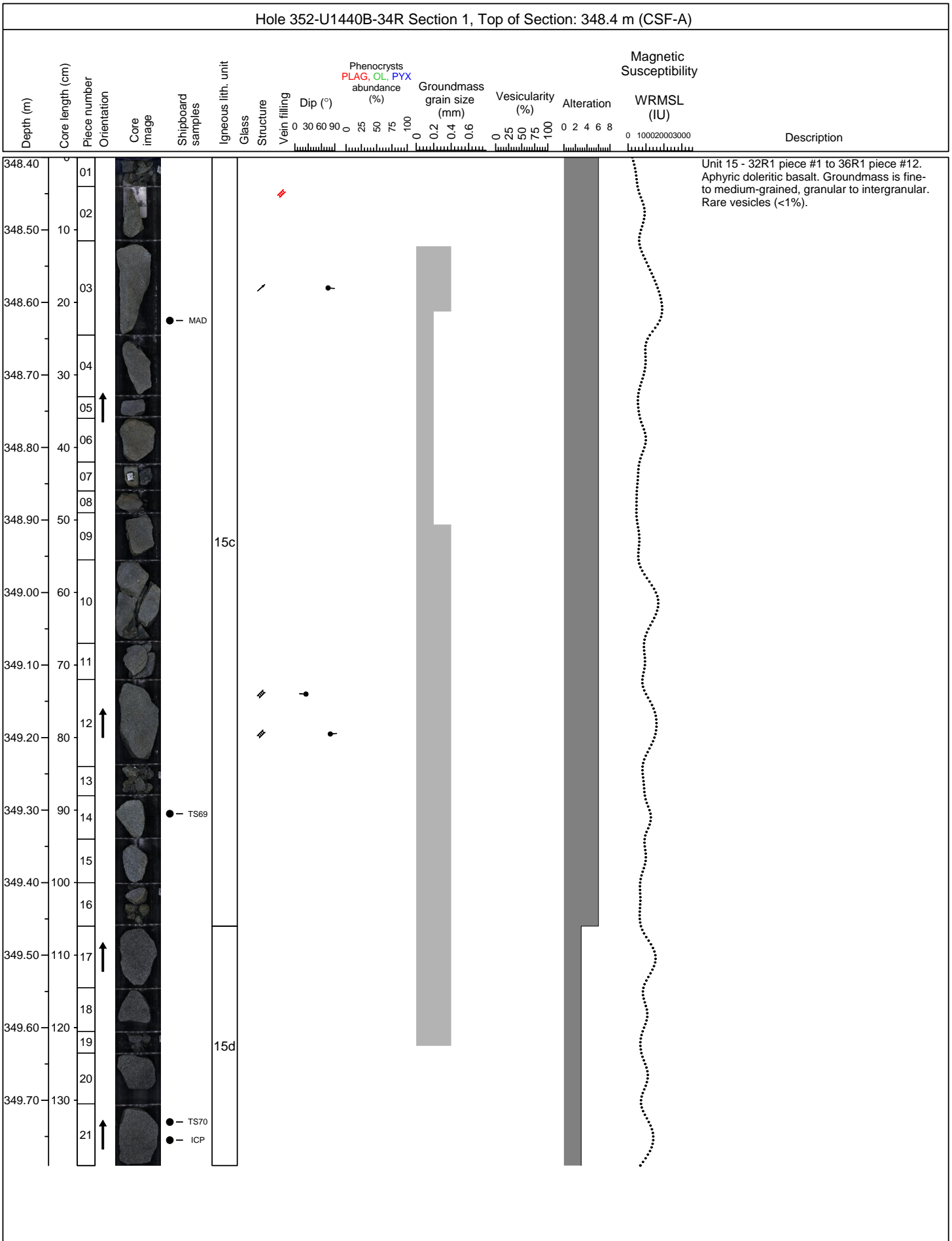


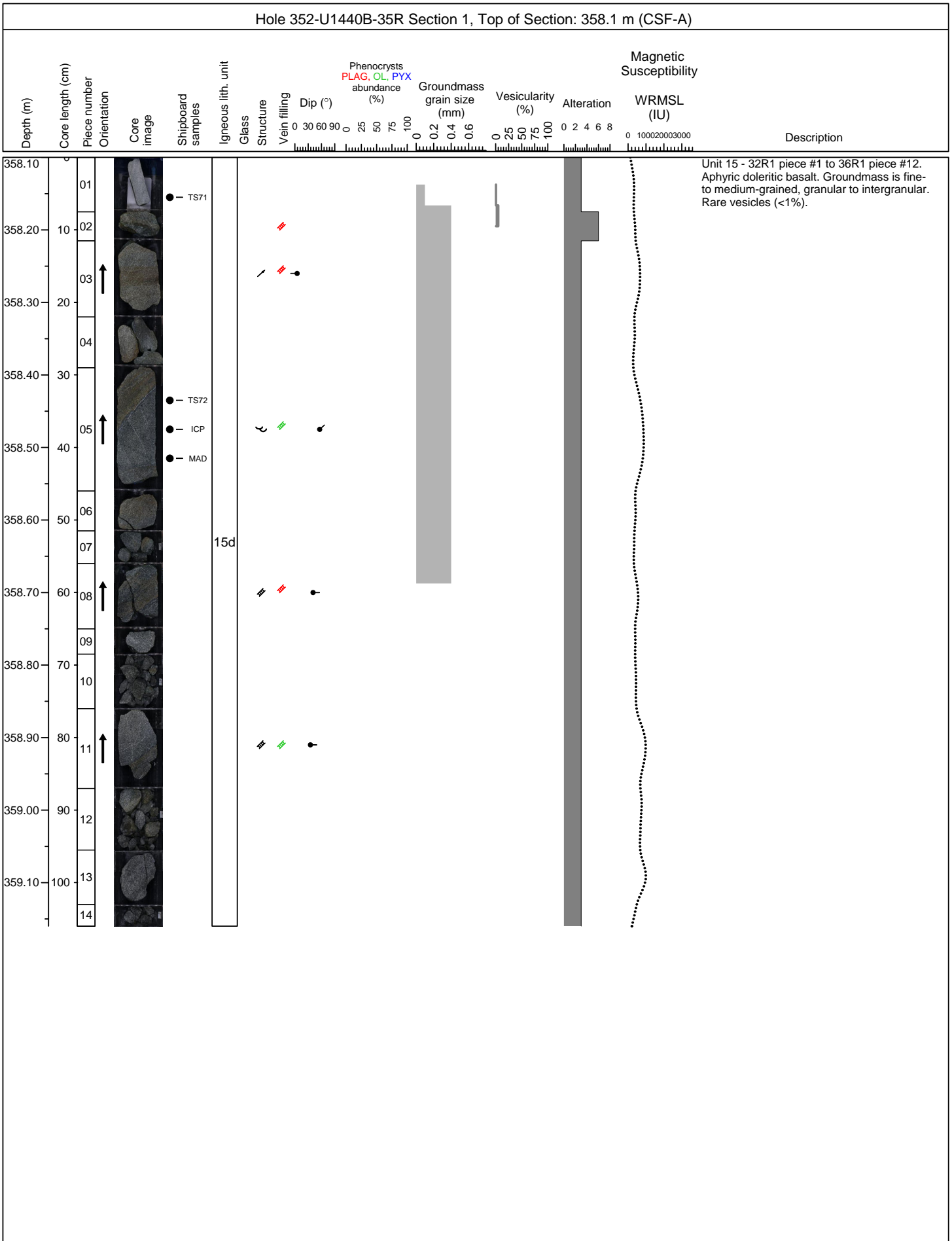


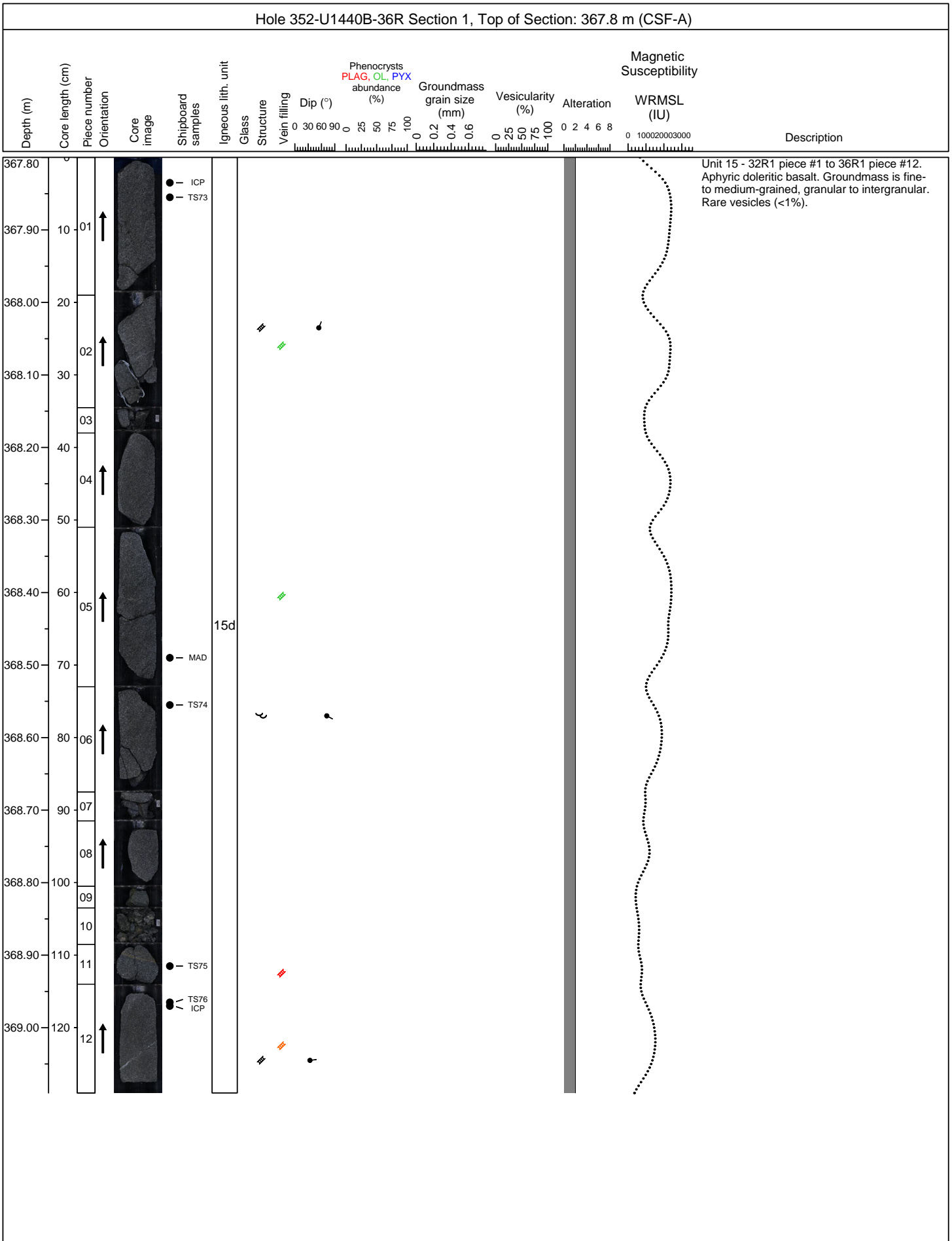












THIN SECTION LABEL ID: **352-U1440A-6H-1-W 58/60-TSB-TS_08**

Thin section no.: 8

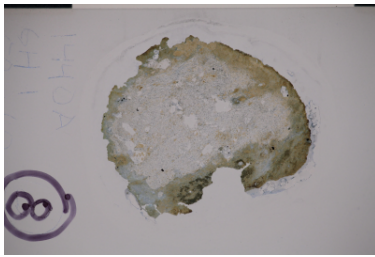
Unit/Subunit: 1

Piece no.:

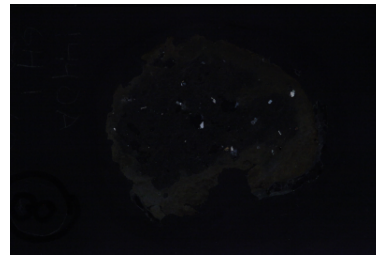
Observer: tc, jr, jp

Thin section summary: olivine-opx-plag phyric clast with abundant altered glass. Notable for fiame structures

Plane-polarized:



Cross-polarized:

**PRIMARY (IGNEOUS) MINERALOGY**

LITHOLOGY: porphyritic dacite clast

Texture 1:	vesicular	Texture 2:	aphanoporphyratic
Avg. grain size:	microcrystalline	Grain size distrib.:	inequigranular

Phenocrysts	% present	Average size [mm]	Habit	Comments
Plagioclase	1	0.2	sieve	Phenocrysts are very very small in a matrix of altered glass.
Clinopyroxene	0			
Orthopyroxene	1	0.5	blocky	largest grains are opx.
Olivine				phenocrysts are very very small

Groundmass phases	% present	Average size (mm)	Habit	Comments
Mesostasis	97			fiame structures are very distinctive in the altered glassy matrix
Olivine		0.1		

Vesicles [%]	% Filled	Vesicle shape	Avg. size [mm]	Vesicle comments
3	25		0.3	larger vesicles are filled and smaller are empty

MICROSTRUCTURES

Microstructure	Mag. fabric intensity	CPF type	CPF intensity	Structure comments
	isotropic	undeformed	undeformed	

SECONDARY (ALTERATION) MINERALOGY

Total alteration in rock, bulk estimate (%): 50

Phenocryst -->	Olivine	Clinopyroxene	Orthopyroxene	Plagioclase	Oxide	Glass
Original [%]	2		1	1		85
Altered [%]	5		2	5		50
Serpentine	5					
Amph., green			2			
Zeolite				5		
Clay minerals						35

THIN SECTION LABEL ID: **352-U1440A-6H-1-W 60/61-TSB-TS_09**

Thin section no.: 9

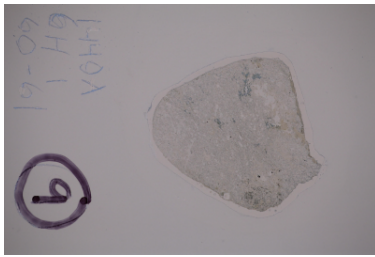
Unit/Subunit: 1

Piece no.:

Observer: jr, sk, tc, jp

Thin section summary: dacitic clast bearing opx and plag phenocrysts

Plane-polarized:



Cross-polarized:

**PRIMARY (IGNEOUS) MINERALOGY**

LITHOLOGY: porphyritic dacite clast

Texture 1:	vesicular	Texture 2:	aphanoporphyrritic
Avg. grain size:	microcrystalline	Grain size distrib.:	inequigranular

Phenocrysts	% present	Average size [mm]	Habit	Comments
Plagioclase	1	0.2		
Orthopyroxene	2			pink-green pleochroism. likely hypersthene

Groundmass phases	% present	Average size (mm)	Habit	Comments
Mesostasis	98			
Olivine		0.1		

Vesicles [%]	% Filled	Vesicle shape	Avg. size [mm]	Vesicle comments
80	80	elongate	0.3	

MICROSTRUCTURES

Microstructure	Mag. fabric intensity	CPF type	CPF intensity	Structure comments
	isotropic	undeformed	undeformed	

SECONDARY (ALTERATION) MINERALOGY

Total alteration in rock, bulk estimate (%): 60

Phenocryst -->	Olivine	Clinopyroxene	Orthopyroxene	Plagioclase	Oxide	Glass
Original [%]			2	1		85
Altered [%]			1	2		60
Amph., green				2		
Clay minerals						25

THIN SECTION LABEL ID: **352-U1440A-13X-1-W 10/13-TSB-TS_10** Thin section no.: 10
 Unit/Subunit: 1 Piece no.: #3 Observer: dh, ks, sw, wn
 Thin section summary: Aphyric basalt clast with a cryptocrystalline groundmass bearing plagioclase and clinopyroxene crystals.



PRIMARY (IGNEOUS) MINERALOGY

LITHOLOGY: aphyric basalt clast

Texture 1:	subophitic	Texture 2:	
Avg. grain size:	cryptocrystalline	Grain size distrib.:	equigranular

Groundmass phases	% present	Average size (mm)	Habit	Comments
Plagioclase	40	0.2	tabular	
Clinopyroxene	18	0.1	blocky	
Fe Ti oxide	2	0.02	prismatic	
Mesostasis	40			The groundmass mesostasis is slightly altered.

Vesicles [%]	% Filled	Vesicle shape	Avg. size [mm]	Vesicle comments
3	5	subrounded	0.4	uniform

MICROSTRUCTURES

Microstructure	Mag. fabric intensity	CPF type	CPF intensity	Structure comments
	isotropic	undeformed	undeformed	

SECONDARY (ALTERATION) MINERALOGY

Total alteration in rock, bulk estimate (%): 20

Groundmass original [%]: 40 Groundmass altered [%]: 20 Groundmass alt. intensity: moderate

Phenocryst -->	Olivine	Clinopyroxene	Orthopyroxene	Plagioclase	Oxide	Glass
Original [%]		18		40	2	
Altered [%]		35		10		
Chlorite		24				
Clay minerals		10				
Zeolite				10		

THIN SECTION LABEL ID: **352-U1440A-14X-1-W 5/8-TSB-TS_14a**

Thin section no.: 14a

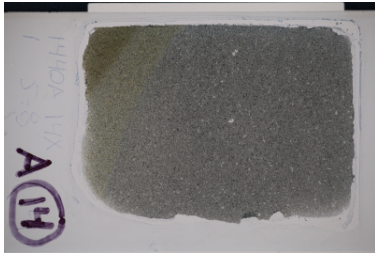
Unit/Subunit: 1

Piece no.: #1

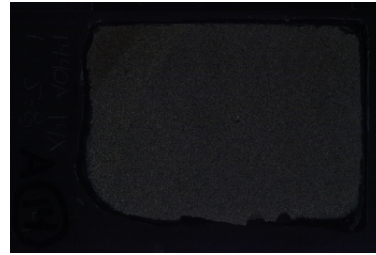
Observer: tc, jp

Thin section summary: Aphyric microcrystalline basalt with plag, cpx and altered glass groundmass

Plane-polarized:



Cross-polarized:

**PRIMARY (IGNEOUS) MINERALOGY**

LITHOLOGY: aphyric basalt lava

Texture 1:	subophitic	Texture 2:	intergranular
Avg. grain size:	microcrystalline	Grain size distrib.:	equigranular

Groundmass phases	% present	Average size (mm)	Habit	Comments
Plagioclase	40	0.2	tabular	
Clinopyroxene	19	0.1	blocky	
Fe Ti oxide	1	0.02		
Mesostasis	40			

Vesicles [%]	% Filled	Vesicle shape	Avg. size [mm]	Vesicle comments
3	5	subrounded	0.4	

MICROSTRUCTURES

Microstructure	Mag. fabric intensity	CPF type	CPF intensity	Structure comments
	weak	undeformed	weakly foliated/lineated	

Microstructure	Mag. fabric intensity	CPF type	CPF intensity	Structure comments
	weak	undeformed	weakly foliated/lineated	

SECONDARY (ALTERATION) MINERALOGY

Alteration domain name: Fresh domain

Domain no.: 1

Domain rel. abundance [%]: 85

Total alteration in rock, bulk estimate (%): 25

Groundmass original [%]: 40

Groundmass altered [%]: 15

Groundmass alt. intensity: moderate

Phenocryst -->	Olivine	Clinopyroxene	Orthopyroxene	Plagioclase	Oxide	Glass
Original [%]		19		40	1	
Altered [%]		5		5	0	
Amph., pale		2				
Chlorite		3				
Zeolite				5		

Alteration domain name: weathered domain Domain no.: 2 Domain rel. abundance [%]: 15

Total alteration in rock, bulk estimate (%): 25

Groundmass original [%]: 40 Groundmass altered [%]: 100 Groundmass alt. intensity: complete

Phenocryst -->	Olivine	Clinopyroxene	Orthopyroxene	Plagioclase	Oxide	Glass
Original [%]		19		40	1	
Altered [%]		50		5	10	
Amph., pale		20				
Chlorite		30				
Zeolite				5		

THIN SECTION LABEL ID: **352-U1440A-14X-1-W 5/8-TSB-TS_14b**

Thin section no.: 14b

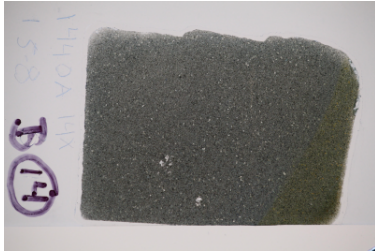
Unit/Subunit: 1

Piece no.: #1

Observer: dh

Thin section summary: Aphyric microcrystalline plag-cpx-altered glass groundmass with some relict altered glomerocrysts of plag and cpx

Plane-polarized:



Cross-polarized:

**PRIMARY (IGNEOUS) MINERALOGY****LITHOLOGY:** aphyric basalt clast

Texture 1:	subophitic	Texture 2:	intergranular
Avg. grain size:	microcrystalline	Grain size distrib.:	equigranular

Groundmass phases	% present	Average size (mm)	Habit	Comments
Plagioclase	40	0.2	tabular	
Clinopyroxene	19	0.1	blocky	There are clusters of larger (0.2 mm) cpx crystals distributed randomly throughout the thin section and may be accompanied by opx.
Fe Ti oxide	1	0.02		
Mesostasis	40			

Vesicles [%]	% Filled	Vesicle shape	Avg. size [mm]	Vesicle comments
3	5	subrounded	0.4	

MICROSTRUCTURES

Microstructure	Mag. fabric intensity	CPF type	CPF intensity	Structure comments
	weak	undeformed	weakly foliated/lineated	

Microstructure	Mag. fabric intensity	CPF type	CPF intensity	Structure comments
	weak	undeformed	weakly foliated/lineated	

SECONDARY (ALTERATION) MINERALOGY

Alteration domain name: Fresh domain

Domain no.: 1

Domain rel. abundance [%]: 85

Total alteration in rock, bulk estimate (%): 25

Groundmass original [%]: 40

Groundmass altered [%]: 15

Groundmass alt. intensity: moderate

Phenocryst -->	Olivine	Clinopyroxene	Orthopyroxene	Plagioclase	Oxide	Glass
Original [%]		19		40	1	
Altered [%]		5		5	0	
Amph., pale		2				
Chlorite		3				
Zeolite				5		

Alteration domain name: weathered domain Domain no.: 2 Domain rel. abundance [%]: 15

Total alteration in rock, bulk estimate (%): 25

Groundmass original [%]: 40 Groundmass altered [%]: 100 Groundmass alt. intensity: complete

Phenocryst -->	Olivine	Clinopyroxene	Orthopyroxene	Plagioclase	Oxide	Glass
Original [%]		19		40	1	
Altered [%]		50		5	10	
Amph., pale		20				
Chlorite		30				
Zeolite				5		

THIN SECTION LABEL ID: **352-U1440B-4R-1-W 49/52-TSB-TS_15a** Thin section no.: 15a
 Unit/Subunit: 1 Piece no.: #05 Observer: jws
 Thin section summary: Medium-grained dolerite clast with altered glass in groundmass



PRIMARY (IGNEOUS) MINERALOGY

LITHOLOGY: doleritic dolerite clast

Texture 1:	intergranular	Texture 2:	intersertal
Avg. grain size:	coarse grained	Grain size distrib.:	seriate

Groundmass phases	% present	Average size (mm)	Habit	Comments
Plagioclase	55	1.5	tabular	
Clinopyroxene	25	1	blocky	some prismatic crystals
Fe Ti oxide	10	0.1	equant	magnetite
Mesostasis	10			glass altered to clay

MICROSTRUCTURES

Microstructure	Mag. fabric intensity	CPF type	CPF intensity	Structure comments
	isotropic	undeformed	undeformed	distinct feldspar crystals irregularly broken

Microstructure	Mag. fabric intensity	CPF type	CPF intensity	Structure comments
	isotropic	undeformed	undeformed	distinct feldspar crystals irregularly broken

SECONDARY (ALTERATION) MINERALOGY

Total alteration in rock, bulk estimate (%): 20

Groundmass original [%]: 10 Groundmass altered [%]: 100 Groundmass alt. intensity: complete

Phenocryst -->	Olivine	Clinopyroxene	Orthopyroxene	Plagioclase	Oxide	Glass
Original [%]		25		55	10	
Altered [%]		50		10	50	
Amph., green		10				
Chlorite		5		9		
Clay minerals		34				
Zeolite				1		

THIN SECTION LABEL ID: 352-U1440B-4R-1-W 49/52-TSB-TS_15b	Thin section no.: 15b
Unit/Subunit: 1	Piece no.: #05
Observer: jp	
Thin section summary: Medium-grained dolerite with completely altered glass in groundmass	



PRIMARY (IGNEOUS) MINERALOGY

LITHOLOGY: doleritic dolerite clast

Texture 1:	intergranular	Texture 2:	intergranular
Avg. grain size:	coarse grained	Grain size distrib.:	seriate

Groundmass phases	% present	Average size (mm)	Habit	Comments
Plagioclase	60	1.5	tabular	
Clinopyroxene	20	1	bladed	
Fe Ti oxide	10	0.1	embayed	magnetite
Mesostasis	10			glass latered to clay

MICROSTRUCTURES

Microstructure	Mag. fabric intensity	CPF type	CPF intensity	Structure comments
	isotropic	undeformed	undeformed	distinct feldspar crystals irregularly broken

Microstructure	Mag. fabric intensity	CPF type	CPF intensity	Structure comments
	isotropic	undeformed	undeformed	distinct feldspar crystals irregularly broken

THIN SECTION LABEL ID: 352-U1440B-4R-1-W 85/88-TSB-TS_16	Thin section no.: 16
Unit/Subunit: 1	Piece no.: #12
Observer: tc	
Thin section summary: Aphyric basalt with altered glass in groundmass. Nice subophitic texture	



PRIMARY (IGNEOUS) MINERALOGY

LITHOLOGY: aphyric basalt lava

Texture 1:	intergranular	Texture 2:	subophitic
Avg. grain size:	microcrystalline	Grain size distrib.:	equigranular

Groundmass phases	% present	Average size (mm)	Habit	Comments
Plagioclase	50	0.2	tabular	
Clinopyroxene	30	0.1	blocky	
Fe Ti oxide	10	0.1	equant	magnetite
Mesostasis	10			glass altered to clay

Vesicles [%]	% Filled	Vesicle shape	Avg. size [mm]	Vesicle comments
1	5	rounded	0.4	

MICROSTRUCTURES

Microstructure	Mag. fabric intensity	CPF type	CPF intensity	Structure comments
	isotropic	undeformed	undeformed	distinct feldspar and pyroxene crystals irregularly broken

Microstructure	Mag. fabric intensity	CPF type	CPF intensity	Structure comments
	isotropic	undeformed	undeformed	distinct feldspar and pyroxene crystals irregularly broken

SECONDARY (ALTERATION) MINERALOGY

Total alteration in rock, bulk estimate (%): 10

Groundmass original [%]: 10 Groundmass altered [%]: 10 Groundmass alt. intensity: slight

Phenocryst -->	Olivine	Clinopyroxene	Orthopyroxene	Plagioclase	Oxide	Glass
Original [%]		30		50	10	
Altered [%]		20		10	50	
Chlorite				1		
Clay minerals				5		
Zeolite				4		

THIN SECTION LABEL ID:	352-U1440B-4R-1-W 129/131-TSB-TS_17	Thin section no.:	17
Unit/Subunit:	2	Piece no.:	#20
Observer:			
Thin section summary:	sparsely plag phyric altered fine grained basalt. Overall yellow-brown colour with glomerocrysts of cpx +plag. Variable alteration along a front parallel to the rock border		



PRIMARY (IGNEOUS) MINERALOGY

LITHOLOGY: sparsely plagioclase phyric basalt lava

Texture 1:	intersertal	Texture 2:	
Avg. grain size:	microcrystalline	Grain size distrib.:	equigranular

Phenocrysts	% present	Average size [mm]	Habit	Comments
Plagioclase	0.8	0.5	acicular	some plagioclase occur as single lath-shaped phenocrysts while others are in glomerocrysts with cpx
Clinopyroxene	0.2	0.6	blocky	only found in glomerocrysts with plag

Groundmass phases	% present	Average size (mm)	Habit	Comments
Plagioclase	40	0.3	tabular	
Clinopyroxene	30	0.06	blocky	
Fe Ti oxide	5	0.06		
Mesostasis	24			glass altered to clay

Vesicles [%]	% Filled	Vesicle shape	Avg. size [mm]	Vesicle comments
2	30	subrounded	0.3	

MICROSTRUCTURES

Microstructure	Mag. fabric intensity	CPF type	CPF intensity	Structure comments
	isotropic	undeformed	undeformed	

SECONDARY (ALTERATION) MINERALOGY

Alteration domain name:	fresh core	Domain no.:	1	Domain rel. abundance [%]:	50
Total alteration in rock, bulk estimate (%):	50				
Groundmass original [%]:	25	Groundmass altered [%]:	100	Groundmass alt. intensity:	complete

Phenocryst -->	Olivine	Clinopyroxene	Orthopyroxene	Plagioclase	Oxide	Glass
Original [%]		30		41	5	
Altered [%]		60		10	10	
Chlorite		30		5		
Clay minerals		20				
Sulfide		10				
Zeolite				5		

Alteration domain name: altered rim Domain no.: 2 Domain rel. abundance [%]: 50

Total alteration in rock, bulk estimate (%): 50

Groundmass original [%]: 25 Groundmass altered [%]: 100 Groundmass alt. intensity: complete

Phenocryst -->	Olivine	Clinopyroxene	Orthopyroxene	Plagioclase	Oxide	Glass
Original [%]		30		41	5	
Altered [%]		100		20	10	
Clay minerals		70				
Sulfide		15				
Chlorite				5		
Zeolite				15		

THIN SECTION LABEL ID: **352-U1440B-5R-1-W 10/14-TSB-TS_18**

Thin section no.: 18

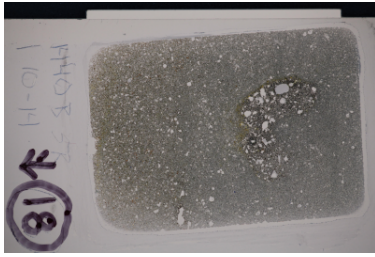
Unit/Subunit: 2

Piece no.: #02

Observer: jws

Thin section summary: Aphyric basaltic lava with a spongy mafic inclusion filling a former vesicle

Plane-polarized:



Cross-polarized:

**PRIMARY (IGNEOUS) MINERALOGY**Sample domain name: **mafic lava**

Domain no.: 1

Domain rel. abundance [%]:

85

LITHOLOGY: **aphyric basalt lava**

Texture 1:	intersertal	Texture 2:	intergranular
Avg. grain size:	microcrystalline	Grain size distrib.:	equigranular

Groundmass phases	% present	Average size (mm)	Habit	Comments
Plagioclase	45	0.08	tabular	
Clinopyroxene	20	0.6	blocky	
Fe Ti oxide	10	0.01	equant	magnetite
Mesostasis	25			

Vesicles [%]	% Filled	Vesicle shape	Avg. size [mm]	Vesicle comments
6	0	irregular	0.25	

Sample domain name: **volcanic inclusion mafic**

Domain no.: 2

Domain rel. abundance [%]:

15

LITHOLOGY: **basalt**

Texture 1:	intergranular	Texture 2:	intersertal
Avg. grain size:	fine grained	Grain size distrib.:	equigranular

Groundmass phases	% present	Average size (mm)	Habit	Comments
Plagioclase	50	0.2		
Clinopyroxene	25	0.15		some prismatic.
Fe Ti oxide	5	0.05		
Mesostasis	20			glass altered to clay

Vesicles [%]	% Filled	Vesicle shape	Avg. size [mm]	Vesicle comments
15	0		0.5	seriate distribution

MICROSTRUCTURES

Microstructure	Mag. fabric intensity	CPF type	CPF intensity	Structure comments
	isotropic	undeformed	undeformed	

SECONDARY (ALTERATION) MINERALOGY

Alteration domain name: fresh core Domain no.: 1 Domain rel. abundance [%]: 70

Total alteration in rock, bulk estimate (%): 20

Groundmass original [%]: 25 Groundmass altered [%]: 20 Groundmass alt. intensity: slight

Phenocryst -->	Olivine	Clinopyroxene	Orthopyroxene	Plagioclase	Oxide	Glass
Original [%]		20		45	10	
Altered [%]		10		10	10	
Amph., green		10				
Chlorite				1		
Zeolite				4		
Plagioclase, secondary				5		

Alteration domain name: altered rim Domain no.: 2 Domain rel. abundance [%]: 15

Total alteration in rock, bulk estimate (%): 20

Groundmass original [%]: 25 Groundmass altered [%]: 50 Groundmass alt. intensity: moderate

Phenocryst -->	Olivine	Clinopyroxene	Orthopyroxene	Plagioclase	Oxide	Glass
Original [%]		20		45	10	
Altered [%]		30		20	20	
Amph., green		15				
Clay minerals		15				
Chlorite				5		
Zeolite				15		

Alteration domain name: volcanic clast, mafic Domain no.: 3 Domain rel. abundance [%]: 15

Total alteration in rock, bulk estimate (%): 20

Groundmass original [%]: 20 Groundmass altered [%]: 20 Groundmass alt. intensity: slight

Phenocryst -->	Olivine	Clinopyroxene	Orthopyroxene	Plagioclase	Oxide	Glass
Original [%]		25		50	5	
Altered [%]		10		5	20	
Amph., green		8				
Chlorite				1		
Clay minerals				2		
Plagioclase, secondary				3		

THIN SECTION LABEL ID: **352-U1440B-6R-1-W 42/45-TSB-TS_19** Thin section no.: 19
 Unit/Subunit: 2 Piece no.: #07 Observer: ks
 Thin section summary: Aphyric basalt with altered glass in the groundmass



PRIMARY (IGNEOUS) MINERALOGY

LITHOLOGY: sparsely plagioclase bearing basalt lava

Texture 1:	intergranular	Texture 2:	intersertal
Avg. grain size:	fine grained	Grain size distrib.:	inequigranular

Phenocrysts	% present	Average size [mm]	Habit	Comments
Plagioclase	0.5	0.6	blocky	

Groundmass phases	% present	Average size (mm)	Habit	Comments
Plagioclase	45	0.3	acicular	
Clinopyroxene	30	0.2	blocky	
Fe Ti oxide	5	0.03	skeletal	magnetite
Mesostasis	19.5			

Vesicles [%]	% Filled	Vesicle shape	Avg. size [mm]	Vesicle comments
1	30	rounded	0.4	

MICROSTRUCTURES

Microstructure	Mag. fabric intensity	CPF type	CPF intensity	Structure comments
	isotropic	undeformed	undeformed	distinct feldspar crystals irregularly broken

SECONDARY (ALTERATION) MINERALOGY

Alteration domain name: Fresh core Domain no.: 1 Domain rel. abundance [%]: 85

Total alteration in rock, bulk estimate (%): 10

Groundmass original [%]: 20 Groundmass altered [%]: 10 Groundmass alt. intensity: slight

Phenocryst -->	Olivine	Clinopyroxene	Orthopyroxene	Plagioclase	Oxide	Glass
Original [%]		30		45	5	
Altered [%]		5		5	40	
Amph., green		5				
Chlorite				3		
Plagioclase, secondary				2		

Alteration domain name: Altered rim Domain no.: 2 Domain rel. abundance [%]: 15

Total alteration in rock, bulk estimate (%): 10

Groundmass original [%]: 20 Groundmass altered [%]: 50 Groundmass alt. intensity: moderate

Phenocryst -->	Olivine	Clinopyroxene	Orthopyroxene	Plagioclase	Oxide	Glass
Original [%]		30		45	5	
Altered [%]		10		5	10	
Amph., green		5				
Chlorite		5		3		
Plagioclase, secondary				2		

THIN SECTION LABEL ID:	352-U1440B-7R-1-W 9/12-TSB-TS_20	Thin section no.:	20
Unit/Subunit:	2	Piece no.:	#03
Observer:			
Thin section summary:	Porphyritic basalt (Plag + cpx phenocrysts) with a glassy matrix with quench texture		



PRIMARY (IGNEOUS) MINERALOGY

LITHOLOGY: moderately plagioclase-augite phyric basalt lava

Texture 1:	variolitic	Texture 2:	microporphyritic
Avg. grain size:	Micocrystalline	Grain size distrib.:	inequigranular

Phenocrysts	% present	Average size [mm]	Habit	Comments
Plagioclase	5	0.6	acicular	
Clinopyroxene	3	0.34	blocky	only found in glomerocrystic clots with plag

Groundmass phases	% present	Average size (mm)	Habit	Comments
Plagioclase	30	0.17	acicular	
Clinopyroxene	15	0.03	blocky	
Mesostasis	47			glass altered to clay

Vesicles [%]	% Filled	Vesicle shape	Avg. size [mm]	Vesicle comments
2	30	subrounded	0.25	

MICROSTRUCTURES

Microstructure	Mag. fabric intensity	CPF type	CPF intensity	Structure comments
	isotropic	undeformed	undeformed	

SECONDARY (ALTERATION) MINERALOGY

Total alteration in rock, bulk estimate (%): 90

Groundmass original [%]: 85 Groundmass altered [%]: 5 Groundmass alt. intensity: slight

Phenocryst -->	Olivine	Clinopyroxene	Orthopyroxene	Plagioclase	Oxide	Glass
Original [%]		5		15		
Altered [%]		20		5		
Amph., green		10				
Chlorite		10		3		
Plagioclase, secondary				2		

THIN SECTION LABEL ID: **352-U1440B-8R-1-W 14/17-TSB-TS_21**

Thin section no.: 21

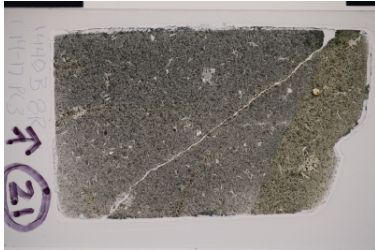
Unit/Subunit: 2

Piece no.: #03

Observer: saw

Thin section summary: Aphyric basalt with subophitic texture and minor glomerocrysts of plag + cpx. Greenish alteration rim along the border of the rock

Plane-polarized:



Cross-polarized:

**PRIMARY (IGNEOUS) MINERALOGY****LITHOLOGY:** aphyric basalt lava

Texture 1:	intergranular	Texture 2:	subophitic
Avg. grain size:	microcrystalline	Grain size distrib.:	inequigranular

Groundmass phases	% present	Average size (mm)	Habit	Comments
Plagioclase	35	0.4	tabular	usually cloudy, wispy
Clinopyroxene	15	0.3	blocky	locally elongate/prismatic (larger cpx crystals only)
Fe Ti oxide	10	0.01		probably magnetite; locally euhedral
Mesostasis	40			

Vesicles [%]	% Filled	Vesicle shape	Avg. size [mm]	Vesicle comments
5	30	subrounded	0.3	

MICROSTRUCTURES

Microstructure	Mag. fabric intensity	CPF type	CPF intensity	Structure comments
	isotropic	undeformed	undeformed	1 microfracture w/o filling; adjacent crystals not affected

SECONDARY (ALTERATION) MINERALOGY

Alteration domain name: Fresh core

Domain no.: 1

Domain rel. abundance [%]: 78

Total alteration in rock, bulk estimate (%): 10

Groundmass original [%]: 40

Groundmass altered [%]: 5

Groundmass alt. intensity: slight

Phenocryst →	Olivine	Clinopyroxene	Orthopyroxene	Plagioclase	Oxide	Glass
Original [%]		15		35	10	
Altered [%]		15		10	5	
Amph., green		10				
Chlorite		5		5		

Alteration domain name: Altered rim Domain no.: 2 Domain rel. abundance [%]: 20

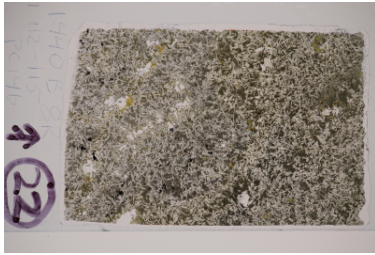
Total alteration in rock, bulk estimate (%): 10

Groundmass original [%]: 40 Groundmass altered [%]: 30 Groundmass alt. intensity: moderate

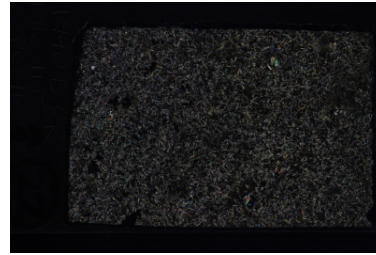
Phenocryst -->	Olivine	Clinopyroxene	Orthopyroxene	Plagioclase	Oxide	Glass
Original [%]		15		35	10	
Altered [%]		5		5	10	
Amph., green		5				
Chlorite				5		
Plagioclase, secondary				5		

THIN SECTION LABEL ID: **352-U1440B-8R-1-W 112/115-TSB-TS_22** Thin section no.: 22
 Unit/Subunit: 2 Piece no.: #14 Observer: ks
 Thin section summary: Aphyric basalt with large (up to 2mm) glomerocrysts of plag + cpx

Plane-polarized:



Cross-polarized:

**PRIMARY (IGNEOUS) MINERALOGY**

LITHOLOGY: sparsely augite-orthopyroxene bearing basalt lava

Texture 1:	intergranular	Texture 2:	intersertal
Avg. grain size:	fine grained	Grain size distrib.:	seriate

Phenocrysts	% present	Average size [mm]	Habit	Comments
Plagioclase	0.5	1.2	blocky	glomerocrysts with cpx
Clinopyroxene	0.3	0.5	blocky	glomerocrysts with plag

Groundmass phases	% present	Average size (mm)	Habit	Comments
Plagioclase	25	0.5	acicular	
Clinopyroxene	15	0.2	blocky	
Fe Ti oxide	2	0.03	skeletal	magnetite
Mesostasis	57.8			

Vesicles [%]	% Filled	Vesicle shape	Avg. size [mm]	Vesicle comments
2	50	rounded	0.5	filled with clay and sometimes oxides (hematite)

MICROSTRUCTURES

Microstructure	Mag. fabric intensity	CPF type	CPF intensity	Structure comments
	isotropic	undeformed	undeformed	single plag crystals with weak undulatory extinction

SECONDARY (ALTERATION) MINERALOGY

Total alteration in rock, bulk estimate (%): 20

Groundmass original [%]: 60 Groundmass altered [%]: 25 Groundmass alt. intensity: high

Phenocryst -->	Olivine	Clinopyroxene	Orthopyroxene	Plagioclase	Oxide	Glass
Original [%]		15		25	2	
Altered [%]		5		5	1	
Amph., green		5				
Chlorite				5		

THIN SECTION LABEL ID: **352-U1440B-10R-1-W 109/111-TSB-TS_23** Thin section no.: 23
 Unit/Subunit: 2 Piece no.: #21 Observer: jp
 Thin section summary: Apyric basalt with altered glass in the groundmass



PRIMARY (IGNEOUS) MINERALOGY

LITHOLOGY: apyric basalt lava

Texture 1:	intergranular	Texture 2:	intersertal
Avg. grain size:	fine grained	Grain size distrib.:	inequigranular

Groundmass phases	% present	Average size (mm)	Habit	Comments
Plagioclase	50	0.2	acicular	
Clinopyroxene	20	0.1	blocky	some grading to anhedral
Fe Ti oxide	10	0.02		magnetite
Mesostasis	20			glass altered to clay

Vesicles [%]	% Filled	Vesicle shape	Avg. size [mm]	Vesicle comments
1	0	subrounded	0.1	

MICROSTRUCTURES

Microstructure	Mag. fabric intensity	CPF type	CPF intensity	Structure comments
	isotropic	undeformed	undeformed	

SECONDARY (ALTERATION) MINERALOGY

Alteration domain name: Fresh core Domain no.: 1 Domain rel. abundance [%]: 85

Total alteration in rock, bulk estimate (%): 30

Groundmass original [%]: 30 Groundmass altered [%]: 50 Groundmass alt. intensity: moderate

Phenocryst -->	Olivine	Clinopyroxene	Orthopyroxene	Plagioclase	Oxide	Glass
Original [%]		20		50	10	
Altered [%]		10		10	30	
Chlorite		10		3		
Zeolite				2		
Plagioclase, secondary				5		

Alteration domain name: Veins

Domain no.: 2

Domain rel. abundance [%]: 15

Total alteration in rock, bulk estimate (%): 30

Groundmass original [%]: 30

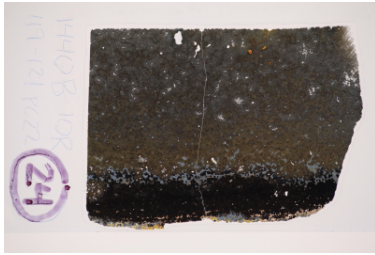
Groundmass altered [%]: 100

Groundmass alt. intensity: complete

Phenocryst -->	Olivine	Clinopyroxene	Orthopyroxene	Plagioclase	Oxide	Glass
Original [%]		20		50	10	
Altered [%]		15		10	30	
Chlorite		15		3		
Zeolite				2		
Plagioclase, secondary				5		

THIN SECTION LABEL ID: **352-U1440B-10R-1-W 119/121-TSB-TS_24** Thin section no.: 24
 Unit/Subunit: 2 Piece no.: #22 Observer: ks
 Thin section summary: Sparsely plagioclase phyric basalt with devitrified glass rim.

Plane-polarized:



Cross-polarized:

**PRIMARY (IGNEOUS) MINERALOGY**

LITHOLOGY: sparsely plagioclase phyric basalt lava

Texture 1:	glassy matrix	Texture 2:	microlitic
Avg. grain size:	cryptocrystalline	Grain size distrib.:	equigranular

Phenocrysts	% present	Average size [mm]	Habit	Comments
Plagioclase	1	0.5	blocky	

Groundmass phases	% present	Average size (mm)	Habit	Comments
Plagioclase	2	0.2	acicular	
Clinopyroxene	1	0.1	equant	
Mesostasis	96			spherulitic microlites occur in the originally glassy matrix

Vesicles [%]	% Filled	Vesicle shape	Avg. size [mm]	Vesicle comments
2	80	rounded	0.2	

MICROSTRUCTURES

Microstructure	Mag. fabric intensity	CPF type	CPF intensity	Structure comments
	isotropic	undeformed	undeformed	

SECONDARY (ALTERATION) MINERALOGY

Alteration domain name: groundmass Domain no.: 1 Domain rel. abundance [%]: 90

Total alteration in rock, bulk estimate (%): 95

Phenocryst -->	Olivine	Clinopyroxene	Orthopyroxene	Plagioclase	Oxide	Glass
Original [%]		1		2		97
Altered [%]		10		25		100
Amph., green		5				
Chlorite		5		5		
Clay minerals				5		20
Plagioclase, secondary				15		

Alteration domain name: Glassy rim

Domain no.: 2

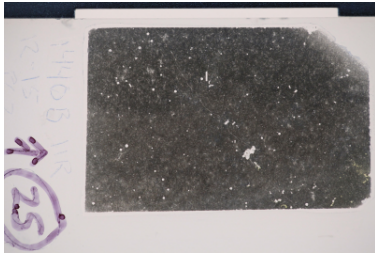
Domain rel. abundance [%]: 10

Total alteration in rock, bulk estimate (%): 95

Phenocryst -->	Olivine	Clinopyroxene	Orthopyroxene	Plagioclase	Oxide	Glass
Original [%]		1		2		97
Altered [%]		10		25		100
Amph., green		5				
Chlorite		5		5		
Clay minerals				5		20
Plagioclase, secondary				15		

THIN SECTION LABEL ID: **352-U1440B-11R-1-W 12/15-TSB-TS_25** Thin section no.: 25
 Unit/Subunit: 2 Piece no.: #02 Observer: saw
 Thin section summary: Sparsely plagioclase phyric basalt with a glassy matrix exhibiting a quenched texture

Plane-polarized:



Cross-polarized:

**PRIMARY (IGNEOUS) MINERALOGY**

LITHOLOGY: aphyric basalt lava

Texture 1:	microlitic	Texture 2:	glassy matrix
Avg. grain size:	cryptocrystalline	Grain size distrib.:	equigranular

Phenocrysts	% present	Average size [mm]	Habit	Comments
Plagioclase	5	0.2	acicular	rare plagioclase "phenocrysts" exhibit simple (Carlsbad) twins

Groundmass phases	% present	Average size (mm)	Habit	Comments
Plagioclase	20	0.1	acicular	usually cloudy, wispy
Clinopyroxene	5	0.15	blocky	larger groundmass constituents commonly elongate
Fe Ti oxide	0			possibly originally present but more/less completely altered
Mesostasis	70			alteration products uncertain; clays? but not palagonitized

Vesicles [%]	% Filled	Vesicle shape	Avg. size [mm]	Vesicle comments
5	10	subrounded	0.1	

MICROSTRUCTURES

Microstructure	Mag. fabric intensity	CPF type	CPF intensity	Structure comments
	isotropic	undeformed	undeformed	

SECONDARY (ALTERATION) MINERALOGY

Total alteration in rock, bulk estimate (%): 10

Groundmass original [%]: 70 Groundmass altered [%]: 10 Groundmass alt. intensity: slight

Phenocryst -->	Olivine	Clinopyroxene	Orthopyroxene	Plagioclase	Oxide	Glass
Original [%]		5		25		
Altered [%]		30		5		
Amph., green		10				
Chlorite		20				
Plagioclase, secondary				5		

THIN SECTION LABEL ID: **352-U1440B-12R-1-W 7/8-TSB-TS_26**

Thin section no.: 26

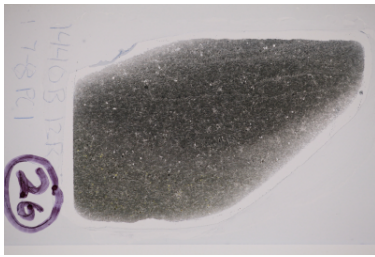
Unit/Subunit: 2

Piece no.: #02

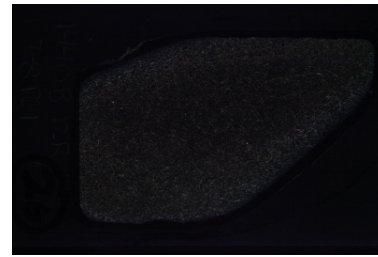
Observer: jp

Thin section summary: aphanitic basalt with the majority of the groundmass altered glass

Plane-polarized:



Cross-polarized:

**PRIMARY (IGNEOUS) MINERALOGY**

LITHOLOGY: aphyric basalt lava

Texture 1:	felty	Texture 2:	intersertal
Avg. grain size:	cryptocrystalline	Grain size distrib.:	inequigranular

Groundmass phases	% present	Average size (mm)	Habit	Comments
Plagioclase	45	0.08	tabular	plag in groundmass is completely altered to clays, giving a higher birefringence and appears felty and reminiscent of devitrified glass
Clinopyroxene	10	0.05	acicular	cpx are needle like and look like plag, but have high birefringence. There are also small granular cpx that are likely horizontal cuts through the needles
Mesostasis	45			felt textured glass
Fe Ti oxide				hard to distinguish, probably very small

Vesicles [%]	% Filled	Vesicle shape	Avg. size [mm]	Vesicle comments
2	50	rounded	0.01	vesicles are either completely filled or completely empty

MICROSTRUCTURES

Microstructure	Mag. fabric intensity	CPF type	CPF intensity	Structure comments
	isotropic	undeformed	undeformed	

SECONDARY (ALTERATION) MINERALOGY

Total alteration in rock, bulk estimate (%): 10

Groundmass original [%]: 85

Groundmass altered [%]: 10

Groundmass alt. intensity: slight

Phenocryst -->	Olivine	Clinopyroxene	Orthopyroxene	Plagioclase	Oxide	Glass
Original [%]		10		5		
Altered [%]		15		5		
Amph., pale		10				
Chlorite		5				
Zeolite				5		

THIN SECTION LABEL ID:	352-U1440B-12R-1-W 99/101-TSB-TS_27	Thin section no.:	27
Unit/Subunit:	3	Piece no.:	#19
Observer:	dh		
Thin section summary:	glomerocrysts of plag and cpx in an intersertal matrix. Carbonate and tridymite veins with weak clay-rich halo. Alteration of plagioclase phenocrysts into carbonate.		



PRIMARY (IGNEOUS) MINERALOGY

LITHOLOGY: sparsely augite bearing basalt lava

Texture 1:	intersertal subophitic	Texture 2:	
Avg. grain size:	cryptocrystalline	Grain size distrib.:	equigranular

Phenocrysts	% present	Average size [mm]	Habit	Comments
Clinopyroxene	0.5	1.2	blocky	the cpx crystals are moderately altered and are being resorbed

Groundmass phases	% present	Average size (mm)	Habit	Comments
Plagioclase	10	0.3	tabular	
Clinopyroxene	20	0.2	blocky	very few cpx needles
Fe Ti oxide	0.1	0.1		
Mesostasis	68.9			felt textured glass

Vesicles [%]	% Filled	Vesicle shape	Avg. size [mm]	Vesicle comments
1	0	subrounded	0.1	vesicles have an irregular distribution

VEINS

Vein	Thickness [cm]	Boundary	Generation	Vein comment
composite vein		sharp boundary or contact	1st generation	Large carbonate and trydimite vein

MICROSTRUCTURES

Microstructure	Mag. fabric intensity	CPF type	CPF intensity	Structure comments
		twinning		calcite vein; probably zeolite (?); calcite coarse-grained; coarse grains are moderately twinned (type I; in parts type II), single coarse grains with slight undulatory extinction and partly subgrain formation. Shape of grain boundaries highly variable; quartz does not show undulatory extinction (or jut very little); quartz is fractured (shear fractures, regular, subparallel); fractures continue into zeolite (?) or devitrified material; slightly opened fractures are filled with quartz.
	isotropic	undeformed	undeformed	

SECONDARY (ALTERATION) MINERALOGY

Total alteration in rock, bulk estimate (%): 30

Groundmass original [%]: 70

Groundmass altered [%]: 30

Groundmass alt. intensity: moderate

Phenocryst -->	Olivine	Clinopyroxene	Orthopyroxene	Plagioclase	Oxide	Glass
Original [%]		20		10		
Altered [%]		30		20		
Amph., green		10				
Chlorite		20		5		
Clay minerals				5		
Zeolite				10		

THIN SECTION LABEL ID: **352-U1440B-12R-2-W 7/9-TSB-TS_28**

Thin section no.: 28

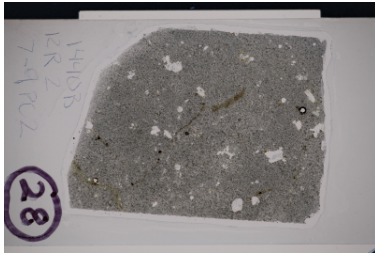
Unit/Subunit: 3

Piece no.: #02

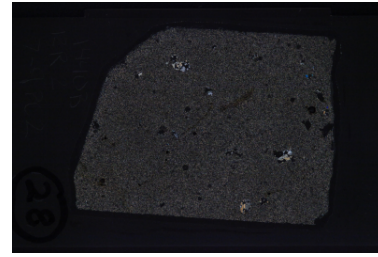
Observer: tc

Thin section summary: large pheocrysts of plagioclase within a microcrystalline intersertal matrix

Plane-polarized:



Cross-polarized:

**PRIMARY (IGNEOUS) MINERALOGY**

LITHOLOGY: sparsely plagioclase phyric basalt lava

Texture 1:	intersertal	Texture 2:	microporphyritic
Avg. grain size:	microcrystalline	Grain size distrib.:	inequigranular

Phenocrysts	% present	Average size [mm]	Habit	Comments
Plagioclase	2	1.5	tabular	large phenocrysts

Groundmass phases	% present	Average size (mm)	Habit	Comments
Plagioclase	45	0.2	tabular	
Clinopyroxene	20	0.2	equant	
Fe Ti oxide	2	0.1	equant	
Mesostasis	31			

Vesicles [%]	% Filled	Vesicle shape	Avg. size [mm]	Vesicle comments
1	0	rounded	0.4	

MICROSTRUCTURES

Microstructure	Mag. fabric intensity	CPF type	CPF intensity	Structure comments
	isotropic	undeformed	undeformed	vesicles not elongated; few porphyric plag and quartz crystals, surrounded by haloes of devitrified vesicle material, quartz and plag are fractured

SECONDARY (ALTERATION) MINERALOGY

Total alteration in rock, bulk estimate (%): 10

Groundmass original [%]: 31

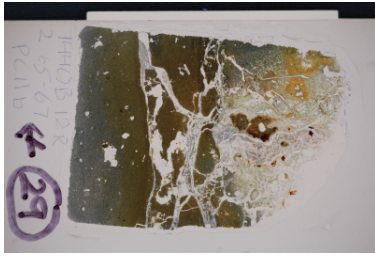
Groundmass altered [%]: 10

Groundmass alt. intensity: slight

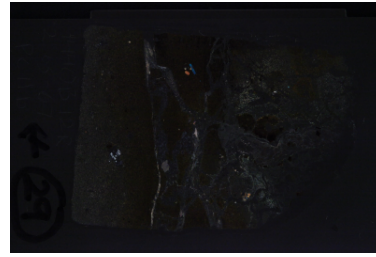
Phenocryst -->	Olivine	Clinopyroxene	Orthopyroxene	Plagioclase	Oxide	Glass
Original [%]		20		47	2	
Altered [%]		10		15	15	
Amph., pale		7				
Sulfide		3				
Clay minerals				5		
Zeolite				10		

THIN SECTION LABEL ID: **352-U1440B-12R-2-W 65/67-TSB-TS_29** Thin section no.: 29
 Unit/Subunit: 3 Piece no.: #11 Observer: saw
 Thin section summary: Carbonate-rich vein in the contact between glass and aphyric basalt

Plane-polarized:



Cross-polarized:

**PRIMARY (IGNEOUS) MINERALOGY**

Sample domain name: mafic lava Domain no.: 1 Domain rel. abundance [%]:

LITHOLOGY: sparsely plagioclase-augite aphyric basalt lava

Texture 1:	intersertal subophitic	Texture 2:	
Avg. grain size:	microcrystalline	Grain size distrib.:	inequigranular

Phenocrysts	% present	Average size [mm]	Habit	Comments
Plagioclase	2	2		altered
Clinopyroxene	1	0.5	blocky	altered

Groundmass phases	% present	Average size (mm)	Habit	Comments
Plagioclase	10	0.2		
Clinopyroxene	5	0.2		
Mesostasis	82			

Vesicles [%]	% Filled	Vesicle shape	Avg. size [mm]	Vesicle comments
2	100	rounded		

VEINS

Vein	Thickness [cm]	Boundary	Generation	Vein comment
haloed vein	0.1	diffuse boundary or contact	1st generation	Thin veins cutting altered glass and aphyric basalt

MICROSTRUCTURES

Microstructure	Mag. fabric intensity	CPF type	CPF intensity	Structure comments
		subgrain boundaries		tridymite vein with altered host rock fragments; single coarse grained calcite, probably zeolite clay minerals along vein margins; calcite moderately twinned (type I; in parts type II) with slight undulatory extinction and partly subgrain formation. Shape of tridymite grain boundaries highly variable; partly fibrous, no shape preferred orientation, irregularly grown; grain boundaries curved, partly sutured, undulatory extinction highly abundant; subgrains present; subgrains with irregular subgrain boundaries, partly straight, partly sutures; interfingering subgrains; single grains with deformation bands; single grains probably twinned (sandglass fabrics). thin veins form domains with (sub-)rectangular network.

Microstructure	Mag. fabric intensity	CPF type	CPF intensity	Structure comments
	isotropic	undeformed	undeformed	vesicles not elongated

SECONDARY (ALTERATION) MINERALOGY

Alteration domain name: Mafic lava Domain no.: 1 Domain rel. abundance [%]: 60

Total alteration in rock, bulk estimate (%): 55

Groundmass original [%]: 90 Groundmass altered [%]: 30 Groundmass alt. intensity: moderate

Phenocryst -->	Olivine	Clinopyroxene	Orthopyroxene	Plagioclase	Oxide	Glass
Original [%]		2		8		
Altered [%]		70		50		
Chlorite		70		50		

Alteration domain name: Glass Domain no.: 2 Domain rel. abundance [%]: 40

Total alteration in rock, bulk estimate (%): 55

Phenocryst -->	Olivine	Clinopyroxene	Orthopyroxene	Plagioclase	Oxide	Glass
Original [%]		1		1		97
Altered [%]		10		100		100
Chlorite		10				
Quartz				100		
Clay minerals						60

THIN SECTION LABEL ID: **352-U1440B-13R-1-W 1/3-TSB-TS_30** Thin section no.: 30
 Unit/Subunit: 4 Piece no.: #01 Observer: tc
 Thin section summary: microphenocrysts of plagioclase in an intersertal matrix. Carbonate-rich vein in the glass



PRIMARY (IGNEOUS) MINERALOGY

LITHOLOGY: sparsely plagioclase phyric basalt lava

Texture 1:	microporphyritic	Texture 2:	intersertal
Avg. grain size:	microcrystalline	Grain size distrib.:	inequigranular

Phenocrysts	% present	Average size [mm]	Habit	Comments
Plagioclase	1	0.4	tabular	

Groundmass phases	% present	Average size (mm)	Habit	Comments
Plagioclase	40	0.3	tabular	
Clinopyroxene	20	0.2	prismatic	
Fe Ti oxide	5	0.2	prismatic	
Mesostasis	34			

Vesicles [%]	% Filled	Vesicle shape	Avg. size [mm]	Vesicle comments
5	20	rounded	0.4	

SECONDARY (ALTERATION) MINERALOGY

Alteration domain name: Basalt Domain no.: 1 Domain rel. abundance [%]: 85

Total alteration in rock, bulk estimate (%): 15

Groundmass original [%]: 40 Groundmass altered [%]: 20 Groundmass alt. intensity: slight

Phenocryst ->	Olivine	Clinopyroxene	Orthopyroxene	Plagioclase	Oxide	Glass
Original [%]		10		40		
Altered [%]		10		30		
Amph., green		5				
Chlorite		3		20		
Zeolite				10		

Alteration domain name: Glass Domain no.: 2 Domain rel. abundance [%]: 15

Total alteration in rock, bulk estimate (%): 15

Groundmass original [%]: 30

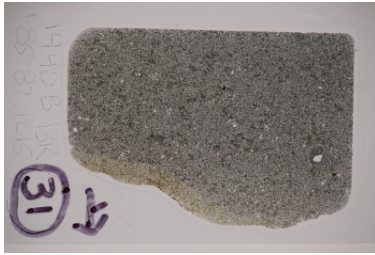
Groundmass altered [%]: 90

Groundmass alt. intensity: high

Phenocryst -->	Olivine	Clinopyroxene	Orthopyroxene	Plagioclase	Oxide	Glass
Original [%]		15		50	5	100
Altered [%]		20		20	5	100
Amph., green		5				
Chlorite		13		15		
Zeolite				5		
Clay minerals						30
Carbonate						20

THIN SECTION LABEL ID: **352-U1440B-13R-1-W 85/87-TSB-TS_31** Thin section no.: 31
 Unit/Subunit: 4 Piece no.: #15 Observer: tc
 Thin section summary: plagioclase phenocrysts within a intersertal to subophitic groundmass.

Plane-polarized:



Cross-polarized:

**PRIMARY (IGNEOUS) MINERALOGY**

LITHOLOGY: sparsely plagioclase phyric basalt lava

Texture 1:	intersertal subophitic	Texture 2:	
Avg. grain size:	microcrystalline	Grain size distrib.:	equigranular

Phenocrysts	% present	Average size [mm]	Habit	Comments
Plagioclase	1	0.3	tabular	

Groundmass phases	% present	Average size (mm)	Habit	Comments
Plagioclase	50	0.3	tabular	
Clinopyroxene	15	0.2	blocky	
Fe Ti oxide	4	0.1	equant	
Mesostasis	30			

Vesicles [%]	% Filled	Vesicle shape	Avg. size [mm]	Vesicle comments
1	0	subrounded	0.2	

MICROSTRUCTURES

Microstructure	Mag. fabric intensity	CPF type	CPF intensity	Structure comments
	isotropic	undeformed	undeformed	

SECONDARY (ALTERATION) MINERALOGY

Alteration domain name: Fresh core Domain no.: 1 Domain rel. abundance [%]: 90

Total alteration in rock, bulk estimate (%): 15

Groundmass original [%]: 30 Groundmass altered [%]: 30 Groundmass alt. intensity: moderate

Phenocryst -->	Olivine	Clinopyroxene	Orthopyroxene	Plagioclase	Oxide	Glass
Original [%]		15		50	5	
Altered [%]		30		10	10	
Chlorite		5				
Clay minerals		25				
Zeolite				10		

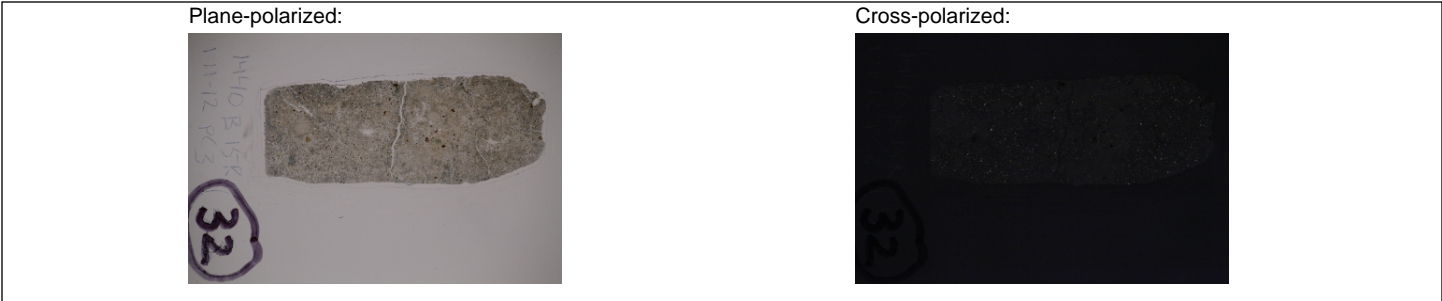
Alteration domain name: Altered rim Domain no.: 2 Domain rel. abundance [%]: 10

Total alteration in rock, bulk estimate (%): 15

Groundmass original [%]: 30 Groundmass altered [%]: 50 Groundmass alt. intensity: moderate

Phenocryst -->	Olivine	Clinopyroxene	Orthopyroxene	Plagioclase	Oxide	Glass
Original [%]		15		50	5	
Altered [%]		30		10	70	
Chlorite		5				
Clay minerals		25				
Zeolite				10		

THIN SECTION LABEL ID: **352-U1440B-15R-1-W 11/12-TSB-TS_32** Thin section no.: 32
 Unit/Subunit: 4 Piece no.: #03 Observer: tc
 Thin section summary: fine sandstone with crystal fragments of amphibole, clinopyroxene, feldspar and quartz



MICROSTRUCTURES

Microstructure	Mag. fabric intensity	CPF type	CPF intensity	Structure comments
	isotropic	undeformed	undeformed	

THIN SECTION LABEL ID: **352-U1440B-16R-1-W 4/5-TSB-TS_33**

Thin section no.: 33

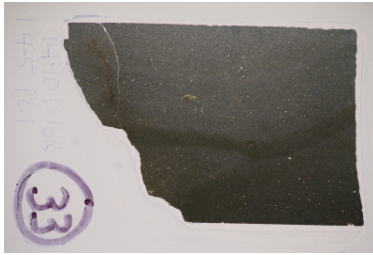
Unit/Subunit: 4

Piece no.: #01

Observer: tc

Thin section summary: aphyric microcrystalline basalt with intersertal devitrified texture

Plane-polarized:



Cross-polarized:

**PRIMARY (IGNEOUS) MINERALOGY**

LITHOLOGY: aphyric basalt lava

Texture 1:	intersertal	Texture 2:	felty
Avg. grain size:	microcrystalline	Grain size distrib.:	equigranular

Groundmass phases	% present	Average size (mm)	Habit	Comments
Plagioclase	45	0.1	tabular	
Clinopyroxene	30	0.1	blocky	
Fe Ti oxide	5	0.1	equant	
Mesostasis	20			devitrified

MICROSTRUCTURES

Microstructure	Mag. fabric intensity	CPF type	CPF intensity	Structure comments
	isotropic	undeformed	undeformed	vesicles not elongated

SECONDARY (ALTERATION) MINERALOGY

Alteration domain name: Fresh core Domain no.: 1 Domain rel. abundance [%]: 75

Total alteration in rock, bulk estimate (%): 20

Groundmass original [%]: 70 Groundmass altered [%]: 15 Groundmass alt. intensity: moderate

Phenocryst -->	Olivine	Clinopyroxene	Orthopyroxene	Plagioclase	Oxide	Glass
Original [%]		2		20		
Altered [%]		50		50		
Clay minerals		50				
Zeolite				50		

Alteration domain name: Altered rim Domain no.: 2 Domain rel. abundance [%]: 25

Total alteration in rock, bulk estimate (%): 20

Groundmass original [%]: 70

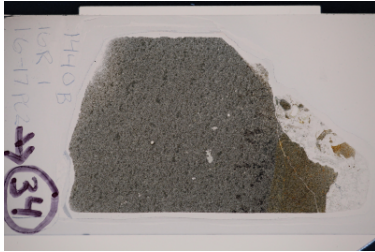
Groundmass altered [%]: 50

Groundmass alt. intensity: moderate

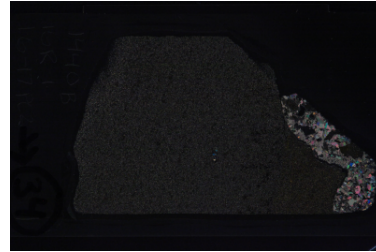
Phenocryst -->	Olivine	Clinopyroxene	Orthopyroxene	Plagioclase	Oxide	Glass
Original [%]		2		20	2	
Altered [%]		60		70	100	
Clay minerals		60				
Zeolite				70		

THIN SECTION LABEL ID: **352-U1440B-16R-1-W 16/17-TSB-TS_34** Thin section no.: 34
 Unit/Subunit: 4 Piece no.: #02 Observer: tc
 Thin section summary: plagioclase phenocrysts within a intersertal to subophitic groundmass. Sub-cataclastic carbonate-rich vein containing clasts of aphyric basalts

Plane-polarized:



Cross-polarized:

**PRIMARY (IGNEOUS) MINERALOGY****LITHOLOGY:** sparsely plagioclase bearing basalt lava

Texture 1:	intersertal subophitic	Texture 2:	
Avg. grain size:	microcrystalline	Grain size distrib.:	equigranular

Phenocrysts	% present	Average size [mm]	Habit	Comments
Plagioclase	0.5	0.5	tabular	

Groundmass phases	% present	Average size (mm)	Habit	Comments
Plagioclase	44	0.2	tabular	
Clinopyroxene	20	0.2	blocky	
Fe Ti oxide	5	0.2	equant	
Mesostasis	30			

Vesicles [%]	% Filled	Vesicle shape	Avg. size [mm]	Vesicle comments
1	0	rounded	0.4	

VEINS

Vein	Thickness [cm]	Boundary	Generation	Vein comment
composite vein	0.5	sharp boundary or contact	1st generation	Large grains of calcite with finer grained silica, probably low quartz

Vein	Thickness [cm]	Boundary	Generation	Vein comment
haloed vein	1	sharp boundary or contact	1st generation	Varitextured carbonate vein containing some chalcedony and blocks of the basaltic host.

MICROSTRUCTURES

Microstructure	Mag. fabric intensity	CPF type	CPF intensity	Structure comments
		twinning		calcite vein with altered host rock fragments; probably zeolite (?); bimodal grain size distribution; coarse and fine-grained domains; coarse grains are moderately twinned (type I; in parts type II), single coarse grains with slight undulatory extinction and partly subgrain formation. Shape of grain boundaries highly variable; contacts from coarse to coarse grain are more regular and straight to slightly curved; in presence of fine grained aggregates coarse grains have highly irregular grain boundaries. Transected by thin irregular vein. Fine grains partly embedded in zeolite (?) matrix.

Microstructure	Mag. fabric intensity	CPF type	CPF intensity	Structure comments
	isotropic	undeformed	undeformed	

SECONDARY (ALTERATION) MINERALOGY

Alteration domain name: Fresh core Domain no.: 1 Domain rel. abundance [%]: 85

Total alteration in rock, bulk estimate (%): 15

Groundmass original [%]: 30 Groundmass altered [%]: 10 Groundmass alt. intensity: slight

Phenocryst -->	Olivine	Clinopyroxene	Orthopyroxene	Plagioclase	Oxide	Glass
Original [%]		20		45	5	
Altered [%]		15		20	5	
Amph., green		15				
Chlorite				10		
Zeolite				10		

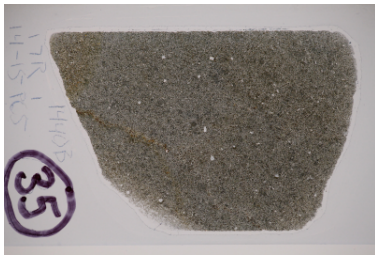
Alteration domain name: Altered rim Domain no.: 2 Domain rel. abundance [%]: 15

Groundmass original [%]: Groundmass altered [%]: 40 Groundmass alt. intensity: moderate

Phenocryst -->	Olivine	Clinopyroxene	Orthopyroxene	Plagioclase	Oxide	Glass
Altered [%]		20				
Amph., green		10				
Clay minerals		10				

THIN SECTION LABEL ID: **352-U1440B-17R-1-W 14/15-TSB-TS_35** Thin section no.: 35
 Unit/Subunit: 4 Piece no.: #03 Observer: tc
 Thin section summary: aphyric basalt with an altered intersertal matrix

Plane-polarized:



Cross-polarized:

**PRIMARY (IGNEOUS) MINERALOGY**

LITHOLOGY: aphyric basalt lava

Texture 1:	intersertal	Texture 2:	
Avg. grain size:	microcrystalline	Grain size distrib.:	equigranular

Groundmass phases	% present	Average size (mm)	Habit	Comments
Plagioclase	40	0.2	tabular	
Clinopyroxene	20	0.1	equant	
Fe Ti oxide	3	0.1	equant	
Mesostasis	37			

Vesicles [%]	% Filled	Vesicle shape	Avg. size [mm]	Vesicle comments
1	5	rounded	0.2	

MICROSTRUCTURES

Microstructure	Mag. fabric intensity	CPF type	CPF intensity	Structure comments
	isotropic	undeformed	undeformed	vesicles not elongated, few with irregular boundaries

SECONDARY (ALTERATION) MINERALOGY

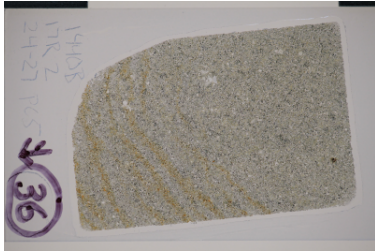
Total alteration in rock, bulk estimate (%): 30

Groundmass original [%]: 37 Groundmass altered [%]: 40 Groundmass alt. intensity: moderate

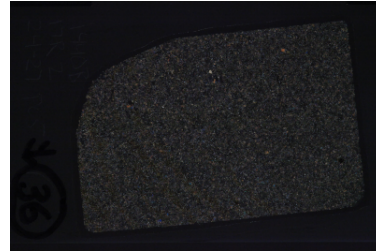
Phenocryst -->	Olivine	Clinopyroxene	Orthopyroxene	Plagioclase	Oxide	Glass
Original [%]		20		40	3	
Altered [%]		30		25	70	
Serpentine		5				
Clay minerals		23				
Zeolite				25		

THIN SECTION LABEL ID: **352-U1440B-17R-2-W 24/27-TSB-TS_36** Thin section no.: 36
 Unit/Subunit: 5 Piece no.: #05 Observer: tc
 Thin section summary: augite phyric basalt, glomerocrysts within a intergranular to subophitic matrix. Sulfides-rich parallel alteration fronts.

Plane-polarized:



Cross-polarized:

**PRIMARY (IGNEOUS) MINERALOGY**

LITHOLOGY: sparsely augite phyric basalt lava

Texture 1:	intergranular	Texture 2:	subophitic
Avg. grain size:	fine grained	Grain size distrib.:	inequigranular

Phenocrysts	% present	Average size [mm]	Habit	Comments
Clinopyroxene	2	1	poikilitic	glomerocrysts

Groundmass phases	% present	Average size (mm)	Habit	Comments
Plagioclase	50	0.4	tabular	
Clinopyroxene	25	0.3	equant	
Fe Ti oxide	5	0.2	equant	
Mesostasis	18			

Vesicles [%]	% Filled	Vesicle shape	Avg. size [mm]	Vesicle comments
1	0	rounded	0.3	

MICROSTRUCTURES

Microstructure	Mag. fabric intensity	CPF type	CPF intensity	Structure comments
	isotropic	undeformed	undeformed	augite and plag phenocrysts fractured

SECONDARY (ALTERATION) MINERALOGY

Alteration domain name: Fresh core Domain no.: 1 Domain rel. abundance [%]: 95

Total alteration in rock, bulk estimate (%): 30

Groundmass original [%]: 18 Groundmass altered [%]: 30 Groundmass alt. intensity: moderate

Phenocryst -->	Olivine	Clinopyroxene	Orthopyroxene	Plagioclase	Oxide	Glass
Original [%]		27		50	5	
Altered [%]		20		10	50	
Clay minerals		17				
Zeolite				10		

Alteration domain name: Alteration front Domain no.: 2 Domain rel. abundance [%]: 5

Total alteration in rock, bulk estimate (%): 30

Groundmass original [%]: 18 Groundmass altered [%]: 95 Groundmass alt. intensity: high

Phenocryst -->	Olivine	Clinopyroxene	Orthopyroxene	Plagioclase	Oxide	Glass
Original [%]		27		50	5	
Altered [%]		25		15	70	
Amph., green		5				
Clay minerals		17				
Zeolite				15		

THIN SECTION LABEL ID: **352-U1440B-18R-1-W 48/50-TSB-TS_37**

Thin section no.: 37

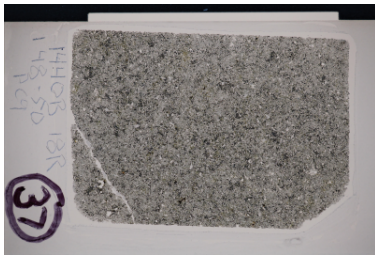
Unit/Subunit: 5

Piece no.: #09

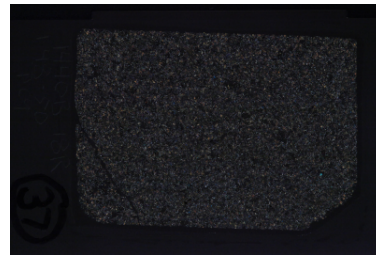
Observer: tc

Thin section summary: aphyrc fine-grained basalt with intersertal matrix

Plane-polarized:



Cross-polarized:

**PRIMARY (IGNEOUS) MINERALOGY**

LITHOLOGY: aphyrc basalt lava

Texture 1:	intersertal	Texture 2:	subophitic
Avg. grain size:	fine grained	Grain size distrib.:	equigranular

Groundmass phases	% present	Average size (mm)	Habit	Comments
Plagioclase	40	0.6	tabular	
Clinopyroxene	20	0.4	prismatic	
Fe Ti oxide	2	0.2	equant	
Mesostasis	38			

Vesicles [%]	% Filled	Vesicle shape	Avg. size [mm]	Vesicle comments
1	0	rounded	0.2	

MICROSTRUCTURES

Microstructure	Mag. fabric intensity	CPF type	CPF intensity	Structure comments
	isotropic	undeformed	undeformed	px and plag phenocrysts fractured

SECONDARY (ALTERATION) MINERALOGY

Total alteration in rock, bulk estimate (%): 20

Groundmass original [%]: 38

Groundmass altered [%]: 25

Groundmass alt. intensity: moderate

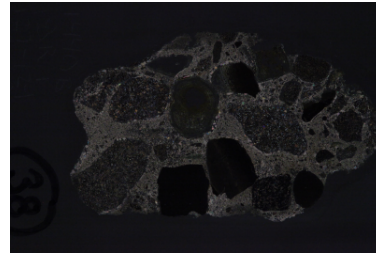
Phenocryst -->	Olivine	Clinopyroxene	Orthopyroxene	Plagioclase	Oxide	Glass
Original [%]		20		40	2	
Altered [%]		30		10	30	
Amph., green		2				
Clay minerals		25				
Zeolite				10		

THIN SECTION LABEL ID: **352-U1440B-18R-1-W 127/129-TSB-TS_38** Thin section no.: 38
 Unit/Subunit: 5 Piece no.: #20 Observer: wn
 Thin section summary: Volcaniclastic breccia with aphanitic basalt lava and glass clasts in a carbonate matrix

Plane-polarized:



Cross-polarized:

**PRIMARY (IGNEOUS) MINERALOGY**

LITHOLOGY: heterolithic basalt breccia

Texture 1:	volcaniclastic breccia	Texture 2:	glassy matrix
Avg. grain size:	fine grained	Grain size distrib.:	

Groundmass phases	% present	Average size (mm)	Habit	Comments
Plagioclase	40			
Fe Ti oxide	10			
Mesostasis	35			basalt and glass clasts in fine-grained matrix

MICROSTRUCTURES

Microstructure	Mag. fabric intensity	CPF type	CPF intensity	Structure comments
		weakly foliated/ineat ed		cataclasite with fragments of glass, basalt, single grains of plag and px; cemented with calcite or Mg-calcite; calcite with bimodal grain size distribution; coarse and fine-grained domains; coarse grains are moderately twinned (type I; in parts type II), single coarse grains with slight undulatory extinction and partly subgrain formation. Shape of grain boundaries highly variable; contacts from coarse to coarse grain are more regular and straight to slightly curved; in presence of fine grained aggregates coarse grains have highly irregular grain boundaries. Sparitic calcite forms partly along margins of fragments; single coarse quartz within calcite is fragmented; tridymite (and/or quartz?) forms partly along margins of fragments. Internal fabric of fragments shows original undeformed magmatic fabric.

SECONDARY (ALTERATION) MINERALOGY

Alteration domain name: Cement Domain no.: 1 Domain rel. abundance [%]: 20

Total alteration in rock, bulk estimate (%): 0

Groundmass original [%]: 100 Groundmass altered [%]: 0 Groundmass alt. intensity: none

Alteration domain name: volcanic clast, mafic Domain no.: 2 Domain rel. abundance [%]: 45

Total alteration in rock, bulk estimate (%): 50

Groundmass original [%]: 30 Groundmass altered [%]: 50 Groundmass alt. intensity: moderate

Phenocryst -->	Olivine	Clinopyroxene	Orthopyroxene	Plagioclase	Oxide	Glass
Original [%]		20		45	5	
Altered [%]		10		10	10	
Amph., green		5				
Clay minerals		5				
Zeolite				10		

Alteration domain name: Glass clast

Domain no.: 3

Domain rel. abundance [%]: 35

Total alteration in rock, bulk estimate (%): 50

Phenocryst -->	Olivine	Clinopyroxene	Orthopyroxene	Plagioclase	Oxide	Glass
Original [%]				1		99
Altered [%]				10		80
Zeolite				10		10

THIN SECTION LABEL ID: **352-U1440B-19R-1-W 74/77-TSB-TS_39**

Thin section no.: 39

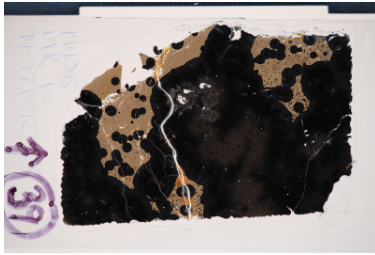
Unit/Subunit: 6

Piece no.: #12

Observer: wn

Thin section summary: augite-plagioclase phenocrysts within a glassy matrix

Plane-polarized:



Cross-polarized:

**PRIMARY (IGNEOUS) MINERALOGY**

LITHOLOGY: sparsely plagioclase-augite bearing basalt glass

Texture 1:	glassy matrix	Texture 2:	holohyaline
Avg. grain size:	microcrystalline	Grain size distrib.:	inequigranular

Phenocrysts	% present	Average size [mm]	Habit	Comments
Plagioclase	0.2	0.8	tabular	found in glomerocryst clots with cpx
Clinopyroxene	0.3	1	blocky	found in glomerocrysts with plag

VEINS

Vein	Thickness [cm]	Boundary	Generation	Vein comment
haloed vein	0.05	sharp boundary or contact	1st generation	

MICROSTRUCTURES

Microstructure	Mag. fabric intensity	CPF type	CPF intensity	Structure comments
	isotropic	undeformed	undeformed	devitrified glass, vesicles undeformed, euhedral plag and px partly in vesicles; single vein, thin, with tridymate in center, and fine-grained carbonate (?) along margin; incremental opening

SECONDARY (ALTERATION) MINERALOGY

Total alteration in rock, bulk estimate (%): 70

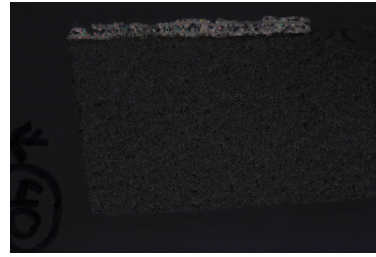
Phenocryst -->	Olivine	Clinopyroxene	Orthopyroxene	Plagioclase	Oxide	Glass
Original [%]		0.2		0.3		99.5
Altered [%]		5		5		80
Amph., green		2				
Zeolite				5		

THIN SECTION LABEL ID: **352-U1440B-20R-1-W 25/27-TSB-TS_40** Thin section no.: 40
 Unit/Subunit: 6 Piece no.: #02 Observer: dh
 Thin section summary: augite phenocrysts in a seriate subophitic groundmass. Calcite vein.

Plane-polarized:



Cross-polarized:

**PRIMARY (IGNEOUS) MINERALOGY**

LITHOLOGY: sparsely augite bearing basalt lava

Texture 1:	microporphyritic	Texture 2:	subophitic
Avg. grain size:	fine grained	Grain size distrib.:	seriate

Phenocrysts	% present	Average size [mm]	Habit	Comments
Clinopyroxene	0.5	0.3	blocky	

Groundmass phases	% present	Average size (mm)	Habit	Comments
Plagioclase	20	0.4	bladed	
Clinopyroxene	40	0.1	blocky	
Mesostasis	39.5			

VEINS

Vein	Thickness [cm]	Boundary	Generation	Vein comment
composite vein	0.2	sharp boundary or contact	1st generation	Vein at the edge of the section. mostly composed of calcite. possible presence of a Si phase (tridimite) but was removed during thin section making

MICROSTRUCTURES

Microstructure	Mag. fabric intensity	CPF type	CPF intensity	Structure comments
	isotropic	undeformed	undeformed	

SECONDARY (ALTERATION) MINERALOGY

Total alteration in rock, bulk estimate (%): 10

Groundmass original [%]: 40 Groundmass altered [%]: 10 Groundmass alt. intensity: slight

Phenocryst -->	Olivine	Clinopyroxene	Orthopyroxene	Plagioclase	Oxide	Glass
Original [%]		20		40		
Altered [%]		30		10		
Amph., green		10				
Clay minerals		15				
Zeolite				10		

THIN SECTION LABEL ID: **352-U1440B-21R-1-W 10/13-TSB-TS_41** Thin section no.: 41
 Unit/Subunit: 6 Piece no.: #02 Observer: saw, wn
 Thin section summary: glomerocrysts of plagioclase and augite in an intersertal matrix

Plane-polarized:



Cross-polarized:

**PRIMARY (IGNEOUS) MINERALOGY**

LITHOLOGY: sparsely plagioclase-augite bearing basalt lava

Texture 1:	glomerocrystic	Texture 2:	intersertal
Avg. grain size:	microcrystalline	Grain size distrib.:	equigranular

Phenocrysts	% present	Average size [mm]	Habit	Comments
Plagioclase	0.25	1	tabular	
Clinopyroxene	0.25	1	blocky	found in glomerocrysts with plag

Groundmass phases	% present	Average size (mm)	Habit	Comments
Plagioclase	35	0.4	bladed	
Clinopyroxene	35	0.2	prismatic	
Fe Ti oxide	2	0.1	equant	
Mesostasis	37			

MICROSTRUCTURES

Microstructure	Mag. fabric intensity	CPF type	CPF intensity	Structure comments
	isotropic	undeformed	undeformed	no visible oriented fabric or shape preferred orientation; tiny vein with alteration seam, contains fine-grained host rock fragments (angular) within optically isotropic material; probably from sample preparation -> epoxin;

SECONDARY (ALTERATION) MINERALOGY

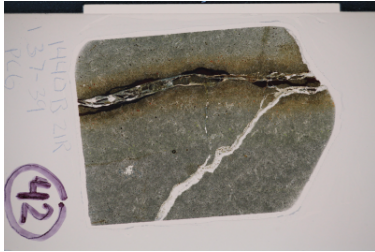
Total alteration in rock, bulk estimate (%): 20

Groundmass original [%]: 30 Groundmass altered [%]: 50 Groundmass alt. intensity: moderate

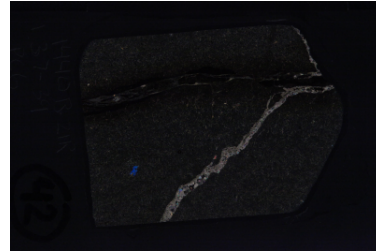
Phenocryst ->	Olivine	Clinopyroxene	Orthopyroxene	Plagioclase	Oxide	Glass
Original [%]		34		34	2	
Altered [%]		10		10	30	
Clay minerals		10				
Zeolite				10		

THIN SECTION LABEL ID: **352-U1440B-21R-1-W 37/39-TSB-TS_42** Thin section no.: 42
 Unit/Subunit: 6 Piece no.: #06 Observer: saw
 Thin section summary: augite phenocrysts within a seriate distributed subophitic matrix crosscut by a calcite vein and a sub-cataclastic clay vein containing basalt clasts

Plane-polarized:



Cross-polarized:

**PRIMARY (IGNEOUS) MINERALOGY****LITHOLOGY:** sparsely augite phyric basalt lava

Texture 1:	intersertal	Texture 2:	
Avg. grain size:	fine grained	Grain size distrib.:	seriate

Phenocrysts	% present	Average size [mm]	Habit	Comments
Clinopyroxene	1	0.9	blocky	

Groundmass phases	% present	Average size (mm)	Habit	Comments
Plagioclase	35	0.6	tabular	
Clinopyroxene	19	0.1	indeterminate	
Fe Ti oxide	5	0.1	equant	
Mesostasis	40			

Vesicles [%]	% Filled	Vesicle shape	Avg. size [mm]	Vesicle comments
2	100	rounded		epidote-filled?

VEINS

Vein	Thickness [cm]	Boundary	Generation	Vein comment
composite vein	0.1	sharp boundary or contact	2nd generation	

Vein	Thickness [cm]	Boundary	Generation	Vein comment
haloed vein	0.1	sharp boundary or contact	1st generation	

MICROSTRUCTURES

Microstructure	Mag. fabric intensity	CPF type	CPF intensity	Structure comments
		twinning		calcite vein with altered host rock fragments (mainly devitrified glass); bimodal grain size distribution; coarse and fine-grained domains; coarse grains are moderately twinned (type I; in parts type II), single coarse grains with slight undulatory extinction and partly subgrain formation. Shape of grain boundaries highly variable; fine grain aggregates preferably along vein margins. 2nd vein with altered, brownish clasts, probably hematite, only single domains with coarse grained, twinned calcite or Mg-calcite.

Microstructure	Mag. fabric intensity	CPF type	CPF intensity	Structure comments
	isotropic	undeformed	undeformed	

SECONDARY (ALTERATION) MINERALOGY

Total alteration in rock, bulk estimate (%): 30

Groundmass original [%]: 40

Groundmass altered [%]: 40

Groundmass alt. intensity: moderate

Phenocryst -->	Olivine	Clinopyroxene	Orthopyroxene	Plagioclase	Oxide	Glass
Original [%]		20		35	5	
Altered [%]		5		5	20	
Chlorite		5				
Plagioclase, secondary				5		

THIN SECTION LABEL ID:	352-U1440B-22R-1-W 58/60-TSB-TS_44	Thin section no.:	44
Unit/Subunit:	6	Piece no.:	#13
Observer:	tc		
Thin section summary:	plagioclase phenocrysts in a spherulitic glassy matrix crosscut by a network of calcite veins		



PRIMARY (IGNEOUS) MINERALOGY

LITHOLOGY: sparsely plagioclase bearing basalt lava

Texture 1:	hypohyaline	Texture 2:	microporphyritic
Avg. grain size:	cryptocrystalline	Grain size distrib.:	inequigranular

Phenocrysts	% present	Average size [mm]	Habit	Comments
Plagioclase	0.5	0.2	tabular	

Groundmass phases	% present	Average size (mm)	Habit	Comments
Plagioclase	10	0.02	prismatic	

VEINS

Vein	Thickness [cm]	Boundary	Generation	Vein comment
haloed vein	0.1	sharp boundary or contact	1st generation	

MICROSTRUCTURES

Microstructure	Mag. fabric intensity	CPF type	CPF intensity	Structure comments
	isotropic	undeformed	undeformed	basaltic glass cut by zeolite veins

SECONDARY (ALTERATION) MINERALOGY

Total alteration in rock, bulk estimate (%): 70

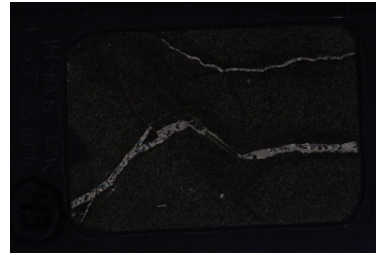
Phenocryst ->	Olivine	Clinopyroxene	Orthopyroxene	Plagioclase	Oxide	Glass
Original [%]				10		90
Altered [%]				10		75
Clay minerals				10		5
Zeolite						10

THIN SECTION LABEL ID: **352-U1440B-22R-1-W 65/68-TSB-TS_43** Thin section no.: 43
 Unit/Subunit: 6 Piece no.: #14 Observer: wn
 Thin section summary: microcrystalline aphyric basalt crosscut by a network of calcite vein with alteration halos

Plane-polarized:



Cross-polarized:

**PRIMARY (IGNEOUS) MINERALOGY**

LITHOLOGY: aphyric basalt lava

Texture 1:	variolitic	Texture 2:	
Avg. grain size:	microcrystalline	Grain size distrib.:	inequigranular

Groundmass phases	% present	Average size (mm)	Habit	Comments
Plagioclase	30	0.3	bladed	high degrees of alteration
Clinopyroxene	40	0.2	prismatic	
Mesostasis	30			

VEINS

Vein	Thickness [cm]	Boundary	Generation	Vein comment
haloed vein	0.2	sharp boundary or contact	1st generation	

MICROSTRUCTURES

Microstructure	Mag. fabric intensity	CPF type	CPF intensity	Structure comments
		twinning		calcite (or Mg-calcite) vein; bimodal grain size distribution; coarse and fine-grained domains; coarse grains are moderately twinned (type I; in parts type II), single coarse grains with slight undulatory extinction and partly subgrain formation. Shape of grain boundaries highly variable; fine grain aggregates preferably along vein margins. transected by thin veins, probably chlorite.

Microstructure	Mag. fabric intensity	CPF type	CPF intensity	Structure comments
	isotropic	undeformed	undeformed	

SECONDARY (ALTERATION) MINERALOGY

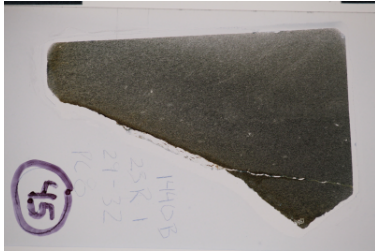
Total alteration in rock, bulk estimate (%): 30

Groundmass original [%]: 30 Groundmass altered [%]: 40 Groundmass alt. intensity: moderate

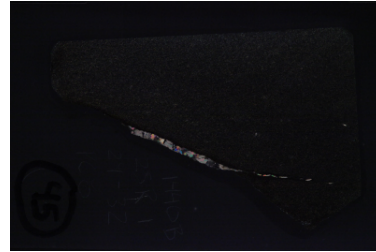
Phenocryst -->	Olivine	Clinopyroxene	Orthopyroxene	Plagioclase	Oxide	Glass
Original [%]		40		30		
Altered [%]		30		20		
Amph., green		15				
Chlorite				10		
Zeolite				5		
Plagioclase, secondary				5		

THIN SECTION LABEL ID: **352-U1440B-23R-1-W 29/32-TSB-TS_45** Thin section no.: 45
 Unit/Subunit: 7 Piece no.: #08 Observer: tc
 Thin section summary: aphyric fibrous textutred quenched basalt. Presence of one calcite vein with alteration halo

Plane-polarized:



Cross-polarized:

**PRIMARY (IGNEOUS) MINERALOGY**

LITHOLOGY: aphyric basalt lava

Texture 1:	hypohyaline	Texture 2:	fibrous
Avg. grain size:	microcrystalline	Grain size distrib.:	equigranular

Groundmass phases	% present	Average size (mm)	Habit	Comments
Mesostasis	100			Quench textured intergrowth of feldspar and pyroxene; plumose, intergrown.

VEINS

Vein	Thickness [cm]	Boundary	Generation	Vein comment
haloed vein	0.1	sharp boundary or contact	1st generation	

MICROSTRUCTURES

Microstructure	Mag. fabric intensity	CPF type	CPF intensity	Structure comments
		twinning		calcite (or Mg-calcite) vein; bimodal grain size distribution; coarse and fine-grained domains; coarse grains are moderately twinned (type I; in parts type II), single coarse grains with slight undulatory extinction and partly subgrain formation. Shape of grain boundaries highly variable; fine grain aggregates preferably along vein margins.

Microstructure	Mag. fabric intensity	CPF type	CPF intensity	Structure comments
	moderate	undeformed	undeformed	distinct domains with shape preferred orientation of prismatic plag and px, defin magmatic foliation

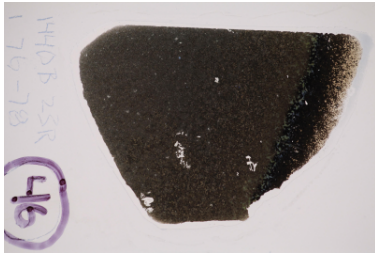
SECONDARY (ALTERATION) MINERALOGY

Total alteration in rock, bulk estimate (%): 40

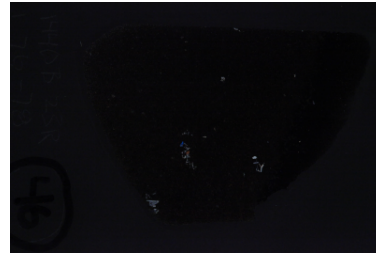
Groundmass original [%]: 100 Groundmass altered [%]: 40 Groundmass alt. intensity: moderate

THIN SECTION LABEL ID: **352-U1440B-23R-1-W 76/78-TSB-TS_46** Thin section no.: 46
 Unit/Subunit: 7 Piece no.: #18 Observer: tc
 Thin section summary: plagioclase-augite phenocrysts in a devitrified glassy matrix

Plane-polarized:



Cross-polarized:

**PRIMARY (IGNEOUS) MINERALOGY**

LITHOLOGY: sparsely plagioclase-augite phyric basalt lava

Texture 1:	microporphyritic	Texture 2:	hypohyaline
Avg. grain size:	microcrystalline	Grain size distrib.:	inequigranular

Phenocrysts	% present	Average size [mm]	Habit	Comments
Plagioclase	0.8	1	tabular	
Clinopyroxene	0.2	1.5	blocky	

MICROSTRUCTURES

Microstructure	Mag. fabric intensity	CPF type	CPF intensity	Structure comments
	isotropic			basaltic glass w.o. visible preferred orientation

SECONDARY (ALTERATION) MINERALOGY

Total alteration in rock, bulk estimate (%): 80

Phenocryst -->	Olivine	Clinopyroxene	Orthopyroxene	Plagioclase	Oxide	Glass
Original [%]		0.5		0.5		99
Altered [%]		10		10		80
Clay minerals		10				8
Zeolite				10		

THIN SECTION LABEL ID: **352-U1440B-24R-1-W 18/20-TSB-TS_47**

Thin section no.: 47

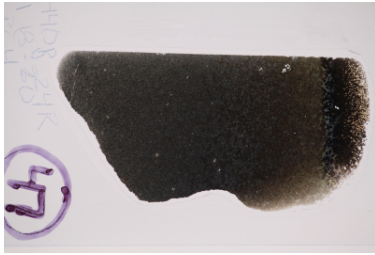
Unit/Subunit: 7

Piece no.: #04

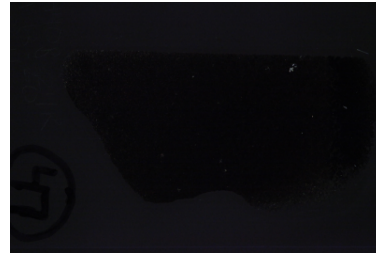
Observer: jws

Thin section summary: plagioclase phenocrysts in a plagiogonized matrix

Plane-polarized:



Cross-polarized:

**PRIMARY (IGNEOUS) MINERALOGY**

LITHOLOGY: sparsely plagioclase phyric basalt glass

Texture 1:	vitrophyric	Texture 2:	microlitic
Avg. grain size:		Grain size distrib.:	inequigranular

Phenocrysts	% present	Average size [mm]	Habit	Comments
Plagioclase	1	0.3	tabular	

Groundmass phases	% present	Average size (mm)	Habit	Comments
Plagioclase	4	0.1		microlites

MICROSTRUCTURES

Microstructure	Mag. fabric intensity	CPF type	CPF intensity	Structure comments
	isotropic	undeformed	undeformed	basaltic glass

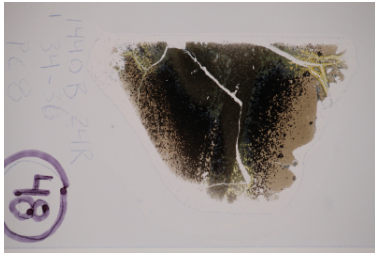
SECONDARY (ALTERATION) MINERALOGY

Total alteration in rock, bulk estimate (%): 90

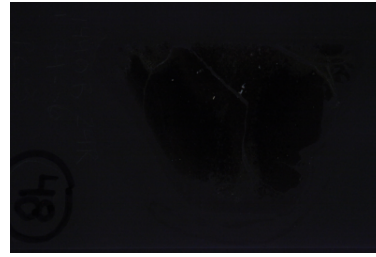
Phenocryst →	Olivine	Clinopyroxene	Orthopyroxene	Plagioclase	Oxide	Glass
Original [%]				5		95
Altered [%]				50		95
Chlorite				10		
Zeolite				40		
Clay minerals						3

THIN SECTION LABEL ID: **352-U1440B-24R-1-W 34/36-TSB-TS_48** Thin section no.: 48
 Unit/Subunit: 7 Piece no.: #08, #09 Observer: jws
 Thin section summary: plagioclase phenocrysts in a devitrified glass matrix crosscut by a network of calcite veins

Plane-polarized:



Cross-polarized:

**PRIMARY (IGNEOUS) MINERALOGY**

LITHOLOGY: sparsely plagioclase phyric basalt glass

Texture 1:	vitrophyric	Texture 2:	microporphyritic
Avg. grain size:	microcrystalline	Grain size distrib.:	inequigranular

Phenocrysts	% present	Average size [mm]	Habit	Comments
Plagioclase	1	0.4	tabular	

Vesicles [%]	% Filled	Vesicle shape	Avg. size [mm]	Vesicle comments
5	100	elongate	0.2	clay-filled

VEINS

Vein	Thickness [cm]	Boundary	Generation	Vein comment
haloed vein	0.1	sharp boundary or contact	1st generation	

MICROSTRUCTURES

Microstructure	Mag. fabric intensity	CPF type	CPF intensity	Structure comments
	isotropic	undeformed	undeformed	basaltic glass; tridymite vein, fibrous

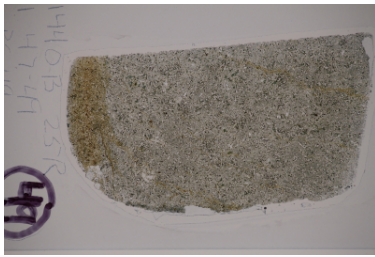
SECONDARY (ALTERATION) MINERALOGY

Total alteration in rock, bulk estimate (%): 70

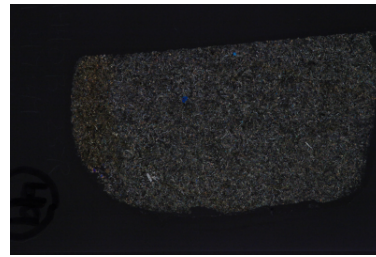
Phenocryst -->	Olivine	Clinopyroxene	Orthopyroxene	Plagioclase	Oxide	Glass
Original [%]				1		99
Altered [%]				10		70
Zeolite				10		10

THIN SECTION LABEL ID: **352-U1440B-25R-1-W 47/49-TSB-TS_49** Thin section no.: 49
 Unit/Subunit: 8 Piece no.: #09 Observer: jws
 Thin section summary: nice augite phenocrysts with plagioclase in a intergranular matrix

Plane-polarized:



Cross-polarized:

**PRIMARY (IGNEOUS) MINERALOGY**

LITHOLOGY: sparsely plagioclase-augite phyric basalt lava

Texture 1:	intergranular	Texture 2:	glomerocrystic
Avg. grain size:	fine grained	Grain size distrib.:	seriate

Phenocrysts	% present	Average size [mm]	Habit	Comments
Plagioclase	2	1.2	tabular	
Clinopyroxene	1	0.8	prismatic	

Groundmass phases	% present	Average size (mm)	Habit	Comments
Plagioclase	55	0.8	tabular	
Clinopyroxene	39	0.2	blocky	
Fe Ti oxide	3	0.5	equant	

MICROSTRUCTURES

Microstructure	Mag. fabric intensity	CPF type	CPF intensity	Structure comments
	isotropic	undeformed	undeformed	

SECONDARY (ALTERATION) MINERALOGY

Alteration domain name: Fresh core Domain no.: 1 Domain rel. abundance [%]: 90

Total alteration in rock, bulk estimate (%): 15

Phenocryst -->	Olivine	Clinopyroxene	Orthopyroxene	Plagioclase	Oxide	Glass
Original [%]		40		57	3	
Altered [%]		15		15	10	
Amph., pale		5				
Chlorite		3		10		
Clay minerals		5				

Alteration domain name: Altered rim Domain no.: 2 Domain rel. abundance [%]: 10

Total alteration in rock, bulk estimate (%): 15

Phenocryst -->	Olivine	Clinopyroxene	Orthopyroxene	Plagioclase	Oxide	Glass
Original [%]		40		57	3	
Altered [%]		40		25	10	
Chlorite		5		10		
Clay minerals		30				
Zeolite				10		

THIN SECTION LABEL ID: **352-U1440B-26R-1-W 18/20-TSB-TS_51**

Thin section no.: 51

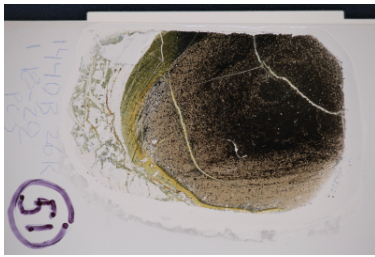
Unit/Subunit: 8

Piece no.: #05

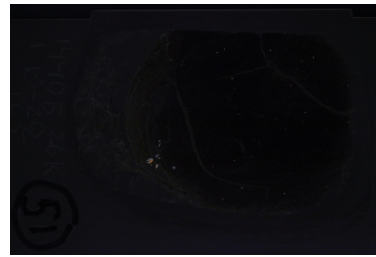
Observer: ks

Thin section summary: sparsely plagioclase-clinopyroxene bearing basalt with fresh glassy chilled margin

Plane-polarized:



Cross-polarized:

**PRIMARY (IGNEOUS) MINERALOGY**

LITHOLOGY: sparsely plagioclase-augite bearing basalt pillow lava

Texture 1:	glassy matrix	Texture 2:	
Avg. grain size:	cryptocrystalline	Grain size distrib.:	equigranular

Phenocrysts	% present	Average size [mm]	Habit	Comments
Plagioclase	0.5	0.4	blocky	gathered at chilled margin
Clinopyroxene	0.3	0.8		subophitic, gathered at chilled margin

Groundmass phases	% present	Average size (mm)	Habit	Comments
Mesostasis	99.2			denser spherules in interior

Vesicles [%]	% Filled	Vesicle shape	Avg. size [mm]	Vesicle comments
0.5	80	rounded	0.3	no vesicles in chilled margin

MICROSTRUCTURES

Microstructure	Mag. fabric intensity	CPF type	CPF intensity	Structure comments
	moderate	undeformed	undeformed	glass, partly devitrified; acicular particles partly show shape preferred orientation within one domain (bright domain of thin section); others are isotropic, vesicles are not elongated

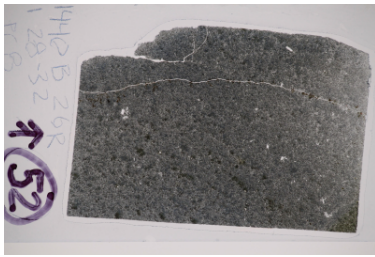
SECONDARY (ALTERATION) MINERALOGY

Total alteration in rock, bulk estimate (%): 60

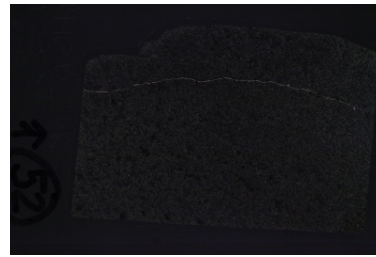
Phenocryst -->	Olivine	Clinopyroxene	Orthopyroxene	Plagioclase	Oxide	Glass
Original [%]		0.3		0.5		99.2
Altered [%]		0		0		60
Clay minerals						55

THIN SECTION LABEL ID: **352-U1440B-26R-1-W 28/32-TSB-TS_52** Thin section no.: 52
 Unit/Subunit: 8 Piece no.: #08 Observer: tc
 Thin section summary: sparsely plagioclase bearing altered basalt. Thin calcite vein without halo

Plane-polarized:



Cross-polarized:

**PRIMARY (IGNEOUS) MINERALOGY**

LITHOLOGY: sparsely plagioclase phyric basalt lava

Texture 1:	intersertal	Texture 2:	fibrous
Avg. grain size:	microcrystalline	Grain size distrib.:	inequigranular

Phenocrysts	% present	Average size [mm]	Habit	Comments
Plagioclase	1	0.5	tabular	

Groundmass phases	% present	Average size (mm)	Habit	Comments
Plagioclase	40	0.2	tabular	
Clinopyroxene	20	0.1	blocky	
Fe Ti oxide	2	0.1	equant	
Mesostasis	37			devitrified

Vesicles [%]	% Filled	Vesicle shape	Avg. size [mm]	Vesicle comments
5	5	rounded	0.2	

VEINS

Vein	Thickness [cm]	Boundary	Generation	Vein comment
single vein		sharp boundary or contact	1st generation	

MICROSTRUCTURES

Microstructure	Mag. fabric intensity	CPF type	CPF intensity	Structure comments
	isotropic	undeformed	undeformed	one thin calcite vein; calcite almost undeformed, not twinned

SECONDARY (ALTERATION) MINERALOGY

Total alteration in rock, bulk estimate (%): 10

Groundmass original [%]: 38

Groundmass altered [%]: 10

Groundmass alt. intensity: slight

Phenocryst -->	Olivine	Clinopyroxene	Orthopyroxene	Plagioclase	Oxide	Glass
Original [%]		20		40	2	
Altered [%]		20		15	10	
Amph., pale		5				
Chlorite		15				
Zeolite				15		

THIN SECTION LABEL ID: **352-U1440B-26R-1-W 64/67-TSB-TS_50**

Thin section no.: 50

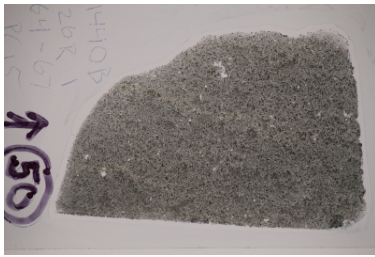
Unit/Subunit: 8

Piece no.: #15

Observer: jws

Thin section summary: fresh aphyric basalt

Plane-polarized:



Cross-polarized:

**PRIMARY (IGNEOUS) MINERALOGY**

LITHOLOGY: aphyric basalt lava

Texture 1:	intergranular	Texture 2:	
Avg. grain size:	microcrystalline	Grain size distrib.:	equigranular

Groundmass phases	% present	Average size (mm)	Habit	Comments
Plagioclase	50	0.2	tabular	
Clinopyroxene	25	0.1	blocky	
Fe Ti oxide	5	0.1	equant	
Mesostasis	20			quench texture

Vesicles [%]	% Filled	Vesicle shape	Avg. size [mm]	Vesicle comments
1	0	elongate	0.5	

MICROSTRUCTURES

Microstructure	Mag. fabric intensity	CPF type	CPF intensity	Structure comments
	isotropic	undeformed	undeformed	

SECONDARY (ALTERATION) MINERALOGY

Total alteration in rock, bulk estimate (%): 15

Groundmass original [%]: 20

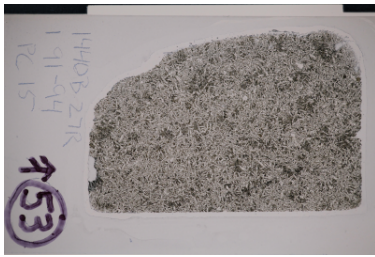
Groundmass altered [%]: 80

Groundmass alt. intensity: high

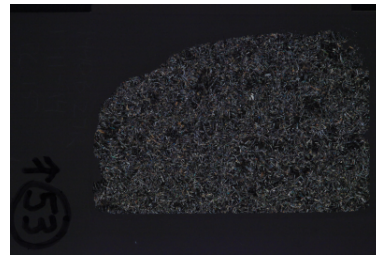
Phenocryst -->	Olivine	Clinopyroxene	Orthopyroxene	Plagioclase	Oxide	Glass
Original [%]		25		50	5	
Altered [%]		10		10	50	
Clay minerals		10				
Chlorite				5		
Zeolite				5		

THIN SECTION LABEL ID: **352-U1440B-27R-1-W 91/94-TSB-TS_53** Thin section no.: 53
 Unit/Subunit: 9 Piece no.: #15 Observer: jws
 Thin section summary: sparsely plagioclase phyric fine-grained basalt, altered along microfractures

Plane-polarized:



Cross-polarized:

**PRIMARY (IGNEOUS) MINERALOGY**

LITHOLOGY: sparsely plagioclase phyric basalt lava

Texture 1:	microporphyritic	Texture 2:	intergranular
Avg. grain size:	fine grained	Grain size distrib.:	inequigranular

Phenocrysts	% present	Average size [mm]	Habit	Comments
Plagioclase	1	1.6	tabular	

Groundmass phases	% present	Average size (mm)	Habit	Comments
Plagioclase	55	0.4	tabular	
Clinopyroxene	22	0.2	blocky	
Fe Ti oxide	3	0.1	equant	
Mesostasis	19			

Vesicles [%]	% Filled	Vesicle shape	Avg. size [mm]	Vesicle comments
0.5	100	rounded	0.2	

MICROSTRUCTURES

Microstructure	Mag. fabric intensity	CPF type	CPF intensity	Structure comments
	isotropic	undeformed	undeformed	

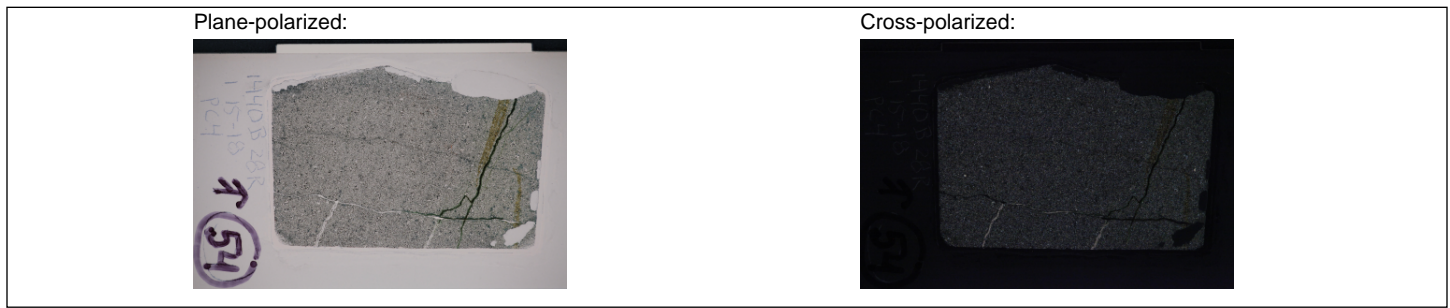
SECONDARY (ALTERATION) MINERALOGY

Total alteration in rock, bulk estimate (%): 30

Groundmass original [%]: 17 Groundmass altered [%]: 50 Groundmass alt. intensity: moderate

Phenocryst -->	Olivine	Clinopyroxene	Orthopyroxene	Plagioclase	Oxide	Glass
Original [%]		25		55	3	
Altered [%]		20		10	10	
Amph., green		15		2		
Chlorite		5		5		
Zeolite				3		

THIN SECTION LABEL ID: **352-U1440B-28R-1-W 15/18-TSB-TS_54** Thin section no.: 54
 Unit/Subunit: 10 Piece no.: #04 Observer: deh
 Thin section summary: Microphenocrysts of tabular plagioclase are sparsely distributed within an altered groundmass of clinopyroxene and acicular plagioclase. Network of calcite and chlorite veins



PRIMARY (IGNEOUS) MINERALOGY

LITHOLOGY: sparsely plagioclase bearing basalt lava

Texture 1:	microporphyritic	Texture 2:	
Avg. grain size:	microcrystalline	Grain size distrib.:	inequigranular

Phenocrysts	% present	Average size [mm]	Habit	Comments
Plagioclase	0.5	0.5	tabular	Plagioclase is being resorbed by groundmass phases and are generally along side sulfides/opaque minerals.

Groundmass phases	% present	Average size (mm)	Habit	Comments
Plagioclase	30	0.2	acicular	
Clinopyroxene	40	0.08	blocky	high birefringence
Fe Ti oxide	0.5	0.05	blocky	Oxides are most concentrated around alteration veins.
Mesostasis	29			Mesostasis appears to consist of mainly clinopyroxene that has been replaced by calcite.

VEINS

Vein	Thickness [cm]	Boundary	Generation	Vein comment
multiple veins		sharp boundary or contact	1st generation	2 generation of veins. Carbonate veins cutting amphibole-chlorite green vein.

Vein	Thickness [cm]	Boundary	Generation	Vein comment
multiple veins		sharp boundary or contact	2nd generation	2 generation of veins. Carbonate veins cutting amphibole-chlorite green vein.

MICROSTRUCTURES

Microstructure	Mag. fabric intensity	CPF type	CPF intensity	Structure comments
		twinning		calcite (or Mg-calcite) vein; bimodal grain size distribution; coarse and fine-grained domains; coarse grains form fibres subperpendicular to vein margin and are moderately twinned (type I), single coarse grains with slight undulatory extinction. Shape of grain boundaries highly variable; fine grain aggregates preferably along vein center (form fine-grained suture). Calcite veins crosscut or replaced by chlorite vein.

Microstructure	Mag. fabric intensity	CPF type	CPF intensity	Structure comments
	isotropic	undeformed	undeformed	

SECONDARY (ALTERATION) MINERALOGY

Total alteration in rock, bulk estimate (%): 10

Groundmass original [%]: 29.5

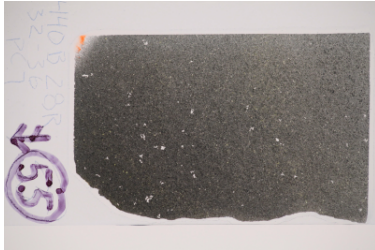
Groundmass altered [%]: 10

Groundmass alt. intensity: slight

Phenocryst -->	Olivine	Clinopyroxene	Orthopyroxene	Plagioclase	Oxide	Glass
Original [%]		40		30	0.5	
Altered [%]		20		10	5	
Amph., green		15		2		
Chlorite		5		8		

THIN SECTION LABEL ID: **352-U1440B-28R-1-W 32/36-TSB-TS_55** Thin section no.: 55
 Unit/Subunit: 10 Piece no.: #07 Observer: deh
 Thin section summary: Cryptocrystalline groundmass composed mainly of clinopyroxene and some plagioclase. Speckled glomerocrysts of clinopyroxene and plagioclase.

Plane-polarized:



Cross-polarized:

**PRIMARY (IGNEOUS) MINERALOGY**

LITHOLOGY: sparsely plagioclase-augite bearing basalt lava

Texture 1:	microporphyritic	Texture 2:	glomerocrystic
Avg. grain size:	cryptocrystalline	Grain size distrib.:	equigranular

Phenocrysts	% present	Average size [mm]	Habit	Comments
Plagioclase	0.5	0.1	bladed	
Clinopyroxene	0.5	0.2	blocky	mildly pleochroic

Groundmass phases	% present	Average size (mm)	Habit	Comments
Plagioclase	10	0.03	acicular	
Clinopyroxene	20	0.03	blocky	
Fe Ti oxide	0.25	0.05	blocky	
Mesostasis	68.75			quenched

MICROSTRUCTURES

Microstructure	Mag. fabric intensity	CPF type	CPF intensity	Structure comments
	isotropic	undeformed	undeformed	

SECONDARY (ALTERATION) MINERALOGY

Total alteration in rock, bulk estimate (%): 10

Groundmass original [%]: 29.75 Groundmass altered [%]: 10 Groundmass alt. intensity: slight

Phenocryst →	Olivine	Clinopyroxene	Orthopyroxene	Plagioclase	Oxide	Glass
Original [%]		60		10	0.25	
Altered [%]		20		15	10	
Amph., pale		5				
Chlorite		15				
Zeolite				15		

THIN SECTION LABEL ID: **352-U1440B-28R-1-W 59/62-TSB-TS_56**

Thin section no.:

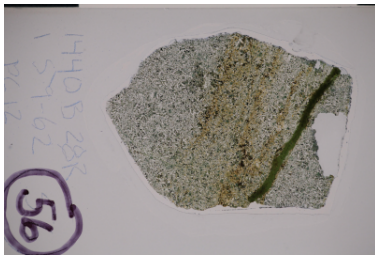
Unit/Subunit:

Piece no.: #12

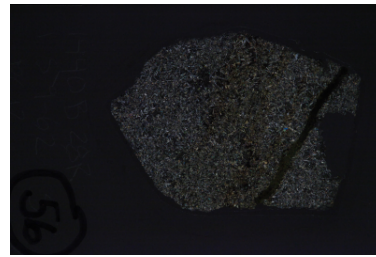
Observer:

Thin section summary: Sulfide-rich alteration front parallel to chlorite + sulfide vein.

Plane-polarized:



Cross-polarized:

**PRIMARY (IGNEOUS) MINERALOGY**

LITHOLOGY: aphyric dolerite lava

Texture 1:	subophitic	Texture 2:	glomerocrystic
Avg. grain size:	fine grained	Grain size distrib.:	inequigranular

Groundmass phases	% present	Average size (mm)	Habit	Comments
Plagioclase	40	0.4	tabular	Mix between tabular and bladed habit plagioclase. Mostly bladed.
Clinopyroxene	58	0.2	blocky	
Fe Ti oxide	2	0.25	blocky	

VEINS

Vein	Thickness [cm]	Boundary	Generation	Vein comment
single vein	0.1	sharp boundary or contact	1st generation	Fibrous greenish to brownish vein with well developed halo

MICROSTRUCTURES

Microstructure	Mag. fabric intensity	CPF type	CPF intensity	Structure comments
microbrecciation	isotropic		undeformed	1 vein with strong alteration (altered glass?); alteration zones parallel to main vein, alteration follows thin, unmineralized fractures, fabric along fractures slightly cataclastic, with fragmented plag and px

SECONDARY (ALTERATION) MINERALOGY

Total alteration in rock, bulk estimate (%): 25

Phenocryst -->	Olivine	Clinopyroxene	Orthopyroxene	Plagioclase	Oxide	Glass
Original [%]		58		40	2	
Altered [%]		30		10	60	
Amph., green		10				
Chlorite		20				

THIN SECTION LABEL ID: **352-U1440B-28R-1-W 79/82-TSB-TS_57**

Thin section no.: 57

Unit/Subunit: 11

Piece no.: #15

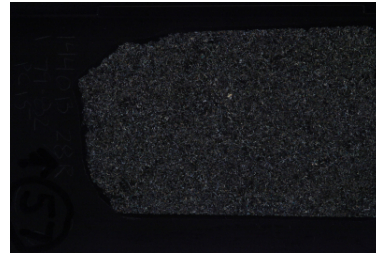
Observer: wn

Thin section summary: Aphyric dolerite with subophitic, fine-grained groundmass

Plane-polarized:



Cross-polarized:

**PRIMARY (IGNEOUS) MINERALOGY**

LITHOLOGY: aphyric dolerite lava

Texture 1:	subophitic	Texture 2:	
Avg. grain size:	fine grained	Grain size distrib.:	equigranular

Groundmass phases	% present	Average size (mm)	Habit	Comments
Plagioclase	50	1.5	bladed	most of the plagioclase is bladed, but some of the grains are more tabular
Clinopyroxene	40	0.65	blocky	
Fe Ti oxide	2	0.25	blocky	
Mesostasis	8			

MICROSTRUCTURES

Microstructure	Mag. fabric intensity	CPF type	CPF intensity	Structure comments
	isotropic	undeformed	undeformed	

SECONDARY (ALTERATION) MINERALOGY

Total alteration in rock, bulk estimate (%): 15

Groundmass original [%]: 8

Groundmass altered [%]: 30

Groundmass alt. intensity: moderate

Phenocryst -->	Olivine	Clinopyroxene	Orthopyroxene	Plagioclase	Oxide	Glass
Original [%]		40		50	2	
Altered [%]		15		10	10	
Amph., green		10				
Chlorite		5				
Plagioclase, secondary				10		

THIN SECTION LABEL ID: **352-U1440B-29R-1-W 0/3-TSB-TS_58**

Thin section no.: 58

Unit/Subunit: 11

Piece no.: #01

Observer: wn

Thin section summary: Aphyric dolerite with subophitic, fine-grained groundmass

Plane-polarized:



Cross-polarized:

**PRIMARY (IGNEOUS) MINERALOGY**

LITHOLOGY: sparsely plagioclase aphyric dolerite lava

Texture 1:	intergranular	Texture 2:	subophitic
Avg. grain size:	fine grained	Grain size distrib.:	equigranular

Phenocrysts	% present	Average size [mm]	Habit	Comments
Plagioclase	1	0.9	tabular	

Groundmass phases	% present	Average size (mm)	Habit	Comments
Plagioclase	50	0.66	tabular	Randomly oriented. Grains show large variability in size throughout sample. There are subdomains of slightly larger crystals as well as smaller crystals, though nothing that is obviously phenocrystic.
Clinopyroxene	39	0.3	blocky	cpx size varies throughout groundmass: there are regions of slightly coarser grains and regions of finer grains.
Fe Ti oxide	1	0.03	blocky	
Mesostasis	9			Palagonite/clay

Vesicles [%]	% Filled	Vesicle shape	Avg. size [mm]	Vesicle comments
1	10	rounded	0.5	dispersed

MICROSTRUCTURES

Microstructure	Mag. fabric intensity	CPF type	CPF intensity	Structure comments
	isotropic	undeformed	undeformed	

SECONDARY (ALTERATION) MINERALOGY

Total alteration in rock, bulk estimate (%): 10

Groundmass original [%]: 5

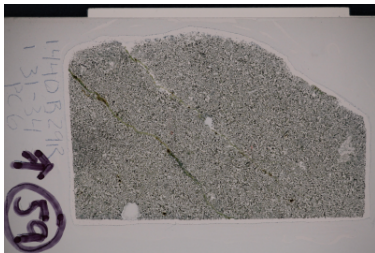
Groundmass altered [%]: 100

Groundmass alt. intensity: complete

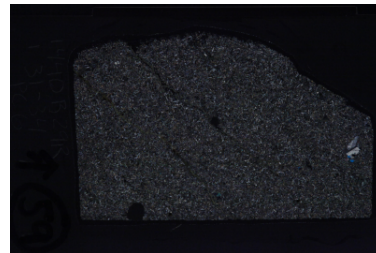
Phenocryst -->	Olivine	Clinopyroxene	Orthopyroxene	Plagioclase	Oxide	Glass
Original [%]		45	9	40	1	
Altered [%]		5	5	5	10	
Amph., green		2				
Chlorite		3	5			
Plagioclase, secondary				5		

THIN SECTION LABEL ID: **352-U1440B-29R-1-W 31/34-TSB-TS_59** Thin section no.: 59
 Unit/Subunit: 11 Piece no.: #06 Observer: wn
 Thin section summary: sparsely phenocrystic (plagioclase and clinopyroxene) dolerite lava. Subphitic texture is common in fine-grained groundmass. Two thin chlorite and sulfide veins without halo

Plane-polarized:



Cross-polarized:

**PRIMARY (IGNEOUS) MINERALOGY**

LITHOLOGY: sparsely plagioclase-augite bearing dolerite lava

Texture 1:	subophitic	Texture 2:	glomerocrystic
Avg. grain size:	fine grained	Grain size distrib.:	bimodal

Phenocrysts	% present	Average size [mm]	Habit	Comments
Plagioclase	7	2.5	tabular	sometimes found in glomerocrysts, sometimes found solo.
Clinopyroxene	0.3	0.5	blocky	found in glomerocrysts with plagioclase

Groundmass phases	% present	Average size (mm)	Habit	Comments
Plagioclase	45	1.2	bladed	
Clinopyroxene	45	0.35	bladed	
Fe Ti oxide	5	0.3	blocky	
Mesostasis	4			

Vesicles [%]	% Filled	Vesicle shape	Avg. size [mm]	Vesicle comments
0.5	100	rounded		very sparse.

VEINS

Vein	Thickness [cm]	Boundary	Generation	Vein comment
single vein		diffuse boundary or contact	1st generation	Fibrous vein in the interstices between grains. Mainly filled by zeolites but some chlorite from primary minerals alteration

MICROSTRUCTURES

Microstructure	Mag. fabric intensity	CPF type	CPF intensity	Structure comments
	isotropic	undeformed	undeformed	porphyric plag crystals with slight undulatory extinction; tiny fractures with alteration seams oblique to core axis form fracture cleavage; grains adjacent to fracture are microfractured. no preferred orientation of magmatic minerals, no metamorphic/deformational foliation.

SECONDARY (ALTERATION) MINERALOGY

Total alteration in rock, bulk estimate (%): 15

Groundmass original [%]: 5

Groundmass altered [%]: 100

Groundmass alt. intensity: complete

Phenocryst -->	Olivine	Clinopyroxene	Orthopyroxene	Plagioclase	Oxide	Glass
Original [%]		45		45	5	
Altered [%]		15		15	15	
Amph., green		5				
Chlorite		10				
Zeolite				10		
Plagioclase, secondary				5		

THIN SECTION LABEL ID: **352-U1440B-30R-1-W 2/5-TSB-TS_60**

Thin section no.: 60

Unit/Subunit: 13

Piece no.: #01

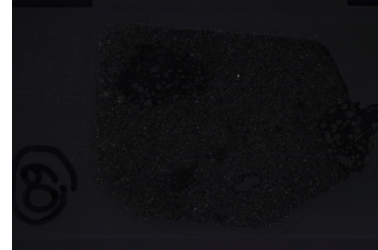
Observer: wn

Thin section summary: Sparsely plagioclase-clinopyroxene-bearing microphenocrystic basalt containing large segregation vesicles. Glass within groundmass and segregation vesicles is completely palagonitized.

Plane-polarized:



Cross-polarized:

**PRIMARY (IGNEOUS) MINERALOGY**

Sample domain name: mafic lava

Domain no.: 1

Domain rel. abundance [%]:

LITHOLOGY: sparsely plagioclase-augite bearing basalt lava

Texture 1:	intersertal	Texture 2:	glomerocrystic
Avg. grain size:	microcrystalline	Grain size distrib.:	inequigranular

Phenocrysts	% present	Average size [mm]	Habit	Comments
Plagioclase	1	0.35	tabular	microphenocrysts are more tabular than groundmass plagioclase
Clinopyroxene	0.5	0.5	blocky	

Groundmass phases	% present	Average size (mm)	Habit	Comments
Plagioclase	25	0.28	acicular	
Clinopyroxene	15	0.05	blocky	
Fe Ti oxide	1	0.15	bladed	
Mesostasis	57.5			altered glass?

Vesicles [%]	% Filled	Vesicle shape	Avg. size [mm]	Vesicle comments
3	50	subrounded	0.8	

Sample domain name: segregation vesicle

Domain no.: 2

Domain rel. abundance [%]:

LITHOLOGY: aphyric basalt lava

Texture 1:	glassy matrix	Texture 2:	
Avg. grain size:	cryptocrystalline	Grain size distrib.:	bimodal

Groundmass phases	% present	Average size (mm)	Habit	Comments
Plagioclase	7	0.1	acicular	
Clinopyroxene	2	0.1	acicular	
Fe Ti oxide	1	0.05	equant	
Mesostasis	90			quench texture

Vesicles [%]	% Filled	Vesicle shape	Avg. size [mm]	Vesicle comments
40	50	irregular	0.3	clay-filled

MICROSTRUCTURES

Microstructure	Mag. fabric intensity	CPF type	CPF intensity	Structure comments
	isotropic	undeformed	undeformed	single crystals of olivin are fractured

SECONDARY (ALTERATION) MINERALOGY

Alteration domain name: mafic lava Domain no.: 1 Domain rel. abundance [%]: 90

Total alteration in rock, bulk estimate (%): 10

Groundmass original [%]: 60 Groundmass altered [%]: 10 Groundmass alt. intensity: slight

Phenocryst -->	Olivine	Clinopyroxene	Orthopyroxene	Plagioclase	Oxide	Glass
Original [%]		15		25	1	
Altered [%]		30		30		
Amph., green		10		10		
Chlorite		20				

Alteration domain name: segregation vesicle Domain no.: 2 Domain rel. abundance [%]: 10

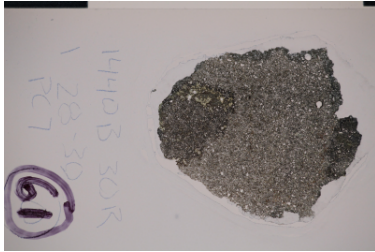
Total alteration in rock, bulk estimate (%): 10

Groundmass original [%]: 90 Groundmass altered [%]: 10 Groundmass alt. intensity: slight

Phenocryst -->	Olivine	Clinopyroxene	Orthopyroxene	Plagioclase	Oxide	Glass
Original [%]		2		7	1	
Altered [%]		30		10	100	
Amph., green		10				
Chlorite		20				

THIN SECTION LABEL ID: **352-U1440B-30R-1-W 28/30-TSB-TS_61** Thin section no.: 61
 Unit/Subunit: 13 Piece no.: #07 Observer: ks
 Thin section summary: sparsely cpx bearing basalt with segregation vesicles, microcrystalline, highly palagonatized.

Plane-polarized:



Cross-polarized:

**PRIMARY (IGNEOUS) MINERALOGY**

Sample domain name: **mafic lava** Domain no.: 1 Domain rel. abundance [%]: 75

LITHOLOGY: **sparsely augite bearing basalt lava**

Texture 1:	intersertal	Texture 2:	
Avg. grain size:	microcrystalline	Grain size distrib.:	equigranular

Phenocrysts	% present	Average size [mm]	Habit	Comments
Clinopyroxene	0.5	0.8		two cpx aggregate (?) in thin sec. (See photo)

Groundmass phases	% present	Average size (mm)	Habit	Comments
Plagioclase	30	0.3	tabular	
Clinopyroxene	14.5	0.2	blocky	
Mesostasis	55			altered

Vesicles [%]	% Filled	Vesicle shape	Avg. size [mm]	Vesicle comments
5	20	irregular	0.5	Identified vesicles may be palagonatized glass. If so, vesicularity is overestimated.

Sample domain name: **segregation vesicle** Domain no.: 2 Domain rel. abundance [%]: 25

LITHOLOGY: **aphyric basalt lava**

Texture 1:	glassy matrix	Texture 2:	
Avg. grain size:	cryptocrystalline	Grain size distrib.:	bimodal

Groundmass phases	% present	Average size (mm)	Habit	Comments
Plagioclase	7	0.1	acicular	
Clinopyroxene	2	0.1	acicular	
Fe Ti oxide	1	0.05	equant	
Mesostasis	90			quench texture

Vesicles [%]	% Filled	Vesicle shape	Avg. size [mm]	Vesicle comments
40	50	irregular	0.3	clay-filled

MICROSTRUCTURES

Microstructure	Mag. fabric intensity	CPF type	CPF intensity	Structure comments
	isotropic		undeformed	vesicles not elongated

SECONDARY (ALTERATION) MINERALOGY

Alteration domain name: mafic lava Domain no.: 1 Domain rel. abundance [%]: 75

Total alteration in rock, bulk estimate (%): 70

Phenocryst -->	Olivine	Clinopyroxene	Orthopyroxene	Plagioclase	Oxide	Glass
Original [%]		15		30		55
Altered [%]		20		10		100
Chlorite		5				
Clay minerals		15				
Zeolite				10		20

Alteration domain name: segregation vesicle Domain no.: 2 Domain rel. abundance [%]: 25

Total alteration in rock, bulk estimate (%): 70

Phenocryst -->	Olivine	Clinopyroxene	Orthopyroxene	Plagioclase	Oxide	Glass
Original [%]		2		7	1	90
Altered [%]		20		10	50	100
Chlorite		5				
Clay minerals		15				15
Zeolite				10		15

THIN SECTION LABEL ID:	352-U1440B-30R-1-W 55/58-TSB-TS_62	Thin section no.:	62
Unit/Subunit:	13dyke	Piece no.:	#12
		Observer:	ks
Thin section summary:	moderately augite phyric basalt, subophitic, fine-grained groundmass. Network of thin chlorite and sulfide veins locally altered to clays		



PRIMARY (IGNEOUS) MINERALOGY

LITHOLOGY: moderately augite phyric basalt lava

Texture 1:	subophitic	Texture 2:	
Avg. grain size:	fine grained	Grain size distrib.:	inequigranular

Phenocrysts	% present	Average size [mm]	Habit	Comments
Clinopyroxene	5	0.8	blocky	subophitic (ophimottled) texture

Groundmass phases	% present	Average size (mm)	Habit	Comments
Plagioclase	25	0.4	tabular	
Clinopyroxene	10	0.2	blocky	
Fe Ti oxide	5	0.1	equant	
Mesostasis	55			chlorite

VEINS

Vein	Thickness [cm]	Boundary	Generation	Vein comment
single vein		diffuse boundary or contact	1st generation	Fibrous veins in the interstices between grains. Mainly filled by zeolites but some chlorite from primary minerals alteration

MICROSTRUCTURES

Microstructure	Mag. fabric intensity	CPF type	CPF intensity	Structure comments
		undeformed	undeformed	thin calcite vein with euhedral calcite, no twins, subsequently altered (chlorite along vein margin); calcite probably iron-bearing.

Microstructure	Mag. fabric intensity	CPF type	CPF intensity	Structure comments
	isotropic	undeformed	undeformed	

SECONDARY (ALTERATION) MINERALOGY

Total alteration in rock, bulk estimate (%): 20

Groundmass original [%]: 60

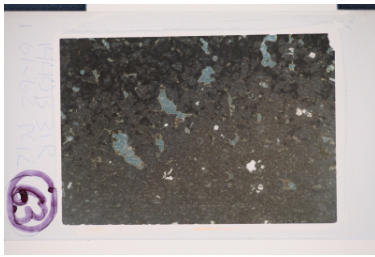
Groundmass altered [%]: 100

Groundmass alt. intensity: Complete

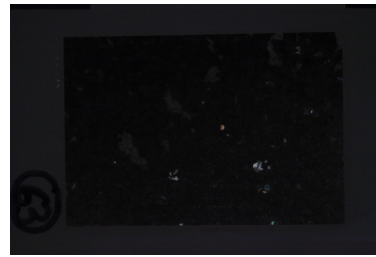
Phenocryst -->	Olivine	Clinopyroxene	Orthopyroxene	Plagioclase	Oxide	Glass
Original [%]		15		25	5	
Altered [%]		10		10	5	
Amph., green		10				
Plagioclase, secondary				10		

THIN SECTION LABEL ID: **352-U1440B-31R-1-W 61/62-TSB-TS_63** Thin section no.: 63
 Unit/Subunit: 14 Piece no.: #12 Observer: tc
 Thin section summary: resorbed plagioclase phenocryst in a glass matrix

Plane-polarized:



Cross-polarized:

**PRIMARY (IGNEOUS) MINERALOGY**

LITHOLOGY: sparsely plagioclase-augite phyric basalt glass

Texture 1:	vitrophyric	Texture 2:	microporphyritic
Avg. grain size:	cryptocrystalline	Grain size distrib.:	inequigranular

Phenocrysts	% present	Average size [mm]	Habit	Comments
Plagioclase	0.5	0.8	tabular	
Clinopyroxene	0.5	0.4	prismatic	

Groundmass phases	% present	Average size (mm)	Habit	Comments
Mesostasis	99			

Vesicles [%]	% Filled	Vesicle shape	Avg. size [mm]	Vesicle comments
10	50	subrounded	1.5	

MICROSTRUCTURES

Microstructure	Mag. fabric intensity	CPF type	CPF intensity	Structure comments
	isotropic	undeformed	undeformed	single crystals of olivin and plag are fractured and show weak undulatory extinction

SECONDARY (ALTERATION) MINERALOGY

Total alteration in rock, bulk estimate (%): 99

Phenocryst -->	Olivine	Clinopyroxene	Orthopyroxene	Plagioclase	Oxide	Glass
Original [%]		0.5		0.5		99
Altered [%]		10		50		100
Clay minerals		9				10
Chlorite				50		
Other						30
Zeolite						50

THIN SECTION LABEL ID: **352-U1440B-31R-1-W 73/75-TSB-TS_64**

Thin section no.: 64

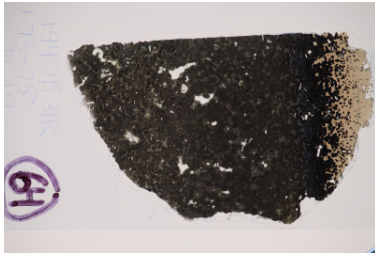
Unit/Subunit: 14

Piece no.: #14

Observer: tc

Thin section summary: plagioclase and augite phenocrysts in devitrified glass

Plane-polarized:



Cross-polarized:

**PRIMARY (IGNEOUS) MINERALOGY**

LITHOLOGY: sparsely plagioclase-augite phyric basalt glass

Texture 1:	vitrophyric	Texture 2:	microporphyritic
Avg. grain size:	cryptocrystalline	Grain size distrib.:	inequigranular

Phenocrysts	% present	Average size [mm]	Habit	Comments
Plagioclase	1	1	tabular	
Clinopyroxene	1	0.5	prismatic	

Groundmass phases	% present	Average size (mm)	Habit	Comments
Mesostasis	98			

Vesicles [%]	% Filled	Vesicle shape	Avg. size [mm]	Vesicle comments
5	30	subrounded	1	clay filled

MICROSTRUCTURES

Microstructure	Mag. fabric intensity	CPF type	CPF intensity	Structure comments
	weak	undeformed	undeformed	glass, partly devitrified; with single laths of plag; plag partly show shape preferred orientation within one domain, there also slightly elongated vesicles (at least some) (towards bright rim domain of thin section); others are isotropic, vesicles are not elongated

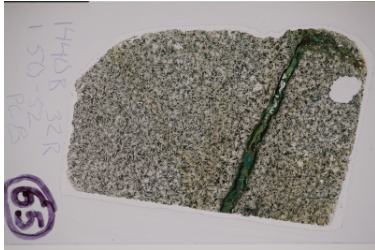
SECONDARY (ALTERATION) MINERALOGY

Total alteration in rock, bulk estimate (%): 80

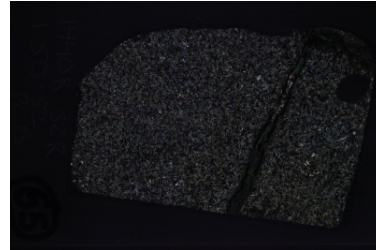
Phenocryst -->	Olivine	Clinopyroxene	Orthopyroxene	Plagioclase	Oxide	Glass
Original [%]		1		1		98
Altered [%]		5		10		90
Amph., pale		5				
Clay minerals						90

THIN SECTION LABEL ID: **352-U1440B-32R-1-W 50/52-TSB-TS_65** Thin section no.: 65
 Unit/Subunit: 15a Piece no.: #08 Observer: tc
 Thin section summary: aphyric intersertal textured basalt. Presence of one chlorite and slufide vein containing angular clasts of carbonates

Plane-polarized:



Cross-polarized:

**PRIMARY (IGNEOUS) MINERALOGY**

LITHOLOGY: aphyric basalt lava

Texture 1:	intersertal	Texture 2:	ophimottled
Avg. grain size:	fine grained	Grain size distrib.:	equigranular

Phenocrysts	% present	Average size [mm]	Habit	Comments
Plagioclase	0.5	1.6	tabular	rare

Groundmass phases	% present	Average size (mm)	Habit	Comments
Plagioclase	45	0.4	tabular	very thin laths, flow aligned but irregular orientation
Clinopyroxene	40	0.2	ophimottled	augite forms centers that paritally enclose radiating laths of plagioclase, set in matrix of altered glass
Fe Ti oxide	1	0.1	equant	
Mesostasis	39			

VEINS

Vein	Thickness [cm]	Boundary	Generation	Vein comment
single vein	0.2	sharp boundary or contact	1st generation	

MICROSTRUCTURES

Microstructure	Mag. fabric intensity	CPF type	CPF intensity	Structure comments
	weak	weakly foliated/ineat ed	undeformed	mainly isotropic withou SPO: distinct domain with shape preferred orientation of plag prisms; vein with minor calcite, mainly ultrafinegrained chlorite (?)

SECONDARY (ALTERATION) MINERALOGY

Total alteration in rock, bulk estimate (%): 45

Groundmass original [%]: 39 Groundmass altered [%]: 50 Groundmass alt. intensity: moderate

Phenocryst -->	Olivine	Clinopyroxene	Orthopyroxene	Plagioclase	Oxide	Glass
Original [%]		10		50	1	
Altered [%]		10		10	10	
Amph., green		5				
Chlorite		5		10		

THIN SECTION LABEL ID: **352-U1440B-32R-1-W 89/91-TSB-TS_66** Thin section no.: 66
 Unit/Subunit: 15a Piece no.: #13 Observer: tc
 Thin section summary: sparse plagioclase pheocrysts in intersertal basalt matrix. High temperature background alteration with brown amphibole and epidote.



PRIMARY (IGNEOUS) MINERALOGY

LITHOLOGY: sparsely plagioclase phyric basalt lava

Texture 1:	intersertal	Texture 2:	intergranular
Avg. grain size:	fine grained	Grain size distrib.:	inequigranular

Phenocrysts	% present	Average size [mm]	Habit	Comments
Plagioclase	1	0.8	tabular	

Groundmass phases	% present	Average size (mm)	Habit	Comments
Plagioclase	45	0.3	tabular	
Clinopyroxene	35	0.2	blocky	some augite partially includes plag laths
Fe Ti oxide	1	0.1	equant	
Mesostasis	19			palagonite/clay

MICROSTRUCTURES

Microstructure	Mag. fabric intensity	CPF type	CPF intensity	Structure comments
	isotropic	undeformed	undeformed	

SECONDARY (ALTERATION) MINERALOGY

Total alteration in rock, bulk estimate (%): 10

Groundmass original [%]: 34 Groundmass altered [%]: 10 Groundmass alt. intensity: slight

Phenocryst -->	Olivine	Clinopyroxene	Orthopyroxene	Plagioclase	Oxide	Glass
Original [%]		10		51	5	
Altered [%]		10		10	10	
Amph., green		8				
Amph., pale		2				
Chlorite				5		

THIN SECTION LABEL ID: **352-U1440B-33R-1-W 55/57-TSB-TS_67**

Thin section no.: 67

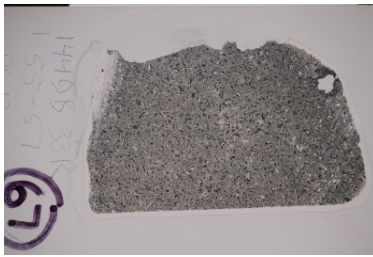
Unit/Subunit: 15b

Piece no.: #12

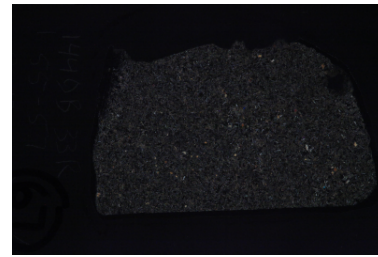
Observer: tc

Thin section summary: plagioclase phenocrysts in a quenched textured matrix

Plane-polarized:



Cross-polarized:

**PRIMARY (IGNEOUS) MINERALOGY**

LITHOLOGY: sparsely plagioclase-augite bearing basalt lava

Texture 1:	microporphyritic	Texture 2:	intersertal
Avg. grain size:	microcrystalline	Grain size distrib.:	seriate

Phenocrysts	% present	Average size [mm]	Habit	Comments
Plagioclase	1	0.5	tabular	
Clinopyroxene	1	0.4	blocky	

Groundmass phases	% present	Average size (mm)	Habit	Comments
Plagioclase	43	0.3	tabular	
Clinopyroxene	30	0.2	ophimottled	augite partially encloses radiating clusters of plagioclase
Fe Ti oxide	1	0.02	indeterminate	
Mesostasis	25			quenched textured

MICROSTRUCTURES

Microstructure	Mag. fabric intensity	CPF type	CPF intensity	Structure comments
	isotropic	undeformed	undeformed	strongly altered, rich in epidote;

SECONDARY (ALTERATION) MINERALOGY

Total alteration in rock, bulk estimate (%): 10

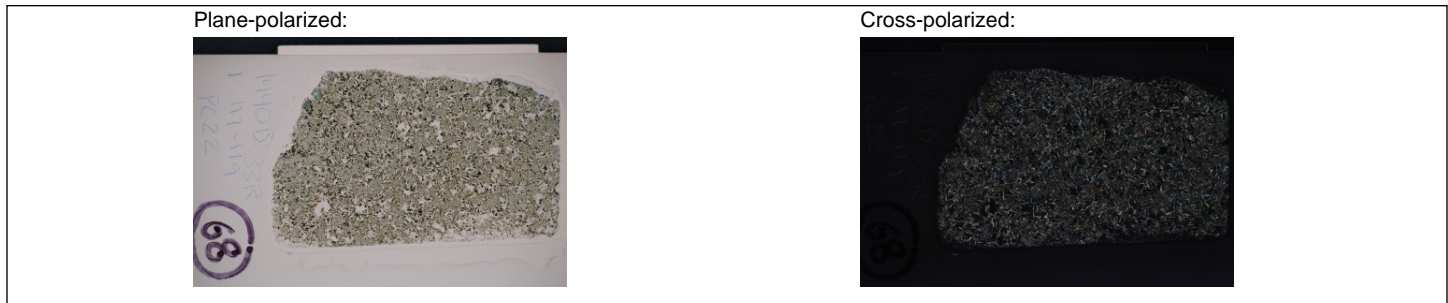
Groundmass original [%]: 58

Groundmass altered [%]: 10

Groundmass alt. intensity: slight

Phenocryst -->	Olivine	Clinopyroxene	Orthopyroxene	Plagioclase	Oxide	Glass
Original [%]		10		32		
Altered [%]		15		10		
Amph., green		5				
Chlorite		10		10		

THIN SECTION LABEL ID: **352-U1440B-33R-1-W 117/119-TSB-TS_68** Thin section no.: 68
 Unit/Subunit: 15c Piece no.: #22 Observer: tc
 Thin section summary: fine-grained dolerite, with large plagioclase. High temperature alteration with brown amphibole and zoisite.



PRIMARY (IGNEOUS) MINERALOGY

LITHOLOGY: dolerite intrusive sheets

Texture 1:	intergranular	Texture 2:	subophitic
Avg. grain size:	fine grained	Grain size distrib.:	seriate

Groundmass phases	% present	Average size (mm)	Habit	Comments
Plagioclase	55	0.8	tabular	
Clinopyroxene	30	0.4	blocky	
Fe Ti oxide	5	0.2	equant	
Mesostasis	10			quartz

Vesicles [%]	% Filled	Vesicle shape	Avg. size [mm]	Vesicle comments
5	0	subangular	0.8	

MICROSTRUCTURES

Microstructure	Mag. fabric intensity	CPF type	CPF intensity	Structure comments
	isotropic	undeformed	undeformed	single quartz crystals with undulatory extinction

SECONDARY (ALTERATION) MINERALOGY

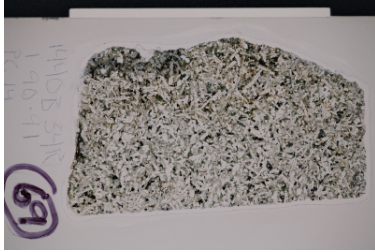
Total alteration in rock, bulk estimate (%): 20

Groundmass original [%]: 10 Groundmass altered [%]: 100 Groundmass alt. intensity: complete

Phenocryst -->	Olivine	Clinopyroxene	Orthopyroxene	Plagioclase	Oxide	Glass
Original [%]		30		55	5	
Altered [%]		10		10	2	
Amph., green		7				
Chlorite		3				
Quartz				1		
Zeolite				1		

THIN SECTION LABEL ID: **352-U1440B-34R-1-W 90/91-TSB-TS_69** Thin section no.: 69
 Unit/Subunit: 15c Piece no.: #14 Observer: ks
 Thin section summary: medium-grained dolerite with pl+cpx matrix (some cores of cpx altered to amph). High temperature alteration with brown amphibole and secondary plagioclases. Calcite and quartz patches

Plane-polarized:



Cross-polarized:

**PRIMARY (IGNEOUS) MINERALOGY****LITHOLOGY:** dolerite intrusive sheets

Texture 1:	intergranular	Texture 2:	
Avg. grain size:	medium grained	Grain size distrib.:	equigranular

Groundmass phases	% present	Average size (mm)	Habit	Comments
Plagioclase	50	1.6	tabular	some have
Clinopyroxene	43	0.8	blocky	some cores of cpx (may be pigeonite crystallized at the early stage??) was altered.
Fe Ti oxide	2	0.3	equant	
Mesostasis	10			Myrmekite?

MICROSTRUCTURES

Microstructure	Mag. fabric intensity	CPF type	CPF intensity	Structure comments
	isotropic	undeformed	undeformed	mostly isotropic, intergranular alteration with precipitation of calcite; calcite with type I twins and undulatory extinction; euhedral quartz beneath calcite, straight grain boundaries, triple junctions, undeformed, static.

SECONDARY (ALTERATION) MINERALOGY

Total alteration in rock, bulk estimate (%): 15

Groundmass original [%]: 4 Groundmass altered [%]: 100 Groundmass alt. intensity: complete

Phenocryst -->	Olivine	Clinopyroxene	Orthopyroxene	Plagioclase	Oxide	Glass
Original [%]		42		50	4	
Altered [%]		15		15	5	
Amph., green		10				
Chlorite		5		5		
Zeolite				5		
Plagioclase, secondary				5		

THIN SECTION LABEL ID: 352-U1440B-34R-1-W 132/134-TSB-TS_70	Thin section no.: 70
Unit/Subunit: 15d	Piece no.: #21
Observer: tc	
Thin section summary: dolerite with subophitic to intergranular texture, large plagioclase with zoning	



PRIMARY (IGNEOUS) MINERALOGY

LITHOLOGY: sparsely plagioclase-augite phyric dolerite intrusive sheets

Texture 1:	subophitic	Texture 2:	intergranular
Avg. grain size:	fine grained	Grain size distrib.:	seriate

Phenocrysts	% present	Average size [mm]	Habit	Comments
Plagioclase	1.5	1	tabular	seive
Clinopyroxene	1.5	0.8	prismatic	subophitic

Groundmass phases	% present	Average size (mm)	Habit	Comments
Plagioclase	45	0.4	tabular	
Clinopyroxene	35	0.4	blocky	
Fe Ti oxide	3	0.3	equant	
Mesostasis	15			small equant euhedral quartz crystals in mesostasis.

MICROSTRUCTURES

Microstructure	Mag. fabric intensity	CPF type	CPF intensity	Structure comments
	isotropic	undeformed	undeformed	coarse grained, prismatic plag,, single grains with weak undulatory extinction; plag with microfractures

SECONDARY (ALTERATION) MINERALOGY

Total alteration in rock, bulk estimate (%): 15

Groundmass original [%]: 15 Groundmass altered [%]: 100 Groundmass alt. intensity: complete

Phenocryst -->	Olivine	Clinopyroxene	Orthopyroxene	Plagioclase	Oxide	Glass
Original [%]		30		45	5	
Altered [%]		15		15	5	
Amph., pale		5				
Chlorite		5				
Clay minerals		5				
Zeolite				10		
Plagioclase, secondary				5		

THIN SECTION LABEL ID: **352-U1440B-35R-1-W 4/7-TSB-TS_71**

Thin section no.: 71

Unit/Subunit: 15d

Piece no.: #01

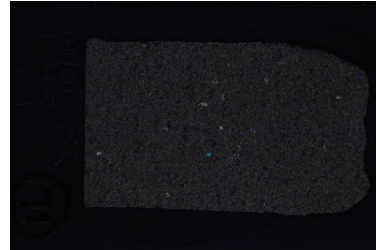
Observer: tc

Thin section summary: plagioclase-augite phenocrysts in matrix altered to chlorite. Chlorite defines a foliation fabric

Plane-polarized:



Cross-polarized:

**PRIMARY (IGNEOUS) MINERALOGY****LITHOLOGY:** sparsely plagioclase-augite phyric basalt lava

Texture 1:	intersertal	Texture 2:	intergranular
Avg. grain size:	microcrystalline	Grain size distrib.:	inequigranular

Phenocrysts	% present	Average size [mm]	Habit	Comments
Plagioclase	1	0.3	tabular	
Clinopyroxene	1	0.4	prismatic	

Groundmass phases	% present	Average size (mm)	Habit	Comments
Plagioclase	45	0.2	tabular	
Clinopyroxene	37	0.1	blocky	
Fe Ti oxide	1	0.01	blocky	
Mesostasis	15			chlorite altered into foliation

MICROSTRUCTURES

Microstructure	Mag. fabric intensity	CPF type	CPF intensity	Structure comments
	isotropic	undeformed	undeformed	macroscopic fabric with parallel aligned dark domains not observable at microscale; dark parts consist of assemblages of chlorite without shape preferred orientation, or of fine-grained altered material

SECONDARY (ALTERATION) MINERALOGY

Total alteration in rock, bulk estimate (%): 10

Groundmass original [%]: 43

Groundmass altered [%]: 10

Groundmass alt. intensity: slight

Phenocryst ->	Olivine	Clinopyroxene	Orthopyroxene	Plagioclase	Oxide	Glass
Original [%]		16		41	1	
Altered [%]		5		10	90	
Chlorite		5				
Zeolite				10		

THIN SECTION LABEL ID:	352-U1440B-35R-1-W 32/35-TSB-TS_72	Thin section no.:	72
Unit/Subunit:	15d	Piece no.:	#05
Observer:	tc		
Thin section summary:	subophitic textured dolerite with zoned plagioclase. Sulfide rich alteration zone which contact with the fresh zone is parallel to a carbonate vein		



PRIMARY (IGNEOUS) MINERALOGY

LITHOLOGY: dolerite intrusive sheets

Texture 1:	subophitic	Texture 2:	granular
Avg. grain size:	fine grained	Grain size distrib.:	seriate

Groundmass phases	% present	Average size (mm)	Habit	Comments
Plagioclase	48	1.3	tabular	oscillatory zoned
Clinopyroxene	45	1	prismatic	subophitic
Fe Ti oxide	2	0.6	equant	
Mesostasis	15			Mesostasis altered to chlorite. small equant euhedral quartz crystals in mesostasis.

VEINS

Vein	Thickness [cm]	Boundary	Generation	Vein comment
single vein	0.2	sharp boundary or contact	1st generation	

MICROSTRUCTURES

Microstructure	Mag. fabric intensity	CPF type	CPF intensity	Structure comments
		undulose extinction		calcite (or Mg-calcite) vein, uniform grain size, almost untwinned, undulatory extinction, so subgrains; refractured parallel to vein margins.

Microstructure	Mag. fabric intensity	CPF type	CPF intensity	Structure comments
microbrecciation	isotropic		undeformed	two domains, widely separated by calcite vein; domain 1 with well preserved magmatic fabric; domain 2 altered (brownish); ultrafinegrained alteration minerals, plag and px show severe microfracturing, beginning cataclastic fabric, macroscopically parallel to calcite vein.

SECONDARY (ALTERATION) MINERALOGY

Alteration domain name: Fresh core Domain no.: 1 Domain rel. abundance [%]: 60

Total alteration in rock, bulk estimate (%): 15

Groundmass original [%]: 10 Groundmass altered [%]: 100 Groundmass alt. intensity: complete

Phenocryst -->	Olivine	Clinopyroxene	Orthopyroxene	Plagioclase	Oxide	Glass
Original [%]		27		45	10	
Altered [%]		15		10	5	
Amph., green		5				
Chlorite		10				
Zeolite				5		
Plagioclase, secondary				5		

Alteration domain name: Altered rim Domain no.: 2 Domain rel. abundance [%]: 40

Total alteration in rock, bulk estimate (%): 15

Groundmass original [%]: 10 Groundmass altered [%]: 100 Groundmass alt. intensity: complete

Phenocryst -->	Olivine	Clinopyroxene	Orthopyroxene	Plagioclase	Oxide	Glass
Original [%]		27		45	10	
Altered [%]		15		10	5	
Chlorite		5		5		
Clay minerals		8				
Sulfide		2				
Zeolite				5		

THIN SECTION LABEL ID: **352-U1440B-36R-1-W 4/7-TSB-TS_73**

Thin section no.: 73

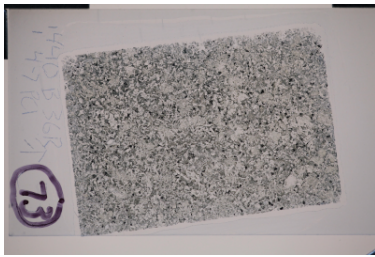
Unit/Subunit: 15d

Piece no.: #01

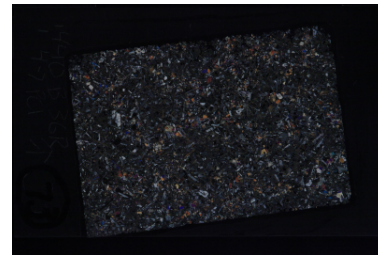
Observer: wn ks

Thin section summary: medium-grained dolerite with subophitic texture of plagioclase and clinopyroxene

Plane-polarized:



Cross-polarized:

**PRIMARY (IGNEOUS) MINERALOGY**

LITHOLOGY: dolerite intrusive sheets

Texture 1:	hypidiomorphic	Texture 2:	granular
Avg. grain size:	medium grained	Grain size distrib.:	seriate

Groundmass phases	% present	Average size (mm)	Habit	Comments
Plagioclase	45	1.2	tabular	
Clinopyroxene	35	0.8	prismatic	Much of apparent "mesostasis" is augite altered to chlorite plus clay (?)
Fe Ti oxide	2	0.3	equant	Presence of about 1% of sulfides
Mesostasis	18			small equant euhedral quartz crystals in mesostasis.

MICROSTRUCTURES

Microstructure	Mag. fabric intensity	CPF type	CPF intensity	Structure comments
	isotropic	undeformed	undeformed	

SECONDARY (ALTERATION) MINERALOGY

Total alteration in rock, bulk estimate (%): 35

Groundmass original [%]: 18

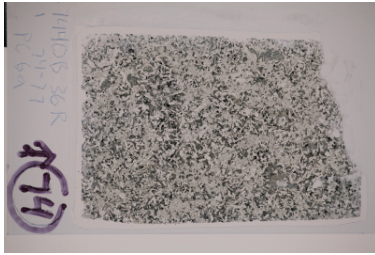
Groundmass altered [%]: 100

Groundmass alt. intensity: complete

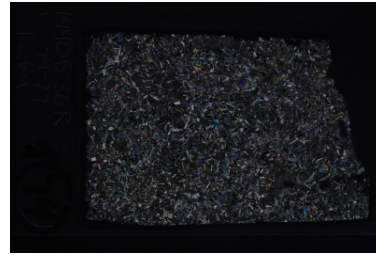
Phenocryst -->	Olivine	Clinopyroxene	Orthopyroxene	Plagioclase	Oxide	Glass
Original [%]		35		45	2	
Altered [%]		20		50	0	
Amph., green		15				
Clay minerals		10				
Quartz				20		
Zeolite				30		

THIN SECTION LABEL ID: **352-U1440B-36R-1-W 74/77-TSB-TS_74** Thin section no.: 74
 Unit/Subunit: 15d Piece no.: #06 Observer: ks
 Thin section summary: fine-grained dolerite with subophitic texture of plagioclase and clinopyroxene

Plane-polarized:



Cross-polarized:

**PRIMARY (IGNEOUS) MINERALOGY**

LITHOLOGY: dolerite intrusive sheets

Texture 1:	intergranular subophitic	Texture 2:	intersertal
Avg. grain size:	fine grained	Grain size distrib.:	inequigranular

Groundmass phases	% present	Average size (mm)	Habit	Comments
Plagioclase	45	0.8	tabular	max(3mm long)
Clinopyroxene	35	0.6	blocky	Much of apparent "mesostasis is augite and plag altered to chlorite and dclay
Fe Ti oxide	3	0.1	equant	Presence of about 1% of sulfides
Mesostasis	18			small equant euhedral quartz crystals in mesostasis.

MICROSTRUCTURES

Microstructure	Mag. fabric intensity	CPF type	CPF intensity	Structure comments
	isotropic	undeformed	undeformed	

SECONDARY (ALTERATION) MINERALOGY

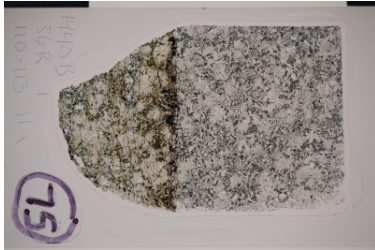
Total alteration in rock, bulk estimate (%): 30

Groundmass original [%]: 18 Groundmass altered [%]: 100 Groundmass alt. intensity: complete

Phenocryst -->	Olivine	Clinopyroxene	Orthopyroxene	Plagioclase	Oxide	Glass
Original [%]		35		45	3	
Altered [%]		10		40	0	
Amph., green		10				
Quartz				20		
Zeolite				20		

THIN SECTION LABEL ID: **352-U1440B-36R-1-W 110/113-TSB-TS_75** Thin section no.: 75
 Unit/Subunit: 15d Piece no.: #11 Observer: ks
 Thin section summary: medium-grained dolerite with subophitic texture of plagioclase and clinopyroxene. Sulfide-rich yellowish alteration zone with sharp contact to the fresh zone

Plane-polarized:



Cross-polarized:

**PRIMARY (IGNEOUS) MINERALOGY**

LITHOLOGY: moderately plagioclase-augite phyric dolerite intrusive sheets

Texture 1:	intergranular subophitic	Texture 2:	intersertal
Avg. grain size:	fine grained	Grain size distrib.:	inequigranular

Phenocrysts	% present	Average size [mm]	Habit	Comments
Plagioclase	4	1.2	tabular	
Clinopyroxene	6	2	prismatic	subophitic

Groundmass phases	% present	Average size (mm)	Habit	Comments
Plagioclase	50	1.5	tabular	
Clinopyroxene	30	0.8	blocky	
Fe Ti oxide	2	0.2	equant	Presence of about 1% of sulfides
Mesostasis	8			small equant euhedral quartz crystals in mesostasis.

MICROSTRUCTURES

Microstructure	Mag. fabric intensity	CPF type	CPF intensity	Structure comments
microbrecciation	isotropic	undeformed	undeformed	domain 1 with well preserved magmatic fabric; domain 2 altered (brownish); ultrafinegrained alteration minerals, plag and px show severe microfracturing, beginning cataclastic fabric, subparallel microfractures.

SECONDARY (ALTERATION) MINERALOGY

Alteration domain name: Fresh core Domain no.: 1 Domain rel. abundance [%]: 65
 Total alteration in rock, bulk estimate (%): 30
 Groundmass original [%]: 8 Groundmass altered [%]: 100 Groundmass alt. intensity: complete

Phenocryst -->	Olivine	Clinopyroxene	Orthopyroxene	Plagioclase	Oxide	Glass
Original [%]		30		50	2	
Altered [%]		10		20	20	
Amph., green		3				
Chlorite		5				
Sulfide		2				
Zeolite				10		
Plagioclase, secondary				10		

Alteration domain name: Altered rim Domain no.: 2 Domain rel. abundance [%]: 35

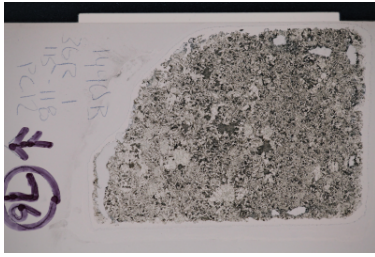
Total alteration in rock, bulk estimate (%): 30

Groundmass original [%]: 8 Groundmass altered [%]: 100 Groundmass alt. intensity: complete

Phenocryst -->	Olivine	Clinopyroxene	Orthopyroxene	Plagioclase	Oxide	Glass
Original [%]		30		50	2	
Altered [%]		20		30	0	
Chlorite		16		5		
Sulfide		4				
Zeolite				15		
Plagioclase, secondary				10		

THIN SECTION LABEL ID: **352-U1440B-36R-1-W 115/118-TSB-TS_76** Thin section no.: 76
 Unit/Subunit: 15d Piece no.: #12 Observer: ks
 Thin section summary: moderately plagioclase-augite phyric basalt (chilled margin of dyke)

Plane-polarized:



Cross-polarized:

**PRIMARY (IGNEOUS) MINERALOGY**

LITHOLOGY: moderately plagioclase-augite phyric dolerite (chilled margin of dyke)

Texture 1:	intergranular subophitic	Texture 2:	intersertal
Avg. grain size:	fine grained	Grain size distrib.:	bimodal

Phenocrysts	% present	Average size [mm]	Habit	Comments
Plagioclase	3	1.2	tabular	
Clinopyroxene	4	2	prismatic	subophitic texture, max size: 1.6mm

Groundmass phases	% present	Average size (mm)	Habit	Comments
Plagioclase	50	0.6	tabular	
Clinopyroxene	40	0.2	blocky	
Fe Ti oxide	1	0.1	equant	Presence of about 1% of sulfides
Mesostasis	2			small equant euhedral quartz crystals in mesostasis.

MICROSTRUCTURES

Microstructure	Mag. fabric intensity	CPF type	CPF intensity	Structure comments
	isotropic	undeformed	undeformed	mostly isotropic, partly very weak shape preferred orientation; intergranular alteration

SECONDARY (ALTERATION) MINERALOGY

Total alteration in rock, bulk estimate (%): 40

Groundmass original [%]: 2 Groundmass altered [%]: 100 Groundmass alt. intensity: complete

Phenocryst -->	Olivine	Clinopyroxene	Orthopyroxene	Plagioclase	Oxide	Glass
Original [%]		40		50	1	
Altered [%]		40		20	0	
Amph., green		15				
Chlorite		10		5		
Clay minerals		10				
Sulfide		2				
Quartz				5		
Zeolite				10		