SEDIMENT THIN SECTION DESCRIPTION

139-857A-8H-CC

GENERAL LITHOLOGY: Carbonate rich claystone.

MINERALS:	PERCENT	SIZE	MORPHOLOGY (μm)	TEXTURE AND COMMENTS
Quartz	15–20	10–20	Subhedral.	Detrital grains, partly replaced.
Calcite	30–40	10–20	Subhedral.	Authigenic calcite infilling matrix and replacing detrital minerals.
Clay	30–40	--	Anhedral.	Anhedral mosaic of olive green clay, infilling and replacing.
Pyrite	2–3	10–40	Subhedral to euhedral.	Authigenic pyrite, cubic, coalescing to form pyritic patches.

GENERAL COMMENTS: None.

SEDIMENT THIN SECTION DESCRIPTION

139-857A-10H-1 (79–81 cm)

GENERAL LITHOLOGY: Siltstone.

MINERALS:	PERCENT	SIZE	MORPHOLOGY (μm)	TEXTURE AND COMMENTS
Quartz	30–40	50–150	Subhedral to anhedral.	Clast-supported grains, ragged at the margins.
Plagioclase	10–15	50–150	Subhedral to anhedral.	Lower relief than quartz, partly altered, ragged margins.
Mica	5–7	150–250	Subhedral.	Platy mineral, clear, highly birefringent.
Chlorite	5	100–150	Subhedral.	Green platy grains, ragged in places.
Hornblende	2–3	100–150	Subhedral.	Green grains, partly altered.
Magnetite	<1	50–100	Subhedral.	Gray grains, with ragged margins.
Pyrite	0.2–0.5	200–300	Subhedral to anhedral.	Ragged grains of pyrite with many inclusions; in the matrix.

GENERAL COMMENTS: Poorly prepared section; about 50% has been ground away. Turbiditic silt composed of subhedral grains of quartz, feldspar, mica and chlorite; grain supported. Finer grained matrix of clay minerals, probably authigenic.

SEDIMENT THIN SECTION DESCRIPTION

139-857C-17R-3 (47–51 cm)

GENERAL LITHOLOGY: Thermally metamorphosed sedimentary rock.

MINERALS:	PERCENT	SIZE	MORPHOLOGY (μm)	TEXTURE AND COMMENTS
Quartz	20–40	50–150	Subhedral to anhedral.	Recrystallized detrital grains, partially altered.
Feldspar	5–10	50–100	Anhedral.	Well-twinned albite.
Mica	30–40	<10	Anhedral.	Matrix composed of recrystallized clay minerals.
Chlorite	5–10	Fine-grained.	Anhedral.	Alteration of clay-rich matrix; also forms plates.
Pyrite	0.1	20–30	Anhedral.	Disseminated throughout.

GENERAL COMMENTS: Thick section. Thermally metamorphosed and altered hemipelagic sediment. Quartz and feldspars are generally coarser grained, clays are recrystallized, highly birefringent, and the sediment is altered to chlorite.

SEDIMENT THIN SECTION DESCRIPTION

139-857C-21R-1 (145–146 cm)

GENERAL LITHOLOGY: Siltstone and silty clay.

MINERALS:	PERCENT	SIZE	MORPHOLOGY (μm)	TEXTURE AND COMMENTS
Quartz	30–40	50–70	Subhedral to anhedral.	Grains of ragged quartz, many with fluid inclusions.
Plagioclase	10–15	50–70	Anhedral.	Ragged, variably altered detrital grains.
Mica	2–5	100–200	Subhedral.	Clear grains, highly birefringent, detrital.
Chlorite	5–7	100–150	Subhedral.	Pale green platy grains, moderately pleochroic.
Clays	20–30	--	Anhedral.	Anhedral masses concentrated in the matrix. Authigenic.
Magnetite	<1	40–60	Anhedral.	Ragged grains, almost completely altered, partly to pyrite.

GENERAL COMMENTS: Thick section; many of the quartz grains are ragged and altered. The magnetite is not common and when it occurs, it is altered. Matrix is partly infilled by an authigenic clay that partly replaces detrital grains.

SEDIMENT THIN SECTION DESCRIPTION

139-857C-28R-CC

GENERAL LITHOLOGY: Turbidite silt.

MINERALS:	PERCENT	SIZE	MORPHOLOGY (μm)	TEXTURE AND COMMENTS
Quartz	30–40	100–150	Subhedral to anhedral.	Ragged, leached grains.
Plagioclase	10–15	100–150	Anhedral.	Ragged, leached grains.
Mica	2–5	150–200	Subhedral.	Clear platy grains, highly birefringent.
Chlorite	2–5	100–150	Subhedral.	Pale green, pleochroic, platy grains.
Clay	20–30	--	Anhedral.	Massive aggregates of olive green clay minerals forming mainly in the matrix.
Hornblende	2–4	150–200	Subhedral.	Rectangular grains, dark green, partly altered.
Pyrite	0.5–1	20–50	Subhedral.	Fine grains of pyrite distributed throughout the section.
Magnetite	<1	30–40	Subhedral.	Ragged detrital grains, partly replaced by pyrite.

GENERAL COMMENTS: Turbiditic silt, partly altered and infilled with authigenic clays. Fine-grained pyrite disseminated throughout; magnetite partly altered to pyrite.

SEDIMENT THIN SECTION DESCRIPTION

139-857C-34R-3 (34–36 cm)

GENERAL LITHOLOGY: Silty laminated claystone.

MINERALS:	PERCENT	SIZE	MORPHOLOGY (μm)	TEXTURE AND COMMENTS
Quartz	30–40	100–200	Anhedral to subhedral.	Recrystallized grains in silty layers; subsequently partly leached.
Mica	30–40	10–100 –	Subhedral.	Larger grains in silty layers and very fine-grained crystals in claystone matrix.
Feldspar	5–10	50–100	Subhedral.	Twinned albite crystals.
Chlorite	5–10	Fine-grained.	Anhedral.	Patches of dark green chlorite alteration. Appears to grow in the matrix of fine-grained sediments.
Pyrite	0.1–0.3	20–30	Anhedral.	Disseminated throughout; also occurs in clusters.

GENERAL COMMENTS: Thick section. Quartz detritus appears recrystallized and partly leached in silty beds. Claystone matrix consists of mostly recrystallized clay. Thermally metamorphosed near a mafic sill.

SEDIMENT THIN SECTION DESCRIPTION

139-857C-36R-2 (130–133 cm)

GENERAL LITHOLOGY: Silty claystone.

MINERALS:	PERCENT	SIZE	MORPHOLOGY (μm)	TEXTURE AND COMMENTS
Quartz	20–30	70–100	Subhedral to anhedral.	Quartz forms ragged, detrital grains.
Mica	2–5	50–100	Subhedral.	Platy clear and highly birefringent.
Clay	50–60	Fine-grained.	Anhedral.	Authigenic olive green mats of clay infilling matrix and replacing detrital minerals.
Magnetite	0.1	100–200	Subhedral.	Ragged grains with many inclusions.
Pyrite	0.1	50–100	Subhedral.	Finely disseminated throughout the sediment.

GENERAL COMMENTS: Silty claystone, infilled and partly altered by authigenic olive green clay. Detrital grains are ragged and partly replaced.

SEDIMENT THIN SECTION DESCRIPTION

139-857C-38R-2 (41–48 cm)

GENERAL LITHOLOGY: Siltstone.

MINERALS:	PERCENT	SIZE	MORPHOLOGY (μm)	TEXTURE AND COMMENTS
Quartz	30–40	50–100	Anhedral.	Ragged and partly replaced detrital grains.
Plagioclase	5–10	50–100	Anhedral.	Ragged and partly replaced detrital grains.
Mica	5	100–150	Subhedral.	Platy, clear, highly birefringent grains.
Clay	40–50	--	Anhedral.	Olive green masses of authigenic clay filling matrix and replacing detrital grains.
Hornblende	<0.1	150–200	Euhedral.	Tabular hornblende grains altered to a dark green mineral with pyrite.

GENERAL COMMENTS: Siltstone infilled and partly replaced by an olive green authigenic clay. Hornblende is altered to a dark green mineral containing pyrite. Magnetite is not visible. Many of the quartz and plagioclase grains are partly replaced.

SEDIMENT THIN SECTION DESCRIPTION

139-857C-38R-2 (57–61 cm)

GENERAL LITHOLOGY: Silty clay.

MINERALS:	PERCENT	SIZE	MORPHOLOGY (μm)	TEXTURE AND COMMENTS
Quartz	30–35	50–100	Anhedral to subhedral.	Detrital grains, fairly ragged in places.
Plagioclase	10–15	50–100	Anhedral to	Detrital ragged and altered grains. subhedral.
Mica	2–5	100–150	Subhedral.	Platy, clear, and highly birefringent detrital grains.
Chlorite	--	--	--	Detrital chlorite not visible, due to alteration by authigenic clays.
Clay	30–40	--	Anhedral.	Masses of olive green clay that infills and partly replaces sediment.
Pyrite	1–2	10–100	Anhedral.	Patches of finely disseminated pyrite appears to replace a dark opaque mineral.

GENERAL COMMENTS: Sediment infilled by authigenic clay and cut by a vein surrounded by olive green clay.

SEDIMENT THIN SECTION DESCRIPTION

139-857C-41R-3 (26–30 cm)

GENERAL LITHOLOGY: Laminated metasiltstone.

MINERALS:	PERCENT	SIZE	MORPHOLOGY (μm)	TEXTURE AND COMMENTS
Quartz	40–60	50–80	Anhedral.	Recrystallized and partly leached.
Mica	3–5	100–300	Subhedral.	Platy, highly birefringent mineral.
Chlorite	10–20	Fine-grained.	Anhedral.	Clots of green chlorite growing in matrix.
Magnetite	1–2	20–40	Anhedral.	Ragged grains partly replaced by pyrite.
Pyrite	<0.1	10–20	Subhedral.	Finely dispersed grains; framboidal in places.

GENERAL COMMENTS: Siltstone, laminated, highly recrystallized, with an aphanitic clay-rich (or mica) matrix. Coarser-grained mica (probably detrital) also occurs. Invaded and partly altered by green chlorite. Detrital magnetite is ragged and partly pyritized.

SEDIMENT THIN SECTION DESCRIPTION

139-857C-48R-2 (57–59 cm)

GENERAL LITHOLOGY: Altered sandstone.

MINERALS:	PERCENT	SIZE	MORPHOLOGY (μm)	TEXTURE AND COMMENTS
Quartz	60–70	80–120	Subhedral.	Recrystallized detrital quartz.
Feldspar	5–10	50–100	Subhedral.	Albitization of detrital feldspar.
Epidote	1–4	50–100	Subhedral.	Isolated grains distributed throughout the matrix.
Chlorite	10–20	Fine-grained.	Anhedral.	Patches of chlorite; it also fills the interstices.
Magnetite	0.2–0.3	50–100	Anhedral.	Ragged grains partly replaced by fine-grained pyrite.
Pyrite	0.1	10–20	Subhedral to euhedral.	Finely disseminated throughout the sediment, also after a ferromagnesian mineral, perhaps hornblende.

GENERAL COMMENTS: Thick section. Recrystallized sandstone; in the thermal zone of a mafic sill. Essentially a metamorphic texture.

SEDIMENT THIN SECTION DESCRIPTION

139-857C-49R-3 (5–8 cm)

GENERAL LITHOLOGY: Clayey silt.

MINERALS:	PERCENT	SIZE	MORPHOLOGY (μm)	TEXTURE AND COMMENTS
Quartz	5–10	10–20	Anhedral to subhedral.	Detrital grains in a clay-rich matrix.
Feldspar	--	--	--	Too fine-grained to distinguish from quartz.
Clay	70–80	--	Anhedral.	Fine-grained authigenic and detrital clay. Authigenic clay is olive green.
Opaque minerals	1–2	5–10	Subhedral to anhedral.	Magnetite and pyrite.

GENERAL COMMENTS: Thick section. Hemipelagic silty clay partly infilled and replaced by patches of olive green authigenic clay.

SEDIMENT THIN SECTION DESCRIPTION

139-857C-54R-CC (12–13 cm)

GENERAL LITHOLOGY: Hemipelagic claystone.

MINERALS:	PERCENT	SIZE	MORPHOLOGY (μm)	TEXTURE AND COMMENTS
Quartz and Feldspar	15–20	10	Subhedral.	Fine-grained detrital quartz and feldspar in clayey matrix.
Clay	70–80	--	--	Detrital and authigenic clays.
Opaque minerals	0.1–0.2	3–8	Subhedral.	Fine-grained disseminated pyrite.

GENERAL COMMENTS: Poor section: too thick. Also too fine-grained to do detailed mineralogy.

SEDIMENT THIN SECTION DESCRIPTION

139-857C-55R-1 (12–14 cm)

GENERAL LITHOLOGY: Metamorphosed siltstone.

MINERALS:	PERCENT	SIZE	MORPHOLOGY (μm)	TEXTURE AND COMMENTS
Quartz	20–30	10–20	Subhedral to anhedral.	Fine-grained detrital quartz.
Epidote	3–5	20–40	Anhedral.	Patchy, pale yellow-green, growing in the matrix.
Mica	2–3	40–60	Subhedral.	Coarser grained, highly birefringent, detrital grains.
Clays	40–50	Fine-grained.	Subhedral.	Aphanitic matrix composed of highly birefringent clay minerals.
Magnetite	0.1	10–30	Anhedral.	Ragged detrital grains variably replaced by pyrite.
Pyrite	<0.5	10–20	Euhedral to subhedral.	Cubes of pyrite growing in matrix.

GENERAL COMMENTS: Thick slide of fine-grained sediment. Difficult to describe. Spotted texture although the mineralogy of the spots is not known. Spots are typically 100–200 μm across.

SEDIMENT THIN SECTION DESCRIPTION

139-857C-55R-1 (24–26 cm)

GENERAL LITHOLOGY: Clayey siltstone.

MINERALS:	PERCENT	SIZE	MORPHOLOGY (μm)	TEXTURE AND COMMENTS
Quartz and Plagioclase	40–50	20–50	Subhedral to anhedral.	Detrital grains, faintly ragged due to alteration.
Mica	2–5	30–70	Subhedral.	Platy detrital grains, clear, with high birefringence.
Clays	40–50	--	Anhedral.	Olive green authigenic clay forming the matrix and replacing altered minerals.
Pyrite	0.1	10–20	Subhedral to euhedral.	Finely disseminated throughout the sediment.
Carbonate	2–3	50–70	Anhedral.	Patches occurring mostly in the matrix.

GENERAL COMMENTS: Hemipelagic mud or clayey siltstone, partly infilled and replaced by olive green clay and clear carbonate.

139-857C-59R-1 (Piece 1, 26–28 cm) OBSERVER: STA WHERE SAMPLED:

ROCK NAME: Diabase.

GRAIN SIZE: Fine-grained.

TEXTURE: Intergranular.

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
Pyroxene	20	40	0.1–0.4		Anhedral.	Granular, some bow-tie.
Plagioclase	40	40	0.1–0.5	An_{54}	Columnar.	Some replaced by chlorite-epidote. Concentric extinction.
Mesostasis	0	20	N/A		N/A	Replaced by chlorite-epidote.

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMMENTS
Chlorite	30	Veins, mesostasis.	Pale colored.
Epidote	5	Mesostasis, plagioclase.	Large grains as pseudomorphs, fine-grained in matrix. Could be present in vein.
Sulfide	5	Pyrite in veins.	Also pyrite disseminated in matrix, one aggregate of chalcopyrite.
Prehnite	tr.	Pyroxene, plagioclase.	Cores fringed with chlorite near vein.
Hematite	tr.	Vein.	
Quartz	tr.	Vein.	Euhedral crystals with sphalerite.

VESICLES CAVITIES	PERCENT	LOCATION	SIZE (mm)	FILLING	SHAPE	COMMENTS
Vesicles	tr.	Near vein.	0.3	Epidote, sulfide.	Spherical.	One large vesicle with chalcopyrite(?).

COMMENTS: Sample is cut by sulfide-bearing vein. Description is for host matrix.

139-857C-59R-1 (Piece 8, 106–108 cm) OBSERVER: STA WHERE SAMPLED:

ROCK NAME: Diabase.

GRAIN SIZE: Fine- to medium-grained.

TEXTURE: Intergranular.

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
Plagioclase	35	40	0.5–5.0	An_{40-45}	Unknown.	Some large (2–5 mm) phenocrysts.
Pyroxene	38	39	0.5–2.0		Unknown.	
Mesostasis	0	20	N/A		N/A	Replaced by chlorite and epidote.
Oxide	1	1	0.1–3.0		Unknown.	Small grains with exsolution lamellae.

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMMENTS
Clay	Unknown.	Unknown.	May be smectite mixed with chlorite.
Chlorite	20	Plagioclase, mesostasis.	Green.
Epidote	6	Plagioclase, mesostasis.	
Hornblende?			Pale brown interstitial mineral.
Sulfide	1		Chalcopyrite and pyrrhotite.
Rutile	tr.	Ilmenite.	

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE (mm)	FILLING	SHAPE
	None.				

139-857C-59R-2 (Piece 8, 137–139 cm) OBSERVER: STA WHERE SAMPLED:

ROCK NAME: Microgabbro.

GRAIN SIZE: Medium-grained.

TEXTURE: Ophitic to poikiolitic.

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
Plagioclase	40	45	2.0–8.0	An_{54}	Tabular.	Concentric extinction.
Clinopyroxene	40	44	2.0–5.0		Anhedral.	
Mesostasis	1	10	N/A		N/A	
Ilmenite	1	1	0.1–0.4		Skeletal to dendritic.	Lathlike.

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMMENTS
Clay	1	Mesostasis.	Smectite mixed with chlorite.
Chlorite	10	Plagioclase, clinopyroxene, mesostasis.	
Epidote	3	plagioclase, mesostasis.	Small grains with chlorite, pale green, associated with plagioclase.
Quartz	1		Small equigranular grains.
Hornblende			Brown to green pleochroism, pale, intergranular.
Prehnite	tr.	Plagioclase	White rims on plagioclase(?)
Sulfide	1		Chalcopyrite, pyrrhotite disseminated in matrix.

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE (mm)	FILLING	SHAPE
	None.				

COMMENTS: Plagioclase-pyroxene symplectites. Pyrrhotite possibly replacing pyroxene in intergrowth with plagioclase.

139-857C-59R-3 (Piece 5, 100–102 cm) OBSERVER: STA WHERE SAMPLED:

ROCK NAME: Diabase.

GRAIN SIZE: Coarse-grained.

TEXTURE: Poikilitic.

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
Pyroxene	37	44	1.0–6.0		Anhedral.	Oikocryst.
Plagioclase	38	50	0.5–5.0	An_{45}	Stubby, columnar.	
Mesostasis	0	5	N/A		N/A	Chlorite and epidote.
Oxide	3	3	0.2–1.0		Plates.	Also fills cracks.

SECONDARY REPLACING/ MINERALOGY	PERCENT	FILLING	COMMENTS
Clay	1	Mesostasis.	Smectite, with chlorite.
Chlorite	15	Plagioclase and mesostasis.	Pale green.
Epidote	4	Plagioclase and mesostasis.	Euhedral crystals at plagioclase grain boundaries.
Actinolite	tr.	Plagioclase.	
Prehnite	1	Plagioclase, mesostasis.	White mats.
Sulfide	1		Sphalerite, pyrite and chalcopyrite in ovoid aggregates.

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE (mm)	FILLING	SHAPE
	None.				

COMMENTS: Plagioclase-pyroxene symplectites, miarolitic cavities. Pyrite in veins and replacing adjacent host rock.

139-857C-60R-1 (Piece 1, 13–15 cm) OBSERVER: STA WHERE SAMPLED:

ROCK NAME: Diabase.

GRAIN SIZE: Fine-grained.

TEXTURE: Ophitic.

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
PHENOCRYSTS						
Plagioclase	5	10	0.2–0.8	An_{55-65}	Tabular	Concentric extinction.
GROUNDMASS						
Plagioclase	35	35	0.05–0.2	An_{54-64}	Euhedral-lathlike.	Concentric zonation.
Pyroxene	38	44	0.05–0.15		Granular to spherulitic.	Pale green (thick slide).
Mesostasis	3	10	N/A	Glass.	N/A	Some altered to clay.
Oxide	2	1	0.01–0.05		Granular.	

SECONDARY REPLACING/ MINERALOGY	PERCENT	FILLING	COMMENTS
Chlorite	8	Glass and clinopyroxene.	Pale, also in veins with sulfide.
Epidote	5	Vein.	In vein with chlorite and sulfide, and as euhedral grains in plagioclase.
Pyrite	4		1-3 mm aggregate.

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE (mm)	FILLING	SHAPE
Vein	2–3		>1 mm	Pyrite epidote.	

COMMENTS: Thick section, percent epidote therefore may be too low. Pyrite may be replacing plagioclase and clinopyroxene. Epidote vein cuts section.

139-857C-60R-2 (Piece 5, 52–54 cm) OBSERVER: STA WHERE SAMPLED:

ROCK NAME: Diabase.

GRAIN SIZE: Medium- to fine-grained.

TEXTURE: Intergranular.

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPO-SITION	MORPHOLOGY	COMMENTS
PHENOCRYSTS						
Plagioclase	3	3	0.2–1.0		Tabularn.	Concentric extinction. Sodic rims and overgrowths.
GROUNDMASS						
Plagioclase	40	70	0.01–0.1		Microlitic.	
Clinopyroxene	37	37	0.02–0.05		Granular.	Concentric extinction.
Mesostasis	17	20	N/A.	Glass.	N/A.	
Oxide	1	1	0.05	Magnetite.	Granular.	Interstitial, laths of magnetite and ilmenite.

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMMENTS
Clay	1	Glass.	Mixed with chlorite.
Chlorite	1	Glass.	
Epidote	tr.	Glass.	Mixed with chlorite.
Sulfide			Small (0.05 mm) pyrite and chalcopyrite grains.

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE (mm)	FILLING	SHAPE
	None.				

139-857C-61R-1 (Piece 5, 70–71 cm) OBSERVER: STA WHERE SAMPLED:

ROCK NAME: Diabase.

GRAIN SIZE: Coarse-grained.

TEXTURE: Ophitic.

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
PHENOCRYSTS						
Plagioclase	1	2	1.0–2.0		Euhedral.	Tabular.
GROUNDMASS						
Pyroxene	44	44	0.2–0.4		Anhedral.	Anhedral to poikilitic.
Plagioclase	39	40	0.05–0.4	An_{48-58}	Euhedral.	Microlitic to tabular.
Mesostasis	9	10	N/A	N/A	N/A	
Oxide	3	3	0.03–0.1		Euhedral.	Small interstitial grains, magnetite(?)

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMMENTS
Chlorite	3	Plagioclase, mesostasis.	Pale blue interference colors.
Sulfide	<1	Mesostasis(?)	Small (<0.05 mm) pyrite or pyrrhotite grains.

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE (mm)	FILLING	SHAPE	COMMENTS
Veins	5		0.1–1.0	Chlorite.		With euhedral sulfide

COMMENTS: 1 mm wide subhorizontal vein filled with chlorite.

139-857C-61R-1 (Piece 8, 97–100 cm) OBSERVER: STA WHERE SAMPLED: Basalt-sediment contact.

ROCK NAME: Basalt.

GRAIN SIZE:

TEXTURE: Spherulitic.

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
PHENOCRYSTS						
Plagioclase	0	1	0.3–1.0		Euhedral.	Tabular, replaced by quartz(?)
GROUNDMASS						
Plagioclase	10	10	0.01		Skeletal.	Microlitic.
Glass	0	88	N/A		N/A	Spherulitic.
Oxide	1	1	0.01		Granular.	

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMMENTS
Clay	5	Mesostasis.	Smectite.
Chlorite	50	Glass.	Replaces glass, pale green with blue interference colors, also in sediment.
Pyrite	5	Along basalt-sediment contact.	
Oxide	2		In spherulitic bundles.
Altered mesostasis	27		

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE (mm)	FILLING	SHAPE	COMMENTS
Vesicles	1	Even.	0.1	Clay.	Spherical.	Difficult to identify because of intense replacement.

COMMENTS: Mineralogy of altered groundmass not identifiable.

139-857C-62R-1 (Piece 2B, 26–28 cm) OBSERVER: STA WHERE SAMPLED:

ROCK NAME: Microgabbro.

GRAIN SIZE: Coarse.

TEXTURE: Poikiolitic/isotropic.

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
Pyroxene	39	50	1.0–2.0		Tabular.	Oikocrysts.
Plagioclase	30	49	0.2–1.0	An_{50}	Equant-tabular.	
Oxide	1	1	<0.1		Skeletal.	Ilmenite, lathlike.

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMPOSITION	COMMENTS
Chlorite	5	Vein.		Associated with epidote and sulfide.
Epidote	10	In vein and wallrock.		Pale green large crystals.
Quartz	tr.	In vein.		
Pyrite	5	In vein.		
Plagioclase	tr.	Calcic plagioclase.	An_{20}	Mixed with chlorite.

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE (mm)	FILLING	SHAPE
	None.				

COMMENTS: Epidote-sulfide vein crosscuts sample at 45° angle. The vein is 1 mm wide. Alteration halo around vein is 5 mm wide, mainly epidote.

139-857C-62R-2 (Piece 7A, 72–74 cm) OBSERVER: STA WHERE SAMPLED:

ROCK NAME: Gabbro.

GRAIN SIZE: Coarse-grained.

TEXTURE: Ophitic-poikilitic.

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
Pyroxene	40	45	1.0–4.0		Anhedral.	Oikocrysts, some pleochroism.
Plagioclase	40	45	1.0–2.0	An_{54}	Tabular.	Euhedral.
Oxide	5	5	0.05		Plates.	Skeletal ilmenite and granular magnetite.
Mesostasis	0	5	N/A	N/A		

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMMENTS
Clay	4	Clinopyroxene.	Dark clots.
Zeolite/prehnite	1	Plagioclase.	Replacing clinopyroxene?
Chlorite	5	Mesostasis.	
Epidote	2	Plagioclase.	Clusters with plagioclase.
Actinolite	1	Clinopyroxene.	Acicular mats.
Hornblende	tr.	Plagioclase.	Pale green.
Sulfide	2		Euhedral pyrite, may also contain pyrrhotite and sphalerite.

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE (mm)	FILLING	SHAPE
	None.				

COMMENTS: Slide is heavily plucked. Sphalerite intergrown with pyrite.

139-857C-63R-1 (Piece 3, 36–38 cm) OBSERVER: STA WHERE SAMPLED:

ROCK NAME: Diabase.

GRAIN SIZE: Fine- to medium-grained.

TEXTURE: Ophitic to intergranular.

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
Pyroxene	35	40	1.0–2.0		Anhedral.	Some poikilitic texture.
Plagioclase	38	45	0.2–1.5	An_{54-62}	Columnar.	Concentric zonation.
Mesostasis	8	10	N/A.		N/A	Replaced by clay.
Oxide	5	5	0.05–0.2		Tabular and anhedral.	Ilmenite laths and magnetite grains.

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMMENTS
Clay	5	Mesostasis/pyroxene.	Brown smectite.
Chlorite	5	Mesostasis/plagioclase/pyroxene.	Also in vesicles.
Epidote	1	Plagioclase.	Small high relief grains in plagioclase.
Sulfide	3	In vugs, and interstitial pyrite.	
Apatite	tr.		Small inclusions in plagioclase.

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE (mm)	FILLING	SHAPE
Vesicles	5		1.0–2.0	Chlorite.	Round.

139-857C-63R-1 (Piece 4, 51–53 cm) OBSERVER: STA WHERE SAMPLED:

ROCK NAME: Microgabbro.

GRAIN SIZE: Coarse-grained.

TEXTURE: Poikilitic.

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
PHENOCRYSTS						
Olivine(?)	Unknown.	Unknown.	1–2		Equant.	Chloritized pseudomorphs.
GROUNDMASS						
Pyroxene	30	40	1.0–4.0		Anhedral.	Oikocrysts.
Plagioclase	31	40	0.4–2.0	An_{50-70}	Tabular.	Concentric extinction; sodic rim.
Oxide	5	5	0.1–0.3		Laths and. anhedral.	Skeletal ilmenite and granular magnetite.
Mesostasis	0	15	N/A		N/A	Replaced by chlorite-smectite.

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMMENTS
Chlorite	25	Mesostasis, plagioclase.	Pale-brownish, could be mixed with chlorite. Also replaces pyroxene.
Epidote	2	Plagioclase.	High relief grains.
Actinolite	5	Clinopyroxene.	Acicular masses.
Sulfide	1		Euhedral grains of pyrite (0.1mm) mixed with Smectite-chlorite.
Sodic plagioclase	1	Plagioclase.	An_{20}

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE (mm)	FILLING	SHAPE
	None.				

COMMENTS: Oblong pseudomorphs are likely chlorite-actinolite after olivine(?) or pyroxene. Some have parallel extinction, some may be relict. High relief.

139-857C-64R-1 (Piece 6, 63–66 cm) OBSERVER: STA WHERE SAMPLED:

ROCK NAME: Microgabbro.

GRAIN SIZE: Coarse-grained.

TEXTURE: Poikiolitic-ophitic.

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
Plagioclase	42	48	1.0–5.0	An_{60}	Tabular.	Some concentric extinction.
Clinopyroxene	38	43	1.0–4.0		Anhedral.	Oikocrysts.
Oxide	4	4	0.5–0.6		N/A	Ilmenite and granular magnetite.
Mesostasis	0	5	N/A		N/A	Interstitial patches.

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMMENTS
Clay	5	Mesostasis and clinopyroxene.	Dark brown.
Zeolite	?		Replacing plagioclase, included with chlorite.
Chlorite	8	Plagioclase.	Interstitial patches.
Epidote	1	Plagioclase and glass.	Small equant, high birefringence grains.
Hornblende	tr.	Plagioclase.	Pale brown.
Sulfide	2	Mesostasis.	Pyrite surrounded by chalcopyrite, 1 mm blebs.

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE (mm)	FILLING	SHAPE
	None.				

COMMENTS: Dark interstitial patches of chlorite, epidote, actinolite(?). Pyrite forms a network along cracks.

139-857C-64R-2 (Piece 4, 33–35 cm) OBSERVER: STA WHERE SAMPLED:

ROCK NAME: Diabase.

GRAIN SIZE: Medium-grained.

TEXTURE: Intergranular.

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
Plagioclase	32	49	1.0–3.0	An_{45}	Tabular.	
Clinopyroxene	32	49	1.0–3.0		Ovoid to tabular.	
Oxide	2	2	0.05–0.25		Euhedral.	Skeletal ilmenite laths and magnetite grains.
Mesostasis	0	Unknown.	N/A		N/A	

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMMENTS
Chlorite	20	Plagioclase pyroxene, and mesostasis.	Pale or brown, large patches.
Actinolite	2	Clinopyroxene.	Also tiny needles in mesostasis.
Epidote	tr.	Plagioclase.	Small turbid grains. Surrounds sulfide.
Sphene	tr.	Ilmenite.	Turbid, high relief halo around ilmenite.
Quartz	10	Glass and in vein.	Euhedral prisms.
Sulfide	2		Large pyrite grain in center of slide.
Rutile	tr.		Wormy exsolution lamellae very common.

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE (mm)	FILLING	SHAPE
Vesicles	1–2			Chlorite and quartz.	Round.

COMMENTS: Vesicles or miarolitic cavities lined with quartz and epidote crystals and filled with chlorite. 1–2 mm chlorite vein cuts slide, contains a trace of actinolite.

139-857C-64R-2 (Piece 7, 70–72 cm) OBSERVER: STA WHERE SAMPLED:

ROCK NAME: Diabase.

GRAIN SIZE: Medium-grained.

TEXTURE: Ophitic.

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
Plagioclase	38	41	0.05–1.0	An_{68-72}	Tabular.	
Clinopyroxene	39	41	1.0–2.0		Anhedral.	
Mesostasis	0	16	N/A		N/A	
Oxide	2	2	0.5–1.5		Granular and skeletal.	Likely ilmenite and magnetite.

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMMENTS
Clay	8	Clinopyroxene.	Bundles with parallel extinction; chlorite/ smectite
Zeolite	tr.	Vein; wairakite.	Highly twinned.
Chlorite	10	Mesostasis.	In alteration zone adjacent to vein.
Actinolite	1	Clinopyroxene.	Columnar, green, pleochroic.
Sulfide	2	Vein and mesostasis.	Pyrrhotite and pyrite in matrix, sphalerite and chalcopyrite in vein. Some chalcopyrite also in matrix.
Quartz	tr.	Vein.	Euhedrae.

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE (mm)	FILLING	SHAPE
	None.				

COMMENTS: Metadiabase cut by vein which makes up 30% of slide. Description is of host rock. Vein contains sphalerite, chalcopyrite, wairakite, and euhedral quartz crystals.

139-857C-66R-1 (Piece 5, 48–50 cm) OBSERVER: STA WHERE SAMPLED: Sediment contact

ROCK NAME: Metabasalt.

GRAIN SIZE: Cryptocrystalline.

TEXTURE: Intersertal.

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
PHENOCRYSTS						
Olivine	0	1–2	1.0 mm	Unknown.	Euhedral.	Completely replaced.
Plagioclase	0	1–2	1.0	Unknown.	Skeletal.	
GROUNDMASS						
Glass	0	95	N/A.		N/A.	Completely replaced.
Plagioclase	5	5	<0.1 mm		Crystallites.	

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMMENTS
Clay	50	Matrix.	Spherulites, almost white; could be Mg-chlorite.
Chlorite	30	Plagioclase.	Also in vesicles and veins.
Epidote	1	Plagioclase.	Grains in phenocryst.
Quartz	15	Quench margin.	Silicification(?)
Sulfide	2	Veins and vesicles.	Chalcopyrite+/-pyrite in veins with chlorite.

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE (mm)	FILLING	SHAPE	COMMENTS
Vesicles	1		0.5	Dark clay.	Round.	Zoned.

COMMENTS: Chlorite vein crosscuts smectite vein.

139-857C-68R-01 (Piece 4, 22–24 cm) OBSERVER: STA WHERE SAMPLED:

ROCK NAME: Diabase.

GRAIN SIZE: Coarse-grained.

TEXTURE: Intersertal to poikilitic.

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
Plagioclase	40	50	0.5–1.5	An_{45-55}	Euhedral	Some concentric zonation.
Clinopyroxene	25	40	1.0–2.0	Anhedral.		
Oxide	4	4	0.2–0.5		Lathlike, granular.	Skeletal ilmenite and granular magnetite.
Mesostasis	0	6	N/A		N/A	Replaced by chlorite, epidote actinolite, and plagioclase.

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMMENTS
Clay	tr.		Could be mixed with chlorite.
Chlorite	25	Mesostasis, plagioclase, clinopyroxene.	Dark color.
Epidote	5	Plagioclase, clinopyroxene.	Pale, yellow-green laths in plagioclase. Dark masses in mesostasis.
Actinolite	tr.	Plagioclase.	Stubby prisms.
Pyrite	1	Mesostasis(?)	Anhedral grains associated with chlorite.

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE (mm)	FILLING	SHAPE
	None.				

COMMENTS: Network of chlorite and epidote alteration. This could be replacing both mesostasis and crystalline phases.

139-857C-68R-2 (Piece 1, 8–10 cm) OBSERVER: STA WHERE SAMPLED:

ROCK NAME: Diabase.

GRAIN SIZE: Coarse-grained.

TEXTURE: Intergranular.

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
Clinopyroxene	40	45	1.0–4.0	N/A	Anhedral.	Some giant pleochroic spherules.
Plagioclase	35	47	0.5–1.5	An_{45-50}	Tabular.	Replaced by epidote and chlorite, some zeolites(?).
Mesostasis	0	5	N/A	Unknown.	N/A	Replaced by epidote and chlorite.
Oxide	3	3	0.1–1.0	Ilmenite.	Skeletal-lath.	1 mm long lath.

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMMENTS
Chlorite	15	Plagioclase, mesostasis and clinopyroxene.	
Epidote	5	Plagioclase.	Euhedral and fine granular.
Actinolite	1	Clinopyroxene.	Green, pleochroic, prismatic.
Sphene	tr.	Ilmenite.	
Hornblende	tr.	Clinopyroxene(?)	
Sulfide	1		Grains in chlorite.

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE (mm)	FILLING	SHAPE
	None.				

COMMENTS: Could be some smectite mixed with chlorite.

139-857C-68R-2 (Piece 15, 142–144 cm) OBSERVER: STA WHERE SAMPLED:

ROCK NAME: Diabase.

GRAIN SIZE: Coarse-medium.

TEXTURE: Intersertal-poikiolitic.

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
Plagioclase	40	48	0.2–1.0	An_{50}	Tabular.	
Clinopyroxene	38	45	0.2–1.0		Anhedral.	
Mesostasis	0	5	N/A		N/A	Replaced by chlorite and epidote.
Ilmenite	2	2	0.05		Euhedral.	Skeletal laths.

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMMENTS
Chlorite	10	Mesostasis, plagioclase.	Associated with epidote and actinolite.
Epidote	3	Plagioclase, mesostasis.	Granular and euhedral, up to 0.5 mm.
Actinolite	1	Plagioclase.	Needles in plagioclase.
Prehnite	1	Plagioclase.	Anhedral, many dark inclusions.
Sulfide	5		Ovoid pyrite aggregates, 0.05–1 mm.

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE (mm)	FILLING	SHAPE
	None.				

139-857C-68R-3 (Piece 3, 32–34 cm) OBSERVER: STA WHERE SAMPLED:

ROCK NAME: Diabase.

GRAIN SIZE: Medium-grained.

TEXTURE: Intersertal.

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
PHENOCRYSTS						
Plagioclase	1	1	0.5x1.0	AN_{55}	Euhedral.	Glomerocrysts.
GROUNDMASS						
Plagioclase	40	50	0.1–0.5	An_{45-50}	Tabular.	Concentric extinction.
Clinopyroxene	3	40	0.2–0.8		Anhedral.	Some oikocrysts.
Mesostasis	0	7	N/A	N/A	N/A	
Oxide	3	3			Anhedral.	Skeletal ilmenite and magnetite.

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMMENTS
Clay	2	Mesostasis, clinopyroxene.	Dark brown aggregate.
Chlorite	17	Mesostasis.	
Albite	tr.	Plagioclase.	Associated with epidote.
Epidote	5	Plagioclase.	Small grains.
Sphene	1	Ilmenite.	
Prehnite	1	Plagioclase.	
Sulfide	1	Mesostasis.	Small grains.

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE (mm)	FILLING	SHAPE
	None.				

139-857D-1R-01 (Piece 8B, 68–70 cm) OBSERVER: STA WHERE SAMPLED:

ROCK NAME: Diabase/metadiabase.

GRAIN SIZE: Fine-grained.

TEXTURE: Intersertal.

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
PHENOCRYSTS						
Plagioclase.	0	1	0.5–1.5		Tabular.	Replaced by quartz.
GROUNDMASS						
Plagioclase.	0	40	<0.05		N/A.	
Mesostasis.	0	59	N/A.		N/A.	

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMMENTS
Clay.	30	Plagioclase.	
Chlorite.	30	Mesostasis, veins.	
Quartz.	40	Veins, mesostasis, plagioclase.	
Sphere.	2	Ilmenite.	Small grains in groundmass.

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE (mm)	FILLING	SHAPE
Vein.	15	N/A.	3.0–5.0	Quartz, wairakite, sphalerite, chlorite.	

139-857D-1R-02 (Piece 11D, 81–82 cm) OBSERVER: STA WHERE SAMPLED:

ROCK NAME: Diabase.

GRAIN SIZE: Fine-grained.

TEXTURE: Microlitic.

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
PHENOCRYSTS						
Olivine.	0	1	0.5–1.0		Ovoid.	Pseudomorphs with shape of olivine.
Plagioclase.	5	5	1.0–3.0		Tabular.	Strongly zoned.
GROUNDMASS						
Plagioclase.	42	42	0.05–1.0		Skeletal.	Microlites and lantern shapes.
Clinopyroxene.	36	42	0.01–0.2		Spindle.	Microlites.
Mesostasis.	0	10	N/A.		N/A.	

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMMENTS
Smectite.	1	Mafic phenocrysts.	
Chlorite.	12	Mafic phenocrysts and mesostasis.	Also fills small vein.
Actinolite.	tr.	Pyroxene.	Few grains in groundmass.
Sulfide.	3	Mafic phenocrysts and mesostasis.	With chlorite in replacements.

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE (mm)	FILLING	SHAPE
Vein.	3	N/A.	0.05	Chlorite.	

COMMENTS: Mafic phenocrysts are mostly ovoid or equant. Could be pyroxene instead of olivine. One opaque grain in groundmass could be spinel.

139-857D-3R-01 (Piece 2B, 25–27 cm) OBSERVER: STA WHERE SAMPLED:

ROCK NAME: Phyric diabase.

GRAIN SIZE: Fine-grained.

TEXTURE: Intersertal.

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
PHENOCRYSTS						
Plagioclase.	18	25	0.5–2.0	An_{72-80}	Tabular.	Embayed; glomerocrysts; sodic rims.
Spinel(?).	1	1	0.1–0.2		Euhedral.	Possibly altered.
GROUNDMASS						
Plagioclase.	20	31	0.5–1.0	An_{65-70}	Lathlike.	
Clinopyroxene.	18	31	0.2–1.0		Microlitic.	
Mesostasis.	0	10	N/A.		N/A.	
Oxide.	2	2	0.01–0.1		Platy.	Granular magnetite and ilmenite.

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMMENTS
Chlorite.	25	Plagioclase mesostasis.	Brown, spherulitic clumps.
Epidote.	2	Plagioclase, vein.	Large, pale crystals.
Quartz.	1	Vein.	
Actinolite.	1	Clinoopyroxene.	Green, good cleavage, pleochroic.
Sulfide.	5	Vein mafic.	Large grains 4 mm by 1 mm across.
Prehnite.	5	Vein, plagioclase.	With chlorite.
Albite.	2	Plagioclase.	Patchy replacement.

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE (mm)	FILLING	SHAPE	COMMENTS
Vein.	2			Quartz, epidote.		Some euhedral crystals.
Vein.	2		0.4	Chlorite.		With prehnite.

139-857D-3R-02 (Piece 8, 70–71 cm) OBSERVER: STA WHERE SAMPLED:

ROCK NAME: Diabase, phyric.

GRAIN SIZE: Medium-grained.

TEXTURE: Ophitic.

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
PHENOCRYSTS						
Plagioclase.	3	4	0.3–2.0	An_{84-70}	Tabular.	Strongly zoned; embayed.
GROUNDMASS						
Plagioclase.	41	44	0.1–1.0	An_{50-40}	Tabular.	
Clinopyroxene.	42	44	0.2–1.0		Anhedral.	*Spherulitic, microlitic.*
Oxide.	3	3	0.01–0.1		Platy, anhedral.	Ilmenite, magnetite.
Mesostasis.	0	5	N/A.		N/A.	

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMMENTS
Chlorite.	6	Plagioclase mesostasis.	Very blue in polarized light.
Epidote.	2	Plagioclase, vein.	
Actinolite.	2	Clinopyroxene.	Highly pleochroic; green.
Quartz.	tr.	Vein.	
Sulfide.	1		Small, anhedral grains in matrix.
Sphere.	tr.	Ilmenite.	Inclusions in clinopyroxene.

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE (mm)	FILLING	SHAPE
Vein.	10		3.0–5.0	Quartz, epidote.	

139-857D-4R-01 (Piece 9, 59–61 cm) OBSERVER: STA WHERE SAMPLED:

ROCK NAME: Gabbro.

GRAIN SIZE: Coarse-grained.

TEXTURE: Isotropic.

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
Plagioclase.	35	49	0.5–4.0	An_{60-88}	Columnar.	Strongly zoned; some megacrysts.
Clinopyroxene.	25	46	0.5–2.0		Anhedral.	Oikocrysts.
Oxide.	5	5	0.1–0.5		Laths.	Ilmenite, magnetite.

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMMENTS
Chlorite.	20	Plagioclase.	
Epidote.	5	Plagioclase.	Pale yellow.
Actinolite.	5	Clinopyroxene.	Green, pleochroic; some actinolitic hornblende.
Sulfide.	5	Veins.	Anhedral and euhedral grains, with chlorite.

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE (mm)	FILLING	SHAPE
Vein.	5		2.0	Chlorite, sulfide, quartz.	
Vein.	1		1.0	Quartz, epidote.	

139-857D-4R-02 (Piece 9, 41–42 cm) OBSERVER: STA WHERE SAMPLED:

ROCK NAME: Metagabbro.

GRAIN SIZE: Coarse-grained.

TEXTURE: Isotropic.

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
Plagioclase.	40	55	1.0–3.0	An_{80-87}	Columnar.	
Clinopyroxene.	0	40	0.5–1.5		Anhedral.	Crude estimate.
Oxide.	4	5	0.2–0.8		Euhedral.	Ilmenite.

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMMENTS
Chlorite.	50	Clinopyroxene, plagioclase.	Mixed with quartz.
Epidote.	5	Plagioclase vein.	Mixed with chlorite.
Sulfide.	10		Pyrite and chalcopyrite, with epidote and chlorite.
Sphere.	1	Ilmenite.	With chlorite and epidote.

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE (mm)	FILLING	SHAPE	COMMENTS
Vein.	5		5.0	Epidote, sulfide, chlorite.		Only part of vein on slide.

139-857D-7R-01 (Piece 11, 46–48 cm) OBSERVER: STA WHERE SAMPLED:

ROCK NAME: Diabase.

GRAIN SIZE: Medium-grained.

TEXTURE: Ophitic.

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
Plagioclase.	35	50	0.5–2.0		Lathlike.	Some radial aggregates.
Clinopyroxene.	31	49	0.1–0.4		Anhedral.	
Oxide.	1	1	0.01–2.0		Skeletal, granular.	

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMMENTS
Chlorite.	10	Pyroxene.	With actinolite.
Epidote.	5	Plagioclase, epidote.	With sulfide; pale green acicular, pale green, and dark clots.
Hornblende.	3	Clinopyroxene.	Columnar, pale green.
Sulfide.	10		Anhedral grains.

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE (mm)	FILLING	SHAPE
	None.				

139-857D-9R-01 (Piece 16, 88–90 cm) OBSERVER: STA WHERE SAMPLED:

ROCK NAME: Diabase.

GRAIN SIZE: Medium-grained.

TEXTURE: Ophitic.

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
PHENOCRYSTS						
Plagioclase.	1	1	0.5–2.0		Columnar.	Corroded, overgrowths.
Clinopyroxene.	1	1	0.5–1.0		Anhedral.	Glomerocrysts.
GROUNDMASS						
Plagioclase.	42	46	0.2–1.0		Tabular.	Good twins.
Clinopyroxene.	40	46	0.01–2.0		Anhedral.	Some spherulites.
Oxide.	5	5	0.01–2.0		Euhedral.	Laths, plates.
Mesostasis.	0	3	N/A.		N/A.	Replaced by chlorite, epidote.

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMMENTS
Chlorite.	5	Pyroxene, mesostasis, plagioclase.	With sulfide and chlorite, dark clots.
Sulfide.	3		Ovoid aggregates, pyrite.

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE (mm)	FILLING	SHAPE
	None.				

139-857D-12R-01 (Piece 10, 61–64 cm) OBSERVER: STA WHERE SAMPLED:

ROCK NAME: Metabasalt.

GRAIN SIZE: Fine-grained.

TEXTURE: Phyric.

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
PHENOCRYSTS						
Plagioclase.	1	Unknown.	0.5–2.0		Subhedral.	Ovoid; columnar.
Clinopyroxene.	1	Unknown.	1.0		Anhedral.	Replaced by chlorite.
GROUNDMASS						
Plagioclase.	17	Unknown.	0.08–1.0		Lathlike.	
Clinopyroxene.	0	Unknown.	0.1		Anhedral.	
Mesostasis.	0	Unknown.	N/A.		N/A.	
Oxide.	1	1	<0.2		Granular.	

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMMENTS
Zeolite.	2	Vein.	Could be wairakite.
Chlorite.	35	Plagioclase.	Dark with blue interference colors.
Actinolite.	20	Pyroxene.	Acicular.
Quartz.	15	Mesostasis.	Enclosed sulfide.
Prehnite.	3	Plagioclase.	Bouquets in plagioclase.
Sulfide.	5		Cluster of anhedral grains.

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE (mm)	FILLING	SHAPE
Vesicles.	1		0.3	Quartz.	
Vein.	1		0.1	Zeolite.	

COMMENTS: Pervasive replacement by chlorite makes estimates of original mineralogy very subjective. Phenocryst shapes are well preserved. Sulfide grains have quartz jackets.

139-857D-15R-01 (Piece 13, 58–60 cm) OBSERVER: STA WHERE SAMPLED:

ROCK NAME: Metadiabase.

GRAIN SIZE: Fine-grained.

TEXTURE: Intergranular.

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
PHENOCRYSTS						
Plagioclase.	1	1	0.5–3.0		Columnar.	Xenocrysts(?) concentric zoning.
GROUNDMASS						
Plagioclase.	40	50	0.1–1.0		Lathlike.	Replaced by prehnite.
Clinopyroxene.	0	40	Unkown.		Anhedral.	
Oxide.	3	3	0.1		Skeletal.	Ilmenite, magnetite.
Mesostasis.	0	7	N/A.		N/A.	

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMMENTS
Chlorite.	30	Plagioclase, clinopyroxene.	
Epidote.	5	Plagioclase.	Angular, included grains.
Actinolite.	2	Clinopyroxene.	Green, prismatic to acicular.
Prehnite.	3	Plagioclase.	
Sulfide.	1		Pyrite aggregates.

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE (mm)	FILLING	SHAPE
	None.				

139-857D-18R-01 (Piece 4, 55–58 cm) OBSERVER: STA WHERE SAMPLED:

ROCK NAME: Microgabbro.

GRAIN SIZE: Coarse-grained.

TEXTURE: Poikilitic.

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
Plagioclase.	45	50	0.2–2.0		Tabular.	
Clinopyroxene.	34	47	0.4–1.0		Anhedral.	Some oikocrysts.
Oxide.	3	3	0.2–1.0		Euhedral.	Square to prismatic.

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMMENTS
Chlorite.	6	Clinopyroxene.	Dark clots, with epidote.
Epidote.	5	Plagioclase, mesostasis.	
Sphene.	1	Ilmenite.	
Quartz.	tr.	Plagioclase.	With epidote.
Sulfide.	3	Pyroxene(?).	
Albite.	3	Plagioclase.	Patchy aggregates.

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE (mm)	FILLING	SHAPE	COMMENTS
Vugs.	5		1.0–2.0	Epidote, chlorite, pyrite, chalcopyrite.	Rounded.	Zoned with chlorite on outside and epidote and sulfide on the inside.
					Angular.	

COMMENTS: Pseudomorphs of poikelitic texture with clinopyroxene replacing epidote and plagioclase replacing prehnite.

139-857D-18R-02 (Piece 9, 84–87 cm) OBSERVER: STA WHERE SAMPLED:

ROCK NAME: Diabase.

GRAIN SIZE: Coarse-grained.

TEXTURE: Poikiolitic.

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
Plagioclase.	45	48	0.2–1.0		Tabular.	Strongly zoned.
Clinopyroxene.	28	50	0.5–2.0		Anhedral.	Oikocrysts.
Oxide.	1	2	0.1–0.6		Unknown.	Ti-magnetite.

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMMENTS
Chlorite.	5	Clinopyroxene	
Epidote.	5	Clinopyroxene, plagioclase.	With sulfide, acicular, pleochroic.
Actinolite.	5	Clinopyroxene.	
Sphene.	1	Ilmenite.	
Prehnite.	5	Plagioclase, vein.	Fills 0.05 mm vein.
Sulfide.	5		Interstitial aggregates.

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE (mm)	FILLING	SHAPE
	None.				

139-857D-19R-01 (Piece 5, 20–22 cm) OBSERVER: STA WHERE SAMPLED:

ROCK NAME: Gabbro.

GRAIN SIZE: Coarse-grained.

TEXTURE: Ophitic/poikilitic.

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
Plagioclase.	40	50	0.8–3.0		Tabular.	Concentric zonation.
Pyroxene.	26	48	0.5–4.0		Anhedral.	Chlorite-actinolite pseudomorphs.
Oxides.	1	2	0.01–0.5		Anhedral.	Ilmenite and magnetite.

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMMENTS
Chlorite.	15	Clinopyroxene.	
Epidote.	4	Plagioclase.	
Actinolite.	5	Clinopyroxene.	
Sphene.	1	Ilmenite.	Small grains intergrown with oxide.
Hornblende.	1	Clinoyroxene.	Pale green, good cleavage.
Sulfide.	1		

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE (mm)	FILLING	SHAPE
	None.				

COMMENTS: Clinopyroxene is preferentially replaced, yellow pleochroic mineral in cores of clinopyroxene pseudomorphs.

139-857D-20R-01 (Piece 8, 62–65 cm) OBSERVER: STA WHERE SAMPLED:

ROCK NAME: Gabbro.

GRAIN SIZE: Coarse-grained.

TEXTURE: Poikilitic.

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
Plagioclase.	39	50	1.0–3.0	An_{45-70}	Anhedral.	
Clinopyroxene.	30	48	1.0–2.0		Anhedral.	Oikocrysts.
Oxide.	2	2	0.02–2.0		Equant.	Plates.

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMMENTS
Chlorite.	10	Clinopyroxene, plagioclase.	
Epidote.	5	Plagioclase.	Yellow-green.
Actinolite.	10	Clinopyroxene.	Acicular, green, mixed with chlorite, could include some amphibole.
Prehnite.	3	Plagioclase.	
Sulfide.	1		Small rounded pyrite grains.
Sphere.	tr.	Ilmenite.	

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE (mm)	FILLING	SHAPE
	None.				

COMMENTS: Massive chlorite replacement along one edge. Pleochroic yellow acicular mineral in pyroxene pseudomorphs. Also a dark yellow replacement of ilmenite.

139-857D-21R-01 (Piece 6B, 62–65 cm) OBSERVER: STA WHERE SAMPLED:

ROCK NAME: Diabase.

GRAIN SIZE: Medium-grained.

TEXTURE: Intersertal.

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
PHENOCRYSTS						
Plagioclase.	3	3	0.4–1.0		Columnar.	Strongly zoned.
GROUNDMASS						
Plagioclase.	40	42	0.1–0.5		Lath.	
Clinopyroxene.	40	40	0.1–0.5		Anhedral.	Granular.
Mesostasis.	0	5	N/A.		N/A.	
Ilmenite.	tr.	tr.	0.01		Granular.	

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMMENTS
Chlorite.	10	Mesostasis.	
Epidote.	2	Mesostasis, plagioclase.	
Sulfide.	5	Mesostasis.	Pyrite 0.1–0.2 mm aggregates.

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE (mm)	FILLING	SHAPE	COMMENTS
Vugs.	1		0.5	Chlorite.	Round.	Rimmed by darker mineral.

139-857D-22R-01 (Piece 9, 52–55 cm) OBSERVER: STA WHERE SAMPLED:

ROCK NAME: Diabase.

GRAIN SIZE: Medium-grained.

TEXTURE: Intergranular.

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
Plagioclase.	40	49	0.05–1.0		Tabular, microlitic.	Seriate.
Clinopyroxene.	37	40	0.1–0.3		Anhedral.	
Oxide.	1	1	0.01–0.1		Skeletal.	Granular.
Mesostasis.	0	10	N/A.		N/A.	

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMMENTS
Chlorite.	5	Vugs, plagioclase, mesostasis.	
Epidote.	10	Plagioclase, mesostasis, vugs.	
Sulfide.	5		Interstitial masses of pyrite, up to 0.5 mm.
Prehnite.	2	Plagioclase.	

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE (mm)	FILLING	SHAPE	COMMENTS
Vugs.	2		0.6	Sulfide, chlorite, epidote.	Round.	Look like large vesicles.

COMMENTS: Thick slide, difficult to judge abundances

139-857D-23R-01 (Piece 13, 80–84 cm) OBSERVER: STA WHERE SAMPLED:

ROCK NAME: Diabase.

GRAIN SIZE: Fine-grained.

TEXTURE: Intergranular.

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
Plagioclase.	42	48	0.2–1.5		Tabular.	Twinned.
Clinopyroxene.	28	45	0.1–0.5		Granular.	
Mesostasis.	0	5	N/A.		N/A.	
Oxide.	2	2	0.01–0.2		Platy.	Ilmenite and magnetite.

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMMENTS
Chlorite.	10	Clinopyroxene, mesostasis.	Very green.
Epidote.	3		With sulfide.
Sulfide.	5		Euhedral and anhedral pyrite with chlorite.

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE (mm)	FILLING	SHAPE
	None.				

139-857D-24R-01 (Piece 20A, 112–113 cm) OBSERVER: STA WHERE SAMPLED:

ROCK NAME: Diabase.

GRAIN SIZE: Fine-grained.

TEXTURE: Intergranular.

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
Plagioclase.	44	50	0.2–1.5		Tabular.	Larger grains are columnar.
Clinopyroxene.	38	49	0.05–0.4		Granular.	
Oxide.	1	1	0.01–0.2		Skeletal.	Ilmenite and magnetite.

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMMENTS
Chlorite.	8	Clinopyroxene, plagioclase.	Pale green to brown.
Epidote.	2	Plagioclase.	
Actinolite.	3	Clinopyroxene.	Pleochroic, fibrous, with chlorite.
Prehnite.	1	Plagioclase.	
Sulfide.	3		Interstitial masses.

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE (mm)	FILLING	SHAPE	COMMENTS
Veins.	4		0.1	Chlorite, sulfide.	N/A.	Pyrite grains extend over edge of vein.

139-857D-24R-02 (Piece 5, 29–31 cm) OBSERVER: STA WHERE SAMPLED:

ROCK NAME: Diabase.

GRAIN SIZE: Fine-grained.

TEXTURE: Intersertal.

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
PHENOCRYSTS						
Plagioclase.	1	1	0.5–2.0		Columnar.	Concentric zonation, ovoid.
GROUNDMASS						
Plagioclase.	41	49			Tabular.	
Clinopyroxene.	32	47				
Oxide.	3	3	0.01–0.05		Skeletal.	Ilmenite and magnetite.

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMMENTS
Chlorite.	15	Clinopyroxene.	Very green, also dark spherulitic masses.
Epidote.	5	Plagioclase.	Greenish yellow.

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE (mm)	FILLING	SHAPE
	None.				

139-857D-25R-01 (Piece 11, 71–73 cm) OBSERVER: STA WHERE SAMPLED:

ROCK NAME: Diabase.

GRAIN SIZE: Medium-grained.

TEXTURE: Subophitic.

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
PHENOCRYSTS						
Olivine.	1	1	2.0–3.0		Columnar.	Glomerocryst.
GROUNDMASS						
Plaggioclase.	45	50	0.2–0.5		Tabular.	
Clinopyroxene.	35	45	0.4–1.0		Anhedral.	
Oxide.	5	5	0.05–0.5		Plates.	Ilmenite and magnetite.

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMMENTS
Chlorite.	10	Plagioclase, clinopyroxene.	Very green, pleochroic.
Epidote.	1	Plagioclase.	Greenish yellow.
Actinolite.	3	Clinopyroxene.	Pleochroic, fibrous.
Hornblende.	tr.	Plagioclase.	One possible grain.
Sulfide.	tr.		Few small round grains.

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE (mm)	FILLING	SHAPE
	None.				

139-857D-26R-01 (Piece 3, 16–19 cm) OBSERVER: STA WHERE SAMPLED:

ROCK NAME: Diabase, phyric.

GRAIN SIZE: Fine-grained.

TEXTURE: Intersertal.

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
PHENOCRYSTS						
Plagioclase.	4	4	1.0–2.0		Columnar.	Glomerocrysts, sodic overgrowths.
GROUNDMASS						
Plagioclase.	40	41	0.05–1.0		Laths.	
Clinopyroxene.	38	45	0.1–0.4		Granular.	
Oxides.	2	2	0.01–0.3		Skeletal.	Ilmenite and magnetite.
Mesostasis.	0	8	N/A.		N/A.	

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMMENTS
Chlorite.	10	Mesostasis, clinopyroxene.	Green.
Epidote.	1	Plagioclase.	Clear, high relief grains.
Sulfide.	5		

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE (mm)	FILLING	SHAPE
Vesicles.	1		0.4	Chlorite.	Spherical.

COMMENTS: Sulfide porphyroblasts with plagioclase or epidote inclusions between silicate grains.

139-857D-27R-01 (Piece 11, 78–81 cm) OBSERVER: STA WHERE SAMPLED:

ROCK NAME: Diabase.

GRAIN SIZE: Medium-grained.

TEXTURE: Ophitic.

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
Plagioclase.	30	47	0.1–2.0		Tabular.	
Clinopyroxene.	31	45	0.1–1.0		Granular.	
Oxide.	3	3	0.05–1.0		Lathlike.	Very large laths.

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMMENTS
Clays.	5	Plagioclase.	Green smectite aggregates.
Zeolite.	3	Veins, plagioclase.	Wairakite.
Chlorite.	10	Plagioclase, mesostasis.	Green to brown.
Epidote.	2	Veins, plagioclase.	Small, pale, prismatic crystals.
Actinolite.	1	Mesostasis, clinopyroxene.	Acicular.
Prehnite.	5	Vein, plagioclase.	
Sulfide.	10		

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE (mm)	FILLING	SHAPE
Vesicles.	5		0.1–0.2	Wairakite, prehnite, epidote.	

COMMENTS: Chlorite forms anastomosing network through plagioclase. There are many colorless needles in aggregates of secondary minerals, possibly apatite.

139-857D-29R-01 (Piece 22, 145–148 cm) OBSERVER: STA WHERE SAMPLED:

ROCK NAME: Diabase.

GRAIN SIZE: Medium-grained.

TEXTURE: Ophitic.

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
PHENOCRYSTS						
Plagioclase.	1	1	0.4–3.0		Columnar.	Trace of prehnite replacement.
GROUNDMASS						
Plagioclase.	40	46	0.1–1.0		Tabular.	
Clinopyroxene.	37	45	0.01–0.4		Anhedral.	
Oxides.	3	3	0.05–0.4		Laths.	Also euhedral ilmenite and magnetite.
Mesostasis.	0	3	N/A.		N/A.	Replaced by chlorite.

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMMENTS
Chlorite.	10	Mesostasis, clinopyroxene.	Very green.
Epidote.	3	Plagioclase.	With chlorite, greenish yellow grains.
Actinolite.	tr.	Clinopyroxene.	With chlorite as pseudomorphs.
Prehnite.	1	Plagioclase.	
Sulfide.	5		One large porphyroblast and some smaller aggregates (pyrite).

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE (mm)	FILLING	SHAPE
	None.				

139-857D-32R-01 (Piece 13, 60–65 cm) OBSERVER: STA WHERE SAMPLED:

ROCK NAME: Diabase.

GRAIN SIZE: Fine-grained.

TEXTURE: Spherulitic.

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
Plagioclase.	30	30	0.1–1.0		Lathlike to skeletal.	
Clinopyroxene.	27	29	0.5–1.0		Anhedral.	Intergrown with plagioclase in spherulitic bundles.
Oxide.	1	1	0.02–0.05		Skeletal.	
Mesostasis.	20	40	N/A.		N/A.	Partially replaced by chlorite; cryptocrystalline.

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMMENTS
Chlorite.	15		
Epidote.	5	Plagioclase.	
Sulfide.	2		Blebs of pyrite.

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE (mm)	FILLING	SHAPE
	None.				

COMMENTS: This rock is on the border between a highly phyric basalt and a diabase. Crystals show spherulitic or quench textures but almost half is cryptocrystalline mesostasis.

139-857D-33R-01 (Piece 12, 75–79 cm) OBSERVER: STA WHERE SAMPLED:

ROCK NAME: Metadiabase.

GRAIN SIZE: Coarse-grained.

TEXTURE: Ophitic to poikilitic.

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
Plagioclase.	27	40	0.2–1.0	An_{65}	Tabular.	
Clinopyroxene.	27	43	0.5–0.8		Anhedral.	Some oikocrysts.
Oxide.	2	2	0.01–0.3		Skeletal.	
Mesostasis.	5	15	N/A.		N/A.	

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMMENTS
Albite.	1		Possibly replacing plagioclase.
Chlorite.	25	Mesostasis, clinopyroxene.	
Epidote.	10	Plagioclase, pyroxene.	
Prehnite.	3	Plagioclase.	

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE (mm)	FILLING	SHAPE
Vesicles.	3		0.03–0.8	Pyrite. Chlorite.	

COMMENTS: Epidote aureole around pyrite vein.

139-857D-35R-01 (Piece 10, 73–75 cm) OBSERVER: STA WHERE SAMPLED:

ROCK NAME: Diabase.

GRAIN SIZE: Medium-grained.

TEXTURE: Interstitial.

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
Plagioclase.	29	30	0.2–1.0		Tabular to skeletal.	
Clinopyroxene.	29	35	0.2–1.0		Granular to anhedral.	Oikicrysts.
Oxide.	4	5	0.05–0.5		Laths and granular.	Ilmenite and magnetite.
Mesostasis.	6	30	N/A.		N/A.	

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMMENTS
Chlorite.	20	Mesostasis.	Very green.
Epidote.	1	mesostasis.	Small grains.
Actinolite.	5	Mesostasis, clinopyroxene.	Acicular, spherulitic.
Sphene.	1	Ilmenite.	
Pyrite.	5	Mesostasis	Porphyroblasts, 0.4 mm wide.

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE (mm)	FILLING	SHAPE	COMMENTS
Vesicles.	1		0.1–0.2	Chlorite, prehenite.	Spherical.	Zoned with chlorite in center and prehnite around edge.

COMMENTS: Variable textures, crystalline areas have poikilitic texture, mesostasis has skeletal grains.

139-857D-36R-01 (Piece 21, 140–142 cm) OBSERVER: STA WHERE SAMPLED:

ROCK NAME: Diabase.

GRAIN SIZE: Fine-grained.

TEXTURE: Intergranular.

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
Plagioclase.	34	36	0.2–1.5	An_{57-67}	Tabular.	Sodic rims.
Clinopyroxene.	33	35	0.1–3.0		Granular.	
Oxide.	4	4	0.05–0.6		Laths.	Ilmenite and granular magnetite.
Mesostasis.	15	25	N/A.		N/A.	

SECONDARY MINERALOGY	PERCENT	REPLACING/ FILLING	COMMENTS
Chlorite.	5	Mesostasis, plagioclase.	Mixed with actinolite.
Actinolite.	5	Mesostasis, clinopyroxene.	Dark green, acicular.
Albite.	tr.	Plagioclase.	Small grains in mesostasis with chlorite.
Pyrite.	4	Ovoid aggregates.	

VESICLES/ CAVITIES	PERCENT	LOCATION	SIZE (mm)	FILLING	SHAPE
	None.				