

THIN SECTION LABEL ID: **367-U1499B-3R-3-W 107/110-TSB-TS\_01** Thin section no.: 1  
 Observer: Jess Unit/subunit: VII  
 Thin section summary: Siltstone with well-preserved foraminifera tests and sub-rounded quartz, feldspar, mica, and clay mineral grains. The interstitial matrix is predominately composed of clay minerals and fine clay-sized carbonate grains.

Plane-polarized: 40428221



Cross-polarized: 40428241



### Sediments and Sedimentary Rock

Sample domain name: sediment matrix

Domain rel. abundance:

Lithology: siltstone with foraminifers

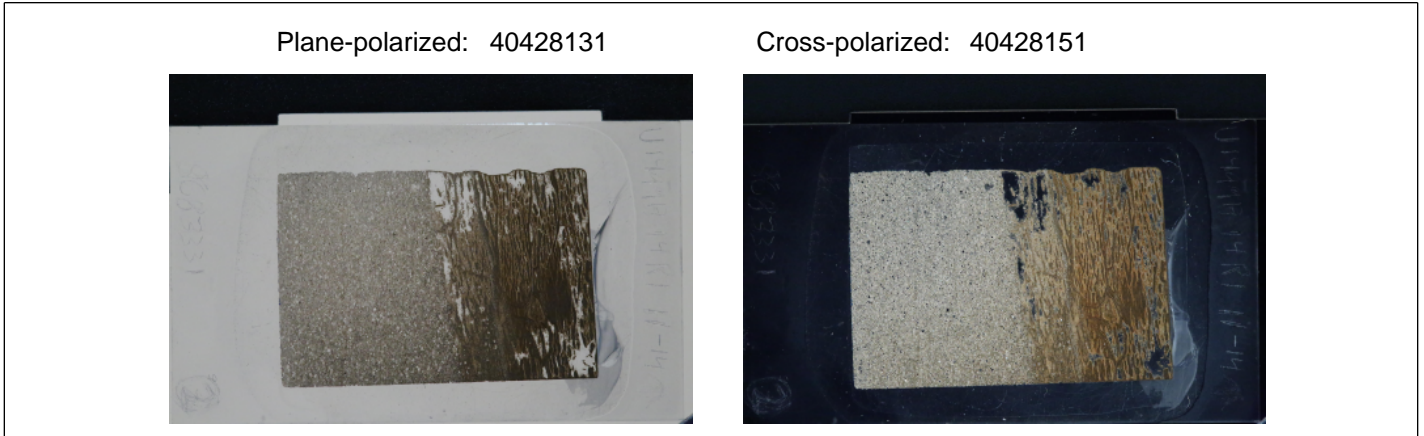
TEXTURE	Percent	CONSTITUENT	Percent	GRAIN ROUNDNESS	
Gravel texture		Siliciclastics	80	Mineral grains	sub-rounded
Sand texture	0	Detrital carbonate			
Silt texture	80	Biogenic carbonate	20		
Clay texture	20	Biogenic silica			

### Framework grain abundance

D=dominant; A=abundant; C=common; R=rare; Tr=trace

Component	Rel. abundance	Component	Rel. abundance
Quartz	A	Calcite (allogenic)	
Feldspar	A	Mica	
Clay minerals	C	Glauconite	
Lithic grains		Foraminifera	C
Chert		Undifferentiated calcareous bioclasts	

THIN SECTION LABEL ID: **367-U1499B-14R-1-W 11/14-TSB-TS\_02** Thin section no.: 2  
 Observer: Jess Unit/subunit: VIIIA  
 Thin section summary: Thin Section 02 was cut across the contact between two different lithologies. Foraminiferal siltstone makes up the bottom part of the thin section and silty clay with bioclasts make up the upper part. The foraminifera tests are well preserved in the bottom part and surrounding grains such as quartz and clay minerals are common and sub-rounded. Rare mica, glauconite (filling foraminifera tests), and feldspar grains are also observed in the bottom section. The top section lithology includes unidentifiable fine-grained minerals.



**Sediments and Sedimentary Rock**

Sample domain name: sediment matrix                      Domain rel. abundance: 70  
 Lithology: foraminiferal siltstone

TEXTURE	Percent	CONSTITUENT	Percent	GRAIN ROUNDNESS	
Gravel texture		Siliciclastics	20	Mineral grains	sub-rounded
Sand texture	10	Detrital carbonate			
Silt texture	65	Biogenic carbonate	80		
Clay texture	25	Biogenic silica			

**Sediments and Sedimentary Rock**

Sample domain name: sediment clasts                      Domain rel. abundance: 100  
 Lithology: siltstone with bioclasts

TEXTURE	Percent	CONSTITUENT	Percent	GRAIN ROUNDNESS	
Gravel texture		Siliciclastics	70	Mineral grains	
Sand texture	5	Detrital carbonate			
Silt texture	50	Biogenic carbonate	30		
Clay texture	40	Biogenic silica			

**Framework grain abundance**

D=dominant; A=abundant; C=common; R=rare; Tr=trace

Component	Rel. abundance	Component	Rel. abundance
Quartz	C	Calcite (allogenic)	
Feldspar	R	Mica	R
Clay minerals	C	Glauconite	
Lithic grains		Foraminifera	D
Chert		Undifferentiated calcareous bioclasts	

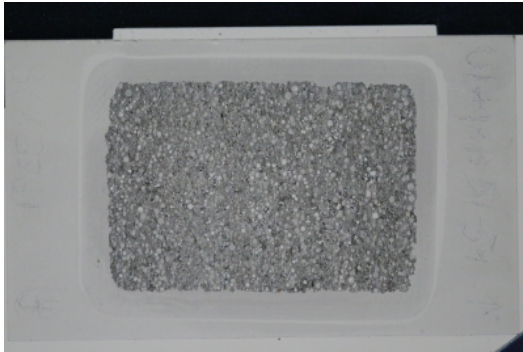
**Framework grain abundance**

D=dominant; A=abundant; C=common; R=rare; Tr=trace

Component	Rel. abundance	Component	Rel. abundance
Quartz		Calcite (allogenic)	
Feldspar		Mica	
Clay minerals	A	Glauconite	
Lithic grains	D	Foraminifera	D
Chert		Undifferentiated calcareous bioclasts	D

THIN SECTION LABEL ID: **367-U1499B-14R-5-W 51/54-TSB-TS\_03** Thin section no.: 3  
 Observer: ZLiu Unit/subunit: VIII A  
 Thin section summary: Fine- to medium-grained, moderately sorted foraminifer sandstone with well-preserved foraminifera tests, rare lithic and clay mineral grains, and common quartz grains.

Plane-polarized: 40428091



Cross-polarized: 40428111



### Sediments and Sedimentary Rock

Sample domain name: sediment clasts

Domain rel. abundance: 100

Lithology: calcareous rich sandstone

TEXTURE	Percent	CONSTITUENT	Percent	GRAIN ROUNDNESS	
Gravel texture		Siliciclastics	5	Mineral grains	
Sand texture	60	Detrital carbonate			
Silt texture	20	Biogenic carbonate	95		
Clay texture	20	Biogenic silica			

### Framework grain abundance

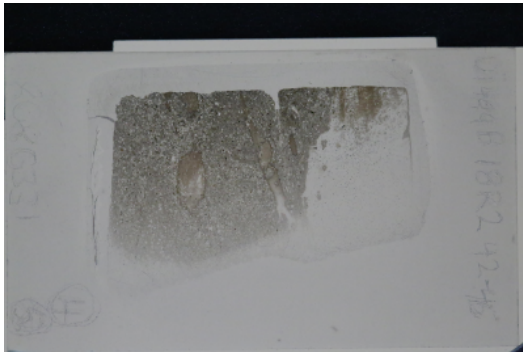
D=dominant; A=abundant; C=common; R=rare; Tr=trace

Component	Rel. abundance	Component	Rel. abundance
Quartz		Calcite (allogenic)	
Feldspar		Mica	
Clay minerals	R	Glauconite	
Lithic grains	R	Foraminifera	A
Chert		Undifferentiated calcareous bioclasts	A

THIN SECTION LABEL ID: **367-U1499B-18R-2-W 42/44-TSB-TS\_04** Thin section no.: 4  
 Observer: BJohnson Unit/subunit: VIII A  
 Thin section summary: Foraminifera-rich silty sandstone with angular grains of quartz, feldspar, clay minerals, mica, and lithic fragments (mostly chert and sedimentary grains). Grain size ranges from coarse silt to medium sand and is poorly sorted.

Plane-polarized: 40428051

Cross-polarized: 40428071



### Sediments and Sedimentary Rock

Sample domain name: sediment clasts

Domain rel. abundance: 70

Lithology: foraminifer rich silty sandstone

TEXTURE	Percent	CONSTITUENT	Percent	GRAIN ROUNDNESS	
Gravel texture	0	Siliciclastics	75	Mineral grains	angular
Sand texture	40	Detrital carbonate			
Silt texture	30	Biogenic carbonate	25		
Clay texture	30	Biogenic silica			

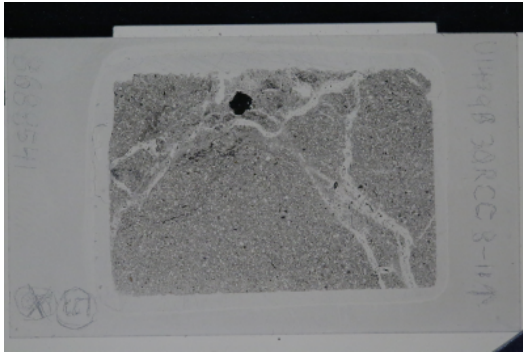
### Framework grain abundance

D=dominant; A=abundant; C=common; R=rare; Tr=trace

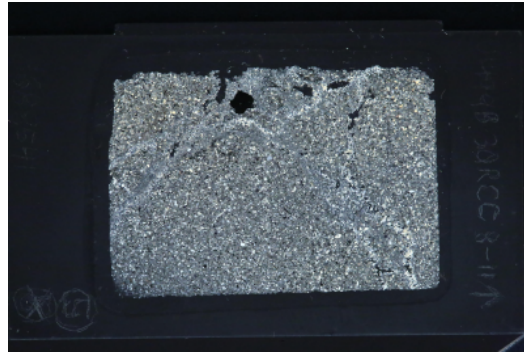
Component	Rel. abundance	Component	Rel. abundance
Quartz	A	Calcite (allogenic)	C
Feldspar	A	Mica	C
Clay minerals	A	Glauconite	R
Lithic grains	C	Foraminifera	A
Chert	Tr	Undifferentiated calcareous bioclasts	

THIN SECTION LABEL ID: **367-U1499B-30R-CC-W 8/11-TSB-TS\_05** Thin section no.: 5  
 Observer: BJohnson Unit/subunit: IXC  
 Thin section summary: Fine-grained silty sandstone with sub-rounded quartz, feldspar, chert lithic fragments, and mica grains. The framework grains (80%) are supported in a clay matrix (20%). The thin section also includes sub-millimeter thick quartz veins crosscutting the slide and one 2 mm thick pyrite nodule.

Plane-polarized: 40428011



Cross-polarized: 40428031



### Sediments and Sedimentary Rock

Sample domain name: sediment clasts

Domain rel. abundance: 80

Lithology: silty sandstone

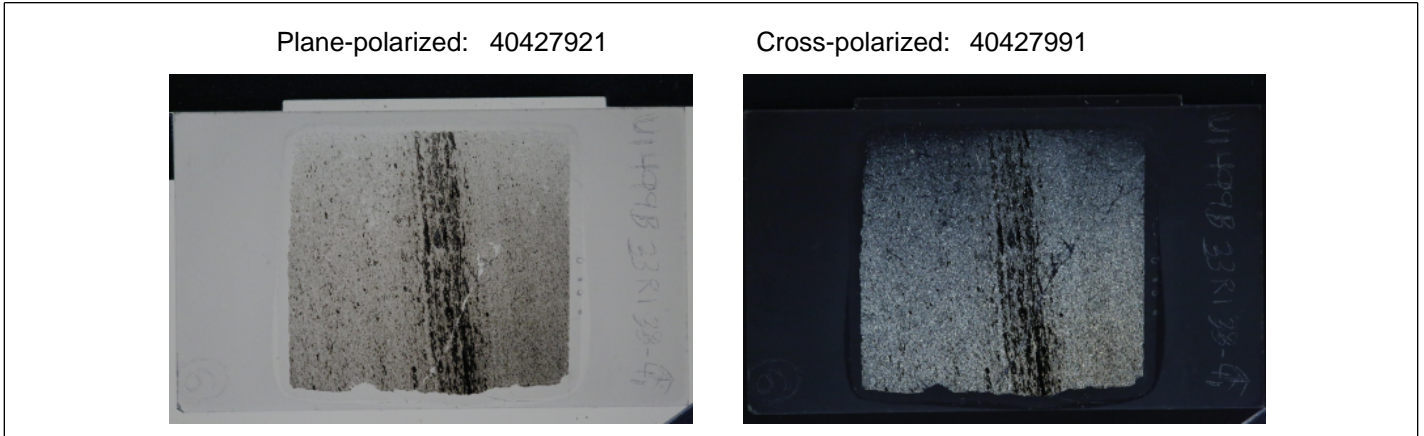
TEXTURE	Percent	CONSTITUENT	Percent	GRAIN ROUNDNESS	
Gravel texture	0	Siliciclastics	100	Mineral grains	sub-rounded
Sand texture	75	Detrital carbonate			
Silt texture	20	Biogenic carbonate			
Clay texture	5	Biogenic silica			

### Framework grain abundance

D=dominant; A=abundant; C=common; R=rare; Tr=trace

Component	Rel. abundance	Component	Rel. abundance
Quartz	A	Calcite (allogenic)	
Feldspar	A	Mica	C
Clay minerals	TR	Glaucconite	
Lithic grains	R	Foraminifera	
Chert	R	Undifferentiated calcareous bioclasts	

THIN SECTION LABEL ID: **367-U1499B-33R-1-W 38/41-TSB-TS\_06** Thin section no.: 6  
 Observer: BJohnson Unit/subunit: IXC  
 Thin section summary: Fine-grained sandy claystone with subangular quartz, chert lithic fragments, mica, and clay minerals. Fine lamina of organic material are observed throughout the thin section with a more concentrated interlamination in the center of the thin section. The framework grains (40%) are supported in an altered clay matrix (60%).



### Sediments and Sedimentary Rock

Sample domain name: sediment clasts                      Domain rel. abundance: 40  
 Lithology: sandy claystone

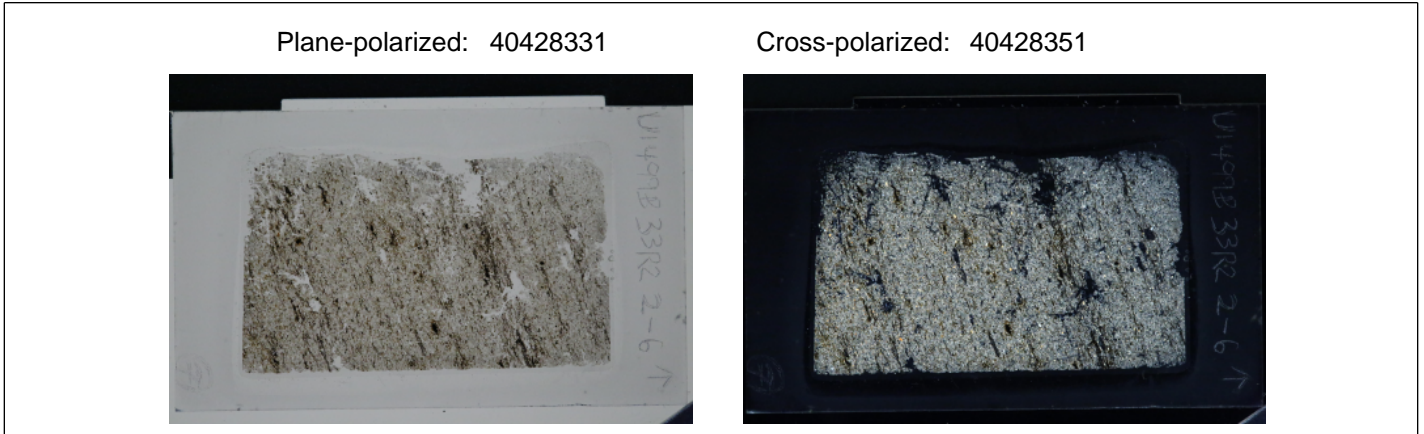
TEXTURE	Percent	CONSTITUENT	Percent	GRAIN ROUNDNESS	
Gravel texture	0	Siliciclastics	100	Mineral grains	subangular
Sand texture	25	Detrital carbonate			
Silt texture	15	Biogenic carbonate			
Clay texture	60	Biogenic silica			

### Framework grain abundance

D=dominant; A=abundant; C=common; R=rare; Tr=trace

Component	Rel. abundance	Component	Rel. abundance
Quartz	A	Calcite (allogenic)	
Feldspar	R	Mica	A
Clay minerals	A	Glaucinite	
Lithic grains	C	Foraminifera	
Chert	C	Undifferentiated calcareous bioclasts	

THIN SECTION LABEL ID: **367-U1499B-33R-2-W 2/6-TSB-TS\_07** Thin section no.: 7  
 Observer: BJohnson Unit/subunit: IXC  
 Thin section summary: Fine-grained silty sandstone with subangular quartz, chert lithic fragments, and mica minerals. Fine lamina and blebs of organic material are observed pervasively throughout the thin section. The framework grains (60%) are supported in an altered clay matrix (40%).



### Sediments and Sedimentary Rock

Sample domain name: sediment clasts Domain rel. abundance: 60  
 Lithology: silty sandstone

TEXTURE	Percent	CONSTITUENT	Percent	GRAIN ROUNDNESS	
Gravel texture	0	Siliciclastics	100	Mineral grains	subangular
Sand texture	60	Detrital carbonate			
Silt texture	20	Biogenic carbonate			
Clay texture	20	Biogenic silica			

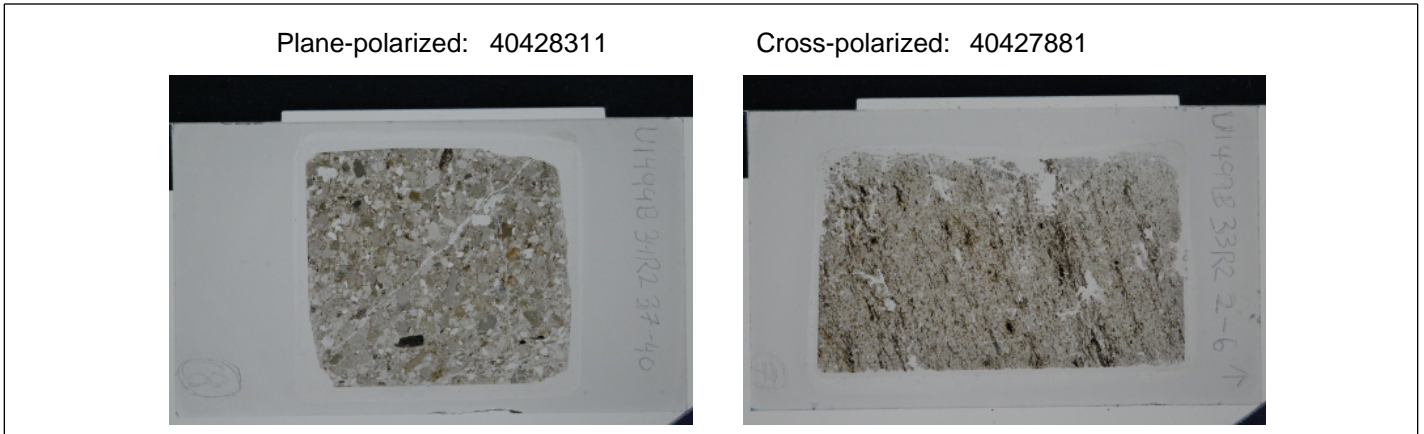
### Framework grain abundance

D=dominant; A=abundant; C=common; R=rare; Tr=trace

Component	Rel. abundance	Component	Rel. abundance
Quartz	A	Calcite (allogenic)	
Feldspar	R	Mica	C
Clay minerals		Glaucinite	
Lithic grains	A	Foraminifera	
Chert	A	Undifferentiated calcareous bioclasts	



THIN SECTION LABEL ID: **367-U1499B-34R-2-W 37/40-TSB-TS\_08** Thin section no.: 8  
 Observer: BJohnson Unit/subunit: IXC  
 Thin section summary: Coarse-grained gravelly sandstone with a variety of subangular mineral grains, such as quartz, feldspar, and muscovite. Lithic and polymineralic grains are also abundant, and include sedimentary, metamorphic, and igneous varieties.



### Sediments and Sedimentary Rock

**Sample domain name:** sediment clasts                      **Domain rel. abundance:** 75  
**Lithology:** gravelly sandstone

TEXTURE	Percent	CONSTITUENT	Percent	GRAIN ROUNDNESS	
Gravel texture	30	Siliciclastics	100	Mineral grains	subangular
Sand texture	65	Detrital carbonate			
Silt texture	5	Biogenic carbonate			
Clay texture		Biogenic silica			

### Framework grain abundance

D=dominant; A=abundant; C=common; R=rare; Tr=trace

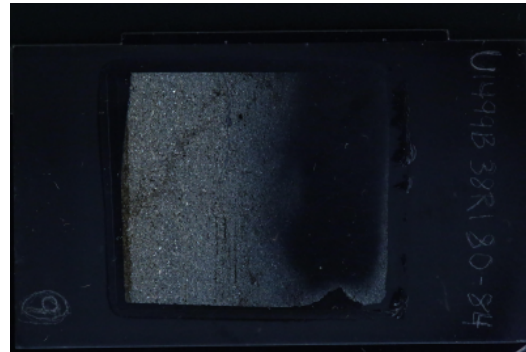
Component	Rel. abundance	Component	Rel. abundance
Quartz	A	Calcite (allogenic)	
Feldspar	C	Mica	R
Clay minerals		Glauconite	
Lithic grains	A	Foraminifera	
Chert	C	Undifferentiated calcareous bioclasts	

THIN SECTION LABEL ID: **367-U1499B-38R-1-W 80/84-TSB-TS\_09** Thin section no.: 9  
 Observer: BJohnson Unit/subunit: IXC  
 Thin section summary: Fine-grained sandy siltstone with subrounded quartz, chert lithic fragments, and mica minerals. Fine lamina and blebs of organic material are observed in some portions of the thin section. Matrix is altered clay and fine quartz (30%).

Plane-polarized: 40427821



Cross-polarized: 40427841



### Sediments and Sedimentary Rock

Sample domain name: sediment clasts

Domain rel. abundance: 30

Lithology: sandy siltstone

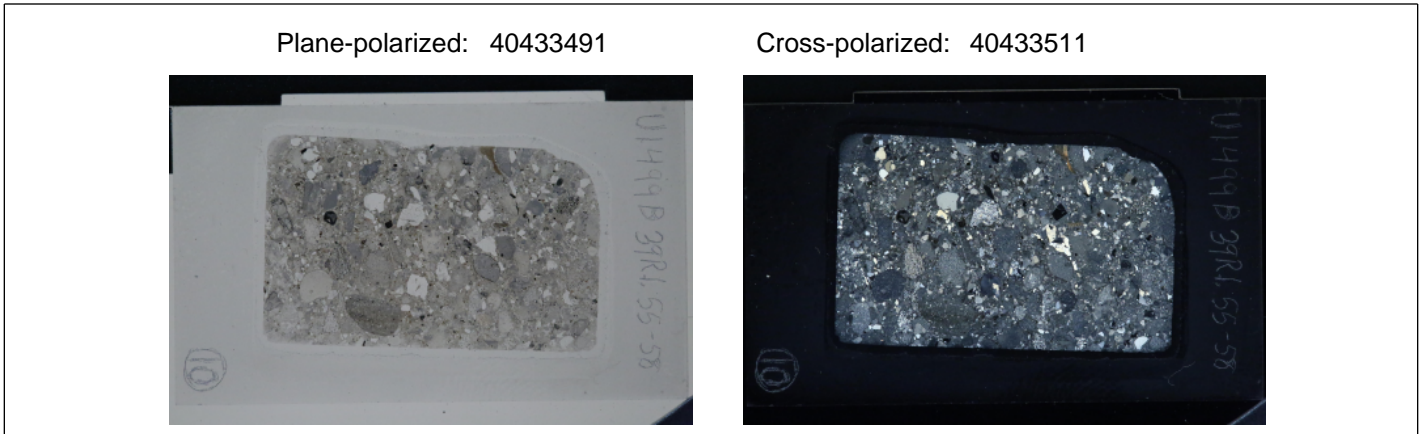
TEXTURE	Percent	CONSTITUENT	Percent	GRAIN ROUNDNESS	
Gravel texture	0	Siliciclastics	100	Mineral grains	Sub-rounded
Sand texture	30	Detrital carbonate			
Silt texture	45	Biogenic carbonate			
Clay texture	25	Biogenic silica			

### Framework grain abundance

D=dominant; A=abundant; C=common; R=rare; Tr=trace

Component	Rel. abundance	Component	Rel. abundance
Quartz	A	Calcite (allogenic)	
Feldspar	R	Mica	A
Clay minerals		Glauconite	
Lithic grains	C	Foraminifera	
Chert	C	Undifferentiated calcareous bioclasts	

THIN SECTION LABEL ID: **367-U1499B-39R-1-W 55/58-TSB-TS\_10** Thin section no.: 10  
 Observer: BJohnson Unit/subunit: IXC  
 Thin section summary: Very coarse-grained, poorly sorted gravelly sandstone with abundant sub-rounded quartz grains and lithic fragments (such as chert, metamorphic, and igneous varieties). Mica and feldspar grains are also common.



### Sediments and Sedimentary Rock

**Sample domain name:** sediment clasts **Domain rel. abundance:** 90  
**Lithology:** gravelly sandstone

TEXTURE	Percent	CONSTITUENT	Percent	GRAIN ROUNDNESS	
Gravel texture	40	Siliciclastics	100	Mineral grains	sub-rounded
Sand texture	50	Detrital carbonate			
Silt texture	10	Biogenic carbonate			
Clay texture		Biogenic silica			

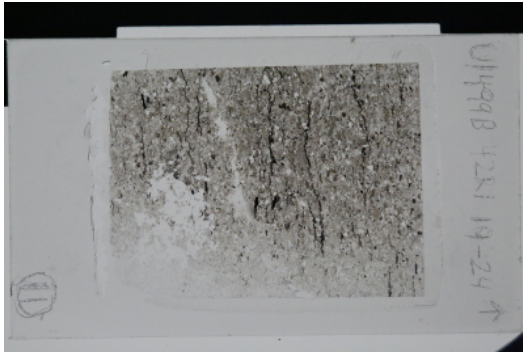
### Framework grain abundance

D=dominant; A=abundant; C=common; R=rare; Tr=trace

Component	Rel. abundance	Component	Rel. abundance
Quartz	A	Calcite (allogenic)	
Feldspar	C	Mica	C
Clay minerals	TR	Glauconite	
Lithic grains	A	Foraminifera	
Chert	A	Undifferentiated calcareous bioclasts	

THIN SECTION LABEL ID: **367-U1499B-42R-1-W 19/24-TSB-TS\_11** Thin section no.: 11  
 Observer: Jess Unit/subunit: IXC  
 Thin section summary: Coarse-grained, moderately sorted silty sandstone with subrounded quartz, clay minerals, feldspar, opaques, and pyrite minerals. Rare lithic fragments are also observed. Fine lamina and blebs of organic material are observed in some portions of the thin section.

Plane-polarized: 40437571



Cross-polarized: 40437591



### Sediments and Sedimentary Rock

Sample domain name: sediment clasts

Domain rel. abundance:

Lithology: silty sandstone

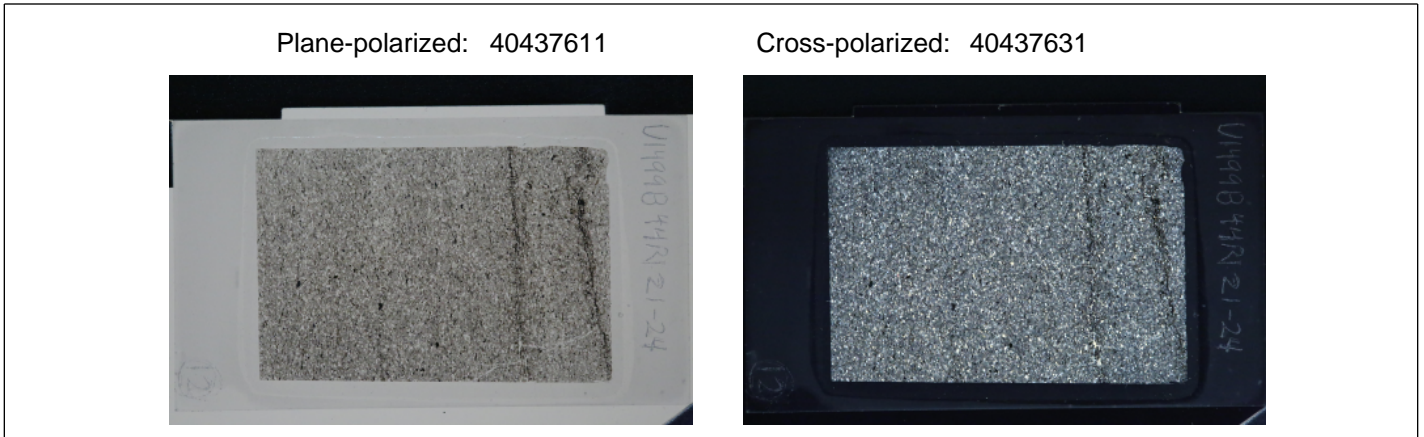
TEXTURE	Percent	CONSTITUENT	Percent	GRAIN ROUNDNESS	
Gravel texture	0	Siliciclastics	100	Mineral grains	sub-rounded
Sand texture	75	Detrital carbonate			
Silt texture	15	Biogenic carbonate			
Clay texture	10	Biogenic silica			

### Framework grain abundance

D=dominant; A=abundant; C=common; R=rare; Tr=trace

Component	Rel. abundance	Component	Rel. abundance
Quartz	C	Calcite (allogenic)	
Feldspar	C	Mica	
Clay minerals	C	Glauconite	
Lithic grains	R	Foraminifera	
Chert		Undifferentiated calcareous bioclasts	

THIN SECTION LABEL ID: **367-U1499B-44R-1-W 21/24-TSB-TS\_12** Thin section no.: 12  
 Observer: Jess Unit/subunit: IXC  
 Thin section summary: Medium-grained, moderately sorted clayey sandstone with abundant sub-rounded quartz and feldspar grains. Clay minerals, mica, and opaque minerals. Fine lamina and blebs of organic material are common in portions of the thin section.



**Sediments and Sedimentary Rock**

Sample domain name: sediment clasts                      Domain rel. abundance:  
 Lithology: clayey sandstone

TEXTURE	Percent	CONSTITUENT	Percent	GRAIN ROUNDNESS	
Gravel texture		Siliciclastics	100	Mineral grains	sub-rounded
Sand texture	50	Detrital carbonate			
Silt texture	10	Biogenic carbonate			
Clay texture	40	Biogenic silica			

**Framework grain abundance**

D=dominant; A=abundant; C=common; R=rare; Tr=trace

Component	Rel. abundance	Component	Rel. abundance
Quartz	A	Calcite (allogenic)	
Feldspar	A	Mica	C
Clay minerals	C	Glauconite	
Lithic grains		Foraminifera	
Chert		Undifferentiated calcareous bioclasts	