

Determination of Permeability in a Triaxial Cell (BS1377 : Part 6 : 1990, clause 6 - Constant Head test)

Project No	N9431-20	Sample Details:	Hole No.	H.D			
Project Name	KELTBRAY PERMS		Depth (m BGL)				
			Sample No	1	Type	B	
			ID				
			Spec Ref	1			

Specimen Details

Soil Description Stiff brown slightly sandy slightly gravelly CLAY.

Specimen Type /Preparation RECOMPACTED using 2.5KG effort to a workable moisture

Length 104.2 mm

Diameter 102.7 mm

Particle density 2.65 Mg/m³ Assumed

Bulk Density Initial 1.82 Final 1.81 Mg/m³

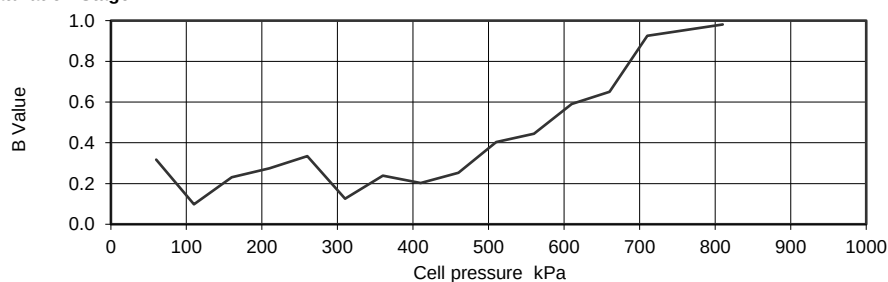
Water Content 20.3 35.6 %

Dry density 1.51 1.33 Mg/m³

Voids ratio 0.75 0.99

Degree of saturation 71 96 %

Saturation Stage



Method:

Increments of cell and back pressure

Cell pressure increments 50 kPa

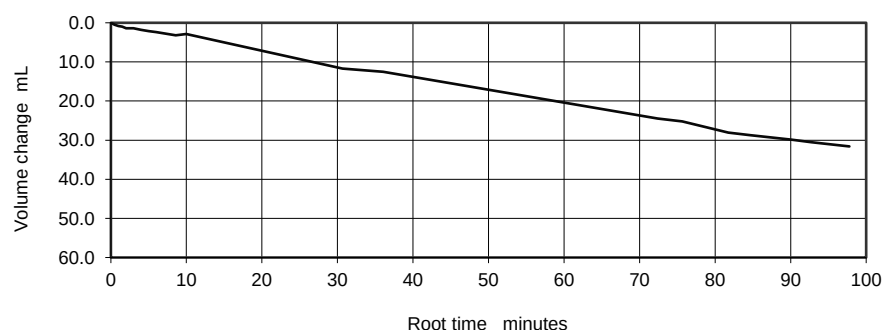
Differential Pressure 10 kPa

Final Cell Pressure 810 kPa

Final pore water pressure 784 kPa

Final B Value 0.98

Consolidation Stage



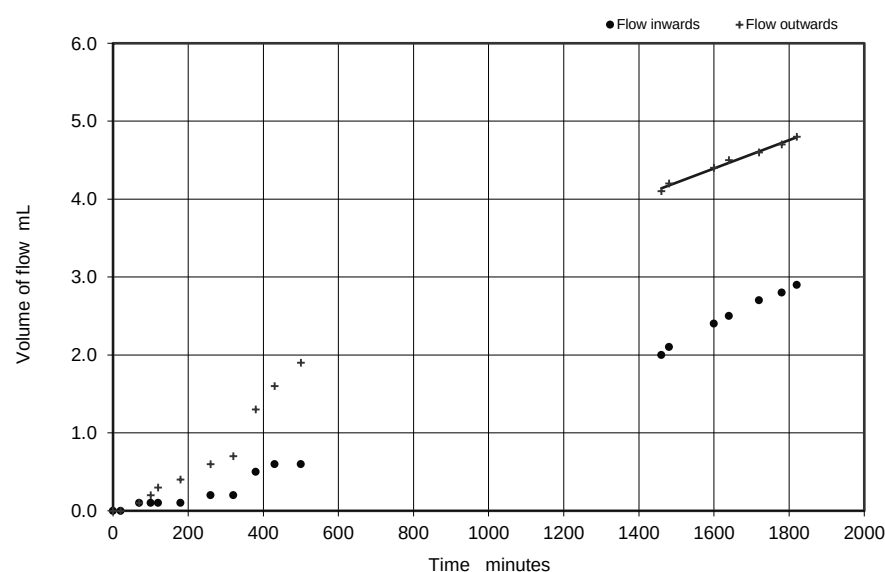
Drainage Condition to one end only

Cell pressure applied 850 kPa

Back pressure applied 800 kPa

Effective stress 50 kPa

Permeability Stage



Cell Pressure 860 kPa

Top Pressure 800 kPa

Base Pressure 820 kPa

Mean Effective Stress 50 kPa

Differential Pressure 20 kPa

Hydraulic gradient 20

Mean rate of flow 0.00182 ml/min

Temperature during test 21.2 °C

PERMEABILITY, k_v

(at 20°C) 1.8×10^{-10} m/s

Notes H.G 20kPa

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EFFECTIVE STRESS EXTRA OVERS

LOCATION NUMBER	N9431-20		
LOCATION	KELTBRAV PERMS		
BOREHOLE	H.D	SAMPLE	B1
DEPTH		TEST TYPE	PERMEABILITY

STAGE	DAYS
SATURATION STAGE	6
CONSOLIDATION STAGE 1	5
PERM FLOW	2
TOTAL TEST DAYS:	13
TOTAL EXTRA OVERS:	9

Determination of Permeability in a Triaxial Cell (BS1377 : Part 6 : 1990, clause 6 - Constant Head test)

Project No	N9431-20	Sample Details:	Hole No.	H.D			
Project Name	KELTBRAY PERMS		Depth (m BGL)				
			Sample No	2	Type	B	
			ID				
			Spec Ref	1			

Specimen Details

Soil Description Stiff brown slightly sandy slightly gravelly CLAY.

Specimen Type RECOMPACTED using 2.5Kg effort to a workable
/Preparation moisture

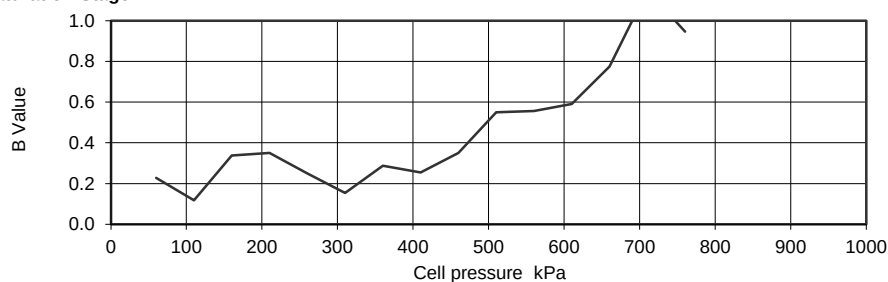
Length 100.6 mm

Diameter 102.0 mm

Particle density 2.65 Mg/m³ Assumed

	Initial	Final	
Bulk Density	1.83	1.36	Mg/m ³
Water Content	20.8	33.4	%
Dry density	1.52	1.02	Mg/m ³
Voids ratio	0.75	1.60	
Degree of saturation	74	55	%

Saturation Stage

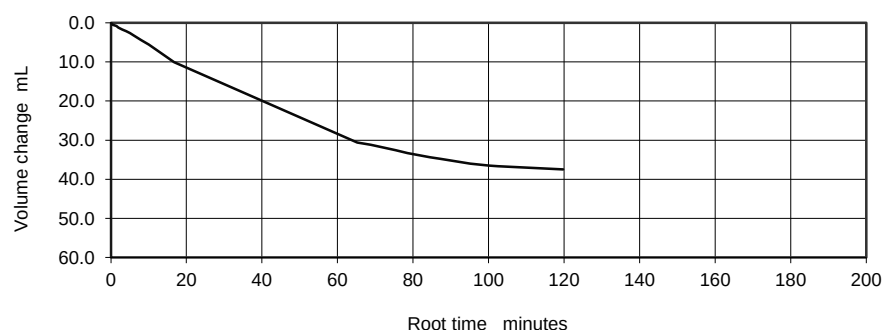


Method:

Increments of cell and back pressure

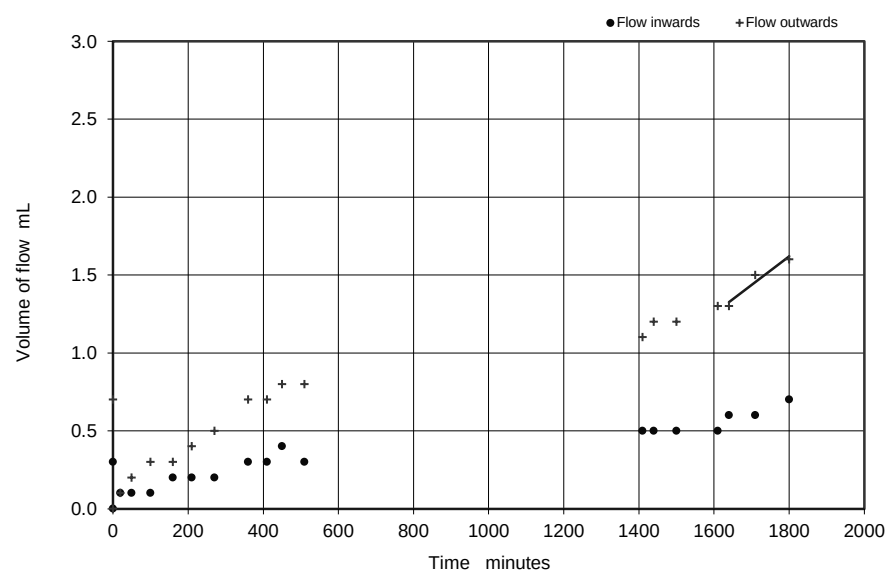
Cell pressure increments	50	kPa
Differential Pressure	10	kPa
Final Cell Pressure	760	kPa
Final pore water pressure	733	kPa
Final B Value	0.95	

Consolidation Stage



Drainage Condition	to one end only	
Cell pressure applied	800	kPa
Back pressure applied	700	kPa
Effective stress	100	kPa

Permeability Stage



Cell Pressure	810	kPa
Top Pressure	700	kPa
Base Pressure	720	kPa
Mean Effective Stress	100	kPa
Differential Pressure	20	kPa
Hydraulic gradient	20	

Mean rate of flow	0.00184	ml/min
Temperature during test	19.9	°C

PERMEABILITY, k_v

(at 20°C) 1.8×10^{-10} m/s

Notes H.G 20kPa

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EFFECTIVE STRESS EXTRA OVERS

LOCATION NUMBER	N9431-20		
LOCATION	KELTBRAV PERMS		
BOREHOLE	H.D	SAMPLE	B2
DEPTH		TEST TYPE	PERMEABILITY

STAGE	DAYS
SATURATION STAGE	5
CONSOLIDATION STAGE 1	6
PERM FLOW	2
TOTAL TEST DAYS:	13
TOTAL EXTRA OVERS:	9

Determination of Permeability in a Triaxial Cell (BS1377 : Part 6 : 1990, clause 6 - Constant Head test)

Project No	N9431-20	Sample Details:	Hole No.		H.D		
Project Name	KELTBRAY PERMS		Depth (m BGL)				
			Sample No	3	Type	B	
			ID				
			Spec Ref	1			

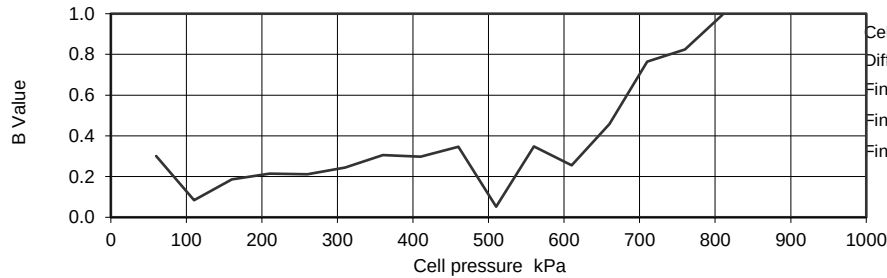
Specimen Details

Soil Description Stiff brown slightly sandy CLAY.

Specimen Type /Preparation	RECOMPACTED using 2.5KG effort at a workable moisture	Bulk Density	Initial	Final	
Length	106.8 mm	Water Content	1.86	1.88	Mg/m³
Diameter	102.4 mm	Dry density	19.5	33.6	%
Particle density	2.65 Mg/m³ Assumed	Voids ratio	1.55	1.41	Mg/m³
		Degree of saturation	0.71	0.88	%
			73	101	%

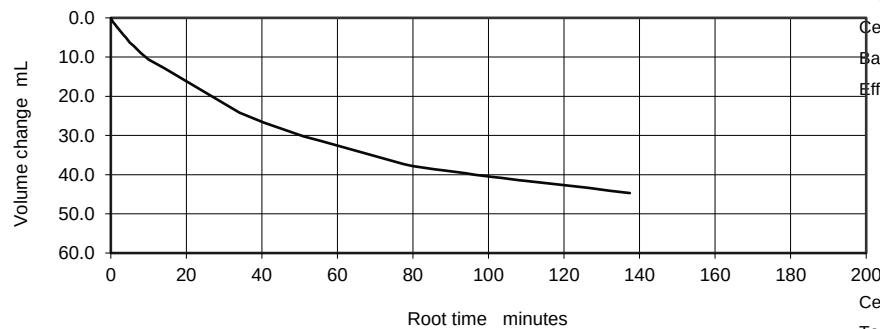
Saturation Stage

Method:



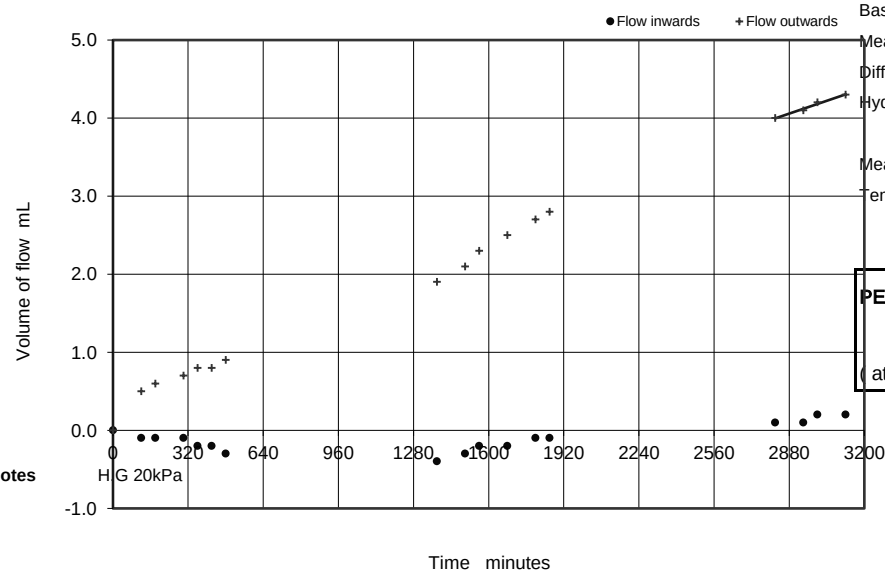
Consolidation Stage

Drainage Condition to one end only
Cell pressure applied 900 kPa
Back pressure applied 800 kPa
Effective stress 100 kPa



Permeability Stage

Cell Pressure 910 kPa
Top Pressure 800 kPa
Base Pressure 820 kPa
Mean Effective Stress 100 kPa
Differential Pressure 20 kPa
Hydraulic gradient 19
Mean rate of flow 0.00103 ml/min
Temperature during test 20.2 °C



Notes

HG 20kPa

PERMEABILITY, k_v

(at 20°C) 1.1×10^{-10} m/s

Ref

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EFFECTIVE STRESS EXTRA OVERS																									
LOCATION NUMBER	N9431-20																								
LOCATION	KELTBRAV PERMS																								
BOREHOLE	H.D	SAMPLE	B3																						
DEPTH		TEST TYPE	PERMEABILITY																						
<table><tr><th>STAGE</th><th>DAYS</th></tr><tr><td>SATURATION STAGE</td><td>6</td></tr><tr><td>CONSOLIDATION STAGE 1</td><td>10</td></tr><tr><td>PERM FLOW</td><td>2</td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td>TOTAL TEST DAYS:</td><td>18</td></tr><tr><td>TOTAL EXTRA OVERS:</td><td>14</td></tr></table>				STAGE	DAYS	SATURATION STAGE	6	CONSOLIDATION STAGE 1	10	PERM FLOW	2											TOTAL TEST DAYS:	18	TOTAL EXTRA OVERS:	14
STAGE	DAYS																								
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PERM FLOW	2																								
TOTAL TEST DAYS:	18																								
TOTAL EXTRA OVERS:	14																								

Determination of Permeability in a Triaxial Cell (BS1377 : Part 6 : 1990, clause 6 - Constant Head test)

Project No	N9431-20	Sample Details:	Hole No.		H.D		
Project Name	KELTBRAY PERMS		Depth (m BGL)				
			Sample No	4	Type	B	
			ID				
			Spec Ref	1			

Specimen Details

Soil Description Stiff brown slightly sandy slightly gravelly CLAY.

Specimen Type RECOMPACTED using 2.5KG effort at a workable moisture

Length 99.7 mm

Diameter 103.4 mm

Particle density 2.65 Mg/m³ Assumed

Bulk Density

Water Content

Dry density

Voids ratio

Degree of saturation

Initial

Final

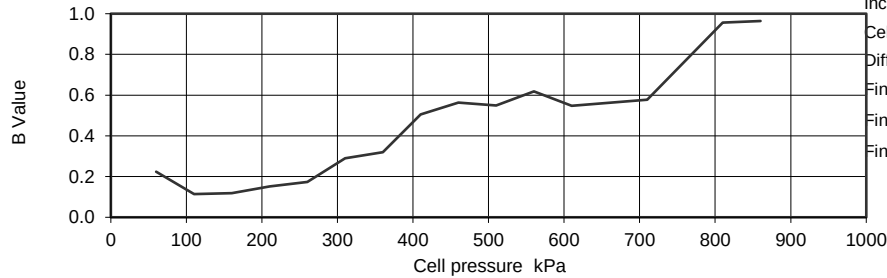
Mg/m³

%

Mg/m³

%

Saturation Stage



Method:

Increments of cell and back pressure

Cell pressure increments 50 kPa

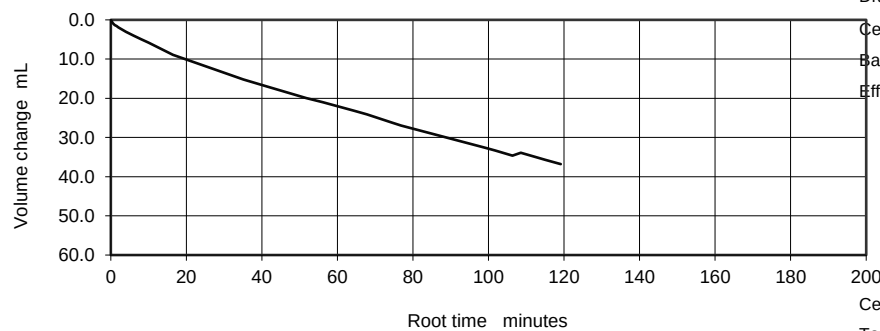
Differential Pressure 10 kPa

Final Cell Pressure 860 kPa

Final pore water pressure 824 kPa

Final B Value 0.96

Consolidation Stage



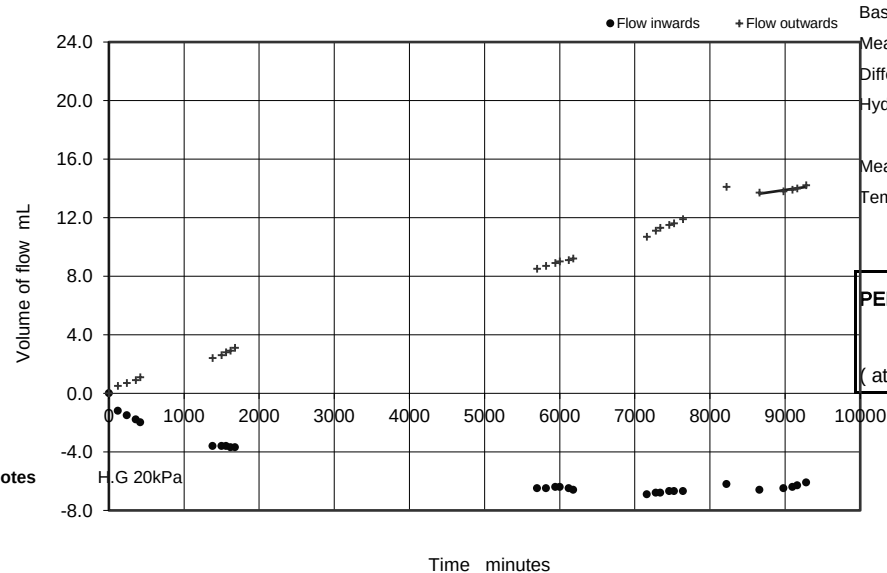
Drainage Condition to one end only

Cell pressure applied 900 kPa

Back pressure applied 800 kPa

Effective stress 100 kPa

Permeability Stage



Mean Effective Stress

Differential Pressure

Hydraulic gradient

Mean rate of flow 0.00074 ml/min

Temperature during test 20.1 °C

PERMEABILITY, k_v

(at 20°C) 7.2×10^{-11} m/s

Notes

H.G 20kPa

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EFFECTIVE STRESS EXTRA OVERS																									
LOCATION NUMBER	N9431																								
LOCATION	KELTBRAY																								
BOREHOLE	H.D	SAMPLE	B4																						
DEPTH		TEST TYPE	PERMEABILITY																						
<table><tr><th>STAGE</th><th>DAYS</th></tr><tr><td>SATURATION STAGE</td><td>7</td></tr><tr><td>CONSOLIDATION STAGE 1</td><td>8</td></tr><tr><td>PERM FLOW</td><td>4</td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td>TOTAL TEST DAYS:</td><td>19</td></tr><tr><td>TOTAL EXTRA OVERS:</td><td>15</td></tr></table>				STAGE	DAYS	SATURATION STAGE	7	CONSOLIDATION STAGE 1	8	PERM FLOW	4											TOTAL TEST DAYS:	19	TOTAL EXTRA OVERS:	15
STAGE	DAYS																								
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CONSOLIDATION STAGE 1	8																								
PERM FLOW	4																								
TOTAL TEST DAYS:	19																								
TOTAL EXTRA OVERS:	15																								

Determination of Permeability in a Triaxial Cell (BS1377 : Part 6 : 1990, clause 6 - Constant Head test)

Project No	N9431-20	Sample Details:	Hole No.	H.D			
Project Name	KELTBRAY PERMS		Depth (m BGL)				
			Sample No	5	Type	B	
			ID				
			Spec Ref	1			

Specimen Details

Soil Description Stuff brown slightly sandy slightly gravelly CLAY.

Specimen Type RECOMPACTED using 2.5KG effort at a workable
/Preparation moisture

Length 97.3 mm

Diameter 102.8 mm

Particle density 2.65 Mg/m³ Assumed

Bulk Density

Water Content

Dry density

Voids ratio

Degree of saturation

Initial Final

1.89 1.92 Mg/m³

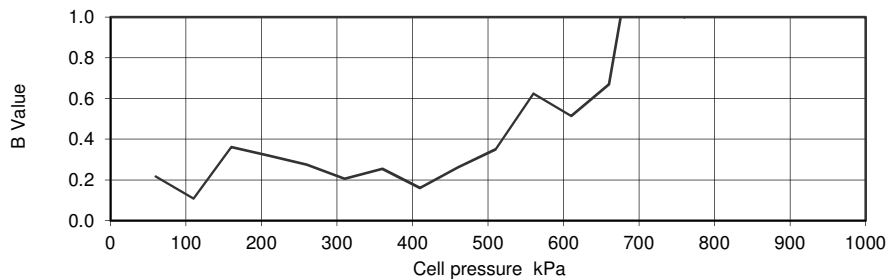
20.1 32.0 %

1.58 1.45 Mg/m³

0.68 0.82

78 103 %

Saturation Stage



Method:

Increments of cell and back pressure

Cell pressure increments 50 kPa

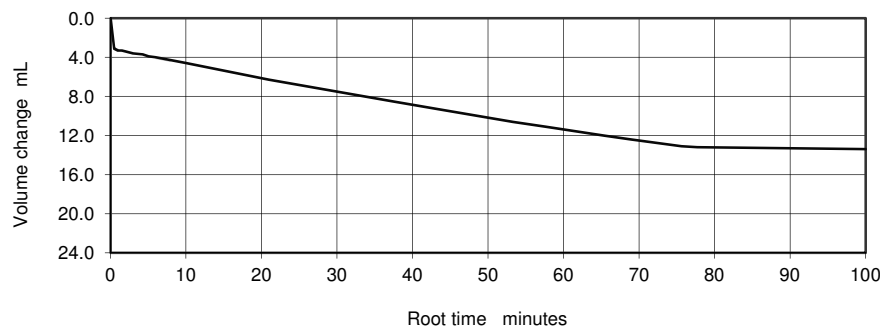
Differential Pressure 10 kPa

Final Cell Pressure 760 kPa

Final pore water pressure 692 kPa

Final B Value 1.00

Consolidation Stage



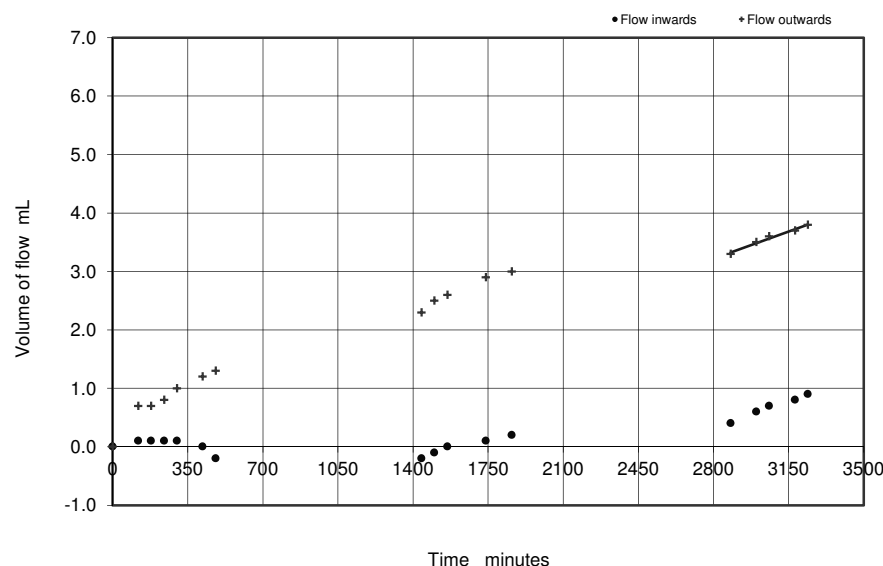
Drainage Condition to one end only

Cell pressure applied 800 kPa

Back pressure applied 700 kPa

Effective stress 100 kPa

Permeability Stage



Cell Pressure 810 kPa

Top Pressure 700 kPa

Base Pressure 720 kPa

Mean Effective Stress 100 kPa

Differential Pressure 20 kPa

Hydraulic gradient 21

Mean rate of flow 0.00133 ml/min

Temperature during test 20.4 °C

PERMEABILITY, k_v

(at 20°C) **1.3×10^{-10}** m/s

Notes H.G 20kPa

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Determination of Permeability in a Triaxial Cell (BS1377 : Part 6 : 1990, clause 6 - Constant Head test)

Project No	N9431-20	Sample Details:	Hole No.		H.D		
Project Name	KELTBRAY PERMS		Depth (m BGL)				
			Sample No	6	Type	B	
			ID				
			Spec Ref	1			

Specimen Details

Soil Description Stiff brown slightly sandy slightly gravelly CLAY.

Specimen Type RECOMPACTED using 2.5KG effort at a workable moisture

Length 106.1 mm

Diameter 102.7 mm

Particle density 2.65 Mg/m³ Assumed

Bulk Density

Water Content

Dry density

Voids ratio

Degree of saturation

Initial

Final

1.83

20.8

1.51

0.75

73

1.90

34.2

1.42

0.87

105

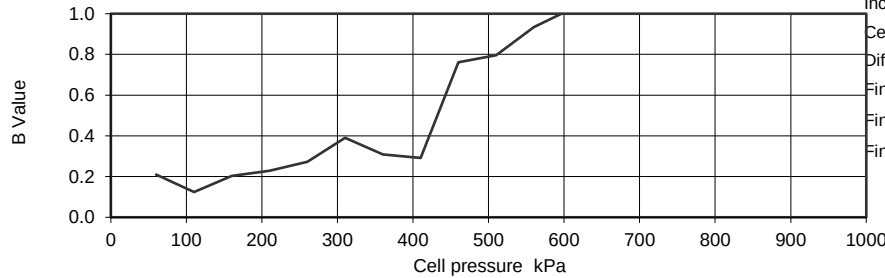
Mg/m³

%

Mg/m³

%

Saturation Stage



Method:

Increments of cell and back pressure

Cell pressure increments 50 kPa

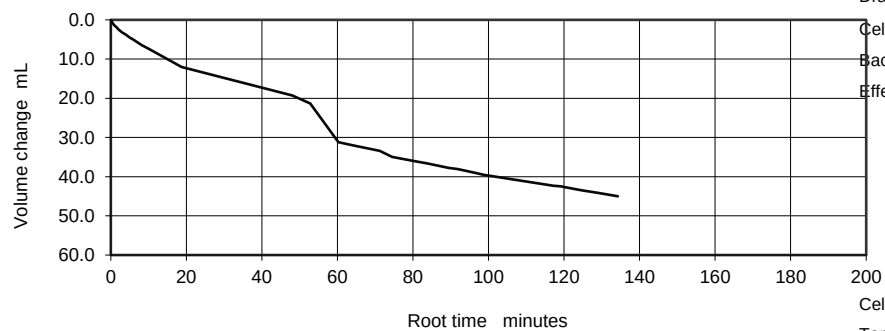
Differential Pressure 10 kPa

Final Cell Pressure 610 kPa

Final pore water pressure 576 kPa

Final B Value 1.00

Consolidation Stage



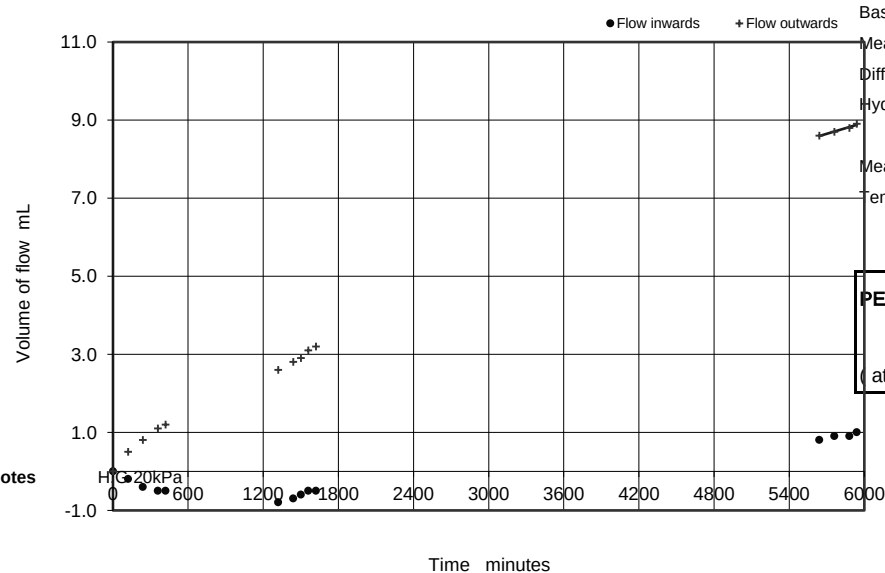
Drainage Condition to one end only

Cell pressure applied 650 kPa

Back pressure applied 550 kPa

Effective stress 100 kPa

Permeability Stage



Mean Effective Stress

Differential Pressure

Hydraulic gradient

Mean rate of flow

Temperature during test

100 kPa

20 kPa

19

0.00096 ml/min

20.1 °C

PERMEABILITY, k_v

(at 20°C)

10.0 x 10

-11

m/s

Notes

HTG 20kPa

-1.0

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EFFECTIVE STRESS EXTRA OVERS																									
LOCATION NUMBER	N9431-20																								
LOCATION	KELTBRAV PERMS																								
BOREHOLE	H.D	SAMPLE	B6																						
DEPTH		TEST TYPE	PERMEABILITY																						
<table><thead><tr><th>STAGE</th><th>DAYS</th></tr></thead><tbody><tr><td>SATURATION STAGE</td><td>5</td></tr><tr><td>CONSOLIDATION STAGE 1</td><td>10</td></tr><tr><td>PERM FLOW</td><td>2</td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td>TOTAL TEST DAYS:</td><td>17</td></tr><tr><td>TOTAL EXTRA OVERS:</td><td>13</td></tr></tbody></table>				STAGE	DAYS	SATURATION STAGE	5	CONSOLIDATION STAGE 1	10	PERM FLOW	2											TOTAL TEST DAYS:	17	TOTAL EXTRA OVERS:	13
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